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Gamble, Michael E.; Dagenhart, Richard; and Jarrett, Chris, "Rethinking Studio Pedagogy: Teaching Introductory Architectural Design at the Graduate Level" (2002). *Proceedings of the 18th National Conference on the Beginning Design Student*. Paper 30.
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Rethinking Studio Pedagogy: Teaching Introductory Architectural Design at the Graduate Level

Michael E Gamble, Richard Dagenhart and Chris Jarrett

Georgia Institute of Technology

Durability will be assured when foundations are carried down to the solid ground and materials wisely and deliberately selected . . .

Vitruvius, Book I, Chapter III

Introduction

Over the last two years, our Architecture Program committed considerable intellectual capital to the rethinking of graduate level introductory design studio pedagogy for students entering our Masters of Architecture I / 3 ? year program. This reevaluation concentrates on several unique challenges intrinsic to the graduate level introductory design curriculum, which include:

the inherent differences between the age and personality profiles of undergraduate and graduate students. Many programs treat the curricula as equal, with graduate students executing the same exercises as undergraduates, only at a faster pace.

the developmental gap that exists in the second year of most M. Arch I programs between students with architecture and non-architecture backgrounds.

Our goal is to retool the core design studio pedagogy in order to bring those students with undergraduate degrees in non-architecture disciplines up to the same level of design skill development as 1st year graduate students with 4 year Bachelors of Science in Architecture degrees. In short, these incoming students are disciplined, mature and educated and need a highly structured environment that works to: develop skills in design and the conventions of representation; teach theory as a part of everyday studio work instead of a separate activity; and introduce an understanding of design strategy to enable mature projects to emerge more quickly.

This paper focuses specifically on innovations in and the implementation of the pedagogy in the pivotal Core II Studio, which is taught in the Fall.

These core studios, which begin in the summer, are comprised of 3 consecutive terms of intensive design training aimed at the continuous introduction, development, and reinforcement of a variety of skills. In general:

Core I is concerned with the understanding, developing and manipulating of space and form through conceptual and experimental generative operations while simultaneously learning multiple media. Almost all of the exercises are concerned with the formal and compositional aspects of design,

distanced from the palpable aspects of lived space. In these space/form investigations, the objective is to develop an agility and intelligence in creative and generative processes.

Core II furthers the development of student skills in design, process, representation, and collaboration, emphasizing both analytical and an analogical approaches to creative problem solving, while simultaneously targeting the development of cognitive and critical thinking skills.

Core III emphasizes the synthesis of skills learned in Core I and II with continued introduction to critical discourse through the design of a medium scaled building on a difficult site over a 15 week period. Co- requisite courses in construction technology and lighting supplement design studio instruction with topics integrated into the project.

The core 1-3 studio sequence represents 3 of 7 design studios in which the M. Arch I students participate. Following the core sequence, students advance to 3 options studios, which by definition, are concerned with more complex studio platforms which emphasize advanced research and application in the areas of history and theory, urban and environmental design, culture and practice, electronic media and construction technology, depending on the instructor's critical and ideological interests. The Masters Project Studio is equal to the Masters Thesis emphasizing the integration of disciplinary and professional skills through the formulation of architectural propositions grounded in critical, speculative, and creative research.

Innovation

But we are unable to seize the human facts. We fail to see them where they are, namely in humble, familiar, everyday objects. Our search for the human takes us too far, too deep. We seek it in the clouds or in mysteries, whereas it is waiting for us, besieging us on all sides.

Henri Lefebvre from *The Same and the Other*

This revised curriculum is innovative on three key fronts in response to the overall charge of our graduate program, the prerequisites of the Options studios, and specific needs of the students. In our new structure, Core II centers on the early delivery of aspects of the 'real world' into the graduate design curriculum, in juxtaposition to the traditionally abstract/formal/academic aspects of early design education, intersecting the formal and the disciplinary with the everyday and ordinary. Urban and suburban parking lots, vacant lots, backyards, cemeteries, and aspects of the center and periphery figure

prominently in exercises concerned with design conventions.

Revisions to past studio structures are most evident in the following categories:

Structure of Projects

The studio moves through a series of three simple, but unique design exercises, on to an analytical study and finally, a small comprehensive design project, and has three major objectives: expand design considerations to give equal attention to issues of program, site, and context; frame the analysis of iconic projects from form to program, rituals of use, site, and context, revealing clear design strategies embedded in seminal architectural projects; execute a short but comprehensive design project that requires the accumulation of learning from the first two semesters.

Studio Themes

The first theme is the Everyday City. Atlanta, a consummate example of the everyday, contemporary city, is the backdrop for the investigations framed within the studio. Framing the development of design skills through an examination of aspects of the everyday encourages all of us to look closely at the many varied characteristics of the contemporary city around us, and seek ways to work within it and to operate on it's numerous pieces. The second theme is Modern Architecture, meaning the architectural heritage from the century that preceded us. These are the iconic projects that influence us in all of our work, setting standards for excellence in many varied ways. Sometime they inspire us, other times they haunt us, and yet they are an invaluable standard of excellence. Our studio projects will be within the Everyday City; our seminar will address extraordinary examples of Modern Architecture. Our discussion and projects combine the two.

Studio Organization and Reviews

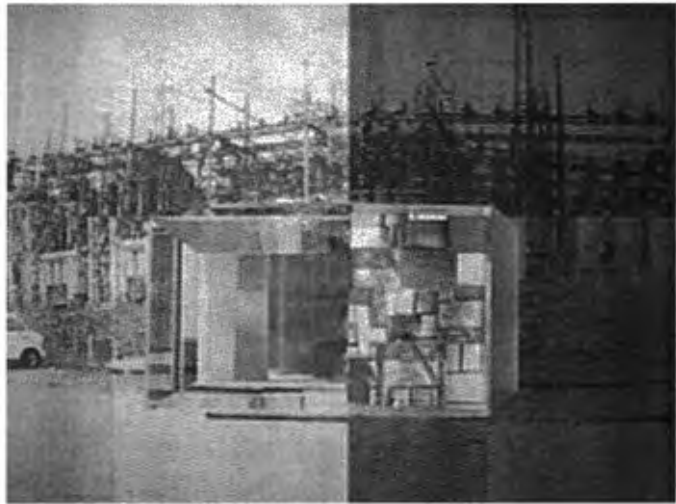
All core studios are taught by two instructors and 16 students (max.) in one large space. As an integral component of the pedagogy and depending on the project, students are: taught in one group collectively; or divided into smaller groups with the instructor reviewing each student's work or the work of groups of two to three; or exchanged between instructors at the end of an exercise; etc. Similarly, the review structure changes for each project. One project is reviewed only by the instructors; another is reviewed in the traditional manner by outsiders. One project has to 'speak for itself', that is to say, there can be no verbal accompaniment to the discussion, the drawings must be clear; while another exercise is only peer reviewed, the students must familiarize themselves with 'how' to critique a work. The structure of the juries becomes an informative, integral part of the studio culture.

Each project, outlined below, is highly structured from many different points of view in response to the challenges delineated above.

Exercises

Project I

BUILDING IN A PARKING LOT



Parking lots are an important part of our everyday experience. They are where we park our cars, meet friends, jump-start dead batteries, encounter strangers, fix flats, get mugged, kiss our lovers hello and good bye, wash our cars, take naps, etc. One way for us, as architects, to address our parking-lot-lives would be to design beautiful parking lots. That is not easy to do, but it would be (and has been) a great studio project, and the focus of recent design competitions. But for this studio project, we are going to just accept them for what they are and try to understand them a little bit better by designing a building in a parking lot.

Most parking lots look alike, black asphalt and white stripes, but they are used in different ways, in different places, and by different people. All are gregarious spaces, so our project will be to design a mobile/portable/moveable building to contribute to the gregariousness of some parking lots in Atlanta.

This mobile/portable/moveable building might be a restaurant of sorts. Call it a concession stand that you see at festivals around town or in some parking lots to serve coffee and doughnuts and sandwiches. Or call it a soup kitchen that serves food to the poor or homeless. Or call it stationary ice-cream truck. Or call it a multi-purpose kiosk for one-hour film developing, a Ticketmaster outlet, a FedEx depository, a sushi bar, a MARTA bus stop, or a massage parlor. Parking lots may look pretty much alike, but they are very different when we look at their surroundings, their users, and the activities within them. We will surmise the programs for our mobile/portable/moveable buildings from our observations of our parking lots and then design the building.

Part I: Site Observation, Documentation, and Program

We will divide the class into five groups and assign one of the parking lots to each group. Each group is responsible for visiting their lot, preparing a detailed context plan, observing the activities taking place (morning, afternoon, night), photograph-

ing and drawing impressions, defining possible programs, and presenting your observations, documentation and programs to the class. Each person will individually select a parking space within the lot for their project, prepare an existing site plan and define a program. The project is assigned 20 August (Monday) with a preliminary presentation on Wednesday and a final presentation of this part on 24 August (Friday).

Part 2: Design Proposals

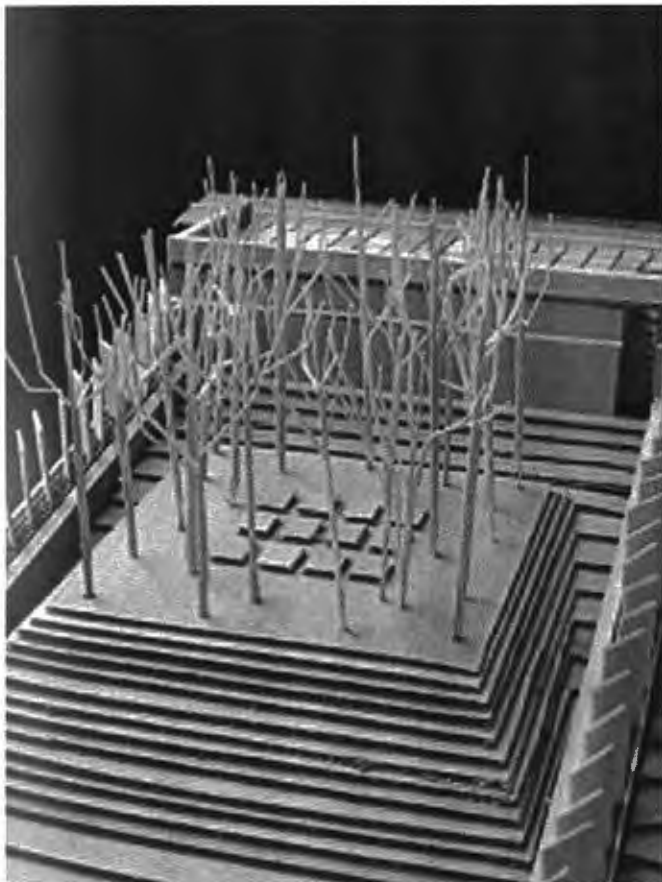
At the end of the day Friday, each student will have a parking space (a site) and a program for their building. The building must fit within the following envelope: 8 feet wide, 16 feet long and 12 feet high. This allows the building to fit in one parking space and to fit on the back of a truck, or if it has wheels, to be towable or driven to another location, if desired. Although the enclosed space cannot exceed this envelope, up to three parking spaces can be occupied by other things, and the building itself can have parts that fold out, lift up, etc.

Review Format

Instructor review with student discussion.

Project 2

BUILDING A LANDSCAPE: A Cemetery



The first project focused on the design of an enclosed space – a building. Each solution had a direct programmatic connection to its parking lot site, but there was no specific physical

relationship to the site: our buildings did not need permanent foundations or site work.

The second project focuses on the site itself as an architectural design problem, equal in importance to the design of a building. Just as building design overlaps industrial design; site design overlaps landscape architecture. Instead of concerns with organization of space inside, we are concerned with the organization of spaces outside. Instead of wood and steel and concrete for structure and enclosure, we are concerned with plant materials – the shapes of plants, the texture and color of leaves, seasonal changes, the process of growth. Instead of shedding water to protect the interior, we are concerned with the uses of water and experience of water – pouring rain, ice, drizzle, fog, snow, morning dew. Instead of thresholds from outside to inside and from ground to floor, we are concerned with the ground itself - its physical and spatial contours – and thresholds made by design of surfaces. Instead of climate controls to regulate heating and cooling, we are concerned with the seasons, the path of the sun, prevailing winds.

Site

The site is located in a wooded area on the edge of Atlanta's periphery. A small parking area sits at the top of a hill while the site slopes across a meadow down to a large lake. Your cemetery plot is one of 23 plots proposed to be constructed on residual space owned by the Georgia Department of Transportation. This space, for years used only as place for cyclers, joggers and picnickers, will be converted into a public cemetery for the burial of Atlanta's forgotten, displaced and indigent population.

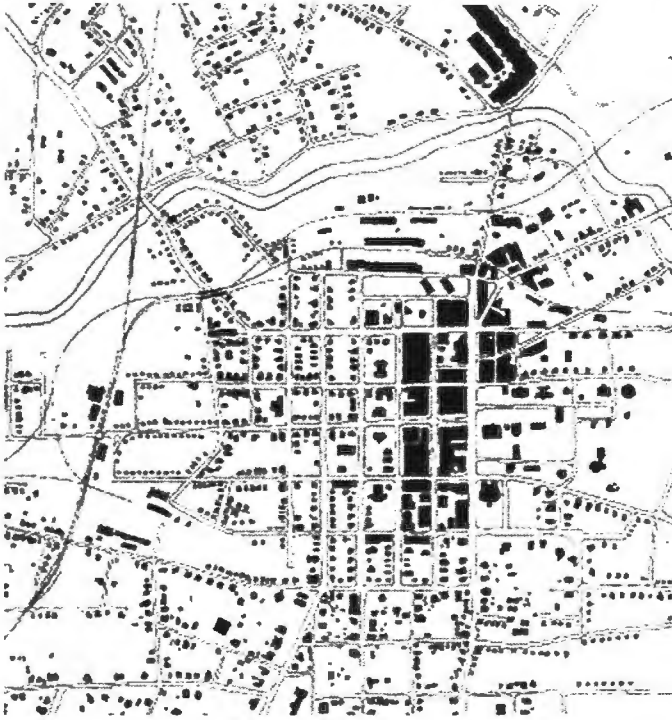
Review Format

Formal individual review with Professors Allen, Green and Dye – 20 minutes. Prepare a 4 minute, concise introduction to your project.

Project 3

BUILDING A CITY: Buildings and in/of Context – Athens, Georgia

The first project focused on the design of a small building as a construction independent of site and context, while the second project examined the site itself as an architectural design problem, equal in importance to the design of a building. The third project addresses an additional set of design considerations for any architectural project: context or the relationship of the building to its site and its surroundings, whether urban, suburban or rural. For this project, the context situation is downtown Athens, Georgia, which is known nationally for its successful urbanity. Set within a framework of small blocks are small buildings of many types and ages, a diverse mix of uses – retail, entertainment, government and upper level residences, and streets and sidewalks that enable and encourage all forms of transportation - automobiles, pedestrians, bicycles, and the nationally acclaimed public transit system shared by the City of Athens and the University of Georgia. Although



downtown Athens is envied by most towns and cities, it still has several vacant parcels or partially vacant parcels, surface parking lots, etc. that are available for new building projects. The challenge to Athens, and to this studio, is to design projects to compliment and extend Athens urbanity. The studio projects must be, at once, almost invisible within their context and must contribute to the fine grain of mixed use and successful figure ground in thoughtful and inventive ways.

Program

The program is as follows:

A stair – interior or exterior.

An elevator.

A balcony.

A garden or other private ground level space on the ground level.

A building volume of two stories minimum and three maximum.

The project must be attached to an existing building on an adjacent property; no project may be free-standing as an object. No parking is allowed on the site under any circumstances.

Presentation Requirements

The following presentation materials are required. All drawings shall be in ink on vellum.

Detailed Figure Ground Drawing of Existing Block at 1/60. (Also scanned and assembled with other blocks according to studio graphic agreements).

Detailed Figure Ground Drawing of Proposed Block at 1/60. (Also scanned and assembled with other blocks according to studio graphic agreements).

Block Face Existing Elevations Relating to Project at 1/30. (Also scanned and assembled with other blocks according to studio graphic agreements).

Block Face Elevations of Proposed Relating to Project at 1/30. (Also scanned and assembled with other blocks according to studio graphic agreements).

Project Plan with Immediate Context at 1/8 or as appropriate.

Project Facade with Immediate Context at 1/8 or as appropriate.

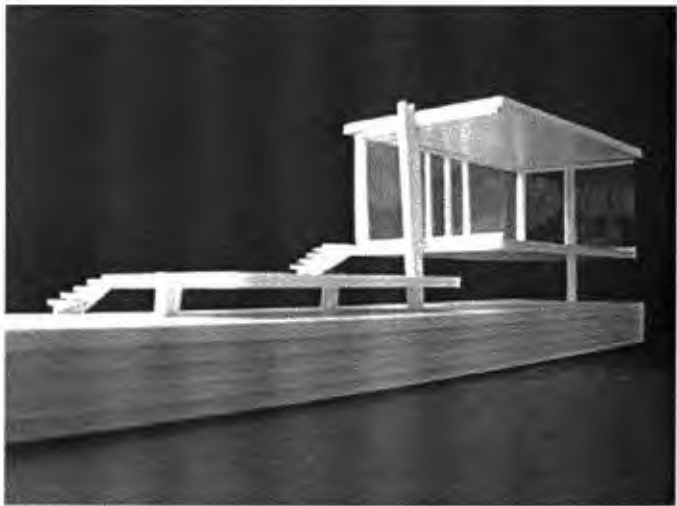
Project Section (through facade and entire block) at 1/8 or as appropriate.

Review Format

Students will present projects in pairs. Invited professional architects and urban designers will ask questions and 'redline' your proposals. More than one discussion may occur simultaneously and you may be asked to present your project more than once. In class, the day after the review, you will respond to redlines through sketch revisions.

Exercise 4

DESIGN STRATEGIES - ANALYSIS OF MODERN HOUSES



This project is the fourth design exercise for the semester and is considered an introduction to the final comprehensive design problem. Instead of a short design project, however, it involves the analyses of modern houses (and one small pavilion) to discover, elaborate, and visually communicate architectural design strategies. Houses, especially those of the modern period, offer a multitude of architectural design strategies, involving program, site, context, and three-dimensional form. Because these houses seek to break from, or re-interpret, domestic conventions and traditions, they can provide unique insights into the nature of the modern house, and become a platform for one's own future design strategies.

Teams of two students will be assigned a seminal modern

house. This team will gather information about the house, analyze it to discover design strategies, prepare interpretative diagrams and models, and present it to the class. There are three primary parts of the project. First is to collect drawings of the house - context, site plan, building plans, sections, elevations, etc. and draw them to the common scale of 1/4 inch. Second is to read about the house - from the perspective of the architect, historians, critics, etc. - to discover the rich variety of ideas that shape design strategies - circulation and movement, visual transparency and opacity, structural form, vertical and horizontal organization of space, enclosing skins, color and light, etc. Third is to represent your analysis through drawings, collages, and models to explain to the class your discoveries of the major and minor design moves of the architect.

In addition to assigned readings, each team will complete in-depth reconnaissance of all pertinent related material from the Library.

Required Panels for Presentation

Design Strategy Model: This model, required for all teams, is a detailed section model - either a horizontal or vertical section - through the entire house at 1/4" = 1'0". It is to be constructed from white foam core board and white museum board to allow easy comparison of the selected houses. Prepare at least 4 photographs of the model and format 11 x 17. Digital cameras may be checked out at the Helpdesk.

Context and Site Strategy Drawing or Model: This may be either a drawing, collage, diagram, or small model (11x17 format) explaining or interpreting the building's relation to context and design of the site itself. Both plan and section of site and building are significant. Prepare at least 4 photographs of the model and format 11 x 17, if applicable.

Spatial Strategy Drawing or Model: This may also be either a drawing, collage, diagram or small model (11x17 format) explaining or interpreting the building's spatial order - horizontal and vertical organization of space, enclosures, sequence of movements, transparencies/opacities, etc. Prepare at least 4 photographs of the model and format 11 x 17, if applicable.

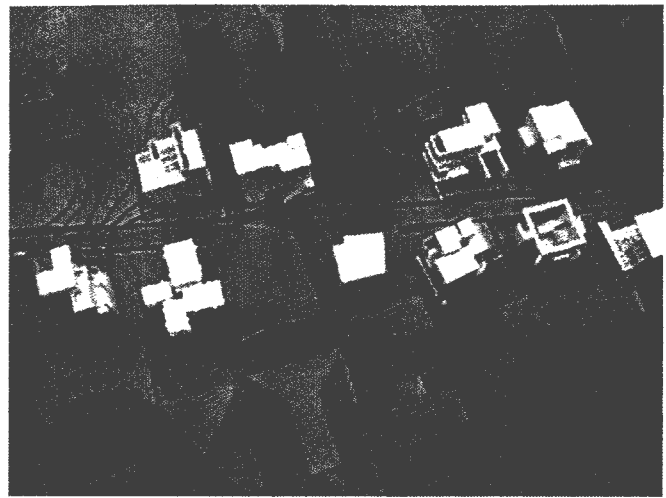
Structure/Construction Drawing or Model: This may also be either a drawing, collage, diagram or small model (11x17 format) explaining or interpreting the building's structural/construction/enclosure strategy. Prepare at least 4 photographs of the model and format 11 x 17, if applicable.

Each project, formatted 11x17, will be included in a reference booklet.

Review Format

All drawings must 'speak for themselves' with no supporting verbal presentation. Students are required to conduct peer review of group projects with discussion. Come prepared to make compliments, criticism and ask questions. Grades will be determined on the clarity of your analysis and participation in the discussion.

Exercise 5



Comprehensive Design Project: Garage Apartment in Midtown, Atlanta

Introduction

Previous exercises have addressed in incremental ways, various conditions and conventions of architectural thought and production. This final comprehensive project combines these different facets of architecture - object and site, the everyday and the unique, the collective and the particular. Drawing from past exercises, your challenge is to design a small garage apartment in a centrally located, ethnically diverse historic neighborhood in Atlanta - Midtown. The project sites are between 10th and 7th on Myrtle street. All houses facing Myrtle Street have alley access to the rear yard. The alley serves as a rear drive to all properties. Historically, many of the houses maintained detached garage apartments for rental and car storage. Today, many of the apartments are in ruin, or have been razed. In your site assessment, you should identify a specific lot in need of a secondary structure. Call it a real cool garage apartment.

Design regulations are as follows:

- There is a 10-foot minimum rear setback.
- There is a 5-foot minimum side yard setback.
- The maximum cornice (or soffit) height in Midtown must be no greater than the tallest building on either side of the site.
- The maximum height cornice (or soffit) height at the rear property boundary is 35 feet.
- The maximum buildable depth below grade, measured from the level of the sidewalk, is 12 feet.

Construction

There are three ways to increase affordability of housing: reducing construction costs, reducing the buildable area, and financial subsidies. In this case we can assume all three are important. Construction should be of common building materials for structure and finishes. If possible, the living unit built area should be less than the maximum of 1400 s.f.

Site Information and Analysis

The class will divide the following tasks for site information gathering and analysis.

Property boundaries (from Fulton County Tax Parcel information – Main Library)

Historic site information (from Sanborn Maps – microfiche in Main Library)

Existing site topography (from fieldwork)

Myrtle Street elevations - photographs (from fieldwork)

Mosaic Myrtle Street elevations (PhotoShop and plots scaled to 1/4"=1'-0")

Presentation Requirements

The following presentation documents are required.

- Design Process Sketches and Models: Each individual will keep design process sketches and models, will edit them to construct a design process narrative, and assemble/mount them as a part of the final presentation.
- Contemporary House Conceptual Model
- Diagrams of Design Strategies: Three Minimum (site and building)
- Site and Context Plan @ 1/16"=1'-0"
- Building Plans (all levels including roof, showing entire site) @ 1/4"=1'-0"
- Site/Building Sections/Section Elevations: Two minimum @ 1/4"=1'-0"
- Site/Building Elevation: Carol Street Elevation within photomontage @ 1/4"=1'-0"
- Construction Wall Section @ 1/2"=1'-0"
- Interior 3-Dimensional View with site beyond – axon, perspective, etc.
- Model w/ site @ 1/4"=1'-0"

Review Format

Students will participate in a formal individual review with Professors Jarrett, Hsu and Davis on week before the end of the term. Students will complete all presentation requirements for this review. Students will choose one peer to take notes during his/her review. All will respond to criticism over the course of the final week of the term and prepare all drawings and models for an end of the term exhibition to be held in the gallery space.

Conclusions

The real benefit of rethinking pedagogy is certainly geared toward the audience – and the significant differences between graduate students and undergraduates. This opens up questions about all of the projects offered in both undergraduate and graduate studios, how should design be taught to this different audience? How do we as instructors deal with complex design issues while simultaneously building necessary skills? This reconsideration of the curriculum frames the importance of combining the "everyday" and the "privileged" which is the world our graduate students are part of already. We are simply seeking to reinforce architectural sensibilities of our students to engage both. The structure of reviews/evaluations is an important part of teaching, and should be considered an integral part of the structure of set of design studio parameters. The importance of adapting our teaching method to include the traditional one to one studio teaching in some scenarios, while at the same time introducing the students to different models which alternate instructors, changes the teaching context through single, double and collaborative critiques at the desk, outside of studio, as well as online.

