ARCH 4005.06
B5 Design
Dalhousie University
School of Architecture
Winter 2019

COURSE OUTLINE

Credit Hours
6

Format
Lecture/Studio

Time & Location
Monday 2:00-3:30 - Park Lane 7
Monday 2:00-5:30 - HB4, Murray G215, Studio
Thursday 2:00-3:30 - Park Lane 7
Thursday 2:00-5:30 - HB4, Studio

B5 studios will be located on the top floor of the Design Building.

Calendar Description
This course studies advanced principles of architectural design through the design of a medium-sized institutional building. Elaborating on topics from the previous design courses, students organize a complex program on an urban site and develop a project that uses building technology strategically and engages relevant issues in architectural history and theory. Emphasis is also placed on fluency in architectural representation.

Additional Description
“Thermal qualities - warm, cool, humid, airy, radiant, cozy - are an important part of our experience of a space; they not only influence what we choose to do there but also how we feel about the space. An analogy might be drawn with the use of light quality as a design element, truly a venerable old architectural tradition. The light quality - direct, indirect, natural, artificial, diffuse, dappled, focused - can be subtly manipulated in the design of a space to achieve the desired effect. Thermal qualities might also be included in the architect’s initial conception and could influence all phases of design.”
- Lisa Heschong, Thermal Delight in Architecture

This course uses an intensive study of thermal qualities within the program of bathing as a springboard for understanding larger goals of building integration: the careful coordination of climate, urban context, program, and building systems in architecture. Modern architecture has traditionally sought to achieve steady-state thermal environments which have come at a high energy cost. Through the specific study of bathing you will develop ways to more closely examine temperature and humidity and their effect on the body through curating a carefully choreographed thermal sequence.

This study of bathing is technical and social. The bath is an energy intensive program and introduces issues around energy abundance and scarcity. It asks us to visualize an energy abundant landscape in order to meet high energy demands: a strategy which we can use to address the increasing social and environmental costs of traditional energy resources. The Halifax Public Bath is also a public facility to be enjoyed by people from all walks of life in the community: visitors and residents alike. In many cultures therapeutic bathing is a site of community exchange. However, in Halifax the public bath is an unfamiliar building type, which can prompt dialogue and inquiry around traditional North American ideas of community and the body in public space.
Learning Objectives  
1. **Comprehensive Design**: Ability to project a comprehensive design based on an architectural idea, a building program and a site.
2. **Building Systems Integration**: Ability to assess, select, and integrate structural systems, environmental systems, life safety systems, building envelopes, and building service systems into building design.
3. **Detailed Design Development**: Ability to assess and detail, as an integral part of the design, appropriate combinations of building materials, components, and assemblies.
4. **Technical Documentation**: Ability to make technically precise descriptions and documentation of a proposed design for purposes of review and construction.

**ORGANIZATION**

**Course Structure**
The course meets twice a week for 3.5 hour sessions. These sessions will be dedicated to lectures, desk critiques, and reviews. There will be 2 group reviews of student work during the term as well as an ungraded process review in week 4 and ungraded penultimate review prior to the final review.

**Hours per Week**
You are expected to work approximately 18 hours/week on Design assignments. This may be distributed unevenly across the term. If you experience difficulty working within this window of time communicate this with your instructor, term coordinator, and/or class representative.

**Process Portfolio**
Students are expected to maintain process portfolios throughout the term. These will record research, design process, and final design work and be submitted with each project deadline. Refer to Process Portfolio document for specific portfolio requirements.

**REQUIREMENTS**

**Text**
Students should purchase a copy of Lisa Heschong’s *Thermal Delight in Architecture* for reference during the course.

**Required Equipment/Software**
There is no required software or equipment. Computing and model-making facilities are available from the Faculty of Architecture and Planning.

**Additional Expenses**
You will need to purchase materials for models as required, as well as pay for printing.

**Brightspace**
Course material including lectures, readings, and digital files will be available on Brightspace. As well, Site location: [https://dal.brightspace.com/d2l/home/86560](https://dal.brightspace.com/d2l/home/86560)

**OneDrive**
A Shared OneDrive folder will be used for submissions of Process Portfolios and Digital Presentations. Site location: [https://dal.brightspace.com/d2l/home/86560](https://dal.brightspace.com/d2l/home/86560)

**Term Binder**
A Term Binder has been assembled for reference throughout the term. This provides information on Bathing Practices and Precedents, the Heat-Cool-Rest Cycle, the Building Program, and the Project Site. As well it contains information on Life Safety and Accessibility criteria.
Digital Presentations

Your work will be presented through digital presentations. Digital Presentations will be uploaded before the Process, Mid-Term, Penultimate and Final Reviews to PRESENTATIONS SUBMISSION FOLDER link on the Brightspace homepage at the time indicated on each assignment sheet. Presentations uploaded after this time may not be presented. Presentations should be 50 MB maximum file size.

Label files using the following format:

A[Assignment Number]-Presentation_[Lastname-FirstInitial].pdf
i.e.

A1.1-Presentation_Forren-J.pdf
A1.2-Presentation_Forren-J.pdf
A2-Presentation_Forren-J.pdf

Presentations will be viewed on 1024x768 screen resolution at a 4:3 aspect ratio. Presentation content should be organized to fit within the allotted time for each presentation.

Physical models will have to be photographed ahead of time for inclusion in your slide presentation. These should include overall as well as perspective photographs.

Process Portfolio Submissions

Process Portfolios will be uploaded after the Mid-Term and Final Reviews to Brightspace Process Portfolio folders through the Assignments tab on Brightspace. Please see assignment descriptions for submission times. See Process Portfolio document for file naming and file size requirements.

A1.1 Process Pin-Up

The A1.1 Process Pin-Up is an early review of in-process work and will be conducted as a studio section with your instructor. It is not graded. This will be a digital presentation from projectors in studio.

A1.2 Mid-Review

A full day Mid-Review will be held from 9:00 am to 1:00 pm and 2:00pm to 6:00 pm. It will be held in 2 parallel groups allowing approximately 12 min/student presentation. You will have 5 minutes maximum to present your work. There will be a 10 min mid-way break in each morning and afternoon session. Incorporate your design statement into your presentation. This will be held in Park Lane cinemas and the Design Building Auditorium.

A2.1 Penultimate Review

The Penultimate Review will be a digital review and conducted as a studio section with your instructor. It is not graded. You will prepare a draft presentation of your work containing drawings, model photos, renders, etc. This will be a digital presentation from projectors in studio.

A2.2 Final Review

Two full day reviews will be held from 9:00 am to 1:00 pm and 2:00pm to 6:00 pm. They will be held in 2 parallel groups allowing approximately 20 min per student presentation. You will have approximately 5 to 10 minutes to present your work. There will be a 10 min mid-way break in each morning and afternoon session. Incorporate your design statement into your presentation. Prepare your slideshow according to these constraints. It is recommended you practice your presentation beforehand to fit within the time limits.

ACADEMIC INTEGRITY

Guidelines for Citing Sources

You must cite all major references for your work. This includes both literature sources and design sources (buildings and projects by others). Please refer to School of Architecture guidelines for citing sources: tinyurl.com/dal-arch-writing

Self Plagiarism

Self-plagiarism is the “reuse of significant, identical, or nearly identical portions of one's own work without acknowledging that one is doing so or citing the original work.” (https://en.wikipedia.org/wiki/Plagiarism).

You cannot submit the same model, drawing, or written work for evaluation in two different courses. You may include work from a different assignment for reference, but this needs to be cited as work from another course. I.e. your BSI Wall Section for BSI A2.2 can not be submitted for grading in Design or Representation. But you can include it in your Design Presentation, citing it as work completed for BSI.
EVALUATION
Assignments and Evaluation

There will be three assignments throughout the term: Assignment 1. Bathing and the City (35%), Assignment 2. Building Ecologies (50%), and Assignment 3. Course Engagement (15%). These will be evaluated collectively by the studio instructors according to assignment rubrics.

Late Assignments

Except for a Student Absence Declaration or documented medical reason, late submissions will be deducted 1/3 letter grade after the first 24 hour period, and 1/3 letter grade deduction per every third weekday after that.

Feedback

Your weekly desk-critiques are on-going and in-depth opportunities for feedback. It is recommended that you complete each discussion with your instructor by writing out what you heard as feedback and what is expected of you at your next meeting. Have your instructor review this so you both are in agreement.

In addition, the comments received during your Process, Mid-Term, Pen-Ultimate, and Final Reviews are feedback on the progress and development of your work. It is recommended you have a classmate take notes for you during your these presentations for you to reflect on later.

Post-Review feedback will be provided through conversations with your instructor at the following studio session. You are responsible for preparing in advance a summary of your review, next steps you are considering, and any questions you have.

Mid-Term Standing

Before the term withdrawal date students will receive ongoing verbal feedback described above as well as verbal feedback on A1.1, a rubric assessment for A1.1 and A1.2 and a rubric progress evaluation for A3.

University Grade Standards (Undergraduate)

Assignments will be evaluated according to the University Undergraduate Grading Standards.

<table>
<thead>
<tr>
<th>Grade</th>
<th>Grade Point Value</th>
<th>Percent Equivalent</th>
<th>Definition</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>A+</td>
<td>4.3</td>
<td>90-100</td>
<td>Outstanding</td>
<td>Exceptional to considerable [excellent, very good] evidence of original thinking; demonstrated outstanding capacity to analyze and synthesize; outstanding grasp of subject matter; evidence of extensive knowledge base</td>
</tr>
<tr>
<td>A</td>
<td>4.0</td>
<td>85-89</td>
<td>Excellent</td>
<td></td>
</tr>
<tr>
<td>A-</td>
<td>3.7</td>
<td>80-84</td>
<td>Very Good</td>
<td></td>
</tr>
<tr>
<td>B+</td>
<td>3.3</td>
<td>77-79</td>
<td>Good</td>
<td>Evidence of grasp of subject matter, some evidence of critical capacity and analytical ability; reasonable understanding of relevant issues; evidence of familiarity with the literature.</td>
</tr>
<tr>
<td>B</td>
<td>3.0</td>
<td>73-76</td>
<td></td>
<td></td>
</tr>
<tr>
<td>B-</td>
<td>2.7</td>
<td>70-72</td>
<td></td>
<td></td>
</tr>
<tr>
<td>C+</td>
<td>2.3</td>
<td>65-69</td>
<td>Satisfactory</td>
<td>Evidence of some understanding of the subject matter; ability to develop solutions to simple problems; benefitting from his/her university experience</td>
</tr>
<tr>
<td>C</td>
<td>2.0</td>
<td>60-64</td>
<td></td>
<td></td>
</tr>
<tr>
<td>C-</td>
<td>1.7</td>
<td>55-59</td>
<td></td>
<td></td>
</tr>
<tr>
<td>D</td>
<td>1.0</td>
<td>50-54</td>
<td>Marginal Pass</td>
<td>Evidence of minimally acceptable familiarity with subject matter, critical and analytical skills</td>
</tr>
<tr>
<td>F</td>
<td>0.0</td>
<td>0-49</td>
<td>Inadequate</td>
<td>Insufficient evidence of understanding of the subject matter; weakness in critical and analytical skills; limited or irrelevant use of the literature assignments.</td>
</tr>
<tr>
<td>INC</td>
<td>0.0</td>
<td></td>
<td>Incomplete</td>
<td></td>
</tr>
<tr>
<td>W</td>
<td>Neutral and no credit obtained</td>
<td>Withdraw after deadline</td>
<td></td>
<td></td>
</tr>
<tr>
<td>ILL</td>
<td>Neutral and no credit obtained</td>
<td>Compassionate reasons, illness</td>
<td>[Documentation must be submitted to the School of Architecture office within one week of due date]</td>
<td></td>
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Student Rights and Responsibilities

This course is governed by the academic rules and regulations set forth in the University Calendar and the Senate. See the School’s ‘Academic Regulations’ page (tinyurl.com/dal-arch-regulations) for links to university policies and resources:

- Academic integrity
- Accessibility
- Code of student conduct
- Diversity and inclusion; culture of respect
- Student declaration of absence
- Recognition of Mi’kmaq territory
- Work safety
- Services available to students, including writing support
- Fair dealing guidelines (copyright)
- Dalhousie University Library”
<table>
<thead>
<tr>
<th>Week</th>
<th>Monday</th>
<th>Thursday</th>
<th>Reading</th>
</tr>
</thead>
</table>
| 1    | **A1.1 Assigned**  
     | **L: Introduction (JF); L: Hydrotherapy (JC) L: Phenomenology (SF)** |  
     | • Heschong, “Necessity”  
     | • Aaland, “Sweat Bathing and the Body”  
     | • Bonneville, “The Story of Water” |}
| 2, No Class | PROFESSIONAL PRACTICE WEEK |  |  |
| 3    | Desk Crits (Program)  
     | **L: Society (ED) (Program)** |  
     | • Heschong, “Delight”  
     | • Bonneville, “Public Baths”  
     | • Yegul, “Introduction” |}
| 4    | **A1.1 DUE**  
     | **PROCESS PIN-UP**  
     | **A1.2 Assigned**  
     | **L: Program (DB) (Circulation)** |  
     | • Heschong, “Affection” |}
| 5    | **L: Site (CV)**  
     | Site Visit  
     | **Design Statement Workshop (Site)** |  
     | • Heschong, “Sacredness” |}
| 6    | [Theory A2 Review]  
     | Design Statement Workshop |  
     | **A1.2 DUE**  
     | **MID-REVIEW** |}
| 7, No Class | WINTER BREAK |  |  |
| 8    | **A2 Assigned**  
     | **L: Systems (TS) (Structure)** |  
     | • Ching 2014, “The Building,” pp 2.20-30 |}
| 9    | **L: Sustainability (SF) (Envelope)** |  
     | Instructor Swap (Envelope) |  
     | • Deplazes, “Facades”  
     | • Ching 2014, “Moisture & Thermal Protection” |}
| 10   | **L: Detail (TS) (Mechanical)** |  
     | Desk Crits (Mechanical) |  
     | • Ching 2014, “Mechanical & Electrical Systems,” pp 11.02-19 |}
| 11   | Design Statement Workshop (Life Safety) |  
     | Design Statement Workshop (Integration) |  
     | • Ching 2014, “Appendix,” pp A.02-03, A.10-11  
     | • Allen, “Designing for Egress and Accessibility” |}
| 12   | **PENULTIMATE REVIEW**  
     | Desk Crits (Integration) |  
     |  |}
| 13   | Desk Crits (Presentation Development) |  
     | Desk Crits (Presentation Development) |  
     |  |}
| 14   | **No Class** |  
     | **A2 DUE**  
     | **FINAL REVIEW** |}

*BS Design: Winter 2019*
A1. BATHING AND THE CITY

Assigned: Monday, Jan 7
Deliverable: A1.1 Process Presentation (ungraded)
Mid-Term Digital Presentation
Digital Process Portfolio Submission

Location: Uploaded to Shared OneDrive Folders
Due: A1.1 Process Presentation: 11:00 am, Monday Morning, Jan 28
A1.1 & A1.2: 11:59 pm Wednesday Evening, Feb 13 (Mid-Term Presentation)
A1.1 & A1.2: 11:59 pm Thursday Evening, Feb 14 (Process Portfolio)
Duration: 4 weeks

INTRODUCTION

This assignment develops a clear programmatic idea which is then adapted to a specific site context. This begins with an investigation of materials, atmospheres, and social dynamics at the scale of the room in A1.1. In A1.1 you will develop physical models and drawings for a single bathing cycle. This will help you understand and develop ideas about the core function of the building. These models and drawings will act as a seed for A1.2 which explores the organization of the overall program, and adapts this organization to the site. Assignment 1 culminates in a proposed building massing on the site in downtown Halifax.

As you develop your project consult the Term Binder for specific program requirements. You may depart from this criteria with the approval of your studio instructor. Any adjustments, however, should not radically alter the scope or intent of the project as a large scale, publicly-oriented facility.

A1.1 THE BATHING CYCLE

A1.1 Deliverables
1. Physical Models, 2 minimum (1:50 (recommended scale))
2. Plans, Sections, Elevations (Related to models and as required to communicate important aspects of your design).

The A1.1 Process Presentation will present A1.1 deliverables in a digital presentation. It is not graded and is for early verbal feedback on your project. You will be able to make revisions to your A1.1 deliverables as part of your graded submission for A1.2.

A1.1 Description

The bathing cycle of heating, cooling, and resting is the cornerstone of the bathhouse program. Through physical models and drawings you will design a single Heat-Cool-Rest bathing cycle consisting of three spaces: one heating, one cooling, and one resting.

The design of the Heat-Cool-Rest cycle does not need a specific site orientation or location. However, you should consider how light, air, views, and urban context (street, plaza, and harbor) can play a role in the experience between interior and exterior space. Think about the character of the spaces you would like to explore. Are they active, lively places for the community? Or quiet escapes from the city? Are they meant to challenge social norms, explore new technologies, or integrate with nature? How do they accommodate diverse social and cultural populations and ranges of mobility? Primary criteria to consider are:

1. Social: public/private space, rituals of bathing or resting, spatial procession, interior/exterior space
2. Phenomenological: the experience of the body in space, materials, textures, atmospheres, views

You will make at least two (ideally more) physical models of your design: one after the other. These should be rough, exploratory investigations as opposed to pristine, finished presentation models. Your second model will distill, focus, and/or refine the ideas from the first model in a process of design iteration. You may also use digital models to develop your ideas, but physical models are required.

In Section III: Program of the Term Binder you will find a description of spaces for the Heat-Cool-Rest bathing cycle. Use this as a guide in selecting and designing your three spaces. Select one type of space from each list. You may depart from these examples in consultation with your studio instructor. Although the program describes these spaces individually, you can combine multiple functions in a single space. But you must satisfy the specific criteria of each program function.

In order to anticipate the introduction of structural, envelope, and mechanical system requirements you will need to include a horizontal plenum (minimum 305 mm (12 in) interior depth) and a vertical core (2.3 sqm (25 sqft) interior area) or veretical service wall (minimum 460 mm (18 in) interior depth) in your design. You do not need to show any mechanical equipment or ducts. Simply provide space (although you may want to consider ideas about structure).
A1.2 A BATH HOUSE IN THE CITY

A1.2 Deliverables

Digital presentation to include the following:
1. A1.2 Building Model (Photographed in Site Model; Include 1 photo down Sackville Street, looking towards the harbor)
2. A1.2 Process Building Models
3. Plans, Sections, Elevations (Multiple Scales as req’d, Show Context)
4. A1.1 Deliverables and Revisions
5. Design Statement

A1.2 Description

An important aspect of the bathing program is that it is comprised of clusters of Heat-Cool-Rest bathing cycles. I.e. all the heating spaces are not in one part of the building, and all the cooling spaces in another. Instead, people need to be able to go easily between a heating and cooling space without walking long distances. They can walk long distances between cycles, but people will typically need to complete a heat-cool-rest sequence in each location of your bathing program. This requires a unique understanding of the program and is the purpose for the programmatic focus of this assignment. The Term Binder shows some examples of how other architects have organized multiple clusters of heating, cooling, and resting spaces.

Assignment A1.2 is a step-by-step exercise expanding your A1.1 models and drawings to a whole building adapted to the specific context of the site. This exercise begins by multiplying your heat-cool-rest cycle at different scales in relationship to a large civic gathering space. This organization then serves as an armature for coordinating the secondary program elements of Front of House, Administration, and Service. This programmatic organization, although potentially adaptable to other sites, is then adapted to the specific context of the Lower Water Street site.

Multiple Bathing Cycles

This first part of A1.2 expands the design of one cycle to a network of multiple cycles at various scales. What was one cycle for a small group of people can be repeated and aggregated for multiple spaces with different sized groups of people, but carrying through a similar or related idea.

Some organizing approaches you can explore include stacking, grouping around a courtyard, or linking in a row. You can also think about their relationship in section and whether they are above ground, below ground, or at grade. Although they will be multiplied, your bathing cycles can overlap and intermix.

Two sets of criteria to consider in your organization are:
1. Climate: How exposed to the elements should people be in their access between cycles? Do you want to nest energy intensive programs or expose them? How much surface area do you want to expose in your building?
2. Circulation: A network of corridors, room-to-room circulation, a large meandering open space or some combination of these impacts the social and technical dynamics of your project. How do you move between cycles? Do you follow long corridors? Pass through courtyards? Through other rooms? Or do you wander through an open environment? This includes managing the wet-to-dry sequencing.

Civic Gathering Space

A civic gathering space links the intimate activities of bathing to the public flows of the city. It relates to the activities of the bathhouse and serves as an organizing armature for them. The criteria for this space are described in Section III of the Term Binder.

Administration, Service, and Front-of-House

Once you have tried a few relationships between the bathing cycles and civic space, then consider their implications for the rest of the building program: Front-of-House, Administration, and Service. These spaces can support, reinforce, or build off of the basic organization of your bathing / civic space prototype.

Site

Review Section IV of the Term Binder to familiarize yourself with detailed information and specific criteria for the site. With your programmatic organization more clearly understood, you can begin to adapt this organization to meet the site’s particular requirements and opportunities. Perhaps in A1.1 you considered how the building can address the street and the water. Now you can address specific views, landmarks, and pedestrian flows. In A1.1 you may have considered solar orientation. Now you can see how this functions in relationship to specific adjoining buildings.

Specific site criteria your project must address are:
1. Urban Context: Street, Plaza, Harbor, and Harborwalk
2. Social Context: Pedestrian flows, Gathering spaces, Views
3. Climate and Energy: Solar orientation, Winds, Daily and Seasonal temperatures
**Design Statement**

The Design Statement is intended to help you organize your thoughts around your design project as well as situate it within the larger context of the term and the practice of architecture. It will be started in A1.2 and completed in A2. You will present the deliverables at your A1.2 and A2 review and use them to help you organize your presentation statement.

You will be introduced to the Design Statement during A1.2. There will be two sessions in studio (one during A1.2 and one during A2) to review the statement with your Theory instructor or TA and Design instructor. You may review it further with either as required by appointment.

1. **Organization**
   1) Assignment introduction during A1.2.
   2) Design tutors, their studio groups, and Theory instructor (and possibly the B5 Theory/Interpretation TAs) will discuss the statements during tutorials two times during the term.
      - Monday, 2:00-3:00 DB, 3:00-4:00 ED, 4:30-5:30 SF
      - Thursday, 2:00-3:00 JF, 3:00-4:00 TS, 4:30-5:30 CV

2. **Process**
   a) Which three keywords are most important to your project?
      - form
      - function
      - users
      - public
      - context
      - character
      - order
      - space
      - structure
      - material
      - history
      - nature
      - something else
      These keywords are also seminar topics in BS Architectural Theory and Interpretation, drawing from chapters in Adrian Forty, *Words and Buildings*.
   b) For each of your three keywords, what is your main intention?
      - For each intention, write 50 words. To consider different types of intentions, ask yourself:
        - Does the design solve any problems?
        - Does the design pursue any opportunities?
        - Does the design borrow and "test drive" any characteristics from previous buildings?
        - Is the design motivated by any writings in architecture or another discipline?
        - Whom (or what) would benefit most from the design?
   c) How is each intention achieved through the design?
      - For each intention, make a 3" x 4" sketch that represents a related design feature clearly and vividly.
        - The sketch could be a diagram, a composition of elements, a significant detail, etc.
        - The technique could be a hand drawing, a collage, a digital drawing, a photomontage, etc.

3. **Product**
   An 11" x 17" sheet with "Design Statement," your name, and the date at the top, followed by:
   - Keyword 1
   - Keyword 2
   - Keyword 3
   - Intention 1 (50 words)
   - Intention 2 (50 words)
   - Intention 3 (50 words)
   - Sketch 1
   - Sketch 2
   - Sketch 3

The design statement will be updated throughout the term and included in your Process Portfolio.
This assessment sheet is a guide to student performance, not a point scoring system. Evaluation for a single criteria evaluation may be a composite of different standards. For instance, under Program a project may be marked “Excellent” for “Coherent organization,” and “Good” for “Needs to clarify...” The standards are based on university undergraduate grading standards, and each one captures a grading range. For instance, “Excellent” captures marks from A- to A. Therefore, it is possible for nearly identical standard assessments to result in different criteria grades. The final calculated grade will be based on an overall weighting of standards met within the different criteria.

<table>
<thead>
<tr>
<th>CRITERIA</th>
<th>STANDARDS</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Excellent</strong></td>
<td><strong>Good</strong></td>
</tr>
<tr>
<td>Design Process 30%</td>
<td>Exceptionally demonstrates a coherent idea and design criteria, grounded in a close study of phenomenological and/or social characteristics of architecture.</td>
</tr>
<tr>
<td>Program 20%</td>
<td>Demonstrates iterative design process developing multiple representations that relate to one another and/or explore parallel ideas.</td>
</tr>
<tr>
<td>Site 20%</td>
<td>Coherently links program with urban context and climate according to design criteria.</td>
</tr>
<tr>
<td>Design Output 30%</td>
<td>Models, drawings, presentation, and statement clearly and vividly communicate the design ideas and process.</td>
</tr>
</tbody>
</table>

Comments:
A2. BUILDING ECOLOGIES

Assigned: Monday, Feb 25
Deliverables: Final Digital Presentation
             Process Portfolio Submission 2
Location: Uploaded to Shared OneDrive Folder
Due: 11:59 Wednesday Evening, Apr 10 (Final Presentation)
     11:59 Saturday Evening, Apr 13 (Process Portfolio)
Duration: 6 weeks

Deliverables

Digital presentation to include the following:
1. Site Drawings: Site Sections, Site Plan
2. Building Drawings: Plans, Whole Building Section*, Elevations
3. Process Building Models fit to Site Model
4. Final Model fit to Site Model
6. Photos/Renderings Key Project Views
7. Updated Design Statement
8. Representation Assignment 3
9. BSI Assignment 2

*draft reviewed in BSI A2.1.

A2 Description

In assignment A2 you will develop your program, site, and massing intentions from A1.2 through the detailed design of integrated building systems. This includes the continuation of an iterative design process prototyping, analyzing, and evaluating your design through multiple versions of drawings and models. In addition you will create diagrams and a building section for analyzing and designing your building systems. This includes the social and cultural as well as technical aspects of your project.

You will prepare two presentations of this work: a penultimate presentation and a final presentation. Plan your prioritization of the criteria below with your studio instructor according to the unique needs of your project.

Systems Integration

In Thermal Delight in Architecture, Lisa Heschong asks ‘How might the solar house incorporate some of the richness of the hearth?’ How can technologically advanced systems today assume the character we typically associate with traditional technologies like the hearth? Seen through this lens, systems integration refers to how structure, mechanical, and envelope systems work together to express a design idea and create a sense of place.

Elements of structure, mechanical, and envelope systems can be visually and spatially coordinated as interdependent pieces with nested or inter-related functions. For example, a wall that is both heat source and structure; or a light filtering screen supported by a structural frame. This nesting can impact the social and cultural characteristics of your design project. For instance, by creating heated spaces in winter or shaded spaces in summer which encourage social gathering.

Whole Building Diagrams

To coordinate these relationships it helps to know what functions the different elements of your building serve. For each of the four topics below create two plan diagrams (ground floor and typical level) to visualize the information listed under each topic. Create 2 generic base plans (ground floor and typical level) over which the relevant information will be layered. Lighten these base plans so the required information stands out and can be clearly read. Provide a legend for each drawing. Use colors, hatches, and exaggerated lineweights to clearly identify elements. You can refer to examples in references from Design, BSI, Representation, and Theory courses. A draft will be reviewed in B5 BSI A2.1.

1. Structure (Columns, Structural Walls, Bearing Lines, Shear Walls, Span Direction)
2. Mechanical (Plant(s), Distributors, Emitters, Describe if it is All Air or Air-Water)
3. Life Safety (Exit Access, Exit, Exit Discharge, Travel Distance, Exit Separation) [Include in Professional Practice Process Portfolio]
4. Accessibility (Accessible Pathways, Ramps, Doorways, Entries / Exits) [Include in Professional Practice Process Portfolio]
Whole Building Section
The Whole Building Section is a detailed section through a significant organizing moment in your building that tells the story of your design project. This is not necessarily a 'typical' section. Rather, it is one where we can clearly see significant organizing strategies at play including passive ventilation, structural configuration, and social relationships. It can serve several important functions listed below and be a process document that you work and rework using as a design tool. Consult references for how to show your ideas and for technical support on understanding strategies.

1) **Template.** Use the Whole Building Section to work out typical details, lineweights, representational techniques.
2) **Integration.** As you develop details consider how mechanical, structural, and envelope components interrelate. Do they pass by one another, travel over or under, are they embedded?
3) **Climate.** Study how sunlight enters the building, how air circulates through it, and how the envelope impacts these dynamics. Clearly show passive strategies in play of buoyancy ventilation, cross-ventilation, daylight penetration, etc. You may choose to show site strategies (rain water collection, grey water filtration, sewage heat exchange, ground heat exchange, etc.) which enhance your building systems strategies. Make sure your ways of showing air, wind, light, etc. are clear and legible.
4) **Social Dynamics.** This section should also show occupation: people and how they are using the spaces. Demonstrate how people interact in the space. Where are they looking? Where can people from the outside see inside? Where do they gather? Where are they alone? A draft will be reviewed in B5 BSI A2.1.

Below are concepts you need to demonstrate an understanding of through the development and representation of your design.

**Structural Concepts**
- **Mass system or point system.** A mass system supports a cellular organization with typically small bays. A point system may support a free plan organization strategy.
- **Ground condition.** How the structure meets the ground and the water.
- **Concealed or exposed structure.** Structure can be revealed, concealed or some combination of the two. Where and how you choose to do this can be strategic. For instance, roof spans (when not occupied) do not require fire ratings and can be moments for exposing a wood or steel frame overhead. Concrete can be exposed cost effectively as it doesn’t require fire-proofing.

**Envelope Concepts**
- **Views in and out**
- **Air** in and out. How does air flow in and out of your building?
- **Insulation** method and location. What materials do you choose for insulation? Where in the depth of your assembly is it located? Or is it the entire depth of a single material?
- **Solar** harvesting and shading
- **Buffer zones.** Pockets of variable temperature (with lighter thermal loads (i.e. corridors) between the weather and deep interior program).
- **Perceived depth.** The detailing of the envelope can play a significant role in reading the depth of a surface or the visibility of the interior. How might depth and visibility play a role in your design concept?

**Mechanical Concepts**
- **One or Many.** A mechanical system may be a single contiguous network back to a central plant. Or it may be many pieces of equipment dispersed in smaller plants through the building.
- **Up-and-down or Side-to-side.** Trunk lines (the primary and largest ducts and pipes) may travel vertically through cores and chases, and / or horizontally through ducts or plenums.
- **Over or Under.** Horizontal distribution of plenums, ducts and pipes may be overhead, underfoot, or in-between.
- **Passive or Active.** Passive systems utilize available energy such as the natural currents of air in buoyancy ventilation, or the warming rays of the sun in solar gain. These can be coordinated with active system elements like air handlers and ducts or boilers and pipes to work together in conditioning the interior environment.
- **Seeing it.** The visibility of the mechanical system plays a role in the story of your building. Diffusers can be concealed or integrated with finishes; radiant elements can be decorative. Ducts can be concealed or exposed. In nineteenth century concert halls, for instance, ornate grills at the ceiling were responsible for conveying exhaust air out of the performance space.

**Life Safety and Accessibility Concepts**
Meeting the Life Safety and Accessibility needs for a building is not just a matter of meeting requirements. It can help test the logic of your project's spatial and circulation organization. For instance, if mapping the path of travel does not seem fairly clean and logical this may suggest refinements to your circulation approach. This requires an understanding of the following concepts. See the Term Binder and Design and BSI course references for standard dimensions and criteria.
- **Widths** (Corridor, Stairs / Ramps, Doors)
- **Slopes** (Ramps, Stair Rise / Run)
- **Depths** (Vestibules, Landings)
- **Heights** (Handrails)
- **Lengths** (Common Path of Travel, Diagonal Separation)
This assessment sheet is a guide to student performance, not a point scoring system. Evaluation for a single criteria evaluation may be a composite of different standards. For instance, under Program a project may be marked “Excellent” for “Coherent organization,” and “Good” for “Needs to clarify...” The standards are based on university undergraduate grading standards, and each one captures a grading range. For instance, “Excellent” captures marks from A- to A. Therefore, it is possible for nearly identical standard assessments to result in different criteria grades. The final calculated grade will be based on an overall weighting of standards met within the different criteria.

<table>
<thead>
<tr>
<th>Criteria</th>
<th>Standards</th>
<th>Excellent</th>
<th>Good</th>
<th>Satisfactory</th>
<th>Marginal Pass</th>
<th>Inadequate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Design Process 35%</td>
<td>Exceptional to considerable evolution of Assignment 1 through a close study of technical and experiential aspects of building systems, program, and site.</td>
<td>Coherent design development. Addresses technical and experiential aspects of building systems, program, and site. Needs development in one or more of these areas.</td>
<td>Evidence of design development and address of technical and experiential aspects of building systems, program, and site. Needs significant development in one or more areas.</td>
<td>Minimally acceptable design development and address of technical and experiential aspects of building systems, program, and site.</td>
<td>Insufficient basis for evaluation. Little to no evidence of design development.</td>
<td></td>
</tr>
<tr>
<td>Criteria Integration 30%</td>
<td>Exceptional to considerable iterative design process with highly productive prototyping, analyzing, and evaluating outcomes.</td>
<td>Reasonable understanding of iterative design process. Needs development in prototyping, analyzing, and / or evaluating work.</td>
<td>Evidence of iterative design process. Needs significant development in prototyping, analyzing, and / or evaluating work.</td>
<td>Minimally acceptable evidence of iterative design process.</td>
<td>Insufficient basis for evaluation. Little to no evidence of iterative design process.</td>
<td></td>
</tr>
<tr>
<td>Design Output 35%</td>
<td>Overall design execution demonstrates exceptional to considerable systems integration guided by design criteria.</td>
<td>Overall design execution shows reasonable understanding of systems integration guided by design criteria.</td>
<td>Overall design execution shows evidence of some understanding of systems integration guided by design criteria.</td>
<td>Overall design execution shows minimally acceptable familiarity of systems integration guided by design criteria.</td>
<td>Insufficient basis for evaluation. Little to no evidence of systems integration guided by design criteria.</td>
<td></td>
</tr>
<tr>
<td>Design Output 35%</td>
<td>Systems diagrams and whole building section show exceptional to considerable grasp of systems integration.</td>
<td>Systems diagrams and whole building section show reasonable understanding of systems integration.</td>
<td>Systems diagrams and whole building section show evidence of some understanding of systems integration.</td>
<td>Systems diagrams and whole building section show minimally acceptable familiarity with systems integration.</td>
<td>Insufficient basis for evaluation. Little to no evidence of systems integration.</td>
<td></td>
</tr>
</tbody>
</table>

Comments:
A3. COURSE ENGAGEMENT DESCRIPTION, RUBRIC AND ASSESSMENT

Student Name: ____________________  Grade: ______

Assign: Monday, Jan 7  
Due: Friday, April 12  
Duration: 14 weeks

Description

Course engagement encompasses your contributions to the class as a whole, your studio section, and your own personal creative process. This is a value in the collegiality of your efforts as well as the responsibility you assume for the success of your own and others’ work. This can take many forms including productive and constructive feedback to your peers, attentiveness and contributions at class critiques, equitable contributions to course discussions, assisting in section or course-wide needs, constructive engagement with your instructor, regular commitment to your physical presence in studio, and demonstrating an ongoing and consistent work ethic. You will receive an ungraded progress evaluation after week 6.

High A. Leads class discussions. Does not always speak, but leaves room for others’ voices and solicits critical debate and others’ engagement. Always in attendance and on-time. Asks critical questions and follows up with answers researched independently. Brings new knowledge to the class by bringing in information from other courses, disciplines, and experience by bringing in specific texts, samples, or examples. Provides significant troubleshooting and insight on peers’ projects. Exceptionally efficient use of studio time. Exceptional preparation for desk critiques with critical, relevant, original questions demonstrating outstanding grasp of subject matter. Exceptional project development between meetings. Exceptional response to project critiques. Is able to move project forward or trouble shoot even if not speaking first with instructor. Actively engaged during lectures, reviews, and peer’s presentations, participating and generating discussion. Sketchbook demonstrates exceptional evidence of engagement with lectures, reviews, classroom’s presentations, and project development.

Low A. Contributes constructively to class discussions. Does not need prompting. Leaves room for others’ comments. Always in attendance, late once or twice. Asks critical questions based in evidence or knowledge, not blind assumptions. Brings outside knowledge through mentioning projects and resources. Contributes knowledge in conversation from other disciplines, courses, and experience, but may not bring in evidence. Addresses peers’ projects in conversation with constructive feedback. Considerably efficient use of studio time. Considerable preparation for desk critiques with original questions and considerable project development between meetings. Considerable response to project critiques. Makes efforts to move project forward or trouble shoot even if not speaking first with instructor. Engaged during lectures, reviews, and peer’s presentations. Sketchbook demonstrates considerable evidence of engagement with lectures, reviews, classroom’s presentations, and project development.

High B. Reasonably contributes to class discussions. Contributions may benefit from further research. Misses few classes and rarely late. Freely asks clarifying questions and demonstrates uptake of responses. Reasonable contribution of relevant knowledge to the class. Contributes to peer’s work with relevant feedback. Productive use of studio time. Productive preparation for desk critiques with questions demonstrating a critical understanding of subject matter. Productive responses to project critiques demonstrating promise and analytical ability. Consistent presence at reviews. Sketchbook demonstrates ability in critical engagement with lectures, reviews, classroom’s presentations, and project development.

Low B. Contributes to discussions usually only when called on. Reasonable attendance. Freely asks clarifying questions. Reasonable contribution of knowledge to the class. Contributes to peer’s work in class discussions when asked. Reasonable use of studio time. Reasonable preparation for desk critiques with questions demonstrating a reasonable understanding of subject matter. Productive responses to project critiques demonstrating understanding of relevant issues. Reasonable presence at reviews. Sketchbook demonstrates reasonable engagement with lectures, reviews, classroom’s presentations, and project development.

High C. Some evidence of class discussion participation. Sufficient attendance. Some attempts to seek clarification. Some contribution to new knowledge in class demonstrating some understanding of subject matter. Some contribution to classmates’ work demonstrating some understanding of subject matter. Some use of studio time for project development. Some evidence of preparation for desk critiques and response to fundamental project critiques demonstrating grasp of subject matter. Sufficient attendance at reviews. Sketchbook demonstrates abilities and understanding of subject matter in engagement with lectures, reviews, classroom’s presentations, and project development.

Low C. Limited evidence of participation in discussions or engagement with peers’ work. Some limited participation in class discussion. Sufficient attendance. Absences affect performance. Some attempts to seek clarification, but would benefit from further efforts. Some contribution to knowledge in class. Some contribution to classmates’ work. Some use of studio time for project development, would benefit from more efficient use of time. Some preparation for desk critiques and some response to project critiques. Some evidence of attending reviews. Sketchbook demonstrates engagement with lectures, reviews, classroom’s presentations, and project development.

D. Evidence of minimally acceptable attendance, participation in discussions, and preparations for desk critiques. Minimally acceptable use of studio time and efforts to clarify questions. Minimally acceptable desk critique preparation. Sketchbook demonstrates minimally acceptable evidence of engagement with lectures, reviews, classroom’s presentations, and project development.

F. Limited or no attendance. Insufficient effort or contributions to evaluate performance.

Comments:
References

Theory

Bathing Reference


Architectural Precedents


Technical


