Design Fundamentals I • Fall 2013
NYIT School of Architecture and Design

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Introduction & Policies

Introduction: Design Fundamentals is your introduction to the design of space and form. The curriculum is delivered through a series of conceptual and compositional exercises that teach you the importance of process and a methodology in design. You will undertake a series of interrelated space-making and drawing exercises that build on each other in increasing complexity. The exercises are set with specific parameters and challenge you to use design methodology (an iterative design process), compositional rigor, and conceptual clarity. In the process, you will learn to use drawings, diagrams, and models to represent and communicate design ideas clearly and effectively. As such, the first year studios, and its variety of activities, provide you with the foundation from which you can build a design education.

Objectives: Throughout the semester, you will discover that the premise of the studio is that design ideas emerge from a careful negotiation of creativity and problem solving. The focus will be both THINKING and MAKING as this course sets the foundation for you to:

- **Perceive**: Methods for observation and interpretation of the built environment.
- **Analyze**: Methods of identifying, organizing, processing, and communicating information.
- **Explore**: Investigate your design ideas through courageous and insightful experimentation.
- **Fabricate**: Construct design ideas and propositions within the constraints of established parameters.
- **Represent**: Present design ideas clearly through the use of drawings, diagrams and models as well as written and verbal communication.

Methods: Project documentation and investigation will intentionally utilize the full range of media to visualize and represent the work and process. The making of physical models, hand drawings, and sketches will all be expected and required as part of the assignments for the course.

Attendance: The benefit of student interaction is critical to your development as an architect. When all of the students are in attendance, you are able to see and learn from your fellow students, pick up skills from others, and give and receive feedback from your classmates on the projects. Thus, attendance is a serious business.

The School of Architecture and Design has a very specific policy regarding attendance: it is expected that no work-related issues or medical appointments be scheduled during studio time.

- Two unexcused absences may result in a substantial lowering of your grade.
- Three unexcused absences requires, according to School of Architecture policy, a withdrawal from the course.
- Arriving to studio more than 15 minutes late or arriving without studio materials will be counted as an unexcused absence. All of you are well aware of traffic and public transportation problems, so give yourself ample time to arrive in studio.

Studio Experience: Design Fundamentals I is your introduction to the design studio as a learning environment. The studio is a challenging and exciting place of work and constructive interaction. It is much like an experimental laboratory where ideas are formulated, explored and tested. Ideas are not evaluated in terms of correct or incorrect, but rather in terms of design creativity, problem solving and the application of process, logic, and rigor. As such, a design studio course is very different from a typical lecture / seminar course. Evaluation is based on wide range of criteria (not just testing outcomes) that include participation, preparation, and creative growth.
Unlike the conventional lecture course, you are encouraged to talk to your studio mates about the exercises and the progress of the work. Your Studio Critic will work with each of you individually at each studio session (called desk crits). They will also conduct informal group reviews of student work where projects are openly discussed and ideas exchanged for the broader good of the studio (called pin ups). More formal pin-ups (called reviews) are used to evaluate your work at specific points during the semester and often involve outside critics evaluating and discussing your work.

You must make the most of your time in studio and be self-motivated, well organized, and prepared for the work of the day. Bring all of your materials every session because you are EXPECTED to work in studio during class time. Late arrival or arrival without adequate preparation, not only jeopardizes your grade, it compromises the integrity and spirit of the studio.

It is your responsibility to maintain the order and cleanliness of the studio. Garbage trash generated should be disposed of promptly. The School is not responsible for the security of your equipment. As such, lap tops, cameras, and cell phones should not be left in studios unattended. Put your name on all your equipment in a way that it cannot be removed. Other policies and expected minimum levels of conduct are as follows:

- All spraying of any paints or glues within the building is strictly prohibited due to allergies that people have to these agents. Spraying outside of the building should never be done directly on the sidewalk or grass but instead on a disposable surface (use cardboard or newspaper as an underlay).

- All playing of radios or televisions during studio time, with or without headphones, is prohibited. Outside of studio hours, please be aware of the potential problems resulting from playing music without headphones and be considerate of your neighbor.

- Cell phones are to be turned off during studio time and may be confiscated if your critic finds that they are distracting you.

- You are required to remain in the studio for the complete meeting time unless authorized otherwise by your critic.

- Activities external to the studio are to be conducted outside of the studio space.

The studio experience is one that is remembered fondly by those that continue to study architecture and interior design. You will most likely make many new friends and be exposed to ideas and attitudes that are stimulating. Of all the studios that form the design curriculum of the School of Architecture and Design, Design Fundamentals I and II, are perhaps the ones most fondly remembered. For our graduates, these studios were the “boot camp” at the start of their education and their careers.

**Evaluation:** Grades will consider the originality and appropriateness of the idea, the project's completeness, the quality of presentation, and the effort put into the submission. Process throughout the duration of the project will be considered as an intrinsic part of the product. Evaluation of presentation will consider the quality, precision, and craft of the presentation, as well as the effectiveness and clarity of the formal presentation - this includes the verbal presentation of your work. Thus, neither merely completing all the presentation requirements, nor merely having a good idea, will be enough to achieve a good grade. Curiosity, ability to respond to criticism, the initiative to generate and criticize your own ideas, responsibility, and work ethic all play a role in this evaluation.

You may expect to receive a grade following each project and at “milestones” in the semester. In addition to the following guide to grading, your critic may outline their own specific criteria.
A 4.0 Superior
A- 3.7 Excellent
B+ 3.3 Very good
B 3.0 Good
B- 2.7 Competent
C+ 2.3 Fair
C 2.0 Satisfactory or Average
C- 1.7 Marginal
D 1.0 Unsatisfactory
F 0.0 Failure
I Incomplete. By arrangement with critic only. Semester work must be largely complete and satisfactory for course completion. Students failing at the conclusion of the semester are not eligible to receive a grade of Incomplete. Work may not be submitted after the conclusion of the subsequent full semester. See NYIT rules and regulations regarding grades of “I.”

**Tools & Equipment:** The following materials (made up of both equipment and disposable supplies) ARE REQUIRED for Design Fundamentals I. Additionally, you will be asked to buy materials throughout the semester to fulfill specific studio assignments. Unfortunately, these materials can be expensive. However, most of you will take great pleasure in owning these timeless “tools of the trade.” If you maintain the equipment they will serve you throughout your education and well beyond. **You MUST bring materials to EACH studio session.**

**Making & Removing Lines:**
1. Clutch type lead holder pencil. Mechanical pencils are not acceptable.
2. Pencil leads. 2B, H, 2H, 4H, one 12 packet of each.
3. Rotary style lead pointer.
4. Graphite sketch pencils in 4B, 2B, and H. 2 each.
5. Metal pencil sharpener. No shaving reservoir. Two pencil thickness style.
6. Prismacolor pencils: Black PC 395, White PC938, Canary Yellow 916, Carmine PC926, True Blue PC903. 2 each.
7. Pilot "Varsity" fountain type disposable sketch pen. 2 each.
8. Rapidograph type technical ink pens with points 0000, 000, 00, 0, 1, 2, 3. You may purchase these in packaged sets or individually. If purchased separately, purchase technical ink.
9. White and pink vinyl erasers.
10. Metal erasing shield.
11. Battery powered electric eraser with white vinyl and pink rubber cartridges (optional).

**Guiding Lines:**
12. T-square. 36” length. Mounted parallel bars are not permitted.
13. 30/60 degree plastic triangle with minimum leg of 12.” Non beveled edge.
14. 45 degree plastic triangle with minimum leg of 12.” Non beveled edge.
15. Adjustable plastic triangle with minimum leg of 12” Beveled inking edge.
17. Adjustable drafting compass with extension arm.
18. Universal pen adaptor for compass.

**Measurement of Scale:**
19. 12” wood or plastic ARCHITECTURAL scale. **Metal scales are not acceptable.**

**Drawing Surface Materials:**
20. 12” roll of white sketch paper.
21. 24” roll of white sketch tracing paper.
22. 24” roll of Clearprint 1000H drafting vellum OR 24” X 36” sheets.
23. 24” roll of Mylar type double sided drafting film, minimum 3mil thick.
24. Daily journal or sketch book. Moleskin or Aquabee. 93 lb. Smooth paper surface. 6” X 9” min. size.
Model Making:
25. Self healing rubber cutting board, 18” x 24” minimum size.
26. Stanley #99 matt knife with blades.
27. X-acto blade holder for #11 blades.
28. Package of 100 #11 blades.
29. X-acto saw blade holder.
30. X-acto fine tooth saw.
31. Aluminum model maker’s miter box.
32. 36” steel straight edge with inch measurement.
33. Elmer’s wood glue.
34. Florist carving foam. 8” cube. See note below.
35. Hardwood cubes. 200 1” cubes. 400 1 / 2”. (Balsa wood cubes are not acceptable). See note below.
36. 1/8” Basswood sheet. 6” X 24.” 4 sheets.
37. 1 / 2” white foam core board. 30” X 40” 4 sheets.
38. 4 ply white Museum Board. 4 sheets.
39. Sand paper - 160, 240, 400 grit, three sheets each.
40. Quart. Flat oil based white primer paint.
41. Disposal paint brushes. 4
42. Clear styrene plastic sheet. 1 mm thick. 12” X 24”
43. Testor’s styrene glue. Container with applicator needle. 88720.
44. Tamaya brand transparent blue spray paint. TS 72. 3 1 / 2” Oz. can.
45. CementAll patching cement. Minimum 15 pound box.
46. Miscellaneous disposable plastic buckets (one large one included).

Workspace for Studio:
45. Drawing board - minimum 24” x 36” wood Aerocore brand. Plastic surface boards with attached sliding straight edges are not acceptable.
46. Vinyl drawing board surface. 24” X 36.” Borco brand or equal.
47. Drafting Brush.

Workspace Away from Studio:
49. Drafting surface (board or table top) with stationary mounted “parallel” bar. Minimum of 36” in length.
50. Vinyl drawing surface for the above.
51. Adjustable architect’s desk light.
52. Clamp style adjustable utility lights with 60 watt flood type bulbs. Minimum of two.

Photographic Recording of Models:
53. Digital camera with accompanying software.

Miscellaneous:
55. Fiskars 8” scissors.
56. Spray adhesive. 8 oz. can.
57. Spray drawing fixative. Workable fixative only. 8 oz. can.
58. Roll of drafting tape. Masking tape or blue painter’s tape is not acceptable.
59. Roll of clear “invisible” tape.
60. Roll of two sided tape for affixing vinyl drawing board surface.
61. Paper or plastic drawing folder with handle large enough for drafting board and loose drawings.
62. Art-Bin or lockable fishing tackle box large enough to contain drafting equipment.
64. Padlock for school locker.

Note: Purchase carving foam and wood cubes AFTER THE START OF THE SEMESTER as directed by your critic.
Your studio critic will ask you to buy additional materials throughout the semester. Some of these materials may not be on the required materials list. Papers, glue, colored pencils, etc., are expendable materials, meaning that you will "use up" what you purchase initially. Anticipate the expense of replacing these materials.

- **Online Supply Source:**
  Blick Art Supplies - www.dickblick.com
  www.craftparts.com (wood cubes)

- **Local Supply Source:**
  Blick Art Supplies
  Pearl Paint
  New York Central Art Supply
  Rebie's (Old Westbury)

- **Specific Architectural Model Supply Source:**
  Gold Coast Hobby. 516-759-4094

**Textbooks:** There is no required textbook for Design Fundamentals I. However, you will be exposed to a body of historical/theoretical texts as each design exercise is assigned. These will situate the exercises within a broader context and stimulate critical discourse in the studio. Some reading may be intense and require you to read them more than once. Please Note: These readings are MANDATORY. You are expected (for a grade) to participate in class discussions regarding the assigned texts.

In addition to the assigned texts, you are encouraged to find and study the following sources found in the library:

- *Notes on the Synthesis of Form.* Christopher Alexander
- *Experiencing Architecture.* Steen Eiler Rasmussen
- *Architecture: Form, Space, and Order.* Francis D.K. Ching
- *Envisioning Architecture: An Analysis of Drawing.* Ian Fraser and Rod Henmi
- *Creation and Space, Volumes 1 and 2.* Jonathan B. Friedman

**Sketchbook:** It is required that each of you keep a sketchbook and scrapbook that documents your thought processes and ideas as they develop throughout Design Fundamentals I. Unlike other forms of investigation for the studio projects, the sketchbook, due to its portability, is a place where research and quick notes, either written or drawn, can be quickly investigated anywhere and at any time. In your sketchbook, you will commit observations, notes, and sketches during the course of the semester. Of particular importance, is the recording of comments and criticisms heard during studio review sessions. You will come to regard your Sketchbook as a valuable and indispensable companion, both inside and out of the studio setting. Your commitment to learning, witnessed in the comprehensiveness and thoroughness of your note-taking and as well as your progressive improvement in drawing skill, serve as the criteria for sketchbook evaluation.

**Hand Drawings:** You are required to produce hand drawings throughout the duration of Design Fundamentals 1. Your professor will determine and outline the extent to which Adobe Photoshop, Illustrator and InDesign may be used. Studies employing mixed media (hand drawings in combination with Photoshop) are encouraged, including but certainly not limited to ink on Mylar or vellum, pencil, charcoal, pastel, collage, photocollage. **Absolutely no SketchUp shall be permitted.**

**Portfolio:** It is required that you submit a portfolio at the end of the semester in order to receive a final grade. It is mandatory that your portfolio be produced using a combination of Adobe InDesign and Photoshop. The portfolio will include digital reproductions of all final drawings, photographs of all final models, as well as a exercise tiles and
concise descriptions of the solutions. The making of the portfolio is a design exercise that asks for a demonstration of the skills learned in the semester.

In preparation, it is very important to thoroughly document your work throughout the entire semester. Photograph your models and scan your drawings as soon as you are done with each exercise. Your critic may check your progress to assess reproductive and compositional quality.
A2 Semester Schedule

September

Week 1
M.T. 9/5, 9/6 ...................... First class.

Week 2
M.T. 9/9, 9/10 ...................... Due: Ex. 1.1.C. Refinement, Representation
Th, F. 9/12, 9/13 ................. Reading Assignment 1.

Week 3
M.T. 9/16, 9/17 ...................... Exam. Reading Assignment 1.
Th, F. 9/19, 9/20 ................. Reading Assignment 2.

Week 4

October

Week 5
M.T. 9/30, 10/1 ...................... Due: Ex. 1.2 B. Building the Void
10/3, 10/4 ...................... Reading Assignment 3.

Week 6
M.T. 10/6, 10/7 ...................... Due: Ex. 2.A. Geometric Field, Rendered Field
Th, F. 10/10, 10/11 ................. Exam. Reading Assignment 3.

Week 7
Th, F. 10/17, 10/18 .................

Week 8
M.T. 10/21, 10/22 ...................... Due: Ex. 2.B. Three dimensions. Casting the Rendered Field
Th, F. 10/24, 10/25 .................

November

Week 9
Th, F. 10/31, 11/1 ...................... Reading Assignment 4.

Week 10
Th, F. 11/7, 11/8 .................

Week 11
M.T. 11/11, 11/12 .................
Th, F. 1/14, 11/15 .................

Week 12
M.T. 11/18, 11/19 ......................
Th, F. 11/21, 11/22 .................

Week 13
Th, F. 11/28, 11/29 ................. THANKSGIVING BREAK

December

Week 14
M.T. 12/2, 12/3 ......................
Th, F. 12/5, 12/6 .................

Week 15
M.T. 12/9 .................
T- F. 12/10-13 ................. Waterworks Ex. 3. C Final Review. Dates to be Announced.
A3 NAAB / CIDA Criteria

As an accredited professional program, NYIT prepares you for professional licensure and architectural practice. The National Architecture Accreditation Board (NAAB) maintains a list of criteria used to evaluate the teaching effectiveness of architecture programs (Student Performance Criteria). In addition, the Interior Design program is accredited by the Council for Interior Design Accreditation (CIDA) which stipulates specific teaching standards and learning objectives. A complete list of both criteria is provided in the Appendix. Design Fundamentals I will develop your understanding and your skills in at least the following areas:

NAAB Criteria:

Realm A • Critical Thinking and Representation

A1 Communication Skills
Ability to read, write, speak and listen effectively.

A2 Design Thinking Skills
Ability to raise clear and precise questions, use abstract ideas to interpret information, consider diverse points of view, reach well-reasoned conclusions, and test alternative outcomes against relevant criteria and standards.

A3 Visual Communication Skills
Ability to use appropriate representational media, such as traditional graphic and digital technology skills, to convey essential formal elements at each stage of the programming and design process.

A6 Fundamental Design Skills
Ability to effectively use basic architectural and environmental principles in design.

A8 Ordering System Skills
Understanding the fundamentals of both natural and formal ordering systems and the capacity of each to inform two- and three-dimensional design.

Realm B • Integrated Building Practices, Technical Skills and Knowledge

B2 Accessibility
Ability to design sites, facilities, and systems to provide independent and integrated use by individuals with mobility, sensory, physical and cognitive disabilities.

B4 Site Design
Ability to respond to site characteristics, including proper contour manipulation in the development of a project design.

Realm C • Leadership and Practice

C2 Human Behavior
Understanding of the relationship between human behavior, the natural environment and the design of the built environment.
CIDA Teaching Standards & Learning Objectives (see complete definitions in appendix)

Standard 3. Human Behavior

3 A. Secondary Evidence. Student work demonstrates the ability to select, interpret, and apply appropriate ergonomic and anthropometric data.

Standard 4. Design Process

4 E. Secondary Evidence. The interior design program includes opportunities to solve simple to complex design problems.

4 G. Secondary Evidence. The interior design program includes opportunities for innovation and creativity.

Standard 6. Communication

6 E. Secondary Evidence. The interior design program includes opportunities to solve simple to complex design problems.

6 D. Secondary Evidence. Students are able to produce competent presentation drawings across a range of appropriate media.

Standard 8. History

8 C. Secondary Evidence. Students are able to identify movements and traditions in architecture.


9 A. Primary Evidence. Students effectively apply the elements, principles, and theories of design to two dimensional design solutions.

9 B. Primary Evidence. Students effectively apply the elements, principles, and theories of design to three dimensional design solutions.

9 C. Secondary Evidence. Students are able to analyze and discuss spatial definition and organization.
Project 1  Figure / Ground & Mass / Void • Composition Sequence

Exercise 1.1 - Figure / Ground • Mass / Void

Overview:

Arrangement of mass and void is the everyday business of design, whether it the design of a chair or the shaping of an urban environment. Undertakings at both scales rely upon a skill at arranging solids and negative.

The simple act of designing white and black zones within a limiting grid introduces a full range of issues in a two dimensional setting. Some designs produced will possess interesting and engaging characteristics, mostly about the suggestion of movement and rhythm, while will be perceived as lifeless and static. What is immediately apparent is that the two representations of the same design offer differing visual characteristics, based on how vision is processed by the brain. Learning to managing these complimentary characteristics is a fundamental goal for the beginning designer.

By extruding, that is by “pulling up,” either the figure or the ground, an explicitly three dimensional volume (figure and field) is created from the two dimensional design. What had been an edge between zones of white and black in the two dimensional studies now becomes an edge that defines the geometry of mass. The making of a model of the design brings full circle the relationship between three and two dimensions.

Lecture:  History of Composition • Importance of the Nature and the Dynamic • Survey of Composition in Sculpture • Painting • Architecture • Industrial and Graphic Design

Vocabulary:  Descriptive
scale • limits • edge • perimeter • grid • module • orthogonal • oblique • perpendicular • parallel
symmetry • asymmetry • figure • ground • field • mass • void • registration • alignment •

Perceptual
hierarchy • static • dynamic • compression • expansion • implosion • rhythm • balance
• directionality • rotation • elastic • plastic • fluidity
1. **First Day Studio Composition Exercise.**

A set of white and black pre-printed sheets with 1/2" grids, black felt tips, will be distributed by your Studio Critic. With these materials, prepare five compositions within the 4" X 4" limit of the field. Explore the possibilities quickly, using the grid to guide your decisions. Generate radically different approaches. Note that strategies differ with respect to how you use the corners of the grid, how you occupy the edges, and how you balance the proportions of figure and field. Rules:

- The figure (positive) AND the field (negative) must each be contiguous (no breaks or isolated segments)
- At least two “corners” of the 4" X 4" field are engaged by each.

Choose two designs and represent them carefully with four images with the white and black art paper provided. Very carefully cut the figure from the black sheet and glue it to the white sheet, guided by the grid. Isolate the “negative” or what is left and cut it out, gluing it to the second white sheet. Cutting and pasting completed, you gain both “positive” and the “negative” representation of the same two dimensional design.

Each student is provided 40 1” cubes and 100 1 / 2” wood cubes. Using the cubes, and wood glue provided, construct a model of each of the two chosen designs. Study the “fit” between the blocks before gluing them together, noting that matching the wood grain of the blocks, side by side pairings of either the end grain (rings) or the long grain, assists in achieving good craftsmanship.

On 11" X 17" sheets of paper, document the design with one plan, four elevations, and an axonometric drawing. Drawings should be executed “free hand” assisted by the paper grid used for measurement.

*[Studio Tutorial: Drafting - Drafting Equipment • Pencil Use • Scale]*
1.1 • Homework. Refinement and Documentation

Following the studio composition exercise, document the two designs for presentation using your drafting equipment.

Review Requirements:

Models:
Final presentation models (two). Glue carefully. Sand surfaces for uniformity.

Required Drawings of Each Design:

Plans (2 total)
- Roof plan
  - Interior plan cut at 1 / 2” above “ground.” Use poche’ to indicate cut zones.
- Elevations (4 total)

Axonometric:
- Complete composition. 30/60 orientation.

Drawing Specifications:
- Drafting pencil (clutch lead holder) on drafting vellum. Use 2H, H, and B leads for varying line weights. Red or black pencil for poche.’ Include block joint lines on all drawings except in poche’ zone of sections
- Scale: 1” = 1.”

Graphics:
- Plans: Derive from plans described above.
  - Figure. Black paper of figure cut and pasted to white. 4” X 4” overall.
  - Ground. Residual black paper of field cut and pasted to white. 4” X 4” overall.

- Cut paper with straight edge drafting triangles only. Erase all grid lines on either white or black paper. On
the back of each image, list words pulled from the vocabulary list that seem to describe what you have
designed.

Photographs:
- Overall views (3 total).

ORGANIZE IN TEAMS AND ORDER THE REMAINDER OF THE WOOD BLOCKS REQUIRED FOR THE WORK OF THE SEMESTER. BLOCKS MUST BE PRESENT AT START OF STUDIO ON THURSDAY/FRIDAY, SEPTEMBER 12th OR THE 13th.


Studio Tutorial: Model Photography

Learning to correctly record models with photographs is an important skill. The photos have the potential to amplify characteristics of the design or to direct the viewer’s focus BEYOND what can be seen in the model itself. The photos long outlast the actual model and perform as a record of your progress as a designer.

View
Suites of photographs should have overall views of the design as well as close ups that illustrate spatial properties found within the models. Photographing a model frontally fails to deliver volumetric characteristics and unnecessarily replicates information found on the elevation and plan drawings. As such, the model should always be rotated relative to the camera, not unlike an axonometric or perspective drawing.
Setting
Place the model on either a black or white surface large enough to isolate the model in the “space” of the photograph. The in the overall photos, avoid cropping the image in a way that eliminates a part of the actual model. Never allow recognizable information to interfere with the view (kitchen counters, tile floors, etc.) If taking photos from a lower viewpoint or “eye” level, make sure that you have a backdrop of the white or black.

Lighting
Using one focused light source results in starkly defined planes, crisp edges, and strong shadows. More than one light source can result in murky and uninformative photos.

Processing
Use the software that came with your camera or Photoshop to adjust the image (usually brightness and contrast) and to crop the image for printing. Unless otherwise instructed, print in grey tone only.

Printing and Presenting
For final review, use photo paper only. Trim to the size requested and mount on white foam core in a neatly organized manner.

Exercise 1.2 - Mass / Void • Volume + Dialogue


Overview:
Work of the studio so far has explored design on a two dimensional surface and what the simple implications are if a design is made three dimensional by the process of extrusion. The new exercise calls for exploring design three dimensionally from the very start, where the potential for form and space making is expanded by the application of imagination and strategy.

1.2.A • Volume - Three Dimensional Design. Dialogue

Within a limiting 4” x 4” x 4” envelope, assemble 1” and 1 / 2” cubes to create a three dimensional volumetric design. Build as a part of a “base” that is 6” X 6” in area X 1” in height.

- Use replicas of the two models made for Exercise 1.1 C (1”extrusion model).
- Base can be manipulated.
- Design must possess three defined spaces linked in sequence with no space measuring smaller than 1” in any direction.
- Both mass and void zones are to be contiguous (no isolated voids).
- A minimum of four of the corners of the 4” cube limiting envelope must be defined by mass and each plane of the limiting envelope must be engaged at least once.

As a point of departure, initially deploy the two original models as PARALLEL external planes (either the top or bottom or left and right sides) of the composition. As an alternative, experiment with joining the models at a vertical or horizontal “corners.” Explore the possibilities revealed by rotating, or “flipping” one of the models. Once an initial decision is made regarding the positions, develop a dialogue between these models that complies with the rules listed above and delivers and interesting design. You are permitted to add and subtract cubes to develop the “dialogue” as you see fit. Strive to achieve a balance of mass to void (50% each).

As with the first exercise of the studio, explore specific strategies regarding corners, edges, and the development of symmetry and asymmetry. Make use of the potential of the cubes to be used as planes or column and beam like elements. Use axonometric sketch drawings as design tools. Strive to develop a “system” or “characteristic” that defines the design.

**Studio Tutorial: One Point Section Perspective**

Review Requirements:

**Models:**
- Final presentation model. One piece. Paint with white latex primer.

**Required Drawings:**
- Floor plans (Minimum of 3):
  - Roof plan
  - Interior plans cut at strategic elevations.
- Sections (2 total):
  - 90 degree rotation. Cut at least two required defined spaces. Include base.
- Axonometric:
  - Complete composition. 30/60 orientation.
- Perspective: One Point Section Perspective
- Diagram:
  - Axonometric. “Exploded” or “split.”
Drawing Specifications:
Drafting pencil (clutch lead holder) on drafting vellum. Use 2H, H, and B leads for varying line weights. Red or black pencil for poche. Include block joint lines on all drawings except in poche zone of sections. Scale: 1" = 1."

Graphics:
Plan and Section (4 total) Derive from plans and sections above.
Figure. Black paper of figure cut and pasted to white. 8" X 8" overall.
Ground. Residual black paper of field cut and pasted to white. 8" X 8" overall.

Photographs:
Exterior views of complete composition. (3 total).
Detail views of required interior spaces. (3 total).

Written Description.
Using vocabulary form both lists, describe the design using the following outline:
- Deployment of the two original models.
- Describe the three required spaces.
- Connection between the spaces.
- Placement on the base.
- Transformation of the base.


Reading Assignment 2. The Destruction of the Box. Wright.

1.2.B • Building the Void

Using cubes, build a solid representation of the voids found in the final design of the previous exercise. Situate on an identical "site," allowing the voids in the base to serve as the anchoring points. Paint the cubes of the now solid representation of the void a medium grey achieved by mixing technical ink with the white primer paint.

Studio Tutorial: Two Point Perspective
Review Requirements:

Models:

Required Drawings:
- Floor plans (Minimum of 3):
  - Roof plan
  - Interior plans cut at strategic elevations.
  - Indicate base below in each.
- Sections (2 total):
  - 90 degree rotation. Include base.
- Axonometric:
  - Complete composition. 30/60 orientation. Include base.
- Perspective: Two point perspective.

Drawing Specifications:
- Include block joint lines on all drawings except in poche’ zone of sections. Scale: 1” = 1.”

Photographs:
- Exterior views of complete composition. (3 total).
- Detail views of interior volumes. (3 total).

2.A. • Surface Design. Geometric Field.

Lecture: Proportion Systems in Design • Vitruvian Man • Modular Man


A 2 dimensional geometric “field” or “map” serves as an important organizational tool in creative process with the examples found in painting, graphic design, and the design of environments for human use and occupation. In Project 1, a universal field of 1 / 2” increments in all directions provided the underlying map for the plans, elevations and sections. The new exercise calls for you to develop a different type of field derived from a “Golden Section,” or rectangular proportion system.

Prepare a Golden Section rectangle that is based on a 10” square. Explore the ways that the grid can be developed by means of “mirroring” the geometric components. With a grid that is dense enough to permit subjective editing, prepare a line only grid design exploring “dynamic rectangles” as Kimberly Elam describes them in Geometry in Design.

Construction and Subdivision of Golden Section

2B. Surface Design. Rendered Field

Two dimensional design, that is surface design, inevitably implies three dimensional space. This is suggested when conventions of perception are applied by the viewer. For instance, a thick line is perceived as “closer” than a thin one. Depending on the tonal or "light and dark” order in play, zones of black can be perceived as “far away” and white “close by.” An illusion of depth is also achieved when zones of the composition “overlap” although the geometric order of the zones remains intact, suggesting that a degree of transparency is present. In other words, it remains possible to see to two zones simultaneously, as if you were looking through the first to see the second.

On white museum board develop a rendered design that is based on the Golden Section grid produced in the previous exercise using black, blue, and red Prismacolor pencils in varying degrees of saturation.
Process
Transfer the grid from the drafting vellum to the museum board in the manner suggested by your critic (drafting the design a second time, using transfer paper, etc.) Be sure that the lines on the museum board are very light and that the board is not indented in the process.

As there are no rules, experiment with the unlimited possibilities for developing a design based on the geometry and subjective decision making. Consider making quick studies with a black pencil to initiate a strategy before committing to a direction. Scale of the design is an important issue, implied by the complexity and density of your development. Apply a 2” border in a saturated fashion (total black) at the perimeter of the rendered field, achieving the illusion that the rendered field is occupying unlimited space.

Using the pencil uniformly is important. Training the hand to apply the pencil is not difficult. First, establish and “angle” that is comfortable for you. YOU WILL MAKE VERY LIGHT GUIDE LINES AT THIS ANGLE over the entire filed including the border. Apply very lightly with an HB pencil to all areas within the border. The guidelines should disappear as you develop the drawing, explaining the need for a light application. The example on the left below uses guide lines at 60% from the horizontal.

Keep the color pencils very sharp, learning that this is easier as you “rotate” the pencil while making lines. Apply the pencil as a series of clear “lines.” Do not scribble or scrub the pencil work. Build the surface in overall layers of application, rather than starting at one place and ending at another. Remember that lighter zones in the composition will retain a great deal of visible white paper. Use the T square and triangles to create crisp edges. Use the erasing shield to tailor the edges if necessary.

A successful composition will possess hierarchy, be dynamic rather than static, suggest a three dimensional realm, and imply a path the eye of the observer will take. Designs will differ considerably and the character of the pencil work will reveal a great deal about who executed the work. In other words, no two designs will be the same.

**Studio Tutorial: Using Color Pencil to Render Surface**

**Exercise 2C. Surface Design. Relief Panel.**
The exercise objective is to produce a three dimensional representation, or relief, of the rendered field through a process of casting the liquid medium of cement. The relief will represent a negative impression of the implied spaces of the Rendered Field. In other words, what was “closest” previously becomes the most “far away” in the casting. In that it is nearly impossible to predict the look of the outcome, you must be methodical and patient.

**Studio Tutorial: Mold Making • Casting**
Making the Mold
1. Make 9 copies of the rendered composition on 11” X 17” paper.
2. Mount on white (black will not work) 3/16” foam core plates using spray glue VERY SPARINGLY. Trim after mounting.
3. You will be making a three dimensional model of the composition. Leave the complete image on what will be the base of the mold. Cut out the image completely on what will be the top two of the mold.
4. Think out what information or zones will be retained on each of the remaining layers. Black zones will be on the bottom layer, grey zones in the middle, blue zones above that, followed by red and finally white, which will be on the top layer. A degree of simplification may be needed if too many zones are differentiated in the original composition.
5. Start by making the blue layer, carefully examining where the zones are to be “cut out” to reveal what is “seen” below. Note that this layer, and all layers, will include the border. Proceed with the next layers, both above and below the blue layer. Use the “base” copy plate to map in the process. If mistakes are made in the cutting, simply use clear tape to make the repairs. Use a fresh Xacto blade each time you make a layer. This is ESSENTIAL to avoid messy cuts seen when the dull blade “scrunches” the foam in the foam core. Cut beyond the intersections of corners. Use the drafting board and the T square to help keep cuts perpendicular or true. Before popping out the zones to be discarded, flip the panel and look at the cut lines on the back side. Complete cut lines on the back if necessary. Make the remaining layers. Always stack in position as you go, without using glue. Title the layers; for instance the “blue” layer. There will be “islands” of zones that are detached from the border. Simply plan these to be part of the layer beneath the one you are working on. Remember that the top two layers are for the border only.
6. Stack all the layers initially without glue. Study the model to make sure that cement will pour into all areas, without making pockets that can not be cast as a single piece of final relief.
7. Certain of the correct placement of layers, remove the spray mounted image from each layer and glue the layers together, making sure of correct placement in the stack. Use glue very sparingly as “spots” of glue. This will assist the removal of the foam core sheets after the casting or the “pour.” Use 1” blocks to force registration (correct lining up) of the layers at key places.
8. Photograph the complete mold for your portfolio using strong shadow producing light. This will be the only time that you have a three dimensional representation of the composition, the relief being a “negative” of the design.

Cement Mixing
1. Work with a studio mate or friend. The process can be a unnerving due to the speed of the “setting up” of the cement, about 10 minutes.
2. You will need 15 pounds of powder Cement All product available at Home Depot, Lowes, and other places. Measuring one cup at a time, move the powder to a bucket or large bowl. Keep track of the number of cups.
3. In a disposable plastic bucket or bowl, add the number of cups of water recommended for the 15 pounds of powder. It is essential to add powder to the water, not the reverse.
4. To start, add 2 cups of powder to the water, stirring vigorously with a paint stir stick or similar as you go. Keep adding powder in this manner until you have used up the powder or the liquid cement has the consistency of pancake mix. Do not let the liquid cement come into contact with surfaces or be allowed to go down a drain.
5. If you have miscalculated the cement mix (it is too thick), discard and mix a second batch. You don’t want to ruin the mold, having spent so much time on it. Better to waste cement than start the mold over again.
Pouring
1. Again, work with a studio mate or friend. Lay out newspaper to keep work area clean. Have paper towels on hand.
   Wear work clothes.
2. Spray the “mold” liberally with cooking spray olive oil.
3. Working very quickly, pour the liquid cement into the mold. Vibrate the mold and thump up and down to be sure that the cement gets to all of the places.
4. When the mold is full, take a metal straight edge and “screed” the surface. This will make the back of the relief smooth and help the cement to be forced into the mold.
5. The cement will begin to set up very quickly. You will feel heat emerging from the chemical process occurring. Cover the casting with wet paper towels after the surface of the cement is firm. This will slow the curing process and help avoid cracks.

Removing the Cast Panel
1. Allow the cement to set over night.
2. Work from the top layer down, pulling away the foam core layers as you go. Do not force the removal of foam core, as this might break edges in the casting. Use an X acto blade to make clean edges between the cement and the foam core as necessary. Use needle nose pliers to extract stubborn pieces of foam core. With the foam core removed, spray casting with 409 cleaner (or similar) and allow to soak a bit. Wash the surface, using a tooth brush to scrub out all residue. You might consider soaking the panel in water to completely clean off the mold residue. The cement is impervious to water.

Handling the Relief
1. Transport wrapped in bubble foam or the equivalent.
2. Though strong, the relief is vulnerable to breaking at the corners and at thin places. Repairs can be made with certain glues. Best policy: BE CAREFUL.

DUE: MONDAY/TUESDAY. OCTOBER 21/22.
Project 3 Waterworks

Overview:

The work of the semester so far has focused on composition, documentation, and craft without the obligation to meet PROGRAM requirements. The concluding sequence of exercises of the semester, titled Waterworks, asks you to configure three pools, a system of connecting waterways, three pavilions, and a connecting path on a sloping site. Manipulating the site in order to place the pools gives you an opportunity to further explore the design of mass and space while the design of the pavilions, conceived as places for human interaction with water, tests your developing understanding of human scale.

Lecture: Water • Architecture • Movement • Water in the Garden • History of Traditions and Attitudes. Metaphor for Human Movement in Space • Contemporary Concerns for Water Management


Waterworks is to be experienced at close range, where visitors are encouraged to enjoy the spatial qualities of the design from three viewing and experience stations or Pavilions. One “prototype” of the pavilion is to serve all three applications, subject to modifications and transformations dictated by their deployment in the Waterworks. Requirements for the Prototype:

- Volume limited to 12’ x 12’ X 12’ limiting envelope.
- Volume configured for human occupation.
- Three specific places for interacting with water.
- Volume configured with orthogonal mass that engages, all 4 corners of the limiting envelope.

Model the design of the prototype using 1 / 2” and 1” wood cubes. Note: 1 / 2” cube equals 12” cube at scale.
Review Requirements:

Models:
Final presentation model executed in 1” wood cubes painted white. Water to be represented with cubes painted blue (paint cubes white followed by coat of transparent blue spray paint).
Scale: 1 / 2” = 1.’

Required Drawings (1 / 2” = 1’ unless noted):
Floor plans (Minimum of 3):
  - Roof plan
  - Interior plans cut at strategic elevations.
  - Include at scale figures in each.

Sections (2 total):
  - Cut at 90 degree rotations at the most significant volumes. Include at scale figures in each. Represent water with blue poche.’

Elevations (4 total)
  - Axonometric:
    - Complete composition.
  - Perspectives:
    - One section perspective.

Diagram:
  - Axonometric. “Exploded” or “split.”

Drawing Specifications:
  - Ink technical pen of Mylar film. Use varying line weights. Red or black pencil for poche. On back of film. Include block joint lines on all drawings except in poche’ zone of sections. Scale: 1 / 2” = 1.”

Photographs:
  - Exterior views of complete Pavilion (3 total).
  - Detail views of interior volumes. (3 total).

Written Description.
  - Using vocabulary from both lists, describe the design using the following outline:
    - Overall organization of the Pavilion.
    - Describe the three required zones of water interaction.
    - Compliance with measured human scale.

DUE: MONDAY/TUESDAY. OCTOBER 28/29.
3. B. • Site Organization.

There are numerous ways that the pools, pavilions, and a connecting path can be deployed on the slope, limited only by available surface area and by the necessity that water flows from the reservoir to the pools assisted by gravity only. Water enters at the top of the site, from an elevated reservoir, and leaves at the bottom. The site possesses the Golden Section proportion, a factor that may be helpful in organizing the location of the pools and the overall geometric order of the solution.

- South is defined as the lower border of the site and latitude is set at 40 degree north (NYC)
- Reservoir. 2,400 cubic feet in volume. Surface of water to be 12' above flat top zone of site. Depth of the reservoir is no less than 4.' Container may be rectangular or cylindrical.
- Pool 1: 1,200 cubic feet in volume.
- Pool 2: 700 cubic feet in volume.
- Pool 3: 500 cubic feet in volume.
- A pool may be square, rectangular, or circular in plan.
- No pool may measure less than 2’ deep or be located closer than 6’ to any of the four boundaries of the site.
- The surface of each pool is separated from any other by a minimum of 5’ in vertical drop measured from surface of the water to the surface of the water.
- Water must flow in sequence from one pool to the next in the chosen pool order.
- Each pavilion is deployed in the scheme to take advantage of the water (in the pools or flowing between the pools) and the architectural volumes created.
- A path, entering the site fromm the bottom and leaving at the top, connects the pavilions.
- In the manipulation of the site, all mass that is excavated or removed to accommodate the placement of a pool must be relocated elsewhere on the site.
- Include 9 trees.
Volumetric richness, very much in the character of the preceding exercises is an important objective of the site solution in that the deployment of the pools has great potential for shaping space. Site mass available for redeployment can be used to develop ancillary spaces where the pavilions or pathways can be located.

Using axonometric, plan, and section diagram drawings of the site, explore THREE DISTINCTLY DIFFERING APPROACHES TO THE DESIGN by imagining alternative locations for the program components before selecting an approach. For instance, experiment with locating Pool #1 as far from the water source as possible, with a resulting flow of water moving north rather than south. A successful design creatively manages the pools and the water system as well as the ancillary spaces of human occupation.

Select one scheme for development and clarify the geometric properties with a parti diagram (reduction of the organization to a simplified and clarified geometric organization). Build a 1/4" = 1' - 0" scaled site study model using 1/2" black foam core sheet placed vertically, side by side, and tacked together with T pens. Tape or glue is not permitted. For the inclined slope at the west and east sides of the site, use single sheets of foam core placed at the prescribed angle of 1' of rise for every three feet of horizontal run. Enclose the sides of the study model with vertical sheets of foam core.

Pavilions
Develop the manner by which each pavilion can interact with the pools and water distribution systems. For instance, the zone within the prototype that is conceived for "lying in" water might be integrated into an adjoining pool or canal. The zone calling for the experience of falling water might be integrated into a canal or vertical drop in the Waterworks system. Each pavilion should offer a "prospect" or view of site volumes designed. Geometric ordering of evolving site should incorporate order from the Golden Section and the superimposed orders suggested by the pools and the three Pavilions.

Promenade Architecturale
Promenade Architecturale is an expression borrowed from the French language that describes architecture as a series of episodes revealed by walking through volumes of buildings over a period of time. With the Pavilions now placed in the Waterworks system, design a Promenade Architecturale that links all the elements of the design in sequence. The Promenade provides a one way path that begins at the bottom of the site and concludes at the top, opposite to the path of the water. The Promenade is never less than 4' in width or 7' in height. Changes in level are accomplished with steps that have 12" and 6" risers.

Thresholds are places where the architecture "frames" a view or announces a change in direction or character of the Promenade. Explore how the various components of Waterworks (carved mass, developed walls, configuring of canals, etc.) can be transformed to make thresholds on the Promenade sequence.

As a means of developing the design, explore the volumetric qualities of the developing scheme by using two point perspectives constructed from points on the Promenade and from point within the Pavilions, placing emphasis on the appearance of water, the effects of the light, and the shaping of the site and architecture.
**Vocabulary:**
threshold • axis • modulation • node • terminus •

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**Review Requirements:**

**Models:**
- **Study model.**
  - **Site:** White foam core sheet used in vertical layers or “cat scans” of various section conditions.
  - **Reservoirs and canal system:** Build cavities of pools use blue paper to indicate water.
  - Include at least 3 scaled human figures.
  - **Scale:** $1 / 4'' = 1' - 0''$

**Required Drawings (1 / 4'' = 1' unless noted):**

- **Floor plans** (Minimum of 3):
  - Roof plan
  - Interior plans cut at strategic elevations within the Waterworks.

- **Sections (3 total):**
  - Cut through at least one pool and site including all elements in each.
  - Include 16’ of earth beyond the site in all directions.
  - Include at least 3 scaled human figures.

- **Axonometric:**
  - Complete composition. Scale: $1 / 8'' = 1' - 0''$ 60/30

- **Perspectives:**
  - Three constructed perspective views of episodes of the Promenade.

- **Explanatory Diagrams:**
  - **Axonometric.**
  - Water management system including reservoirs and canals.
  - Scale: $1 / 8'' = 1' - 0''$

- **Section diagram:**
  - ‘Xray’ section diagram explaining water flow system. Scale: $1 / 4'' = 1' - 0''$

**Drawing Specifications:**
- Pencil on drafting vellum. Use full range of line weights. Red or black pencil for poche. Include scale figure in all drawings.

**DUE:** MONDAY/TUESDAY. NOVEMBER 25/26.

**Tutorials:** Drafting. System Diagramming. Parti
3. C. Preparation for Final Review

The model and previously made drawings are now developed for final presentation. Use white museum board for the pool enclosures and site elements. Use 1/2" wood cubes to model the Pavilions and carved foam to represent the trees, all painted white. Water is to be represented with sheets of clear styrene plastic with a SPRAY PAINT APPLIED transparent color coating. (blue). Drawings documentation will include a combination of both technical (ink on mylar) and art mediums (PrismaColor in white, black or true blue only) on art paper. As the culmination of all that has been learned in Design Fundamentals I, you are encouraged to apply your best craft, technical, and artistic expertise.

**Models:**
- Final presentation model.
  - Site: White museum board. Pavilions: 1/2" wood cubes painted white.
  - Reservoirs and canal system: Build cavities in white museum board. Represent water with styrene plastic painted with transparent blue spray paint. Use to indicate water surfaces only.
  - Trees to be of carved foam on wood dowels, painted white.
  - Include at least 3 scaled human figures.

**Required Drawings (1/4" = 1’ unless noted):**
Note: with the following exceptions, the drawings and diagrams required in the previous exercise are to be updated and inked for final review.

**Additional Requirements for Final Review:**

**Rendered drawings (Minimum of 3):**

- Promenade Architecturale
  - Use the three previous set ups as the basis of the final perspective views. Include at least one scaled human figure in each.

- Aerial Perspective (or axonometric projection as substitute)
  - Complete Waterworks including representation of pavilions, pools, water distribution system, scale figures and trees.

**Rendering Options:**

1. Black and blue PrismaColor pencil on Stonehenge brand drawing paper in “Pearl Grey.”
2. Technical pen ink on Mylar vellum with black and blue PrismaColor applied to back of film.
Written Narrative

Compose a description of the Waterworks design outlined in the following manner:

1. Deployment of the reservoirs and the resulting water management system.
2. How the site has been manipulated and where mass has been re-deployed.
3. The response to the sun incorporated in the design solution.
4. The placement of the Pavilions and how they are each transformed to facilitate interaction with water.
5. A complete serial (the sequence, step by step) description of the Promenade Architecturale in terms of spatial character and significant thresholds encountered.

Due: Final Review Dates to Be Announced.
Appendix: Complete NAAB Criteria & CIDA Standards

NAAB Student Performance Criteria:

The accredited degree program must ensure that each graduate possesses the knowledge and skills defined by the criteria set out below. The knowledge and skills are the minimum for meeting the demands of an internship leading to registration for practice.

The school must provide evidence that its graduates have satisfied each criterion through required coursework. If credits are granted for courses taken at other institutions, evidence must be provided that the courses are comparable to those offered in the accredited degree program.

The NAAB establishes performance criteria to help accredited degree programs prepare students for the profession while encouraging educational practices suited to the individual degree program. In addition to assessing whether student performance meets the professional criteria, the visiting team will assess performance in relation to the school's stated curricular goals and content. While the NAAB stipulates the student performance criteria that must be met, it specifies neither the educational format nor the form of student work that may serve as evidence of having met these criteria. Programs are encouraged to develop unique learning and teaching strategies, methods, and materials to satisfy these criteria. The NAAB will consider innovative methods for satisfying the criteria, provided the school has a formal evaluation process for assessing student achievement of these criteria and documents the results.

Realm A • Critical Thinking and Representation

A1 Communication Skills
  Ability to read, write, speak and listen effectively.

A2 Design Thinking Skills
  Ability to raise clear and precise questions, use abstract ideas to interpret information, consider diverse points of view, reach well-reasoned conclusions, and test alternative outcomes against relevant criteria and standards.

A3 Visual Communication Skills
  Ability to use appropriate representational media, such as traditional graphic and digital technology skills, to convey essential formal elements at each stage of the programming and design process.

A4 Technical Documentation
  Ability to make technically clear drawings and models illustrating the assembly of materials, systems, and components appropriate for a building design.

A5 Investigative Skills
  Ability to gather, assess, record, apply, and comparatively evaluate relevant information within architectural coursework and design processes.

A6 Fundamental Design Skills
  Ability to effectively use basic architectural and environmental principles in design.

A7 Use of Precedents
  Ability to examine and comprehend the fundamental principles present in relevant precedents and to make choices regarding the incorporation of such principles into architecture and urban design projects.
A8 Ordering System Skills
Understanding the fundamentals of both natural and formal ordering systems and the capacity of each to inform two- and three-dimensional design.

A9 Historical Traditions and Global Culture
Understanding of parallel and divergent canons and traditions of architecture, landscape, and urban design in the world (including indigenous and vernacular examples) in terms of their climatic, ecological, technological, socioeconomic, public health, and cultural factors.

A10 Cultural Diversity
Understanding of the diverse needs, values, behavioral norms, physical ability, and social and spatial patterns that characterize different cultures and individuals and the implication of this diversity on the societal roles and responsibilities of architects.

Realm B • Integrated Building Practices, Technical Skills and Knowledge

B1 Pre-Design
Ability to prepare a comprehensive program for an architectural project, such as by providing an assessment of client and user needs, an inventory of space and equipment requirements, an analysis of site conditions, a review of the relevant laws and standards and assessment of their implications for the project, and a definition of site selection and design assessment criteria.

B2 Accessibility
Ability to design sites, facilities, and systems to provide independent and integrated use by individuals with mobility, sensory, physical and cognitive disabilities.

B3 Sustainable Design
Ability to apply the principles of sustainable design to produce projects that conserve natural and built resources, provide healthy environments for occupants/users, and reduce the impacts of building construction and operations on future generations.

B4 Site Design
Ability to respond to site characteristics, including proper contour manipulation in the development of a project design.

B5 Life Safety
Ability to apply the basic principles of life-safety systems with an emphasis on egress.

B6 Comprehensive Design
Ability to understand, and to produce a comprehensive architectural project that integrates the following SPC: A2; A3; A4; A5; A8; B1; B2; B3; B4; B5; B7; B8; and B9.

B7 Financial Considerations
Understanding of fundamentals of building costs, such as acquisition costs, financial feasibility, operational costs, and construction estimating with an emphasis on life-cycle cost accounting.

B8 Structural Systems
Understanding of the basic principles of structural behavior in withstanding gravity and lateral forces and the evolution, range, and appropriate application of contemporary structural systems.

B9 Environmental Systems Integration
Understanding the principles of active and passive environmental systems, such as embodied energy, energy efficiency, indoor air quality, bioclimatic design, solar geometry, passive heating and cooling, daylighting, carbon-neutral design, as well as the application of appropriate performance assessment tools.
B10 Building Envelope Systems
Understanding of the basic principles involved in the appropriate application of building envelope systems and associated assemblies relative to fundamental performance, aesthetics, durability, and energy and material resources.

B11 Building Service Systems Integration
Understanding of the basic principles and appropriate application and performance of building service systems such as plumbing, electrical, vertical transportation, security, and fire protection systems.

B12 Building Materials and Assemblies Integration
Understanding of the basic principles utilized in the appropriate selection of construction materials, products, components, and assemblies, based on their inherent characteristics and performance, including their environmental impact and reuse.

Realm C • Leadership and Practice

C1 Collaboration
Ability to work in collaboration with others and in multidisciplinary teams to successfully complete design projects.

C2 Human Behavior
Understanding of the relationship between human behavior, the natural environment and the design of the built environment.

C3 Research
Understanding of the role of research in evidence-based design in areas such as human behavior and building sciences.

C4 Client Role in Architecture
Understanding of the responsibility of the architect to elicit, understand, and reconcile the needs of the client, owner, user groups, and the public and community domains.

C5 Practice Management
Understanding of how to obtain commissions and negotiate contracts, manage personnel and select consultants, recommend project delivery methods, and forms of service contracts.

C6 Architectural Practice and Project Management
Understanding of the basic principles and legal aspects of practice organization through such means as financial management, business planning, time and project management, risk mitigation, mediation and arbitration, as well as an understanding of trends that affect practice.

C7 Leadership
Understanding of the techniques and skills for architects to work collaboratively in the building design and construction process and on environmental, social, and aesthetic issues in their communities.

C8 Legal Responsibilities
Understanding the rights and responsibilities to the public of the following: the architect, intern, and interns and employers, through means such as registration law, building codes and regulations, professional service contracts, zoning and subdivision ordinances, environmental regulation, historic preservation laws, and the Americans with Disabilities Act.

C9 Ethics and Professional Judgement
Understanding of the ethical issues involved in the formation of professional judgment regarding social, political and cultural issues in architectural design and practice.
CIDA Teaching Standards & Learning Objectives

CIDA 1  Mission, Goals and Curriculum
The interior design program has a mission statement that describes the scope and purpose of the program. Program goals are derived from the mission statement and the curriculum is structured to achieve these goals. Expectations:

a. The program mission statement clearly identifies intent and purpose of the interior design program.
b. The program mission statement appropriately reflects institutional context and requirements for entry-level interior design practice.
c. Program goals are appropriate to the mission and adequately address the content and student learning required for entry-level interior design practice.
d. The curriculum follows a logical sequence and achieves the program mission and goals.

CIDA 2  Global Perspective for Design
Entry-level interior designers have a global view and weigh design decisions within the parameters of ecological, socio-economic, and cultural contexts. Student Learning Expectations:
Student work demonstrates the understanding of:

a. the concepts, principles, and theories of sustainability as they pertain to building methods, materials, systems, and occupants.
b. the implications of conducting the practice of design within a world context.
c. how design needs may vary for a range of socio-economic stakeholders.

Program Expectations:
The interior design program provides:
d. exposure to contemporary issues affecting interior design.
e. exposure to a variety of business, organizational, and familial structures.
f. opportunities for developing knowledge of other cultures.

CIDA 3  Human Behavior
The work of interior designers is informed by knowledge of behavioral science and human factors. Student Learning Expectations:

a. Students understand that social and behavioral norms may vary from their own and are relevant to making appropriate design decisions.

Student work demonstrates:
b. the ability to appropriately apply theories of human behavior.
c. the ability to select, interpret, and apply appropriate anthropometric data.
d. the ability to appropriately apply universal design concepts.

CIDA 4  Design Process
Entry-level interior designers need to apply all aspects of the design process to creative problem solving. Design process enables designers to identify and explore complex problems and generate creative solutions that support human behavior within the interior environment. Student Learning Expectations:
Students are able to:

a. identify and define relevant aspects of a design problem (goals, objectives, performance criteria).
b. gather, evaluate, and apply appropriate and necessary information and research findings to solve the problem (pre-design investigation).
c. synthesize information and generate multiple concepts and/or multiple design responses to programmatic requirements.
d. demonstrate creative thinking and originality through presentation of a variety of ideas, approaches, and concepts.

Program Expectations:
The interior design program includes:
e. opportunities to solve simple to complex design problems.
f. exposure to a range of design research and problem solving methods.
g. opportunities for innovation and creative thinking.
h. opportunities to develop critical listening skills.
CIDA 5 Collaboration
Entry-level interior designers engage in multi-disciplinary collaborations and consensus building.

**Student Learning Expectations:**
Students have awareness of:
- team work structures and dynamics.
- the nature and value of integrated design practices.

**Program Expectations:**
The interior design program includes learning experiences that engage students in:
- collaboration, consensus building, leadership, and team work.
- interaction with multiple disciplines representing a variety of points of view and perspectives.

CIDA 6 Communication
Entry-level interior designers are effective communicators.

**Student Learning Expectations:**
- Students apply a variety of communication techniques and technologies appropriate to a range of purposes and audiences.
- Students are able to:
  - express ideas clearly in oral and written communication.
  - use sketches as a design and communication tool (ideation drawings).
  - produce competent presentation drawings across a range of appropriate media.
  - produce competent contract documents including coordinated drawings, schedules, and specifications appropriate to project size and scope and sufficiently extensive to show how design solutions and interior construction are related.
  - integrate oral and visual material to present ideas clearly.

CIDA 7 Professionalism and Business Practice
Entry-level interior designers use ethical and accepted standards of practice, are committed to professional development and the industry, and understand the value of their contribution to the built environment.

**Student Learning Expectations:**
- the contributions of interior design to contemporary society.
- various types of design practices.
- the elements of business practice (business development, financial management, strategic planning, and various forms of collaboration and integration of disciplines).
- the elements of project management, project communication, and project delivery methods.
- professional ethics.

**Program Expectations:**
- The interior design program provides exposure to various market sectors and client types.
- The interior design program provides exposure to the role and value of:
  - legal recognition for the profession.
  - professional organizations.
  - life-long learning.
  - public and community service.

CIDA 8 History
Entry-level interior designers apply knowledge of interiors, architecture, art, and the decorative arts within a historical and cultural context.

**Student Learning Expectations:**
- Students understand the social, political, and physical influences affecting historical changes in design of the built environment.
- Students understand:
  - movements and periods in interior design and furniture.
  - movements and traditions in architecture.
  - stylistic movements and periods of art.
- Students apply historical precedent to inform design solutions.

CIDA 9 Space and Form
Entry-level interior designers apply elements and principles of two- and three-dimensional design.

**Student Learning Expectations:**
Students effectively apply the elements and principles of design to:
a. two-dimensional design solutions.
b. three-dimensional design solutions.
c. Students are able to evaluate and communicate theories or concepts of spatial definition and organization.

CIDA 10 Color
Entry-level interior designers apply color principles and theories.
Student Learning Expectations:
Student work demonstrates understanding of:
a. color principles, theories, and systems.
b. the interaction of color with materials, texture, light, form and the impact on interior environments.
Students:
c. appropriately select and apply color with regard to its multiple purposes.
d. apply color effectively in all aspects of visual communication (presentations, models, etc.).

CIDA 11 Furniture, Fixtures, Equipment and Finish Materials
Entry-level interior designers select and specify furniture, fixtures, equipment and finish materials in interior spaces.
Student Learning Expectations:
Students have awareness of:
a. a broad range of materials and products.
b. typical fabrication and installation methods, and maintenance requirements.
c. Students select and apply appropriate materials and products on the basis of their properties and performance criteria, including ergonomics, environmental attributes, and life cycle cost.
d. Students are able to layout and specify furniture, fixtures, and equipment.

CIDA 12 Environmental Systems and Controls
Entry-level interior designers use the principles of lighting, acoustics, thermal comfort, and indoor air quality to enhance the health, safety, welfare, and performance of building occupants.
Student Learning Expectations:
Students:
a. understand the principles of natural and electrical lighting design.
b. competently select and apply luminaires and light sources.
Students understand:
c. the principles of acoustical design.
d. appropriate strategies for acoustical control.
e. the principles of thermal design.
f. how thermal systems impact interior design solutions.
g. the principles of indoor air quality.
h. how the selection and application of products and systems impact indoor air quality.

CIDA 13 Interior Construction and Building Systems
Entry-level interior designers have knowledge of interior construction and building systems.
Student Learning Expectations:
Student work demonstrates understanding that design solutions affect and are impacted by:
a. structural systems and methods.
b. non-structural systems including ceilings, flooring, and interior walls.
c. distribution systems including power, mechanical, HVAC, data/voice telecommunications, and plumbing.
d. energy, security, and building controls systems.
e. the interface of furniture with distribution and construction systems.
f. vertical circulation systems.
g. Students are able to read and interpret construction drawings and documents.

CIDA 14 Regulations
Entry-level interior designers use laws, codes, standards, and guidelines that impact the design of interior spaces.
Student Learning Expectations:
Students have awareness of:

a. sustainability guidelines.
b. industry-specific regulations.
c. compartmentalization: fire separation and smoke containment.
d. movement: access to the means of egress including stairwells, corridors, exitways.
e. detection: active devices that alert occupants including smoke/heat detectors and alarm systems.
f. suppression: devices used to extinguish flames including sprinklers, standpipes, fire hose cabinets, extinguishers, etc.

Students apply appropriate:

g. federal, state/provincial, and local codes.
h. standards.
i. accessibility guidelines.

CIDA 15 Assessment and Accountability
The interior design program engages in systematic program assessment contributing to ongoing program improvement. Additionally, the program must provide clear, consistent, and reliable information about its mission and requirements to the public.

Program Expectations:
Students have awareness of:

a. The program regularly monitors the placement of graduates and uses the information for program assessment.
b. Effective and regular methods are in place to gather internal and external feedback from a variety of groups in assessing program goals.
c. Program assessment results are reflected in program improvement.
d. The institution and program publish clear and consistent information about student achievement as a result of program assessment, admission policies, program philosophy, mission, goals, and course of study.

CIDA 16 Support and Resources
The interior design program must have a sufficient number of qualified faculty members, as well as adequate administrative support and resources, to achieve program goals.

Program Expectations:
a. The number of faculty members and other instructional personnel is sufficient to implement program objectives.

A majority of faculty members and other instructional personnel with interior design studio supervision have:

b. earned a degree in interior design.
c. passed the complete National Council for Interior Design Qualification exam.

The program coordinator:

d. is a full-time faculty member qualified by education and experience to administer an interior design program.

e. participates in the recruitment, evaluation, and retention of program faculty and instructional personnel.
f. Faculty members and other instructional personnel have academic or professional experience appropriate to their areas of responsibility, take steps to remain current in their areas of expertise, and collectively represent more than one point of view.
g. The coordinator, faculty members, and other instructional personnel collaborate in developing, implementing, and modifying the program.

h. Clear channels of communication exist between the program and departmental or administrative unit in which it is located.

i. The administrative unit(s) in which the program is located support(s) the on-going professional development of the coordinator, faculty members, and other instructional personnel.
j. Faculty members and other instructional personnel have access to appropriate facilities and equipment for course preparation, project evaluation, administrative activities, and meetings with individuals.

k. Instructional facilities and work spaces (classrooms, offices, exhibition and critique space, etc.) are adequate to support program objectives and course goals.
m. Equipment is available and appropriate to support program objectives and course goals.

n. Students have convenient access to a comprehensive and current range of information (bound, electronic, or online) about interior design and relevant disciplines as well as product information and samples.
C1 Appendix: Perspective Set Up

ONE POINT PERSPECTIVE

TWO POINT PERSPECTIVE
Appendix: New York Region Sun Chart

SOLAR PATH DIAGRAMS (CONTINUED)

The earth's axis is inclined 23°27' to its orbit around the sun and rotates 15° hourly. Thus, from all points on the earth, the sun appears to move across the sky vault on various parallel circular paths with maximum declinations of ±23°27'. The declination of the sun's path changes in a cycle between the extremes of the summer solstice and winter solstice. Thus the sun follows the same path on two corresponding dates each year. Due to irregularities between the calendar year and the astronomical data, here a unified calibration is adapted. The differences, as they do not exceed 41', are negligible for architectural purposes.

DECLINATION OF THE SUN

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<th>CORRESP. DATE</th>
<th>DECLINATION</th>
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Appendix: Student Identification Form

New York Institute of Technology
School of Architecture + Design
AAID 101 • Design Fundamentals I • Fall 2013

Student Name: ________________________________

Student ID: ________________________________

Address:
________________________________________________________________________
________________________________________________________________________
________________________________________________________________________

Mobile Phone Number: ________________________________

Email Address (IMPORTANT): ________________________________