

Accretive Architecture: Superuse + Beyond

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Architectural education is moving toward hard science solutions, seeking to partition sustainable design concerns into discreetly addressed *problems*. The consequence is the perceived notion that Sustainable Practice is somehow different from Good Practice, and is therefore, likely to produce only a limited form of architecture. This common perception among students also implies a limited working palette, defined predominantly by technological application. Architecture is arguably a transformation-based discipline entailing, at its root, a building-upon or accretion of previous needs, ideas, and energy flows. Our current practices and pace of development, even with optimal technological developments, will not sustain our future generations beyond 2100.¹ Given these conditions it seems critical that sustainable design must not register with students as a limited architectural pursuit nor an optional appliqué. *Architecture of accretion* as a pedagogy and practice seeks to offer an expanded definition of sustainable design by engaging the existing constructed field as an active *host* for development. Through the merging of existing and new construction an attempt to blur the partitions of sustainable design thinking is sought. This vain of sustainable practice attempts to coalesce physical, theoretical and ecological layers of development and *thicken* the built environment.²

The various design projects outlined herein call to question these issues and reveal the greater context of sustainable practice. This form of praxis examines means of developing an appreciation for the generative potential of pre-existing forms, structures and materials by which students may find a foothold for progressive design. The method-

ology and theoretical framework invites one to perceive buildings as more than singular objects, and rather as a collection of parts, the ground included, held temporarily in place until a new state of being is required. Designing with equal parts context and invention the pedagogy seeks a kind of “architectural accretion”, defined here as a re-allocation and coalescence of formerly useful parts/materials to newly useful states of being. Accretion should only be understood as a working method, not an aesthetic device. Existing generative elements are referred to loosely as “sites” and may be a parcel of land, building fragment or material remnant. They should be understood as latent and persistent elements of the working field open to investment.

A key distinction in how this is not simply adaptive re-use is that accretion is not a parasitic paradigm; it is not aimed to destroy one thing to profit another. Instead, it is saving what is valid and redistributing what is no longer viable. Practitioners learn to hunt for points of intervention as opposed to waiting to be fed abstract building sites. This act opens the definition to include more aggressive notions of scavengry and exploitation, while removing the stigma of sustainable design as a burdensome, less interpretive expression. Positioned amidst this session topic, will be a series of works created by various young architecture students investigating and helping to define the “architecture of accretion”.

ENDLESS FIELDS + BOUNDLESS CONSTRUCTS: setting the tone for a search

Practitioners and students today have instantaneous access to precise geographical data of nearly every

inch of the earth. They can gather photographs of countless places, spaces and conditions and yet the most common issue among young designers is a forcefully timid engagement of site and context. This tendency to focus upon the design of objects, as opposed to the designing an environment, often leads small, self-referential, brittle projects. The ability to ignore difficult issues of formal juxtaposition, interconnection, and associated larger global issues of irresponsible practice is promoted when context is in disregard. As a result, the ability to find potential and excitement in architectural design derived from existing context is minimal. The student work, outlined below (which is not terribly divergent from much of today's *professional* work) demonstrates these tendencies in spite of the numerous measures taken to promote a meaningful confrontation and resolution. While many failures were found in the design of the projects, evidence of some success was also identified. The following is an account of three projects, by freshman and sophomore students, each of which aided in the outline of a principle of this Accretive Design Methodology.

The method of the constructed site singles out particular visible phenomena to provide a generative concept, which is then used as a literal basis of construction. Several opportunities are lost in this approach. By valuing visible material, what is not immediately present is not addressed (for example, the history or the poetics of the place). The architecture devised for the spot is conceived as a constructive extension of the conditions of the location itself; it thus provides a further construction of the already constructed site... But because building architecture necessarily entails building a site, even this apparently passive appropriation necessarily changes the situation.
- Carol J. Burns, "On Site: Architectural Preoccupations," p154-155

ON DEFINING CONTEXT:

Numerous understandings of contextualism may be found in the writings of Lebbeus Woods³ to Keith DeRose.⁴ Following the methodology of *architectural accretion*, the author may not necessarily be interested in a world-view scale when physical manifestation is being brought to form and function. While a world-view i.e. sustainable practice, and environmental stewardship, may serve as motive, the design methodology attempts to move away from a potential situational ethic or even moral relativism that may lead to near sited decision making, and further destructive influence resulting from period architectural practice.

What is critical to teaching this way of design and making is the development of the student's self-serving necessity for contextual understanding. Failure of this methodology is simple to predict. If the maker does not possess the requisite thirst from contextual knowledge as his/her only basis for design development, the large scale impact of the work becomes marginal and falls quickly to the level of simple object making.

For the purposes of this pedagogy and way of making, the need to instill a desire to know the limits becomes a priority. One must know the land to work it well; one must know a material to make the best use of it. Furthermore, underlying these necessities there must be the concern of a potential loss, or more precisely, waste. This is a concern few students and practitioners currently consider in their work. The bare essentials of a design materialize in the face of true limits and necessities. Vernacular works are not styles, or appliqués, rather they often spring from the lack of option.

The Architecture of Accretion attempts to understand limits and opportunities within sites to make useful and appropriate architectural responses. The beauty found in the work is only a reflection of the thoughtfulness imbedded in the deep and patient thinking needed to achieve project realization.

PROJECT 1: Spoliation and the first steps in setting a trajectory

Spolia: (Latin, 'spoils') is a modern art- historical term used to describe the re-use of earlier building material or decorative sculpture on new monuments.⁵ The practice was common in late antiquity: Roman examples include the Arch of Janus, the earlier imperial reliefs reused on the Arch of Constantine and the colonnade of Old Saint Peter's Basilica. The practice is so common that there is probably no period of history in which evidence for "spoliation" may not be found.

Interpretations of spolia generally alternate between the "ideological" and the "pragmatic." Ideological readings might describe the re-use of architectural elements from former empires or dynasties as triumphant (that is, literally as the display of "spoils" or "plunder" of the conquered) or as revivalist (proclaiming the renovation of past imperial glories). Pragmatic readings emphasize the utility

of re-used materials: if there is a good supply of old marble columns available, for example, there is no need to produce new ones. The two approaches are not mutually exclusive, and there is certainly no one approach that can account for all instances of spoliation.



Fig 1. Spolia in the streets of Rome

As demonstrated in these investigations, an initial apprehension for using something “already designed” as a starting point was a concern among designers. As work progressed the designers found a delight in the hijacking of the sites through formal and theoretical manipulations. The term “spoliation” is considered in reference to finding that students seem exhilarated by the idea of hijacking and twisting the sites’ form and intent, while also allowing the existing qualities to remain visible. Many students chose to perform interventions on their sites that countered the preceding designers’

intentions by weakening the strong, strengthening the weak, minimizing the decadent, etc. This operational underpinning provided a mechanism for the avoidance of the obligatory guilt of “using something they didn’t make”. The perceived bending of the prior designer’s intentions provided a powerful and intoxicating design stimulus. The paradox of this action became clear when the students recognized their own intentions were being swayed and opened to the incorporation of the existing sites as valuable and worthy of engagement.

This project was simply intended to open one’s mind to recognize existing form, its mass, and implied force. The project asked students to first become familiar with an object of design, in this case a Corinthian arch. The designers measured and drew the object as a static specimen. Upon familiarizing themselves with the proportions and physical attributes, the designers made judgments regarding the phenomenal composition of the piece. Simple determinations of static and dynamic moments of occupation, visual force and compositional arrangement were diagrammed. The project continued by requiring students to remake approximately one half of the composition with opposing design elements. In this case, what was determined to read as static had to be remade as dynamic and vice versa. Eventually a simple occupational program was added to introduce issues of scale - here a viewing platform for a single person and a means of ascent / descent.

The project required students to reinvest in an existing element and in doing so forced a carefully account of what one had to work with. Because the project happened in white space only, the means of conveying the proper reading relied heavily on the manipulation of media and visualization technique. The students had to learn to draw their designs the way *they* saw them. Subsequently, numerous rendering techniques were learned / born. Issues of texture, joinery and surface had to be recognized and reconciled in the work due to the presence of these latent qualities in the existing arch.

First, the identification of localities for circulation and occupation was considered. Later, students assessed the artifacts for iconographic/expressional value and proposed programs and scenarios for their conceptual occupation and use. As students began to establish various strategies for engaging

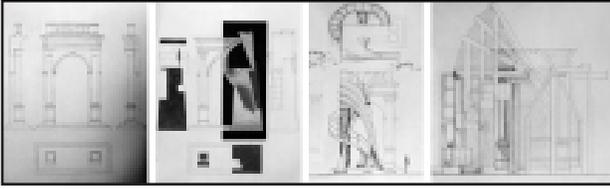


Fig. 2 Projects by Nathan Alverado + John Fiderra

the remnant site, scenarios grew to include more advanced theoretical conditions and engaged numerous definitions of spolia. As the students' design abilities matured so did their ability to project deeper, more meaningful theoretical frameworks. Elaborate ideas of how to use what they had began to form quickly and soon they were not waiting to be given sites but were actively seeking them. They become self-motivated *opportunistic designers*.

PROJECT 2: Deconstructed Learning



Fig.3 Casting Demolition by Melissa Sessum

A simple desk critique with a first semester freshman prompted the development of a project in Deconstruction + Remounting. Students had been exploring casting as a method of forecasting design via constructional means. After casting a component one student in particular was struggling to find a way of working into the object. She complained of its limited potential due to its scale and the restricted mutability of the material. As a remedy, she was asked to drop her casting on the floor and put it back together as she saw fit. Her, and subsequently the entire studio's, dismay and appall at the suggestion of breaking something that was "already made" provided the impetus for further

questioning. When it comes to items of their own crafting, what creates such attachment in the student? How might we harness that power to make better decisions about the crafting of architecture and environment?

The act of deconstructing was profoundly different for many students because they were so conditioned to learn by assembly, from nothing to something. Working from something to nothing forced a study of the process of disassembly/assembly and provided a precise ending point as opposed to the typical meandering process of design. The requirement of having no mass lost and no mass gained made every piece of material valuable. The assignment asked students to see their former "right answers" as only important and suitable given one set of design parameters. When those parameters changed and the castings were no longer suitable, rather than starting anew the defunct casting had to be "remade" by operations of composition as opposed to total removal.

The notion of "breaking" an artifact that the student invested so much time and energy in suggests that the students find value in the work. More precisely, the time and thought invested (the effort), not the material itself, is valuable. This finding corresponds with general attitudes toward fine community buildings, "we need to save these things because they are special, look at all the work it took to build them." The student comments echo those of American society and were further correlated while visiting Atlanta, Georgia on a field trip. After touring the city students began to consider accretion at the urban design scale by contrasting modern Atlanta's fabric against that of Savannah, Georgia. The scalar jump of this student realization gives promise that further connections might be made among the tenets of this project and issues of sustainable architectural accretion.

These findings led to a conclusion that a less architectonic and more easily abstracted example of site might accommodate a deeper form of design activity. To provide this model students were asked to work with remnant furniture, tool / machine parts, and architecture school leftovers (site models, displays, etc.) as sites for design intervention. This limited the parameters of analysis while also introducing the notion of the "opportunistic eye". Based on the observation that the act of physically taking

a thing apart allows the student to understand the logic and energy needed to first put it together, a 3 credit course was launched where-in students had to first *unmake to make*.

PROJECT 3A: Developing an Opportunistic Eye

"In the long history of humankind (and animal kind, too) those who learned to collaborate and improvise most effectively have prevailed"
- Charles Darwin

It is a principle of this design methodology that sustainable design education must also include the development of the *Opportunistic Eye*. While the ultimate hope for society is that this design paradigm need not exist one could argue that all social and technological advancement is the profit of opportunism. The designers associated with these studies were not asked to turn the world on its head but rather slowly and carefully look for moments to draw more from what has been previously made.

All too often students find themselves finishing their projects before they have started them. The idea of doing the "right" thing the first time is the pervasive outlook. Students often stare at a white page awaiting divine intervention for entire studio periods only to finally make a few timid and meager marks which they then cling to blindly. One suggested reason for this type of paralysis may be the general condition of students to seek single and irrefutable correctness in all their coursework, i.e. calculus, physics and structures. The logic of these design assignments relies on a creative practice founded in opportunism, scavenging and the development of shrewd intuition for design potential and only profits through an iterational search. The method suggests that no silver bullet will be wrought to undo our global state; sustainable and responsible practice starts with avoiding waste. To work in this way as a means of building skill in design, one must abandon the modern notion of a planned approach and find comfort in a central proposition that, existence precedes essence. Students need to *find* something delightful in the work, not plan to make something delightful.

Instinctual design thinking is a difficult ability to convey to students due to its necessity of a fear. In this case, fear of lost opportunity. Fear in general seems something few students consider on a daily basis however, given the tenuous global con-

dition, recognition may be forming. The majority of American college students are not faced with a lack of appropriate shelter however, as early beings this was a major concern. People instinctually sought shelter from convenient natural sources.

This shelter was principally needed to protect against mortal harm from animals, opposing humans and conditions of weather. Eventually as a mastery of tools and defense systems grew so did our ability to fabricate shelter devoid of natural influence. I believe our forgetfulness of instinctual response has led us to a condition of ill-considered design and construction practices.

This irresponsible waste of potential is omnipresent and easily identified in project 3, which was aimed at addressing these shortcomings. In this fabrication elective students were challenged to find opportunity in what was given. This is not unlike the majority of studios I have encountered however; in many the site is often lost only to issues of aesthetics and program. The work described below attempted to evade this propensity by limiting the site and palette for design/construction to only a limited amount of waste material. As a critique, the artifacts produced are interesting and useful however, they required a great deal of physical labor to produce. The work unfortunately strove toward conformity and connection with typical furniture types. Students made furniture like the things they encountered daily; regardless of the challenges and opportunities put forth by the materials they were allowed. In many cases the sites were dismantled and cut into simple planar pieces more easily reconfigured to suit the

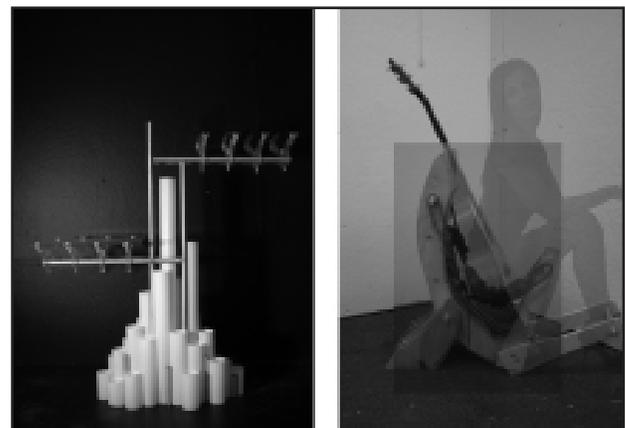


Fig.4 EndTable by Tyler Pence + Sit/Stand by Andy Graydon

new student visions. The constructs exposed the lost directive, ignoring the opportunities for creating “new” future types, and produced only mildly exploratory artifacts of design.

PROJECT 3B: Making fresh by adjacency

As a way of pressing the students to see more opportunity they were asked to design a piece of furniture to become part of the architecture school building. This required the students to consider the context of the building including the occupants, usage types and any missing spaces of the facility. The students collectively determined a student lounge was needed but could not decide on a permanent location. The unit was accordingly designed to be mobile, thus allowing it to take on numerous uses and qualities depending on its adjacency to other spaces. The team inventoried all collected materials, including (2) 12' x 12' site models and 3 mild steel frames used by studios past. The designs grew from this material stock and the students' limited access to fabrication equipment.



Fig. 5 Light FIXture by: Courtney Bolden, Chris Rivera, Scott Archer, Andy Graydon. Student Domain (right) by: Tyler Pence, Taylor Poole, Charlotte Fairley, Dennis Daniels, Ryan Morris

As the project progressed the students decided to divide into 3 teams and construct 3 complimentary components to be placed around the building. The addition of these building assets spurred much conversation in the way they reconfigured space and shifted the reading of adjacent building structure (context). The light fixture addition (see fig. 5) in particular created a new found appreciation for the roof framing and surface texture. The students were able to recycle all the materials with only meager additions and in doing so effectively “re-made” previously inert portions of the host building.

CONCLUSION:

At this point it is critical to acknowledge an obvious paradox; the suggested means of production in this model can only exist if someone else is working with the opposite of intentions. If this pedagogy were to truly inform future generations, one might argue it would burn itself out as all things were eventually put back to use. But in that we see a cycle. Things go defunct as technology expands and what we see as useful will fall into disuse and in this we guaranty our future productive value. Architecture of accretion suggests that design pedagogy must focus on the notion that things don't ever go away, they just fall out of use. It is the role of the designer to pick them up and figure out how, if reconfigured/ conceived, they may be useful again.

The time is coming rapidly where we will be forced to acknowledge that the material supply limits will soon be reached and that we cannot simply cast aside our earlier works and try again. The positive aspects discovered, and flaws drawn out of prior works should form the directives for future projects. This pedagogical perspective is not new. It has however, often generated overly generalized conditions for investigation, in many ways mirroring our global condition wherein we acknowledge the issues, parties responsible, and reasons for being, but again leave it as only an easily overlooked social concern. These studies propose that a pointed and directed responsibility be asked of the student designer by recalling prior projects for reinvestment over multiple semesters.

Time constraints, differing faculty interests, and required learning outcomes contribute heavily to our inability to substantively address re-use in architecture. The majority of studios are premised on the students first establishing a thesis, ideological position or at the very least a formal parti from which the work progresses. To see the conclusions of prior student work, both built and theorized, re-engaged might present a rare and potentially influential paradigm.

“It is not the strongest of the species that survives, nor the most intelligent that survives. It is the one that is the most adaptable to change.”

- Charles Darwin

Numerous authors have written cogently of the many blurred facets of contemporary sustainable

design. A common thread in nearly all current discourse concludes that architects must become system thinkers. Our far flung material supply network requires a great deal of additional accounting in regard to systems thinking. Architecture of accretion attempts to remove the vastness of this model by looking at and working with the potential at-hand. The accumulated knowledge and techné to vastly improve our practices exists if we choose to engage it. Perhaps by forwarding a pedagogy underpinned by mutualism and the ability to form lasting architectural accretions we may prime a future generation of truly sustainable designers.

ENDNOTES

- 1 Donella H. Meadows, Jorgen Randers, Dennis I. Meadows, *The Limits to Growth*, (Chelsea Green Publishing, 2004).
- 2 Corner, James. *Recovering Landscape: Essays in Contemporary Landscape Theory*, (Princeton Architectural Press, 1999).
- 3 Lebbeus Woods, September 13, 2010, *Building Landscapes*; www.lebbeuswoods.wordpress.com
- 4 Keith DeRose, *The Case for Contextualism*, (Oxford: Clarendon Press; New York: Oxford University Press, 2009).
- 5 Dale Kinney, "Roman Architectural Spolia," in *Proceedings of American Philosophical Society*, vol. 145, No.2 (June 2001).