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The School of Architecture and Urban Planning at the University of Wisconsin-Milwaukee has flourished since its inception in the late 1960s. While it remains the state’s only accredited architectural program, the program provides an outstanding education for talented students from across the country and, indeed, the world. The results of their endeavors in the studio context are always an impressive array of design ideas, admirable in both quality and in the breadth of concepts they explore.

For this second publication, the editors, Professors La and Talbott, along with the student editors, Peter Balistrieri and D. Jesse Mase, have selected from a large pool of projects, and have assembled a collection of work that resonates with the underlying strength of the program - strong conceptual foundations, careful contextual consideration and perhaps most importantly, an ability to comprehend the spatial implications of translating a concept into a physical reality. It is this mastery of materiality that gives the program its edge - the ability to take strong ideas and translate them into tectonic, three-dimensional designs. It is this foundation that has stood us in good stead in such arenas as the annual Chicago Awards, where SARUP students have won 70% of all design awards since the competition was initiated in 1982. In professional practice students consistently excel in the thoughtful making of architecture, rewarded by exceptional employment opportunities and ultimately enabling them to acquire leadership positions in large and small, high-profiled firms.

Thirty-four years is not long in the history of an academic program, but for us it is a lifetime during which design has flourished and matured. With increased enrollments at both the undergraduate and graduate levels, the School faces change over the coming years as we bring on a new cadre of faculty. Publications such as Calibrations are important benchmarks that reflect our collective experience in searching for excellence, and our measurement of progress over time. I am deeply grateful to Professors Grace La and Kyle Talbott for their continued commitment in making the second edition of Calibrations a reality.

Robert Greenstreet
Dean, SARUP
Calibrations provides a forum for architectural studio and design work produced by students in the Department of Architecture at the University of Wisconsin - Milwaukee School of Architecture and Urban Planning (SARUP). Following the format of the previous Calibrations, published in 2000, this second issue presents a cross section of studio life during the 2002-2003 school year, including core studios, special topics studios/seminars, and thesis work. Although the entire studio sequence is represented, this issue contains a greater number of thesis projects, produced between 2000-2003, reflecting our students’ diversity of interests, their evolving convictions, and the outcome of education at SARUP.

Calibrations is both self-assertive and self-reflexive, capturing the range of questions and explorations within the design work of the school. The journal measures change in pedagogy and values by condensing the creative effort of the School and facilitating comparative assessment across years. The second edition plays a special role in the development of the series because it offers a modern derivation of this rural spirit, rewards tangible problem-solving and ideas connected to useful consequences. As a result, much of the student work invests in site, accommodates climatic and economic realities, and acknowledges a wider urban situation. Some of the work explores origins or searches for meaning, but such critical or metaphysical inquiry usually supplements a central effort to respond intelligently to local concerns, improving quality of life in the present time and place.

The optimistic improvement of the environment through construction is an extension of this attitude. Reluctant to suspend the reality of fabrication in favor of representation for its own sake, the students revel in the corporeality of buildings. From the intricacy of enclosing skin to the tectonics of exposed structure, the projects use building technology and materiality as aesthetic instruments. Yet, while this effort is similar to the tectonic considerations so prevalent in the last issue, the students’ ability to represent essence and substance of construction appears diminished in the artifacts of drawing and model-making, vanquishing traditional orthographic projection in favor of the framed, digitally-fabricated, perspective view.

Another thread in this edition is the entwining of life and terrain at the boundary between architecture and landscape. The edge of contact between such opposing realms is often confronted by the careful siting of projects. We see student work struggling with urban conditions contorted by intervening geography at such locations as the mouth of the Milwaukee River and the cliffs of Guanajuato, Mexico. Additionally, some thesis projects push this man-nature interface through a strategy of building as landscape, achieved by a conceptual transformation of ground into building. And moreover, other projects repair the thinning urban center through the introduction of physical, social and industrial infrastructure. The space between building, constructed ground, and landscape is often intentionally ambiguous, routing the part in reference to the whole and predisposing fabric over monument.

Rewarding the poetic over the extravagant, this search for continuity resists current trends of fragmentation and undulation. In some cases, tectonic articulation enlivens recalcitrant volumes. In other cases a simple frame orchestrates light, threshold, and view, the heightened awareness of which crafts a quiet drama. These preferences suggest an outlook more benevolent than revolutionary and more personal than political.

A restless counter-movement is perceivable, however, in several student projects that explore the notion of a “soft” architecture for the sake of discovering radical possibilities. In some of this work, the building entity is subordinated to the image and its revelations. Freed from a foundation in landscape and fueled by exotic form, these projects question the value of continuity and promote the global over the local. Such undercurrents might be passing anomalies or simmering change, paralleling investigations at other schools of architecture as well as outside of academia albeit influenced or inspired by them given the accessibility, seduction, and speed of visual communication.

In reflecting upon the work produced since the first issue of Calibrations, the similar trends noted here indicate a general stability in the pedagogical goals of the school, forming a kind of bedrock that parallels, perhaps to a fault, the current reality of building in the Midwest — that is to say, the underlying conditions of pragmatism, sound building construction, and traditional form. Yet, the contributors strive simultaneously for theory translated into practice, for concepts embodied in material, and for innovation explored in subtle gestures — relying on this foundation as a touchstone for the work to achieve, incrementally, a balance of poetic and productive additions to the built landscape. This grounded quality is still perhaps the most enduring binding agent of the collective work, and it suggests an opportunity to strengthen the existing balance by affirming the importance of vision, innovation, and critical inquiry.

Grace La
Assistant Professor of Architecture

Kyle Talbott
Assistant Professor of Architecture
Architectural Fundamentals I is the first of four studios in the undergraduate sequence. Students are introduced to elementary design concepts at the same time that they are asked to learn basic drawing and physical model making techniques.

The studio required students to complete four exercises and three problems that explore the potential of line, plane and volume to define space. With each new assignment the level of complexity increased, first in the number and type of elements and then in the slope of the terrain. Issues of scale, proportion, layering, plan form organization, and thickness were introduced in a series of lectures and then explored through design. Additionally, a detail exercise enriched the final series of three connected problems.

This fall the studio was supported by a new Virtual Modeling class, which introduced students to computer modeling as a design tool. Students investigated studio assignments concurrently in traditional and digital media.
Architectural Fundamentals II is the second of four studios in the undergraduate sequence. The studio emphasized the development and presentation of inventive spatial concepts through cross-disciplinary exploration. Film, Physics, mathematics, and literature were used to induce new architectural possibilities in the context of six design problems of gradually expanding complexity.

Early exercises explored theories of space, from the ancient understanding of space as an infinite expanse containing matter to the modern understanding of space based on the General Theory of Relativity, in which space possesses properties much like a substance. Later exercises focused on the experiential consequences of spatial theory. Through the examination of films that distort our perception of space-time, such as Wings of Desire, Run Lola Run, The Matrix, Pulp Fiction, and Memento, students choreographed the human experience of architectural space. Digital modeling and visualization played a central role in all projects, and students used experimental diagramming techniques to take full advantage of the unique properties of the digital medium.
Architectural Design I is the third of four required studios in the undergraduate sequence. The fall semester consisted of three projects: a four-week building infill problem situated in the Historic Third Ward, a five-week housing project located on the corner of 3rd and Vine and a five-week library project for the Burns Triangle downtown. The building infill problem, a sailboat club and museum, emphasized design in section due to a seven-foot change in elevation from street to water. It also touched on façade development, structural planning, integration of various building subsystems, building codes, materiality, and daylight penetration. The second problem, an urban housing project, examined plan typologies, site development in plan and section, façade development, building codes, and materiality. The semester’s final problem, the library project, challenged students to design a freestanding public building with a complex program for a difficult physical context. Plan and section development of both building and site were required.

The spring semester focused on building a strong foundation in the underlying logics of program, type, and building systems, and in the architectural implications of their integration. The first problem focused on row housing as a building typology, on the compositional questions posed by a potentially repetitive form, and on the use of precedent in design. The second problem was structured as a purely conceptual design exercise and treated as a two-week charrette. A vacant slot between a major street and the new Third Ward section of the Milwaukee River Walk was offered as a site for phenomenological interpretation. The third and most ambitious problem focused on the hotel as a building type, with its distinctive patterns of service and served space. Again located in downtown Milwaukee on the Milwaukee River, issues of urbanism were also stressed. Finally, the problem was used to explore the integration of structure and core service functions as form determinants in taller buildings.
The final studio in the required series of undergraduate design studios was offered during the fall and spring semesters.

The fall studio was structured in two parts: an urban intervention, and a project on a sensitive, natural site. In the urban project, students were asked to resolve a challenging urban site, one featuring a river edge, street grid collisions, and the intrusion of an elevated freeway. With a program for a new public green market and a block of commercial space, students were asked to re-weave the tattered fabric of the city into a coherent whole, while accommodating the needs of the modern city and its architecture. In the second project, the program called for a new, freestanding building in an environmentally sensitive “green field” location. Students were asked to understand the characteristics of the landscape and topography, and to seek sensitive ways in which to design within a natural environment.

The spring studio was also structured in two parts: an urban intervention at an infrastructure scale, and a series of architectural proposals for the blocks made available due to the nature of the infrastructure intervention. In a short, three week project, a reevaluation of the federal freeway system, an examination of the cost of maintaining the system, and an analysis of alternatives for the Marquette Interchange resulted in creative alternatives. The dissemination of this information influenced governing bodies in Milwaukee to postpone intended construction in order to more fully evaluate these alternatives. This project drew upon existing world-wide precedents that were translated into the local context. The second project called for the redevelopment of the land under I-794 in which each student was responsible for a block. Each block was part of a longer linear development organized by an at-grade boulevard that replaced the current elevated freeway. The streets were also more clearly identified; the urban plan proposed traffic schemes with temporal use restriction to accommodate commuter traffic. The program included the integration of housing with office space and parking at a very dense level, with a minimum of 100,000 square feet of office space per block.
This is the first required studio in the 31/2-year Master of Architecture degree program. It is designed for students beginning their study of architecture who have a variety of backgrounds in other disciplines. The objective of the course is to introduce students to foundation principles and methods of architectural design.

Three architectural projects explored various design procedures and graphic techniques. Lectures and short-duration exercises introduced students to principles of design in three areas - structure, space and habitation. Each project then investigated a variation on each of these themes. Structural variations included a skeletal system of heavy timber, a massive system of load-bearing masonry and a hybrid system of reinforced concrete. Spatial explorations included concepts of order and hierarchy, phenomenal transparency and inside/outside continuity. Issues of habitation ranged from threshold and procession to privacy and quality of natural light.

This fall the studio was supported by a new Virtual Modeling class, which introduced students to computer modeling as a design tool. Students investigated studio assignments concurrently in traditional and digital media.
This studio is the second required studio for students in the three and half year graduate program. The studio investigated relationships of scale in three varying but integrative ways: socio-cultural, site and context, and formal. The students undertook two design projects in depth, with a number of discrete design charrettes interwoven within the larger project goals, and were expected to engage in an intensive iterative design methodology.

In the socio-cultural realm, the studio investigated shifting and overlapping scales between civic and private spheres. In an increasingly polarized environment, contemporary architecture commonly fails to express the simultaneous nature of collective and individual realms, and frequently overlooks the potential richness of multiple readings and coexistence. While one could argue that the frequently anemic design manifestations are caused by economic or socio-political restraints, the singular reading of buildings as exclusively public or private belies a simplistic reduction of architecture’s role in society, and undermines the classic ideal of the relationship of parts to a whole. Perhaps more profoundly, this condition suggests a fundamental loss of value in an architecture representing a comprehensive, integrated and poetic expression of our humanity and culture.

In the realm of site and context, relationships of scale are perhaps most tangibly grasped. For example, through such devices as figure-ground analysis, one may examine the relationship of the scale of the region to the scale of the city, the city to the block, the block to the lot, etc. These relationships often suggest unique patterns of form, density, movement, topography, solar orientation, etc. What other features may inform the project and invoke a deeper understanding and inspiration for site? How do urban, larger scale systems support or deny the smaller microcosm of physical site? And beyond the notion of site as merely a physical place, what are the palimpsests of the site in temporal, historical, or physical terms, and are such layers meaningful?

In formal realms, the relationships of scale are perhaps most profoundly coalesced. Through the weaving of major and minor elements, formal themes often achieve their continuity, creating a cohesive language that strengthens the reading of intentions, creating unity out of multiplicity. Scalar relationships may express the primacy of the human body in space - addressing issues of fabrication that utilize components and proportional relationships as scalar devices. The studio considered material, proportion, geometry, pattern, and construction as the foundations of the formal expression of scalar relationships, as well as more complex conditions of literal and phenomenal transparency, hierarchy, and co-valency.
Architectural education has long been based on the premise that “students learn design in school and construction detailing on the job.” Questioning this premise, this studio was developed to examine the interdependence of design, materiality, and construction detailing. Students were asked to design a small public building from programming through construction detailing, looking at each phase as an essential and interlocked component of design. Working on an intimate archive for historic documents consisting of maps and photographs, students worked with a “client’s narrative” and wrote a detailed program with room criteria sheets, developed three schematic design alternatives, refined a single alternative in design development, and completed a set of construction documents. Students also worked with a fixed construction budget, learning the basic relationship between building size and level of quality. While work in the studio mirrored the project process of a professional office, students were encouraged to see each phase of the work as a design activity integral to the making of a well-crafted building. At the end of the semester each student, unable to construct the actual building, built a refined wood model of the student’s project based upon the construction documents.
The fall studio addressed architecture stemming from the idea of "types" -- a conceptual armature of facts, procedures and standards that can be abstracted, generalized and codified to be communicable and to provide literate means with which to approach design.

"Types" in architecture were examined as physical organization principles and assemblies that a designer may consciously select, transform and elaborate while engaging the particulars of a context, specific requirements about use, and the pragmatic realities of building fabric. The studio assignments reflected these concerns through a series of one-week design exercises dealing with single-issue problems: the topology of plans, the ordering of structural systems, the compositional constructs in volumetric assemblies, the organization and articulation of enclosure types and the investigation of these morphological constructs in building case studies. Thereafter three neighborhood institution design problems, two to four weeks long, expanded the design issues of the previous studies on three different sites.

The spring studio addressed the building's enclosure. This utilitarian building component serves as a filter or mediator between inside and out; it protects against inclement weather, dirt and noise while providing view and ventilation and it controls the levels of daylight and sunlight admitted into habitable spaces.

The enclosing layer of a building, however, is more than a skin; it is the most visible manifestation from which we read and speculate about the occupants and activities within habitable structures. Enclosing systems also convey the processes and materials used in supporting and constructing buildings while providing references to the organization of spaces within. Furthermore, enclosure like other building systems such as the plan, the volumetric organization and the structure, can be seen as one more formal compositional order - generalized patterns that are organized by geometry and the timeless play of theme and variation. The studio engaged the topic through analysis of case studies, design exercises and two design problems that rely on the iconographic potential in the program requirements of urban hotels. The studio’s intention was to develop literacy and confidence in designing based upon a consciousness and control of enclosure elements and their syntax as they contribute to the making of building form in specific contexts.
Architects in every age ponder the cosmos and translate their understanding of its nature into meaningful built creations. From the static eternity of the Egyptian afterlife - to the Gothic tension between reason and faith - to the universe of mathematical order in the Renaissance- to the alienating dreamscape of the Surrealists - our vision of the world inevitably influences our architecture. The advanced student of design should uncover the philosophical foundations that drive his evaluation of architecture and the kind of built world he seeks to create.

Too often in the past, architects reserved such themes for the grandeur of temple, monument and tomb. The contemporary designer must manifest cosmological values in the fabric of everyday life. The aspiration of these students, then, was to become a philosophical craftsman: intent on the construction of real, livable buildings, and devoted to transcending the mundane.

The philosophical craftsman seeks intimacy with materials - a tactile, bodily connection to the process of making - and the sensitive and expressive resolution of the fabricated result. This introduced a noteworthy challenge. The strong industrial predisposition of contemporary practice manifests itself not only in the nearly exclusive use of pre-manufactured building components, but also in new methods of computer-aided design and manufacturing, which distance the designer from material and product. The studio sought to resolve this apparent conflict between craft, industry, and digital methods in the design of an artisans' workshop in a dilapidated industrial district. Rather than express cosmological values in extravagant form making, students focused on the qualities of space, materials, natural lighting, connection details, and structure.
implementing the vision for downtown milwaukee: a design code for the park east

Peter J. Park

This interdisciplinary studio allowed architecture and urban planning students to jointly examine current planning and design issues facing Milwaukee. Students assisted the City of Milwaukee in refining the plan currently underway for the area surrounding the recently demolished Park East freeway. The plan’s boundaries encompass approximately 60 acres of land along the Milwaukee River at the north end of downtown. The area provides a rich context for exploring design at the urban scale.

To gain a basic understanding of the predominant regulatory framework used in American cities today, students examined Euclidean zoning and its influence on urban form. They also researched regulatory innovations and studied the advantages of form-based coding as a technique for creating high-quality environments.

The primary project was a test and evaluation of the Park East Redevelopment Plan. Students reviewed the City’s draft plan and proposed urban design refinements. Informed by their earlier research, the students evaluated the plan’s Development Code element and developed ideas for making it easier to use. Working in teams, the students prepared form-based codes founded on street and building typologies. They prepared code booklets that use simple graphics to convey design and use standards for each block and parcel.

For the final project, students chose specific sites and programs and designed buildings using the form-based code developed by their team. Extensive use of models and perspective drawings allowed students to explore how the qualities of buildings and public space can be significantly influenced by form-based codes.

The studio enabled students to experience various ways that a designer, working either as part of a team or alone, participates in the planning and design of a large area. As both authors and users of their own form-based codes, students also developed a greater appreciation for the opportunities and constraints that codes present in the design process. The studio highlighted the importance of understanding the physical implications that regulations have on urban design and architecture. Finally, the studio provided students the opportunity to participate and make contributions to a significant development project currently underway in Milwaukee.
Steven Holl suggests that urban morphology at a lower scale is dominated by the ground and configuring urban space into one horizontal plane - the “x-y” plane. Cities grow beyond this initial model to achieve a metropolitan scale characterized by the development of buildings that shape a volume of space many times greater than the dimensions of their footprints. The horizontal dimension of urban space is transformed by vertical relationships, where the vertical - “z” dimension - is equal to or more important than a singular horizontal, in fact providing multiple horizontal perspectives. The thrust of his studio is an exploration and explication of the relationship between the x-y plane and the z dimension.

Using a major political and economic borough of New York City, Manhattan, along with a politically charged and underdeveloped portion of the City of Milwaukee as a testing ground, this studio examined the layering of topological activities carried out through time and a place, and the physical changes of place that define an urban morphology.

Despite their many similarities as American cities, New York and Milwaukee also play decidedly different roles in contemporary culture. Given the continually rising value of its real estate, and its historic role as the center of international capital, Manhattan is constantly challenging its builders to change and reevaluate the relationship between form and program, and to reinvent itself as the capital of the world. Milwaukee, on the other hand, is the quintessential American city. Locked in the center of a major landmass, its early growth and development were predicated on exploitation of the natural resources of the continent. Contemporary Milwaukee continues to wrestle with its relationship to the prairie and the needs of human settlement. The goal of the studio was to develop the design of two different buildings, each at a critical juncture in the gridded fabric of their respective cities.
This advanced design studio was directed by internationally known architect Neil Frankel, Research Fellow in the graduate school of the University of Wisconsin - Milwaukee School of Architecture and Urban Planning. Students developed design strategies and building proposals for interior architecture informed by the purposes of its users. This user-centric approach was supported by theoretical readings, site visits and high profile professional design juries, which established a sound reference for investigation. Through two design projects and one short-duration sketch problem, students studied the remarkable degree of influence architecture has on users, the linkage between architecture and social goals, the role of architects in a design process involving a multi-disciplinary client, and leadership strategies used to aid client goal setting.

In the first project students formulated interior design strategies capable of influencing our conceptions of human performance in 21st century architecture through the program of a library of the future. The second project represented here focused on a dance club in Amsterdam, Netherlands. Students working on this project traveled in the Netherlands prior to the project, where they visited the site, studied indigenous architecture, and visited practitioners.
The Mexico Studio focused on design in other cultural contexts. At the start of the semester, students and faculty visited Guanajuato, Mexico, designated a UNESCO World Heritage City in 1988. Guanajuato is a mining city with a 500-year history. Silver production and the historical interruptions to that production created an intermittent urban and architectural development that produced a unique built form heritage. Guanajuato also has an unusual steep topography and resultant urban fabric and architectural construction style. In visiting the city, the group became intimately involved with the place, the people, the architects of the city, and identified two sites for development. Each student, in a group or singularly, studied both sites.

With further interaction between the students and faculty at the University of Guanajuato, students conceived design possibilities and initiated a programmatic intent for each site. The choice of sites led to development of different projects simultaneously during the semester, and at the mid semester point the switch to different projects benefited from the wealth of designs produced during the first part of the semester. The final presentations represented a variety of solutions that reflected each student’s unique interpretation of place.
A beautifully situated small farm is slowly being restored to native prairie by the University of Wisconsin-Waukesha. The farm is now used as a field station for environmental education. Recently, the pottery program has added a student-built Anagama kiln to the stone barn and Victorian house on the property, and the site has become a setting for this most elemental of art-making processes. The studio proposed the construction of a 6000sf museum at the farm, housing the products of the kiln and setting them off against the backdrop of this rich and finely textured landscape.

The primary focus of this studio was the manipulation of natural light, both to create compelling visual environments for display and as a primary aspect of architectural space making. These themes were introduced through a series of sculptural exercises. Light boxes were constructed to create various discreet lighting effects and plaster casts were made to explore shade and shadow. These initial investigations were recalled in the final requirement of the studio: a large-scale aperture model or other detailed representation of light as the architectural theme of the building.

Between this introduction and conclusion, the studio examined several other issues of tectonics and environmental performance. Students physically staked out building footprints and evaluated their varying impacts on the landscape as part of a site analysis charrette. They also modeled their schematic designs using Energy Scheming, an energy simulation program for optimizing passive design strategies. All of these efforts were supported by the informal integration of the studio with Illumination and Thermal Comfort, an advanced course in environmental technology.

While architects have a fiduciary responsibility to support their clients’ business enterprises, they also have an ethical responsibility to channel the flow of capital toward meaningful, experientially rich, sustainable, and beautifully crafted environments.

The Art of the Long View Studio considered how to manage these dual responsibilities by focusing on a pivotal under-developed block in downtown Milwaukee, and on the long-term business needs of its owner, Journal Communications, Inc., which publishes the Milwaukee Journal-Sentinel and owns several major local media outlets. The Journal-Sentinel relocated its printing functions off site, freeing valuable real estate along Old World Third Street. The site has excellent views of Pere Marquette Park, the Riverwalk, and downtown Milwaukee. Three major sports and exhibition venues front 4th Street adjacent to the site: Midwest Center, U.S. Cellular Arena, and the Bradley Center. Thus, one task facing the studio was to take advantage of these valuable community assets.

Another task was to create a long-term real estate development and architectural design strategy that makes sense for Journal Communications as it competes in a changing business environment that includes uncertain but inevitable convergence of print, broadcast, and internet technologies. The students suggested strategies to accommodate a variety of long view business scenarios. Chief among these was the notion that media convergence continually changes the way news and other information is produced. Each project therefore included the design of a “digital newsroom” that supports and enhances the production and dissemination of, as Marshall McLuhan put it, “light-on” and “light-through” information. Thus, the studio set an ambitious, integrative agenda for urban design, building design, and interior architecture. The projects offered a provocative vision of downtown Milwaukee and the future of the media business.
Imbedded in the ostensibly seamless matrix of multi-family dwelling lie profound conflicts between opposing conditions: public vs. private space, individual vs. collective identity, transient vs. permanent occupation, bounded vs. open domains, claimed vs. abandoned territories. These conflicts are often only incidentally touched upon, lying submerged beneath the conventional stylistic adornments that are assumed to be the content of housing design. This studio excavated beneath these stylistic preconceptions to the more fundamental qualities that emerge when the oppositional conditions of housing are revealed. Perhaps the most profound and exemplary precedents of housing are those that reconcile one or more of these oppositional conditions, discovering and illuminating the space “between,” serving to mediate often opposing forces. The studio focused on the notion of the threshold in housing as a visual, physical, and spatial interval that simultaneously acts as the buffer and the connective tissue between contrasting realms. In this way, the studio touched upon broader issues including the conflict between the single unit and the aggregation; zones of control and spontaneity; the large and the small scale; the need for withdrawal and for interaction; the inherent energy efficiencies in high density multi-family housing and the environmental factors that challenge this notion.

The studio began with an in-depth precedent analysis and a design intervention within the precedent. The students then explored housing design along the Milwaukee River, on a newly defined site created by the current demolition of the I45 freeway spur in downtown Milwaukee.
"From the very beginning my T-square and triangle were an easy media of expression for my geometrical sense of things." FLW Autobiography 1946:95.

Vincent Scully suggested that Wright has been marginalized by many 20th century historians. "The excellent students who flocked to Gropius and his associates at Harvard and elsewhere in the forties were indoctrinated with a deep suspicion of Wright's motives and a kind of sociological contempt for his buildings. Soon the younger architects were themselves acting as critics in most of the better architecture schools throughout the country and today are in leadership positions." For this reason, "no serious attempt to teach and develop the principles of Wright's design concepts have been consistently sustained in America, outside of Wright's own inbred Taliesins." Henry Russell Hitchcock and Philip Johnson eventually refer to Wright as the Michelangelo of the 20th century, as the "exception that illustrates the rule". (MOMA bulletin, vol. 15 no 3 1948, and Johnson, Writings, p 75).

Publications, exhibits, tours, artifacts, drawings, documentaries, catalogs of Wright paraphernalia and even an opera have created new recognition and appreciation for Wright's work well beyond the architectural profession. However, there remains a disconnect between the public presence of Wright and the integration of Wright's use of mathematics and geometry in both practice and academic institutions. This seminar investigated the influence of Wright in the profession of the late 20th century and on the current generation of architects. After an in-depth study of the mathematical and geometrical principles configured in Wright's body of work, students created furniture and light fixtures using these principles.
This seminar focused on the intense study of an essential component of architecture, the aperture, which has broad implications for our understanding of space. An aperture is commonly understood as a window or door, an element offering a controlled connection between interior and exterior in buildings. Simultaneously and more conceptually, an aperture can be seen as a frame, threshold, portal, passage, oculus, opening, conduit, cleft, chasm, gap, valve or void. Louis Kahn placed the aperture at the very center of our conception of space: “architecture itself had begun ‘when the walls parted and the columns became’ admitting light and creating a system of support at the same time.” As a primary element of enclosure, the aperture frequently yields our most intimate contact with buildings, offering light, view and ventilation. As a mechanism for engagement, the aperture provides a connection with the outdoors, both literal and phenomenal, serving as a conduit for movement through and access to architecture. The term, aperture, therefore is significant to the study as the seminar sought to explore the value of openings in three distinct, yet integrated ways: (1) its functional power of illumination, ventilation and view, (2) its derivation of form and its relationship to structure and skin, (3) its role in suggesting public and private realms, and defining spatial experience and the contours of our consciousness.

These issues were explored through readings, analysis and design. Students led discussion groups on the readings each week engaged in analytic exercises of the works of such architects as Corbo, Scarpa, Loos, Kahn, Chareau, Aalto, and Zumthor. Additionally, the seminar examined notions of the aperture in the work of such artists as Hopper, Vermeer, Turrell, and Richter. Students explored issues of the aperture through a limited design project involving a theoretical aperture for Thoreau sited on Walden Pond. The designs focused on the possibilities for the aperture to offer illumination and view, to develop tectonic and material conditions, and to imply territories of space and habitation.
This thesis explored formal synthesis in the scaleless, barren, and environmentally scarred post-industrial landscape of Milwaukee’s Menomonee Valley. A field packed with stratified, self-referential productive organs, this landscape creates a sharp line of division within the urban fabric that defies traditional solutions because both the extension of a de facto urban fabric and the insertion of an architectural object merely exacerbate the lack of synthesis.

The project explored an alternative solution based on the distinctive topography of the site. After envisioning a future for the Menomonee Valley as a whole, the thesis identified the northern edge of the site as critical to catalyzing this future. Here, an interstate highway severs the Valley from downtown Milwaukee, undermining ease of pedestrian circulation between the two, and hampering the Valley’s natural role as conduit for storm water. Through an analysis of sectional trajectories, environmental discontinuities, and infrastructural vectors along this edge condition, the project arrived at a mediating solution, which folded a complex constructed ground into the existing landscape, facilitating and celebrating the passage of both pedestrians and storm water from city to Valley. This topographic solution incorporated a program of commuter parking, big box retail, and large exhibition space, which are problematic on more conventional sites.

The thesis methodology suggested a viable alternative for sites which, in their scaleless quality and infrastructural complexity, present daunting challenges for conventional urban typologies. In its willingness to disregard pre-conceptions about the architectural “thing-in-itself”, the methodology accepted the contingent and reciprocal state of “becoming-the-site.”
Eric Wagner

"Scumbling...is the incomplete application of the painting medium so as to accomplish a textured surface, so that layers of colour break into scuffed bits which show through from between other scuffed bits scumbled on top of them. In other words, scumbled colours show through from below - not via translucency or transparency, but by actual appearance between other broken bits." - Gabriel Bourke.

The overlapping and interlocking relationship between broken layers of paint on a canvas served as impetus for the design of a live/work housing development for artists. The symbiosis between paint and void that exists in a scumbled layer suggested that the seemingly disparate functions of private dwelling, semi-private creation, and public display could co-exist. Moments of overlap and interlock were explored through the arrangement of program, and the proposal transcended the two-dimensional impetus of scumbled paint to explore overlapping threshold conditions and interlocking spaces.

The housing project was situated in the historic downtown district of Cedarburg, Wisconsin. Comprised of well-preserved buildings from the mid 19th century, Cedarburg's downtown has attracted specialty shops, antiques, artists, and tourists. While its history is part of its charm, the city's effort to preserve a historical atmosphere thwarts progress. New buildings in Cedarburg are routinely masked with stylized facades based on sentimental historical imagery, gradually reducing Main Street to a stage set of false historicism. This project proposed an alternative to this trend by inserting a building informed by underlying layers and patterns fundamental to Cedarburg's sense of place. The proposal scumbled modern architecture onto a canvas of historic and pseudo-historic buildings.

James Shields*, James Dicker, Grace La

Christine Chamblos

This project investigated parallel patterns in ecological and human processes. It sought to design symbiotic relationships between these patterns to encourage young peoples' interest in and attention to their environment, to benefit an ailing industrial district, and to help save an endangered river ecosystem.

The site was located on the Willamette River, in an aging industrial and shipping district in Portland, Oregon. In this project, the site was designed to house a magnet high school for environmental studies and a water treatment facility.

Among many other site features, the school took advantage of bridges' capacity to channel flows. The school relied on the Hawthorne bridge and viaduct, which abuts the southern edge of the site, to funnel pedestrians, buses, and bikers into its otherwise isolated site. The school used the highway bridges, which pass over the site, to direct water onto the site for cleansing in the treatment facility.

Because the highway overpasses were sloped upward to eventually cross the Willamette, the site was a natural collection point for a large portion of these bridges' runoff. Without being treated, this polluted water could harm the endangered salmon and steelhead trout, which spawn in the river. Therefore, a constructed wetland, which acted as water treatment facility for the highway runoff, became an opportunity to combine human and natural processes for the high school and the community.

Brian Wishne*, James Wasley, Kyle Talbott
As a framework for this project, I researched and conducted interviews that investigated the critical architectural advantages of single family homes over higher density, multi-family alternatives. Based on this information, I proposed twelve “principles” by which to guide the housing design. I then studied the residential neighborhoods in Milwaukee and proposed an application of these twelve principles at a density equal to that of the highest density neighborhood in Milwaukee - 60 units per acre. Although single-family houses often follow the principles easily, the principles are difficult to achieve in higher density housing. For example, the notion that “each unit must have exposure on all four sides,” or that “each unit must have a private outdoor space,” was challenging to reconcile at such high density.

Located in downtown Milwaukee, the site was bounded by the River Walk to the northwest and Water Street to the east, and two of the city’s primary pedestrian routes. As a result, handling of this intense public presence and various significant intersections presented a conflicting boundary issue for domestic privacy. The project proposed a series of balconies, terraces, and corner windows, as well as extensive working of the ground plane, in order to exploit the boundary between public and private spaces and to thereby enhance the feeling of spaciousness and enrich the privacy gradient. Also, by interlocking two double-height units and two triple height units above those, the project achieved all of the twelve stated principles. Each unit maintained ample exposure in all four directions as well as a garden either at ground level, or on the roof deck.

This proposal used laminated glass to create a high-intensity merchandising and cinema entertainment experience on a tight urban site. The proposal exploited the unique qualities of laminated glass, including its reflective and refractive transparency, its spanning strength, its ability to capture a projected image, and its plasticity. The many stacked floors of a typical urban tower obstruct easy access from the street to upper shopping areas, and this normally restricts merchant space to street level. To overcome this limitation in the proposed tower, compact theaters nested in groups and sheathed in shimmering skins of glass mosaic hung in the upper reaches of the building to draw shoppers upward through the merchandising spaces. Each theatre cluster was encased in a chrysalis that was, in turn, caught in a matrix of tower structure.

The regular structural system was altered to enhance the effects of the glass. An unconventional positioning of columns allowed spatial continuity across and between floors. Some columns were cantilevered to accentuate the experience of vertical space and to emphasize the visual instability of the chrysalis forms. Within the translucent glass skin of each chrysalis swim the glass theatre capsules. After passing through the chrysalis and entering a theatre, the visitor has been disconnected from the outside world and prepared for a cinematic experience of pure fantasy.
This project focused on the design of a modular building for use in disaster situations. The system provided a multi-use structure, which can variably be used for a range of possible applications - for example as a communication unit, a small hospital or first aid station, or as a housing unit for the rescue teams. It was, however, not a solution for mass housing.

The scheme was based on the idea of creating a building that is assembled out of only two different modules: a “high-tech” corridor module and a “low-tech” tent module. While the corridor module provided the services and the circulation, the tent structures created the adjacent rooms. The corridor module carried all the technical equipment, which was installed in a rack-like shelf. This allowed the equipment to be configured into various possible uses and situations. Three adjacent corridor modules formed an interface for one tent structure. Both modules could be combined and arranged in multiple building shapes. Also, it was possible to combine several Emergency Response Units (ERUs) to erect larger structures.

Both the corridor and tent modules recalled the design of a suitcase. While in transport, the more fragile items could be packed within a rigid outer shell. The “suitcase” would be opened when the units arrived on site. The outer panels would then become wall or floor elements. Every piece that was transported to the site was designed to fulfill a specific use or a task that not only reduced weight but also minimized transport volume and utilized materials efficiently. While folded together, the ERUs consisted of 18 corridor modules and 15 Tent modules that conveniently fit in a C-130 Hercules Airplane. Accordingly, the final building's volume was 17,654 cubic feet.
This thesis examined five threshold conditions within a neighborhood south of the downtown business Loop in Chicago, Illinois that were termed: Movement, Aperture, Engagement, Catalyst, and Evolution. These thresholds were exhibited in both program and form, and examined and clarified a new cartographic layer for the city of Chicago.

The underlying impetus for the project stemmed from the notion that currently, the field of urban design involves refining, integrating, and reconciling many convergent plans into a larger organizational concept, rather than creating a grand master plan tabula rasa. The connections between these small interstitial spaces and conflicting zones often exist as thresholds between social, physical and economic systems of the city. Threshold conditions between systems therefore influence our perceptions and experience of time and place. These experiences alter and enhance our personal cognitive maps of the city, creating our own secret cartographies. The project proposed a multi-use building including an adult education center, atelier workshops, office tower, transportation center, and outdoor space.
In “Six Memos for the Next Millennium,” author Italo Calvino speaks of five values important to literature of the twentieth century, dedicating a lecture to each. These lectures, entitled lightness, quickness, exactitude, visibility, and multiplicity, take a specific look at qualities, values, or peculiarities in literature that should be upheld. This thesis examines the nature of these qualities, their inherent similarities to architecture, and how architecture might make such qualities manifest.

The project analyzes the qualities through the typology of the neighborhood hardware store. A place of instruction and solution, the hardware store provides a categorized environment for obtaining specific “things” used to repair and maintain our physical possessions. The thesis manipulates this existing typology by grouping physical and non-physical “things” of our daily lives into the categories of lightness, quickness, exactitude, visibility, and multiplicity, drawing analogies to the categories of electrical, plumbing, tools, and paints within a hardware store.

These five categories are simultaneously expressed through the architecture, allowing for alternative methods and solutions to typical building morphology and site specificity, dynamic spaces, and specific visual situations. Program and building are seamlessly bonded by these five qualities, in the hope that this experiential place will allow the individual to momentarily escape the static restrictions of functional space, and “give speech to that which has no language.”

A municipal pier has served Milwaukee’s outer harbor for most of the 20th century. Situated on the shoreline of Lake Michigan between the Milwaukee Art Museum and the City’s Summerfest grounds, this five acre protrusion of land is an engineered structure consisting mainly of discarded sand and stone confined by steel shoring. Ecological concerns about displacing the contents of the lake have discontinued the practice of pier building, and the outer harbor shipping traffic no longer requires a pier. As a result, this unusual terrain sits virtually abandoned.

The proposal investigated the reuse of this land and studied the meaning of an encroachment of artificial coast, which has over time blurred the human ambition to build with the impact of natural processes of land erosion. Using the program of a Lake Michigan Museum and Research Center, the proposal disintegrated the pier, allowing lake to reclaim land.

The Museum juxtaposed form and aperture against an ever changing backdrop of water and sky. A double skin enclosure of reflective metal wrapped in glass combined with these natural forces to dematerialize the building. The Museum expanded outward across the lake, obscured at first by the haze of morning fog, and then overtaken by the liquid reflections of the afternoon sun. Combined with a dramatic cantilevered structure, the building hovered indeterminately above the water.
Technology is a potent creative catalyst for architecture. Yet its expressive range surpasses the usual aesthetic of high-tech or state-of-the-art. This proposal for a Harley Davidson Retail Outlet and Museum near downtown Milwaukee’s Marquette Highway Interchange expressed a different technological quality - that of the flamboyant and visceral Harley Davidson Motorcycle. From adventurous individualists to rebellious pagans, Harley Davidson bikers form a tight-knit community inaccessible to the casual rider. Harley Davidson sells not only a product but a lifestyle. And this lifestyle sells because it embodies the vernacular American spirit.

The program provided a hub for this special community, and exploited the receding distinction between consumer and museum-goer. The proposal housed a retail outlet, service centre, Harley owner’s conveniences, Harley merchandise, promotional Harley activities and Harley museum. It also functioned as a roadhouse for Harley bikers. The proposal also addressed three urban problems. First, it spurred development between the Milwaukee Art Museum and the Marquette Interchange by providing an additional focus of interest - an oasis in the shadow of the Interchange. Second, the building stood at the threshold between the downtown area and the Menomonee Valley, an underused 20th century industrial district, which is now considered ripe for redevelopment. This location allowed the proposal to merge the downtown area and the Valley, effectively regularizing the city street pattern and further reviving the Marquette Interchange area. Third, the proposal enhanced the pedestrian experience between two major downtown avenues.

Gil Snyder*, Mike Utzinger, Neil Frankel

Sayaka Akiyama

This thesis reintroduced the traditional concept of space continuity into apartment design, in the hope of re-establishing connections between people and re-evoking a sense of belonging and responsibility for each other. The project proposed a design within which the boundary between inside and outside was blurred on several different scales. Internal rooms were opened to one another, in order to spatially project into larger spaces, ultimately defining a unit. The unit then projected into exterior space, blurring the distinctions between interior and exterior, and forming clusters of units. The clusters were woven into the urban fabric to become an integral part of the city.

Traditionally, Japanese architecture frequently blurred the boundary between inside and outside, bringing the outside world in while projecting the inside world out. No space was firmly enclosed, and inside spaces were conceived as being continuous, allowing one to feel the presence of other spaces simultaneously, and thus to feel part of the whole. However, this sensitivity toward continuity and simultaneity has significantly diminished in contemporary Japanese design. Apartment buildings, which comprise the largest residential type in Japan and are conceived of as massive boxes containing cellular units, do not exhibit this sensibility in their designs due to severe land limitations. Additionally, the buildings frequently ignore their context. The harsh separation between outside and inside and between public and private space severs the connection between neighbors and even between family members. Sensitivity toward one another has decreased, resulting in the increase of social tension within the family and society. The thesis proposed that through an alternative space-making based upon traditional notions of Japanese architecture, many of these conditions might be ameliorated.

Grace La*, Don Harlin, Kyle Talbott
For generations Door County has offered a distinctive summer vacation destination in the Midwest region of the United States, and the County's economic survival has come to depend on the seasonal migration of tourists. This proposal provided a means for attracting tourists across all seasons, thereby expanding economic opportunities in the region.

The site was an abandoned quarry located four miles north of Sturgeon Bay. The quarry was of historical significance to the region, but remained dormant. The proposal used the economically viable program of a tourist resort to expose and appreciate the quarry's history as well as the unique beauty of the rock formations. It encouraged visits during summer as well as the longer winter season by supporting a variety of recreational activities from rock climbing and hiking to cross country skiing and hunting. The program included a 60-room hotel, a spa, and a restaurant. The spa gripped the rim of the quarry, while the hotel was suspended from the cliff face, utilizing the structure of the spa for support. The restaurant cantilevered from the cliff face. The proposal exploited the excitement of being on the edge, infused with exhilaration and danger.

Andrew Herland

Harry Van Oudenallen*, Kevin Forseth, Nick Cascarano
The richness of a city comes from a diversity of people, places, and programs. The breakdown of a city into regions, and the further breakdown of these regions into nodes of activity help a large urban area remain intelligible and livable. A successful node creates public zones with diverse programs, links these zones to infrastructure, and organizes surrounding architecture.

The project proposed the development of a lively node at the corner of North Avenue and Humboldt Avenue in the city of Milwaukee. At this intersection Humboldt Avenue bridges the Milwaukee River and joins the Upper East and Near West Sides of Milwaukee. Both avenues are major regional connectors. However, due to the economically depressed nature of this part of the city, the river edge is largely undeveloped and acts as a barrier between east and west neighborhoods. The development of this corner into an active node strengthened the connection between these neighborhoods and also increased regional interest in the area.

The building program was a school for the chronically ill, hybridizing a K-8 educational facility with a medical clinic. The proposal sought a tight integration of these programmatic elements. Additionally, the building served as a community center on evenings and weekends, including auditorium, gymnasium, conference rooms and a media center. Site development focused on a large public space that overlooked the river and provided a transition from the river valley to the community center.

James Dicker*, Grace La, Tom Mozina

The historical Pabst Brewery is a large complex of buildings at the northern edge of downtown Milwaukee. This once great enterprise helped shape the economy and culture of the city, but it has since receded into the background. The site for this project was a 160,000 square foot plot of undeveloped land situated between the Pabst Brewery to the north, the campus of a local technical college to the east, and downtown Milwaukee to the south. The program included a museum memorializing the city's contribution to the production of beer, two theatres for musical performance, retail storefront for local businesses, and a large beer garden in the tradition of Milwaukee's renowned summer festivals.

The project created a new center of civic activity at the intersection of factory, campus and commerce, and sought to draw all three together in an atmosphere of leisure entertainment. The theatres and museum anchored the ends of the project and defined the beer garden as the focus of activity in-between. In the beer garden the community partakes in a distinctive cultural tradition of Milwaukee. The architecture provided a background for this lively event. Even in the museum, the movement of visitors through the display spaces becomes its own ongoing exhibit, and the project purposefully generated and accentuated this movement in order to further enliven the space. By celebrating its inhabitants' enjoyment of beer, music and history in spaces filled with spirited movement, the project revived the Pabst Brewery area of downtown and enshrined the culture of beer.

Kyle Talbott*, Grace La, Peter Park
The objective of this thesis was to develop a new urban park typology, which more closely reflects contemporary society and culture. The park functions at the scales of the region, the city, the neighborhood, and the human. In addition, our current culture requires that landscape become highly flexible, in order to adapt to a quickly moving world that frequently, no longer allows us to understand our place in time.

The project was sited in Caesar's Park on the Milwaukee River, a park ostensibly on the verge of extinction. An intense site analysis revealed latent qualities of the site, which seemingly exist in silence. Historically, the site was significant to the city of Milwaukee, acting as the phenomenal beginning of Lake Michigan; however, the park has become abandoned and derelict in its current condition.

The program for the project involved a fish hatchery implemented over a lengthy time span. Initially, the building would act as the beginning to a river park system, which parallels that of the lake park system. The hatchery would then stock the waters of three rivers and the lake with fish. This time based implementation depended upon premonitions of use and form in order to assimilate a spatial palimpsest, which ultimately reversed time and allowed the building to exist initially as ruins or remnants, carrying clues as to its future.

The landscape and the architecture were treated intentionally as ambiguous and intertwined, for it was the land that exhibited time, and the buildings that expressed temporality. This infusion of time allowed for the conversion of space into place, which was accentuated by the captured views of the adjacent landscape. The constructed ground plane acted as ‘the verge,’ and became an architecture in waiting.
Robert Greenstreet
Dean of the School of Architecture & Urban Planning
Professor of Architecture

department of architecture

Joel Agacki
Adjunct Assistant Professor of Architecture

Sherry Ahrentzen
Professor of Architecture

Stephen Bleksley
Adjunct Assistant Professor of Architecture

Craig Brandt
Adjunct Assistant Professor of Architecture

Art Chadik
Adjunct Assistant Professor of Architecture

Nick Cascarano
Adjunct Assistant Professor of Architecture

Uriel Cohen
Professor of Architecture

Cindy Coleman
Adjunct Assistant Professor of Architecture

James Dicker
Adjunct Assistant Professor of Architecture

Mike Everts
Adjunct Assistant Professor of Architecture

Kevin Forsath
Associate Professor of Architecture

David Groth
Adjunct Assistant Professor of Architecture

Donald Hanlon
Associate Professor of Architecture and Chair

John Holz
Adjunct Assistant Professor of Architecture

Nancy Hubbard
Associate Professor of Architecture

Thomas Hubka
Professor of Architecture

Ray Isaacs
Assistant Professor of Architecture

Matthew Jarecz
Adjunct Assistant Professor of Architecture

Mark Keane
Associate Professor of Architecture

Linda Krause
Associate Professor of Architecture

Grace La
Assistant Professor of Architecture

David Lang
Adjunct Assistant Professor of Architecture

Roman Mantoko
Adjunct Assistant Professor of Architecture

Robert Norman
Adjunct Assistant Professor of Architecture

Jeffrey Ofwang
Professor of Architecture

Peter Park
Adjunct Assistant Professor of Architecture & Urban Planning

Harvey Rabanovitz
Professor of Architecture

Amos Rapoport
Distinguished Professor of Architecture

Douglas Ryhn
Professor of Architecture Emeritus

Ziad Salameh
Adjunct Assistant Professor of Architecture

Brian K. Schermer
Assistant Professor of Architecture

James Shields
Associate Professor of Architecture

Gil Snyder
Assistant Professor of Architecture

Josef Stagg
Associate Professor of Architecture

Kyle Talbott
Assistant Professor of Architecture

Michael Uttinger
Associate Professor of Architecture and Chair 2001

Harry van Oudenallen
Professor of Architecture

Eric Vogel
Adjunct Assistant Professor of Architecture

Jesse Voss
Adjunct Assistant Professor of Architecture

James Wailey
Associate Professor of Architecture

Hanno Weber
Adjunct Professor of Architecture

Gerald Weisman
Professor of Architecture

Brian Wishre
Associate Professor of Architecture

Larry Witzing
Professor of Architecture

Stan Wizeski
Adjunct Assistant Professor of Architecture

Pao Yang
Adjunct Assistant Professor of Architecture

Cassandra Zumstein
Adjunct Assistant Professor of Architecture

visiting faculty

Neil Frankel
Architecture Research Fellow

graduate teaching assistants

Elcin Ackman
Jennifer Fletcher
Sayaka Akiyama
Stacey Grant
Peter Balistrieri
Sangeeva Gunaratne
Ngin Beyhaghi
Charles Haas
Lynsa Castonguay
Troy Jacoby
Meldonna Chapin
Renee King
Keith Crane
Asha Kutty
Newton D’Souza
Alan McAfee
Ryan Dent
Erin Russ
John Dye
Ting Wang
Barbara Endes