ARC 353_Architecture Vertical Studio
Summer 2014 Course Handout

Faculty Contact:
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Class meets: MTWTh 8:00 - 1:00
Office hours: MTWTh 1:00-2:00 and Fridays by appointment
ARC 353_Architecture Vertical Studio

The courses included in this Vertical studio represent 6 from our catalog of required design studios. The objectives for each and the course descriptions are provided below.

▪ ARC 251_Design I: Concept 4 credits

COURSE DESCRIPTION:

Introduction to the basic principles and elements of design by means of practical and abstract applications. Development of two- and three-dimensional solutions and presentations for conceptual design problems. Emphasis is on three-dimensional thinking and communication.

PREREQUISITES: ARC 122 – Design Communication II.

COURSE OBJECTIVES:

The intent of this course is the introduction of basic design elements and principles through hands on experience. Upon completion of this course, the student will:

1. Be able to recognize and gain successful experience in the application of the principles and elements of design.

2. Become familiar with design principles and elements, and the terminology required, as related to the built environment.

3. Become familiar with and competent in the two- and three-dimensional presentation of abstract and practical design solutions to assigned problems.

4. Become competent in the organization of research and the discussion of design principles and elements.

5. Be able to complete and present assigned studio projects to the satisfaction of the instructor.

6. Understand the fundamentals of visual perception and the principles and systems of order that inform two- and three-dimensional design, architectural and interior design composition, and urban design.

7. Become aware of issues relating to the relationship between design and sustainability and the importance of the preservation of natural resources.

▪ ARC 252_Design II: Order 4 credits

COURSE DESCRIPTION:

A series of studio exercises to develop an understanding of the use of a model for structuring design information, fundamentals of programming, research, communication skills and the design process. This course is designed to satisfy the writing portion of the Communication-Across-the-Curriculum requirements.
PREREQUISITES:  
ARC 231 – Architectural History I  
ARC 251 - Design II: Concept  
ARC 271 – Computers in Architecture

COURSE OBJECTIVES:

1. Understand the use of a design model or framework for structuring design information into a coherent body of subject matter.
2. Understand the fundamentals of programming in design.
3. Develop research skills. Understand the use of precedent studies in the design process.
4. Develop the fundamentals of a design process from site analysis through design development.
5. Enhance verbal and written communication skills as used in the design profession.
6. Further develop graphic communication skill and presentation composition.

▪  **ARC 351_Design III: Context  5 credits**

COURSE DESCRIPTION:

Continuing study of architectural design. Projects of increased scope and complexity. Continue design process study (synthesis) and appropriate design presentation (communication). Working with impingement introduced by external agencies such as social, government, and community, as part of a larger context of planning. Study of the impact of site development, for on-site as well as external, contextual issues

PREREQUISITES:  
ARC 232 - Architectural History II  
ARC 252 - Design II: Order

COURSE OBJECTIVES:

Upon completion of this course, the student will be able to:

1. Increase skills in the design process through preliminary presentation using appropriate level architectural projects.
2. Further explore the range of owner/client/user relationships.
3. Directly build on the experiences of the previous studio with further experience in design theory, research methods, design concept, formative idea and communication skills.
4. Provide an understanding of the basic principles of ecology and the responsibilities with respect to environmental and resource conservation in architecture and urban design.
5. Provide the ability to design both site and building to accommodate individuals with varying physical abilities.
6. Provide the ability to respond to natural and built site characteristics in development of a program and design of a project.
7. Incorporate the principles of sustainable design with respect to the contextual issues of climate, daylight, solar access, rain and groundwater, and vegetation in the design of a project.

**ARC 352_Design IV: Complexity**  

**5 credits**

**COURSE DESCRIPTION:**

Completion of complex design projects in varied environmental settings. Rapidly paced projects designed to provide the maximum exposure to complex architectural typologies. Analysis of facility program toward management of complex patterns. Prerequisites: ARC 351, 381 and major in architectural studies or consent of school director.

**PREREQUISITES:**  
ARC 351 - Design III: Context  
ARC 381 – Environmental Design I: Site Planning

**COURSE OBJECTIVES:**

Upon completion of this course, the student will be able to:

1. Learn architectural design by experiencing a series of appropriately complex architectural projects.

2. Obtain the ability to make a comprehensive analysis and evaluation of a building, building complex or urban space.

3. Apply basic organizational, spatial, structural, and constructional principles to the conception and development of interior and exterior spaces, building elements, and components.

4. Acquire an understanding of the basic principles that inform the design and selection of life-safety systems in buildings and their subsystems.

5. Reinforce the issues of sustainable design, as one aspect of the design of complex architectural typologies, through repeated application of the principles.

6. Acquire an ability to identify and assume divergent roles that maximize individual talents, and to cooperate with other students when working as members of a design team.

**ARC 451_Design V: Urban Design and Community**  

**6 credits**

**COURSE DESCRIPTION:**

Study of urban design and community as cultural and spatial development of human settlement patterns. All previous design course experience will be brought to bear on the architectural projects within the context of urban and community criteria. Not for graduate credit.

**PREREQUISITES:**  
ARC 352 - Design IV: Complexity  
and major in architectural studies or consent of school director.
COURSE OBJECTIVES:

Upon completion of this course, the student will be able to:

1. Learn architectural design through experiences and complex architectural projects with appropriate urban and community considerations.

2. Build on the design experiences and knowledge gained from the previous design course.

3. Develop the ability to make comprehensive analysis and evaluation of an urban space.

4. Acquire an awareness of the diversity of needs, values, behavioral norms, and social and spatial patterns that characterizes different cultures, and the implications of this diversity for the societal roles and responsibilities of architects.

5. Develop a coherent rationale for the programmatic and formal precedents employed in the conceptualization and development of architecture and urban design projects.

6. Develop an understanding of the national traditions and local regional heritage in architecture, landscape, and urban design, including vernacular traditions.

7. Develop an understanding of the basic principles of ecology and architects’ responsibilities with respect to the environmental and resource conservation in architecture and urban design.

8. Acquire an understanding of the environmental, economic, and social aspects of sustainability by relating the individual to larger context of the community, regional, and global scale.

- ARC 452_Design VI: Integration 6 credits

COURSE DESCRIPTION:

This comprehensive design studio focuses the knowledge and skills developed in all previous courses on a single project. The course emphasizes the design integration of the building’s structural and environmental systems. Not for graduate credit.

PREREQUISITES:

ARC 362 – Structures III: Analysis and Lateral Forces
ARC 451 - Design V: Urban Design and Community
ARC 481 - Environmental Design II: Energy and Systems
ARC 482 – Environmental Design III: Lighting and Acoustics
and major in architectural studies or consent of school director.

COURSE OBJECTIVES:

Upon completion of this course, the student will be able to:

1. Focus the acquired skills and knowledge into the comprehensive design of an architectural project.

2. Demonstrate the integration of structural, environmental and building systems in the setting of an architectural project.

3. Emphasize the design development, drawing documentation and model presentation of the project.

4. Respond to natural and built site characteristics in the development of a program and design of a project.
5. Access, select, and integrate structural systems, environmental systems, life-safety systems, building envelope systems and building service systems into building design.

6. Demonstrate an understanding of the codes, regulations, and standards applicable to a given site and building design, including occupancy classifications, allowable building heights and areas, allowable construction types, separation requirements, occupancy requirements, means of egress, fire protection, and structure.

7. Identify the fundamentals of development financing, building economics, and construction cost control within the framework of a design project.

8. Assess, select, configure, and detail an integral part of the design and select appropriate combinations of building materials, components, and assemblies to satisfy the requirements of building program.

9. Make technically precise descriptions and documentation of a proposed design for the purpose of review and construction.

10. Produce an architectural project informed by a comprehensive program, from schematic design through the detail development of programmatic spaces, structural and environmental systems, life-safety provisions, wall sections, and building assemblies, as may be appropriate; and to assess the completed project with respect to the program’s design criteria.

11. Demonstrate the principles of sustainable design through the successful integration of the issues of program response, context, site analysis, orientation, climate, materials, tectonics, structure, environmental systems, day lighting, and codes into a design project of moderate complexity.
Introduction

The design studio this summer is a vertical studio. That means students from a number of year levels will be represented. This summer there are students from the second, third, and fourth year. Some students are taking the first semester of those years, other students the second semester. All of the objectives from the Master Syllabi from each course represented will be addressed in each project at each year level.

Many forces at work in the environment affect the form and order of a building, or community, or a region within a city or community. A complex set of forces will determine the character of the building, what it looks like, how it feels. It could be argued that the building is not anything more or less than the sum of the forces that act on it, interpreted through the heart and mind of the architect.

We will start the semester with some short problems that everyone will do just to see where we all are. For the duration of the semester we will be studying, from various perspectives, the forces at work in the environment that create architectural order and drive the principles of building through a number of design projects as elaborated below.

Grading Criteria

Each project will have associated with it a set objectives or expected behavioral outcomes. The purpose of attaching these outcomes to the projects is to insure that a range of awareness’s and understanding’s are developed, expanded and tested. These areas of interest will form the basis for grading on each project. Criteria are consistent with NAAB accrediting requirements for professional programs in architecture.

One of the ways to explain my criteria for assessing your work is by defining what I expect a grade indicates. I have done that below. In addition, I will grade your work throughout the semester so that you will have direct examples of how your work reflects my understanding of what different grades mean. In this way, over the course of the semester, we will be able to communicate carefully about the quality of the work being carried out, and its long term value to your professional development. These definitions were developed by me a number of years ago and still apply to the concepts of excellence and sufficiency that are critical to students of architecture. They create for us a common language about quality.

What is an “A”

An “A” indicates work that is exceptional, out of the ordinary, and above and beyond what was required for the project. Hard work does not always yield this. Being in class every day does not always yield this. Three “all nighters” does not always yield this. A grade of “A” means that you have carried one or more aspects of the project to an extent which makes the work superior in a number of dimensions.

What is a “B”

A “B” grade indicates that what you have accomplished is good. It is above average. It is more than required to satisfactorily complete the problem. Being in class every day does not always yield this. Three “all nighters” does not always yield this. Hard work does not always yield this. A grade of “B” indicates that you are going about your project in a way which distinguishes it from the average.
What is a “C”

A “C” means you have done everything that was expected, you came to class, worked very hard, and generated a response to the problem that was average, acceptable. It does not mean you have failed. It means you have performed in a satisfactory way. Doing a project, working hard does not carry with it the guarantee of satisfactory results. I will not tell you something is satisfactory if it is not. I will not inflate your results, nor will I deflate them. I will give you, to the very best of my ability, an honest, professional evaluation of your work in the context in which it is done.

What is a “D” or an “F”

These grades indicate a substantial lack of understanding and achievement. Answer the following Questions:
1. Can I work very hard and still attain one of these grades?
2. Can I work three days straight, not sleeping; not working, not attending to personal needs and still attain one of these grades?
3. Can I be in class every day and still attain one of these grades?
4. Can I complete each project requirement and still attain one of these grades?

If you answer “No” to any of these questions you do not understand the grading policy.

PLEASE NOTE: Late projects will not be accepted. Students who do not officially withdraw from the course before the drop deadline will receive a grade based upon their semester average, which will include a zero for projects assigned and not turned in and graded. Continual non-attendance of a course does not automatically drop you from the class list.

Also note that project weights will grow over the course of the semester. A two week project at the first of the semester will have much less weight than a two week project at the end of the semester. This will provide me the opportunity to grade fairly and not have you negatively effected for not knowing what my expectations are. Over the course of the semester as you better understand my expectations the value of each week until increase. In all cases the last project for the semester will count 51% of the grade.

Studio Expectations

Keep the studio neat and clean. Treat people with respect and dignity. When you have concerns about something or someone talk first to the person associated with the concern. Be professional. Do not abuse the studio space. It is substandard in almost every dimension and doing anything to make it more so is counter-productive and unprofessional.
# Second Year

*This calendar is subject to change.*

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# ARC 353 Calendar

**Fourth Year**  
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THE DESIGN PROCESS

This summer semester in Arc 353, for all year levels, we will be working in a directed way, a way that should put you in touch with how it is that you design something. It is the professor’s goal to have you demonstrate to him, and to each other, that there are always manifold approaches available in addressing design approaches and the value may come through integrating and manipulating these approaches to achieve the goals of the project.

There is one generic approach that will overlay all of what we will be looking at during the semester. This approach is called the Problem Identification Approach. It has to do with simply understanding what problem it is that you are trying to solve, and being able to clearly state that problem at the outset, or in the early stages, of the design process.

Problem Statements – The Writing

We will be writing a good deal in this course. The writing will entail the development of ideas, rationale, and approaches to the problems that we are addressing. The writing will consist of the bringing together aspects and characteristics regarding the components of the project into a readily communicable set of ideas. This is to be done in your sketchbook together with all kind of schemes, sketches and any stuff that goes along with your design process.

In all these areas the primary goal is going to be for you to generate decisions. The key problem in any design process is the ability of the designer to generate conclusions about a design question. All our efforts will be geared towards allowing you to generate conclusions to design questions in the most efficient manner.

The Problem, Solution and Context

For each project you will be asked to address specific issues regarding problems and solutions. In general, these requirements are structured in a way to put you in touch with the design processes that are used in configuring space. The purpose of writing and sketching is to help clarify design problems and allow you to investigate thoroughly the issues that surround them, what opportunities lie within them, and how you can unlock answers that make intellectual and three dimensional senses. In this school we are in search of general principles of design, as you should be, and we want each of you to develop, over the course of the semester, both specific solutions to issues and generic understanding of how and when these issues may occur in other design settings. In other words we would like to help you develop specific solutions to particular design problems, this in itself is a good thing, but even better is to help you discover timeless design principles that are useful over your professional life. These activities, when properly constructed, are mutually reinforcing and of immense long term value.

Part One: The Context

When or where a particular design takes place is very important. For example, the stair in an elementary school is a much different problem that a fire stair in an apartment building or a grand stair in a ballroom. Each place that a stair occurs requires an understanding of the context of the problem. Likewise, the entrance to a building is different than the entrance to a city, yet both have enough similarity to be called entrances. Context in part drives and defines the differences. The context must be considered functionally, environmentally, culturally, climatically, technically, and in other ways that would significantly influence the design solution of a particular problem. The understanding of context in a design problem should help you in the definition of the problem and the solution.
Part Two: The Problem

The problem statement for each of the issues addressed will be a concise description of what the problem is. For example, if I asked you to design a staircase, you must tell me one aspect of the problem the staircase addresses. It clearly would address the need to change elevation. The question becomes then, is this the only issue that a staircase addresses? What about the need to make the upward or downward movement pleasant, the need for light on the stairs, and the acoustical considerations that must be balanced in designing a stair? the need to make the transition an interesting one, and safe? There are many problems that a stair addresses and in some ways we are talking about the very essence of what design is.

Part Three: The Solution

For each project that we work on this semester you will be asked to generate a solution to a problem after the problem is clearly defined, and after the context is stated. The solutions will be presented in writing and sketching, and will address the specific issues that you have discovered in the context as you understand it. This must occur before the specific solution is developed, and will be used as a measuring stick to assess the quality of your work.

These writing and sketching exercises should demonstrate to you that there is a great deal of information about design which is reusable, and can be catalogued and kept for future use.
2D - 70’s Graphic Composition

To start the summer semester you are to design a graphic composition out of one of the songs from the list provided. All songs are comprehended on the 70’s period (with the exception of a few from 1969 and 1980). You are to choose your three preferred ones to work with your best choice. If any of your classmates has chosen the same you both are going to flip a coin to see who keeps it. The loser goes for his/her second choice. In case that this is also taken, you will repeat the same procedure with this other one.

The design process implies studying the song in both, its lyrics and its melody. The composition could follow any of them as they develop through time, but it would be much better if you consider both interwove. It is fundamental to recognize tempo breaks, entrance of certain instruments and chorus, modulation changes, peak moments, clue situations, etc. to translate them to a linear chart, which will be the base of your proposal. To differentiate the diverse components you can use forms (geometrical, organic, etc.) and colors, using them as solid elements or diffused and mixed (we are not using textures for this purpose). Be sure to move from left to right with your composition as the song is going on. There are no rules for the components to be included, there could be as figurative or abstract as you wish.

The whole process needs to be recorded as it goes by. You are required to produce, submit and review your initial sketches, and all drawings are to be kept as a sketch book (letter size) even though it is collected by different paper kinds (bond, tracing, etc.). This book is to be delivered together with the final product.

The final proposal is to be represented on a 12” by 60” board using any kind of techniques, from freehand pencil, markers, watercolors, etc. to computer drawings.

On June 12th (due date) you are presenting your product and explaining it while the class is listening to your song, so we all can witness the results according to what we perceive.
2D - 70’s Graphic Composition
Grading Criteria

1. Creativity according to selected song.

2. Originality on conceptual development.

3. Sketch book
   a. Process record

4. Completeness and Clarity of Presentation
   a. Representation Technique
   b. Cleanliness
   c. Verbal presentation
3D – Song Pavilion

This composition is intended to represent a song (to be provided) in the spatial proposal of a pavilion. As it has been done in the first project, you need to study the song in both, its lyrics and its melody, since the composition must follow both interweaved. It is fundamental to recognize tempo breaks, entrance of certain instruments and chorus, modulation changes, peak moments, clue situations, etc. to translate them to space, which shall be the base of your proposal. To differentiate the diverse components you can use any forms (geometrical, organic, etc.) colors, and textures using them as solid elements or diffused and mixed. You can move freely around your proposal space (there’s no need to do it linear), but be sure to represent the sequence of the song as it is going on. You are expected to create an inhabitable pavilion so be sure to keep in mind that humans should be able to go all over the place.

The pavilion is expected to cover an area of 500 square feet (approx.) and, only as suggestion, it can initiate from a “box” of 10’ by 50’ and with a height of 10’, and develop through the course of the song.

The whole process needs to be recorded as it goes by. You are required to produce, submit and review your initial sketches, and all drawings are to be kept as a sketch book (letter size) even though it is collected by different paper kinds (bond, tracing, etc.). This book is to be delivered together with the final product.

You are to write an essay of at least 500 words talking about your proposal according to the theme and results.

The final proposal is to be represented on a model at 1:20 scale. On June 18th (due date) you are presenting your product and explaining it while the class is listening to your song, so we all can witness the results according to what we perceive.
3D – Song Pavilion Grading Criteria

1. Creativity according to given song.
2. Originality on conceptual proposal development.
3. Pavilion Volume responding to real scale use.
4. Sketch book
   a. Process record
5. Completeness and Clarity of Presentation
   a. Model expression
   b. Essay about your exercise proposal
   c. Verbal presentation
Assignment 3

Second Year

Parking at Downtown Carbondale

You are to design an underground parking lot for a site in downtown Carbondale, along Washington St. from Jackson St. to Walnut St, and contiguous to the Railroad right of way. You are to respond to the current streets' levels and the Plaza proposal levels that will be over this same site; it is important to pay careful attention to the various problems associated with parking lots.

It is essential to consider who will be using this parking lot and how users are to reach it, driving as well as walking. The close relation with the Plaza surface over it is a main factor to respond to.

The drainage of rain water is an issue that has to be solved by conducting it properly within the parking surface and out of it.

It will be necessary to make a tree inventory of the place, since every outstanding species should remain on site and be part of the final solution (of course keeping its current level).

For this project three drawings will be required on 18 x 24 boards and a model over the (almost) existing Site Model.

On the first board there will be a site plan and surrounding streets at 1” = 30’ scale.

The second board will have the floor plan and 3 sections, one longitudinal and two transversal at 1” = 20’. This view should focus on the driving entry and exit locations, proposed parking and circulations, and pedestrians’ facilities.

The third board will have a 1” = 4’ drawing of some area which shows materials and other details.

All these boards are to be presented on July 3rd to the Main Street Council and other City Authorities, so integrated image and sparkling representation is required for that occasion.
Parking at Downtown Carbondale
Grading Criteria

1. **Problem Statements, Context, and Solutions**

2. **Program Requirements**
   a. Number of spaces
   b. Proper relationship with Plaza

3. **Design Logic**
   a. Convenient entrance and exit
   b. Vehicular and pedestrian circulation
   c. Compatibility to existing context.
   d. Site responsiveness
   e. Climate responsiveness

4. **Code Compliance**
   a. Fire Egress and Access
   b. Handicapped Accessibility Requirements

5. **Technical Aspects**
   a. Materials Selection for Parking and Walking
   b. Rain water drainage

6. **Completeness and Clarity of Presentation**
Assignment 3

Plaza surface at Downtown Carbondale

You are to design a lengthened Plaza for a site in downtown Carbondale, along Washington St. from Jackson St. to Walnut St, and contiguous to the Railroad right of way. You are to consider the surrounding current streets’ levels but keep the Plaza to an even level even though the current topography may be uneven. Since Main Street is crossing the site, the plaza shall be developed in two segments, but it is the project duty to keep the sense of an entire and continuous concept all along.

It is important to consider all surroundings, for it will be indispensable to create an catalogue of current facades around. There are also some old features kept on the site as historical patrimony which need to be considered, but they can be relocated.

One main factor of the plaza solution is its relationship with the parking lot underneath. Pedestrian access from the plaza to the parking lot must be visible, sufficient and well located.

The drainage of rain water is an issue that has to be solved by conducting it properly within the whole surface and out of it.

It will be necessary to make a tree inventory of the place, since every outstanding species should remain on site and be part of the final solution (of course keeping its current level).

For this project three drawings will be required on 18 x 24 boards and a model over the (almost) existing Site Model.

On the first board there will be a site plan and surrounding streets at 1” = 30’ scale.

The second board will have the floor plan and 3 sections, one longitudinal and two transversal at 1” = 20’. This view should focus on the connections to surrounding areas, circulation and staying areas, green elements and other features, entrances to parking underneath and other pedestrians’ facilities.

The third board will have a 1” = 4’ drawing of some area which shows materials and other details.

All these boards are to be presented on July 3rd to the Main Street Council and other City Authorities, so integrated image and sparkling representation is required for that occasion.
Plaza surface at Downtown Carbondale
Grading Criteria

1. **Problem Statements, Context, and Solutions**

2. **Program Requirements**
   a. Response to surroundings’ image
   b. Proper relationship with parking underneath

3. **Design Logic**
   a. Convenient circulation paths
   b. Satisfactory staying areas
   c. Compatibility to existing context.
   d. Site responsiveness
   e. Climate responsiveness

4. **Code Compliance**
   a. Adequate relationships with sidewalks
   b. Handicapped Accessibility Requirements

5. **Technical Aspects**
   a. Materials Selection for Walking and Vegetation
   b. Rain water drainage

7. **Completeness and Clarity of Presentation**
Assignment 3

Hotel at Downtown Carbondale

You are to design a new four star Hotel for a site in downtown Carbondale, at the block head of Washington St. between Walnut St. and Monroe St. This project is part of a renovation plan over the zone, for it needs to keep tight relationship with the Plaza project that will be developed across the street, from Walnut St. to Jackson St. The hotel must be composed by 100 suites, conference venues, banquet facilities, lobby, managing offices, 6 equipped offices for guests, 2 meeting rooms, restaurant, kitchen, laundry, bed clothing storage, housekeeping, accessories and furniture warehouse, garbage storage, hardware workshop, etc.

You are enforced to follow the Plaza’s project level to define the hotel’s levels over its site. Washington St. should be used only for main entrance and motor lobby, while Walnut St. is not allowed to be used for any vehicle service.

All traffic services to the hotel must be done through Monroe St., these concerning to supplies delivery, on-site parking, garbage disposal, etc.

Parking of guests will be hosted under the plaza, and there will be underground connection directly to the hotel’s basement.

As an intent to get a desirable integration to the city’s downtown image, it will be necessary to realize an catalogue of main buildings around the zone, for example the Town Hall, the former Post Office, the Memorial Hospital, the Tuscan Lodge, etc. and take a trend whether to integrate or contrast that image with the new proposal.

Also it will be necessary to make a tree inventory of the site, since every outstanding species should remain on site and be part of the final solution (of course keeping its current level).

For this project the proposal drawings will be required on 18 x 24 boards and a model over the (almost) existing Site Model.

On the first board there will be a site plan referred to the future plaza location at 1” + 30’. The second board will contain the site and surrounding streets at 1” = 20’ scale. A third and fourth boards will show the floor plans for Ground Floor, Typical floor and Basement at 1” = 10’. A fifth and sixth boards will contain sections and elevations at 1” = 10’.

All these boards are to be presented on July 3rd to the Main Street Council and other City Authorities, so integrated image and sparkling representation is required for that occasion.
Hotel at Downtown Carbondale
Grading Criteria

1. Problem Statements, Context, and Solutions

2. Program Requirements
   a. Functional program fulfillment
   b. Proper relationship with Plaza and Parking lot

3. Design Logic
   a. Convenient image together with the city
   b. Adequate entrance for vehicles and pedestrians
   c. Adjusted according to existing tree.
   d. Site responsiveness
   e. Climate responsiveness

4. Code Compliance
   a. Fire Egress and Access
   b. Handicapped Accessibility Requirements

5. Technical Aspects
   a. Materials Selection for buildings and surroundings.
   b. Adequate service facilities from streets.

8. Completeness and Clarity of Presentation
Fire Station # 5

The city of Minneapolis will be building a new fire station in the southeast area of the city. The primary requirement is that the firefighters can reach any point in this service area within five minutes. You must finish defining the program requirements given below.

PROGRAM

A. Develop the criteria for the fire station and understand the site.
   1. The site, mainly topography, is given.
   2. You must determine the optimum man-made environment for this project by analyzing:
      a. transportation – circulation
      b. site environs
      c. utilities
      d. community facilities

B. Spatial requirements
   1. No space, used by the firefighters, shall be more than 30 seconds from the fire apparatus,
   2. Apparatus Room (garage) – 2440 sq. ft.
      a. Space for two large or one large and two small trucks.
      b. Apparatus room should be the center point of all fire department circulation easily reached from any point in the building and also by the public from the front.
      c. Area shall be large enough to house anticipated growth of fire department for the life of the building.
      d. Consideration should be given to change that might be required in housing different types of equipment.
      e. Minimum size door for modern equipment shall be 12 feet wide and 14 feet high.
   3. Hose Drying Room
      a. Minimum size: 64 sq. ft. with a minimum capacity of 1500 ft. of 2 ½” hose.
   4. Locker Room – 350 s.f.
      a. One locker for each firefighter stationed at this building, not including officers.
      b. Minimum size 18” wide, 24” deep, 78” high.
   5. Dormitory Room – 500 s.f.
      a. Sleep and lounge facilities for eight firefighters.
      b. Kitchen and dining area.
   6. Toilet and Washroom – s.f.
      a. As required by sanitary code.
   7. Officers Room – 80 s.f.
      a. Three clothes lockers for station officers.
   8. Watch Office – 70 s.f.
      a. This room is to be manned at all times when this station is “in service”, but not to be used as a lounge by firefighters.
      b. A small toilet room should be located near the watch officer for the firefighters on duty if necessary.
      c. Provide a watch desk.
   9. Storage – 300 s.f.
      a. A room near the apparatus room should be provided for the storage of oxygen.
      b. A special room approximately 6’ x 8’ for storage of janitor supplies can be almost anywhere.
      c. Area approximately 8’ x 12’ centrally located for miscellaneous storage of maintenance of firefighting equipment.
d. Hose storage at or near trucks on proper racks moveable on suitable dollies.

10. **Repairs** – 100 s.f.
   a. Major repair will be carried out at the central garage; however, a small area for maintenance work and a tool storage is required.

11. **Mechanical Equipment** – 150 s.f.
   a. All rooms occupied by personnel on watch shall be heated and cooled.
   b. An exhaust ventilating system is required for the garage and maintenance area.

12. **Doors and Corridors** – 20% of net area
   a. All doors from habitable rooms shall be at least 3’ wide. All doors from rooms like toilet, locker, lunch and dormitory.
   b. All doors in rooms with occupancy of more than one man should swing in direction of travel to apparatus room. This would permit door to officer’s room to swing “in” when occupied by only one officer.
   c. All halls and pathways used for two-way travel to apparatus room should be a minimum of 5’ wide in clear.
   d. No sliding doors are to be permitted.
   e. Use only door closers (if needed) and push and pull plates (no latching hardware) on doors to lunch room, locker room, toilet room and dormitory.

13. **General Considerations**
   a. The station should be accessible to all parts of its district in five minutes.
   b. All building codes in municipality shall be complied with.
   c. Rooms where the public gains contact with firefighters, such as the watch office and apparatus room, should receive special attention. One of the features could be a tiled wainscot in the apparatus room, and unsightly pipes could be eliminated. Glass could be used more extensively in the apparatus doors to show off modern equipment. Excessive breakage is avoided by using double strength glass. The bottom 18” of the door should be solid.
   d. The watch office and apparatus room should be effectively screened from the rest of the quarters. Firefighters, although busy, have brief relief periods and do not wear dress uniforms when working on assignments in the building or when training.
   e. Obscure glass, shades, or drapes should be used on all windows, in the living quarters which can be viewed by the public.
   f. Training and parking areas should be screened by a well-designed fence, wall or shrubs in residential districts.
   g. Outdoor recreation areas.

14. **Kitchen and Dining Area** – 350 s.f.

15. **Training Room/Lounge** – 300 s.f.

**PRESENTATION**

To present your proposal you are to develop the following documents:

1. Architectural plans scale ⅛” = 1’-0”
2. Architectural elevations scale ⅛” = 1’-0”
3. Architectural sections scale ⅛” = 1’-0”
4. Model scale ⅛” = 1’-0”

The models will be placed over a Site Model (⅛” = 1’-0”) built by Second Year students
Site Plan - Fire Station # 5

North
Comfort Percentages

NAME: MINNEAPOLIS
LOCATION: USA
WEEKDAYS: 08:30 - 24:00 hrs
WEEKENDS: 08:30 - 24:00 hrs
POSITION: 44.9°N, 93.3°W

CLIMATE: Bks
Mediterranean climate with warm, to cool summers and cold winters.
Severe winters with snowstorms, strong winds and bitter cold.
Winter all year, with warmest month below 25°C.

Selected Design Techniques:
1. passive solar heating
2. thermal mass effects
3. exposed mass + night-sky radiation
4. natural ventilation
5. direct evaporative cooling
6. indirect evaporative cooling

Multiple Passive Design Techniques

Optimum Orientation
Location: MINNEAPOLIS, USA
Orientation based on average daily incident radiation on a vertical surface.
Underheated Period: TR:100
Overheated Period: 53.5
Compromise: 172.6°
8 Weather Ticks

Avg. Daily Radiation at 172.6°
- Entire Year: 1.62 kWh/m²
- Underheated: 2.34 kWh/m²
- Overheated: 1.37 kWh/m²

Annual Average
Underheated: Period
Overheated Period
*Annual/seasonal totals may differ from the sum of the monthly totals due to rounding.

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Historical Climate Data

Precipitation Summary
Station: 215435 MINNEAPOLIS WSFO AP, MN

1971-2000 NCDC Normals

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<th>APR</th>
<th>MAY</th>
<th>JUN</th>
<th>JUL</th>
<th>Aug</th>
<th>SEP</th>
<th>OCT</th>
<th>NOV</th>
<th>DEC</th>
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<tr>
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<td>4.04</td>
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<td>1.94</td>
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Precipitation Extremes
Period of Record: 1891-2001

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<tr>
<th>Month</th>
<th>High (in)</th>
<th>Year</th>
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<td>1906</td>
<td>0.21</td>
<td>1934</td>
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<td>1990</td>
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<td>1911</td>
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Annual 40.15 1911 11.54 1910 9.15 07-23-1987
Winter 6.24 1967 0.69 1958 1.90 02-24-1930
Spring 16.13 1965 2.12 1910 3.16 05-21-1906
Summer 23.52 1987 1.73 1894 9.15 07-23-1987
Fall 13.50 1911 1.71 1952 4.96 09-12-1903

Precipitation Threshold Climatology
Derived from 1971-2000 Averages
Weekly Summary
Average Daily Rainfall (mm)
Location: MINNEAPOLIS, USA (44° 57’, -93° 2’)
© Weather Tool
Grading Criteria – Fire Station

1. Problem statements and solutions

2. Program Requirements
   a. Development of All Programmed Spaces
   b. Conformance to Square Footage Requirements
   c. Compliance with Required Spatial Relationships

3. Design Logic
   a. Circulation
   b. Spatial Relationships/Proportions/Adjacencies
   c. Ability to meet Fast Response Time
   d. Compatibility to existing context, Site and Climate.

4. Drawings, Model (and Site Model)

5. Completeness and Clarity of Presentation
Historic Preservation Research Library complex

Project Statement

A trustee of a major university has donated a site and funds to that institution for the development of a Historic Preservation Research Library complex. The site is now part of the university campus, and is improved by one building of historic significance and, until recently, several nondescript structures. The university is located in a city with a population of 165,000. The campus serves 14,000 students, 85% of whom live on or near the campus. The college of environmental design has recently instituted a graduate degree program in Historic Preservation.

The site is excellent for its proposed use, since it provides a view of the campus commons, bell tower, and several of the original buildings. The site is adjacent to the College of Environmental Design. The campus development is considered an outstanding example of the marriage of historic structures and sympathetic contemporary design. The architecture of the recently constructed building clearly reflects a sensitivity to the university's past architecture while expressing the image of today's and allowing for a continued statement into the future.

Access to the site will be primarily pedestrian, from both on and off campus, from public transportation, and from existing parking areas. Handicapped and staff parking is provided on the surface lot next to the site.

The Historic Preservation Research Library complex will be composed of three major elements:

A. The restored Town Hall will be used for lectures and conferences; it will function independently and in conjunction with one or both of the other areas. (It should be noted that the other structures that existed on the site have been razed, and the existing trees have been saved.) This building is a one story building with a heavy rusticated gray stone exterior with minimal fenestration and a steeply pitched slate roof.

B. A new preservation research library facility. This building, outlined in the program to follow, will house books, periodicals, plans, prints, and samples of historic building elements as well as providing work space, administrative offices and an exhibit hall.

C. An outdoor courtyard space, accessible from the Town Hall and the library space will be used for the display of permanent weather resistive exhibits and should visually and functionally unify the existing and proposed buildings on the site.

It is anticipated that the complex will be used primarily by faculty and students of the College of Environmental Design, particularly those involved in the new preservation program. The new building is expected to be a major national depository of preservation research material and will therefore be used by scholars, preservationists, and design professionals from throughout the country.

Site Description Site Location Map

A. Topographic – The site is bordered on the north by the campus commons, on the east by the College of Environmental Design and on-campus parking, on the south by light commercial and multi-family housing, and on the west by the University Administration Building. The site is basically flat but slopes gradually down from north to south.

B. Soil and Sub-Surface Conditions – No problems
C. Utilities – Underground gas, power, water, sanitary sewer, storm sewer, and telephone services are readily available.

D. Storm Drainage – The building’s roof and the site’s surface drainage shall be to the city storm sewer system located along the curb line on the south side of the site.

Code Requirements

A. General
The requirements for protecting life, health, and safety and for minimizing property damage must be incorporated into your solution.

B. Fire Ratings and Exiting Requirements
1. A fire-resistant construction system is required, (concrete or protected steel). Automatic sprinkler systems are not to be incorporated because of potential accidental damage to books and other fragile material.
2. Spaces containing central gas-fired heating equipment require a two-hour fire separation from the remainder of the building.
3. Elevator and mechanical chases shall have two-hour fire rated walls.
4. The Fire Marshal has determined that all levels of any campus building in excess of 1,000 sq. ft. in area must have a minimum of two means of egress in addition to any monumental stairs. Dead end corridors shall not exceed twenty feet. The maximum distance to an exit stair in any building more than one story in height and in excess of 3,000 sq. ft. on the first floor, shall be 100 ft.

Energy Use and Conservation
The owner desires that the building be as energy efficient as possible in all seasons. Building orientation and form, shading, use of natural lighting and energy efficiency must be considered and incorporated into the design.

Maximum consideration should be given to the following:

a. Sun
b. Wind
c. Light
d. Water
e. Ventilation

Program Requirements

1. Site Circulation:
   1. Public transportation (buses) service on University Drive.
   2. Automobile Circulation.
      b. Public parking facilities located east and west of the site on University Drive.
      c. On-campus parking for staff, faculty, selected visitors, and handicapped persons located immediately east of site.
   3. Service—Service access to site shall be from Euclid Mall or College Mall, controlled by removable bollards.

2. Building—Research Library Facility:
Space requirements indicated are net square feet. Gross building square footage shall not exceed net square footage by more than 25 percent.

I. Ground Level
   1. Entrance Lobby 1,000 SF (min)
      Provide information desk located for visual control of stairway, elevator and entrance to, exhibit hall and entrance to physical research area. Used for waiting, circulation, and public telephones.
   2. Exhibit Hall 4,000 SF
      Clear span space with an 18’ clear ceiling height. Public access from entrance lobby only. Natural lighting should be considered by the use of fenestration, clerestories or skylights. Provide service access for receiving large exhibits. (Loading dock not required.)
3. Administration
500 SF
Accessible from the entrance lobby area. The space would house the administrator's office, administrative aide, and conference room. (The layout of these spaces is not required.)

4. Physical Research Area
3,000 SF
Controlled access from entrance lobby
b. Studio-Laboratory
(1,500 SF)
Control/office and general study space for analysis of samples of historic building materials and artifacts.

c. Archival Collection Room
(1,500 SF)
Used for the storage of samples of historic building materials and artifacts.

5. General Work Space
2,000 SF
to include areas for:
a. Shipping/receiving, refuse area.
(300 SF)
(Loading dock not required.)
b. Sorting and cataloging
(700 SF)
c. Work room
(1,000 SF)

6. Public Toilets
450 SF
Easily accessible to all ground floor functions; fixture layout not required.
b. Men's
(200 SF)
c. Women's
(200 SF)
d. Janitors
(50 SF)

7. Building mechanical/electrical
1,000 SF

Total
11,950 SF

II. Second Level

1. Research library
7,500 SF
(A non-circulating research library. All material to remain in library.)
a. Control Area
(50 SF)
b. Library Administration
(450 SF)
This space would include the librarian's office, the assistant librarian's (archivist) office, and the library work space. (The layout of these spaces is not required.)
c. Reading Room
(2,100 SF)
d. Open Stack Space
(3,500 SF)
For books, periodicals, prints, plans.
e. Archival Research
(1,000 SF)
Secured space for rare manuscripts, prints and plans. Limited access controlled by staff. Archival research should be adjacent to Library Administration for control and access.
f. Microfilm and Copy Center
(400 SF)
(to be located within controlled area)

2. Public Toilets
450 SF
Easily accessible to all second level functions, fixture layout not required.

3. Public Toilets
450 SF
b. Men's
(200 SF)
c. Women's
(200 SF)
c. Janitors
(50 SF)

Total
7,950 SF

III. General

1. Elevators
a. One public elevator, hydraulic 5x7 platform size (no escalators).
b. One key-operated service elevator, hydraulic 5x7 platform size from general
work space area to stack space or library work space.

2. Stairs
   a. Exit stairs as required. Monumental stair to research library from entrance lobby.

3. Courtyard:

The courtyard space should be an outdoor area designed to visually and functionally connect the new Research Library Building with the restored Town Hall, thus creating the site as a new complex within the framework of the university. The space should employ a combination of "hard" and "soft" surfaces and be suitable for pedestrians walking through the courtyard as well as for individuals sitting, studying or relaxing. The courtyard shape, size, and square footage are at the designer's discretion.

General Campus Environment
Historic Preservation Research Library complex
Site Specifics
Historic Preservation Research Library complex

North

Example of building with a heavy rusticated gray stone exterior with minimal fenestration and a steeply pitched slate roof.
Required Drawings

1. Site Plan/Ground Level Plan: Scale \( \frac{1}{8}" = 1'-0" \)
   Show building floor plan, label all spaces. Show windows and doors, stairs, elevators, etc.
   Indicate design of courtyard. Indicate pedestrian walkways and landscaping. Show service entrance(s).

2. Second Level Plan: Scale \( \frac{1}{8}" = 1'-0" \) Label all spaces. Show windows and doors, stairs, elevators, etc.

3. Two contiguous elevations: Scale \( \frac{1}{4}" = 1'-0" \). Indicate and label materials, fenestration and all elements necessary to show building design. Draw the two contiguous elevations that best demonstrate the design intent.

4. Two building Section: Scale \( \frac{1}{4}" = 1'-0" \) Cut section to show significant spaces in building. Section must be taken to include the exhibit hall and adjacent space.

5. Project model: Scale \( \frac{1}{4}" = 1'-0" \) 3D model that thoroughly illustrates the scope and intent of your design solution. The model should allow for a clear illustration of the contextual relationship of your project to the site and adjacent structures by the use of a shared context Site Model that allows each student to drop in their individual project. This last built by all Third Year students.

6. Two experiential views: These perspective views should capture the essence of the project as a whole.
   Indicate the following:
   a. Building materials
   b. Provisions for heating and cooling system. (Space for ducts etc. - note mechanical systems concept.)
   c. Vertical dimensions

Note: Section should delineate use of natural light, energy conservation methods and appropriate scale of spaces. Your final design solution should be strongly tied to the regional context in which your building is placed. Utilization of regional design techniques in conjunction with emerging design strategies will be fundamental in arriving at a sound design solution. The drawings should express any building design qualities, not shown in plans or elevations, deemed necessary to express design intent.
Comfort Percentages

R cent: BATON ROUGE
Loca l: USA
Weekdays: 08:00 - 24:00 hrs
Weekends: 08:00 - 24:00 hrs
Poston: 36.3', 91.2'
© Weather Io

Climate: Cfa
Most mid-latitude climate with mild winters
High temperature with hot, muggy summers and thunderstorms.
Winters are mild with precipitation from mid-latitude cyclones.
Warmest months above or equal to 27°C.

Selected Design Techniques:
1. passive solar heating
2. thermal mass effects
3. exposed mass + night-purge ventilation
4. natural ventilation
5. direct evaporative cooling
6. indirect evaporative cooling

Multiple Passive Design Techniques:

![Graph showing multiple passive design techniques over different months and years.](image)
Weekly Summary
Average Cloud Cover (%)
Location: BATON ROUGE, USA (30.5°, -91.3°)
© Weather Tool

Weekly Summary
Average Temperature (°C)
Location: BATON ROUGE, USA (30.5°, -91.3°)
© Weather Tool
Grading Criteria – Historic Resources Library

1. **Problem statements and solutions**

2. **Program Requirements**
   a. Development of All Programmed Spaces
   b. Conformance to Square Footage Requirements
   c. Compliance with Required Spatial Relationships

3. **Design Logic**
   a. Circulation
   b. Spatial Relationships/Proportions/Adjacencies
   c. Relationship to Campus
   d. Compatibility to Existing Context, Site and Climate.

4. **Code Compliance**
   a. Handicapped Accessibility Requirements

5. **Technical Aspects**
   a. Materials Selection and Wall, Floor, and Roof Assemblies
   b. Mechanical Systems

6. **Drawings, Model (and Site Model)**

7. **Completeness and Clarity of Presentation**
I. General philosophy and approach to the building problem:

A. The building will exist to: 1. preserve and exhibit objects called works of art; and 2. enable as many people as possible to experience those objects as effectively and as pleasantly as possible: the “confrontation of object and observer.”

B. Even though, hopefully, the building will be a creative contribution to the history of the art of architecture, the building itself should play a supporting role to the reasons for its existence (A., above), not a dominating role. Architectural “gymnastics” for their own sake, work against these reasons. As in verbal expression, when an alternative is presented between the use of a long complicated word and a short simple one, the latter is invariably the better choice. The overwhelming percentage of people whom this building is intended to serve will not be art historians, other architects, or progressive artists with a sophisticated background in architectural form. Their total experience of a visit to the museum should be one of warmth, mellowness and even elegance. Among other experiences educationally and personally enriching, a visitor to an art museum ought to be charmed; otherwise, why should we expect him to come? The spaces, forms and textures should maintain a harmonious simplicity and human proportion between the visitor and the building and the art objects observed.

That the above may be accused of catering to “popular” taste (or lack of it) is nothing to the point. In the past this catering was achieved by making the museum a monumentally awesome repository of “priceless” art housed in “period” settings against a background of massive and/or complicated, irrelevant décor. The answer to this ultimate alienation between art object and human being lies in the acceptance of the principle that, in a museum today, the art object is not a decorative part of a given setting (even if it was when produced centuries ago!). Each individual art object is now a whole world unto itself, and architectural conditions should be so disposed as to encourage the visitor’s complete absorption in contemplation of that world.

Spaces, forms, textures, colors should avoid distracting that attention. As much as possible, the architecture should be flexible enough so that, upon installation art may themselves help create the architecture and prescribe spatial quantity and surface qualities.

The creative strength of such a building lies in simplicity and directness of approach to the uses of the building, clarity of the disposition of parts, honesty in the relationship between visible form and means of construction, taste in the proportions of those forms, quality of materials, and exquisite craftsmanship in putting the materials together. Such a building is not only strong in design; it has the desirable effect of strength upon the average visitor. And, the desired elegance and charm are achieved with restraint and grace. If, in addition, the average visitor can easily find his way through well-lit spaces in which, because of clarity of layout, he feels that he is making the choices about where to go to see what, then the message we believe to lie latent in art will be imparted more effectively to more people sooner, even symmetry has the virtue, at least, of making it easier for people to virtue, at least, of making it easier for people to figure out where they are and how to get to something else, thereby cutting down museum (fatigue).

No matter how effectively the expressive content of objects in the collection is conveyed to the public, the art museum today must be far more than a treasure house. The facilities, space and equipment for the care and interpretation of the treasures constitute a complex organism involved in a multitude of activities. The specialized facilities for these supportive activities must be included and equipped for their particular demands with as much consideration and care as the space for an artistic masterpiece.

A building with such an organic integrity cannot be built in stages, with allowances and adjustments being made for future wings, extensions or added floor levels. The form of the
building should be so complete in its beauty that additions would spoil that form; and all of the requisite functional facilities should be articulated as components of that form so that, from the outset, the museum will be able to operate as a complete and vital institution.

II. Environment:

A. City of Carlton

1. Population: city 500,000; metropolitan area 600,000.
2. Cultural Institutions:

   General: public schools (87 elementary, 20 junior high, 12 senior high); one large private university in vicinity with art programs; four colleges, all with art programs, now building.

B. Climate:

1. Average annual rainfall, 40.00 inches.
2. Annual average temperature 55.8°. Effects of typical mid-continent climate produce extremes of weather conditions, often in sudden change to extremes. Lower temperature never too extreme or lasting; N.B.: higher temperatures are a definite problem to cope with architecturally six months of year, often over 90°, sometimes over 100°.
3. High winds frequent, sometimes carrying considerable earth dust content (factor to consider in: fenestration, water pools, fountains, climate control filter systems, etc.)
4. N.B.: Sunlight intensity frequently very extreme. This is a major factor to cope with, not only because of heat production, but in relation to visual effect on exterior design, psychological effect looking out from building interior, difficulties of potentially high surface reflectance of natural light off art objects, glare effect when looking at art against natural light source, intensity of light upon art objects in which light causes fading.

III. Site

A. See topographical detailed map of area, attached to this program

1. Size, a little more than 5 acres.
2. Dimensions of sides: Trapezoid of 2 square angles, 358’ x 460’ x 597’ x 518’
3. Contours every 2 feet.

B. Geographically, the site is ideal. It lies at the heart of the population area. It lies about one mile east of the central downtown business district; and immediately to the east of the site the major suburban residential area begins, from which the highest density of audience potential will be drawn. The site lies directly between two of the major traffic arteries connecting downtown and the residential area. Access will be almost entirely by automobile.

C. Parking: nearly all visitors will reach the museum by private car (some in taxis or buses). The park should be preserved as much as possible, and the garden setting for the museum should be an important part of the museum visitor’s enjoyable experience, with sculpture in the garden. A parking area capable of accommodating about 100 cars should handle the daily routine attendance; (two passengers per car, averaging two-hour visits, over a 7-hour day, 350 open days in the year, with total attendance around 200,000). A parking area filling this need can be placed partially below grade, under the building itself and terrace and/or building platform. Overflow parking (scheduled properly) for large special events can go to vast parking areas for the coliseum across Lancaster Blvd. to the south.

IV. General Requirements of the Building
A. The permanent collection may very well number something under 100 objects (1. paintings, 2. sculpture, 3. drawings and watercolors, 4. objects of the so-called minor arts) when the museum opens to the public. However, since the prime function of management (see Policy Statement) will be the continued acquisition of objects of the highest possible aesthetic quality, the collection will continue to grow steadily. The rate of growth, barring certain foreseeable possibilities of the sudden acquisition of a whole group or collection, will probably be at the rate of a dozen or so objects a year. In any case, a basic design problem, therefore, is to build for a new, small, choice collection, but an expanding one. All the space cannot be filled at first, but the unused portion should yawn openly at visitors.

B. Attendance for a few months after the museum opens will probably be much higher than that to be expected after the novelty of a new institution and its attendant fanfare dies down. Routine attendance, based upon the current audience potential and local statistics of record will probably be about 200,000 annually, which means roughly an average of upwards of 100 persons in the museum at a time, with weekday mornings, of course, being much lower and Sunday afternoons or holidays infinitely higher. The range can run from next to zero attendance at 10 a.m. Monday morning to 1,000 or more at 3 p.m. Sunday. During the period shortly after the museum opens these figures will be doubled at least.

C. There are three basic divisions into which any art museum is logically disposed because of the different nature of activities, personnel, equipment and type of space required within each division:

1. Service division (shipping and receiving, mechanical, maintenance, storage, preparatorial, etc.): all those activities, behind the scenes, that make the physical operation of the institution possible.

2. Public division (permanent collection display, special exhibitions, lectures, films, music, social events, etc.): all those activities that the institution produces for public benefit and in which the public participates or attends.

3. Operations division (administration, office work, files, financial control, scholarly research, etc.): all those activities, behind the scenes, which manage the physical plant and the total public program.

The clearest possible spatial separation between these divisions or areas, and the most carefully integrated relationship or unity of parts within each division, is the most conducive to economy and efficiency of operation, safety, maximum security and enjoyment by the public. For example, a whole host of headaches involving everything from fire exits to public circulation to guard salary costs are avoided if every space that will ever be used by the general public can be kept to one level—the level of easiest access and pleasantest prospects. This also simplifies and clarifies the visitor’s task of finding his way, thereby increasing his enjoyment and the chances that he will “get the message” intended by the art and the institution.

For the sake of organization in this program, these divisions have been placed on separate levels, or floors, of the hypothetical building. This is not a mandate but a way of ordering the complex problem. Actual architectural design may produce a better solution.
### MUSEUM AREAS

**a. Exhibition**

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<th>Area</th>
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<tr>
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**Galleries:**

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<td>Exhibition galleries (in 4 divisions)</td>
<td>7,500 sq. ft.</td>
</tr>
<tr>
<td>Changing exhibits</td>
<td>2,500 sq. ft.</td>
</tr>
<tr>
<td>Demonstration Gallery</td>
<td>6,500 sq. ft.</td>
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<tr>
<td>&quot;Works of Man&quot; Industrial Exhibits</td>
<td>15,000 sq. ft.</td>
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<td>*Information Area</td>
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<tr>
<td>*Coat Room</td>
<td></td>
</tr>
<tr>
<td>*Rest Rooms</td>
<td></td>
</tr>
<tr>
<td>*Theater for 250</td>
<td>2,000 sq. ft.</td>
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**SUBTOTAL**

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**b. Administration:**

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<tr>
<td>Director</td>
<td>200 sq. ft.</td>
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<tr>
<td>4 Assistant Directors</td>
<td>150 sq. ft. each</td>
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<tr>
<td>Secretaries</td>
<td>600 sq. ft.</td>
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<tr>
<td>Meeting Room</td>
<td>200 sq. ft.</td>
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<tr>
<td>Conference Room</td>
<td>100 sq. ft.</td>
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<tr>
<td>Board Room</td>
<td>275 sq. ft.</td>
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<tr>
<td>Publicity</td>
<td>200 sq. ft.</td>
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**SUBTOTAL**

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**c. Service:**

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<tr>
<td>Superintendent</td>
<td>100 sq. ft.</td>
</tr>
<tr>
<td>Locker Area</td>
<td>100 sq. ft.</td>
</tr>
<tr>
<td>Workshop</td>
<td>400 sq. ft.</td>
</tr>
<tr>
<td>Storage</td>
<td>5,000 sq. ft.</td>
</tr>
<tr>
<td>Phone Equipment</td>
<td>75 sq. ft.</td>
</tr>
<tr>
<td>Mechanical</td>
<td>900 sq. ft.</td>
</tr>
</tbody>
</table>

**SUBTOTAL**

<table>
<thead>
<tr>
<th>Area</th>
<th>Sq. Ft.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>6,675</td>
</tr>
</tbody>
</table>

**MUSEUM TOTAL**

<table>
<thead>
<tr>
<th>Area</th>
<th>Sq. Ft.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>77,600</td>
</tr>
</tbody>
</table>

**Total Net Square Feet**

<table>
<thead>
<tr>
<th>Area</th>
<th>Sq. Ft.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>97,000</td>
</tr>
</tbody>
</table>

### V. Notes on features of particular importance to museums

**A. Lighting:**

1. Natural light should play a vital part in illumination, consistent with the problems of maintaining maximum lineal feet of wall for hanging pictures and avoiding those glare and heat effects already discussed. Since there are so many times when natural light is insufficient (museum open at night, late winter afternoons, very cloudy days, etc.), artificial light must be sufficient to do the whole job of making complete visual appreciation of a great variety of art objects a pleasure. However, if natural light were excluded completely, the art, and eventually the museum visitor, would seem vacuum-packed in a can. The visitor must be able to relate to nature momentarily from time to time – to actually see at least a small slice of foliage, sky, sun,
water. And the effects of changes in weather, position of the sun, seasons, must penetrate the building and participate in illuminating both the art and the observer. The creation of the ideal total visual situation, of course, involves the physics, physiology and psychology of it; i.e., all levels of perception. But, we are not after a measurable physical quantity, or a physiological reaction; we are after a psychological effect through which the museum visitor feels that both he and the art he came to see are still a part of the real, rotating, changeable world.

2. Skylights are not the answer: the visitor cannot look out of them; the changing natural effects don’t come through them effectively; they cause insufferable design problems; require high wasteful attic and clerestory spaces; and they always leak, no matter what is spent unsatisfactorily for a number of the same reasons.

3. The side-directed parallel rays of daylight are required (as with artificial, as much as possible). The true quality of the surface of a small panel painting with even very low impasto can be negated for a connoisseur by vast windows, diffused overall sky-lighting, or multiple light sources.

4. In artificial illumination, fluorescent lighting is anathema. It does to art that which was just mentioned in paragraph 3 above. It does not relate in quality to natural light as well as some incandescent (commercial labels notwithstanding). And it limits the greatest quantity of those very rays that are the most injurious physically to works of art.

5. Lighting should be incandescent; the latest quartz lamps seem to provide sufficient brightness, with the smallest available unit to replace, handle and store (thus also cutting down the size requirement of the fixture); their K rating seems to relate best to most art objects visually.

6. The fixtures in the permanent collection galleries should be set into the ceiling so that the aperture and face of fixture is flush with ceiling. Above the ceiling the power source should be on a grid system (6-foot intervals) so that wiring can be pulled to a fixture placed in any ceiling panel (on 12-foot squares, approx.). Fixtures in the special exhibition area should be suspended from an open power source “grid” (actually transverse parallel tracks at about 6-foot intervals).

7. If the walls upon which objects are installed, plus free-standing objects in center of floor, plus gallery cases, are illuminated adequately, there should be no need for general space illumination as such (down-lighting, etc.). This is distracting.

B. Collection installation:

1. Floor bases, pedestals, glass display cases, table cases, wall brackets, etc. should be designed by the architect and produced to order by local craftsmen for specific works of art. They should not be bought by stock items from a manufacturer’s selection of module samples.

2. Walls of the permanent collection gallery area will be of excellent quality material and should not be violated by the installation process. Changes of installation will be relatively infrequent. Hanging pictures, therefore, should be effected from a channel, or strip, or other device located up near the ceiling on the face of the wall. This device should be designed by the architect, be part of the working drawings, and produced especially to specifications. The hanging wire (or other material) will be colored (painted) to blend imperceptibly with the color and texture of the wall.

3. Walls of the special exhibition area must be subject to frequent changes of installation, and often these are unavoidably quick changes. They usually involve shifting wall arrangement in plan, plus change in color. Heretofore, the best solution to this has been a tough, course fabric surface, backed by ¾ inch fir, horizontal tongue and groove wood; the fabric removed every few years after successive nailing and coats of paint have disintegrated it. Hopefully, a fresh solution is to be found here.
C. Security

1. Design layout should keep maximum surveillance of art by security force constantly in mind.

2. There should be the absolute minimum of doors leading from the building to the outside. The ideal museum has only one spot where the general public enters or leaves the building: control.

3. Live, roving human beings as guards are the irreplaceable basis for security (comparable to the infantry in war), but certain electronic security devices can augment the guard staff, and even cut the salary budget for it:
   a. all exterior doors on electronic alarm
   b. fire detection
   c. limited closed circuit TV surveillance
   d. A.D.T.

D. Internal Communication:

1. Any given floor level of the building should maintain an absolutely uniform and continuous level surface on that given floor, with no thresholds or divider strips at doors (ease, economy and safety in moving objects).

2. An ample number of two-digit internal telephone stations should be installed so that rapid communication between staff, when not in their offices, can be achieved (e.g., between a guard on duty to central security office; between a curator working in a gallery and his office; or, director should be able to receive a long distance call while in conservation laboratory without going all the way back to his office).

3. A comprehensive system of signs and labels should be worked out as part of the architectural design problem, be designed under the supervision of the architect, and have typeface and scale carefully adjusted to purpose, place and background. (Announcements of shows, lectures, new acquisitions, etc., directional signs, designation of doors to specific facilities, labels for art objects.) Continuity of design.

E. Climate Control:

The principle goals are:

1. Stability (continuity, sameness) of total climate conditions maintained steadily.
2. Clean atmosphere.
3. Relative humidity steady at 55%.
Site for Museum
Museum complete plot
Required Drawings

1. Site Plan/Ground Level Plan: Scale 1/16”=1'-0"
   Show building floor plan, label all spaces. Show windows and doors, stairs, elevators, etc.
   Indicate design of courtyard. Indicate pedestrian walkways and landscaping. Show service
   entrance(s).

2. Second Level Plan: Scale 1/16”=1-0" Label all spaces. Show windows and doors, stairs, ele
   vators, etc.

3. Two contiguous elevations: Scale 1/16”=1-0”. Indicate and label materials, fenestration and
   all elements necessary to show building design. Draw the two contiguous elevations that
   best demonstrate the design intent.

4. Two building Sections: Scale 1/16”= 1'-0” Cut section to show significant spaces in building.
   Section must be taken to include the exhibit hall and adjacent space.

5. Project model: Scale 1/16”= 1'-0” 3D model that thoroughly illustrates the scope and intent of
   your design solution. The model should allow for a clear illustration of the contextual
   relationship of your project to the site and adjacent structures by the use of a shared context
   Site Model that allows each student to drop in their individual project. This last built by all
   Fourth Year students.

6. Two experiential views: These perspective views should capture the essence of the project
   as a whole.

   In your documents you must indicate the following:
   - Building materials
   - Structural concept, system and subsystems.
   - Provisions for heating and cooling system. (Space for ducts etc. -note mechanical
     systems concept.)
   - Building envelope, enlarged details.

Note: Sections should delineate use of natural light, energy conservation methods and
appropriate scale of spaces. Your final design solution should be referred to the surrounding
immediate context and must be recognized as a landmark within the zone. It is very important the
building location inside the plot to get the most of it, leaving open space to enhance the Museum
views and for outdoor use, as well as the utilization of all trees within land. The current road
splitting the property could be still used as right of way, but no construction could be over it since
there are utility lines underneath.
**Optimum Orientation**

Location: FORT WORTH, USA
Orientation based on average daily incident radiation on a vertical surface.
Underheated Shines: 2011
Overheated Shines: 2010
Compromise: 180°

**Comfort Percentages**

NAME: FORT WORTH
LOCATION: USA
WIND Dirs: 000° - 360°
WINDSPD: 00° - 360°
POSITION: 32°N, -97°W
8 Weather files

CLIMATE: Cfa
Most mid-latitude climate with mild winters

**Selected Design Techniques:**
1. Passive solar heating
2. Thermal mass effects
3. Exposed mass + night purge ventilation
4. Natural ventilation
5. Direct evaporative cooling
6. Indirect evaporative cooling

**Multiple Passive Design Techniques**

![Graph showing multiple passive design techniques over a year.](Image)
Psychrometric Chart

Location: FORT WORTH, USA
Frequency: 1st January to 31st December
Weekday Times: 09:00-17:00 hrs
Weekend Times: 09:00-15:00 hrs
Barometric Pressure: 1013-1025 kPa
© Weather Tool

HILITE: Minibus Condensation
Grading Criteria - Art Museum

1. **Problem statements and solutions**

2. **Program Requirements**
   a. Development of All Programmed Spaces
   b. Conformance to Square Footage Requirements
   c. Compliance with Required Spatial Relationships

3. **Design Logic**
   a. Circulation
   b. Spatial Relationships/Proportions/Adjacencies
   c. Relationship to existing Site, Buildings, and Parking
   d. Compatibility to Climate.
   e. Natural Lighting

4. **Code Compliance**
   b. Handicapped Accessibility Requirements

5. **Technical Aspects**
   a. Materials Selection and Wall, Floor, and Roof Assemblies
   b. Structural Systems, their Appropriateness and Integration
   c. Mechanical Systems

6. **Drawings, Model (and Site Model)**

7. **Completeness and Clarity of Presentation**
Quigley Hall Emergency Response Procedures -

Southern Illinois University Carbondale is committed to providing a safe and healthy environment for study and work. Because some health and safety circumstances are beyond our control, we ask that you become familiar with the SIUC Emergency Response Plan and Building Emergency Response Team (BERT) program. Emergency response information is available on posters in buildings in Quigley Hall and elsewhere on campus, available on the BERT’s website at www.bert.siu.edu, Department of Public Safety’s website www.dps.siu.edu (disaster drop down) and in the Emergency Response Guidelines pamphlet. Know how to respond to each type of emergency.

Instructors will provide guidance and direction to students in the classroom in the event of an emergency affecting your location. **It is important that you follow these instructions and stay with your instructor during an evacuation or sheltering emergency.** The Building Emergency Response Team will provide assistance to your instructor in evacuating the building or sheltering within the facility.

If an evacuation of Quigley Hall is required during an emergency, ALL School of Architecture students, faculty, and staff (from all three programs) are to gather ASAP after exiting in the grassed area east of the Quigley Courtyard and covered walkway area to determine if there are people unaccounted for at that particular time. There are four SoA faculty members that are part of the SIUC Quigley Hall BERT Team (Michael Brazley, Scott Frisch, Dave White, and Nadine Wojnarowski) who will be facilitating the necessary emergency procedures. There are **BERT Posters** located in numerous public areas throughout Quigley with Quigley Team emergency phone numbers.

**Do not hesitate to call 911** if you have any sense of emergency and there isn’t a faculty or staff person available to immediately assist – There are highly qualified and prepared professionals to make a response decision and to give you advice over the phone.

### Quigley Hall Emergency Response Meeting Areas

<table>
<thead>
<tr>
<th>PROGRAM</th>
<th>AREA</th>
<th>LOCATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Food and Nutrition</td>
<td>1</td>
<td>Woody Hall grassed area West of Quigley Main Entry</td>
</tr>
<tr>
<td>Child Development Laboratory</td>
<td>2</td>
<td>North Side Quigley beyond Fenced Area</td>
</tr>
<tr>
<td>Social Work</td>
<td>3</td>
<td>Grasped Area NE of Loading Dock and Auditorium</td>
</tr>
<tr>
<td>School of Architecture</td>
<td>4</td>
<td>Grasped Area East of Quigley Patio and the Covered Walkway</td>
</tr>
<tr>
<td>College of Education - Pre-School</td>
<td>5</td>
<td>Grasped Walkways Area beyond South Entry</td>
</tr>
<tr>
<td>General Classrooms &amp; Auditorium</td>
<td>1, 3, &amp; 4</td>
<td>Please instruct those outside faculty, students, and visitors during an emergency</td>
</tr>
</tbody>
</table>
IMPORTANT DATES *

Full Session Courses Begin ...........................................06/09/2014
Last day to add a class (without Dean’s permission): .........................06/15/2014
Last day to withdraw completely and receive a 100% refund: ..........06/22/2014
Last day to drop a course using SalukiNet: ................................07/13/2014
Final examinations: ................................................................07/31–08/01/2014
Commencement: ................................................Ceremonies now held only in May &

December

FALL SEMESTER HOLIDAYS
Independence Day Holiday 07/04/2014

WITHDRAWAL POLICY – Undergraduate only
Students who officially register for a session may not withdraw merely by the
stopping of attendance. An official withdrawal form needs to be initiated by the
student and processed by the University. For the proper procedures to follow
when dropping courses and when withdrawing from the University, please visit
http://registrar.siu.edu/pdf/ugradcatalog1314.pdf

INCOMPLETE POLICY – Undergraduate only
An INC is assigned when, for reasons beyond their control, students engaged in
passing work are unable to complete all class assignments. An INC must be
changed to a completed course within the time period designated, that is, by no later
than the end of the semester following the term in which the course was taken,
or graduation, whichever occurs first. The incomplete will be converted to a
grade of F and the grade will be computed in the student's grade point average.
For more information please visit:
http://registrar.siu.edu/grades/incomplete.html

REPEAT POLICY
An undergraduate student may, for the purpose of raising a grade, enroll in a
course for credit no more than two times (two total enrollments) unless
otherwise noted in the course description. For students receiving a letter grade
of A, B, C, D, or F, the course repetition must occur at Southern Illinois
University Carbondale. Only the most recent (last) grade will be calculated in
the overall GPA and count toward hours earned. See full policy at
http://registrar.siu.edu/pdf/ugradcatalog1314.pdf

GRADUATE POLICIES
Graduate policies often vary from Undergraduate policies. To view the
applicable policies for graduate students, please visit

DISABILITY POLICY
Disability Support Services provides the required academic and programmatic
support services to students with permanent and temporary disabilities. DSS
provides centralized coordination and referral services. To utilize DSS services,
students must come to the DSS to open cases. The process involves interviews,
reviews of student-supplied documentation, and completion of Disability
Accommodation Agreements.
http://disabilityservicessiu.edu/

PLAGIARISM CODE

SALUKI CARES
The purpose of Saluki Cares is to develop, facilitate and coordinate a
university-wide program of care and support for students in any type of
distress—physical, emotional, financial, or personal. By working closely
with faculty, staff, students and their families, SIU will continue to display a culture of care and demonstrate to our students and their families that they are an important part of the community. For Information on Saluki Cares: (618) 453-5714, or siucares@siu.edu,
http://salukicares.siu.edu/index.html

EMERGENCY PROCEDURES
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with the SIU Emergency Response Plan and Build-ing Emergency Response Team (BERT) programs. Emergency re-sponse
information is available on posters in buildings on campus, available on
BERT’s website at www.bert.siu.edu, Department of Safety’s website at
www.dps.siu.edu (disaster drop down) and the Emergency Response
Guideline pamphlet. Instructors will provide guidance and direction to
students in the classroom in the event of an emergency affecting your
location. It is important that you follow these instructions and stay with
your instructor during an evacuation or sheltering emergency.

INCLUSIVE EXCELLENCE
SIU contains people from all walks of life, from many different cultures
and sub-cultures, and representing all strata of society, nationalities,
ethnicities, lifestyles, and affiliations. Learning from and working with
people who differ is an important part of education as well an essential
preparation for any career. For more information please visit:
http://www.inclusiveexcellence.siu.edu/

LEARNING AND SUPPORT SERVICES
Help is within reach. Learning support services offers free tutoring on
campus and math labs. To find more information please visit the Center
for Learning and Support Services website:
Tutoring : http://tutoring.siu.edu/
Math Labs http://tutoring.siu.edu/math_tutoring/index.html

WRITING CENTER
The Writing Center offers free tutoring services to all SIU students and
faculty. To find a Center or Schedule an appointment please visit
http://write.siu.edu/

AFFIRMATIVE ACTION & EQUAL OPPORTUNITY
Our office’s main focus is to ensure that the university complies with
federal and state equity policies and handles reporting and investigating
discrimination cases. For more information visit:
http://diversity.siu.edu/

Additional Resources Available:
SALUKINET:  https://salukinet.siu.edu/cp/home/displaylogin
ADVICEMENT:  http://advisement.siu.edu/
PROVOST & VICE CHANCELLOR:  http://pvcaa.siu.edu/
SIU ONLINE:  http://online.siu.edu

http://pvcaa.siu.edu/