

Details and Fragments: Studio Process and Products

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"How important is professional skill and its specific use for a defined aim; but also how much does it matter that technique is a means toward something else, and at the same time carries the significance of its own history as an instrument? And finally, what place does the question of technique (by no means a technical problem) occupy in the process of forming a work? Naturally, all this began when distinctions were drawn between practical and conceptual action, between heights of ability and depths of reflection, which in the ancient world were united in the concept of *techne*."¹ (Gregotti)

Introduction

Architecture is not exactly whole. We remember instances, elements, and details. Rarely are the experiences and sensations in architectural experience comprehensive. The context of what we do as architects is always fragmentary even as it seeks to be resolved comprehensively. Rather than insisting on the totality of complete works, architecture could be better understood as an infinite matrix of detailed moments. These details can be disassembled from their constituent buildings and reconstructed as a universe of scale-less moments to be understood over a lifetime of observation, use, thinking, drawing, and construction.

The purpose of this paper is to track the generative role of architectural fragments in tectonic discourse through the pedagogy of an early undergraduate architecture studio course. The Section Fragment studio uses sequential sectional division as a means of managing architectural detail development. This undergraduate studio is an attempt at structuring a studio exercise in the manner of Gregotti's *techne*. It desires to join the practical with the poetic through the development of tectonic architectural strategies, an understanding of the practical forces at work on and within architecture, and an awareness of modes of design within current practice. A lens of fragmentary² focus is not dissimilar from the habits of contemporary practices with large task-specific teams and fast-track construction schedules. However, the opportunities for productive investigation within the tectonic fragment remain unexploited within the academy. In addition to comparing the types of knowledge generated by the fragment, we must ask: how does this knowledge compare to the tectonic questions pursued in practice? Furthermore, what are the qualities sought through this piecework method and do tectonic sensibilities provide sufficient linkage between various fragments at multiple scales? The studio examples will show that as a teaching tool, fragmentary tactics can be as useful as comprehensive tactics in addressing the multiple forces within an architectural project.

¹ Gregotti, Vittorio; *Ways and Instruments: On Technique*; *Inside Architecture*; Cambridge : MIT Press; 1996; pg.51.

² For another positive interpretation of the fragment see Vesely, Dalibor; "The Rehabilitation of Fragment"; *Architecture in the Age of Divided Representation*; Cambridge : MIT Press; 2004.

Fragment Drawings

The Section Fragment³ design studio is based on the drawings of Carlo Scarpa as interpreted by Marco Frascari⁴. Similar to a Beaux-Arts analytique, but less formal in structure, Scarpa's technique⁵ of working at multiple scales and multiple projections on the same drawing is a method which allows a great amount of exploration and process development while still providing a tangible end-product. In many cases, these drawings are detail-oriented and focus on fragments of the architectural project rather than a totalizing view. Rather than describing a set of specific dimensions, these analytique techniques lay out a set of guiding construction principles for craftsmen. Specific ordering principles help contractors to resolve joints and contradictions. Marco Frascari has modified this technique in the design studio whereby a student is restricted to a single sheet of paper for the entire quarter. All work is to be developed on one surface including sketching, precedent study, technical detailing, and multiple scales of design exploration (fig.1 and 2). Similar to the layers of trace paper that might accumulate over the course of a semester; further techniques have been devised to allow the multiple layers of drawing to be visible.

While the studio should really eschew formulas for invention, there are some useful parameters for a successful beginning. An abbreviated description of the studio technique for a six to ten week drawing exercise might include the following steps: 1) use only a single sheet of 20"x30" drawing board (double-ply Bristol Board or similar). 2) Start by transferring a few small topic-appropriate images (linework is better than photos) to the board perimeter with a xylene transfer marker. 3) Draw some light construction lines of existing conditions at a scale which takes up approximately ¼ of the board. Use darker pencils and ink only after you are halfway through the schedule. 4) While all work must be done on the board, if students sketch in notebooks, have them transfer key drawings to the board at a reduced scale. 5) As a teacher, I refuse to look at any work which is not on the board. If a student wants a desk crit, the material must be on the drawing. 6) Collage is a great technique, but use sparingly as it is opaque and difficult to draw over. 7) As a general rule, I encourage translucency so that a palimpsest of lines, tones, and images accrues over the course of six to ten weeks. 8) Light erasure is allowed but encourage students to keep bits of everything they've drawn visible. 9) Instead of erasure, a light translucent gesso layer can mask modifications. 10) In the last week or so, a metallic gold paint used sparingly is a good way to add detail highlights. 11) In most cases, I encourage

³ This studio has been taught three times as an elective studio offering to undergraduates during spring 2005, summer 2005, and summer 2007 quarters at the University of Cincinnati. The population is approximately ¾ second year and ¼ third year architecture and interior design students.

⁴ My teacher, Daniel Friedman, taught a drawing studio based on Scarpa's method as interpreted by Marco Frascari. I have tried to reinterpret that studio using modeling as a basis for the design process and striven for an explicit building product.

⁵ For discussions on Scarpa's drawing technique refer to Damisch, Hubert; "The Drawings of Carlo Scarpa"; in *Carlo Scarpa The Complete Works*; ed. Francesco Dal Co and Giuseppe Mazzariol; NY: Rizolli; 1985. In the same volume is Rafael Moneo's essay "Representation and the Eye" which makes reference to architectural fragments. For details as buildings, see Albertini, Bianca and Bagnoli, Sandro; *Carlo Scarpa Architecture in Details*; Cambridge : MIT Press; 1988.

a slowness and a light touch similar to how one might watercolor. Let the drawing detail and depth emerge over a long period of time, it should not appear after a single night or week.

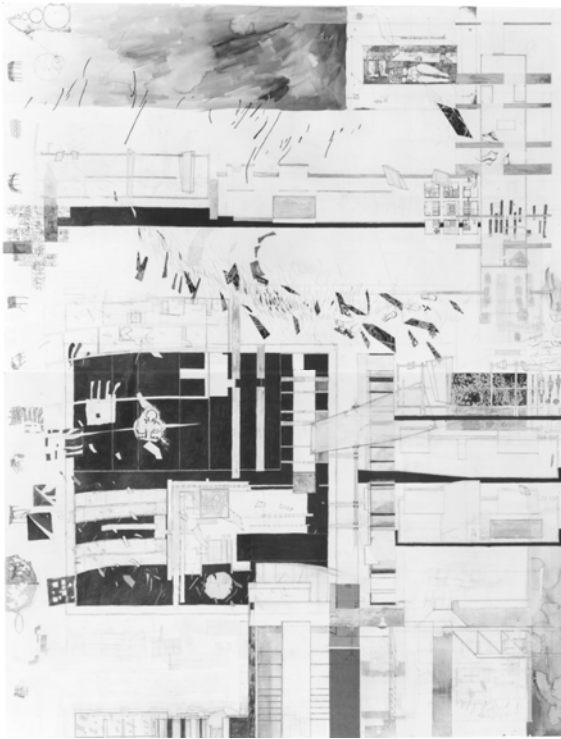


Figure 1. 4-week student Fragment Drawing

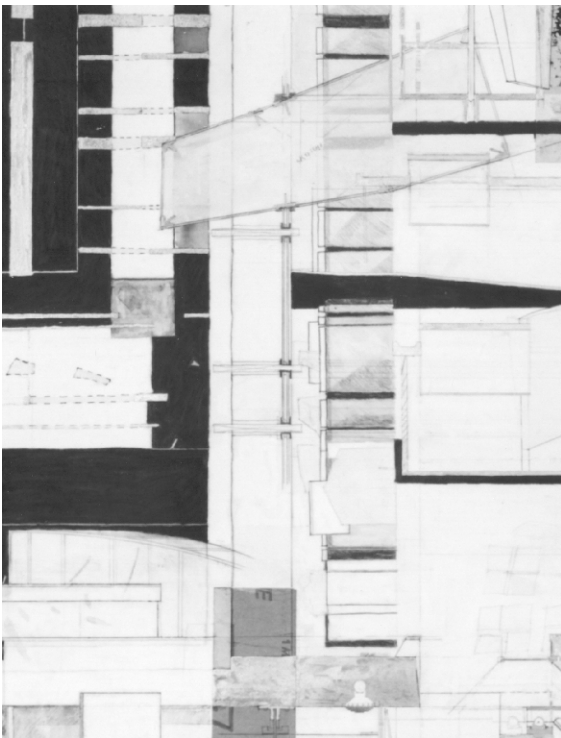


Figure 2. Detail of 4-week student Fragment Drawing

It is a design technique that seeks to merge the tangible and the intangible. The intent is to keep design processes in play for as long as possible. In this drawing studio, design does not stop so that production work can begin since the single-surface will become the presentation tool as well as the process tool. The strict parameters of the drawing method can encourage a certain degree of objective distance for designers since decisions can be made based on the story of conception and development present in the drawing in addition to typical formal and functional architectural issues. The drawing is able to operate in a manner seeking to resolve the multiple and contradictory forces at work within architecture and should grow beyond the naïve impulses of young designers to encompass a larger set of criteria beyond themselves.

The work produced by students using this method can be quite beautiful, but requires a great deal of interpretive effort on the part of those not involved with its authorship (fig. 3 and 4). This is an intentional result of the method; one may interpret parts of a single drawing as relating to both plan and section or both $\frac{1}{2}'' = 1'-0''$ and $\frac{1}{16}'' = 1'-0''$ for instance. The design process continues even after the pencil has been put down with the work of the critic picking up where the designer stopped. Open interpretation of the drawing could be considered both a positive and negative attribute; in addition, the at-times inexplicit nature of the architecture leaves one with the feeling that the design work has just begun. There are tremendous ideas evidenced, but what might the building really be like? Modifying the intent of Frascari's method so that younger students might be exposed to some of the wonderful processes behind it in the service of a more explicit (but no less, speculative) architectural product seemed like a useful project.

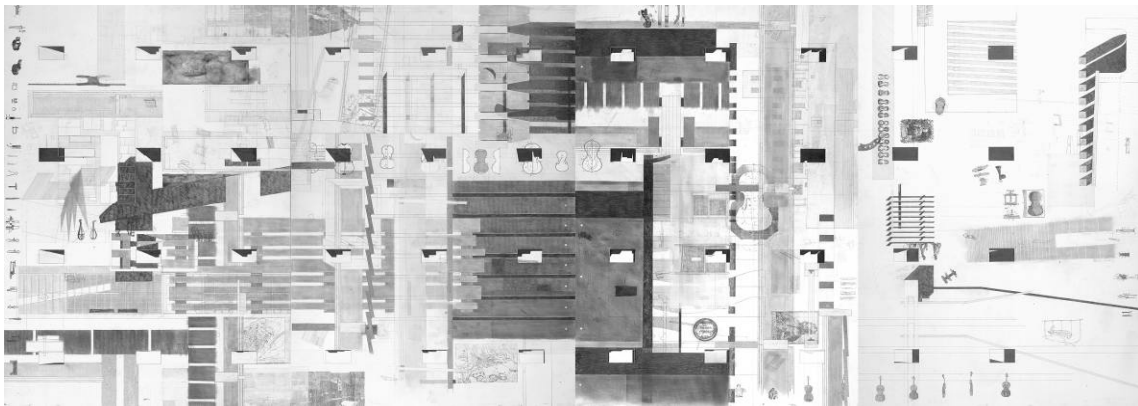


Figure 3. 10-week student Fragment Drawing

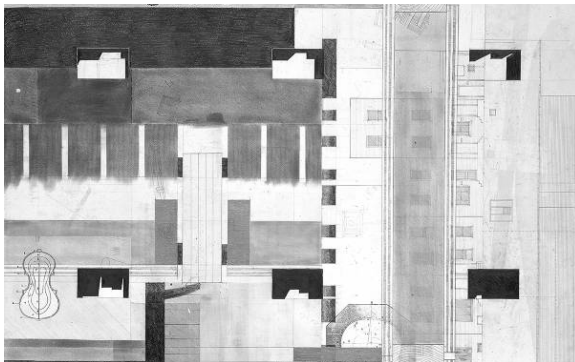


Figure 4. Detail of 10-week student Fragment Drawing

Fragment Models: Section Fragments

The Section Fragment studio was initially designed as a sophomore undergraduate elective studio. Similar to the previously described drawing studio, the focus would be on the development of architectural details. The intent of the large-scale model construction was to allow a closer relationship to detailing as making and thinking than might occur without actual construction exercises. Frascari would remind us that “In Scarpa’s works, the relationships between the whole and the parts and the relationship between craftsmanship and draftsmanship allow a direct substantiating in *corpore vili* of the identity of the processes of perception and production, that is, the union of the construction with the construing in the making and use of details”.⁶ In a similar manner, the exclusive focus on large scale modeling may serve to inform sensitivity towards making.

On the first day of class, the students are given the studio rules: they could do whatever they wanted as long as they explored their questions through a single ½” scale basswood model constructed in eight sections over the course of ten weeks (fig. 5). It is critical that the scale be situated right at the edge of a student’s ability level. Too small and students revert to old shape-making habits and questions of form without engaging details. Too large and the student fails to build due to the sheer amount of construction required. Kenneth Frampton notes that “measure itself, far from being an expedient and arbitrary delimitation of size, is in fact inseparable from the coming into being of form”.⁷ In other words, there is an appropriateness to scale and the requirement of detail at ½” versus other scales; for instance, it might be difficult to construct a 100’ long wall with no joints or accumulation of smaller units of construction material. The seemingly arbitrary 1/8 cut allows one to trace the relations between early and later design motives in a meter slightly registered to the ten week studio calendar⁸. Interference and misalignment between sections are possible sites of detail development. There is no required order of construction; students can build from front to back, from back to front, or can jump around among the eight slots. To further encourage exploration of generative details⁹, the site is a constricted urban plot with party-wall buildings on three edges and a street on the fourth edge. The large modeling scale and basswood are meant to support the development of tectonic joints and details. The tight site is intended to draw the students’ attention from large-scale shape-making to small-scale detail generation; and the restriction of the single model is intended to guide the student’s limited time for

⁶ Frascari, Marco; “The Tell the Tale Detail”; *Via 7*; MIT Press; 1984.

⁷ Frampton, Kenneth; “Carlo Scarpa and the Adoration of the Joint; *Studies in Tectonic Culture*; Cambridge : MIT Press; 1995; pg. 320.

⁸ For a similar description of Scarpa’s drawing technique as pertains to traces, see Lovero, Pasquale; “Artist’s Proofs (Unnumbered)” in *Carlo Scarpa The Complete Works*; ed. Francesco Dal Co and Giuseppe Mazzariol; NY: Rizolli; 1985.

⁹ “[for Scarpa] a design had a meaning only in so far as it acquired a demonstrative force.” See Damisch, Hubert; “The Drawings of Carlo Scarpa”; in *Carlo Scarpa The Complete Works*; ed. Francesco Dal Co and Giuseppe Mazzariol; NY: Rizolli; 1985; Pg. 212. This argument is not necessarily scale dependent, but scale can be a useful parameter to further emphasize the constructive force of detailing.

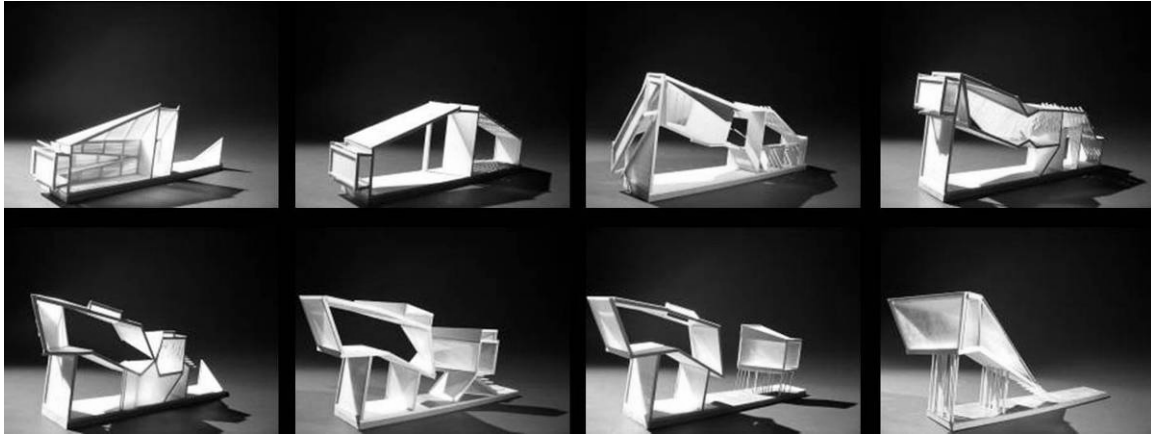


Figure 5. Project by Brian Ringley, 8 separate sections

designing and building a model with sufficient detail investigation in the course of ten weeks.

Many other architectural factors are minimized: the program is vague (a live-work shop of some kind: a bike-shop on one occasion, a violin-shop on another) with general activities stated, but no square footages; the site is described in dimensional terms and regional generalizations; theoretical questions relating to culture, history, literature, social issues, politics, philosophy, etc are allowed and encouraged as long as they can be communicated through the medium of tectonic details and the model. Technical responses are strongly encouraged whether structural, environmental, or other performative attributes. These potential building technics must be accepted or confronted if the 1/2" scale is to be a meaningful studio tool. The studio is paperless. This is not to say that sketching and two-dimensional work is disallowed, but that all communication with the instructor occurs only through the model. For instance, students may transfer sketches and imagery to their model by means of carving, milling, collage, or transfer marker. Exceptions to the use of basswood are permitted after the students have demonstrated an engagement with tectonic issues of detailing and joining. All of these limitations are intended to support the successful development of large-scale tectonic detailing. There is already a good deal of conceptual and technical jointing built into the project as the students must orchestrate the relationships among the individual sections.

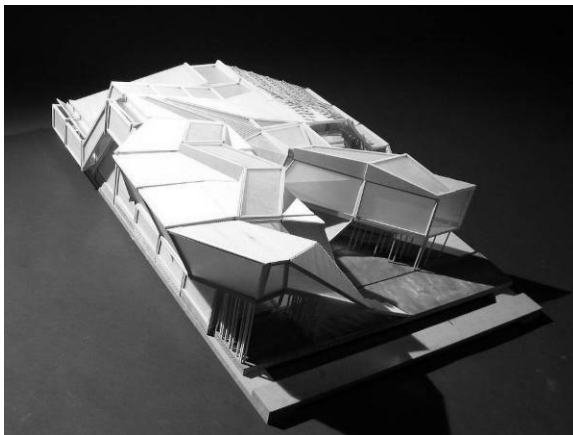


Fig. 6. Project by Brian Ringley, 8 sections assembled

The explicit and inexplicit aspects of architecture are kept in balance through the realization of a single 1/2" scale model constructed eight feet at a time in eight different sections over the course of a single quarter. All work takes place on the final model starting day one. The whole is suppressed in favor of the part as the means to generate overall organizational strategies. Finally, students are discouraged from pre-conceptualizing a holistic building form or designing the entire building as a schematic. In place of Scarpa's interest in celebrating the point of bearing, the question of gravity is introduced through the impossible gravity-defying thinness of the model sections.

The intention of the studio holds that design is in this instance a period of protracted conceptualization simultaneously merged with presentation production. The comprehensive moment is realized only after the eighth and final sectional model is constructed (fig. 6). This is a moment in the studio where the diversity of design interests becomes apparent (despite the same rigid design process restrictions). Some projects hold together as cohesive compositions, some students choose to experiment with different thematic operations for each section. Both approaches can yield successful architectural investigations with legible tectonic detailing potentials.

Marco Frascari cites Alberti as requiring lineaments "in which all the parts of the building will stand to each other in a direct and intelligible relationship"¹⁰. This method of continuous large-scale modeling can allow students to study such relationships more easily (fig. 7-10). Lineaments of construction, lines of performative attributes, and formal lines must now contend with lines of model sectioning. If the studio asks a lot of young students in terms of orchestrating so many of the manifold architectural forces visible at 1/2" scale, then having all of your work, always in front of you can help speed up the time of reflection while simultaneously allowing a slowness to the making through the discipline of regular weekly checkpoints for each section. The work that is produced is both holistic, in its readability as a work of inhabitable architecture and fragmented in the autonomy of the detail explorations within the individual sections.

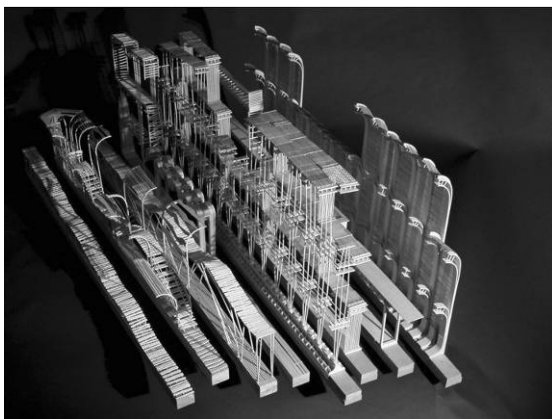


Figure 7. Project by Nadia Estiouvianna, 8 separate sections.



Figure 8. Project by Brett Albert, 8 sections joined.

¹⁰ Frascari, Marco; "The Tell the Tale Detail"; *Via 7*; MIT Press; 1984; pg 27.



Figure 9. project by Nadia Estiouvianna, detail.

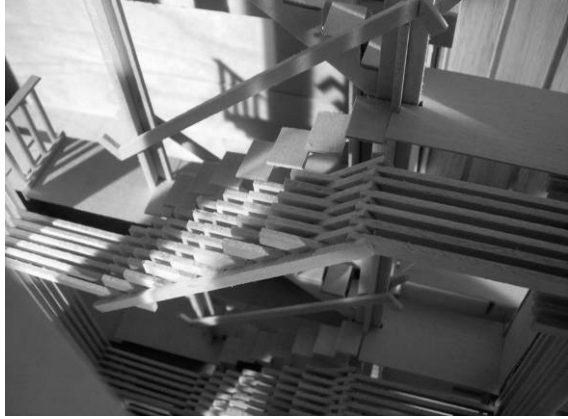


Figure 10. Project by Bradley Cooper, detail.

Utility of Fragments

"We live today in the estrangement between self and others, between the self and the world, on the margins even between self and individual. Our perception is not structuring but nomadic. The experience of one's own body and of what is external to it is made up of heterogeneous ingredients, of atoms that do not compose molecules, of portions that fail to fit together. This erratic, nomadic perception of reality is such a characteristic feature of our crisis that architecture manifests it in a multitude of ways. It is not only fragmentation that fractures projects into particles difficult to recompose. It is also the fact that the unfinished, the partial, and the cumulative have become predominant in a way of working that presents itself as incapable of proposing any higher level of integration." (Ignasi de Sola-Morales)

Such a view of culture and architecture might be seen as a crisis or failure. One could also accept the condition as a reality in need of confrontation or instead, one could exploit these fragmented conditions as useful limitations within our discipline. Our world is heterogeneous in the way it works with vast quantities of knowledge not masterable by any one individual, corporation, or government body. The unfinished and the cumulative are the only way to work sensitively and profitably in order to achieve a high level of complex integration. Teaching architecture students ways to operate within a fragmented context is a critical endeavor for our schools. Without acknowledgement of this cultural condition within practice, our products would never exceed the quality of clumsy exquisite corpses. The nature of architectural practice in the United States is multi-disciplinary, multi-trade and multi-contractor, and international. There are of course alternative models that one can embrace, but the current culture of construction and finance supports complexity.

The following statement by David Leatherbarrow about practice and function also serves as a reflection point for this studio: "But this new understanding will not result from the development and deployment of new techniques alone. The continued dedication to a technical interpretation of performance will lead to nothing more than an uncritical reaffirmation of old-style functionalist thinking—a kind of thinking that is both reductive and inadequate because it recognizes only what we can predict".¹¹ The Section Fragment

¹¹ Leatherbarrow, David, "Architecture's Performance", *Performative Architecture – Beyond Instrumentality*, ed. Branko Kolarevic and Ali Malkawi, Spon Press, 2005.

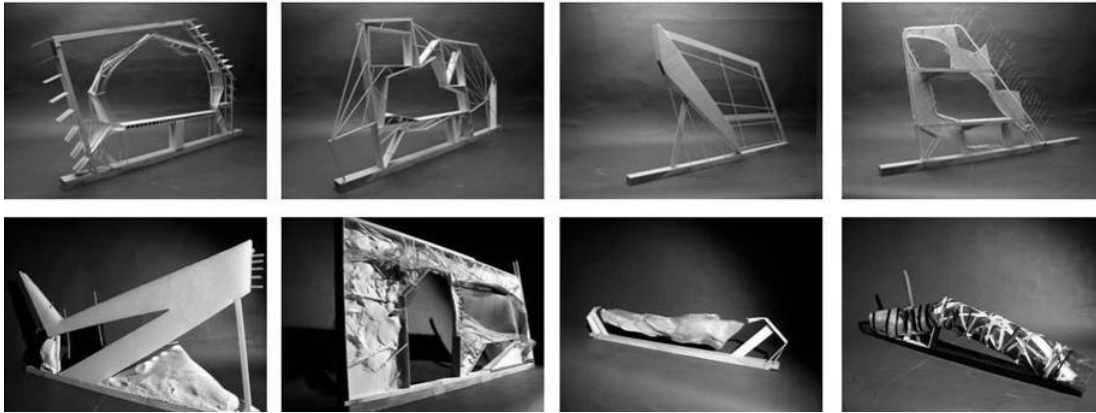


Figure 9. Project by Devin Jernigan, 8 fragmented sections.

studio offers a way of working which can accept the asymmetries of such unpredictable situations. This studio has a place for both explicit and inexplicit information. The goal for the studio is similar to Frampton's description of Scarpa's work: "...everything turns on the joint to such an extent that, to paraphrase Le Corbusier, the joint is the generator rather than the plan, not only in respect of the whole but also with regard to alternative solutions lying latent, as it were, within any particular part".¹² The section fragment studio utilizes problem division and scale as a means of grappling with detail research and recognizes the joint as a place to expand understandings of performance to also include generative conditions. This mode, while reductive, has resulted in projects that are technically defined, but formally open.

While the student projects shown here may range from the conservative to the provocative, the studio's primary ambition is its focus on building production. It recognizes that speculation and investigation must occur at the scale of the detail as well. It is also specific in its view of teaching architecture; that our job is to help students grow into architects who work on buildings, but also that we have a responsibility towards inquiry within our design practices; the Section Fragment studio attempts to accommodate both needs. Moreover, there is an optimism in the power of intuition within structured processes. Fragments may provide oblique ways for maintaining both the accidental and the intentional within the framework of studio pedagogy. They may also be a means for keeping the contradictory modes of inexplicit and explicit information balanced within architecture.

From the detail to the whole: 1/16scale is 1/2 scale is no scale; a detail is a section is a plan is a building.

¹² Frampton, Kenneth; "Carlo Scarpa and the Adoration of the Joint"; *Studies in Tectonic Culture*; Cambridge : MIT Press; 1995; pg 307.