

Making Conventions Speak

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"The pragmatic architect is the one who above all **makes conventions speak**, (s)he who salvages a poetic dimension from the here and now, who is capable of decontextualizing the already known and giving it the luster of poetry. An insistence on the material aspects, constructional as well as those referring to manipulation of territory, ought to be interpreted from this angle: it is not by abandoning the more routine aspects of the discipline that we can transcend it, but by recognizing in these aspects the whole poetic force of a founding act."¹

INTEGRATED DESIGN IN COTEMPORARY PRACTICES AND STUDIOS

Many professional curricula guide students through a sequence of studios that prepare them for a mode of practice not evident in the multiple demands and areas of expertise of present and future practices in architecture. Approaches to the topics of energy, material, sustainability, construction, urbanism and formalism while intimately connected in a building's performance in actuality are too often disparate realms of instruction in American architecture schools. Routinely they are taught, theorized, and practiced by separate entities that in many cases operate in exclusive realms, often as stipulated by the National Architectural Accrediting Board and old pedagogical habits. American architecture is too often driven by autonomous formal ambitions, personal self-expression, rhetorical exuberance, urban aspirations, construction strategies, or by attention to the thermodynamic actuality of architecture; but one often at the expense of the other. Given the complexities and contingencies of contemporary practice, a more integrated approach is necessary.

While the notion of complexity in architecture is occasionally expressed in complex building shapes, the actual complexity of architecture is difficult to apprehend visually. Rather than the composition

of static objects, complexity in architecture is best understood in terms of the complexity of the conventions, contingencies and potential effects of its own routines. Integrated design is characterized by reflexive architects and students thinking about, distilling, and practicing this complexity. Integrated design is what architecture students and architects do when they incorporate and organize this increasingly complexity at the start of a design problem. Architecture, however, has few, if any, theories of integration that provides models for well-integrated practices. Integrated design may mean that a building's spatial, constructional, energy, and systems logic are design simultaneously. It may also mean that a building is the product of new social relationships amongst architects, clients, developers, communities, and consultants. As a counterpoint to extant pedagogies and practices, what follows is an ascendant approach to integrated design that aims to move beyond these stifling categories and limits. Within this approach, the complexity of contemporary architecture shifts from surplus conceptual, rhetorical, visual or formal content to the complexities of distilled integration.

The premise of the following building technology-as-design pedagogy is that rigorous familiarity with the conventions of architecture in the end engenders the greatest possibility for both competence and true innovation. However, the development of an architect—and a building—increasingly requires a simultaneous suspension of certitude about these conventions in order to swerve these conventions for innovation rather a capitulating acceptance. It also requires a more open and adroit sensibility that includes a multiplicity of voices and parameters to achieve innovation, if not mere competence, in the increasingly complex contexts of architecture. Thus, this pedagogical position is characterized by

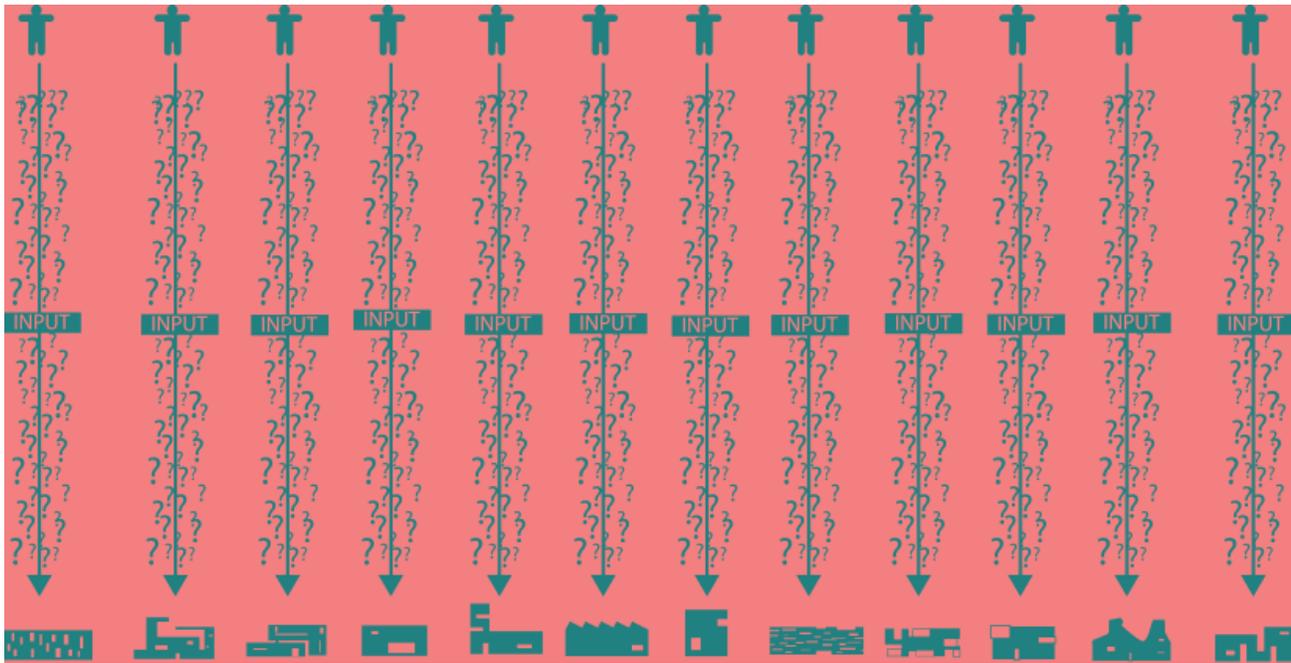


Figure 1. A typical, out-moded studio sequence diagram

a mixture of optimism about the inevitable and interrogatory doubt of the conventional. As Stan Allen notes, of his own work, "What is proposed here instead is a notion of practice flexible enough to engage the complexity of the real, yet sufficiently secure in its own technical and conceptual basis to go beyond the simple reflection of the real as given...a rigorous forward movement, capable of producing new concepts out of the hard logic of architecture's working procedures."² Or as Jeffery Kipnis has noted regarding Herzog and de Meuron's practice, the following studio pedagogy "derives its critical edge from an assumption of architecture's basic adequacy and an ease with the controversial position that architecture has no more profound project than to fabricate a new sensibility from its own palette."³ These assumptions about contemporary practice require a fundamentally different approach to the design studio: its parameters, critiques, guests, and content. In practice, this inevitably involves the input of not only architects but engineers, landscape architects, developers, code officials, and contractors. This thus demands a more discursive studio environment in which students must understand not only the complex contexts and conventions of a multiplicity of often contradictory voices but how to integrate them to achieve well integrated and performative buildings.

COMPREHENSIVE STUDIO STRUCTURE

The following presents a curricular framework for an Integrated Design studio that aims to overtly integrate the issues of construction, program, energy, climate, site development and post-industrial urbanism as the impetus of student work. The typical studio sequence diagram (figure 1), in which students arrive at solutions through predominantly independent work and variable input from a single instructor with architectural guest reviews throughout a semester is seen as a failed diagram for teaching technology as design in the context of contemporary practices.

In contrast to the narrow breadth of contexts prevalent in such studio approaches, the following pedagogy has overtly merged aspects of our building technology and studio curricula to achieve more integrated building technology and design curricula. This framework prompts an approach to integrated design that inherently requires novel forms of collaboration, resourcefulness, and comprehensive practices amongst the students and faculty. This integrated format prompts the endless negotiations of design and technology that characterizes contemporary practice. The intent is to cultivate the critical acumen that guides design and tech-

nical decisions in contemporary architecture. This pedagogical approach focuses on integration that occurs primarily at 3 levels: the curriculum and coursework, other viewpoints from guest lectures/crits/juries, and collaborative student work.

CURRICULUM STRUCTURE

Following a rigorous housing studio that meticulously analyzes the code and market conditions of its studio project, the students enter their final undergraduate studio, Studio 5. Studio 5 is a comprehensive studio that is directly integrated with the final building technology lecture entitled “Integrated Building Systems.” The single most important aspect of this integration is the convergence of this penultimate building technology lecture content with the studio where it is best presented and developed: in the context of design problems. The two courses are coordinated by one individual and the lecture content directly follows the studio content. The requirements for the lecture course include weekly readings on germane topics and building technology assignments that directly advance the studio design work. This fundamentally shifts the credit structure to place more intense demands upon the students, especially when they work in pairs (figure 3). The program for this studio is a moderately sized, often mundane institutional or commercial building with a mix of uses. Previous program examples include a printing press and headquarters or a fire station/fire boat station. These typologies allow the students to privilege the many systems rather than overt social or cultural content for the purposes of this studio.

The first phase of this studio is designed as an immersion into the programmatic and technical parameters of the studio project typology. The studio begins with the research and development of an important typological module of a larger program during the 3.5 weeks of the studio. Pairs of students research the structural, environmental, acoustic, lighting, and basic building envelope parameters of pertinent typological precedent. This information is shared as collective research within the studio. This work quickly builds a collective body of typological, programmatic, and technical knowledge applicable later in the studio. This work is followed by a short charette on a typological module of the as-yet-undisclosed full program. This module exercise does not have a site, only an orientation and

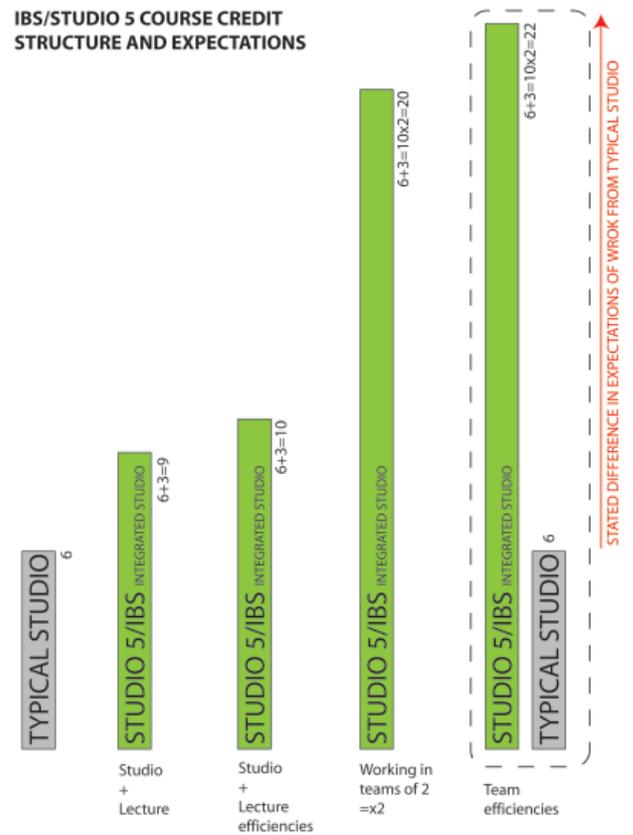


Figure 2. New Credit Structure

latitude. The intent is to prompt the research and integrative design of several parameters early on in the design process as operative protagonists for the studio. This phase culminates in the presentation of a 1/4" bay model that incorporates the technical parameters as well as supporting diagrams and drawings. Teams present the results of their research and design work during the fourth week of studio. The results of this typological and programmatic research work are consolidated in a PDF project manual for use by all teams in the next phase of work. This project manual and resultant in-house ‘experts’ on the parameters of various programmatic aspects promotes further collaboration amongst studio members. The typological module research and development quickly develops fluency with a range of programmatic technical issues in order to accelerate the design work in the remainder of the semester.

After this first review, the project site is issued to the students without knowledge of the size of the program, just the typology. This suspends premature

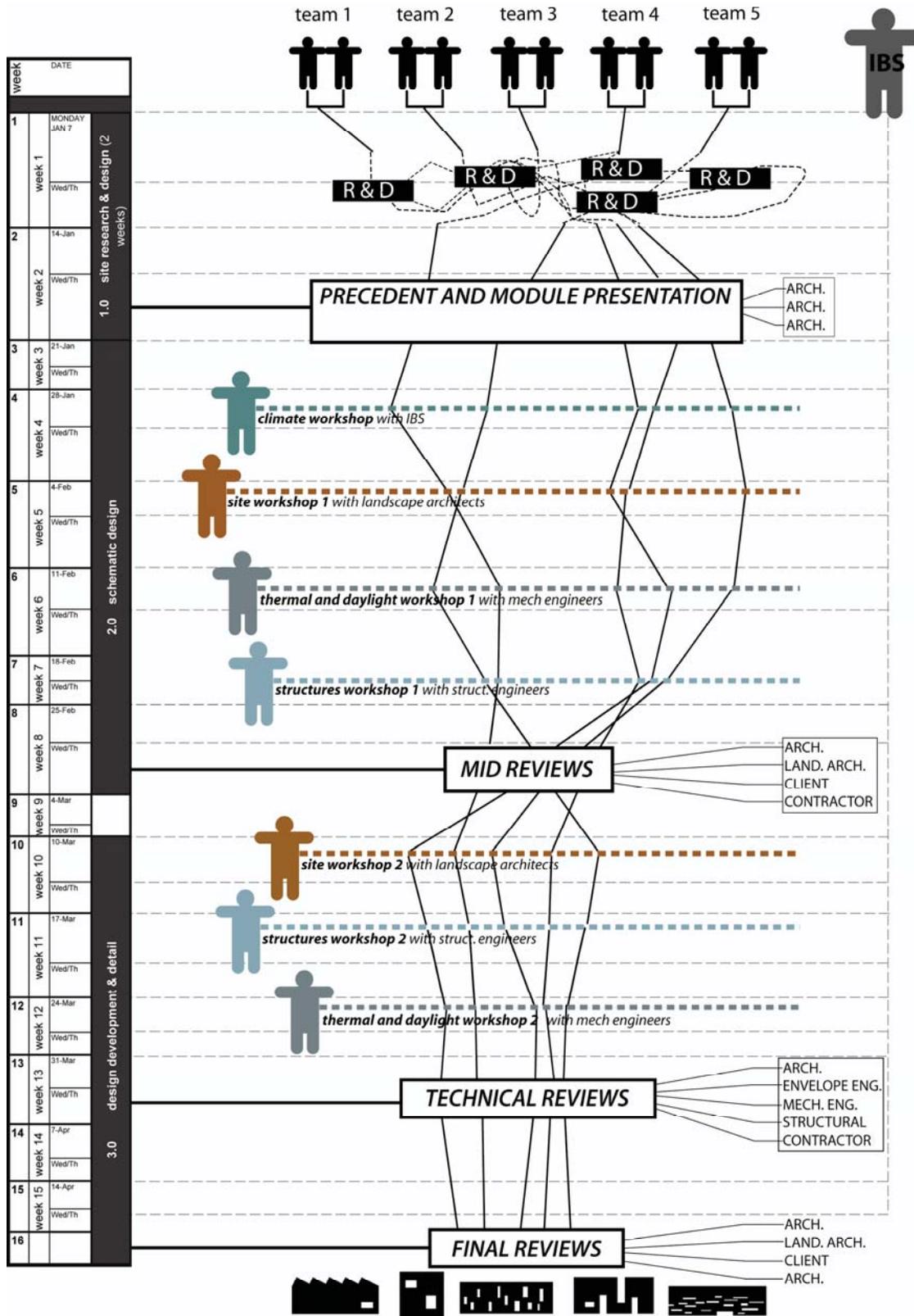


Figure 3. New Curricular Diagram

work on the building in deference to more focused site, climate, and urban analysis. For the six sections of the coordinated studio, three sites are selected that amongst the sections they students can appreciate how the same program may yield a range of technical and programmatic strategies for different sites. The climate analysis, relying heavily upon Ecotect's Weather Tool, is critical for the students to begin strategizing programmatic and technical choices.

Once the full program has been distributed, the first phase of building design is a series of structured exercises punctuated by workshops with a number of guest consultants that offer additional expertise. A series of lectures and case studies in the parallel IBS lecture course reviews systems pertinent to studio activity, discusses theoretical readings, and gives multiple examples of well integrated design and the appropriate representational systems for integrated design. There is a focus at this stage on the morphology of the schemes: how the students develop their architectural intent with a range of technical parameters in mind. Throughout the semester, design reviews include critics from a range of disciplines that help advance the work as well as a focus on the technical resolution and integration of various systems as the context for formal ambitions and performance. The strategies and systems developed in the design of the smaller typological module are extended or altered later in the design of the full program. This leads into a mid-term review of a schematic design.

In the second half of the IBS course, there is an overt focus on the building envelope and building envelope durability. The importance and complexity of contemporary building envelopes is often underestimated, especially by students. A series of building envelope durability lectures and exercises integrate a range of performance issues: energy performance, structural load paths, serviceability, and maintainability. To accomplish this, the students cycle through a series of wall sections, matrices, digital building envelope models, and digital building envelope models in order to develop a digital building envelope analytique (figure 4). In this sequence, the students also fabricate a 1/2" bay model that most significantly advances their understanding of systemic assembly. This large scale modeling most clearly reveals the subterfuges, inconsistencies, and problems with the scheme and

the review of the systems in a Tech Review significantly advances the final phase of work that is focused on resolving problems but most importantly on the ultra clear presentation of the abundance of work accumulated by this point.

The aim in this combined studio/lecture framework is to teach not only the technical systems and their systemic effects, but to understand these systems well enough to make the systems and their conventions 'speak' architecturally. The many systems that comprise architecture: site systems, energy systems, material systems, construction systems, structural systems, formal ordering systems, spatial systems, codes, plumbing, circulation systems, programmatic systems, event systems, urban systems, climatic systems, ventilation, daylighting, program, are the fodder for this integration. However, it is made very clear to the students that these systems themselves are not architecture! It is the role of the architect to understand comprehensively all these conventional systems and direct them to a new end that is architecture. The aim is to neither be dominated by any system, theory, technology, compositional strategy, history, computer program, building or energy code, nor to dismiss any of these but rather to become secure enough in their depth and breadth to swerve them for your own ends in your own work. The key to the student's work is how they understand all these systems and their conventions well enough to make the conventions of these systems 'speak,' in other words, the degree to which they elevate the systemic nature of contemporary practice to the status of architecture.

CONSULTING CRITICS

A key aspect of this integrated studio that helps the students make the systemic nature of contemporary architecture 'speak' is the inclusion of a range of guest lecturers, critics, and advisors that cultivate the diverse knowledge areas that characterize contemporary architectural practice within the studio setting for lectures, reviews, and desk crits. These visitors include clients and client representatives, structural engineers, mechanical engineers, sustainability consultants, landscape architects, contractors, and city officials. They collectively set the context for design as much as the traditional architectural design faculty. John Dewey suggested that we "make each one of our schools an embry-

onic community life active with types of occupations that reflect the life of the larger society...."⁴ The intent here is to place the student and their architectural decisions within an expanded field of outside experts and influences. It is critical that students cultivate the capacity to both communicate and integrate various forms of expertise into their work as well as to critically evaluate the complexity of outside influences, discerning what is essential for their work. In turn, it is critical that these other professionals begin to see that their voice belongs early in a design process and in the education of an architect.

In this studio, engineers and other consultants conduct workshop desk crits along with design faculty. Engineers are often quite interested in speaking to architecture students as they inevitably have several basic principles that they feel all architects ought to know and practice. The engagement with this range of outside experts also forces students to speak in more particular, objective and clear terms about their projects that in turn makes their work more objective and clear. The colloquial jargon of the design studio is jettisoned in exchange for a design discourse more germane to engineers, developers, and clients. This forces the students to articulate and present their work more clearly and often in alternative formats. Likewise, there is an unusual emphasis on the graphic clarity of the work to communicate the complex issues and systems engaged in the studio. Collectively, the broad and extended inclusion of these various disciplines forces to conceive of design in fundamentally different terms. Students quickly advance from obsessions about self expression to the strategic identification of integrative opportunity for architecture to intervene in a particular context.

COLLABORATION

A final aspect of this integrated design sequence is that the students work together in pairs. The intent here is to more closely simulate practice in which design is inevitably a collaborative effort. This structure also allows the students to develop a project with greater depth and breadth than they could on their own. Toward this end, the team structure also engenders longer, more in depth desk crits and reviews of the work since there are half as many projects. In the context of this collaborative design, the collaboration often results in

more objective criteria for design because students must inevitably vet their design strategies amongst themselves in order to prepare work for subsequent desk crits and reviews. This accelerates both the design and development of the work as well as yields more productive desk crits and emphasizes the discursive nature of design. In this context, the studio instructor is one among many multidisciplinary voices that the students must reconcile, on their own terms, in order to advance their work.

CONCLUSION

The traditional division of content lectures from studios is an inadequate model for teaching technology as design in the new century. While administratively convenient perhaps, it does not adequately prepare students for the multiple contexts of architecture in the new century nor present content in an integrated manner. Throughout the combined studio/lecture semester described here, the aim is to expand the student's idea of what and who constitutes contemporary architecture practice and in doing so identify the areas in which the act architect can most strategically act as architects. It is critical, today, that architecture schools construct pedagogical structures that position our students to expand their engagement with the integrated realities of the new century. This is central to the advancement of the economic, ecological, social, and formal basis of architecture, if not its mere perpetuation. This gives new life and promise to the technical, programmatic, and formal potential of architectural practice.

ENDNOTES

1. Inaki Abalos, *The Good Life*. Editorial Gustav Gili, Barcelona, 2001. p 187.
2. Stan Allen, "Practice versus Project" in *Practice: Architecture Technique, and Representation*. Amsterdam: G + B Arts International, 2000. P. XVI.
3. Jeffrey Kipnis, "The Cunning of Cosmetics" in *El Croquis* #84. p. 25.
4. John Dewey, *The School and Society & The Child and the Curriculum*. New York: Dover Press, 2001. p. 20.