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Reflection

Dimensions
Volume 33

Foreword

McLain Clutter
Associate Professor and Chair of Architecture

Rarely has the phrase "what is past is prologue" seemed so apt. The year 2020 will forever be marked by a *before* and *after*. In this context, Dimensions 33 arrives like a welcome visitation from the recent and yet seemingly distant past. What can it offer? While the present pandemic might cause us to question the relevance of our prior disciplinary fascinations, this year's editors have assembled a volume that reassures by foregrounding the sometimes-prescient nature of architectural imagination. Look closely. As we witness unprecedented stresses on our institutions and systems of health care, economy, and education, Dimensions delivers projects that operate *systemically* to subvert or redirect building code, algorithmic protocols, the invisible logic of property ownership, and more. If our present situation portends systemic collapse, this work offers keen insight on how design might abet systemic change from within. More prophetic yet, as our daily lives increasingly transition into digital space, Dimensions contributors ruminate on myriad aspects of digital design, fabrication, and the intersections between architecture and digital culture. Here, we find narratives that detail the pitfalls and potentials of digitally mediated collectivity, bias embedded in the digital realm, the frictions and fittings between the digital and the material, and even digitally enabled pedagogy. Undoubtedly, this work lands with heightened urgency now that digital infrastructures underlie everything from public education, to doctor's visits, to dinner parties.

All of this is not to say that our post-pandemic discipline—our post-pandemic Taubman College will re-emerge unchanged with renewed focus on precisely those concerns that preoccupied us before. But this is to say that the kind of critical consciousness we aspire to cultivate at Taubman gravitates towards issues that assume sharp relief in moments of crisis. To be sure, crisis is no friend to critical thinking. Dimensions 33 fills me with hope that when we are afforded the luxury of shifting from reaction to reflection, Taubman will be a place that helps to make sense of the world *after.*

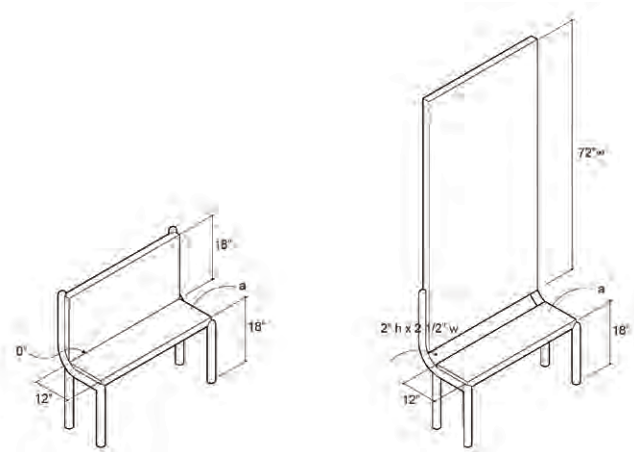
Action Figures or

The (Un)Potentials of ADA Standards

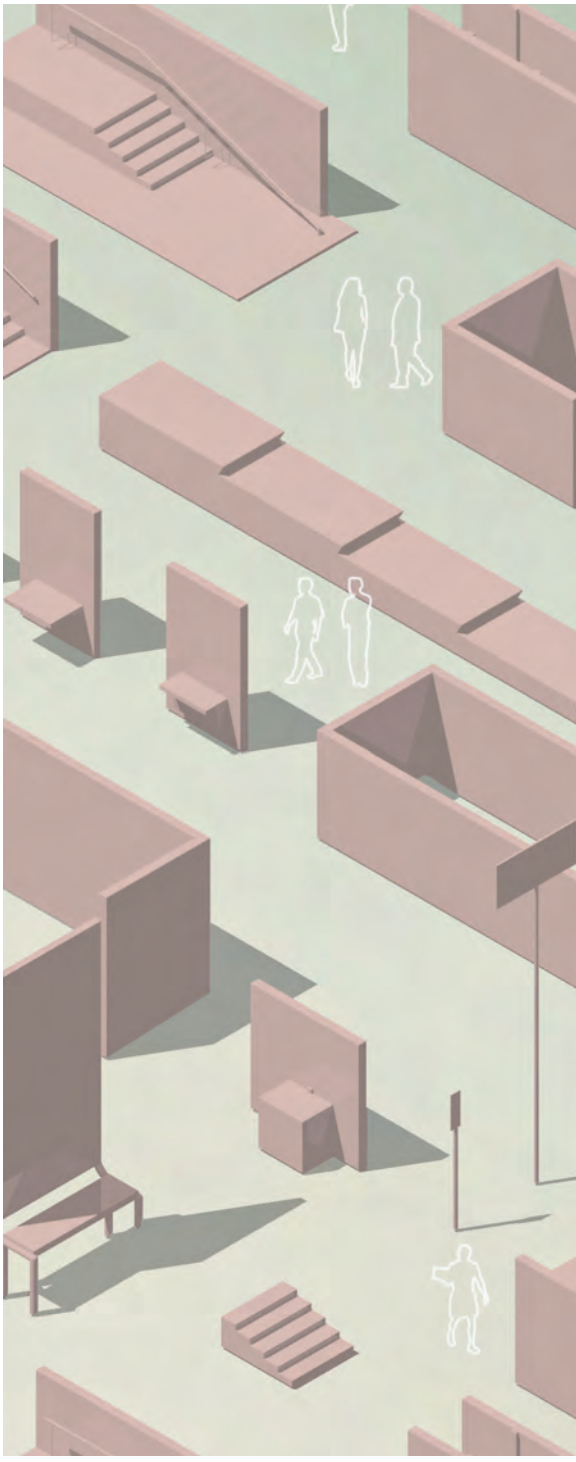
Brian Baksa
Thesis Advisor: Julia McMorrough

Political action, social action, and cultural action. These are all elements embedded in architectural space and with each construction detail we produce, a social consequence emerges. While ADA Standards, regulations detailing accessible space, mark a leap in equity among those with mobility impairments, the prescriptive nature of their documents and overlooked narrative lend themselves more to an architectural afterthought than to creative design interventions.

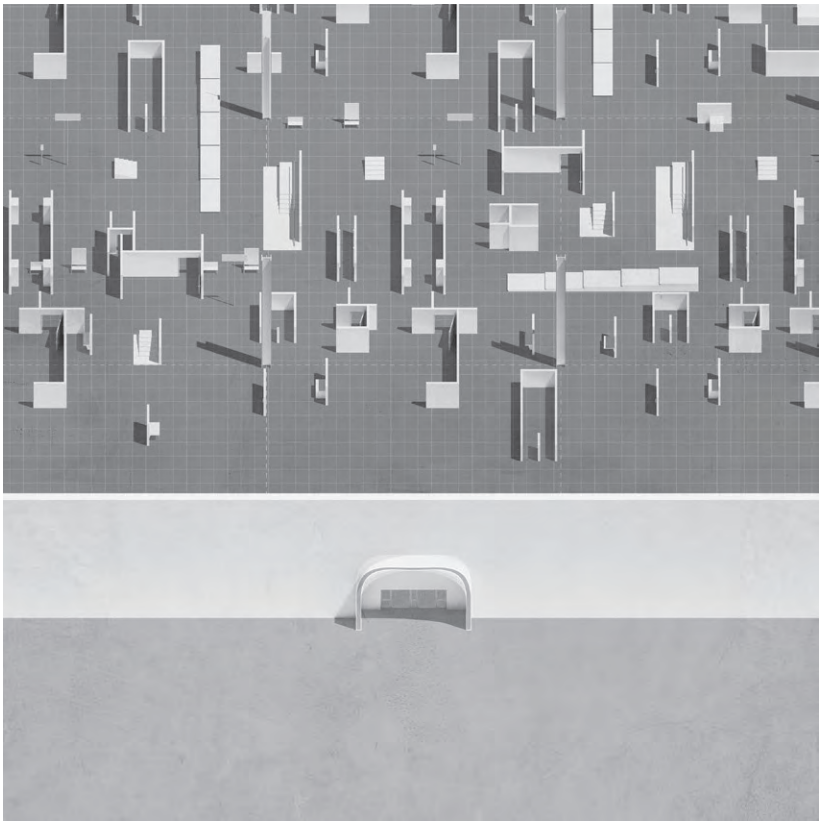
Action Figures is a situational and episodic exploration into the latent and untapped potentials that exist within accessibility standardization. This thesis proposes misusing ADA Standards in a way that might generate new, unique spatial logics; resulting in a celebration of oddity, strangeness, and difference. What are the spatial consequences when situationally deploying Action Figures? How might Action Figures be arranged to challenge or reframe our current understanding of accessibility? By both literally and metaphorically flattening the terrain of access, these explorations aim to posit that while architecture itself can contribute to the disabling and marginalization of the human form, it can conversely liberate the relationship between space and body.



At a maximum, the bench seat height shall be 18 inches (455mm) above the finished floor surface. A vertical gap between bench back and seat shall be 2 inches (50mm) and horizontally 2 1/2 inches (64mm) maximum. At a maximum, the bench back can extend vertically 72 inches (1829mm) and beyond above the bench seat surface. The bench surface shall be a maximum of 24 inches (609mm) in depth.



Action Figures deployed as a field condition



An axonometric drawing of Action Figures as an Inventory

Through cataloguing and understanding the minimum and maximum requirements outlined in the 2010 ADA Standards for Accessible Design, a new rule set of found anomalies can be developed. At times, there are no maximum requirements and such misuses or discoveries, when assembled, begin to inform unique spatial logics that upend our current understanding of accessible design.

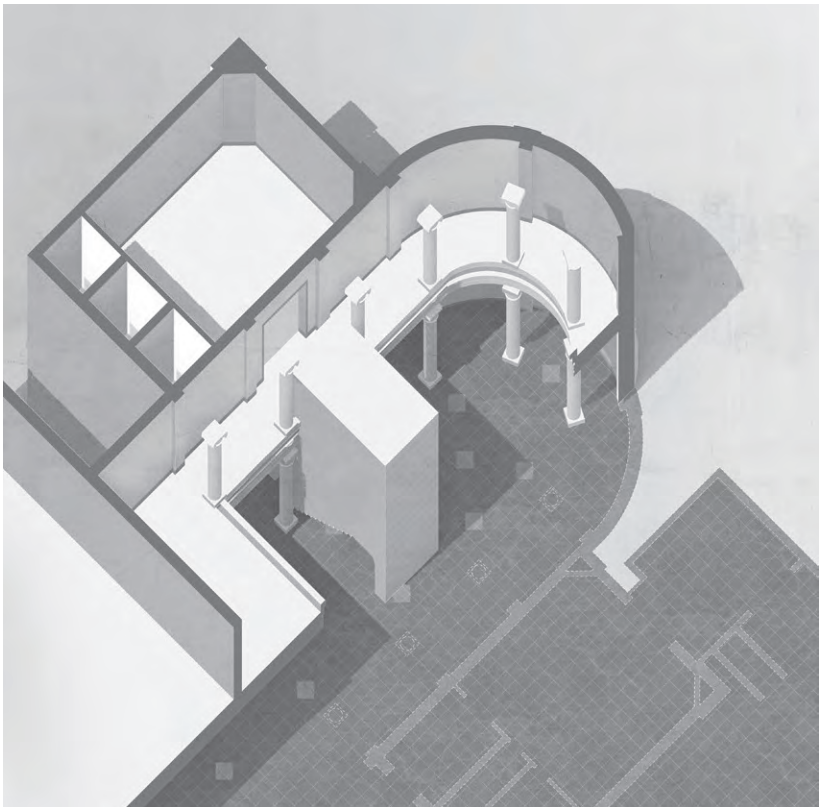
While one can imagine that the narratorial possibilities of deploying Action Figures is endless, below are three episodic situations, ranging from the ironic to the critical to the domestically applied, that aim to reappraise ADA Standards. The narratives are by no means final solutions or answers to accessibility in design, but rather explorations into the potentials of deploying Action Figures while positioning accessibility at the forefront of design.

1. Action Figures as an Inventory

Deployed as a field condition of three-dimensional minimums and maximums of ADA Standards, this inventory is exactly what you make of it. The building is a museum, a soccer field, a picnic table, a night out on the town, or a fundraising event. Sometimes it is a high school graduation, a bar mitzvah, a game night, and a party for one. One time, it was a roller rink. Last week it was a rally for peace, and yesterday it was a four-year-old's birthday celebration.

A pile of random assemblages of Action Figure

Action Figures deployed as a picnic



An axonometric drawing of Action Figures as an Exhibition sited in Ann Arbor, MI at the University of Michigan Museum of Art

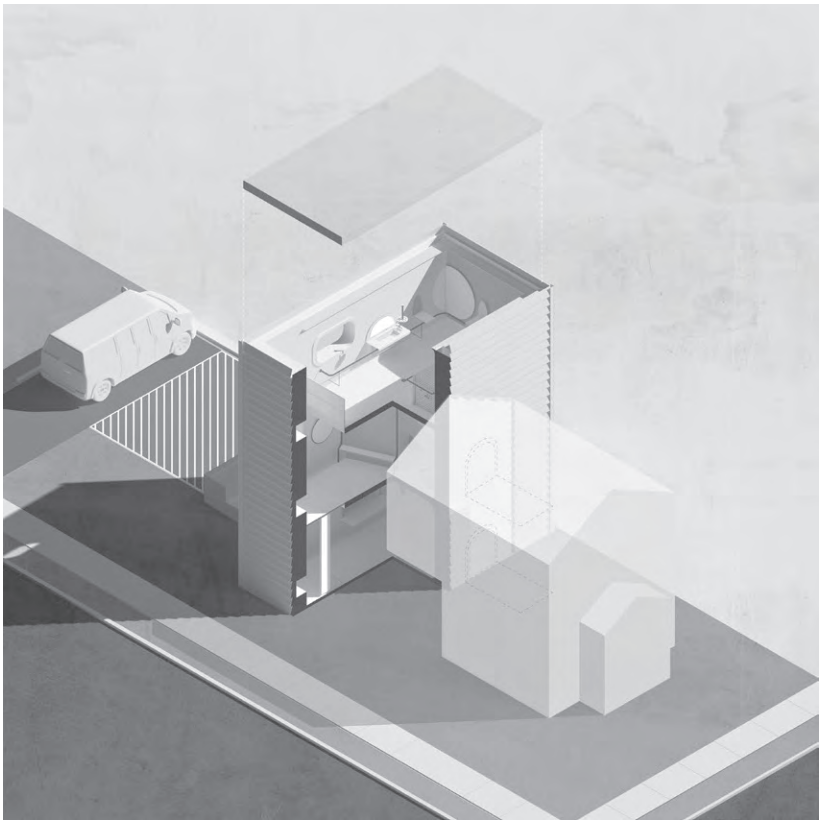
2. Action Figures as an Exhibition

Imagining the University of Michigan Museum of Art has been fitted out with an exhibition highlighting accessibility with a threshold sized for wheelchair users, it is delightfully inconvenient for able-bodied people. Inside, things aren't as they appear, or rather, as we think they should; an upending of expectations creates a celebration of strangeness in the environment. The user doesn't move through the figure to find answers or solutions, instead, they occupy it, if only for a moment, to engage with ADA Standards from an excitingly different angle.

A stair becomes the exhibition entry with a threshold sized for wheelchair access; making it pleasantly inconvenient for able-bodied people.

Exhibition signage alongside a misalignment of two Action Figures

A motif of inaccessible stairs becomes a place to cook, eat, and entertain.



An axonometric drawing of Action Figures as an addition

3. Action Figures as an Addition

A vertical stack of volumes makes up this addition to a suburban home. A wall to wall lift provides circulation to each cell; one for eating and entertaining, one for rest and relaxation, and one for cleansing and rejuvenation. The kitchen spills out into the van access aisle, creating both interior and exterior spaces for cocktail parties and gatherings alike. Handrails become countertops and clothing racks, stairs become thresholds or light wells for foliage, and oversized bench backs become volumes for wheelchair operated murphy beds.

Action Figures are used incorrectly to form a volume in which to rest.

9 Spec-ulative Bathrooms!

A Case for Architectural 'Spec'-ulation

Liz Gálvez
Muschenheim Fellow

A room measures 5 feet by 7 feet. Do you know which it is?

A standard of deviation is a measure of the amount of variation amongst a set of values. A low standard of deviation, therefore, indicates the expected, the normal, the standard—an average of the replicable, then the standardized bathroom within it is one degree more normcore. A microcosm of copy-paste logics, the domestic bathroom remains a recognizable block against even the most provocative of typologies. It is a given. If 1950s America told us what the domestic bathroom is and how to shop for it, Ching, Ramsey, and Neufert showed us how to draw it. The bathroom is the simplest of design challenges—for, it is no challenge at all.

The contemporary bathroom has been reduced to a mere recipe for specification. As both ambitions and expectations for deviation run low, the task of bathroom 'design' is often delegated to the most inexperienced members of the contemporary architectural firm to select the most tasteful fixtures, finishes, and moisture resistant materials, often using catalogs and lists as a basis. Yet, the bathroom is not innate. It is not neutral. The bathroom's standardization is rather, a stronghold of civilization, a purveyor of culture, and a defense for lifestyle—it is pure ideology.

If the normal is in, then the architectural specification or 'spec', accomplishes certain orders of hipness in its banality. Is it time for architects to spec-ulate through the logic of the specification? In the imaginative spirit of instruction masters like Bernard Cache and Sol LeWitt, how can the discipline exploit the seeming simplicity of the architectural recipe toward meaningful variation?

Special thanks to the Design Team, Abby Stock, Michael Ferguson, and Valeria DeJongh, as well as Jacob Pyles for assistance in CNC Fabrication.

"Even the most ordinary everyday objects can be objects not only to use them—but to think with them." —Slavoj Zizek

9 'Spec-ulative' Bathrooms! is part of an ongoing project that investigates Domestic Hydrology, or the utilization of water within the domestic setting via its connection to lifestyle and culture.

9 ‘Spec-ulative’ Bathrooms!
Beginning with the architectural fixture product, 9 ‘Spec-ulative’ Bathrooms! speculates on a new history for the bathroom. The exhibition looks to the archive of domestic water use, to both learn about bathroom design and to project possible futures while challenging assumed usage. Considering the logic of specification in conjunction with cultural signifiers linked to the bathroom, the exhibition creates a showroom that ‘spec-ulates’! on contemporary bathroom fixtures and plumbing infrastructures to expose the technics tucked within the enclosure of the stud wall.

Told via the logic of their pre-manufactured and off-the-shelf parts and pieces, the imaginaries for each bathroom lie within the following pages. Variability in ideology comes strictly from the way in which existing parts are configured and re-assembled, not the objects themselves.

1. The Watering Hole, a Multi-User Basin

K-20213-W: basin_kohler_iron plains-capsule_33in x 6 11/16in x 15 5/8in_0-white,
K-20211-W: basin_kohler_iron plains-round_12in x 6 5/16in x 12in_0-white,
K-14800-W: basin_kohler_vox-round_16 1/2in x 8in x 16 1/2in_0-white,
K-99271-RDG: faucet_kohler_artifacts_2 9/16in x 17 3/16in x 24in_rdg-rose gold,
K-24982-RDG: faucet_kohler_purist_ 10in x 23in x 5in_rdg-rose gold,
K-9466-L-RDG: handle_kohler_cimarron-left hand trip lever_2 5/8in x 1 1/4in_rdg-rose gold,
K-7124-RDG: drain_kohler_pop-up clicker_5 1/8in x 1 1/2in dia._rdg-rose gold
&
PVC-1120: pvc-dwv-pipe_charlotte pipe_sch 40 pipe_1 1/2in dia._white.

The Watering Hole fuses an island concept with a multi-user sink counter for use within the domestic bathroom. Multiple basins encourage collective use around K-99271-RDG, while denoting various circadian daily activities—tooth brushing, facial cleansing, and even bathing. Divergent geometries between (1) K-20213-W, (1) K-20211-W and (1) K-14800-W suggest basin utilization in relationship to volumetric water needs. (4) K-7124-RDG sink drains are controlled by (1) K-9466-L-RDG as a flush lever mechanism. Providing a series of new flushing imaginaries, K-9466-L-RDG confronts users with stagnant water, recalling both the pleasure and opportunism of now anachronistic relationships between wash basin and pitcher, vessel and supply. The Watering Hole is both the suburban mother's dream and the perfect place for the water fight aficionado.

The Watering Hole, a Multi-User Basin

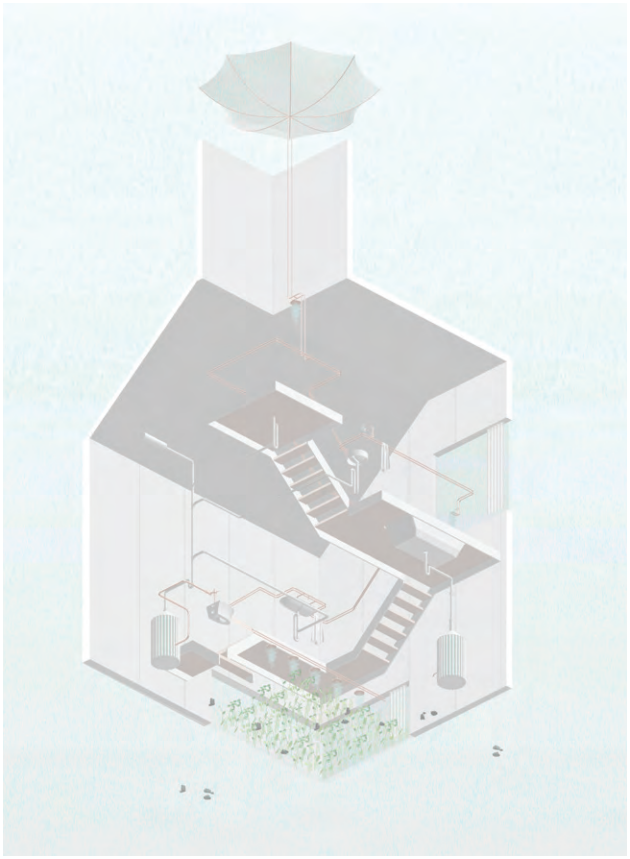
The Powder Room, a Three-Quarter Bath

2. The Powder Room, a Three-Quarter Bath

K-20213-W: basin_kohler_iron plains-capsule_33in x 6 11/16in x 15 5/8in_0-white,
K-T14415-3-BV: faucet & cross handles_kohler_ purist widespread wall-mount bathroom sink faucet trim with cross handles and 8-1/4" spout_bv-vibrant brushed bronze,
K-6355-0: toilet_kohler_persuade- two-piece elongated dual-flush toilet with top-mount actuator and skirted trapway_12 3/8in x 28 3/16in x 32 7/8in_0-white,
K- 4636-0: toilet seat_cachet-elongated_14 3/6in x 18 5/8in x 1 1/8in_0-white,
PVC-1120: pvc-dwv-pipe_charlotte pipe_sch 40 pipe_1 1/2in dia._white,
PVC-4679: pvc-dwv_nibco_return bend_1 1/2in dia._white,
PVC-4807-LT: pvc-dwv_nibco_90 degree long turn elbow_1 1/2in dia._white,
C-LH04010: copper-supply pipe_mueller streamline_type L pipe_1/2in dia._copper,
C-638: copper-supply pipe_nibco_return bend C x C wrot_1/2in dia._copper,
&
C-607-LT: copper-supply pipe_nibco_90 degree elbow long radius_ L x 1/2in dia._copper.

Including no fixtures for bodily cleansing, the powder room has come to be defined primarily for guest usage, be it in the domestic or public setting. A powder room requires only a toilet, sink, and minimal storage for hand towels. The Powder Room takes on the synthesis of these programmatic facts. Handwashing following defecation or urination recognizes a strict construct, enforced by nosy onlookers and state-laws alike.

This powder room capitalizes on the intertwined and reciprocal use between K-20213-W and K- 3815-0, while challenging its ordering system—should one not wash their own hands to rid themself of the world's business before doing one's business? Capitalizing on both gray water usage and spatial dynamics, sink refuse directly enables human refuse. K-20213-W drainage is connected to the water supply for the flushing K-6355-0 through a playful piping infrastructure. Such a looping infrastructure becomes the perfect place not only to trap emissive gasses, but also the perfect storage for much needed hand-towels.



Multi Story, a Bathroom in Five Stories

3. Multi Story, a Bathroom in Five Stories

K-13688-G-RDG: showerhead_kohler_contemporary-round_8in_rdg-rose gold,
K-T14415-3-RDG: faucet & cross handle_kohler_purist-widespread wall-mount bathroom sink faucet trim with cross handles and 8-1/4" spout_7 1/2in x 8in x 3in_ rdg-rose gold,
K-14426-RDG: faucet_kohler_purist-35 degree spout_4in x 7 3/4in x 5 1/2in_rdg-rose gold,
K-14800-W: basin_kohler_vox-round_16 1/2in x 8in x 16 1/2in_0-white,
K-20213-W: basin_kohler_iron plains-capsule_33in x 6 11/16in x 15 5/8in_0-white,
K-894-F62-0: bath_kohler_reve-freestanding_66 15/16in x 36in x 22 1/16in_0-white,
K-T37395-RDG: drain_kohler_pureFlo-bath cable drain trim_3in x 2 7/16in_rdg-rose gold,
K- 4636-0: toilet seat_cachet-elongated_14 3/6in x 18 5/8in x 1 1/8in_0-white,
PVC-1120: pvc-dwv-pipe_charlotte pipe_sch 40 pipe_1 1/2in dia._white,
PVC-4679: pvc-dwv_nibco_return bend_1 1/2in dia._white,
PVC-4807-LT: pvc-dwv_nibco_90 degree long turn elbow_1 1/2in dia._copper,
C-607-LT: copper-supply pipe _nibco_90 degree elbow long radius_ L x 1/2in dia._copper,
&
C-LH04010: copper-supply pipe_mueller streamline_type L pipe_1/2in dia._copper.

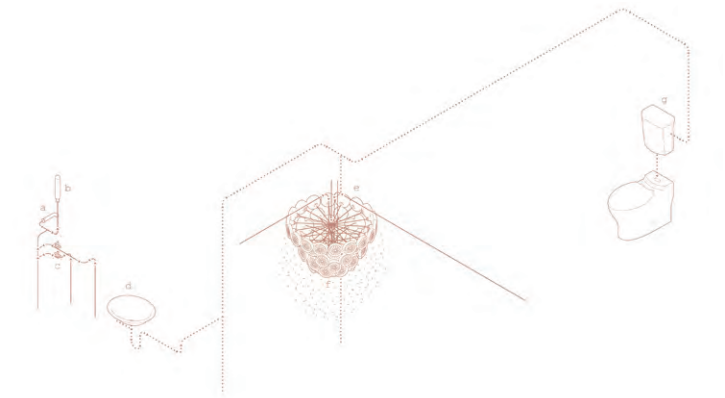
Multi Story, a Bathroom in Five Stories stretches the bathroom from its 5ft x 7ft 'roomedness' into the architectural scale. Capturing fantastic and playful water mechanics, an umbrella-like apparatus drives captured water into the first story—K-13688-G-RDG. Unused water continues its descent through the supply-railing. The second story poses K-14426-RDG as its main protagonist, a faucet, strategically positioned to deposit water onto the human face. From here, water continues its descent through C-LH04010 into K-894-F62-0 and K-20213-W, and finishes its extended journey at (4) K-13688-G-RDG as irrigation for a bathroom garden. Drained water is driven through sloped piping into a series of cisterns for daily water use and toilet supply.

Multi Story questions the relationship between fixtures, normalized by canonical and functional bathroom layouts. By displacing each fixture's proximity to one another through the use of the architectural section, Multi Story questions typological wet-wall ideologies while taking advantage of gravity as a most economical force recalled by the natural splendor and frugality of waterfall mechanics.

4. Wash Room, a Very Wet Room

K-965-AK-RDG: showerhead_kohler_purist- wall-mount_ 3 15/16in x 5 1/2in dia._rdg-rose gold,
K-13690-RDG: rainhead_kohler_contemporary-round_12in dia., rdg-rose gold,
K-T14490-3-RDG: control valve_kohler_purist-valve trim with cross handle_4 1/16in x 3 7/8in dia_rdg_rose gold,
K-T14501-4-RDG: control valve_kohler_purist-valve trim with lever handles_4 7/16in x 6 1/2in dia._rdg-rose gold,
C-LH04010: copper-supply pipe_mueller streamline_type L pipe_1/2in dia._copper,
C-607-LT: copper-supply pipe_nibco_ 90-degree elbow long radius_1/2in dia._copper,
&
C-611: copper-supply pipe_nibco_tee C x C x C wrot_1/2in dia._copper.

Wash Room, a Very Wet Room is all about washing—washing yourself, washing your dog, washing your feet, washing your butt, washing your toes… A deluge of faucets and piping infrastructures provide various and varying spouts, sprinkles, and storms available for both the user's washing pleasures and needs. This room welcomes the inhabitation of wet, damp, or humid natures.



The Ensuite, a Master Bathroom Plumbing Isometric

The Ensuite, a Master Bathroom

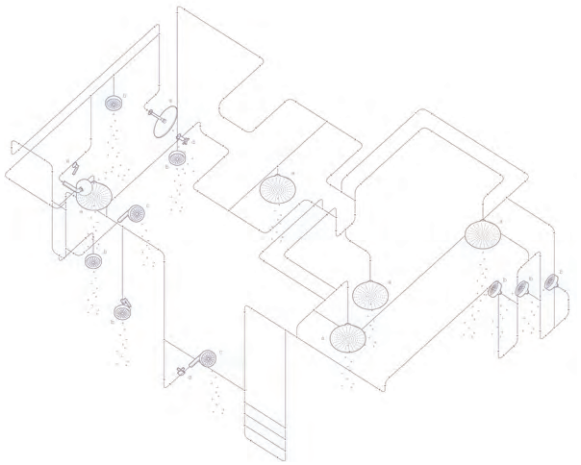
5. The Ensuite, a Master Bathroom

K-T73135-3-RDG: cross handle_kohler_composed- volume control valve trim_3 5/15in x 3 7/8in dia._rdg-rose gold,
K-9466-L-RDG: handle_kohler_cimarron-left hand trip lever_2 5/8in x 1 1/4in_rdg-rose gold,
K-14426-RDG: faucet_kohler_purist-35 degree spout_4in x 7 3/4in x 5 1/2in_rdg-rose gold,
K-T97328-4-RDG: bath filler w handshower_purist-floor-mount_7 15/16in x 12 1/16in x 36 1/4in_rdg-rose gold,
K-8336-0: bath_kohler_ceric-freestanding_65in x 31 1/8in x 22 7/8in_0-white,
K-2609-SU-RDG: basin_kohler_bachata_19 7/8in x 16 11/16in x 7 3/8in_rdg-rose gold,
K-6355-0: toilet_kohler_persuade- two-piece elongated dual-flush toilet with top-mount actuator and skirted trapway_12 3/8in x 28 3/16in x 32 7/8in_0-white,
K- 4636-0: toilet seat_cachet-elongated_14 3/6in x 18 5/8in x 1 1/8in_0-white,
K-22170-RDG: showerhead_kohler_purist 2.5 gpm multifunction _4 5/16in x 5 21/2in x 1/2in dia._rdg-rose gold,
K-965-AK-RDG: showerhead_kohler_purist- wall-mount_ 3 15/16in x 5 1/2in dia._rdg-rose gold,
C-LH04010: copper-supply pipe_mueller streamline_type L pipe_1/2in dia._copper,
C-638: copper-supply pipe_nibco_return bend C x C wrot_1/2in dia._copper,
C-607-LT: copper-supply pipe_nibco_90 degree elbow long radius-wrot_1/2in dia._copper,
&
C-619: copper-supply pipe_nibco_air chamber-wrot_1/2in dia. x 6in x 12in_copper.

The ensuite bathroom is a big selling point in the suburban real-estate market. A study of suburban tract-home plans observes that the ensuite or in-room master bathroom encompasses a comparable square footage to the master bedroom itself. In the style of Archizoom's No-Stop City, why not let the bath be the room itself?

This bathroom takes on the ideology of living large, if not lavishly through the pleasures of water usage, because well, if you can swing paying for this blue gold, why not? In The Ensuite, master bedroom becomes master bathroom. Bathroom fixtures, like furnishings, are disbursed throughout the entirety of the bedroom and connected to an intricate, yet spatial piping supply.

K-14426-RDG provides a water source for drinking or washing. K-2609-SU-RDG re-interprets a washstand's vessel. Faucet and basin disband from accepted relationships, proposing new habits for water usage and disposal. The washstand revises waste and flow mechanisms into flushing mechanisms, confronting users to their own subnature. Nevertheless, the master bathroom could not be complete without its exclusive K-6355-0 and a full-size K-8336-0 for each inhabitant. Of course, no overtly lavish room can be complete without its very own centerpiece. A shower chandelier, composed of (54) K-22170-RDG and (1) K-965-AK-RDG heads, marks a new style for washing—in the luxury of one's own bedroom.

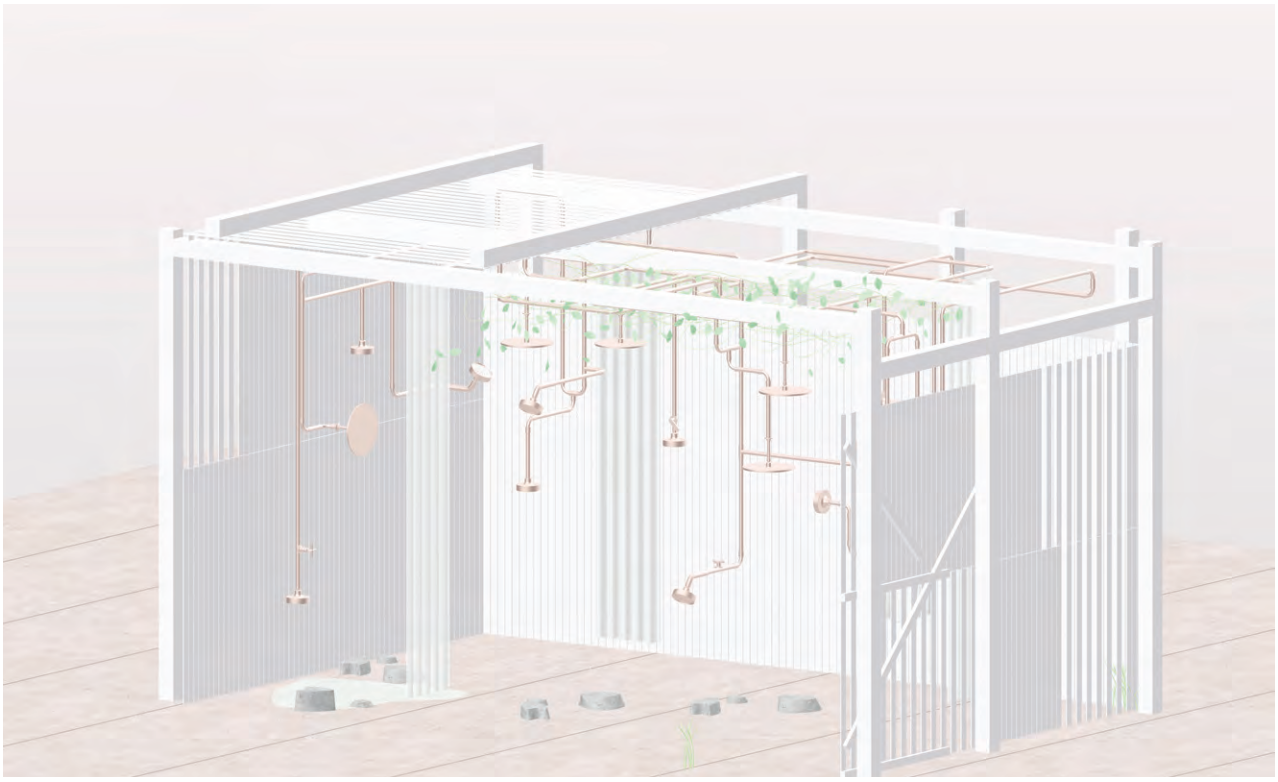


Wash Room, a Very Wet Room Plumbing Isometric

6. Lavatory, a Hygienic Dream

K-6355-0: toilet_kohler_persuade- two-piece elongated dual-flush toilet with top-mount actuator and skirted trapway_12 3/8in x 28 3/16in x 32 7/8in_0-white,
K-14800-0: basin_kohler_vox-round_16 1/2in x 8in x 16 1/2in_0-white,
K-2298-0: basin_kohler_compass-undermount_7in x 13 1/4in dia_0-white,
K-2661-0: basin_kohler_vox-square_ 16 1/4in x 16 1/4in_0-white,
K-22166-BV: hand showerhead_kohler_purist-2.5 gpm multifunction_3 7/8in x 5in x 11 3/16in, bv-vibrant brushed bronze,
K-8336-0: bath_kohler_65" x 31" freestanding bath with center toe-tap drain,
PVC-1120: pvc-dwv-pipe_charlotte pipe_sch 40 pipe_1 1/2in dia._white,
PVC-4807: pvc-dwv_nibco_90 degree vent elbow_1 1/2in dia._white,
PVC-4679: pvc-dwv_nibco_return bend_1 1/2in dia._white,
PVC-4812-LR: pvc-dwv_nibco_long radius combination tee-wye_1 1/2in dia._white,
C-LH04010: copper-supply pipe_mueller streamline_type L pipe_1/2in dia._copper,
C-638: copper-supply pipe_nibco_return bend C x C wrot_1/2in dia._copper,
C-607-LT: copper-supply pipe_nibco_90-degree elbow long radius_ 1/2in dia._copper,
&
C-611: copper-supply pipe_nibco_tee C x C x C wrot_1/2in dia_copper.

Lavatory, plays both on the cleanliness ideals of a handwashing basin and a laboratory. It is the bathroom of the germ adverse. This Hygienic Dream provides an idealized collection of basins. K-2661-0 allows for the upkeep of those hard to reach, low places, K-14800-0 is mounted at the standard handwashing height, while K-2298-0 adjusts for those higher up places. Lavatory deploys basins to welcome unorthodox washing if you've ever tried washing your face or simply a smelly armpit after a run and noticed a completely wet space that does not lend itself to these tasks.



Wash Room, a Very Wet Room

7. Thirsty Toilet, a Garden Outhouse

K-6355-0: toilet_kohler_persuade- two-piece elongated dual-flush toilet with top-mount actuator and skirted trapway_12 3/8in x 28 3/16in x 32 7/8in_0-white,
K- 4636-0: toilet seat_cachet-elongated_14 3/6in x 18 5/8in x 1 1/8in_0-white
C-LH04010: copper-supply pipe_mueller streamline_type L pipe_1/2in dia._copper,
C-638: copper-supply pipe_nibco_return bend C x C wrot_1/2in dia._copper,
&
C-607-LT: copper-supply pipe_ nibco_90 degree elbow long radius_1/2in dia._copper,

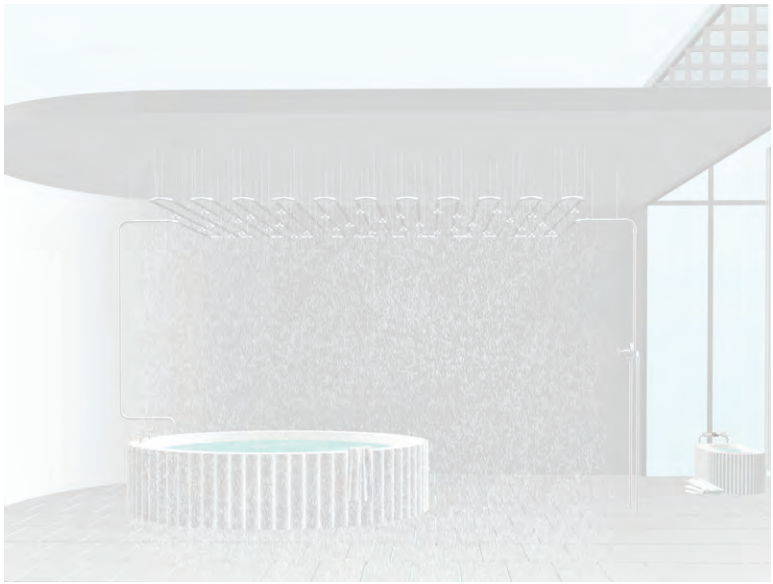
Thirsty Toilet consists of an umbrella-like apparatus which orients water capture to a centralized and water toilet fixture, K-6355-0. All overflow is routed downward through a playful cylindrically organized hodgepodge of pipes. Each pipe series has an outlet near the bottom which feeds the garden outhouse and grows its wondrous planting enclosure—leafy vines and grasses. The water moves through the architecture, composed of C-LH04010 and C-638 which is the water piping itself and then is let out at a series of C-607-LT. In essence, the architecture is a shaped water moving apparatus..

Thirsty Toilet, a Garden Outhouse

8. Full Bath, a Radiant Experience

K-20213-W: basin_kohler_iron plains-capsule_33in x 6 11/16in x 15 5/8in_0-white,
K-965-AK-VS: showerhead_kohler_purist- wall-mount_ 3 15/16in x 5 1/2in dia._vs-vibrant stainless,
K-14426-VS: faucet_kohler_purist-35 degree bath spout_4in x 7 3/4in x 5 1/2in _ vs-vibrant stainless,
K-T14429-3-VS: cross handles_kohler_purist- high-flow valve trim_3 1/2in x 4 3/4in_vs-vibrant stainless,
K-T14501-3-VS: control valve_kohler_purist-valve trim with lever handles_4 7/16in x 6 1/2in dia._ vs-vibrant stainless,
K-1183-0: bath_serif-drop-in_60on x 42 1/4in x 1 1/4in_0-white
C-LH04010: copper-supply pipe_mueller streamline_type L pipe_1/2in dia._copper,
C-638: copper-supply pipe_nibco_return bend C x C wrot_1/2in dia._copper,
C-607-LT: copper-supply pipe_ nibco_90 degree elbow long radius_1/2in dia._copper,
&
C-611: copper-supply pipe_nibco_tee C x C x C wrot_1/2in dia._copper.

Full Bath comments on the commodification of the bathtub as an expensive, central, and yet underutilized fixture within American bathroom typologies as well as real estate terminology. Full Bath radiates both water and thermal qualities running within its pipes onto the entirety of the room. Its radiant piping hovers above the tub and is dis-embedded from hiding within floor cavities. A series of K-965-AK-VS showerheads move water throughout the space suggesting interior weathers relative to the qualities of water running within its pipes. Hence, K-T14501-3-VS controls the temperature for not only the tub's water supply, but also that of the room's thermal environs. The bathtub captures such weathers as a combined moment for both shower and bathing while inviting collectivity of use due to a centralized location amongst a plentitude of showerheads. In the process, K-14426-VS is reduced to a small trickle for direct filling. The scale of its extensive radiant infrastructure allows for new domestic collectives and a return to thermal pleasures within our cleansing rituals.



Full Bath, a Radiant Experience

9. Water Closet, a Quarter Bath

K-45201-BV: showerhead_kohler_contemporary-round_8in dia._ bv-vibrant brushed bronze,

K-45212-BV: shower column_kohler_hydrorail_18in x 17 15/16in x 1in dia._ bv-vibrant brushed bronze,

K-22170- BV: showerhead_kohler_purist 2.5 gpm multifunction_4 5/16in x 5 21/2in x 1/2in dia._ bv-vibrant brushed bronze,

K-22166-BV: showerhead_kohler_purist-2.5 gpm multifunction_3 7/8in x 5in x 11 3/16in, bv-vibrant brushed bronze,

K-10124: shower arm_kohler_90 degree rainhead arm and flange_14 5/8in x 4 3/4in x 2 1/4in, bv-vibrant brushed bronze,

K-14427-BV: faucet_kohler_purist-90 degree spout_5 1/2in x 7 3/4in x 4in, bv-vibrant brushed bronze,

K-14426-BV: faucet_kohler_purist-35 degree spout_4in x 7 3/4in x 5 1/2in_vibrant brushed bronze,

K-T14415-3-BV: faucet & cross handles_kohler_purist-widespread wall-mount bathroom sink faucet trim with cross handles and 8-1/4" spout_ dims_BV-vibrant brushed bronze,

T-100006010: vinyl-supply-tubing_udp_1/2in dia_ clear

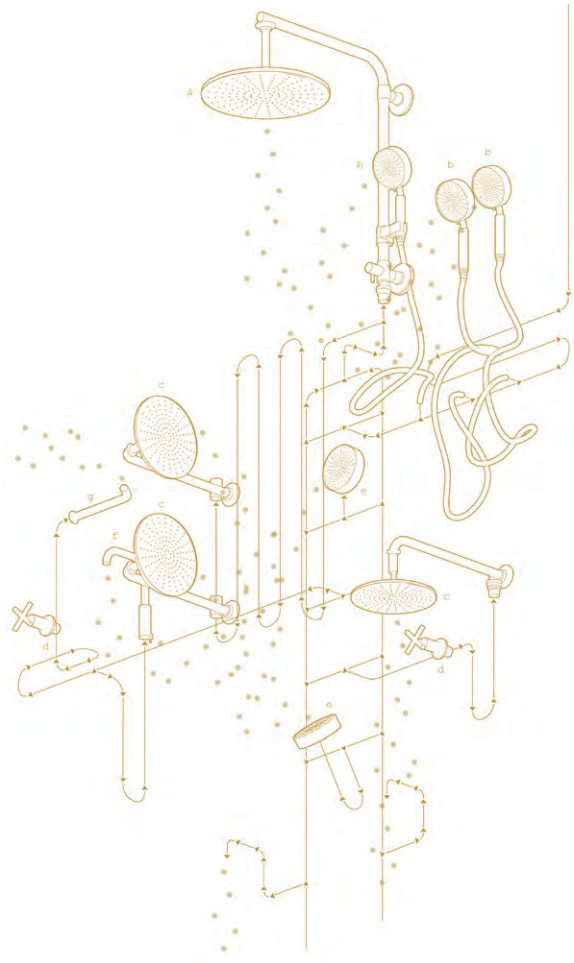
C-LH04010: copper-supply pipe_mueller streamline_type L pipe_1/2in dia._copper,

C-638: copper-supply pipe_nibco_return bend C x C wrot_1/2in dia._copper,

&

C-607-LT: copper-supply pipe_ nibco_90 degree elbow long radius_1/2in dia._copper.

Water Closet, a Quarter Bath consists of a series of fixture mechanisms within a single fixture. A hodgepodge of knobs and pipes control water output and temperatures. There is a plethora of options to choose from, some reminiscent of existing faucet typologies, some not—we provide no description for how these are to be used, but rather leave this up to the imagination of the user. Faucets and heads such as K-45201-BV, K-22170- BV, and K-14426-BV are placed at different heights and direction, and in excess of quantity—in doing so, challenging established norms for how we use these products and giving autonomy to the user on how they wish to use them. T14415-3-BV is reoriented and mounted well above established norms from finish floor height. One might consider a wash for the eyes, mouth, or nose, an armpit—or even a toe, challenging both the user's propensity to adventure and balance.



Water Closet, a Quarter Bath Plumbing Isometric

Water Closet, a Quarter Bath

Protocol Please

Jordan Laurila
Thesis Advisor: Ellie Abrons

Protocol lays bare the power of rule-based design as a means of production. It offers architecture an authorial model that cleaves agency away from the architect and onto the process and the executor of the idea. This project renders protocol, which is the procedural and evaluative standards, guidelines, and rules all in conjunction, as aesthetic proffers to architecture to transform 'architecture work' into 'a work of architecture'.

Sol LeWitt is cast as the progenitor of conceptual art, which through its inception, valorized the idea as the primary value proposition. The consequence is that the execution falls into perfunctory labor. There is the idea and then the physicalized form of the idea. By decoupling the idea and its execution, LeWitt laid bare the potential of protocol as a strategy for structuring process. A collection of rules provides the framework for creation. However, LeWitt's version of authorship through protocol amounts to a concretization of authority—this model should sound familiar to architects—even though this concentration paradoxically occurs by giving up execution.

Architecture as a systematically minded discipline already contains a history of protocol-bounded design. It occurs at the level of the individual, where personal taste meditates sensibilities. On a larger scale, New Urbanism conjures images of pristine communities, its foundation underpinned by form-based code (developmentary regulations fostering predictable built results.) The results, while idealized, also reveal the (political) problematics of its aestheticization. An algorithmic structure provides a framework to update how architecture might leverage protocol. LeWitt requires rote labor, but an algorithmic approach opens agency to the executor of the idea, to open notions of authorial control in an analog manner that straddles the pre-algorithmic and post-algorithmic. If architecture is to play into the claims of the postdigital, then it might be productive to indulge digital thinking to deploy protocol as a formal device, not for the sole sake of object fetishization, not for the sake of nuanced serialization, but in pursuit of the performativity of a process.

Architecture's future radicality relies on how we revise process into something beyond the mediation of ideas to form, but that process itself is an active agent within design, producing representations of architectural work, rather than some rehearsal of whatever instigating idea. This catalyzes the architect into adopting the role of manager, where the designer establishes rules and procedures, but the work is born by our digital tools. This is partly a reification of LeWitt's idea of The Idea but also the expansion of it.

Proposed Site Plan
The proposed site plan of LaLiLo, a portmanteau of the lifestyle phrase "Live, Laugh, Love," is the absurd attempt to produce a better version of a New Urbanist settlement, where code and protocol yields a diverse and singular product.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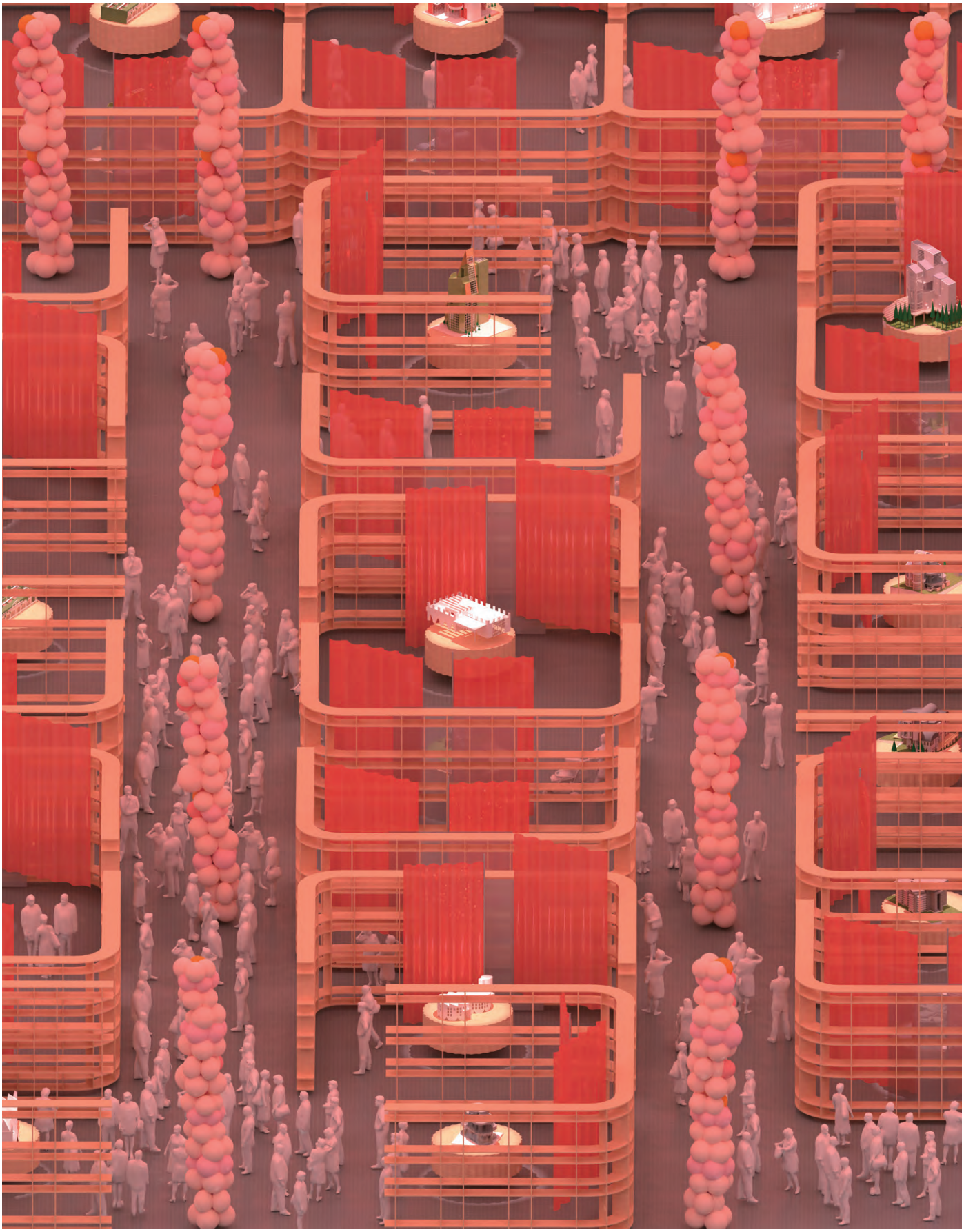
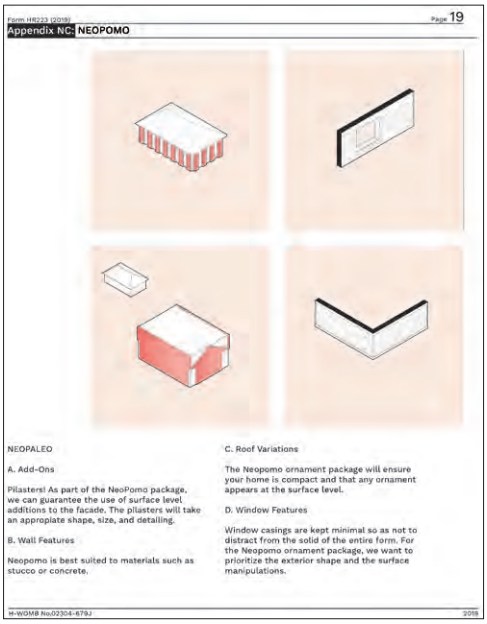
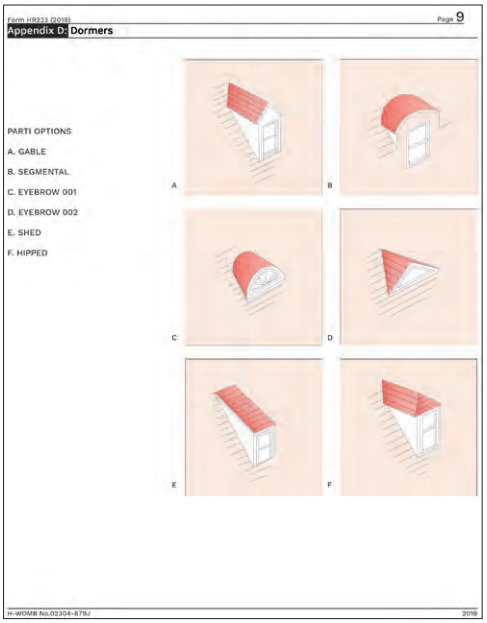
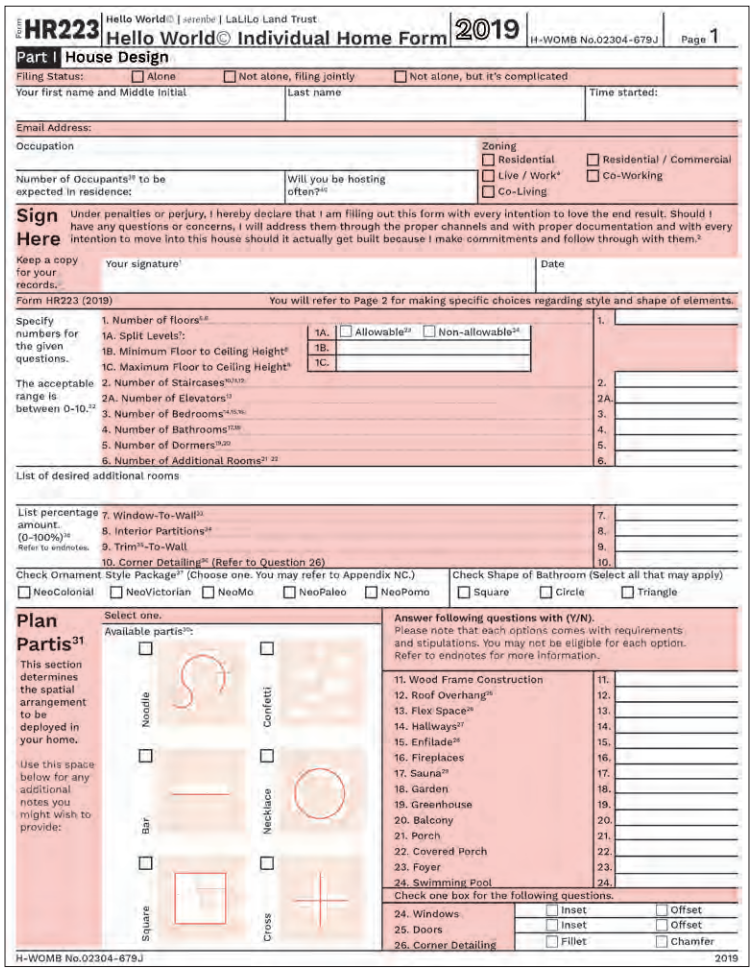
hip with the LaLiLo Land Trust







Parallel to the idea of techno-positivism is the notion of the techno-possible. To mine the embedded utopian tropes in New Urbanism is to indulge the limits and extents of what New Urbanism promised through the capabilities of semantic code. How might the interaction of New Urbanism and an algorithmically structured protocol remake the world in its vision, given the managerial rather than pure authorial interventions of the architect? Forego the techno-positivist in recognition, in curiosity, of the techno-possible. The site for explorations occurs in Serenbe, an in-progress New Urbanist settlement south of Atlanta. The parameters of New Urbanism's Form-Based Code provide the framework to co-opt existing protocols in an absurdist computational agenda: the street grid reorganizes to reflect Olmstedian concepts; the interaction of architectural folly to the individual disguises itself as entirely coincidental; the house facade adheres to stylistic decisions on column placement and color of materials; the specification of materials are confined to the option of one or two. These parameters are already latent with the potential for bastardization, and mimicking the structures of algorithms, however analog, can uncover unpredictable built results through protocol. Discretizing the architect from its protocol, from its executor, allows for the joint effort to unravel conventionality to witness what the extremes may be.



HR 223 House Form

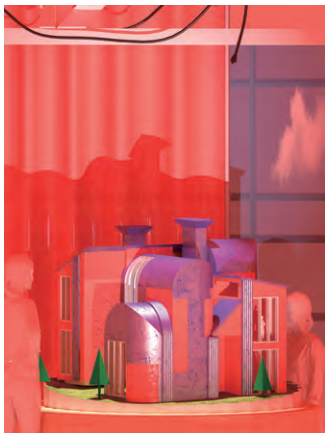
Commercial 1 c/o Nour Majzoub
User Selected Program:
Speakeasy & Bookstore
Establishment Name:
Get Lit

Commercial 2 c/o Siobhan Pierce
User Selected Program:
Tailor & Fitness Center
Establishment Name:
Needlepoint Fitness

Commercial 3 c/o Lindsay Jodoin
User Selected Program:
Coffee House & Co-Work Office
Establishment Name:
Checkmark Coffee Company

Commercial 4 c/o Anjalie Subramanian
User Selected Program:
Laundramat & Juice Bar
Establishment Name:
The Cleanse Shop





House 1
c/o Joshika Money

House 2
c/o Nour Majzoub

House 3
c/o Ibiayi Briggs



House 4
c/o Siobhan Pierce

House 5
c/o Nathan Echstenkamper

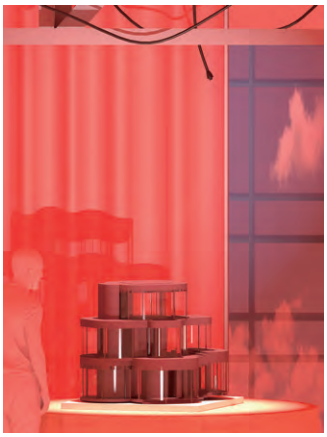
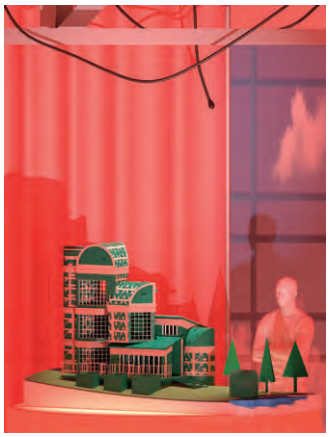
House 6
c/o Jad Ismail



House 7
c/o Stephanie Parris

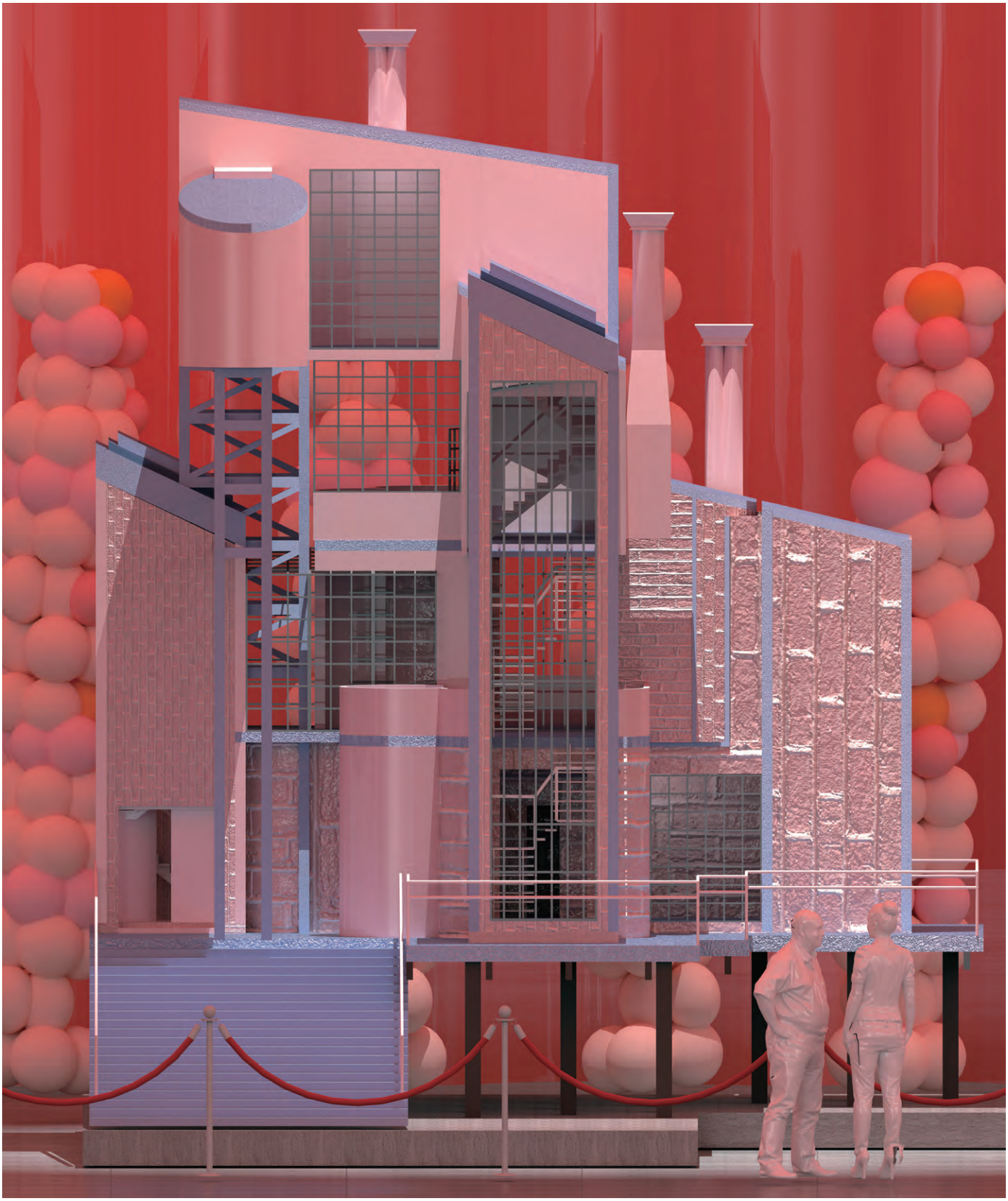
House 8
c/o Jenny Scarborough

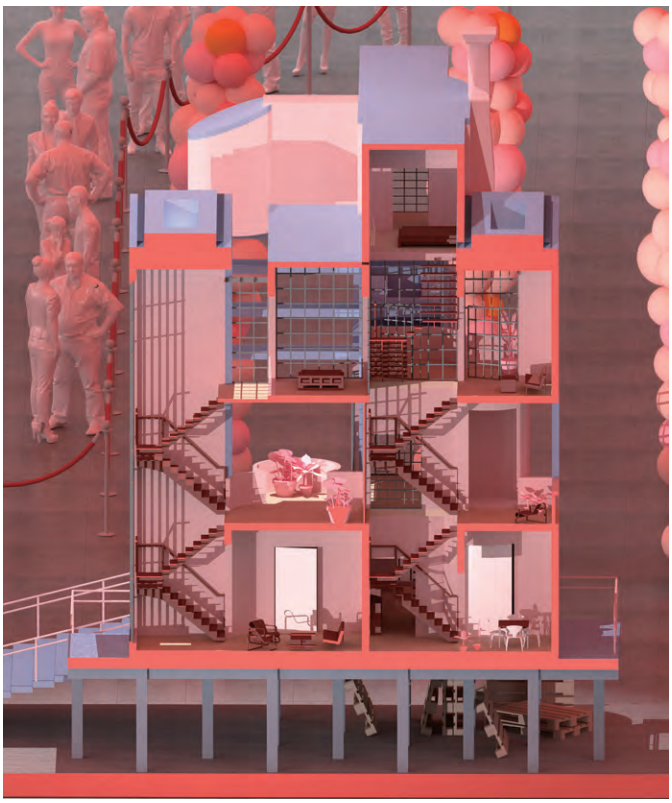
House 9
c/o Sarah Carter

House 10
c/o Moira Armstrong

House 11
c/o Hannah Cane





Model Home, Elevation
Buy Now!
Protocol Please presents architecture as consummable. House 2 debuts on the convention showroom floor.

Model Home, Plan
Build Your Dreams Today! Specify your dreams, down to which Pantone Color of the Year (2016 for House 2) speaks your truth, or how many corners should be smoothed out for you.

Model Home, Section
Live Your Truth!
The model home showcases the ideal variation to emerge from the Protocol Please, not in celebration of architectural form, but in celebration of what a protocol can produce.

Nader Tehrani: Discovering Sensibilities

Interviewed by: Liyah George and Abirami Manivannan

Nader Tehrani is the Dean of the Irwin S. Chanin School of Architecture at the Cooper Union in New York and a former Head of the Department at the MIT School of Architecture and Planning where he served from 2010–2014. Tehrani is also Principal of NADAAA, a practice dedicated to the advancement of design innovation, innovative material application, interdisciplinary collaboration, and an intensive dialogue with the construction industry. Tehrani's work has been recognized with notable awards, including the Cooper Hewitt National Design Award in Architecture (2007), the United States Artists Fellowship in Architecture and Design, and the American Academy of Arts and Letters Award in Architecture.

Nader Tehrani. Photo by: Leo Sorel, courtesy The Cooper Union

Dimensions 33
According to you, who is Nader Tehrani?

Nader Tehrani
That's a very hard existential question, isn't it? If I have to—I am a person who pays an extraordinary amount of attention to microscopic things—things you may imagine to be unimportant. And equally so, I dismiss a lot of things that you would expect me to pay attention to.

D33
What are you reading currently?

NT
I tend to hop from one thing to another. Right now I am reading the Stanford Anderson's book on Eladio Dieste—a compilation of essays with John Ochsendorf and several others. I am also reading Walter Isaacson's book on Leonardo Da Vinci in preparation for a roundtable with the deans of the School of Engineering and Art at the Cooper Union. I'm also reading essays by Sandra Kaji-O'Grady, a scholar in Australia who is dealing with the relationship between art, architecture, and the sciences in interdisciplinary studies.

D33
Which contemporary building do you admire the most?

NT
Oh, that requires too much of a commitment. Currently, I'm looking at the work of Robbrecht and Daem. They do a lot of very interesting projects and yet I'm not deeply familiar with their work, but I am now engaged in the work to give them a proper welcoming to Cooper Union. But as you well know, my admirations are quite eclectic, and even contradictory. By way of example, I do not go to restaurants for the general menu, but for a specific item on it. My admiration for certain architects and buildings is much the same...mostly dealing with a disciplinary condition and how it impacts the overall architectural question being posed: SO-

IL's shrink-wrapping of the Kukje gallery, the insistent typological madness of Pezo von Ellrichshausen, etc.

D33
If there is one favorite thing about being an architect, what would that be?

NT
I think it has to do with the possibility of occupying a projective space, meaning that you can create something that doesn't yet exist and for which there may be no precedent, something even obvious, and yet completely overlooked.

D33
And when you are doing that, what are the things you look to for inspiration?

NT
It is difficult not to draw from the world at large, from other disciplines—whether art, popular culture, theater, poetry, among other things, (but somehow that is obvious and even a cliché) but otherwise inspiration often comes in a state of the unconscious, those things that seep into a project in ideological ways. But strangely, I think the best work comes in a state of silence, when one discovers something during the design process, something entirely new, a coincidence that requires address...or even if it is something that already exists in the world in some fashion but acquires a new poignancy in a new context.

To be able to identify the right question is already in itself a moment of inspiration because then you are able to approach possible responses to it, strategies if you will. And in part, this points to the problem with 'inspiration' as an idea: if you are inspired by something willy-nilly

> **"To be able to identify the right question is already in itself a moment of inspiration."**

and are going to try to shoehorn it into a project in which it does not belong, most often it is because you are not asking the right questions to begin with. Thus, maybe inspiration should 'emerge' from within, rather than be projected onto?

D33
So when you say that you study an object, get inspired and create something similar, in pedagogy, what do you think is the right process for inspiration? Is precedent study an important part of the process?

NT
I am not sure if the study of precedent is done for inspiration per se, or if it is simply undertaken as good homework—if only to get the needed scholarship under one's belt, to better know the terrain on which you are playing. It is a way of stepping foot into a discursive space, better understanding the arguments of a building type, knowing the debates of a topic, or understanding how the relevance of a preceden. Architects like Preston Scott Cohen have relished in this form of "inspiration" and it is very different than looking at precedenct for legitimation.

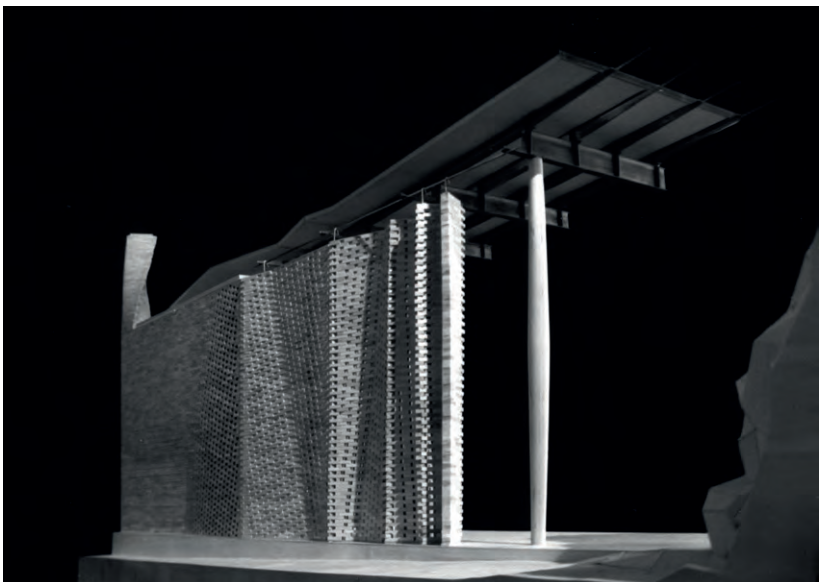
D33
Your firm NADAAA tackles a wide range and scale of projects across the field of design. Could you describe the studio's principles and design practice that define your work? How do you seamlessly switch between the diverse scale of projects, ranging from designing furniture to designs for the wider public?

NT

Not everything is translatable from one scale to another. You will notice as you go from the scale of an installation to a piece of furniture to a small piece of architecture, that there are certain themes that permeate between them. To name just a few, our focus is on the aggregate nature of tectonics: how buildings are not seamless, but rather the result of many discrete parts, whose aggregation is the very substance of architecture.

To focus on another, the kind of mono-materiality of a certain medium through which we work to radicalize that very tectonics has been part of our modus operandi: to examine how a material and its requisite systems of assembly transform as they encounter varied architectural conditions: grounds, wall, roof spans, etc. Both Casa La Roca and the Tongxian Arts Center were dedicated to these tropes. But also the Vero Dresser and Immaterial/Ultramaterial were committed to similar exercises at different scales. But there are things that don't just naturally translate across scales, for instance to planning and urban design strategies. To that end, I think it important to distinguish between the two modalities in which we often work as architects. Sometimes we design things—artifacts, objects, icons. Other times, we design systems, ways of working, and frameworks—and in this latter case, they are often designed for others to engage, adopt and use. When you design a policy or an urban design framework, you're effectively designing a set of constraints or parameters; not a thing, per se. And then others can participate in that framework.

Casa la Roca, NADAAA. Photo by: Office dA



I would say that if you look at the broader portfolio, you don't necessarily see a style in the strict sense of the word, but rather a sensibility that emerges from a series of 'operations' on materials and compositional strategies. We often work on an 'intellectual project' that extends beyond the limits of a physical projects, linking operations and strategies through different materials, modes of aggregation, and programs, as it were. As we navigate through this process, there are a series of questions that almost always engage us about the nature of an architectural artifact, its syntax, and qualities.

D33

You have talked about your interest in transforming practice towards what it can become tomorrow. In what ways has NADAAA played a part?

NT

I think our discovery, and focus on, the question of 'means and methods' was a critical part of what we did to help transform practice: that is, to go beyond design intent and address the precise architectural means through which a project is deployed. We linked design back to construction and in turn, we stumbled across a legal clause that is aimed at disconnecting the two. We came to realize that from a legal perspective, architects don't have a ground to stand on with respect to how things are built, only what they look like. Not entirely impotent, but from a construction perspective, very limited. So our first point of departure was to recognize that we maintain an ethical relationship not only with what design looks like, but how it's built, how it is conceived in relationship to resources, and how its part-to-whole relationships foster an important understanding of architecture as a discipline. To understand the legal ramifications of this conundrum, I think entering into the means-and-methods discussion is important, especially if you see the production of new forms of knowledge to be a disciplinary imperative.

Other aspects in which we have played a significant role: as the practice was evolving towards digital protocols, our focus was primarily rooted in processes of digital fabrication rather than visualization. Twenty years on, this no longer seems transformational, but it is actually an extension of the means-and-methods argument insofar as the techniques that would have once been held by trades and crafts have migrated towards robotic protocols. This has enabled a new form of specification, a renewed access to craft, and in turn, mass customization. Thus, much has yet to be unearthed about digital and computational potentials, and we continue to participate in this evolution.

Also, the kind of insularity of the office as a space of design, whether individual or collaborative, has expanded globally. So as we worked in India, China, and Korea, obviously the role of the Internet and platforms for communication allowed us to practice across time zones, languages, and cultures. And again, none of these things sound strange in retrospect because we have normalized them in terms of what we do as a discipline, but they weren't conventional before. These were all things that required thresholds to be crossed.

I think one of the more challenging things has been how to translate the centrality of authorship from an individual to a collective. But to do that in a way that is not prescriptive, nor a recipe prone to cliché means that everybody in the office or everybody who's in the driver's seat at the office needs to participate in a critical discursive space in which the molding of questions is as important as the molding of projects—formally, spatially, and materially. And so that remains challenging because people come and go, and mentorships fluctuate, and mentalities change generationally and institutionally. But practice has changed a lot around us and the context in which I usually talk about the changing nature of practice is to make a claim that if we prepare a student for practice today, by the time they graduate, the practice will have changed around them, so in effect, you would be preparing them for nothing. So the real question is how do we prepare students to think critically in a state of uncertainty, for as certain things become obsolete, we can only educate them for thinking critically, with strong intuitions, and an ability to improvise: these may be the only certain things out there.

> **"As an architect, you become highly self-conscious about the role of these buildings—what function they play beyond being programatically fit: to serve a didactic function, to illustrate, to embody, to serve as example."**

D33
You have worked on several academic buildings particularly architecture schools; like Melbourne School of Design at the University of Melbourne; and the Daniels Faculty of Architecture, Landscape and Design at the University of Toronto. Being an integral part of education, how do you think these 'spaces of learning' influence architecture as a discipline and how do these spaces affect pedagogy?

NT
Well, it's nothing less than life-changing for us because we were able to take on three schools of architecture, which means that we needed to collaborate with and confront three cohorts of students and faculty, all of whom are client groups that are wholly intelligent about a medium in which we're all participating together. You can't necessarily say that about other commissions. So that is at once challenging, humbling, and pleasurable. But because of that, it also means that the individuals that occupy those buildings are extraordinarily literate. And that means that these are not just spaces of pedagogy; they're also didactic instruments. The faculty and students know how to read every detail, whether generic or customized. Thus, as an architect, you become highly self-conscious about the role of these buildings—not so much whether they are

good or bad—but what function they play beyond being programmatically fit: to serve a didactic function, to illustrate, to embody, to serve as example. The way that they're inhabited, the way that they're viewed, they are pedagogical instruments. In the context of Georgia Tech and MSD, the suspended structures became such architectural moments, not to serve as spectacles per se, but to participate in the way in which the structural discipline becomes implicated in the design process, transforming the potentials of the space. The same is true of the vaulting system in the Daniels, where the structure, day-lighting, and hydrology of the building are brought into confluence in one single act.

But we're also very conscious of the moment in time in which we build something; the particular technologies and methods in which we build will also become obsolete within years...just as we have witnessed in buildings of the 19th century or those of the mid-20th century. And so often what you're forced to ask is: What constitutes a paradigmatic response to a certain set of questions, such that even when the building is no longer of your time, it is posing questions that have a lifespan which is much longer than the period in which they were conceived?

Nader Tehrani sketching with students during a Taubman College Practice Session event

D33
How important is it to question your own design process in a world where media and technology offer so much flexibility?

NT
I think it's an interesting question. I would have argued that the design process has always been important, no matter what media we were using, even independent of the design results. That is not to suggest that process and end results are not related, nor instrumental to each other—indeed, sometimes they absolutely are. In that sense, media and technologies have transformed much of what we do radically.

So far as we are interested in pedagogy though, the academic mission is as much about process, methodology, and the logic behind things as it is the actual thing itself. But the interesting part about your question has to do with the way in which certain media have facilitated design processes such that others who are not architects can participate in the same process of design that does not require an expert per se. And once you give this kind of open access to everybody, it would appear that anybody can design.

In recent years, Architecture has featured prominently in popular media. *Time magazine, CNN, Dezeen, Archinect,* etc.; the plethora of images out there is overwhelming and much of it is focused on spectacle. And yet, not all of it is that great, but it requires a discerning eye to comb through it all. And so I think that the media has forced us to consider a bit more critically what constitutes the difficulties of a synthetic work that is not reducible to an image...or the degree to which problems of integration, inhabitation, experience, and those things that are not recordable optically amount to what we can achieve as architects. Part of that means that some of the greater architects are operating in a slightly different state than what you see out there in the common media, in a realm beyond the reach of the image.

D33
Also talking about visual images and how in the current world projects, architectural projects are photographed, what is your opinion on the presence of people in architectural images?

Nader Tehrani speaking during a panel while visiting Taubman College

NT
The presence of people in architectural images has waxed and waned over eras. Human presence has been used either as an index for scale in some instances, or as a substitution for architecture itself. When architecture is weak, the omnipresence of people has—happy people particularly—has been a substitute for content in architectural terms. In architectural photography, we have seen some of the beautiful photography of the case study houses in their profound isolation, recording raw architectural phenomenon—and we know how beautiful that can be. We have also seen some of the same case study houses with people in them, in my mind setting up a critical relationship between design and fashion as part of the total equation: a total environment—gezumtkunstwerk—an image within which all is designed, the human being, the furnishings on which she sits, and the total architectural environment.
But I think that if you look at contemporary architectural photography, probably Iwan Baan is the only person who has changed the game somewhat: not only recording things from different perspectives once unreachable, but also recording environments where human occupation comes into tension with the very forms and spaces of architecture being depicted.

D33
The three basic trends which are reshaping cities right now and will be reshaping them in the future are climate change, urbanization, and increase in computing power. In that context, what do you think the future of architecture will be or can be?

NT
The environmental questions that we are confronted with have been fashioned in two ways. One is the claim that we're in the age of the Anthropocene where human occupation of the globe have made it such that its fate will be determined by our own treatment of the globe. And so architecture can participate in that by understanding the relationship between the discretion of formal, spatial, and material decisions in confrontation with policy, or vice versa.

And then there are things that have to do with the geological history of the globe over which we have no control. Even before the significance of our footprint, that the existence of storms, hurricanes, volcanoes, and other forms of events were something that we would have to contend with. And architecture did contend with those in its own molecular way in the face of such geological and geographic phenomenon.

“If architecture does not seize the potential of this access to information, and its requisite knowledge, then we will be missing something critical of our age.”

Melbourne School of Design, NADAAA. Photo By: John Horner

Curiously, these three things, climate change, urbanization, and increase in computing power, as a phenomena, coincide in a poignant way: on the one hand, over the past two centuries humans have undertaken global projects of such magnitude in the name of progress, that we have also succeeded in creating such an impact that it has the ability to undermine the very climate that creates the ecosystem for our existence. On the other hand, we have also created technologies and computational protocols so intelligent that we are able to measure and detect global phenomena that, just years ago, we would have deemed inconceivable. As such, if only twenty years ago, our understanding of territories occurred through urban analysis to better understand the city, now we have systems of computation that can deliver data about territories that are transnational, meteorological, oceanographic, and climatic that are so vast that they can only be measured in global terms. Thus, the term urbanization seems almost antiquated in comparison to the scale we have impacted, the regions we can now measure and the globe that is now our city. If architecture does not seize the potential of this access to information, and its requisite knowledge, then we will be missing something critical of our age.

The Interval of Territory

Real Property's Prompt for Architecture

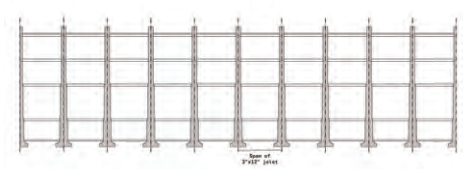
Gabriel Cuéllar
2018-2019 Willard A. Oberdick Fellow

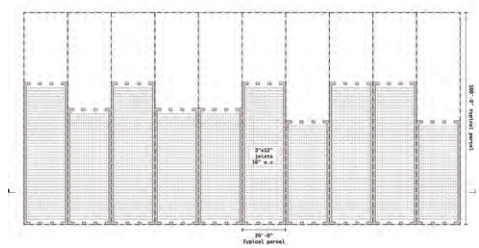
Real property, commonly referred to as "land," is one of the foremost infrastructures responsible for the performance of the environment. While significantly legal in character, real property is equally spatial. Although it cannot be observed with the naked eye, its governance is manifold. Real property, a wholly describable set of features and practices, is institutionalized to the degree that architects rarely distinguish its rule. Real property performs on and imbricates a multitude of matters, but its organizational reach extends primarily *vis-à-vis* intervals of land. Through discrete and interminable "parcelization", surfaces, volumes, and temporalities of earthly material are mobilized to expedite social relations of human societies. These intervals ultimately predispose the environment and situate how resources are conceived and classified.

The global patchwork of parcels has arguably determined some of the basic categories of architecture. Consider the client, site, and envelope. Without a commissioning landowner, for whom would an architect work? Without a guaranteed plot of land, where would architecture situate itself? If there were no property lines, where would architecture stop? Indeed, what would architecture be without these categories, in great part originating in the real property medium?


1
2
3
4
5

The typical American urban parcel measures 20'x200'. This dimension originates in the 19th century standard lumber. The largest commercially available member—a 3"x12" Douglas Fir floor joistwas capable of spanning 20 feet under commercial loads. Used pervasively in urban building construction, this joist inaugurated the standard open-span interval for property in the United States.





Interests

The system of rights that activates land can be documented, analyzed, and designed as a way to access power structures that govern architecture. Having spatial, material, temporal, and relational characteristics, the interest pertains to all forms of real property and is therefore a means through which to speculate on new architectural and legal configurations, and potentially alter land's underlying politics. Owing to the multitude of actors playing by the same, accepted ruleset of land interests, vast legal-spatial geographies are available for revision and amendment.

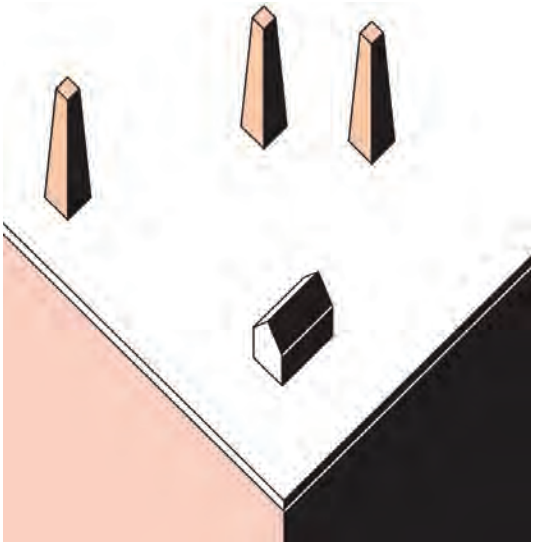
The exhibition presents a salvaged 19th century floor joist and ten physical models of paradigmatic property cases. A ten-minute film charts out five design approaches that seek to contend with our land boundedness. These address carbon economies, the geography of migrant workers, gerrymandering, housing, and property taxation.

Create Interests

The creation of a class of interest generates a new geography of values and uses superimposed onto existing legal landscapes. Such geographies may serve to exploit the four-dimensionality of property or implicate appurtenant resources, such as building materials, biomass, or ecosystem services, in the real property regime.

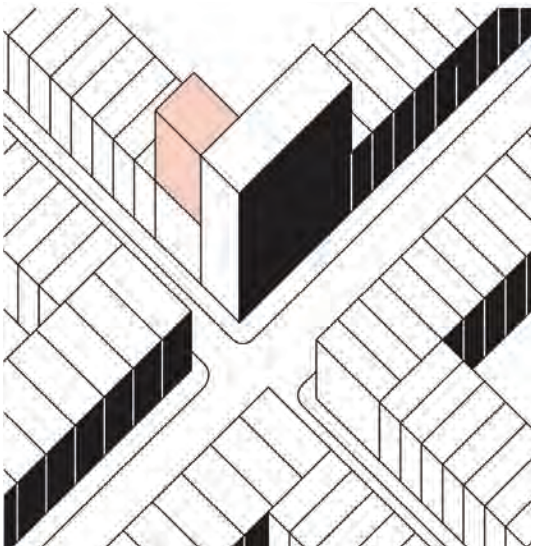
Texas Severance

In the State Constitution of Texas ratified in 1869, the law allowed for the land surface to be "severed" from the subsurface. This three-dimensional operation to the property enabled valuable oil wells to be sold and traded separate from the surficial land use, ending the unified estate of surface and subsurface.



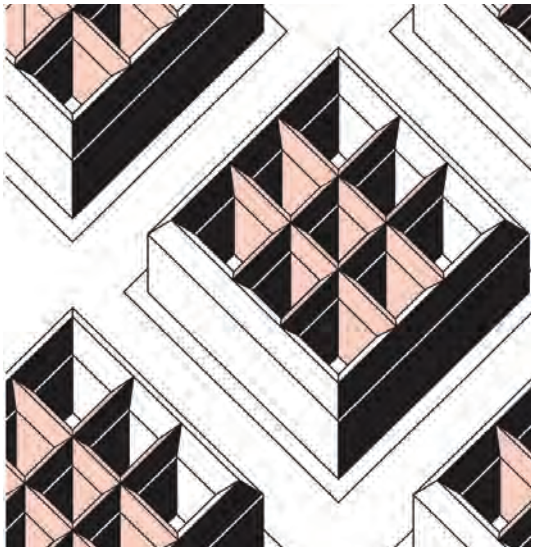
Air Rights

1910 air rights transfer in Cleveland, Ohio for the city's Cleveland Athletic Club. The company bought the air rights from an owner of a commercial building that was only five stories, which allowed the Athletic Club to add eight stories to its building. (For more on this case, see "Information Report 186" from the American Society of Planning Officials, 1964)

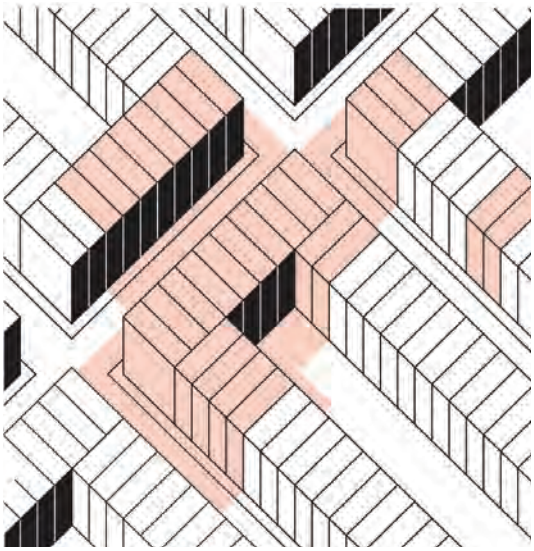


Articulate Interests
The articulation of interests involves the rescripting of property by subdivision or legal-social requalifications. Within any given parcel, interests can be spatially and temporally reorganized without altering overall property boundaries. Existing parcels can be diversified with new non-possessory and concurrent interests, such as easements, usufructs, or new parties/owners.

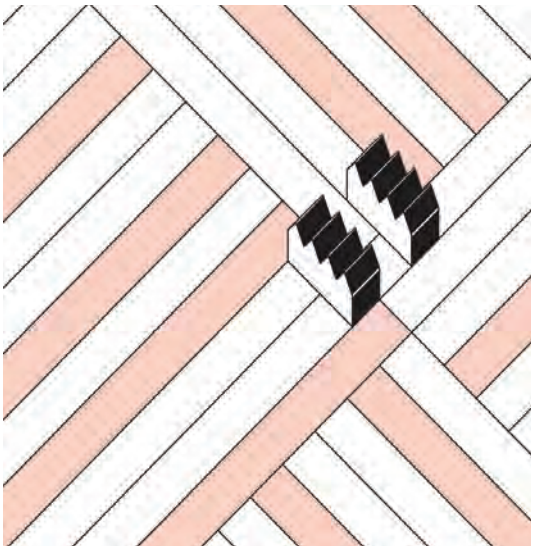
Mid-block Development
The presence of relatively few streets in the city of Berlin resulted in large urban blocks that accommodated unprecedented mid-block development. The availability of landlocked parcels inside the block facilitated the creation of housing and working quarters at reduced rates, due to the lack of street frontage.



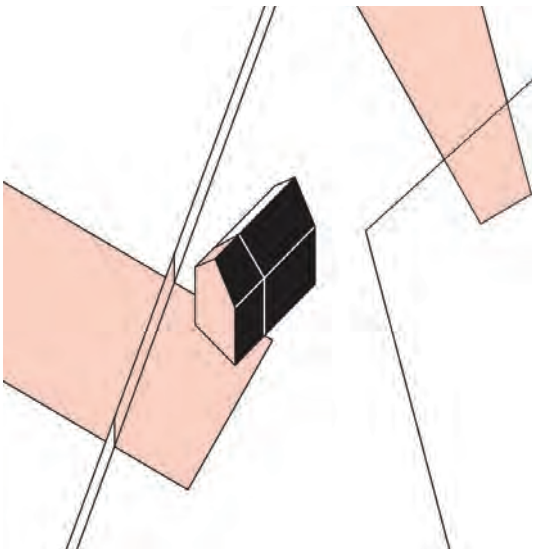
District
Governments draw and impose jurisdictions in order to change how a property operates. Historic Districts change the behavior of land and architecture. Business Improvement Districts accelerate financial transactions.



Medieval Semi-commons
Villagers in British towns held private, but scattered strips of agricultural land. This was a means to prevent favoring/disfavoring of the collective sheep grazing that occurred across their fields. In this case, fragmented private interests were overlaid with a limited–access common interest over the whole town. (For more on this reference, see Henry E. Smith, "Semi common Property Rights and Scattering in the Open Fields" in *The Journal of Legal Studies*, Vol. 29, No. 1 January 2000, pp. 131-169)

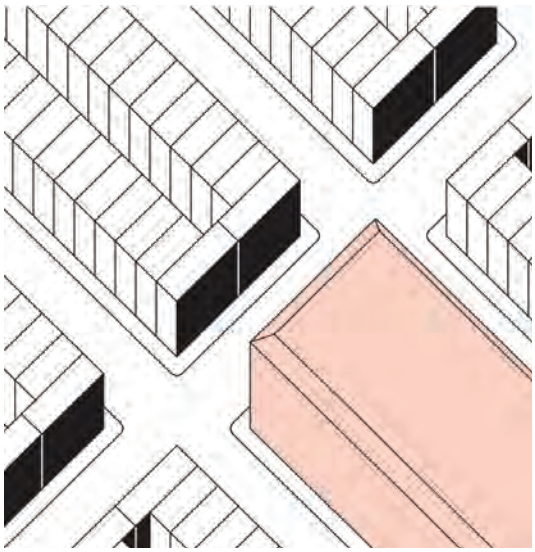


Early Afro-American Landholdings
Ex-slaves were reluctant to have fully separate contiguous parcels; they claimed scattered pieces of land and shared portions in between. The practice defied the normative Anglo–American model of clearly defined rectangular boundaries and ownership. (For more on this reference see Gabriel Cuéllar, "Subversive Real Estate: The Landholding Patterns of Black American Churches" in *Unsettled, Ed Wall*, ed., Routledge forthcoming in 2019.)

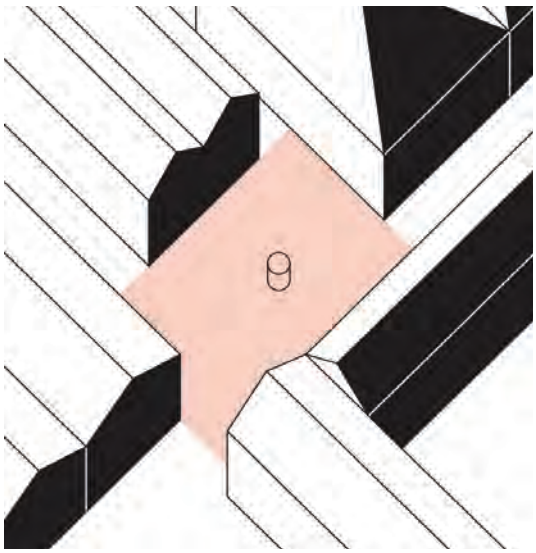


Fragment Interests
Fragmentation of property involves a geographic or legal scattering of interests. This has the effect of complicating possession and the extraction of economic rent, due to the contingency involved in managing non-contiguous portions of a parcel. This protocol, historically employed to steer socio-spatial practices, has the potential to proliferate access to land interests.

Economies of Scale
In 1899, Washington, D.C. limited the height of buildings to a maximum of twenty feet higher than the width of the right-of-way. Since the city's 20'x100' lots could not be developed to profitable square footages, developers bought multiple parcels and constructed new, large buildings. This transformed the city's fine-grain spatial and ownership patterns.



Resource Pooling
The small plazas of Venice, Italy are actually surfaces pooled together by adjacent landowners to harvest rainwater. Water flows to a central common well that provides more water than what owners would obtain in individual courtyards. Private benefits were thereby best achieved through cooperative behavior.



Consolidate Interests

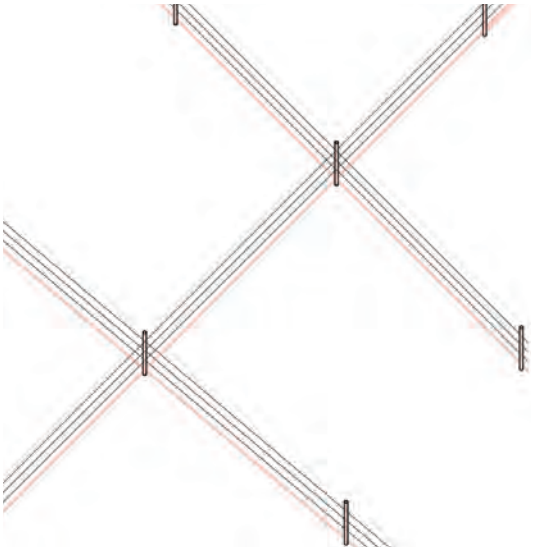
The consolidation of property involves the physical aggregation of separate parcels or interests therein. This protocol can serve as a form of an insurance policy or strategic legal exemption because resource pools buffer external regulatory, environmental, and financial factors. Cooperative behavior, however, has higher management costs.

Property Technology

Technologies of property are external disruptions that cause the variables of the land regime to change. They may be legal, economic, or architectural. They do not directly impact property or the law itself, but, due to their disposition, reconfigure the dynamics of property transactions and the costs and values associated with possession and use.

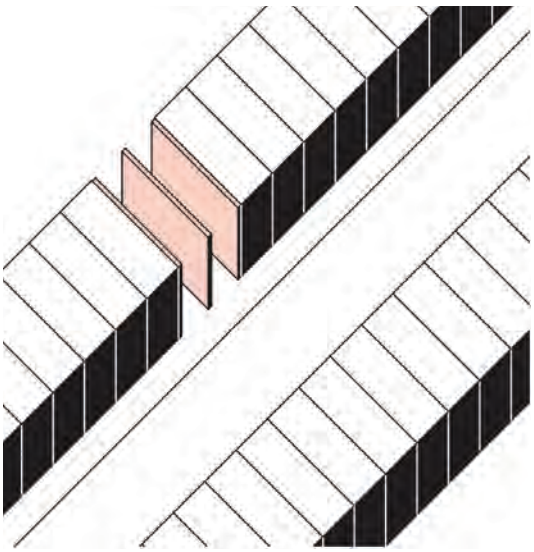
Barbed-wire Fence

Prior to the invention of the barbed wire fence, land division in the western territories of the United States was cumbersome. Although no laws were changed, the fence's design allowed cheap and quick land subdivisions. As a result, significant parcelization occurred in western ranch lands. (For more on this reference, see Robert Ellickson, "Property in Land" in The Yale Law Journal, Vol. 102, No. 6 April 1993, pp. 1315-1400)



Party Wall

After the Great Fire of London in 1666, authorities required the construction of masonry walls between houses to prevent the spread of fire. The wall became an architectural device to also delineate property lines. Today there is a substantial dispute over who owns what portion of the wall and is responsible for its upkeep.



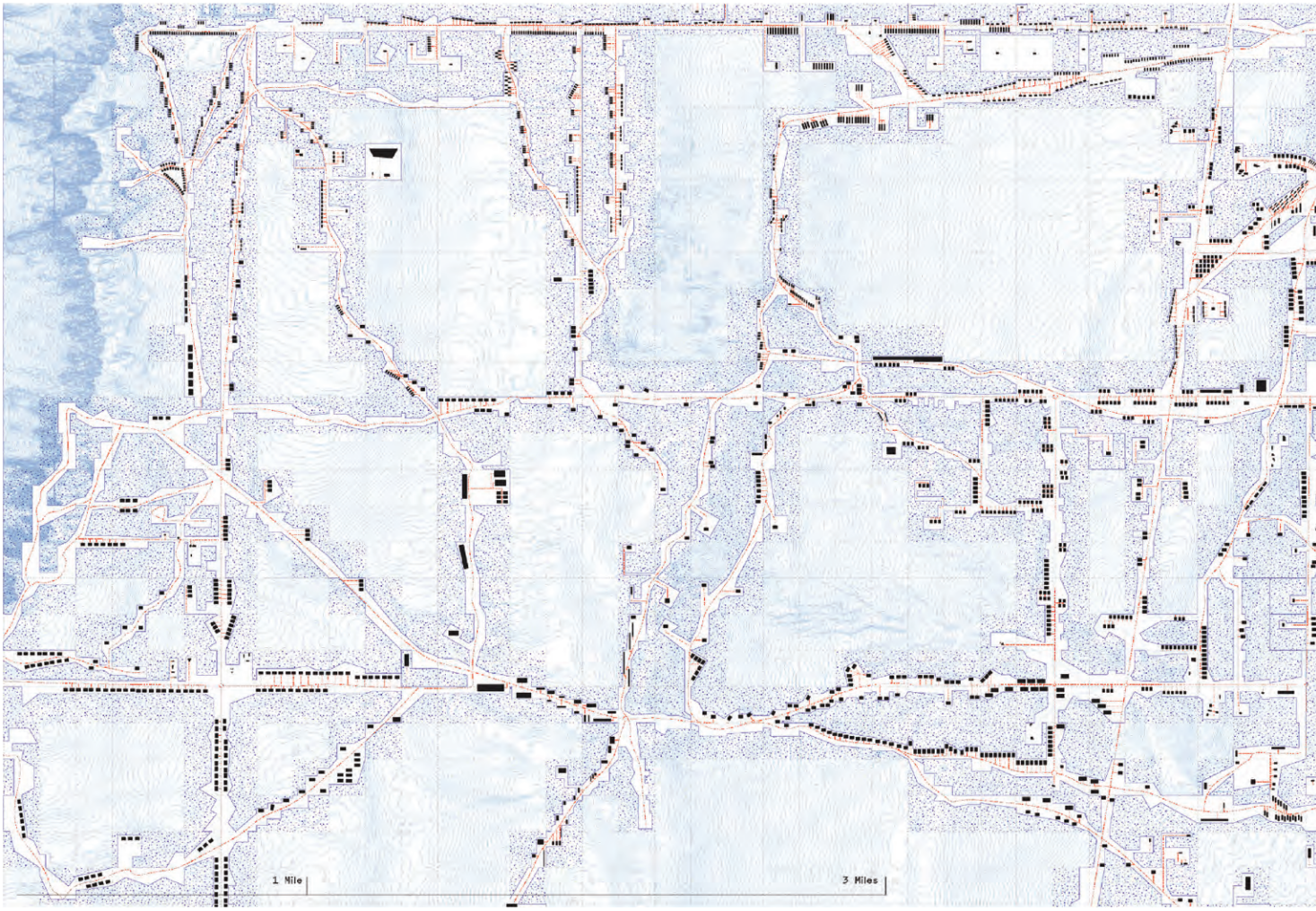
Glossary
On the right are 71 keywords contributing to an understanding of the role of property of architecture.

ADVERSE POSSESSION
AIR TRACT
ALIENATION
ANTIPROPERTY
ARTICULATION OF INTEREST
BLOCK
BLOCKCHAIN CADASTER
COLOR OF TITLE
COMMONS
CONCURRENT ESTATE
CONSERVATION
COVENANT
CREATION OF INTEREST
CUSTOM
DEDICATION
DISTRIBUTION
DISTRICT
EASEMENT
ECONOMIC RENT
EFFICIENCY THESIS
EQUITABLE SERVITUDE
ESCHEAT
FEE SIMPLE
FEE TAIL
FENCE
FORMAL RIGHTS PROTECTION
FOUNDATION
FRAGMENTATION
FUTURE INTEREST
GIFT
HENRY GEORGE THEOREM
HOLDOUT
HYPOTHECATE
IMPROVEMENT
INDISCRIMINATE LOCATION
INFORMAL RIGHTS PROTECTION
INHERENTLY PUBLIC INTEREST
JURISDICTION
LANDLOCKED
LEASEHOLD ESTATE
LICENSE
LOT COVERAGE
MINERAL TRACT
MONUMENT
NON-USE UTILITY
NONPOSSESSORY INTEREST
NUISANCE
OFFICE OF OWNERSHIP
PARCEL GEOMETRY
PARTIAL LAND INTEREST
PARTY WALL
PLOTTAGE
PRICE
PROFITS À PRENDRE
PROPERTY
QUITCLAIM
REMAINDER
RESERVATION
REVERSION
SANCTION
SCATTERING
SEMICOMMONS
SETBACK
SUBDIVISION
SURVEY
TAKING
TENURE
TERRITORY
UNIT-OF-PROPERTY
USUFRUCT

Desert Currency

Malcolm Brom and Lejia Li
Wallenberg Critic: Gabriel Cuéllar

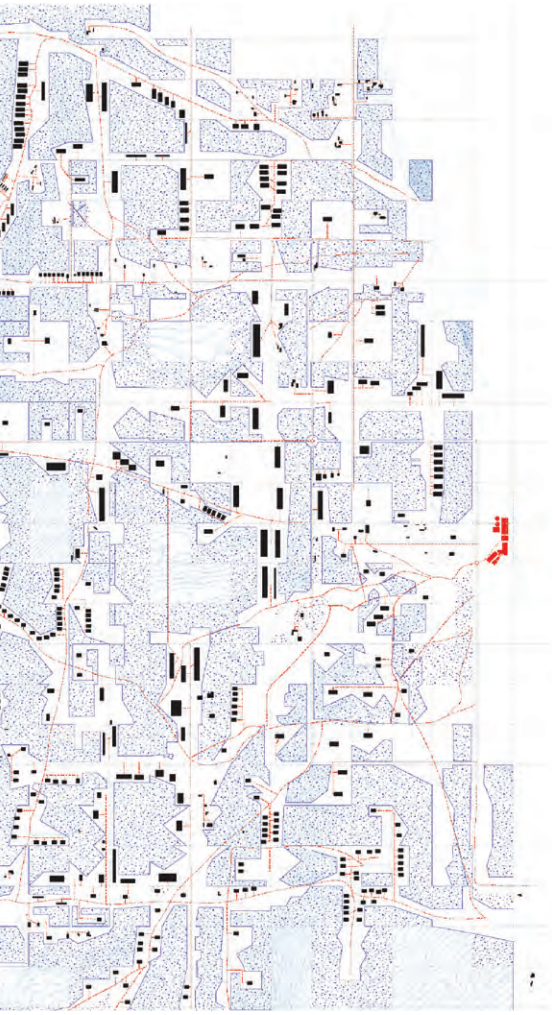
Jurisdictional boundaries are geosocial devices that measure and control the terrain economically and strategically. The project focuses on Pajarito Mesa, New Mexico, an unincorporated territory that is selectively underbounded by the city of Albuquerque. Because there is no formal local government for Pajarito Mesa, the site which is a vacant land and private property, is currently an illegal dumping ground with no infrastructure and high vacancy. While these characters are commonly perceived as negative factors, the proposal attempts to alleviate the precarious living conditions of the community by exploiting loopholes in property systems, activating unwanted resources, and leveraging the value of the land. The three interventions—a resident-operated land trust, a landfill-mine, and an infrastructure system—will create an urban fabric that is more democratic, environmentally sustainable, and allows for the preservation of the desert identity.

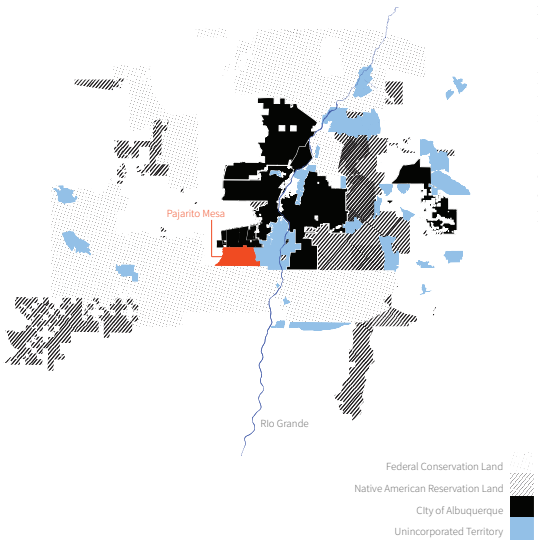


Land Rights

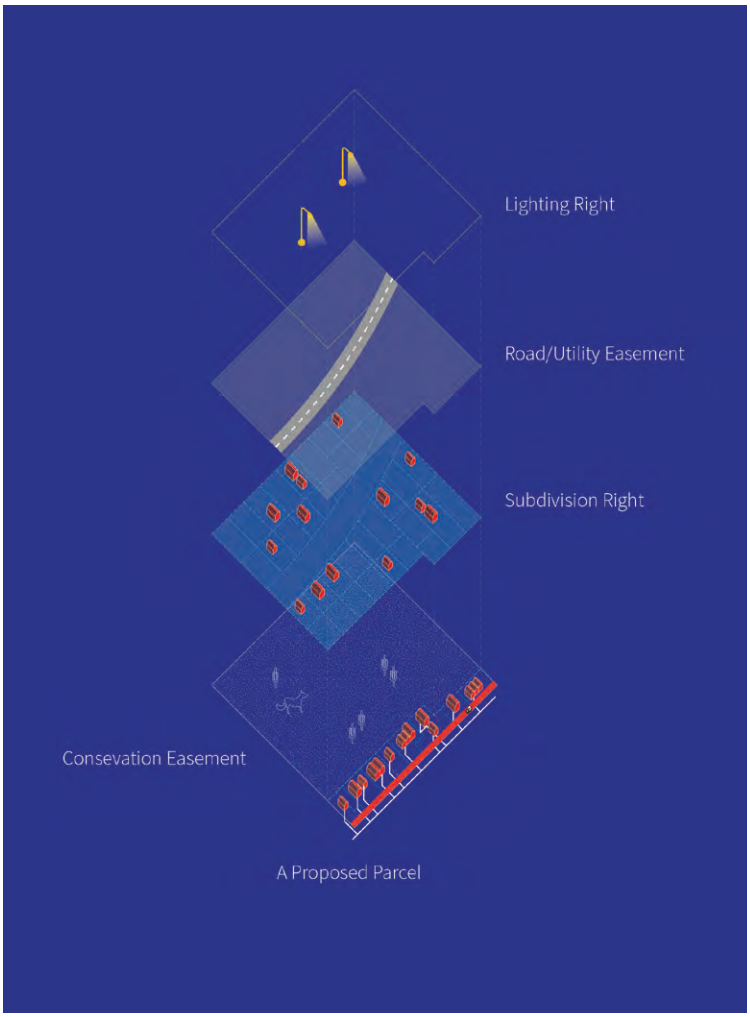
Land Rights can be held in trust by third parties; farming communities in New Mexico often have a trust where residents sign developments of their land to a trust which ensures the land becomes permanently dedicated to agricultural uses, preventing small farmers from being pressured to sell their land to real estate developers trying to perpetuate suburban sprawl. Property owners could dedicate the development rights of specific, contiguous sections of their property to this land trust for ecological preservation. The land cannot be built upon, cannot be farmed, used for hunting, or mineral extraction. No roads, powerlines, or pipelines can be built through them. The collective dedicated land would form a network of environmentally-protected desert comparable to the area of neighboring state and national forests.

As the proposed system matures, large portions of vacant land will become a part of the conservation system by default and the value of land at the edges will increase, leading to dense development along the now-developed roads built upon the informal road system. The overall pattern creates an alternative urbanization pattern to the standard practice of suburban sprawl. Less land will be required to house people and businesses and they will still have access to the vast openness associated with living in the desert.

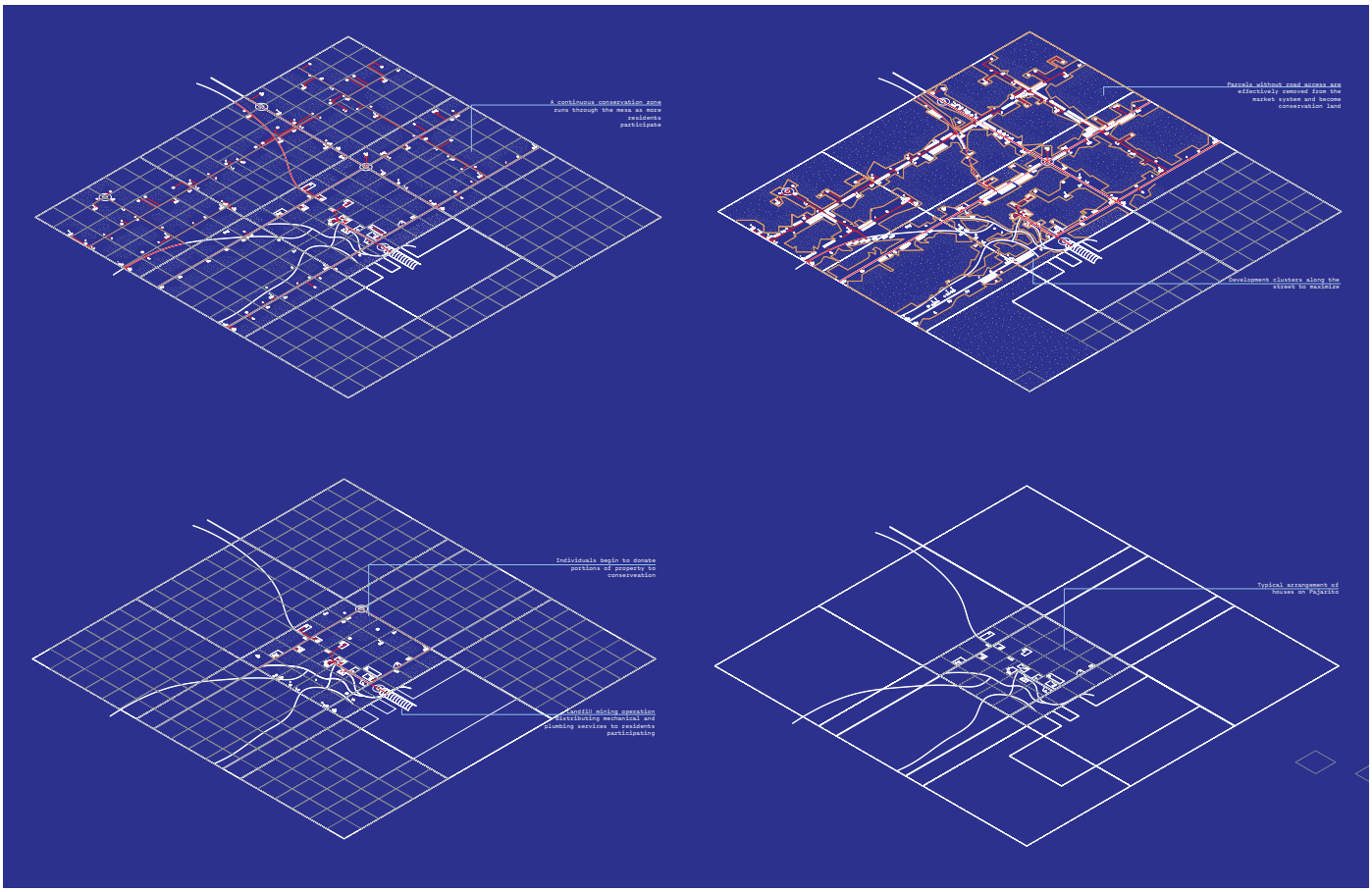




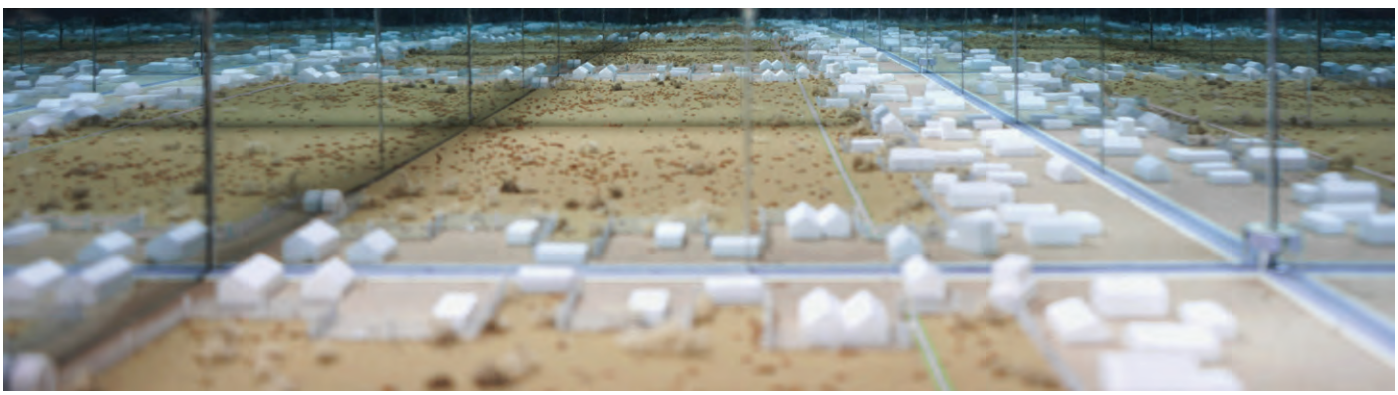
As cities expand, the governing bodies are selective about what territory to incorporate. areas with too many perceived liabilities are often left unincorporated resulting in gaps in infrastructure and resources available to people who live there. This often happens to communities with high numbers of minorities and people in poverty.



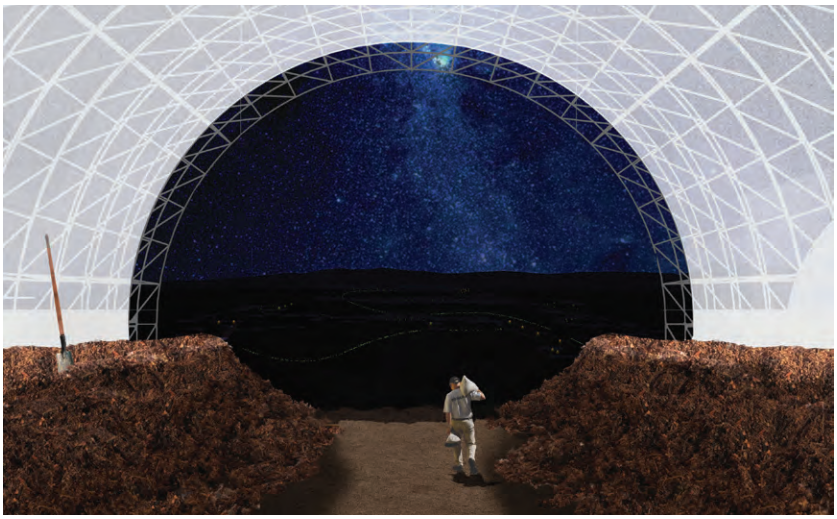
Different rights can be sold, donated, leased, held in trust, etc. When rights are severed from the overall property claim, they remain severed in perpetuity. In the proposed land trust, the development rights, lighting rights, and easement rights are rendered to the mesa's collective land ownership trust, which prevents that land from being subdivided, built on, or dumped on.



As the proposed system develops, larger and larger sections of the land are dedicated to conservation, narrow corridors of developable land are serviced by new infrastructure systems created by the landfill mining operation, and an alternative urban type gathers densely at the edges of the nature preserve.



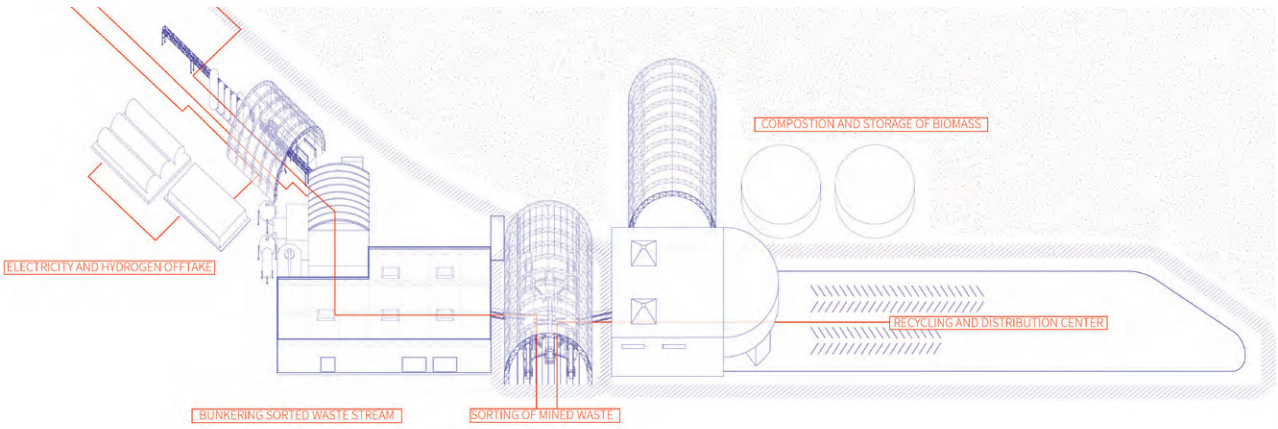
When the landfill is mined, the trash is sorted. Metals, plastics, and organic material are separated.

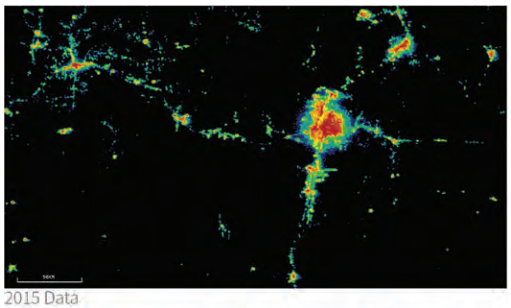


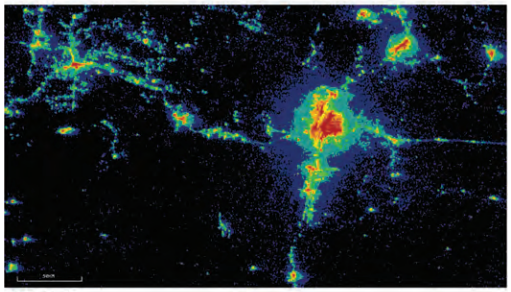
Organic Material is composted after being sorted out from the other materials. The gases created as the material is broken down is captured and used as fuel. This compost is distributed to the residents for farming purposes.

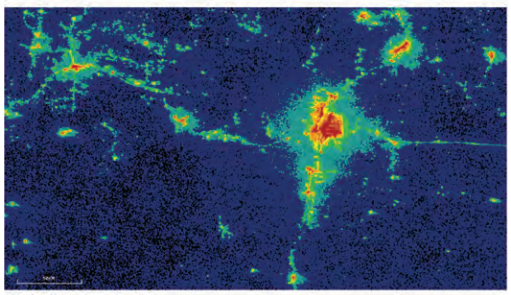
Landfill Mine

As waste breaks down in landfills, it creates combustible gases which can be used as a power source. Plastics and metals in landfills can be recycled or reused. The land trust would operate a mine on the existing landfill at the eastern edge of Pajarito Mesa. This would become a power source for the community and the extracted resources would be used to create a network of infrastructure to serve residents. This new infrastructure, built along the existing informal roads, legitimizes the self-organized pattern of development in the city.







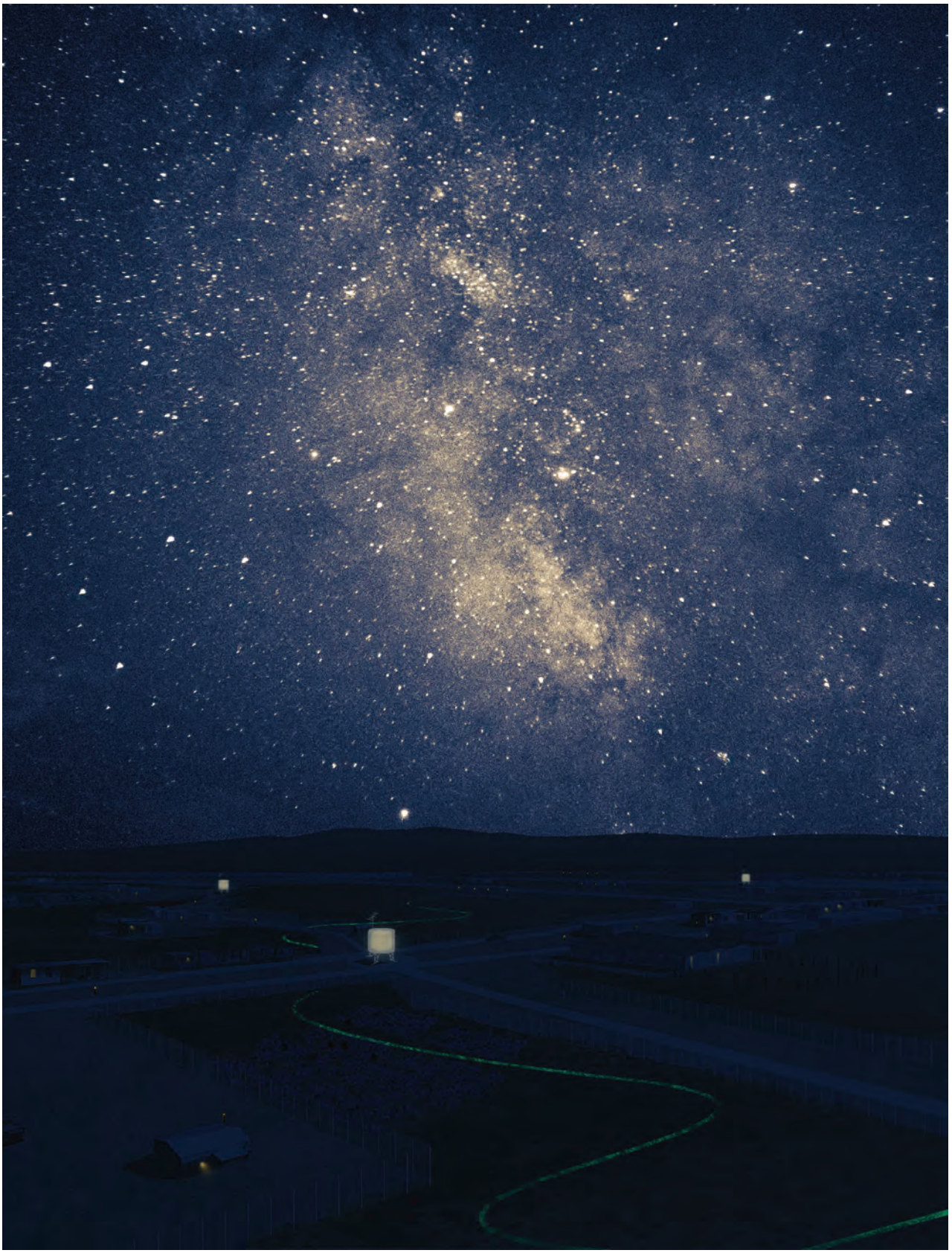


Light Pollution Map

The electrical grid of the metropolitan area overlaid on the municipal boundaries and satellite images of lighting at night show that the main power supply runs outside of the city to protect property values, but it cuts directly through Pajarito mesa without supplying any power to residents there.

Light Pollution Offset

Due to Albuquerque's rapid expansion, light pollution is becoming an increasing problem. In addition to all the health issues related to light pollution, it threatens the values and identity claimed by people in New Mexico who have long enjoyed their view of the dynamic landscape and night sky.



With the new infrastructure being sensitive to preserving the night sky, residents have the safety of a modern urban environment while maintaining the dramatic view of the desert night sky.

Ra(i)zing Value:

Augmenting Architecture Through Subtraction

Eric Minton
Thesis Advisors: Cyrus Peñarroyo and McLain Clutter

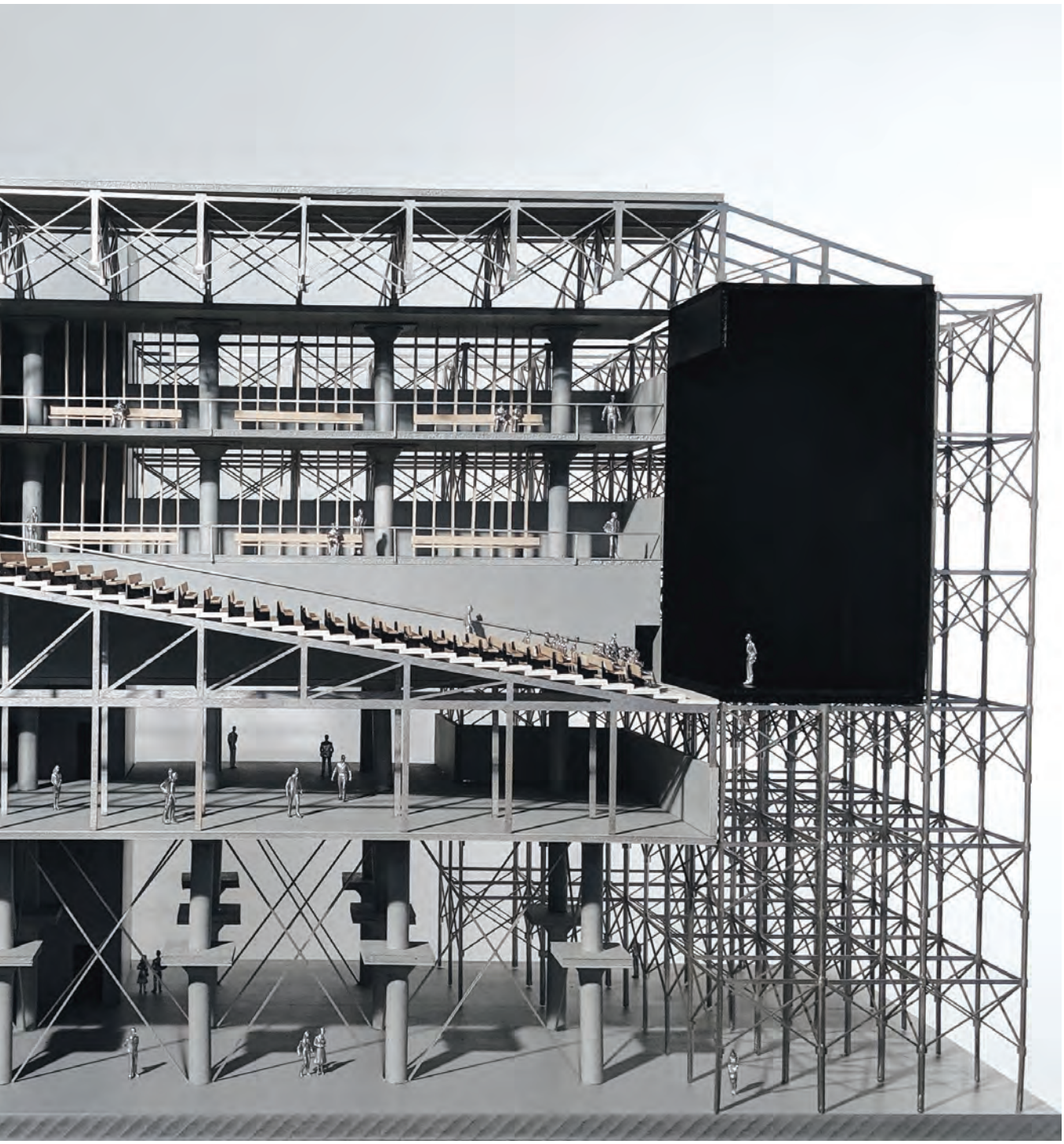
In the current capitalist atmosphere that regulates the value of properties and the built environment, there is limited flexibility for worth to be determined by factors outside of this system. Instead of being valued for their historical, sociological, cultural, or constructive capacities, buildings are typically assessed financially. This project aims to disrupt evaluations based on capitalist structures and find alternative forms of latent value within existing buildings.

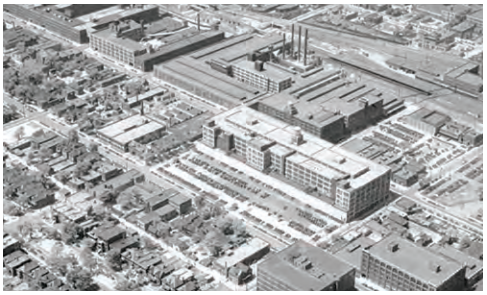
The site, Fisher Body Plant #21 is located at the intersection of two once-prominent streets in Detroit: Hastings Street and Piquette Avenue. The building now sits vacant, owned by the city after a tax foreclosure. The 5 acres of land in the industrial district of Detroit is currently priced at $206,255.

The project uses methods of classification, disassembly, subtraction, and redistribution to re-evaluate the building based on material and structural properties. This choreographed dismantling will employ hundreds of workers and maximize the potential of a site scarred by urban renewal. This ability to transform the site calls for the architect to act as a steward, guiding the deconstruction and transformation of the building from industrial infrastructure to civic landmark—an expression of collective pride that once graced the city.

Leveraging the area's rich musical history and the site's prominent location on the remnants of Hastings Street, the deconstruction results in a new performance venue for a vast array of shows, interventions, and productions. This amalgamation of culture and physical material will spur a new understanding of what Detroit's next phase will entail while maintaining its rich history of manufacturing and music. In critically redefining how buildings are valued and materialized, this project radically ra(i)zes the value of the built environment.

Model of the Reclassified Building





Aerial View in 1920s

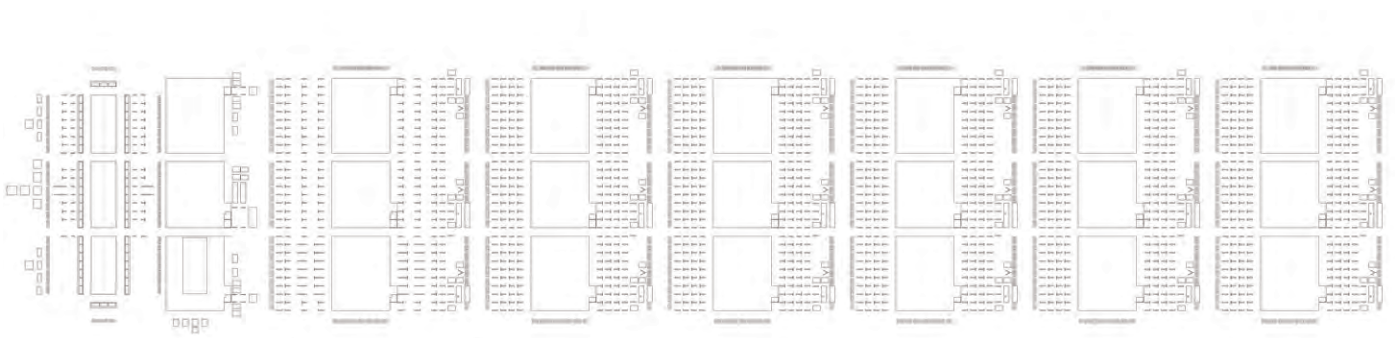
Fisher Body Plant Current

Fisher Body Plant #21

Address	6051 HASTINGS
Parcel ID	03001732-3
Owner	City of Detroit P&DD, Care of DBA
Zoning Code	M4
Zoning	Intensive Industrial District
Taxable Status	CITY OWNED
State Equalized Value	0.0
Land Value	206255.0
Taxable Value	0.0
Tax Status	OK
Last Sale Price	0.0
Total Acres	4.726605
Frontage	581.0
Depth	355.0
Sq. Ft	206255.0
District	5
Zip	48202
Ward	03
Subdivision	MORE THAN ONE SUBDIVISION
Owner Street	65 CADILLAC TOWER 11TH FLOOR
Owner City	DETROIT
Owner State	MI
Owner Zip	48226
Legal Description	N HARPER 7 THRU 34 AND VAC ALLEY ADJ SUB OF LOTS 1 TO 30&37&38 HOBAN & SANDS L22 P92 PLATS, W C R 3/77 31 THRU 33 HOBAN & SANDS L15 P2 PLATS, W C R 3/78 206 475 SQ FT

Site History

Centrally located along several major rail lines in the New Center of Detroit is Milwaukee Junction. Due to the presence of numerous car companies within it at the turn of the 20th century, Milwaukee Junction is considered the "cradle of the Detroit auto industry." Built in 1919, the Fisher Body Company used this assembly plant to construct Cadillac and Buick bodies during the 1920s. During the Depression, it suspended production to house a soup kitchen and homeless shelter. Through World War II, the factory was taken over to make fighter planes and assemblies of bombers for the U.S. Army. From the 1950s through the early 1980s, the plant produced limousines, ambulances, and 12-passenger buses.

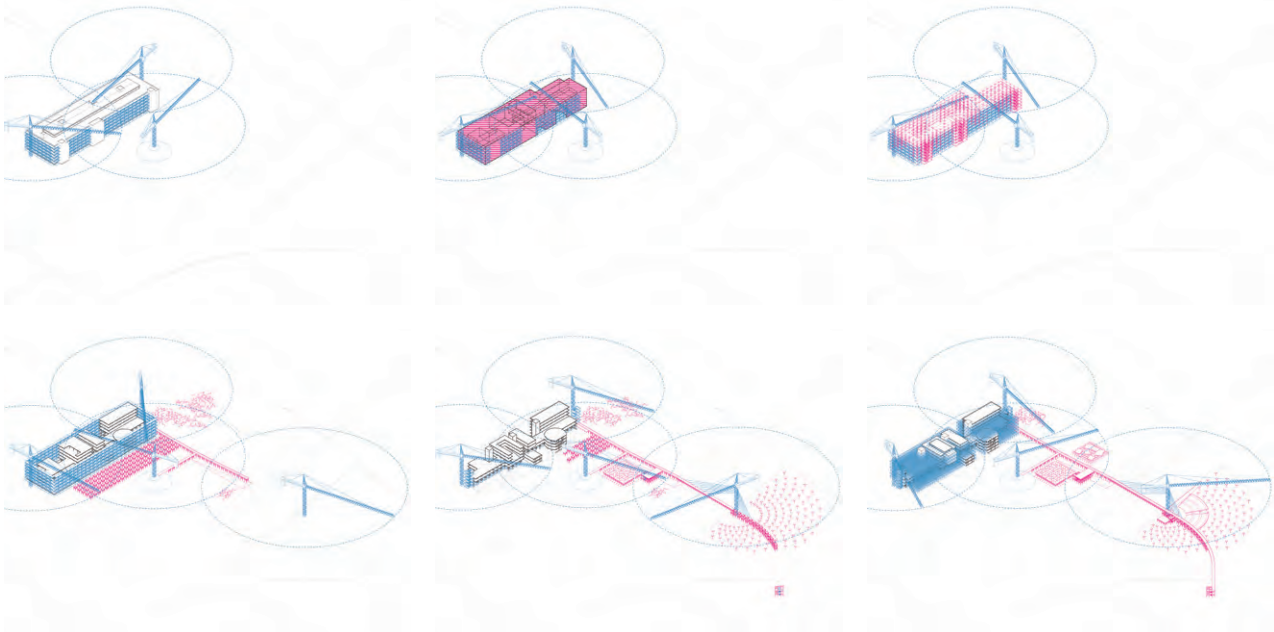


Things Come Apart

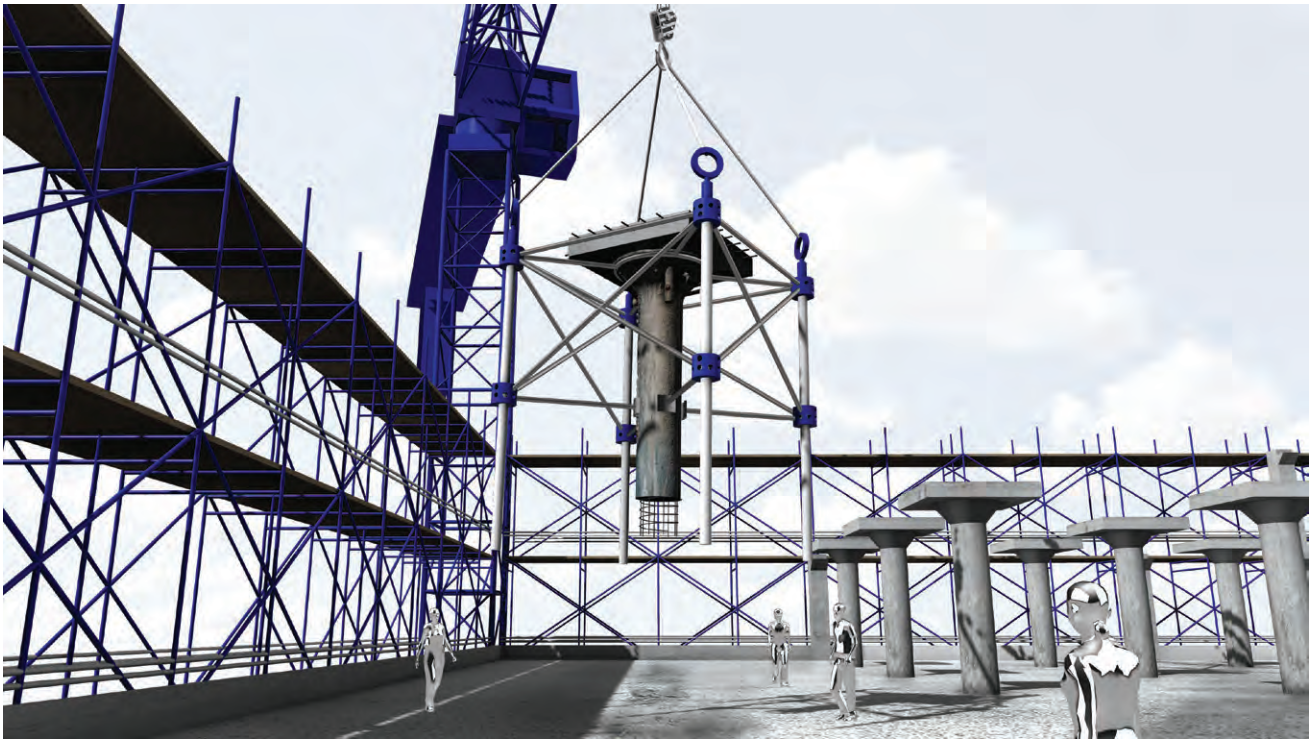
Column Trimmed with Supports

Classification
The dissecting and reclassification of the building allows the architect to re-value the building, not for its ability to shelter or provide a place of business, but rather as a kit of parts beckoning to become something new.

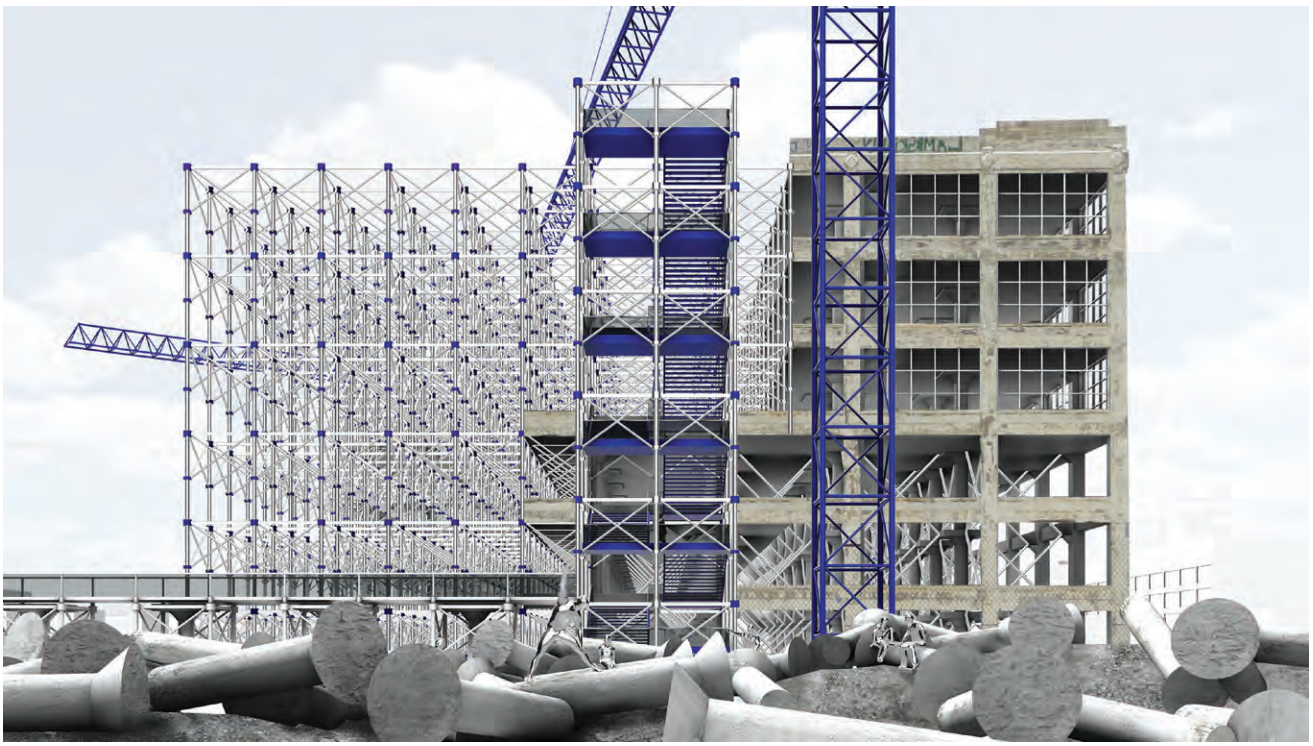
Subtraction
For the physical manifestation of disassembly at this scale, it will require years of work on the building and its surrounding site. This process will create a subtractive "performance." The appearance of cranes, bulldozers, scaffolding, and whimsical disassembly machines represents a metamorphic state of being—a transition from past and present into its new future state—geometrically and spatially changing its relationship with the city through architectural subtractive techniques.



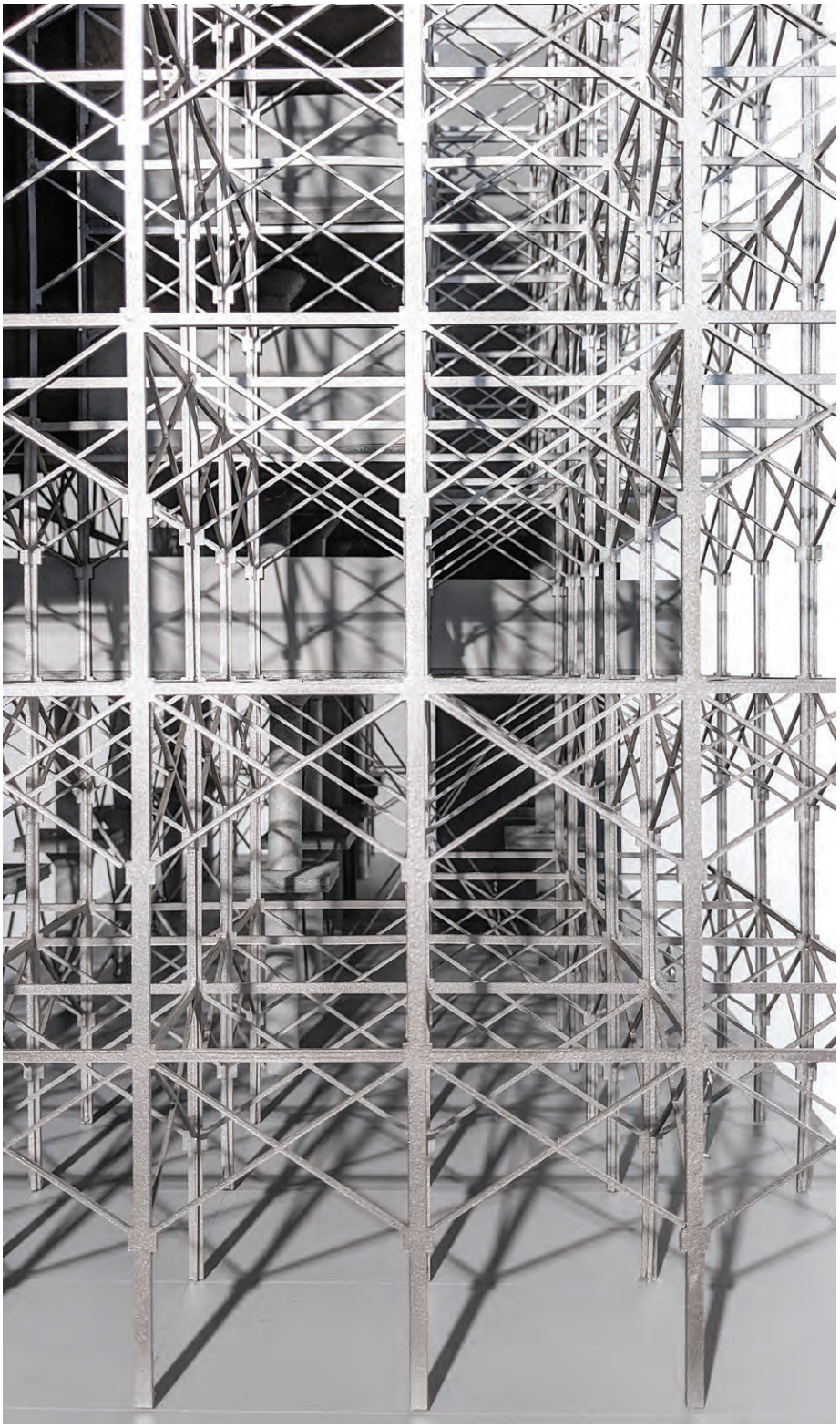
Phase 1 to 6



The Construction Process



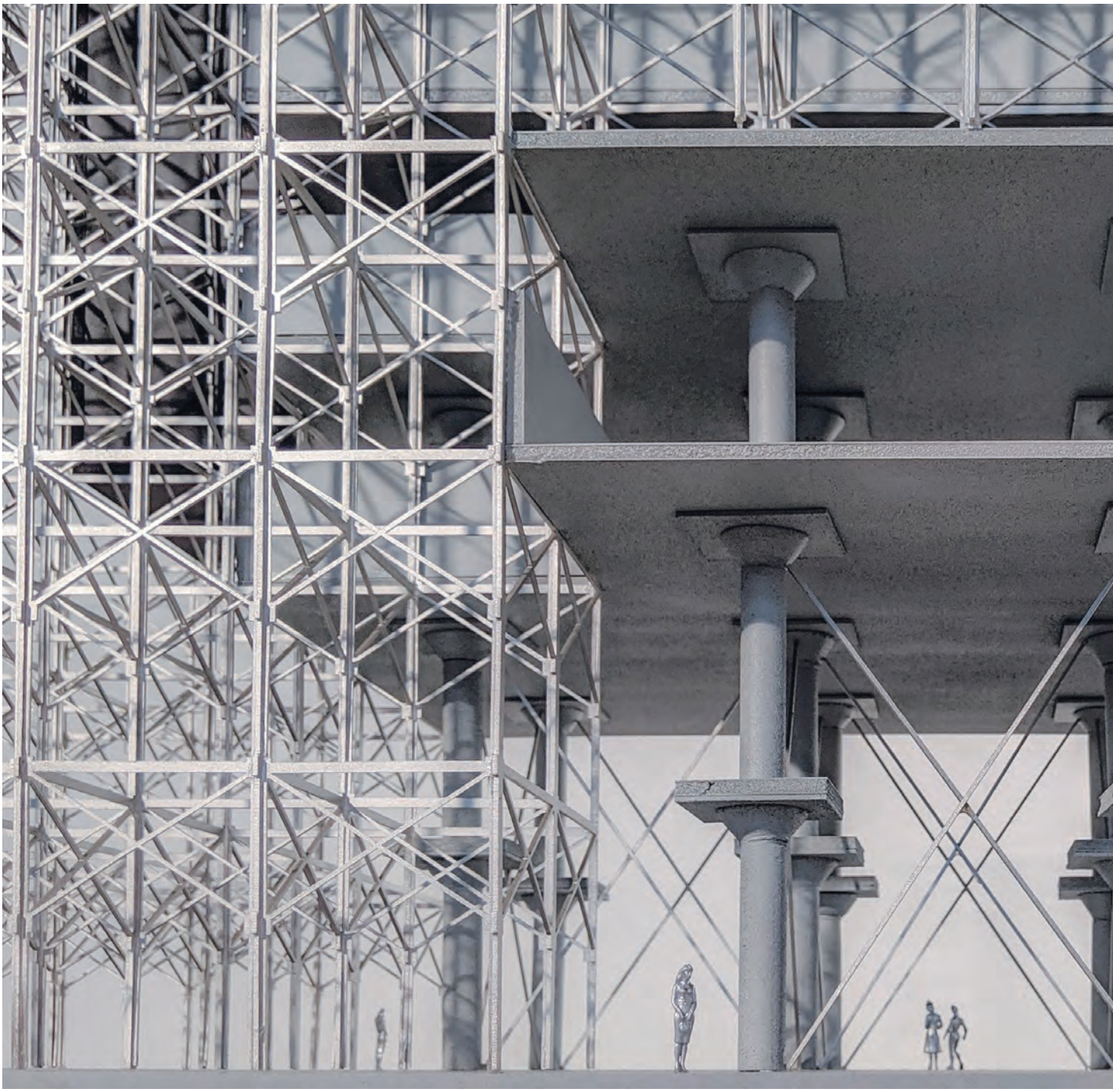
Subtraction of the Facade



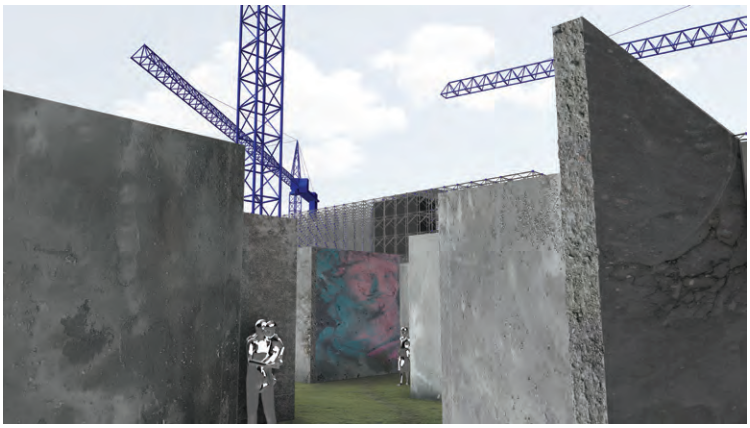
Model of the Reclassified Building

". . . how to plan the construction of the next layer in the urban palimpsest in ways that meet future wants and needs without doing too much violence to all that has gone before. What has gone before is important precisely because it is the locus of collective memory, of political identity, and of powerful symbolic meanings. It also constitutes a bundle of material resources containing both possibilities and barriers in the built environment for creative social change."

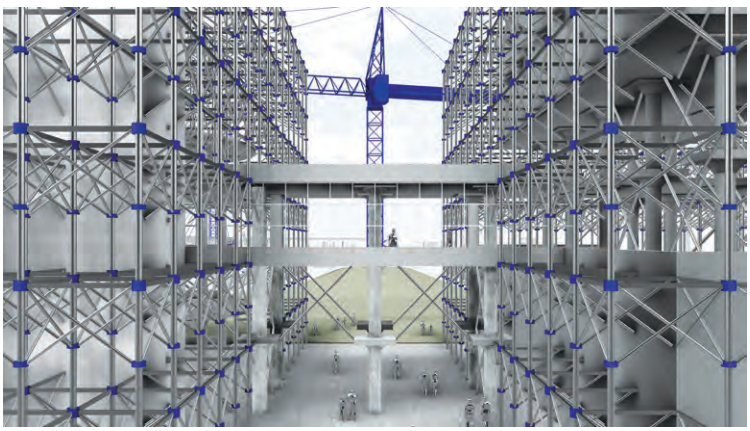
—David Harvey, On Architects, Bees, and Possible Urban Worlds



Model of the Reclassified Building



The Maze—Activation of the Site



Entrance View

Amalgamation of Culture and Physical Material

Twice as Good

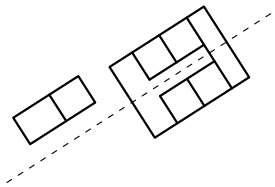
Mark Boynton
Wallenberg Critic: Anca Trandafirescu

"250 years of slavery.
90 years of Jim Crow.
60 years of separate but equal.
35 years of racist housing policy.
Until we reckon with our compounding moral debts,
America will never be whole."
—Ta-Nehisi Coates, The Case for Reparations

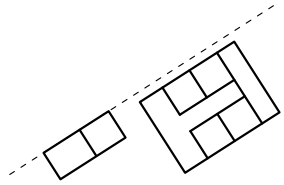
Throughout the city of New Orleans there exists an architectural type for slave houses—a half house. Rendered with shed roofs and single-sided fenestration, this type literally and symbolically represents enslaved people as less than whole. The project reflects critically on this history, presenting a case for architectural reparation through an invasive preservation of the African American Museum situated in the Tremé neighborhood.

Operationally, the project splits the symmetrical whole of the original master's house into halves and drags one across the site to liberate its interior, creating a new axis centered on the slave house. As it moves, many of the precious architectural elements fall into new positions now belonging to the site. The slave house is made whole by mirroring and slight enlargement, acknowledging the additional effort necessary when reaching for reparation.

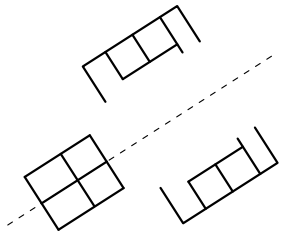
The resulting space, overgrown and serene, is meant to be a happened-upon place of value and beauty—a secret garden for reflection on our past and hope for our future.



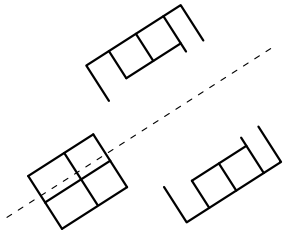
Existing: Axis of symmetry through master's villa.



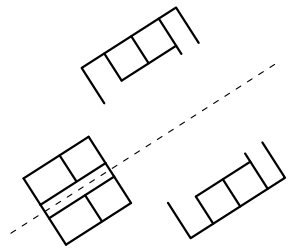
First: Axis adjusted along blank elevation of slave quarters.



Second: Slave quarters mirrored *equally*. Villa split and dragged, obeying new axis.

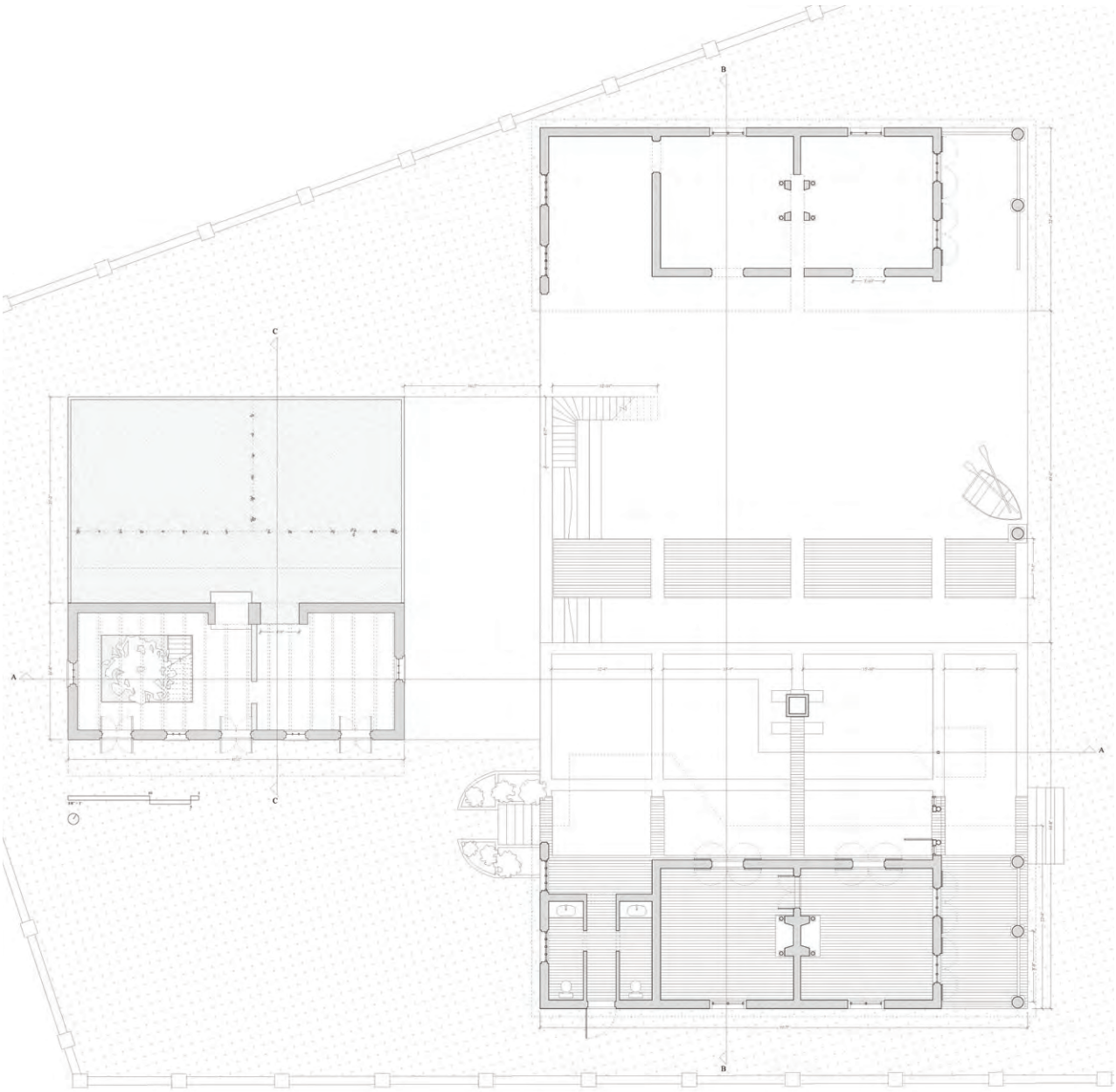


Third: Axis adjusted, giving back *more* space to slave.



Fourth: Slave quarters mirrored *equitably*. Plans of slave quarters and villa echo the other's original version.

View showing cut treatment and foundation filled as ponds

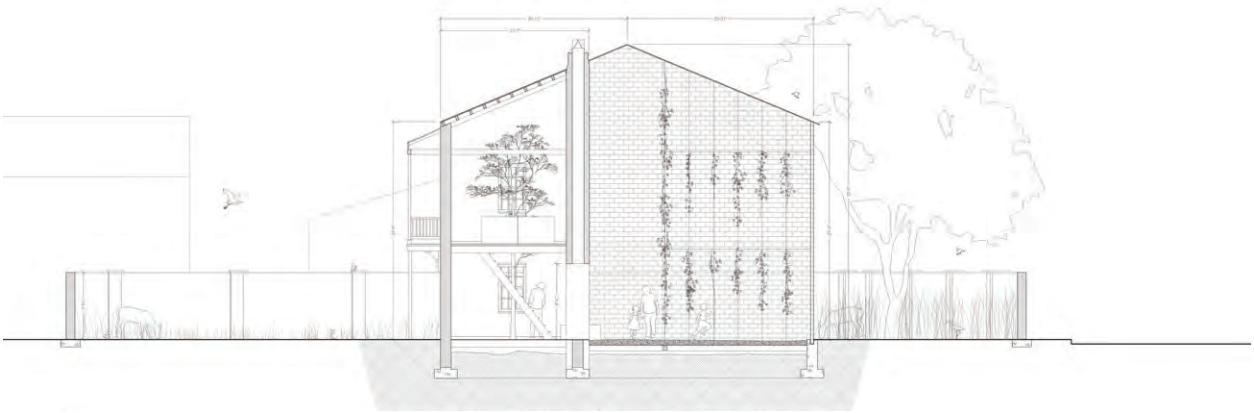


Floor Plan

Wallenberg
Boynton

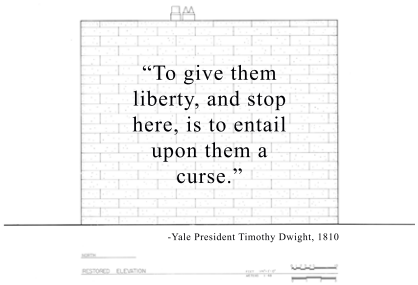
Section A

Section B

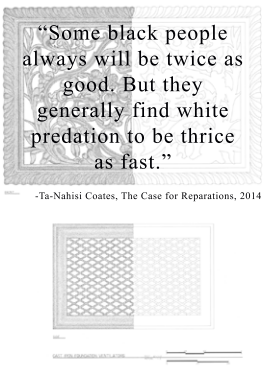


Section C

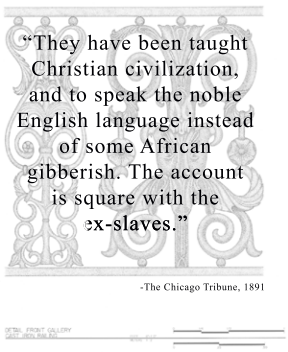
View of Slave Quarters with glass block addition and vines echoing the reflected plan



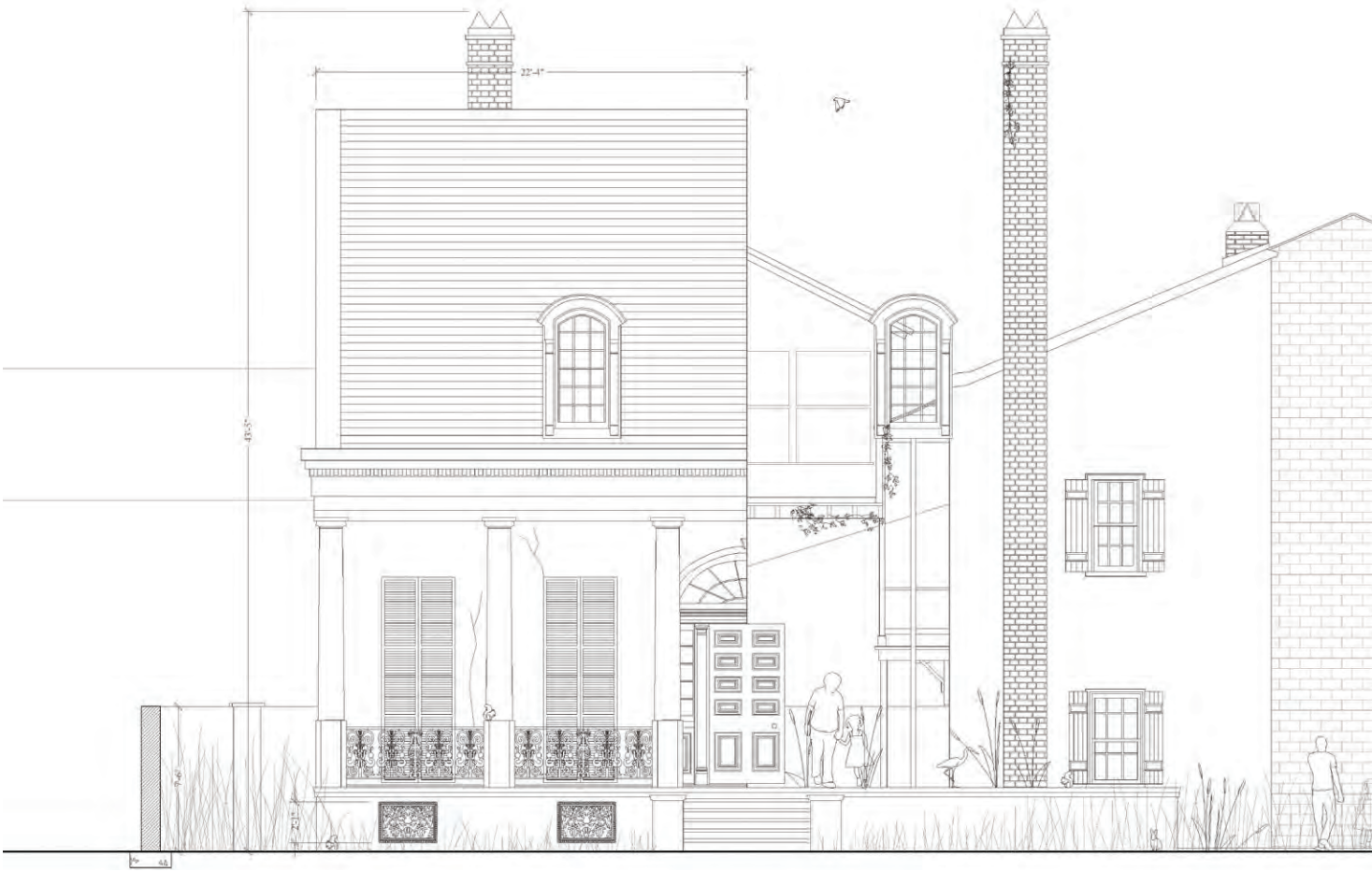
Slave Quarters, Northern Elevation



Master's Villa, Vent Detail



Master's Villa, Railing Detail



Elevation

Overall view—central corridor flooring repurposed as stepping stones over pond along new axis

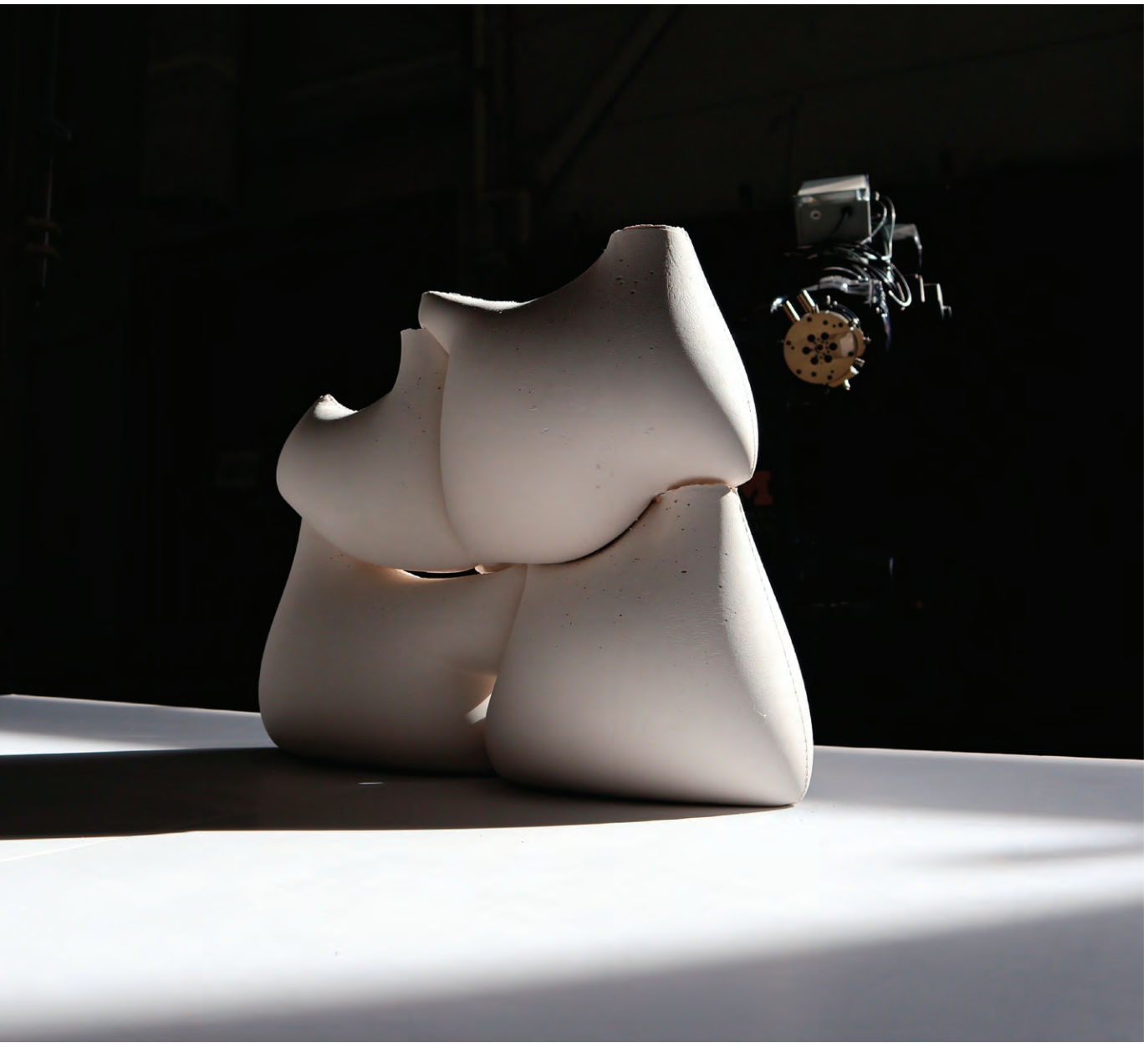
Precise Imprecision

Flexible Construction with Robotic Formwork

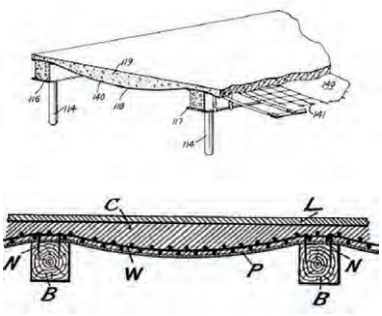
Leon Yi-Liang Ko and Ester Hong-Fen Lo
Advisor: Glenn Wilcox

Precise Imprecision uses robotic assembly and cast-on-site textile forming, to demonstrates a new method of robotic stack casting. Through customized forms, generated from fabric deformation and robotic assembly, the project produces controlled data and diminishes labor-intensive processes. A full-scale prototype converges the similarities and differences between the physical and digital worlds by changing the nature of the dry-fitted Inca masonry and giving it a soft behavior; integrating casting and construction simultaneously to bring out unique aesthetics and identities.

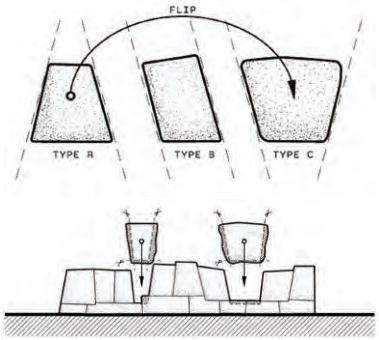
Precise Imprecision redefines “precision” and “imprecision.” It breaks the stereotype that, accurate manufacturing and robotic fabrication are inseparable, and outlines the potential of an interactive, autonomous design-build method.



Combining the techniques of fitting precast objects and Inca's tight crevices between edges, Precise Imprecision sets a new method for fabric formwork and accelerates the form-fit procedure in the building system.



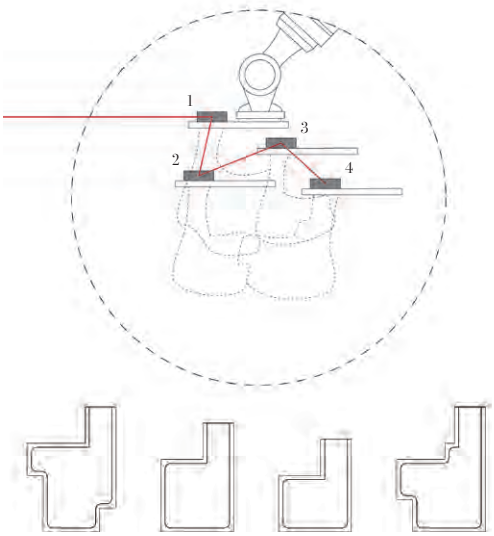
Patented Floor System, 1897



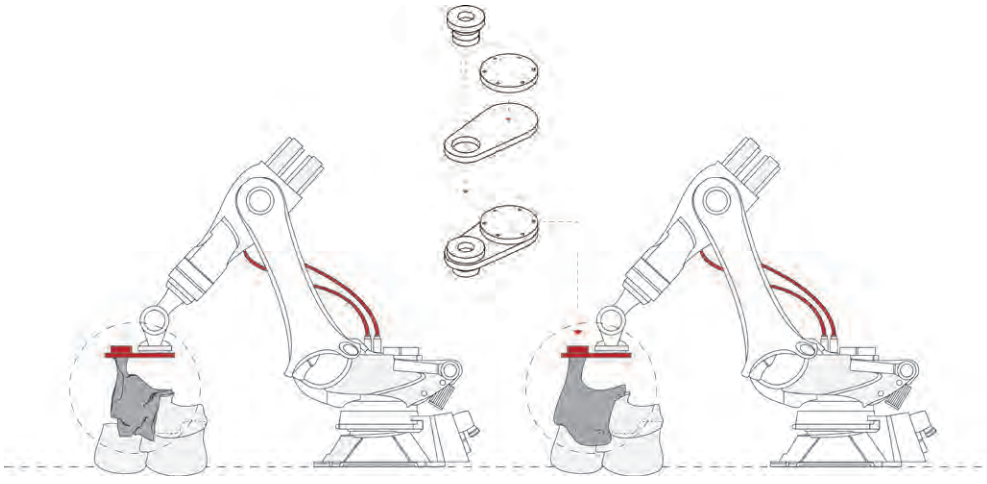
Cyclopean Cannibalism, 2017

Experiment v.01

Compared with conventional construction, fabric formwork is unpredictable. Based on experiments, three main parameters—size, overlap, and order—are utilized to fabricate ideal shapes in the design.



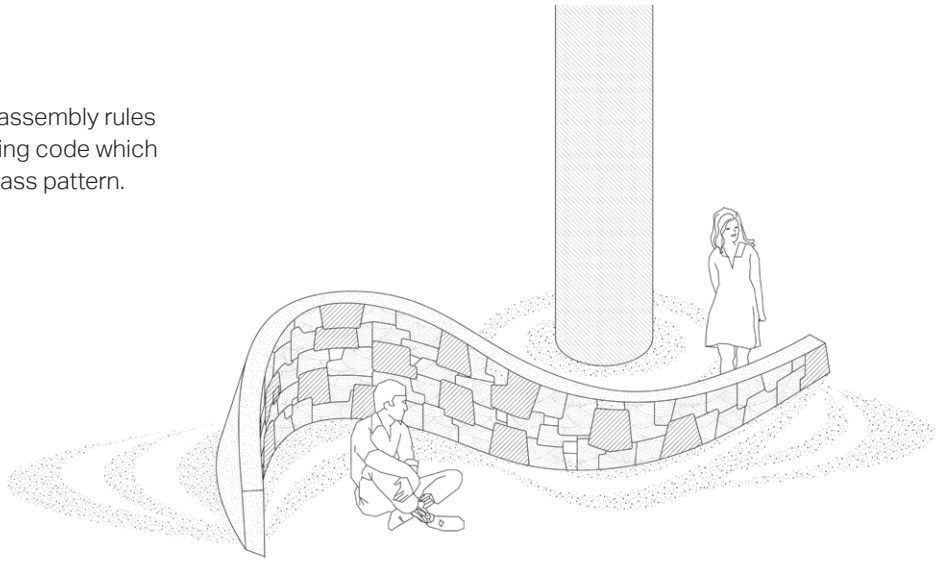
Experiment v.02



Transitioning from physical performance to digital tools, robotic stack casting pushes the boundary between design and construction phases, with its flexibility.

Prototype

To digitize robotic stack casting, assembly rules and parameters generate a drawing code which merges the deformation into a mass pattern.

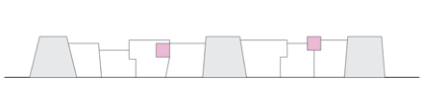


1. Place Base Stone

2. Place Fill Stone

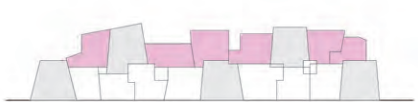
3. Place Fill Stone - Low to High

4. Place Fill Stone - Low to High

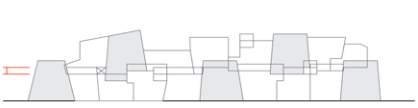


5. Place Through Stone

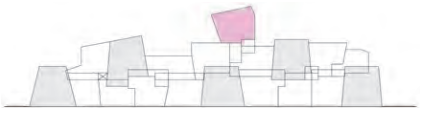
6. Place Base Stone on Fill Stone



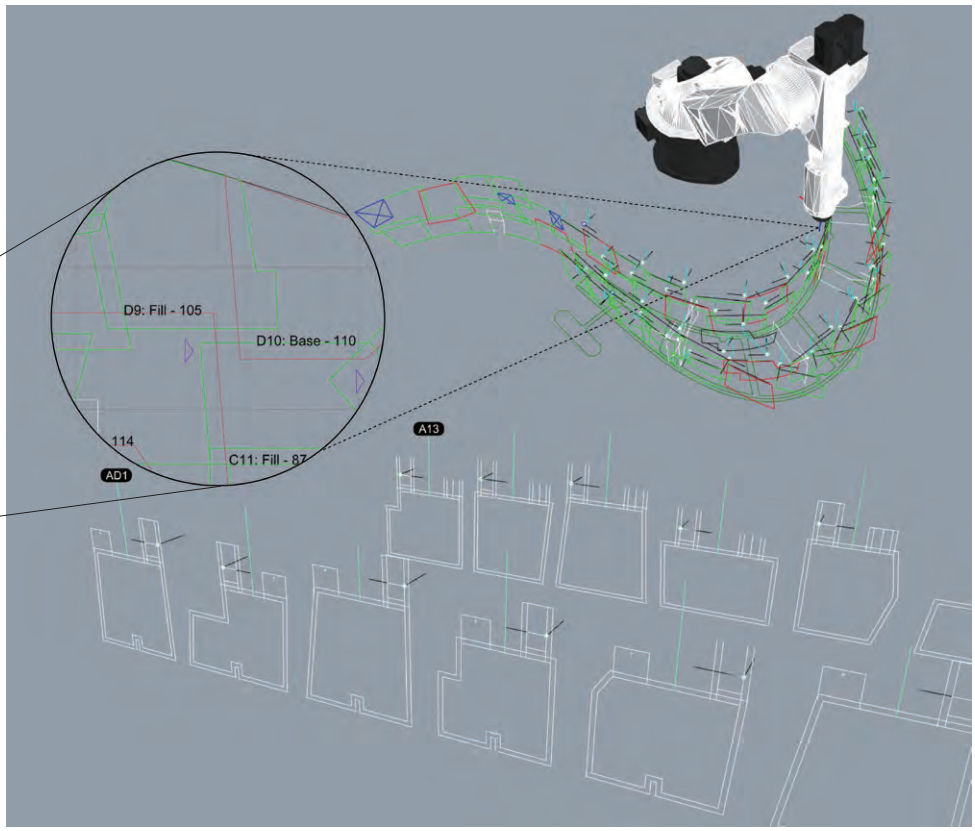
7. Place Fill Stone



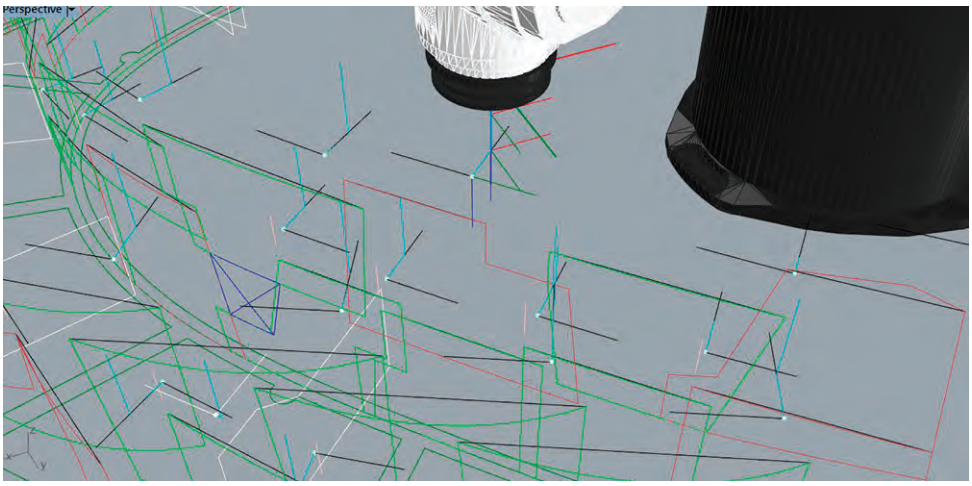
8. Add Overlapping



9. Place Base Stone

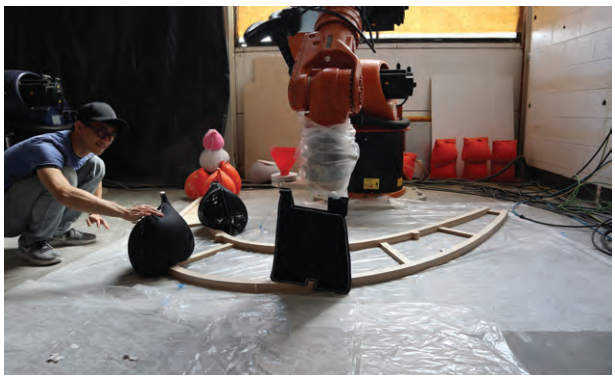


Physical Digital Configuration
The connection between 3D model and the resulting mass is the calculation from surface area, fabric deformation to the actual volume.



Robot Work Cell in Rhinoceros 6 and SMT
Organized mold references and labels give designers an efficient working process.

The building process of section 01 by two robots (East and West)



The building process of section 02 by one robots (West)

116 customized masses ready to be reassembled

Form-fit boundaries find individual identification on the environment and base track

Precise Imprecision Installation

Letter from

As a way of reframing relationships between people, objects and architecture, this year we are approaching Dimensions not as an objective artifact but as a subjective volume bringing together a diverse set of work and discourse—both before and after the journal is published.

The journal follows various trajectories of correlations and a series of overlaps that blend seamlessly to provide multiple readings and hierarchies, yet forming a cohesive whole—Dimensions 33.

This creates a platform for a spectrum of topics ranging from speculating what architecture can be to working with digital realities. It involves working with tangible projects of making and fabrication while also questioning the relevance of temporalities of space in the built environment. It works on how architecture can play a role in preservation while also rethinking its role in real estate and land-rights movements.

As the Dimensions team puts the finishing touches on the book with this letter, we are acclimatizing ourselves to a new normal, one created by a global pandemic. We are at the beginning of the end, waiting for a new beginning. While our collective actions as well as the action of leaders will likely shape the world for years to come, we are...

Wallenberg

The Wallenberg studio honors the legacy of one of the college's most notable alumni, Raoul Wallenberg, through an undergraduate studio theme focused on a broad humanitarian concern. Wallenberg, a 1935 graduate who studied architectrue at the University of Michigan, is credited for his heroic saving of more that 100,000 Jews from the Nazi persecution in Budapest, Hungary, during World War II. Through propositions put forward by the studio section faculty, the studio challenges students to develop proposals that define architecture as a humane and social art, translated into a physical project. Each year, the studio awards are offered as a traveling scholarship by the Raoul Wallenberg Endowment, as a reminder of Wallenberg's courage and humanitarianism.

Thesis

The product of a year-long investigation, thesis occurs in the final semester of the graduate sequence. A self-directed creative project, students engage in the process of research, critique, and synthesis to create works that engage with architectural discourse. The projects are exhibited just prior to graduation and reviewed by a panel of outside and faculty experts, the best ones being given an "Honors" designation and installed in the College Gallery over the summer.

Master of Science

The MS in Architecture Design and Research capitalizes on the University of Michigan's unique position as a premier research university. The University's scope and breadth across various architecture-related disciplines is integral to the course of study in all concentrations. The MS provides an additional credential that enables its graduates to pursue research and entrepreneurial practices, careers in the academy, or to expand their architectural practice.

Architecture Student Research Grant

The Architecture Student Research Grant (ASRG), initiated by the Class of 2013, provides a unique opportunity for student research. ASRG calls for projects that push the boundaries and possibilities of the discipline of architecture. Successful propositions discover new forms and methods of working, making, and representing. Projects can take many forms-built objects, public installations, experiments, representations, written work, and models for alternative practice. At its completion, the research is presented both as an exhibition and a public lecture.

Fellows

Taubman College of Architecture and Urban Planning offers three fellowships in the areas of architectural research and instruction: The Muschenheim Fellowship, The Oberdick Fellowship, and the Sanders Fellowship. Fellows spend a year at Taubman College, teaching three classes as they pursue their fellowship interests. Final products range widely in form from exhibits to publications to installations to other material or virtual constructions. All three fellowships allow for the realization of architectural works and endeavors typically unsupported within conventional models of practice.

Interviews

Each year, Taubman College hosts distinguished individuals from architecture and related fields to share their work with students and faculty. Dimensions invites several of the guest lecturers to participate in an interview to be published in the journal. Members of the Dimensions team have a unique opportunity to curate and conduct interviews with these visiting individuals, offering a glimpse into the other dimensions of architecture and the possibilities for future careers.

the Editors

... at a global pause.

Through all this, Taubman College has been ever-responsive, its faculty ever-involved and its projects ever-present. As we swim in the uncomfortable waters of climate change, surveillance, land rights, urban restructuring—and now a global pandemic—the projects featured in this journal tackle such issues with the rigor and grace they deserve.

Before any of this, though, Dimensions had already made the choice to favor these environmental, societal, and cultural indices over any one program or focus within the school—evident in the index. If you didn't notice, we hope it was a smooth read. If you did, you can ruminate on how this organized chaos of the journal reflects the changing times.

It was challenging to publish a book with our minds racing back and forth, hoping for a return of normalcy while adapting to this altered reality. But this reality exists and we hope this book offers you a chance to rethink the world we are living in and use this pause as an opportunity to extend your participation towards constructing our new future(s) together.

April 2020

Mytreyi Chandrasekhar *Hyderabad*
Liyah George *Fujairah*
Anhong Li *Langfang*
Abirami Manivannan *Chettinad*
Jenny Scarborough *Denver*
Rachel Skof *Kuala Lumpur*
Ben Vassar *New York City*

5 Parts for 555

De Peter Yi
2018-2019 Walter B. Sanders Fellow

On the first approach, the painting hanging in the contemporary art galleries of the Detroit Institute of Arts appears as a mass of stacked bricks suspended from the gallery wall. Upon closer look, the painting reveals its constitution not from brushstrokes of paint, but rather a layered corralling of earthy materials. Clay, metal wire, and sand lend the painting heft—as if the white gallery wall was excavated from under the original material of the painting. Created by the German artist Anselm Kiefer in 1997 and titled *Das Geviert*, the work is said to be inspired by a brick factory that Kiefer encountered when traveling in India. Rather than the stasis expected of buildings, this brick factory was in a perpetual state of construction and deconstruction. As new bricks are taken out of the kiln and cooled, they are stacked on top of the factory walls, then continually replaced as they are sold. This state of constant change seems particularly apropos to the larger context outside of the gallery's walls.

Detroit is a material landscape full of potential energy. The Detroit Land Bank Authority, created in 2008 to return abandoned properties back to private ownership, has over 1,000 homes for sale as of November 2019, while auctioning off an additional two homes every day. At the same time, new spaces and structures are being created out of relocated materials. On Grand River Ave, Olayami Dabls' mosaic murals coat the exterior walls of a former townhouse, re-opened to the public as the African Bead Museum. On Detroit's east side, the Heidelberg Project emerged as artist Tyree Guyton re-arranged found objects into an open-air museum within a neighborhood block, and is now being taken apart piece by piece in anticipation of its next incarnation. Could this context of material entropy point to expanded forms of architectural agency? To start, the linear process of design, in which the architect imagines a solid assembly of materials in harmony and transcribes it for the builder, gives way to looser, more reciprocal modes of design. Like the brick factory depicted in Kiefer's painting, architecture shifts to the constant reconfiguration of building parts. Furthermore, like the painting itself, architecture is found neither solely within pure representation nor the completed building, instead creating opportunity within the gray zone in between.

The Banner Cigar Company Building: Then and Now

The handsome five-story brick building on the corner of East Warren Avenue and Mitchell Street in Poletown stands out even more because of the dearth of structures left around it. Beneath its stately exterior, the building harbors two lesser-known histories of Detroit's industrial heyday. First, the architect Louis Kamper was a well-regarded figure in Detroit in the early 20th century, designing landmarks such as the Book-Cadillac Hotel in 1924, and the Water Board Building in 1928. Second, the tobacco industry played a significant role in Detroit's economy during the second half of the nineteenth century, leaving behind a number of distinctive manufacturing buildings scattered throughout the city. The Banner Cigar Company Building, designed by Kamper in 1914, was one such building. Similar to other factories of its type, the building is clad with brick and supported by a wood post and beam structure resting on cast metal columns at the basement level. According to Sanborn maps, the building had offices and a dining hall on the ground level, with cigar manufacturing, storage, and packing on the upper levels. In parallel to better-known sites like Albert Kahn's Packard Automotive Plant, the Banner Building was subsequently abandoned when manufacturing in Detroit receded in the middle of the 20th century.

A set of parts ready for infinite possibilities

Exterior view of The Banner Cigar Company Building

In 2010, the non-profit group 555 Arts purchased the building as well as the adjacent empty lot and house. Over the next decade, they undertook a piece-meal clean-up and renovation of the property, with the long-term goal of creating an artists' residence in the house, and spaces for making and exhibiting art in the factory building. In its current state, the building blurs the line between material in stasis and material in transition. Floorboards peel open to reveal the sub-floor underneath. Anachronistic industrial hardware hangs from the ceiling. A collapsed freight elevator cab hangs precariously between floors. These loosened building materials are joined by heaps of doors, window frames, and foam molding: foreign material from other buildings stockpiled by 555 for use in the building's ongoing construction. The Banner Building, with its past, present, and future laid bare as a set of parts ready for infinite possibilities of assembly, transforms architecture from a project of design, construction, and post-occupancy into an event. And distinct from the fleeting, single-consumption event championed by today's digital platforms, the one taking place at the Banner Building has existed for at least a hundred years before and is still extending into the future with no end in sight.

New metal parts in custom sand molds

The Material and the Social

The material and structural forces at play in the Banner Building find their parallel in the social forces that have unfolded over the building's history to the present day. The building's evenly arrayed structural bays index its beginnings as a space of industrial production, while its loosened materiality point to the scrapping economy that afflicted abandoned buildings throughout Detroit's economic downturn. Presently, the narrative driving the building's transformation reflects 555's mission in mobilizing the larger neighborhood around the collective social act of making cast metal art. These metal pours take place at the building several times a year, where artists, enthusiasts, and curious passerbys scratch patterns into hardened sand molds, before taking in the spectacle of seeing their creations come to life through the flow of molten metal. This story of metal ties together several threads around the "event" of the building's transformation.

For one, Poletown in the early twentieth century was home to many immigrants who found jobs in the city's various industries involving metal-working. In fact, the yearbook of the high school that was demolished right next to the site was named "The Crucible," for the container that metal scraps are melted down within. Like many other abandoned structures, the Banner Building has also fallen victim to metal scrapping, which led to extensive water damage because of the removed roof drain and pipes. Notably, the building's metal column headers were left untouched—in no small part due to their role in keeping the building itself standing upright. These structural connectors serve as entry points for an architectural project focused on parts—precisely because of its position at the intersection of several of the building's story-lines, as well as its role in organizing the physical forces of the building.

Following the inspiration of the existing column headers, the design project revolves around a set of new metal parts, or *"5 Parts for 555,"* that negotiate a series of structural forces alongside a series of social forces toward generating new programmatic possibilities. To fabricate the parts, the fellowship team worked with the artists at 555 to design custom sand molds that allowed each metal pour to retain a hard-edged "controlled" portion and a soft-edged "overflow" portion, playing with the idea of introducing differences within standardization. These new parts not only contribute to the structural rehabilitation of the building by bringing material forces in reciprocity, but also suggest at social force transfers—doubling as spatial connectors, dividers, and frameworks. Here, architecture as a static form no longer proves useful as a working model. The architect's scope of operation expands from a single building to its relationships with larger social, economic, and historical forces, negotiated through different scales of building parts.

Abstracted "part model" representation of the Banner Building open to interpretation

A Project in Three Scales

Like in previous years, the 2018-2019 Fellows exhibition was staged in the Taubman College Gallery. The emphasis on output through the exhibition format adds yet another layer of consideration for an expanded architectural project of parts. In recent years, the temporary exhibition has been undertaken as a project not only by young architects looking to test out ideas in an expedient format, but also by established offices such as Studio Gang, OMA, and Diller Scofidio and Renfro. The design output, by and large, takes on one of two formats—the thing itself (typically some sort of built occupiable structure or furniture piece), or representations of a larger topic scaled to the gallery (typically a research project or design proposal in the form of drawings, models, and videos.) Rather than conform to one of the aforementioned categories, "5 Parts for 555" uses the gallery format to present three versions of the same proposal—the first installed at full scale in the gallery as the thing itself, the second formalized as an abstracted "part model" that bridges the gallery installation with a representation of the Banner Building, and the third being photographs of the Banner Building itself captured in a fleeting moment of its transformation.

Three versions of the same proposal

Upon walking into the installation, the visitor is able to view the parts performing at full scale, while inhabiting one of many possible scenarios for the building's future staging. The visitor then encounters and engages with the "part model," which distills the Banner Building into relational elements open to interpretation and reconfiguration and keys the installation back into its site of genesis. Lastly, the photographs of the Banner Building add material narration, while framing opportunistic intersections between the building's past, present, and possible futures. The photographs were printed on metal in a further nod to the project's material intervention. Together, the three installation components realize an architectural project that flickers between different scales, image and reality, and material attributes, all of which key back to one another. This expansion of an architectural project from the singular to the multiple also mirrors its shift toward building parts that operate at different scales toward different goals—some introspective and some projective. The exhibition itself becomes a device that questions the worn–out and increasingly restrictive definitions of practice, both in academia and the profession. In lieu of working with a client, the project engages 555 as a collaborator, and instead of a site, the project puts down roots in the overlap between multiple narratives surrounding the building's transformation.

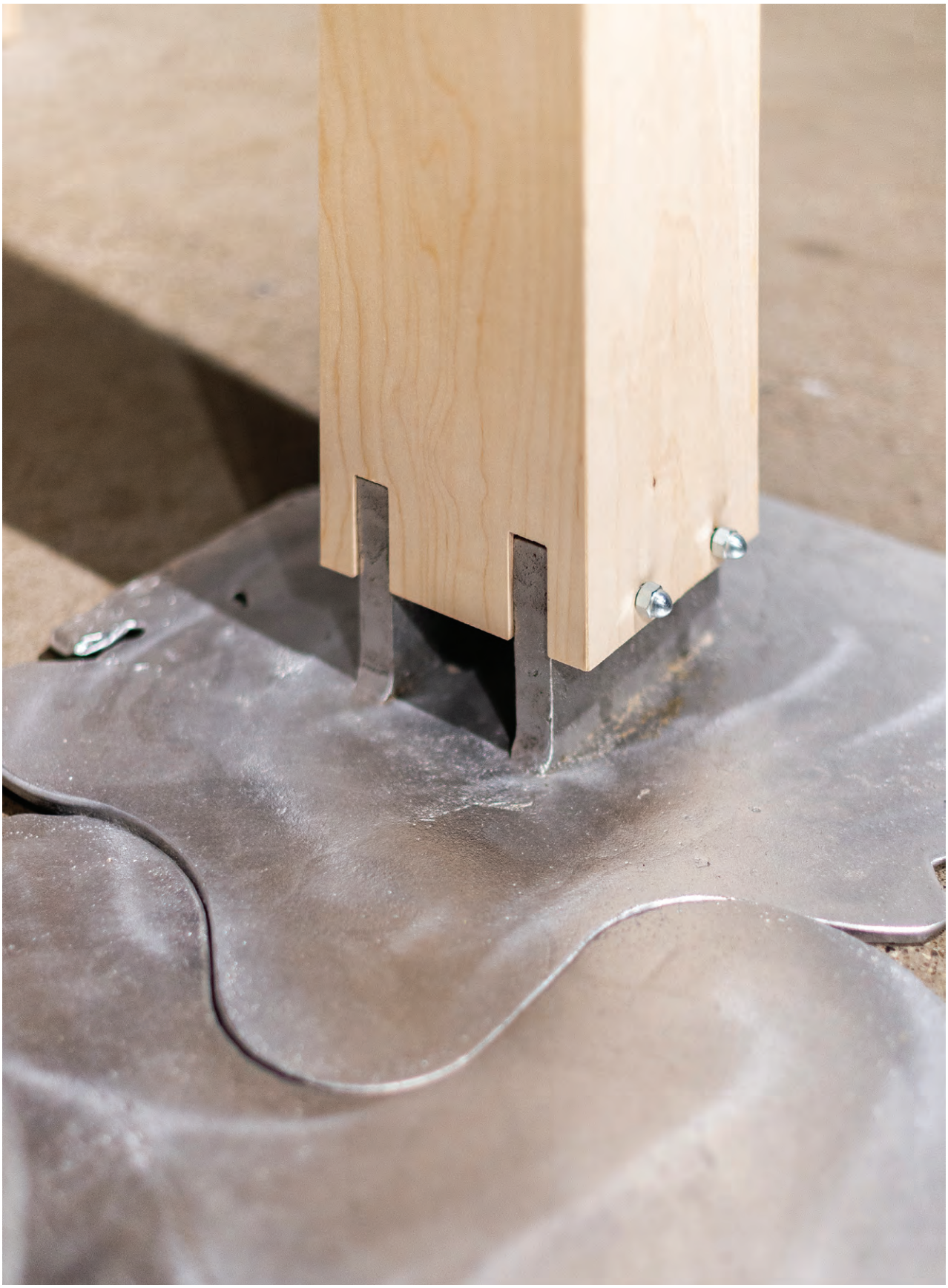
Full scale version in the gallery

Conclusion

Unlike the well-publicized renovation of the former Michigan Central Station into a new innovation hub for the Ford Motor Company, the Banner Building does not fit a grand narrative of adaptive re-use. Instead, the Banner Building is constantly being re-imagined out of the seemingly banal materials of its immediate context—collecting, transforming, and re-distributing—much like Kiefer's reading of the brick factory in India. This constant change is defined through a series of force transfers: structural, environmental, social, political, and economic, each of which are interconnected to each other, but also independently transmutable. Due to their nimbleness, building parts have the potential to command more agency than complete buildings, the effect of which is compounded when measured against material and labor resources expended.

Perhaps most importantly, rather than relegating architecture just to the design of infrastructures, parts still maintain their object-hood, and with it the potential for celebrating beauty. As Rem Koolhaas muses in Elements of Architecture, "Architects' reputations and expectations are largely based on their supposed uniqueness, but we actually assemble elements that have largely been defined by others, mass–produced in series, offered in catalogs on the Internet, accessible to anyone and put together by increasingly indifferent labor." In other words, in order to actively participate in shaping the near future, architects need to constantly rethink the elements we have inherited, rather than accepting what we have been given to work with.

Let's make some new parts.

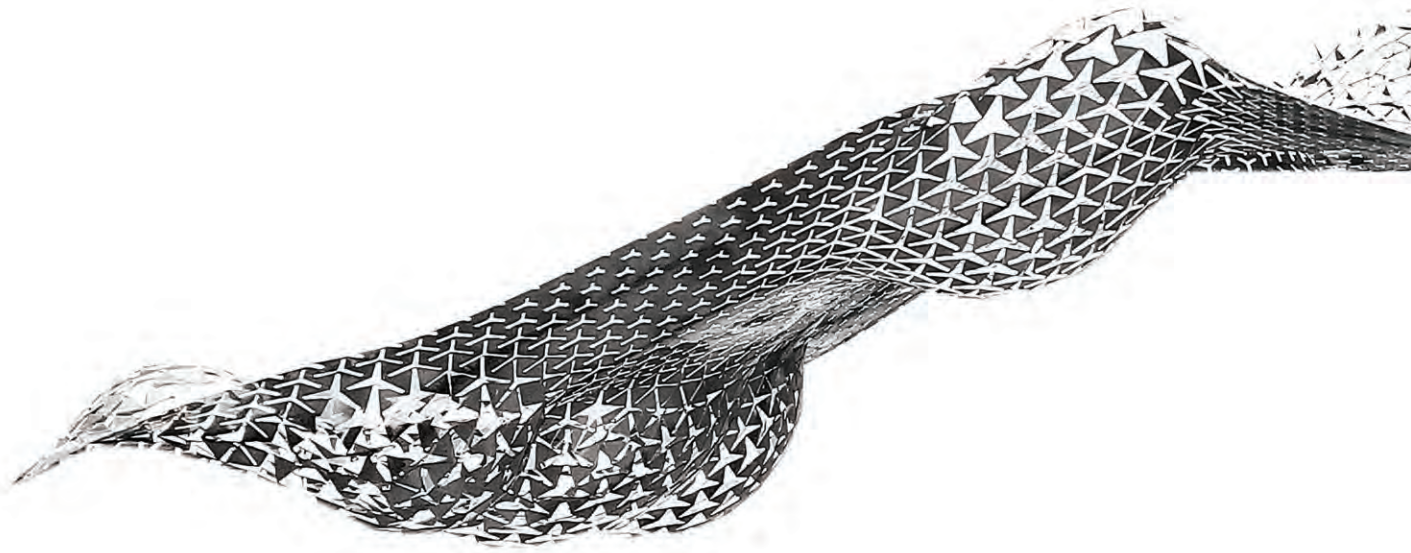


Fellows
Yi

Sinuous Steel

Auxetic Possibilities

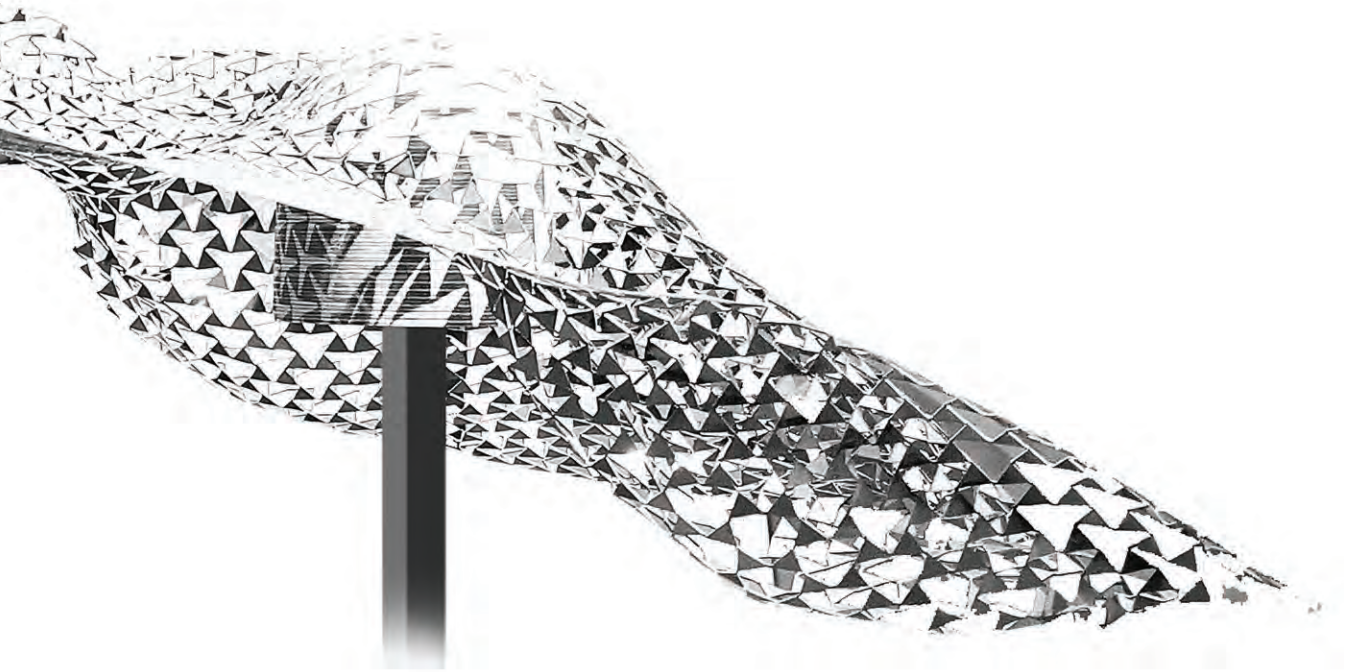
Maggie Cochrane and Mackenzie Bruce
Faculty Advisor: Tsz Yan Ng



This project explores the opportunities and limitations of auxetic patterning on steel sheets to create controlled doubly–curved surfaces. Auxetic patterns are created through nested geometries that create "hinge points." When cut into planar sheet material, rather than just stretching parallel to the applied force, the surface is allowed to expand in multiple directions. The resultant elasticity allows the material to be deformed into unique forms beyond the typical capabilities of flat surfaces.

The design interrogates the potential of this technique by combining fabrication technologies of the CNC Waterjet and 7-axis Kuka robot which allow for formal, spatial, and experiential explorations with greater material efficiency in the panel and form-making process. The research involved an iterative process of experimentation of thin gauge steel sheets with various auxetic pattern geometries, sizing, and robotic tool heads that allow for the flexibility and control of the form.

The research not only generates material prototypes but also incorporates automation with robotic processes for controlled localized surface deformation without the need for material–intensive molds. As a result, the steel gains qualities of visual permeation, airflow, and structural strength, otherwise unobtainable in a sheet material of a thin gauge. This research gives insights into the material behavior of auxetic steel—a step toward the fabrication of architectural enclosures, furniture, structural elements, and other possibilities.



Normally, a material will stretch thinner and perpendicularly to the direction in which it was pulled. In contrast, the term "auxetic" describes a material that becomes thicker or wider when stretched. "Auxetic patterns" refer to nestled repeating geometries cut through a material which create "hinges" when spread apart, allowing sheet material to expand and take up a larger surface area. This hinging also allows for double curvature and three-dimensional forming.

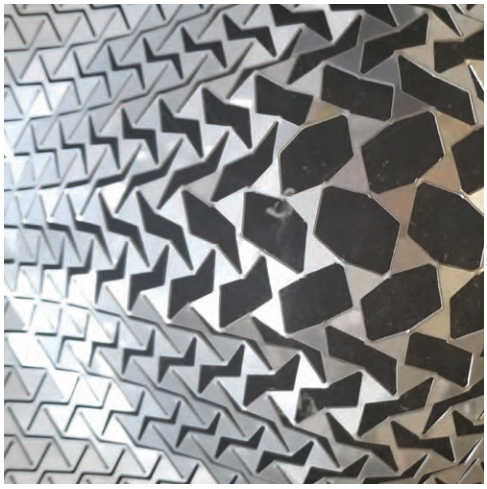
Method

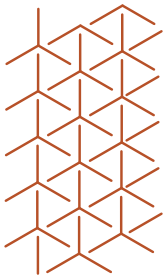
Auxetic patterns in the sheet material are used to create double curvature in paper, PETG, plastic, and steel surfaces.

PAPER: Decorative
Cutting auxetic patterns in paper and stretching it is the fastest but most delicate way to test how an auxetic sheet will flex. The initial study used paper to test out how different patterns affect a sheet of material, but the thinness of paper prevented the sheet from maintaining its shape, and if the cuts were too close together, the paper had the tendency to tear.

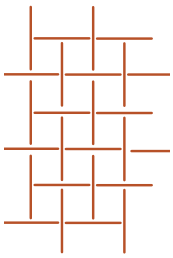
PETG: Malleable
PETG with an auxetic cut pattern deforms when exposed to heat. Plastic can maintain the most complex forms. While it is difficult to tell how a sheet might flex when it is first cut, melting sheets with a heat gun allows for a sheet of PETG to stretch over unique and complex curvature, such as the human form on the left.

STEEL: Structural
The research focuses on the deformation in steel, especially as it pertains to resultant structural integrity.

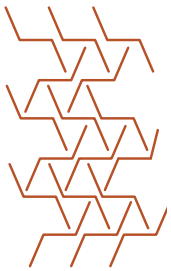




Triangular Pattern

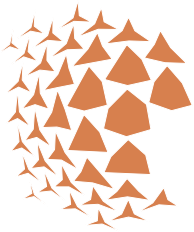


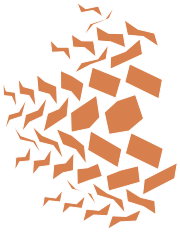
Square Pattern



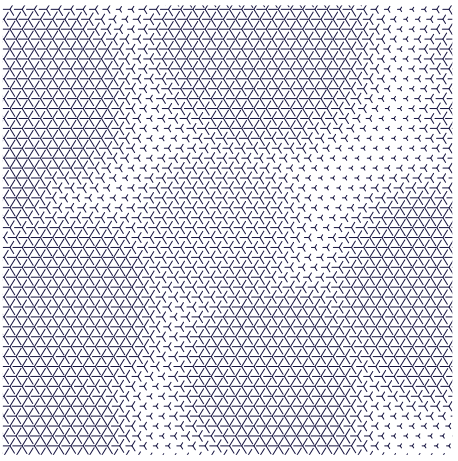
Triangle Zig Zag Pattern

Hexagon Pattern

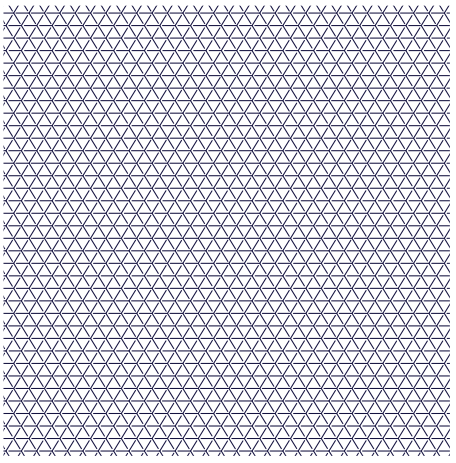




Gradiated Spacing



Consistent Spacing



Plan

Different cut patterns yields different deformations. Patterns were tested in a gradient to see how the sheet would deform in response to the cut shapes of different sizes and spacings.

Cut

Patterns and steel sheets are cut on the water jet. The sizing was chosen based on cut times and on predictions about the levels of deformation.

Form

The steel is too strong to be manipulated by hand. After building the framework to hold the steel sheets in place, the steel was deformed with 5-axis and 7-axis Kuka robots, pushing the steel to either just before or beyond its breaking point.

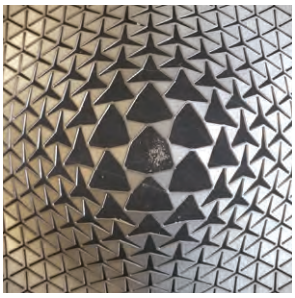
Auxetic Table

The large auxetic table shows different aspects of the technique and how it can be controlled. One half of the sheet was mapped using a grasshopper script to create a gradient of pattern spacings. The gradient affects the localization of the deformation. The larger spaces between through–cuts are less affected by deformation. If the line cuts and spacings remain consistent, as with the original tests on the wall, the deformation force will affect a larger area of the sheet. The sheet was flipped over on the frame part way through, in order to see how pushing in opposite directions affects the deformation. The map to the right is the gradated spacing as well as where the deformations were aimed.

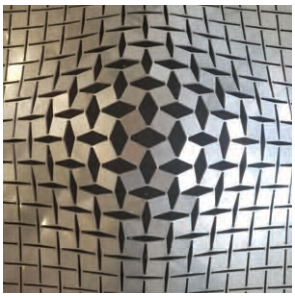
While there exists a great body of theoretical research about auxetics, there have been far fewer experiments in fabrication that brings auxetic patterning close to physical reality. The project aims to contribute to the understanding of auxetic behavior in realistic conditions. Through testing deformations, the project seeks to discover architectural opportunities for this technique, as well as to test the economy of scale with mass production and customization.

Having used a single point-press operation in the tests on display, further research would explore simultaneous multi-point surface deformation, which would allow for more precise computation of the surface outcome. Another approach to consider with this process is incremental forming, a process that uses a similar technique as the single point-press.

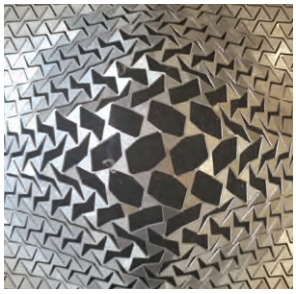
Utilizing steel with auxetic cut patterns has shown the increased structural potential, and this is a new area to interrogate—how to bring auxetics to the building scale.



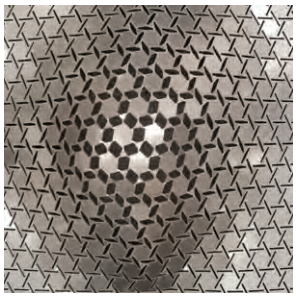
Triangles
Deflection Distance: 3.85"
Total Length of Cut: 1.59"
No. of Connections: 3



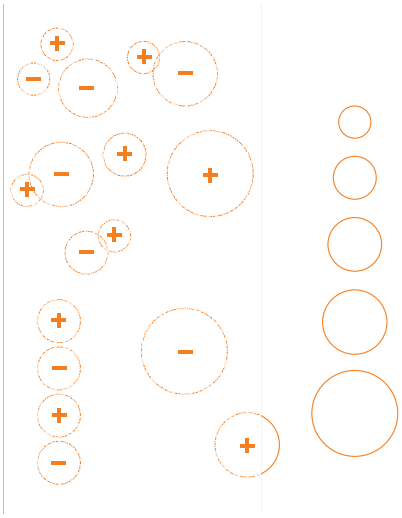
Squares
Deflection Distance: 3.00"
Total Length of Cut: 1.00"
No. of Connections: 4

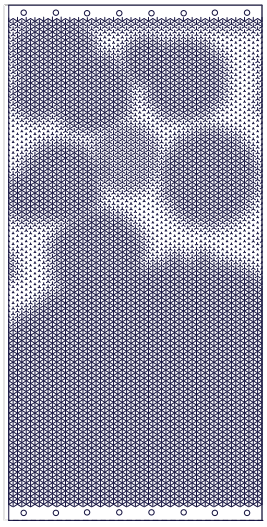


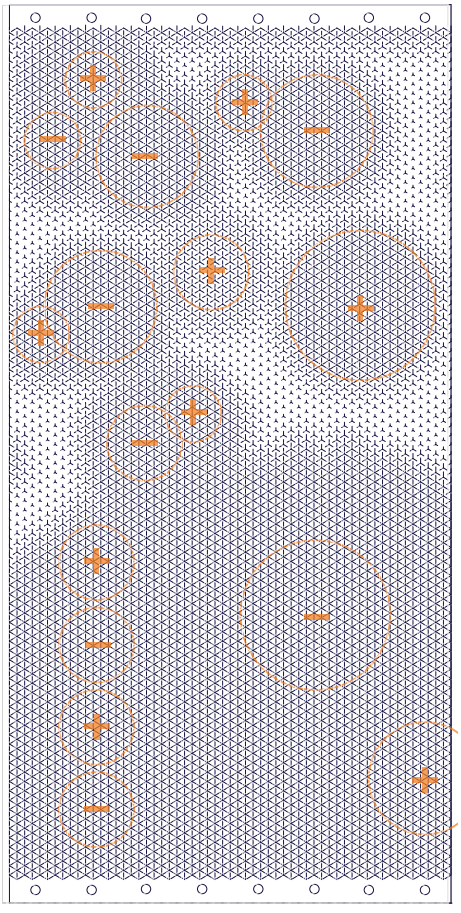
Triangle Zig Zags
Deflection Distance: 4.85"
Total Length of Cut: 1.56"
No. of Connections: 4

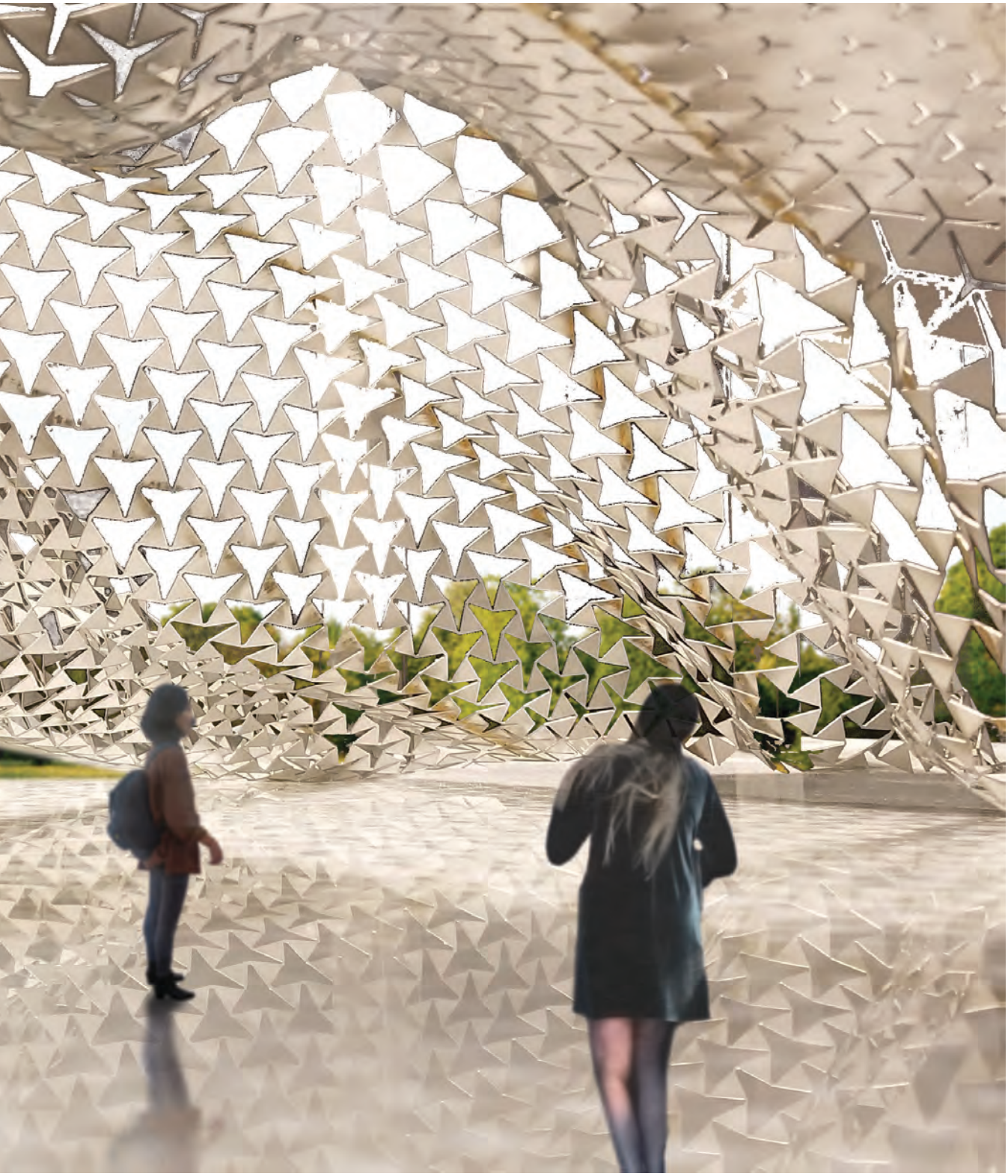


Hexagons
Deflection Distance: 2.97"
Total Length of Cut: 0.56"
No. of Connections: 6









ASRG
Cochrane
Bruce

NEW GROUND

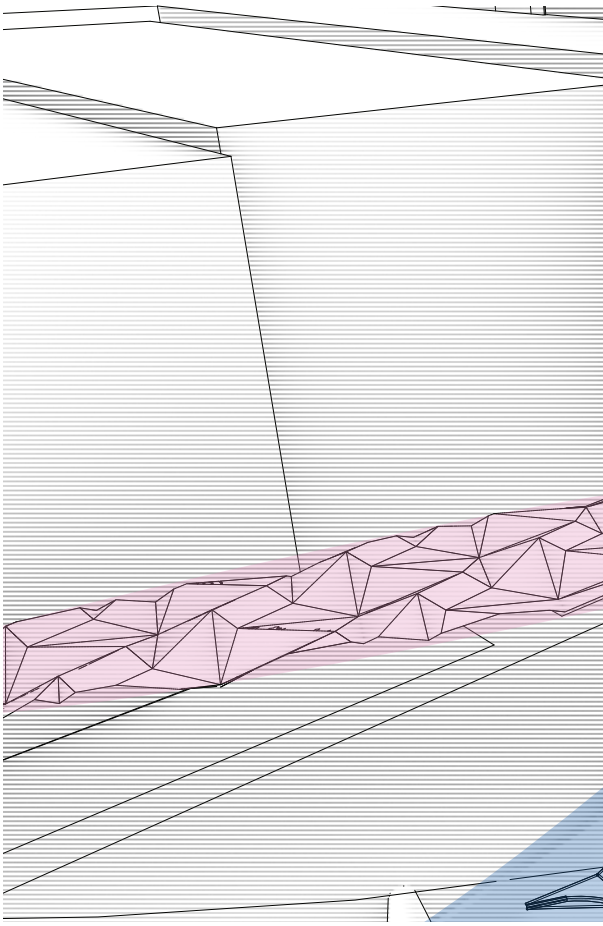
Angel Tang
Wallenberg Critic: U. Sean Vance

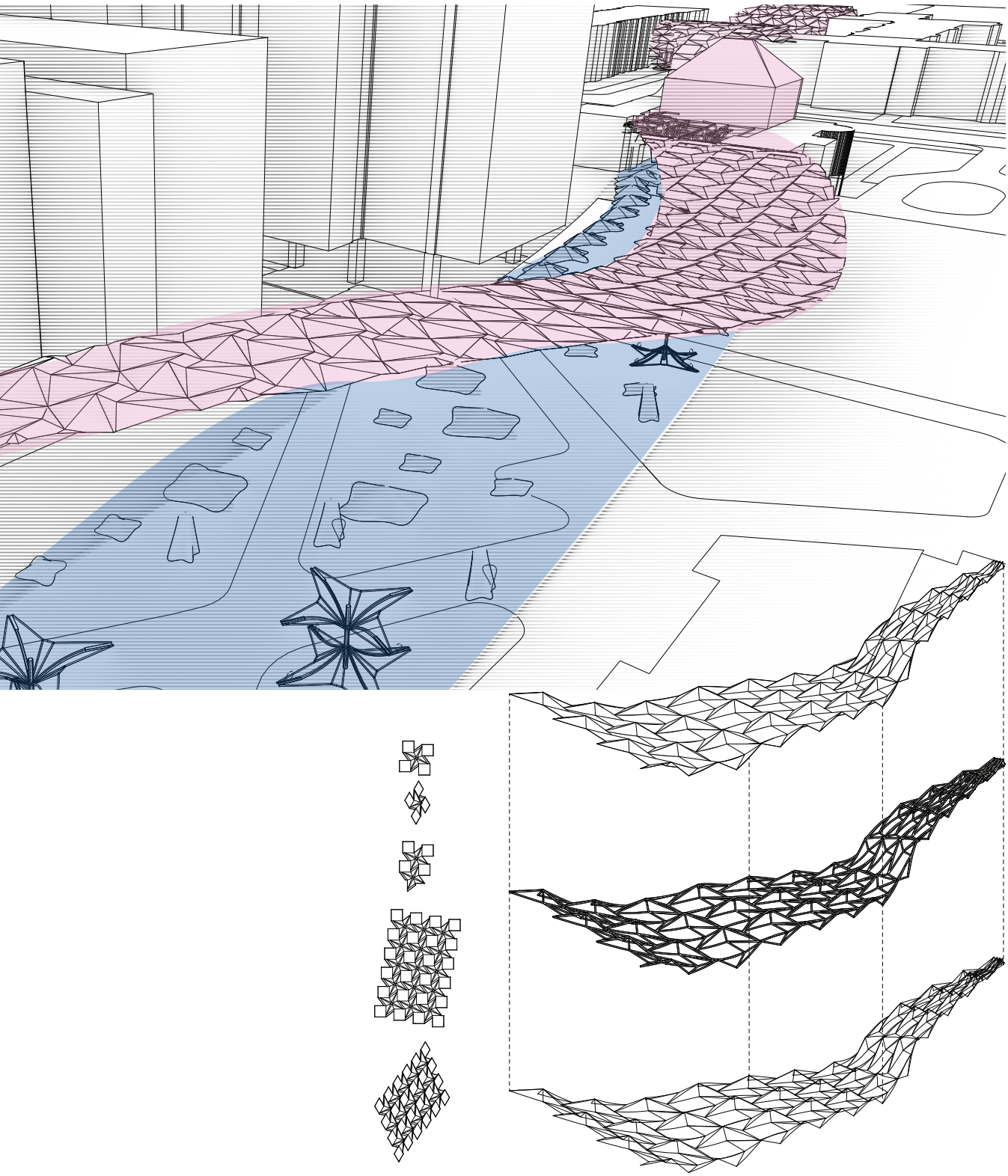
Differences ~~divide~~ inspire; yet how can architecture help people see beyond differences? New Ground is an ongoing attempt to include people living with sense-impairment in the public environment.

The clients/sanctuary citizens are the University President James and Anne Duderstadt, who are known for their dedication to rebuilding the Diag, documenting technology, and their hospitality to students. The project is pivoted around their campus home—the President's House—a site charged with university ideals yet currently isolated from the Diag. This divide interrupts the flow of campus energy and obscures the Duderstadt's gesture of welcoming all students.

In hopes to re-establish the connections between the House and the Diag, New Ground is a versatile event space that connects visual, aural, and haptic experiences, enabled by the technology of transducers. The multi-sensory spectacle, formally inspired by tallgrass prairie and origami, makes music a fun, shareable, whole-body experience for people of various sensory capabilities. Rather than an echo chamber, it is a backdrop that heightens resonance and dissonance.

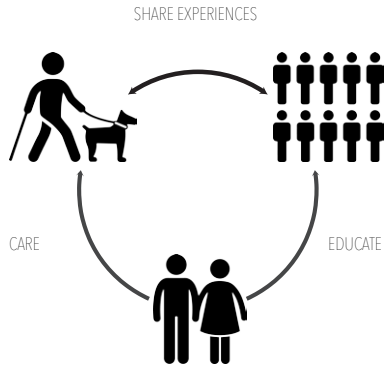
Together, let's feel, listen, and lie down on the NEW GROUND.





Shared Human Experience
common factors

#senses sound, smell, touch, taste, temperature
#activities walk, eat, sleep, think, talk
#relations friends, family, community
#emotions happy, sad, anger, disgust, surprise, fear



Visually-Impaired People
classification in US school systems

#partially_sighted indicates some type of visual problem, sometimes with a need of receiving special education.
#low_vision 20/60-20/200; a person who has measurable vision but has difficulty accomplishing or cannot accomplish visual tasks with prescribed corrective lenses.
#legally_blind *<20/200 vision, or who has 20 degrees (diameter) or less of visual field remaining in the better eye.*
#totally_blind *no conscious light perception; has to perceive information via Braille or other non-visual media.*

Visually-abled People
classification in US

#best_possible 20/8: the physical upper limit of human vision due to diffraction of light.
#normal 20/20: at 20 feet, one can see the details of what should normally be seen at this distance. **not the best possible eyesight.*
#able_to_drive 20/40: able to pass Driver's License Test in all 50 States.

Living Assistance
design elements

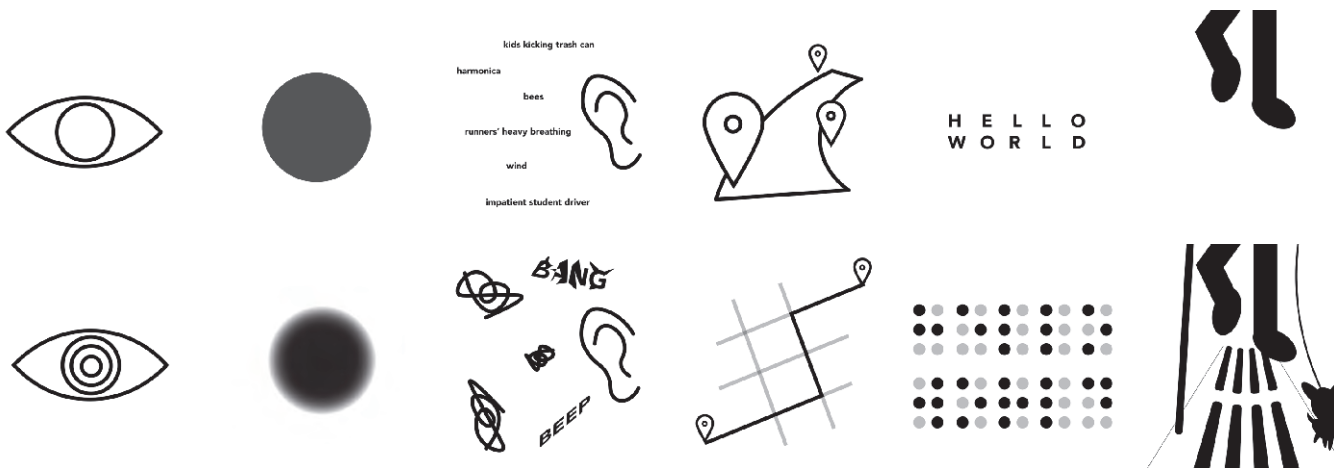
#Braille_alphabet a system of tactile letters, numbers, and symbols. (OpenType: $620)
#while_cane White cane: a walking stick to scan surroundings for obstacles or orientation marks, but is also helpful for other traffic participants in identifying the user as visually-impaired. (Home Depot: $15)
#light directed, low-glare lighting in high contrast environment.
#sound non-visual information that provides the most clarity.
#touch non-visual information that can be perceived primarily through hands and feet.
#assistance_dog helps with navigation and provides companionship.
#web_AIM accessibility guidelines on font, color, and layout in webpage design.

James & Anne Duderestadt
aka "Dude" & "Ma Dude"

#duderstadt_program rebuit the campus; under this program, various research facilities and the central campus plan (including #the_Diag) were built.
#involvement Various sources indicate that Anne is the most involved spouse in President's House caring, history documenting, and community building.
#millenium_project Directed by James Duderstadt, this research project tracks the impact of technology on our society, communities, institutions, and our planet, which shows his commitment and love of science + technology.
#community *When I say the words "university community", we generally first think of students, faculty and staff. We must recognize that our community goes far* ***beyond*** *these.*

Daily Life Impact
design opportunities

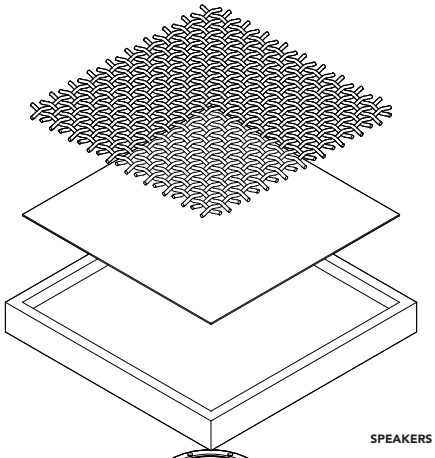
#physical reading, safe pedestrian travel, self-care, cooking, and recreational activities.
#mental common co-curring issues: anxiety, depression, phobias, PTSD.
#social difficulties in responding to social cues including body language, facial expressions, and personal space; lack of confidence in participating group activities (e.g. group meal); might fail to recognize when someone is approaching or leaving; more likely to experience isolation, discrimination, and deception.



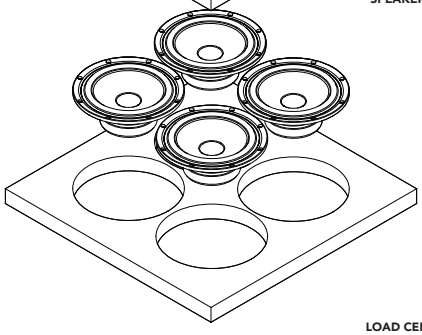
A new ground where all visitors can experience beyond vision.

FLOOR TILE ASSEMBLY
2′ X 2′

GRASS BOX

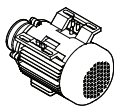


SPEAKERS

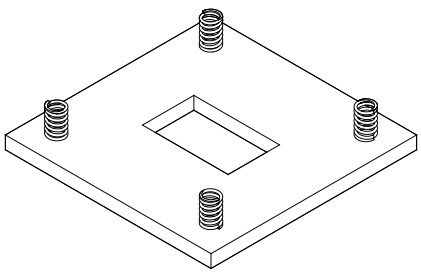


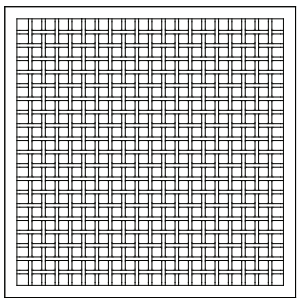
LOAD CELL

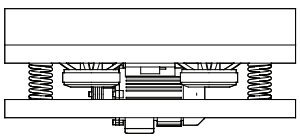
VIBRATION MOTOR

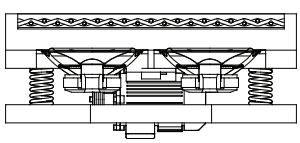


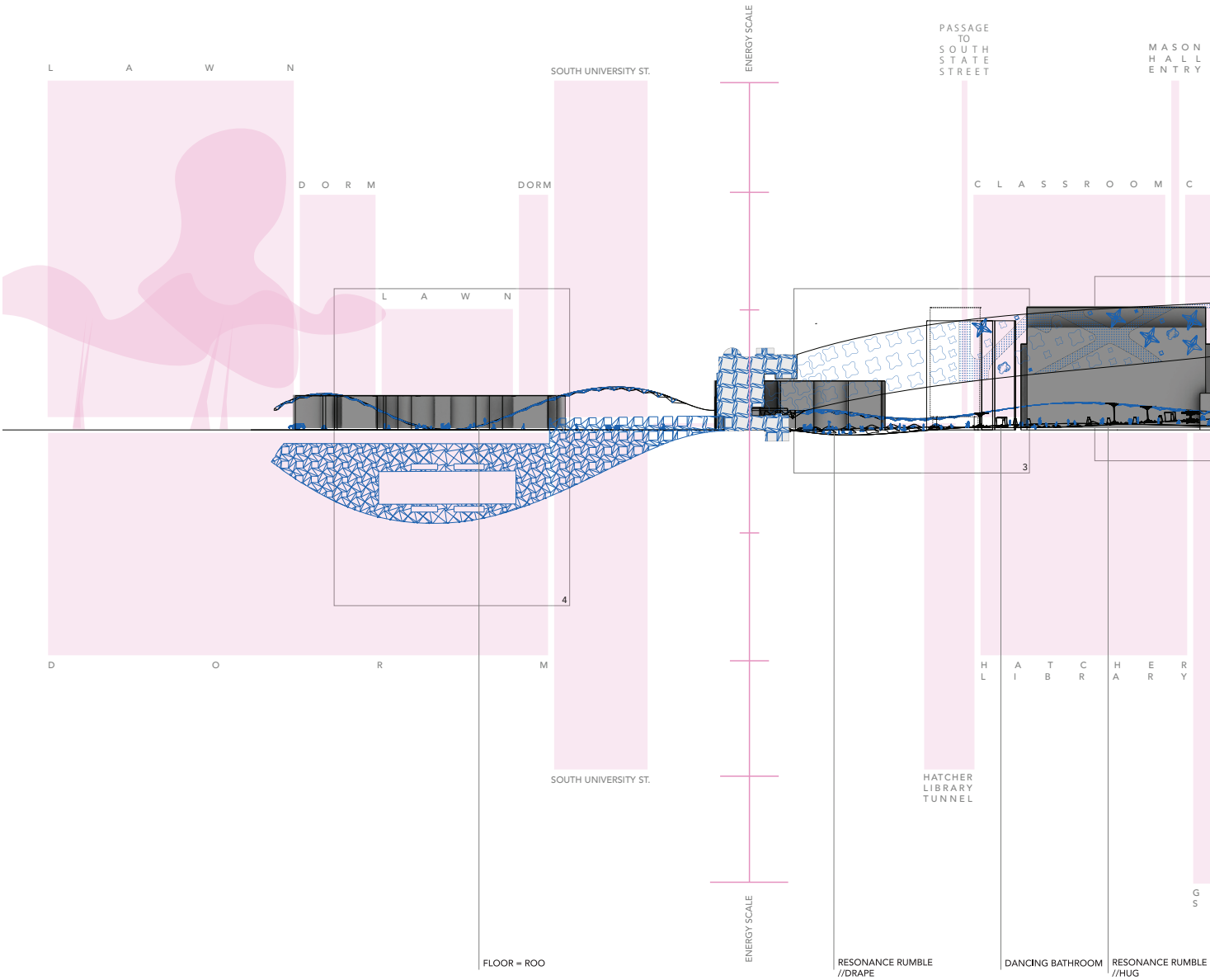
VIBRATION TABLE

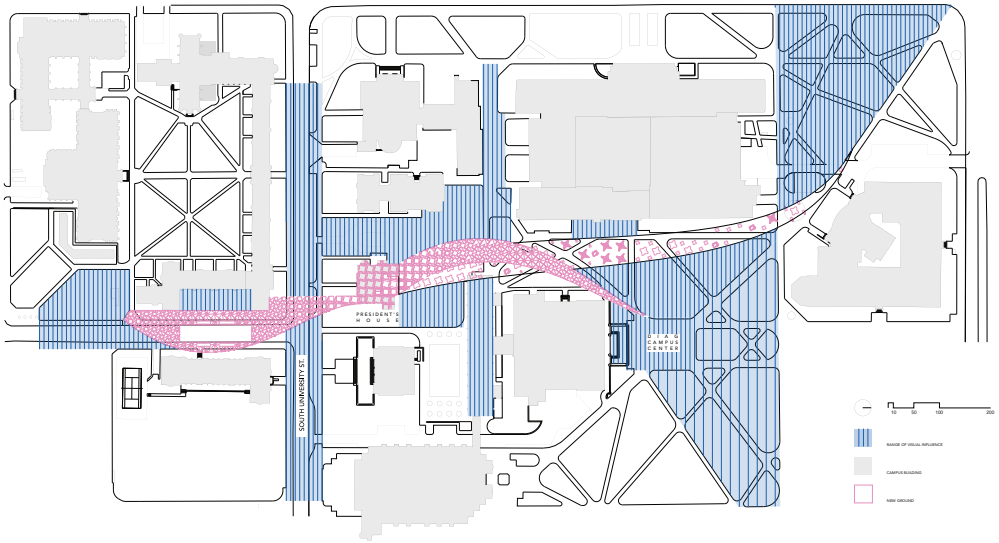


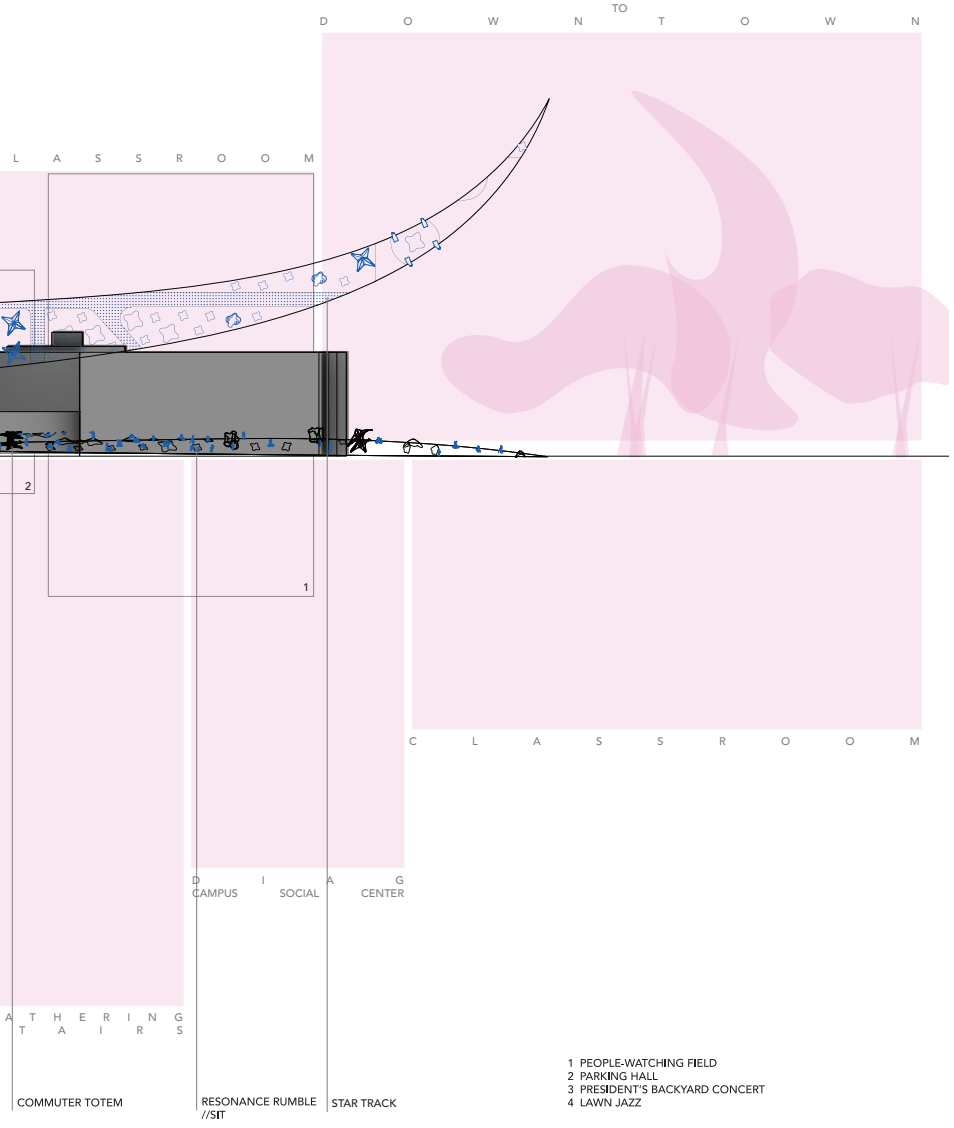




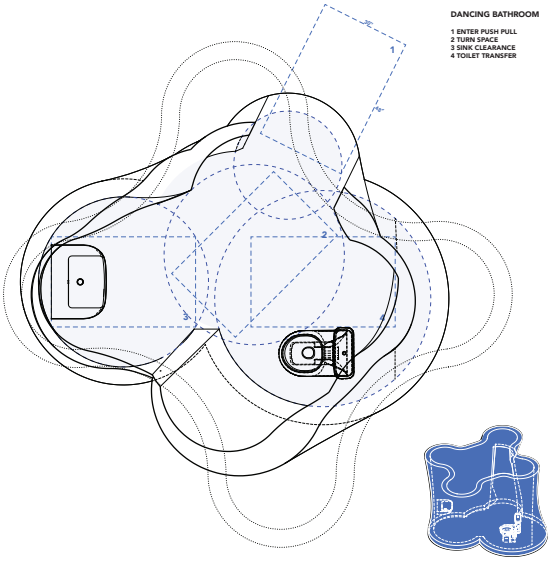


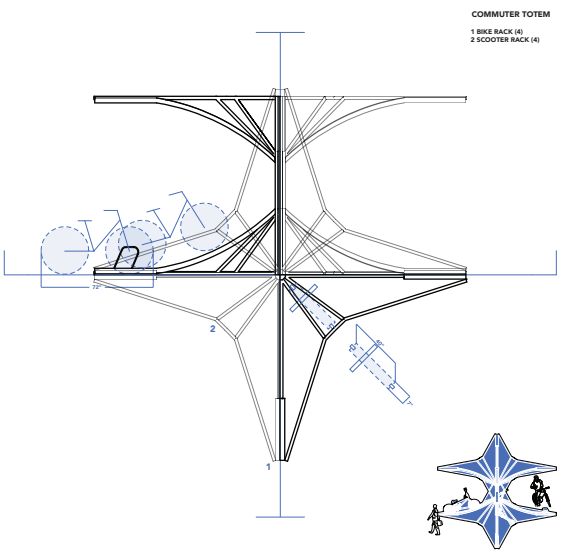

L A W N
SOUTH UNIVERSITY ST.
ENERGY SCALE
PASSAGE TO SOUTH STATE STREET
MASON HALL ENTRY
D O R M
DORM
C L A S S R O O M
C
L A W N
3
4
D O R M
H A T C H E R L I B R A R Y
SOUTH UNIVERSITY ST.
HATCHER LIBRARY TUNNEL
G S
ENERGY SCALE
FLOOR = ROO
RESONANCE RUMBLE //DRAPE
DANCING BATHROOM
RESONANCE RUMBLE //HUG

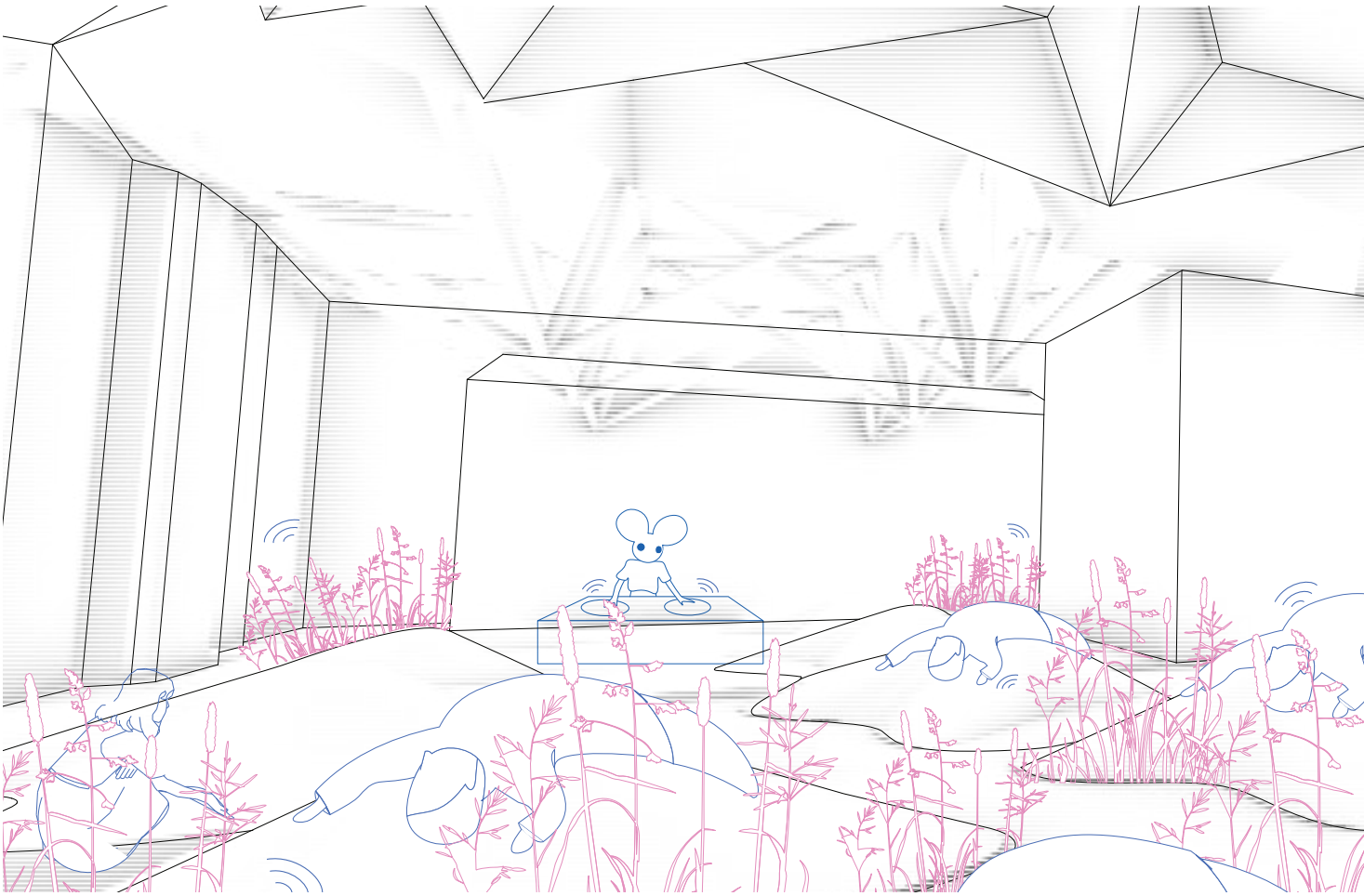




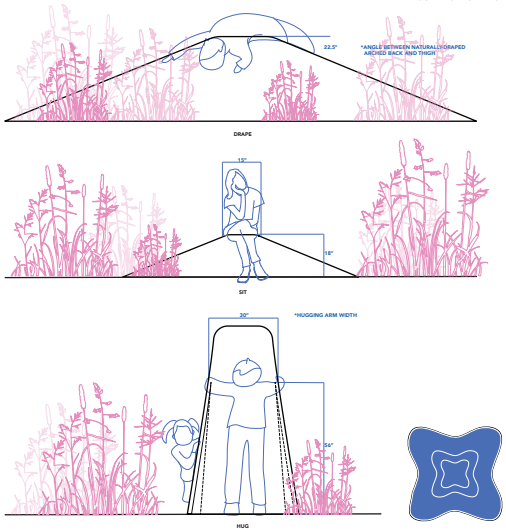
1 PEOPLE-WATCHING FIELD
2 PARKING HALL
3 PRESIDENT'S BACKYARD CONCERT
4 LAWN JAZZ


DANCING BATHROOM
1 ENTER PUSH PULL
2 TURN SPACE
3 SINK CLEARANCE
4 TOILET TRANSFER


COMMUTER TOTEM
1 BIKE RACK (4)
2 SCOOTER RACK (4)



RESONANCE RUMBLES



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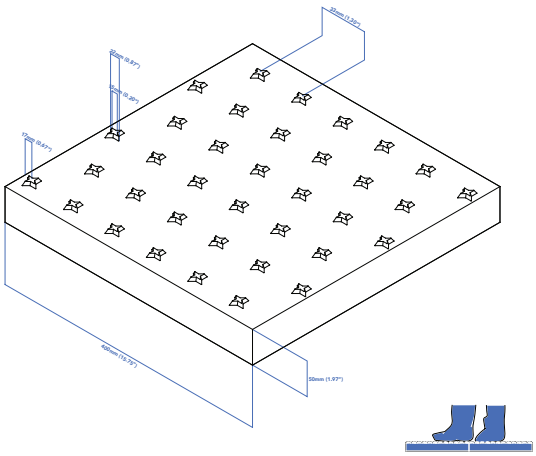
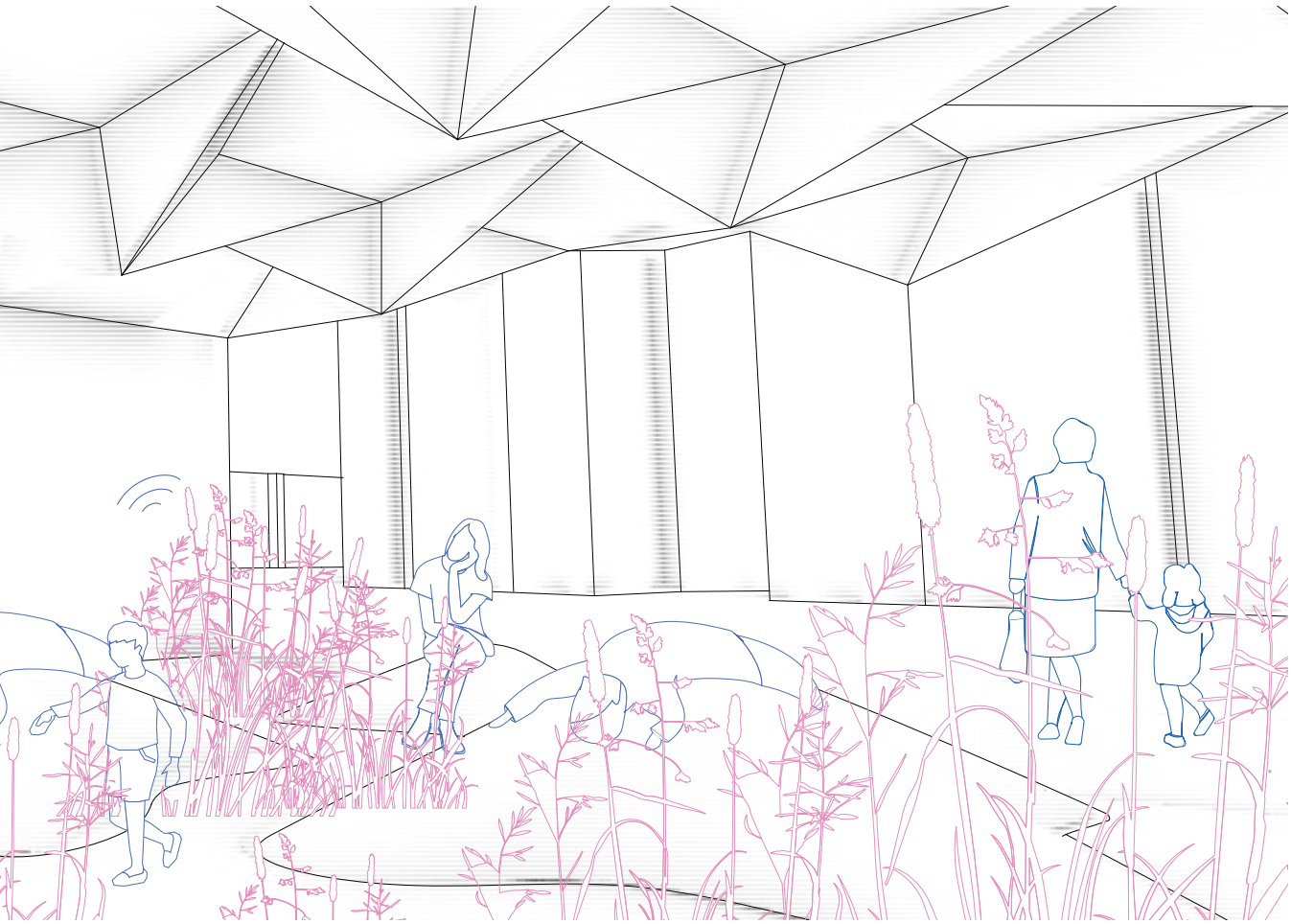




Mark Burry: From Lab to City

Interviewed by: Rachel Skof and Ben Vassar

Mark Burry AO is a licensed architect and Founding Director for the Swinburne University of Technology's Smart Cities Research Institute. Burry served as Senior Architect at the Sagrada Família from 1979 to 2016, where he pioneered the use of digital technology to communicate sculptor-architect Antoni Gaudi's intricate detailing. Having submitted the full proposal for the basilica's Glory Facade in 2016, Burry's focus has shifted to his overseeing of various models for researching urban futures.

Mark Burry presenting his lecture at Taubman College

Dimensions 33
Is carbon neutrality a major focus of the work you do at Swinburne?

Mark Burry
That's just a very small part of what we do. As the director of the Smart Cities Research Institute, we study urban futures, which is about sustainability. Of course, carbon neutrality is all-pervasive, but not the driver; it's just one of the paths.

D33
So does the program mostly operate in an urban planning and urban design realm?

MB
It's sort of anti-planning, in a way. Because planning at its most basic is pretty much a two-dimensional construct and we are definitely in a four-dimensional world now; we are really about being an antidote to the plan being the operating device. We're much more interested in responsive design; being able to respond to challenges such as diminishing resources and the carbon neutrality issue. We comprise of four programs. The first is about future urban decision making, hoping that we'll be able to work with the public in new ways compared to what we're used to doing in the past—we are seeking participation and not just engagement. The second program is in future spaces for living, which speculates the work and home environments of the future. The third is in future urban mobility, which is kind of obvious. The fourth program is harder to explain. It's future urban infrastructure, looking at building information modelling (BIM), precinct and city information modelling (PIM and CIM), and simulations of urban futures scenarios.

D33
Does the scale of these programs range from micro to macro?

MB
Yes. The challenge is really not the scale, but the universal one of trying to get all the experts and the university together around the same table. I'm interested in urban futures because it's an area which requires the entire university to participate, whether it's philosophy, history, geography, design, engineering, or whatever. They all have skin in the game. We are a technical university, though.

D33
This means that you have to go to other universities to get that expertise, doesn't it?

MB
Yes, and that's another thing that we are not that brilliant at. In Australia, universities are very competitive environments. I'm arguing that we should learn to collaborate with each other and compete with the world instead. Having said that, there are operational devices in Australia, including funding regimes, where it's imperative to work as teams and across universities. But there is not a lot of incentive for people to work together in universities. There may be some exceptions in the States, but I haven't found them yet. There's a lot of ambition.

D33
How often does your work intersect with policy?

MB
My previous job, at the University of Melbourne, was in three areas: data acquisition and analytics, representation of data, and policy. I argue that I didn't really have all of the requirements for the job. I am pretty skilled at representation and I knew quite a bit about data analytics, though as someone benefiting from, rather than undertaking it. I had to find out a whole lot more about policy—but of course, that came with the position. What I am saying, in a long-winded way, is that I think policy is driving many of the ways that we shape our cities. We like to assume that they're organic and shape themselves, but there is a human agency and that agency can only be organized through policy. So I am actually very interested in policy, but again as a Johnny-come-lately and not as an expert.

D33
When you talk about elements of policy, how specific does it get?

MB
Well, everything, really, but that brings us back to the limitations of planning. By that I mean, policy in terms of how society organizes itself so that it can go from A to B beyond the skills of just the planner. Cities are never static and that means they can go backwards, which we don't really like. But normally a city should have at least a crane or two on the horizon. That signifies change and those changes have to be organized; otherwise we have an informality. Of course we do look at informal suburbs of cities, for instance, of the world's cities that have grown way beyond the government's ability to look after them. Again, I am not an expert at this, but it seems that informality can have its own self-organizing benefits. So it's really a debate about how much policy should shape a city. But I don't think it's a good idea to say 'no' to policy.

D33
Are any cities in the world today with that kind of organization?

MB
Indeed, Singapore. For a large part of my life, Singapore was one of the world's most boring developed cities. It's anything but that now—I find it fascinating. My usual benchmark is talking to a taxi driver. They are usually very open to discuss what's going well and what's not. One thing I noticed is that in Singapore currently, young people still feel that their world's not quite right for them, that it's 'too organized', or so I'm told. And I ask, "So specifically tell me what is it that young people want to do that they can't do?" Apparently there's nothing really, other than certain types of free expression that they'd like to have, as a right.

It seems that's what happens if you are in a society which is hyper-governed, even if the relevant governance is benign and appears to be working only for the common good. I have never experienced it, personally, but apparently it's not a good feeling. But if you just look at going there empirically, just as a future-oriented functioning city, Singapore seems extraordinarily well organized, really attractive, and fun.

D33
It's a fun place to be.

MB
Absolutely—stimulating, but that's all happened in my lifetime.

D33
It's a young country of just 50 years.

MB
I'm not sure what that means these days. I think national borders are a problem. My second home of sorts is Catalonia and I've just watched that go very pear-shaped in the past few years. I'm very sympathetic with their Independence cause, but in general I can't see how 21st century society is benefitting by being so strict about our borders. It's such a source of tension and I recognise that for many reasons people still need to migrate from their 'home' country to somewhere else. I am an economic migrant in Australia from New Zealand, and so I know what it means to move to another country. I know what it means when borders are porous; they're great. But I guess we don't want to share everything with everyone, so we keep
our borders, even in the face of major geopolitical change.

D33
Related to that, how does the work you do in academia affect policy? How do you get that research into building sites?

MB
The role of the university in society is an intriguing one. We're gifted with the opportunity of being able to say exactly what we think without fear of repercussion. But that can be a hermetically sealed conversation and how to be relevant beyond the university's discipline towers and precinct walls is indeed a challenge. It's not easy because of the lag between a good idea being tested in the laboratory at the university before being exportable to the laboratory of life in the city. I'm astonished at how little universities are used as the first port of call in Australia. The first port of call is to the big consultancies, whether they're engineering firms or accountancy firms. That's where a government would normally go to get advice. With luck, those companies consult their universities, but there's not as much fluency as there should be.

D33
Could you tell us about the Sagrada Família and your work on it?

MB
The Sagrada Família succeeds as a living research laboratory because of its complexity. As you're probably aware, there has been significant opposition to its continuation, particularly from the local Intelligentsia. They see it as an absolute insult to the memory of Gaudí to be continuing in the absence of clear instructions from him. But there were very clear instructions. I am the only person in the world who has worked on the project using both an analog and a digital design strategy and methodology. Everybody who's working on the project today works digitally. But when I first went there, we were using slide rules. Calculators had only just come in. They were almost unaffordable when I started and then they became more affordable in the late '70s. The importance of the Sagrada Família is that it's not an accident that it was a harbinger of all

of the game-changing opportunities of the digital design and fabrication world. It's not like, "Oh, there is this project and it's digital. Let's see what we can do." It's that in his final decade Gaudí simply set the project up so that computation ended up being the best way to communicate his demands as a designer to those people who have to build it. It just so happens that he himself suffered from his previous approach to architecture working much more as sculptor than architect. When he got very ill in 1911 and was forced to convalesce for months up in the Pyrenees, I have a mental picture of him lying on his back looking at the ceiling wondering how on earth he was going to finish the Sagrada Família, and it had worked out that he wasn't going to be able to complete the task in his lifetime. So that's when he moved from being a sculptor to being an architect in my opinion, and really thinking, probably for the first time, how a building design could be more systematically approached, as opposed to being an extension of the sculptor's craft. So the reason digital craft came into it is simply because I was aware of the design computation world starting in the late '70s; I had heard about these computers. The late Bill Mitchell, from MIT, was my instructor in computing in 1977. We spent a whole semester using punch cards to first 'draw'; a cube before being able to move it around on an oscilloscope and get different views of it.

By the time I went to Sagrada Família the second time, in 1989, and was invited to be involved, I realized that there were computers and CAD software, and maybe they had something to offer. It turned out they didn't. Not in architecture for the types of design demands that Gaudí was making. But aeronautical, naval, and auto engineering software could meet the design demands. In an edition of Architects Journal in Britain published in 1992, I stated that 3D solid modeling and working parametrically was a no-brainer confidently predicting that by 1997 we would all be working parametrically and in 3D—I was off by more than a decade and a half. 3D didn't really take 20 years to become a core component in the architect's digital toolbox, but the designing parametric thinking took a very long time. People used to tell me—partly because of the cost of the equipment and software at the time—"this is really interesting, but I'm not sure what it's got to do with me." So we are very resistant to change as a profession. If you are a young digitally agile architect, that's a bit depressing. On the other hand, it's an exciting challenge because the profession is going to have to change.

D33
What is next?

MB
Well, new tech is always there; it's just whether or not we want to do anything with it. One area I'd be interested in is boosting self-build. At some point maker tech, fab labs, etc. are going to go up to the next scale, which is the building scale. Obviously, one way to approach affordable housing in communities—where perhaps people are underemployed and there is a great need—is to think of really clever ways to involve people in the building process for the homes that they will live in. In certain countries like Australia, there are significant obstacles including stringent health and safety concerns, and a very unionized workforce in construction with certain expectations.

Another area I am really fascinated by, but don't do any significant work in, unfortunately, is the idea that we could be growing future building materials. Not only that, but we will grow the buildings, too. Mycelium obviously is a great material that is 'just in'—I have colleagues who are making mold materials out of mycelium that you can then craft. You can mold concrete and then reconstitute the mold material and do it again, as opposed to using polystyrene.

In terms of extending BIM—and I think that's a rather tedious topic—we can start thinking more about Precinct Information Modeling (PIM) and City Information Modeling (CIM)—these are my pick of the go-to areas. BIM will take care of itself; it's relatively straightforward. Ship and auto builders and plane makers have been doing the equivalent for decades, but I personally wouldn't put too much extra time into studying it because it's not much more than a collation of the

The intricate ceiling of the Sagrada Família

relevant information about a building: how to make it, how to run it, and how to demolish it. But Precinct Information Modeling is fascinating because we're really only getting up to speed with it. That's because the information and computational demands are so high. But clearly with all of this data about the interconnectedness of buildings as precincts becoming more available, we're going to know a lot more about the way we live as a community than we have done in the past. That ought to scale-up and translate, I think, into improved insight into how we make better cities in due course.

D33
Is there any inclination to move away from concrete as a material?

MB
There are two parallel streams, both of which I am really interested in. One is how to reduce the use of concrete and make it more effective. People like Philippe Block and his team at ETH are looking at ways of using lower grade concrete, and much more cleverly. At Swinburne, we have been very involved with high-strength concrete and large-scale concrete 3D printing. It's fascinating what you can do with this prosaic material now. On the other hand, we won't have enough concrete to build the rest of what we need to build in the next 50 years, so the only way we can continue with concrete is to be more efficient with its use. It's not going to go away, but we also need to think of alternatives to concrete as well as new ways to use it.

D33
I was reading an article on your website about how the U.K. is committed to carbon neutrality by 2050. We're learning in our construction class that concrete accounts for 8 or 9% of the entire world's carbon emissions. So how do we move away from that?

MB
I have no idea. I think your generation has very different needs from ours in terms of the amount of space we each require and the way we all need to work. So I think it's not just concrete. Steel is the other big material with carbon implications, and while we can get steel structures without concrete, it's a bit like moving the deckchairs. Will we have to? I doubt it, unless we can think about other ways of building our cities which don't involve enormously high buildings. I know there is work in Europe on using timber for multi-story. 10-story timber buildings are an exciting prospect. But of course, that's a lot of timber.

D33
Yes, it's hard to balance.

MB
Yes, but for your generation, there are different material interests, and what seems like a reduced need for space and storage compared with older generations. There seems to be a crisis in the States on the status and accommodation of heirlooms, for example. People in my generation or more so the generation ahead of me, perhaps, who have acquired wedding presents like cutlery sets, and extensively material household goods, all of which they are very fond of, will say to their kids, "One day this will be yours", as if their emotional value was transferrable. But the kids won't necessarily want them because they could well see these as clutter. So if your generation seeks to declutter and look for ways of living more communally without requiring the individual detached house on the suburban block—like apartments, where does this unwanted stuff go? There are larger apartments where you go through the door and that's your entire existence, and there are more spatially efficient apartments where you have just what you need to be purely private with access to

shared facilities—'co-housing'. And then of course the workplace is also changing very fast. Everybody I know who works in open plan hates it. But it's nevertheless very effective. It's a much better use of space.

D33
With issues of space in cities and countries with growing populations, how can you even begin to work with outdated infrastructure?

MB
I'm just finishing an edition of Architectural Design (AD) titled 'Urban Futures', in which I have addressed exactly that. There is a huge difference between how you would build a city from scratch today, which occasionally happens, and how you manage to extend an existing one. Basically, we're trying to reform our cities but we're trapped with the existing infrastructure and the mentality of ninety nine percent of people who want more of the same and certainly don't want to go backwards in terms of amenity. How do we go backwards in terms of reducing our consumption but still focus on going forward? Because we need to go backwards in our consumption, obviously, but we don't want to go back to the Stone Age or whatever. We all have to think about this together—it will not happen by itself.

"The importance of the Sagrada Família is that it's not an accident that it was a harbinger of all the digital world… Gaudí simply set it up so that computation ended up being the best way to communicate his demands as a designer to those people who have to build it."

In this Urban Futures issue of AD, there are a lot of interesting alternative insights, like the fact that with digital technology, you don't really need to have an expensively crafted façade; you could have one that just changes its personality at the flick of a button. Another contributor is looking at complex adaptive systems (CAS), which is an interesting take on self-organization. For me there are two recent and very relevant books by social economists which are ideal as primers. The one I have just finished reading is called The *Technology Trap* by Carl Benedikt Frey. I think every student of architecture should read this, because it's the history of technology, economics, society, and politics. It tries to make sense of where we are now and explains why populism has surged effectively partially in response to the effects of technological shifts on society, and Frey

Burry's Studio

New addition to Sagrada Família

writes about the gouged-out middle class and the disappearing blue collar middle class.

The other book that I am still reading at the moment is *The Rise and Fall of American Growth* by Robert J. Gordon. I am only about a third of the way through, but it's just so revealing. It's all of these obvious insights such as there was almost no housing with central heating, sanitation, or power before 1870—did you know that it took 100 years after the invention of mass transport between cities, steam trains and boats, before we had any type of personal mechanical mobility? So for 100 years after steam trains, we were still relying on the horse for nearly every major transportation task within the city. It's kind of obvious, but I had never thought of the evolution of the modern city in these terms. Despite specifying and chronologizing the rise and fall of growth, the book is optimistic, because it details that technological shifts and their tangible outcomes generally evolve and don't have to happen at the flip of a switch. You can morph from one thing to another. I'm not going to be around in 2070, I don't suppose but I have a feeling that a city in 50 years' time will be profoundly different from the city of the last 50 years. Mobility and changes in work practice alone will relax cities into a more polycentric mode.

D33
What do you think of Barcelona's super blocks?

MB
Fantastic! It's the sort of innovation that makes Barcelona excitingly different. My contract finished at the Sagrada Família in 2016 with the handing over of the completed sketch design for the Glory Façade (the basilica's main front). With applied digital fabrication research becoming a very congested space, in which there were a lot of younger people emerging who are faster and more gifted than me, I thought, "Well, what's left? What's the next big challenge?" And I realized that cities weren't getting the kind of digitalisation impetus that construction has been getting. That's why I have morphed into urban futures. By sheer luck, Barcelona's pretty much one of the world's most progressively and inventively modern cities still, just in terms of its future thinking. That's partly a result of the superblock's component blocks being extraordinarily well conceived in the Cerdà plan of 1859. I still go back to Barcelona regularly because I have that basic need to see what's new that's happening in the city.

D33
Would you say it's an adaptable city as well?

MB
I think the Cerdà block is showing that it is. As long as people adapt to it. Normally if something like a superblock was proposed for an Australian city: you'll get a massive negative reaction, a politician will risk losing their seat, and it will go back to the way it was. We have been talking about Melbourne becoming a pedestrian-focused city but it's still just head space, not bold action (yet!). Most modern cities are still conditioned around vehicular transport: like, as long as you can keep the cars moving, then everything else will. One of the ideas the current Lord Mayor of Melbourne has (where I live) is, "What if you actually say no? The primary movement in the city is pedestrian. Let's get this to work really well for them and then we'll see if there's any space left for cars."

There are lots of ways of doing this. You could change school hours so that not everybody's taking their kids in at once. Or you can charge a huge congestion charge: "If you want to live in the city and you want to have a car, well, it's fine, here is the charge for bringing your car into the city." Maybe the charge could be so high it would actually be cheaper to go with rideshare

or whatever. Or you say that you can only get your car in and out between 6:00 a.m. and 8:00 a.m. or midnight and 8:00 a.m.—whatever. They're just things you can do to say: "The rest of the time, it's going to be a walking city." We can look to Europe and see how many historic cities have been able to get rid of cars. So yes, Barcelona is clearly an adaptable city.

D33
I'm curious about how de-incentivizing people to drive would work in a place like Ann Arbor. Is there a certain size of city that you need already to have? I know that the public bus, The Ride, doesn't run frequently enough for most people to rely on it.

MB
No, but there are lots of initiatives around the world where buses come to you. You just basically request it and the bus will reroute dynamically. The classic problems are the last mile, which is what most people use as their excuse for driving. The bus can take you close to home, but then the last mile is going to be the hard part. You're tired, it's dark, you worry about security, whatever, so you just take the car.

D33
Can you apply models like those you're applying in Barcelona and these European cities to a place like Ann Arbor and cities of comparable size across the States?

MB
Well, I have had a very interesting experience in Ann Arbor. I arrived yesterday with an infection in my leg, so I had to go through with an investigation into the unfamiliar (for me) apparatus of something called a walk-in clinic.
It was miles away but getting there didn't take long in an Uber ride. When I got there, there wasn't a huge queue; it was quite quick and professional. Then I asked, "Where is the nearest pharmacy?" and they said, "The closest one is something called CVS."
So I started walking, and it turned out it was a very long walk in the drizzle, even though it was said to be very close. And when I got there, I found that the dispensing system is very different from that in Australia. You take your prescription, then go and do something else, then come back and collect it; whereas in every other country I have been to, you go in, you wait two minutes, and you walk out again. So I then had to get an Uber to another CVS for hopefully a quicker service and it was still drizzling the whole time. I got into the town and thought, "Oh, Ann Arbor just seems like one huge suburb." But then I found the center and realized it's really a very attractive, tight, little city and you can walk around.

D33
It's pretty tight. It's all pretty much right there.

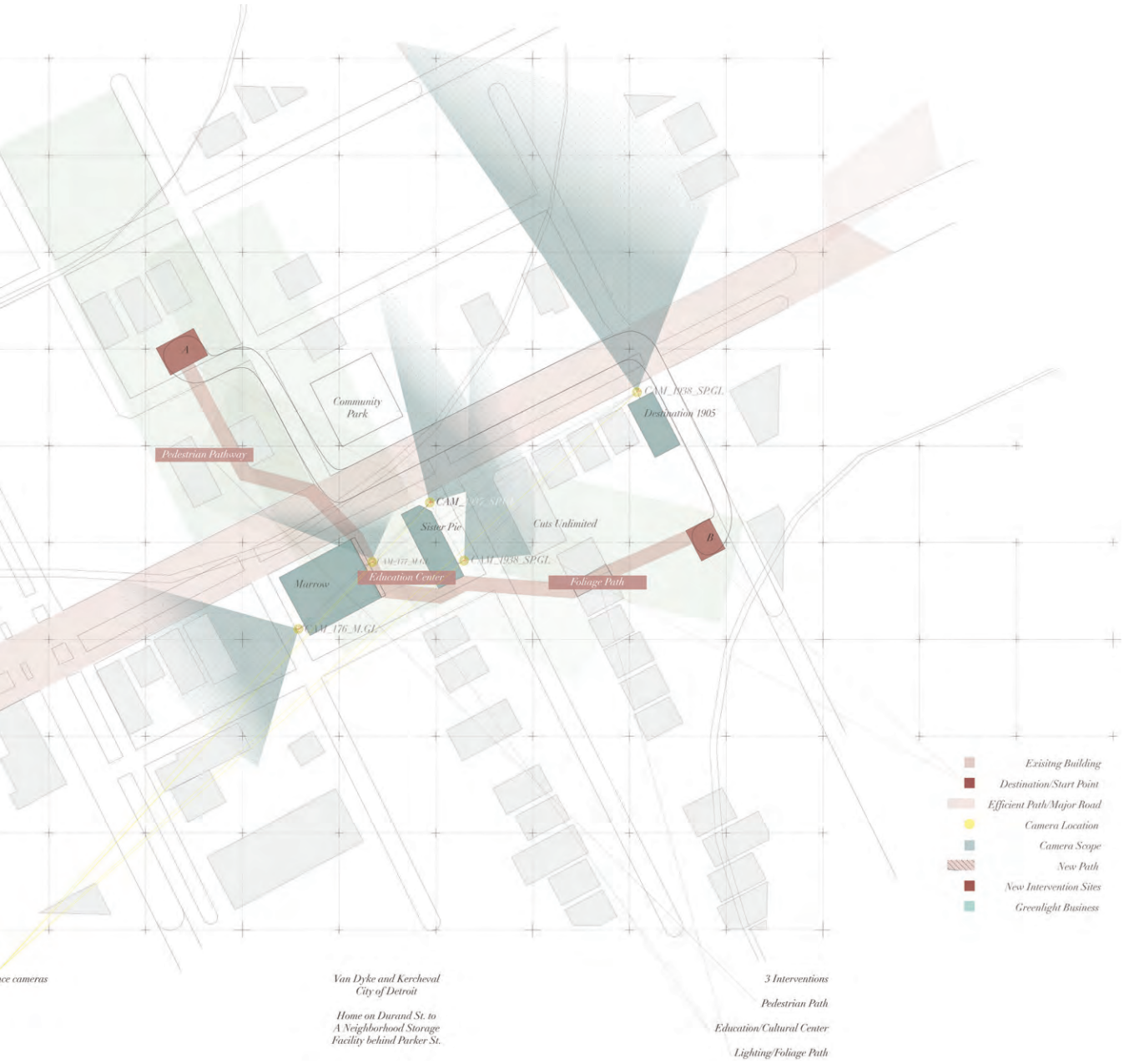
MB
Indeed, but I went out in the other direction for my medical adventure. So yes, I think as long as people decide that scooters and electric bikes are a better way for them to get around than cars, then there is no reason why Ann Arbor can't shake the car habit.
But American cities are going to have real difficulty adapting, just like Australian cities. I am just finishing the introduction for my urban futures AD which includes a picture of a book cover called X-R`ay the City, written by Ernest Fooks in 1946. He talked about Melbourne's growth and explained exactly what needed to be done then, yet nobody did a thing about it. He wanted a half-hour city where basically everybody could live within 30 minutes of everything, and he set out how to do it. Effectively, nobody took any notice and now everybody's wringing their hands in distress because Melbourne is now in a big congested mess. It's the world's fastest-growing developed city and it's going to double in size to eight million by 2050, which is not huge by any means but it's already an hour on the freeway to get from the center of Melbourne to the outskirts, even when there's little traffic. That's because of suburbs. Suburbs are built without building work opportunities nearby, so people have to commute from new places to live to old places of work such as the city centre (CBD). Change is not going to happen overnight, but it's an unsustainable model. Then again, it's very easy to sit in a chair and pontificate. I think we have strayed far from talking about concrete.

Objective Algorithms

Evan Crawford
Wallenberg Critic: Craig Wilkins

Scanned, uploaded, compared, sought out. In the past, racism and bias in the criminal justice system was clear and subjective. With current facial recognition algorithms, bias is not perceived as bias—it is programed to deliver the idea of objective fact. Objective Algorithms is an expression of the gaze, faced back on the camera, whose servers capture faces through the perpetual lineup of innocent citizens known as facial recognition. These feeds compile together to construct national and local facial print vaults. Where faulty eyewitness testimony and profiling leave off, facial recognition emerges as a new objectivity forcing 'undeniable' results. With current algorithms being less accurate for African Americans, and the existence of the Green Light Police Surveillance Program in the City of Detroit, the proposed cultural and educational center provides a space to witness the system of surveillance, to control one's own image—to install and amend—to combat the system through protection. It surveils the government—denying its objectivity and fully accepting its subjectivity; changing to adapt, the structure is situational—because its only power is permission. It calls attention to the increasing normalcy of surveillance, and used with other adjacent technologies, provides protection in a modular and scalable way.

Special thanks to my Grandmother, Mary Jane Humphries, my parents, Paula Humphries and Ron Crawford, and my Brother Mark Anthony Burright, for their endless support.



ce cameras

Van Dyke and Kercheval
City of Detroit

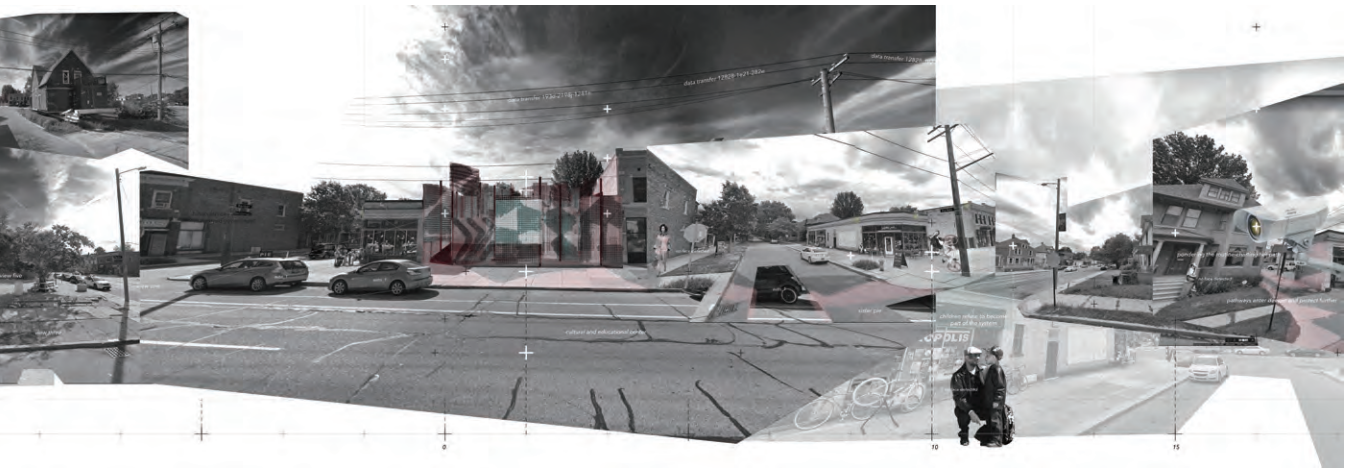
Home on Durand St. to
A Neighborhood Storage
Facility behind Parker St.

3 Interventions

Pedestrian Path

Education/Cultural Center

Lighting/Foliage Path



Whereas in the past, racism and bias in criminal justice were clear and subjective... With an algorithm, bias is not perceived as bias–it is programmed to deliver the idea of objective fact

trouble the read of the face and
trouble the read of the environment

Composite Sketches + Eyewitness

NYPDPD Stop and Frisk

War on Drugs

411m
Searchable
Images
[FBI]

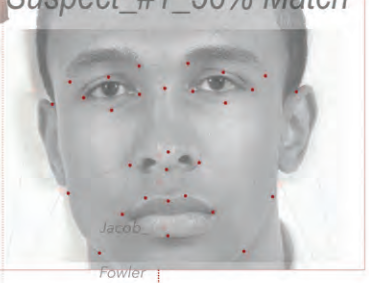
1 in 2
American Adults
in
Database

disproportionate
database

disproportionate arrests, stops, captures > crime reported > fail to identify the right person > innocent people to be bumped up the list--possibly even investigated > suspect is simply knocked a few spots lower on the list > innocent people look like better matches

5-10%
Lower
Accuracy
for
African
Americans

Suspect_#1_56% Match



*Jacob_*
Fowler
// Black
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Jones
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// F //
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*Adam_*
Johnson
// Black
// M //
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*Ron_*
Mitchell
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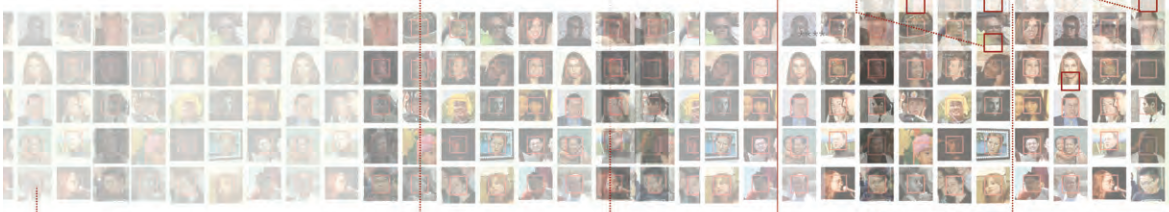
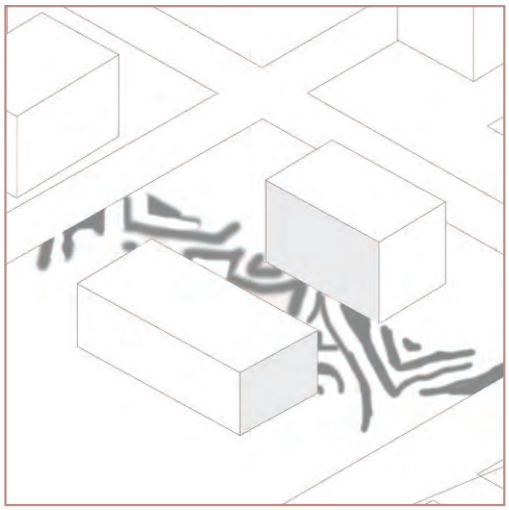


interventions



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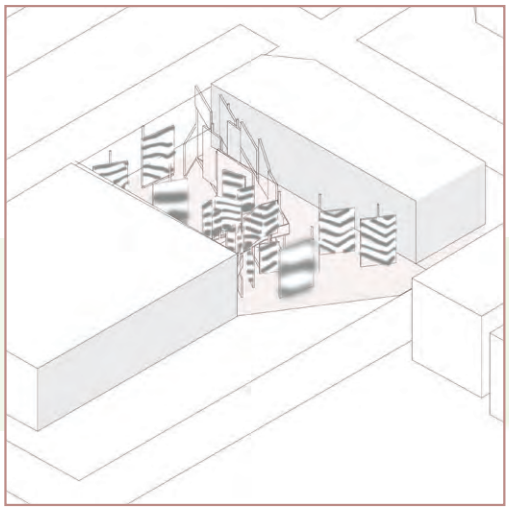

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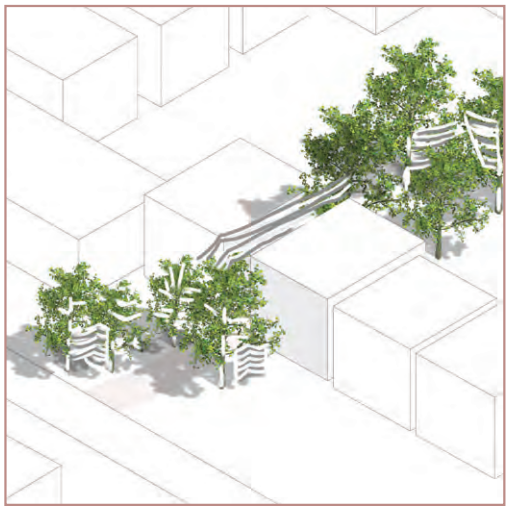

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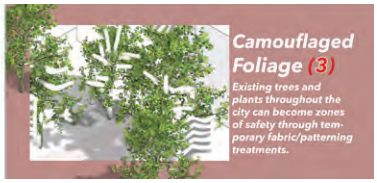
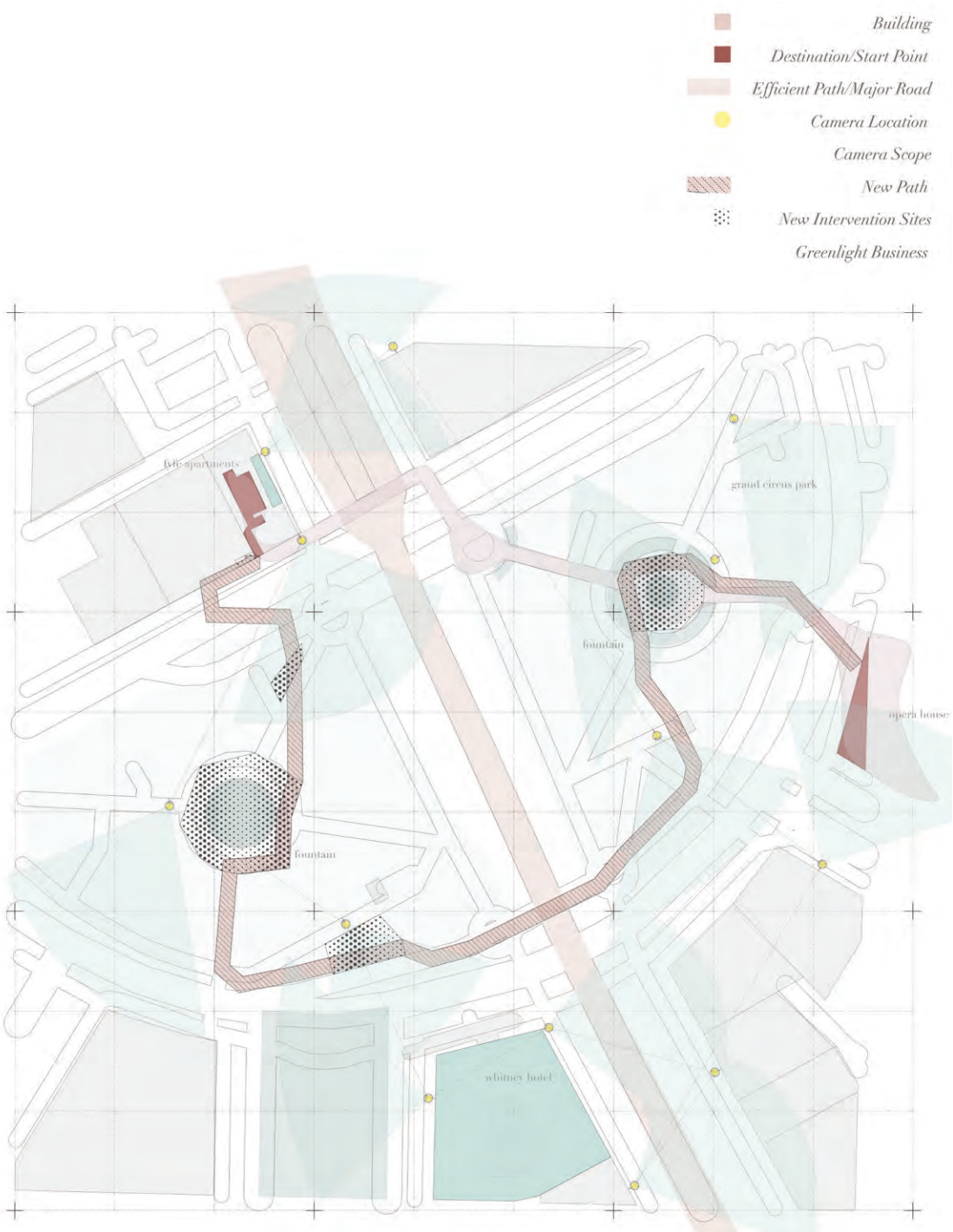




14 surveillance cameras

Grand Circus Park
City of Detroit

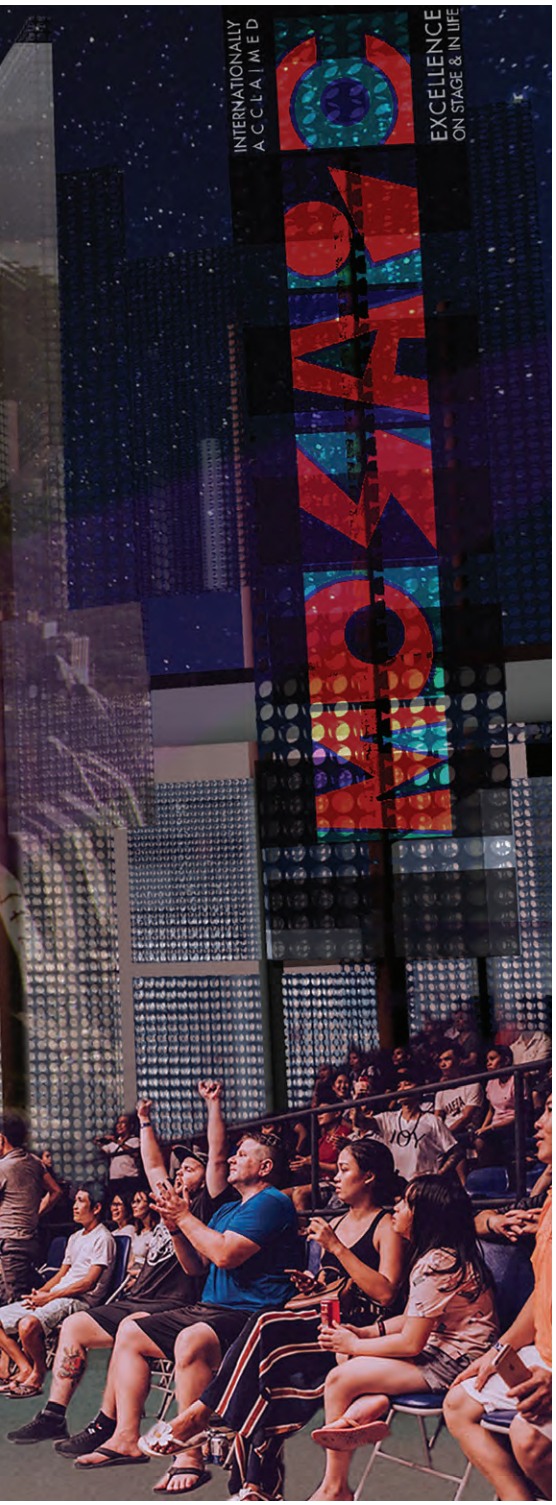
Apartment in Fyfe
Apartments to
Detroit Opera House

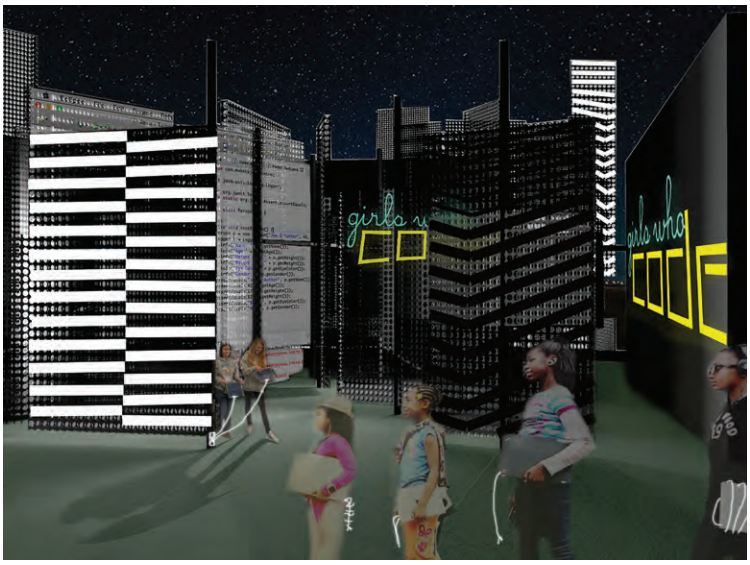
7 surveillance cameras

Rivertown
City of Detroit

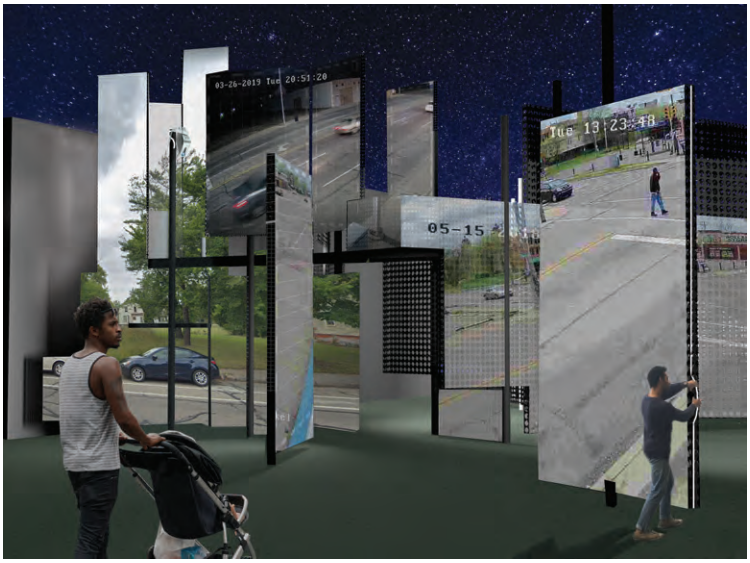
Apartment at Riverplace-
Lofts to Andrews
on the Corner

MOSAIC Youth Theater Performance





MOSAIC Youth Theater Performance



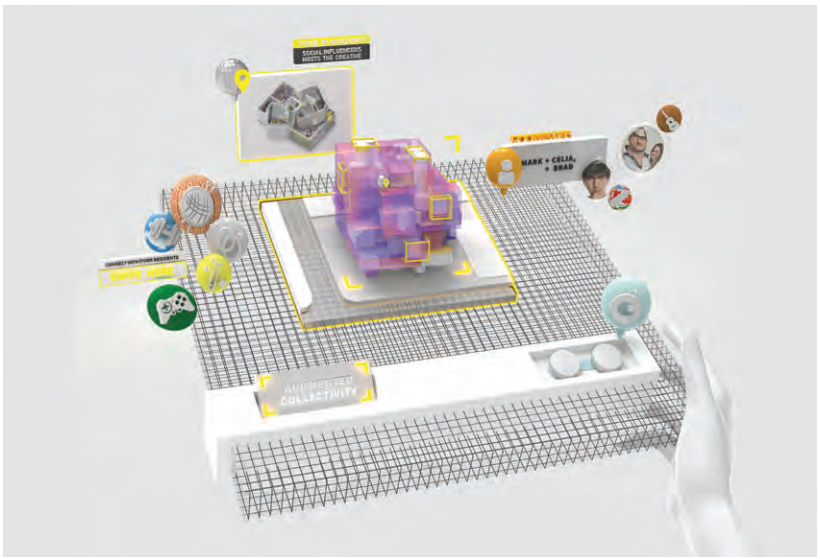
MOSAIC Youth Theater Performance

Augmented Collectivity

Gabriela Alvergue
Thesis Advisors: Cyrus Peñarroyo and McLain Clutter

Augmented Collectivity investigates the parallel emergence of contemporary co-living and advancements in digital technology and the use of social media, and identifies and leverages an unexamined relationship between the two. While the present discourse around collective housing is usually associated with discussions of housing shortages in dense cities, this project explores the ways in which the simultaneous emergence of new co-living trends and digital technologies that change the social dynamics of domestic space have been mutually formative and complexly interrelated. This proposal explores the merging of these two trends by creating a new building typology that merges digital spaces of interaction with physical ones. With the use of augmentation and adaptation, this project seeks to disrupt social boundaries with the inclusion of Augmented Reality (AR), kinetic spaces, and material manipulation.

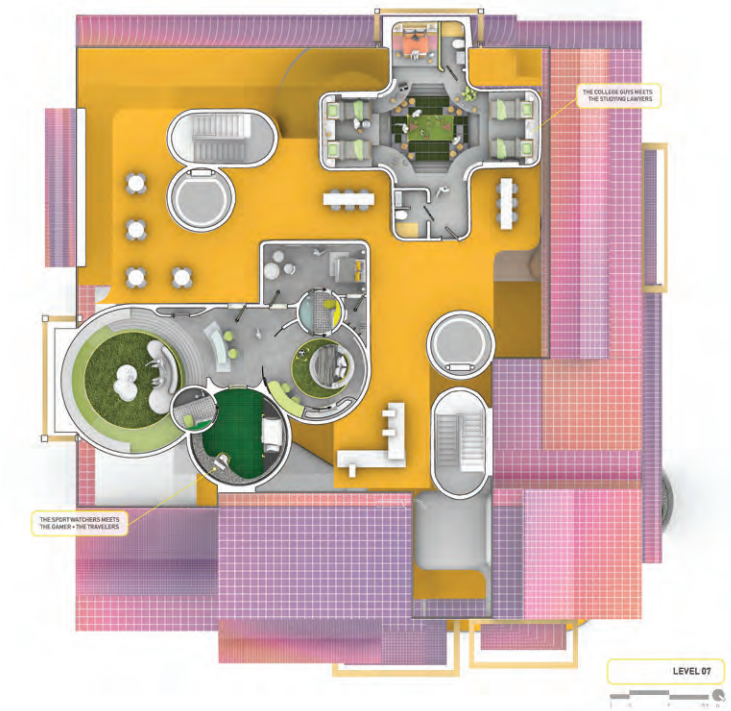
Set in 2025, when one can experience AR using data-sensing contact lenses, this thesis proposes a mid-rise residential building north of North Williamsburg, Brooklyn. The project invokes new notions of interaction within a collaborative housing environment by incorporating physical and virtual ways to change the architecture in order to filter in and out other residents within the spaces. Motivated by edge detection and layering opportunities, the design of each unit allows individuals with diverse needs to cohabitate. This thesis breaks the cycle of separating rooms within the housing environment by using Augmented Reality and physical manipulations, bringing the user to new spaces that aren't exclusive to the digital.



Augmented Information Welcome Kit

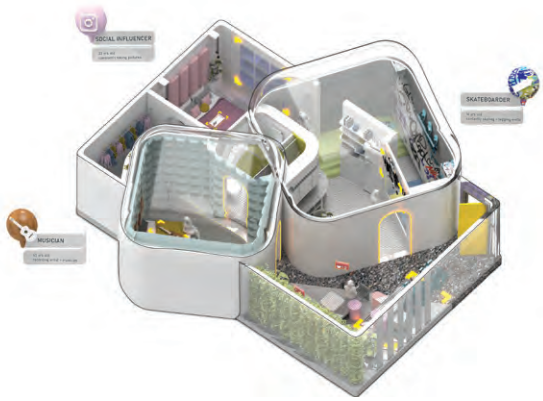

ΑΣΦ
Tyvek

When the users first move into this building, they are given an augmented information kit including a set of contact lenses that integrate data collection, and project augmented information of the surroundings by altering it to their needs. The kit gives the user information about the building logistics, their unit location, and are paired with a group of users. This proposal explores the merging of incompatible users using AR to cohabitate within units.

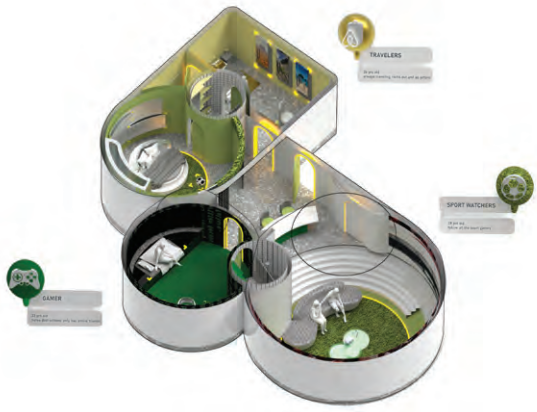


The blocks are designed by considering the users' common interests and their use of data. The project aims to move away from the concept of individual users in separate units to a proposal that allows dissimilar occupants to live with one another with the help of digital augmentation.

1. The Multigenerational Crafters meets the DIYers and Newlyweds



2. The Social Millennials meets the Creative Family



3. The Sportwatchers meets the Gamer and Travelers


PLACE BEAM
ROTATE BEAM
DRAWING MODE ON
START OVER
THE KID WHO DRAWS ON EVERYTHING

4. The College Students meets the Lawyer Students

5. The Family with varied interests meets the Fitness Influencers


ME DAY
Y GAME DAY PLAYLIST
REMOVE OBJECTS
FILTER OUT SOUND
PROJECT SCREEN
THE LAWYERS
CONSTANTLY STUDYING

LEARNSCAPES

Archiving Realities for a Post-Digital Pedagogy

Grace Hsu and Everritt Phillips
Wallenberg Critic: Brittany Utting

Education has become increasingly reliant on images. The forces shaping education are no longer physical. Learnscapes speculates a future of education where the virtual completely consumes the space of learning.

The project proposes a warehouse typology which replaces the traditional spatial configurations of educational spaces. The open space allows for the simultaneous existence of disparate learning experiences. There is no top-down established curriculum and the space facilitates rejection of established educational hierarchies. Because this digital pedagogy requires new modes of recording and storing knowledge, the central space of learning is flanked by archival spaces where these virtual learning environments are stored and made accessible to people, both within and outside of it.

Transitioning from the simple warehouse to the data center, the space tracks the evolution of both physical and digital storage. Storing both the physical and digital transformations within the respective physical storage space and digital servers, the archive acknowledges and embraces the obsolescence of technology within a digital pedagogy.

As existing digital technologies trend towards obsolescence, they are moved into archived spaces. The archiving of these physical devices ensures the accessibility of past digital experiences. Both the digital and physical archive exists to make learning experiences accessible and encourage individuals to create experiential learning scenarios that are personally meaningful to them. These experiences can also then be shared, ceding ownership and making them available to the collective learning community.

The digitally constructed atmospheres of the virtual platform allow precise exploration of spatial experiences, such that users can enter and create their own realities. Education and knowledge-gathering become an increasingly social endeavor within this shared virtual network space, as users enter and create their own reality of what education means. By interweaving experiences and learning, users can shape, influence, and enhance opportunities for development alongside one another. The educational framework allows individuals to understand and evaluate their experience through their own filters.

Special thanks to: Peter Halquist, Anya Sirota, and Dawn Gilpin


NCE NEW
LITIES

> Phase_

_YEAR_00

The space begins as a warehouse. The warehouse typology acts as a space for physical storage, providing a malleable canvas that can be transformed and modified.

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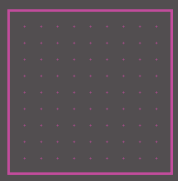
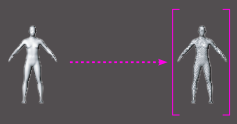


The space of the warehouse has become a space for education through temporary exhibitions and installations, and thus a space of education. Individuals (educators) create temporary learning experiences through the blending of physical artifacts and digital projections. The community is able to engage with these installations access these experiences that may have otherwise been unavailable to them.



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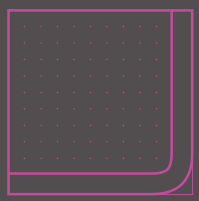
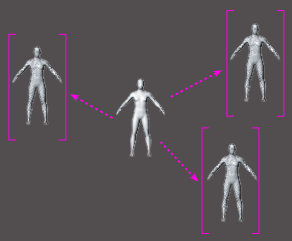


Installations are now being stored and archived within the building. The space of physical storage is moved to the perimeter of the building to allow for a larger number of learning experiences and to serve a larger community of "students". As existing digital technologies trend towards obsolescence they move into archived spaces, although still available for use.



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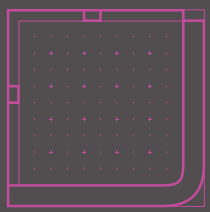
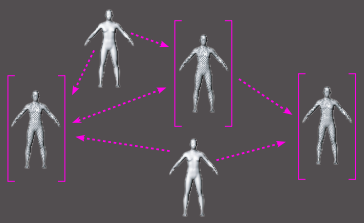


The role of the "student" has shifted from just experiencing to also creating learning experiences. An increased familiarity with projective technologies has enabled more users to create and share their own digitally constructed learning experiences. As the role of technology and the digital increases, infrastructure has changed in order to accommodate the creation and implementation of these "Learnscapes" on a larger scale.



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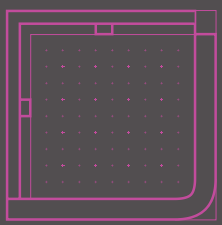
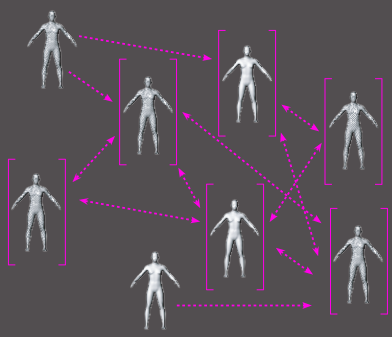


Information is being collected and disseminated on a large scale. More users are assuming the role of both educator and student. Infrastructure is added once again in order to accommodate the increased number of archived digital learning experiences. Other forms of data are also being collected, stored, and made available for the purpose of creating better function experiences.



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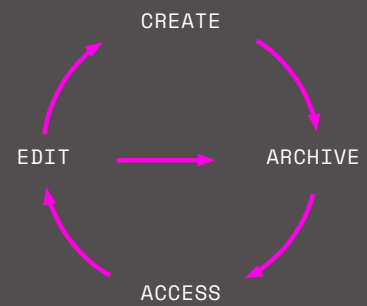
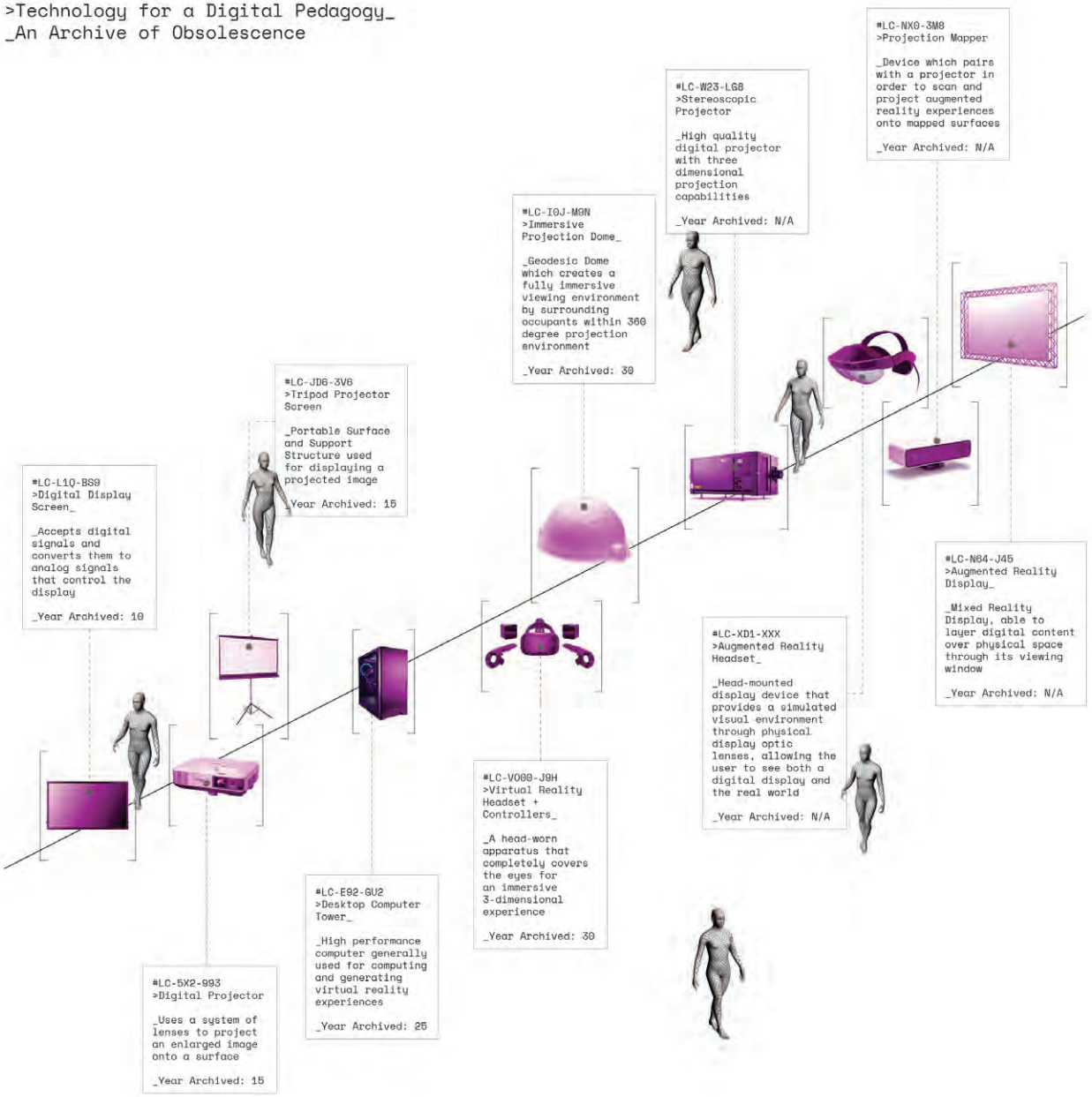
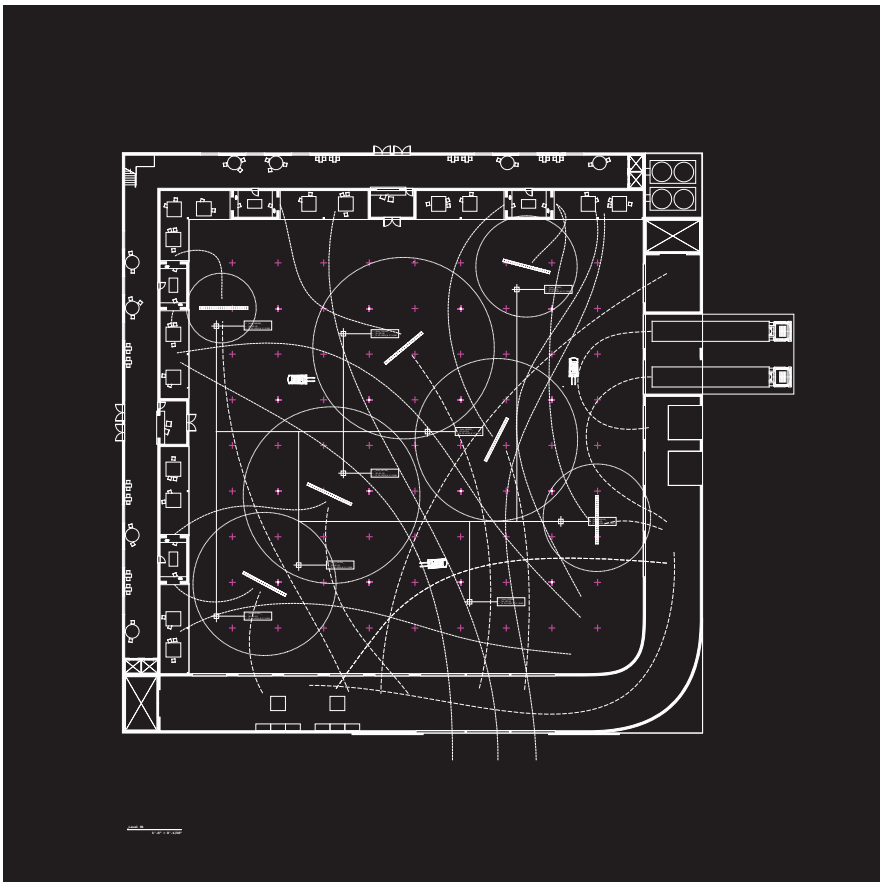
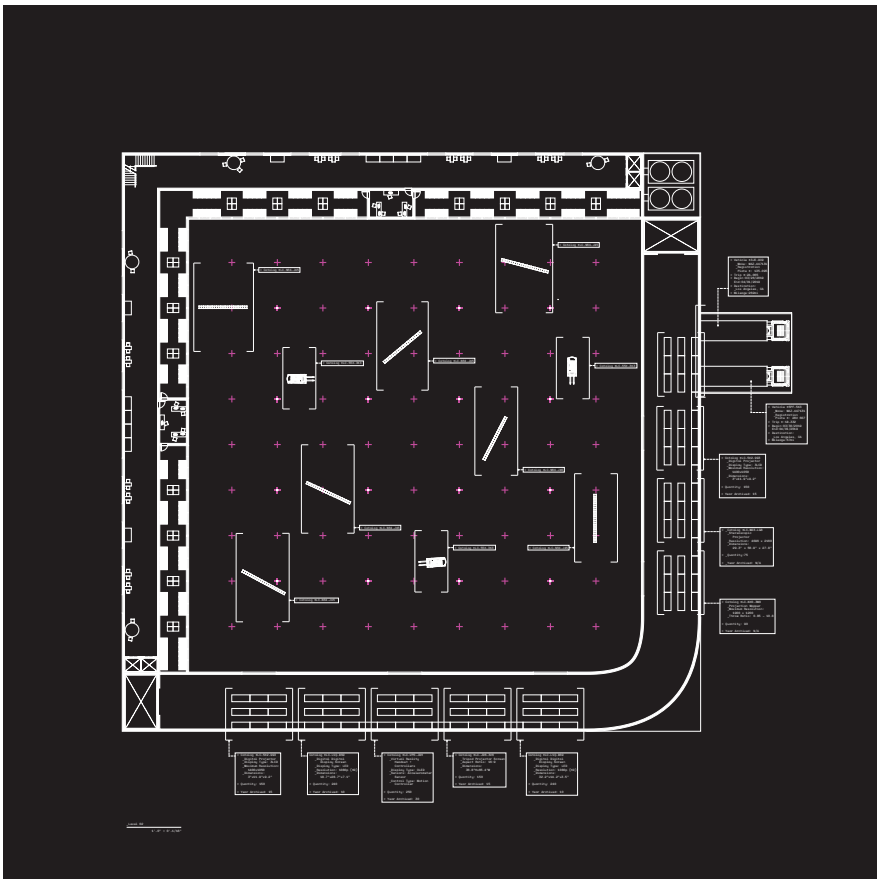


The community is able to leverage the power of the collective participation, and through technology, can span location, engage in social behaviors, and create and share knowledge, making education truly transformative. Digital realities can be created and shared, allowing not just the sharing of information but the sharing of learning and experience.

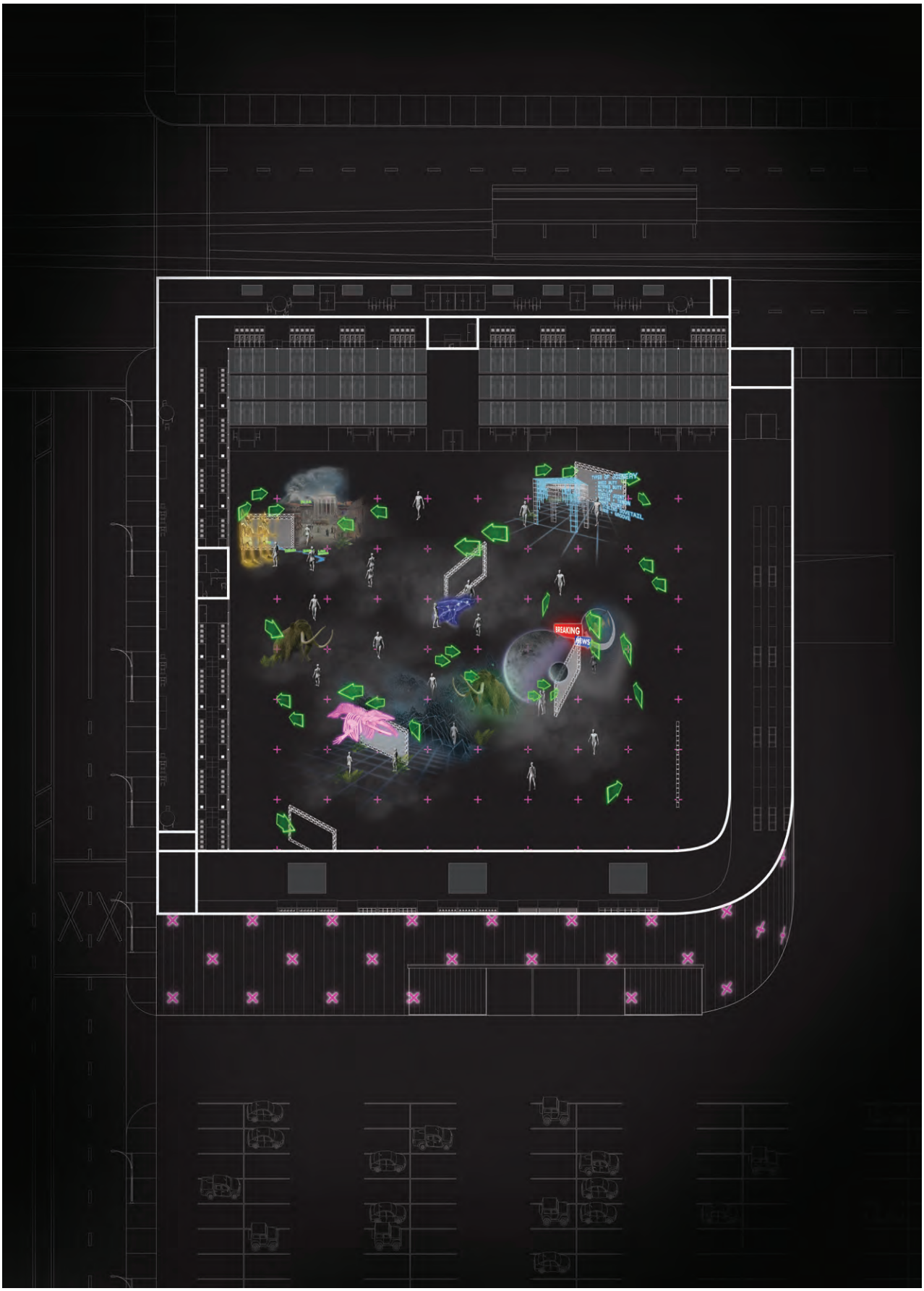
>Technology for a Digital Pedagogy_
_An Archive of Obsolescence



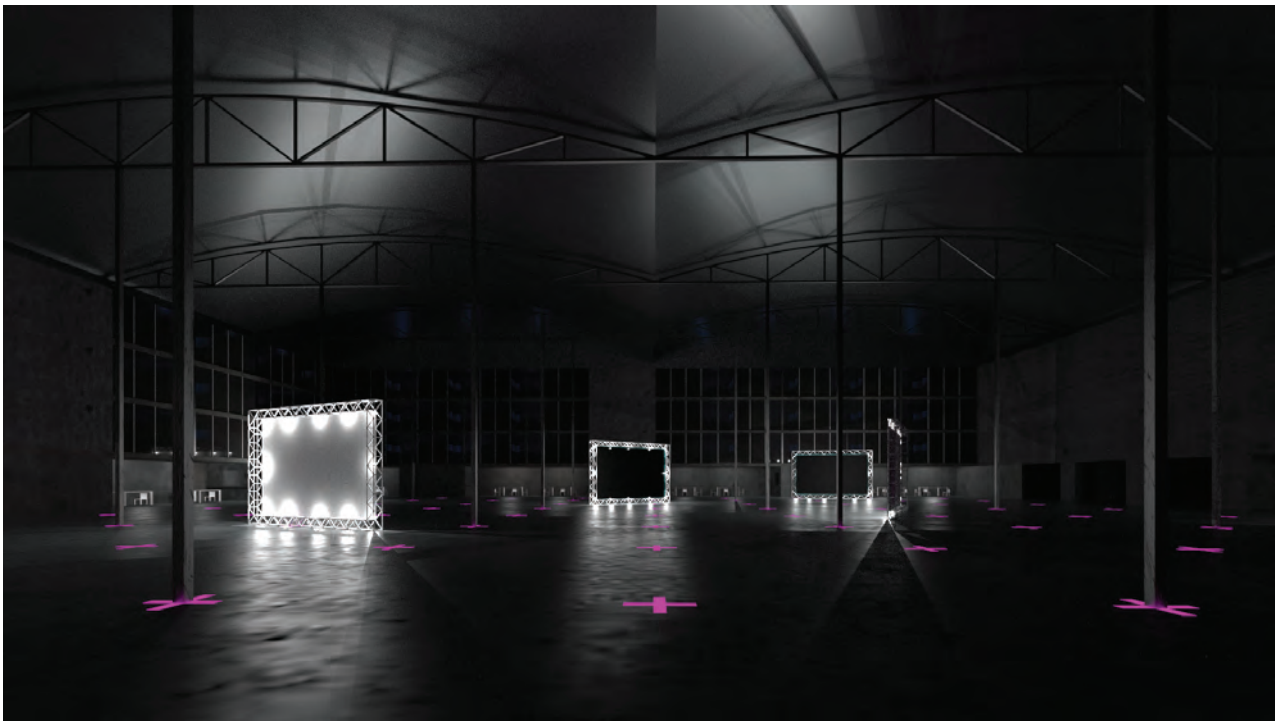


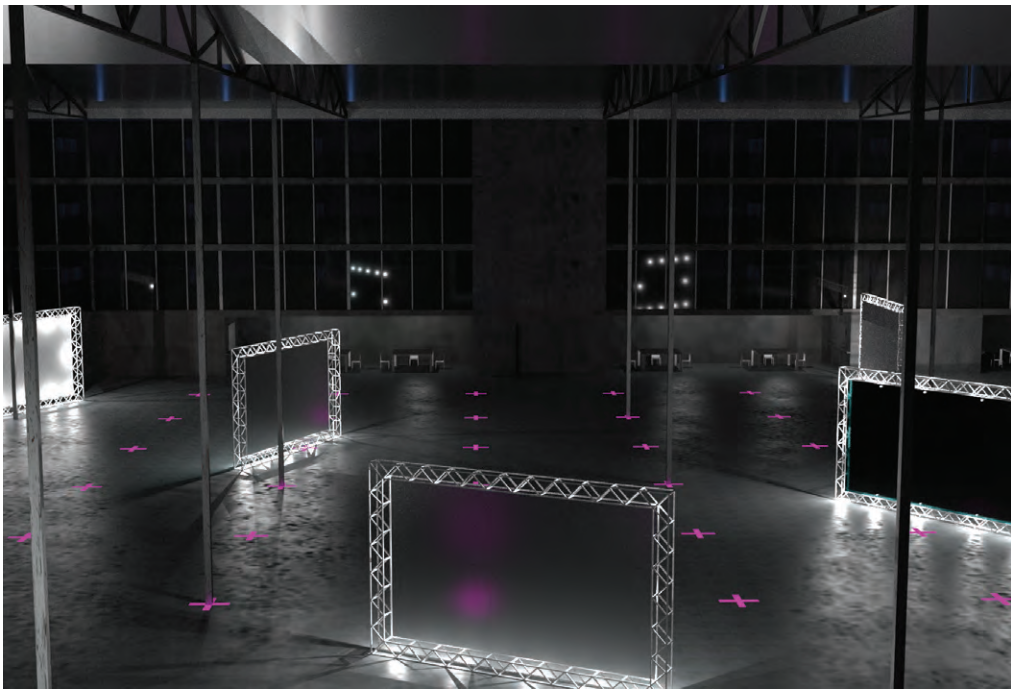


The floor becomes a data map, showing physical and digital material paths and proximities of users. Physical items have been tagged and stored in the archive, showing the obsolescence of digital technology.

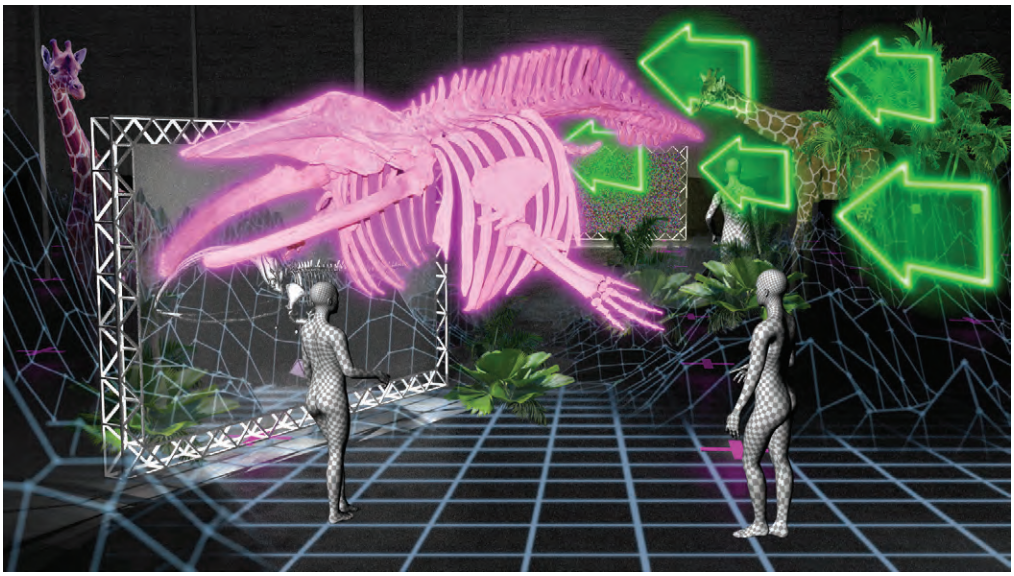


Wallenberg
Hsu
Phillips

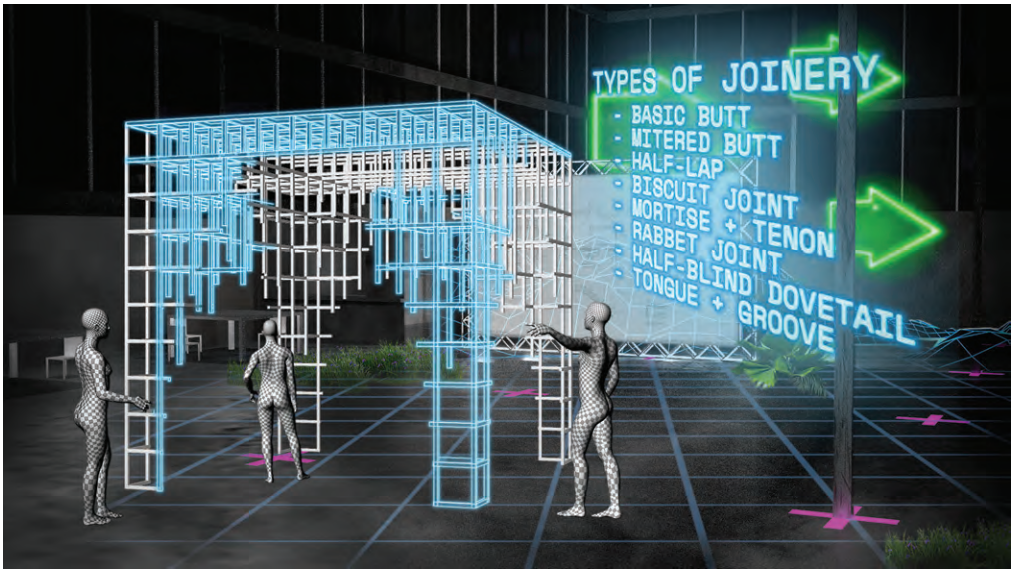




A chaotic landscape of digital environments is created on the floor of the warehouse, forcing individuals to carefully navigate their educational experience and allowing them to find new forms of knowledge. Educational experiences are enhanced by the melding of digital technologies with traditional forms of learning.



Users are able to immerse themselves in environments that were previously unattainable, as they digitally access places and artifacts that were previously out of reach. Education within LEARNSCAPES is a social endeavor, allowing for technology and community to be leveraged in order to pool resources and broadly cover subject matters.



NO VACANCY /

Nine Lives at the Lands End Hotel

Emily Richards
Thesis Advisor: Perry Kulper

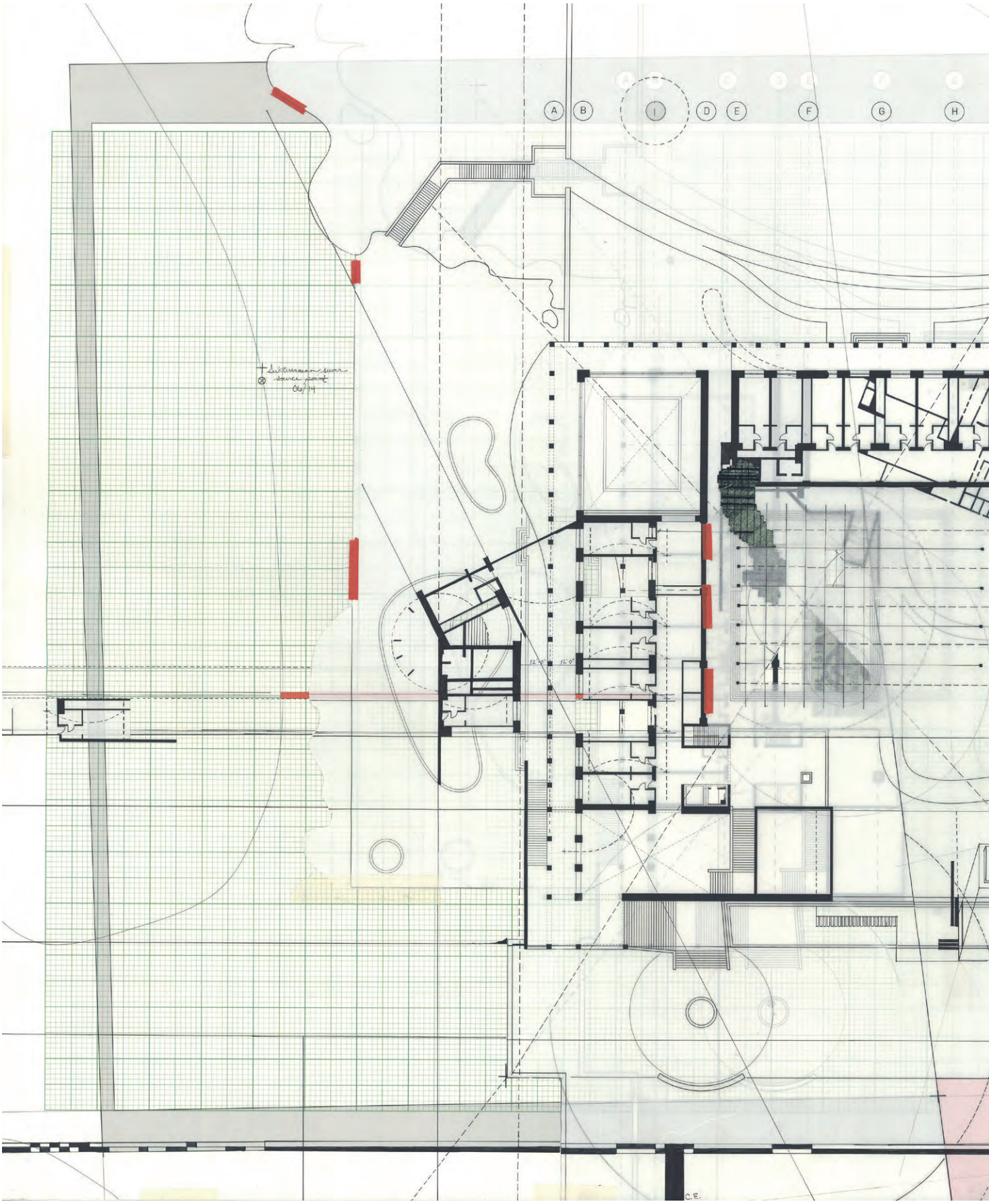
The project explores the value of architecture that can communicate multiple histories and mixed temporalities. Narrated through the story of the Lands End Hotel, it questions whether architecture has the capacity to remember and forget. The major themes of the work are explored by using historical and architectural references as a cast of unique characters, in this case, both "guests" who stay at the hotel and "ghosts" who choose to haunt its construction. Each character sets about influencing the hotel underway in a unique expression of memory. The unseen puppeteer controlling the actions of each guest is played by an unreliable narrator, who acts as a metaphor for the way we all misremember, conflate, and forget the various storylines that play into our built environment.

When construction workers break ground for the new Lands End Hotel on the site of the old Sutro Bathhouse ruins, they're surprised to find a series of mysterious hydraulic tunnels that never appeared on their civil survey. Over the long course of the hotel construction process, this discovery is only the tamest of unusual occurrences that arise. Rooms seem to be partially demolished and reconstructed overnight, concrete formwork is removed to reveal cast fossils of former architectures, and a phantom bell chimes to mark the start of each new working day. What was meant to be a haven for hotel guests is seemingly haunted by a series of peculiar ghosts, resulting in a hotel of architectural fragments that continually builds and unbuilds itself with a rhythm of its own.

These uncanny incidents occur at the hands of the hotel's Nine Lives, a series of ghost-like "histories" (architectural, archaeological, mythic, etc.) that act as Poltergeist, Ventriloquist, Doppelganger, and more to make their presence known in the contemporary building. The hotel construction site, already loaded with undertones of coming and going, acts as a sacrificial program to design methods like indexical means, appropriation, anthropomorphic gestures, and analogous thinking. With a critical eye towards the architectural idea of the "tabula rasa" and the contemporary preference for buildings that appear always-new and static, this work challenges the conventional understanding of how architecture remembers and forgets. It seeks to uncover the latent potential of architecture that changes over time and alludes to its former and future lives.

Revealed through a series of privileged perspectives, chance encounters, and hotel paraphernalia, the story of the Lands End Hotel explores the potential of architectures that hold and render explicit multiple histories, shifting temporalities, memories, and time.


six feet under
Prehistoric tool location
Latent memories
Mine shaft
Tunnel entrance
Evidence of subterranean fire pit
Pool goggles
Channels for deep histories
Fossilized facade relief
Sea Level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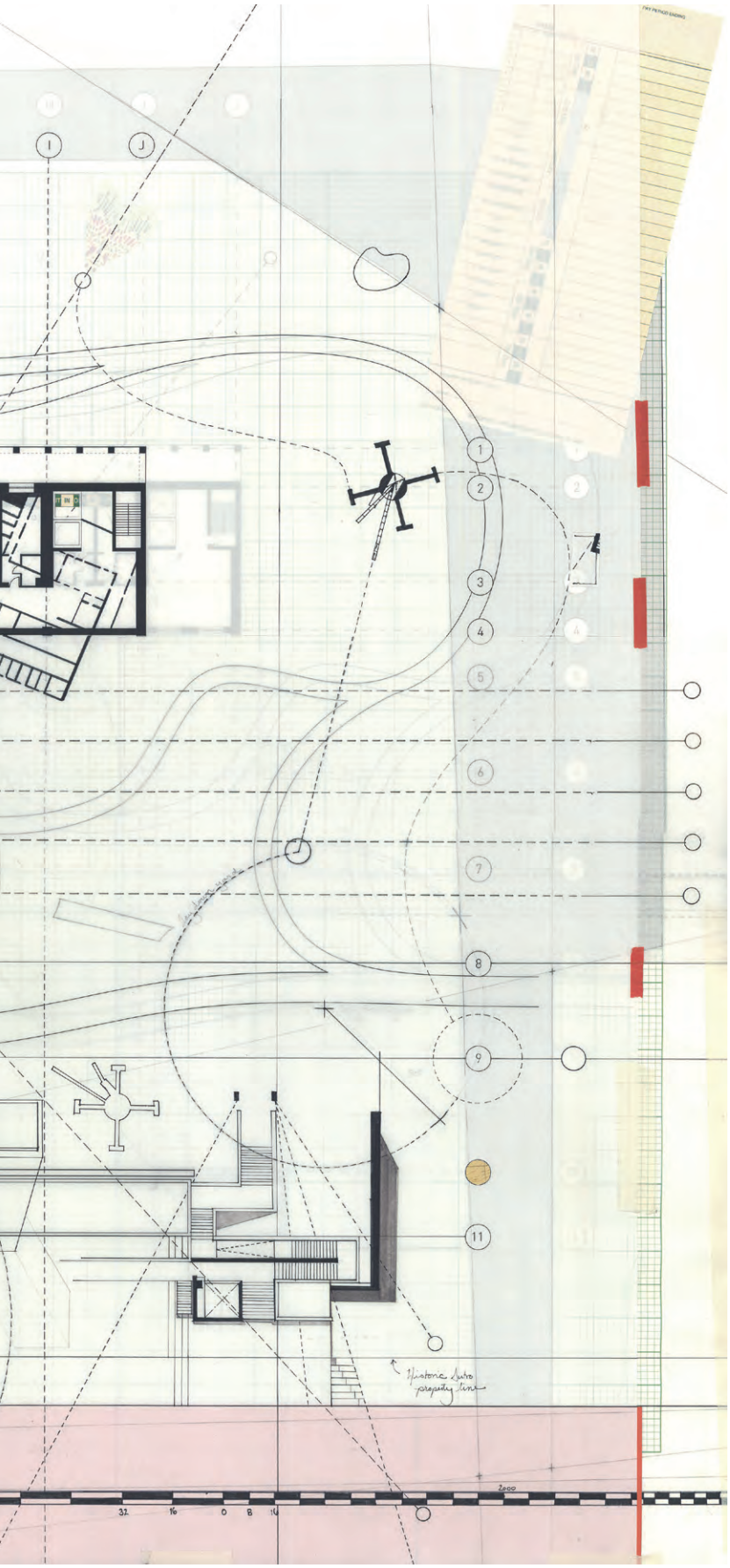
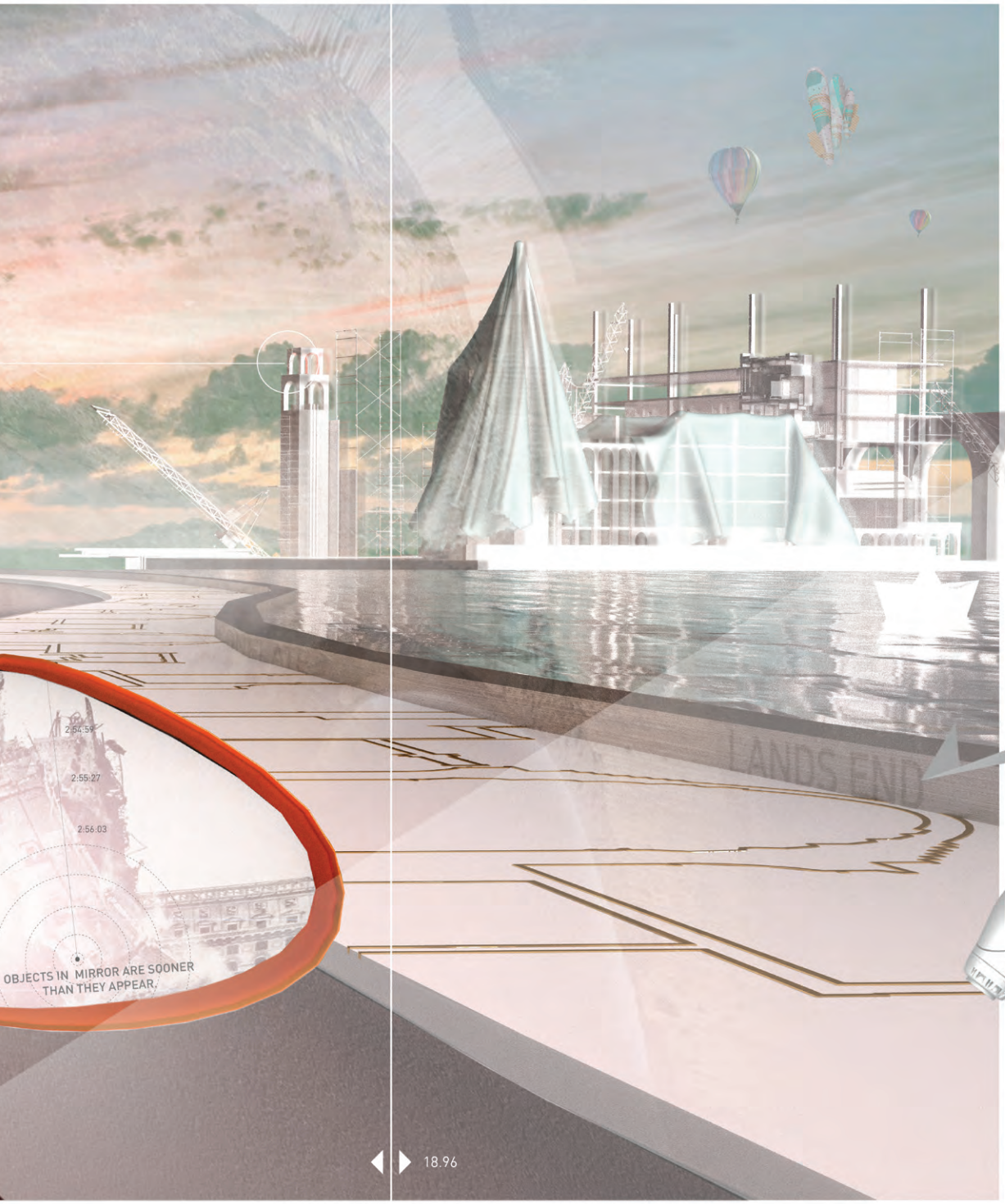


Unreliable narrators' incomplete annotated site plan or an artifact found in the construction trailer at the Lands End Hotel

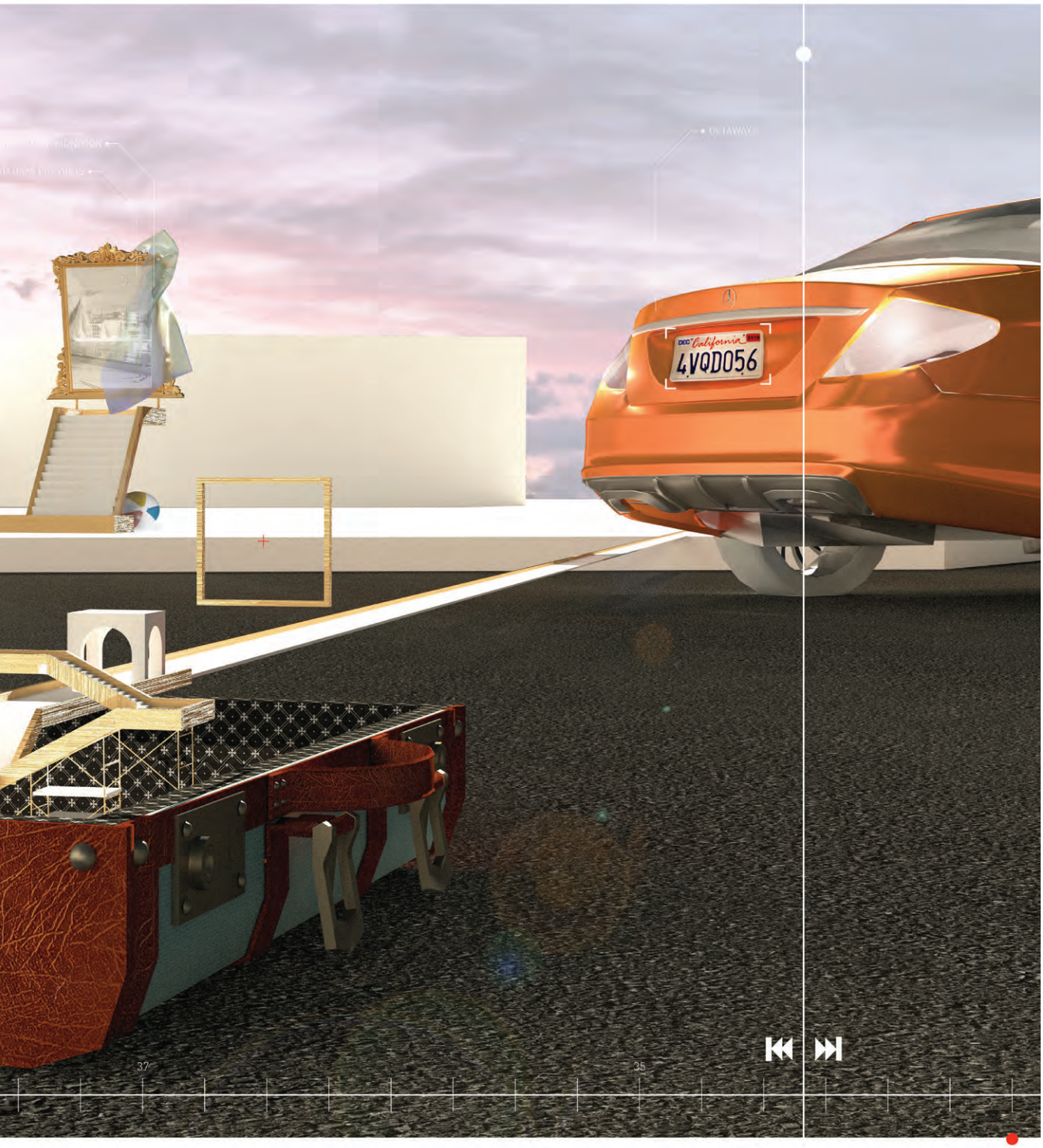
"Misremembered"—A hotel room and its copy

43.0750° N, 12.6054° E

"Conflate"
Approaching the Lands End Hotel


2:54:59
2:55:27
2:56:03
OBJECTS IN MIRROR ARE SOONER
THAN THEY APPEAR.
LANDS END
18.96

"Premonition"
A Suitcase packed for departure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Carme Pigem: Creating Atmospheres

Interviewed by: Ismet Zeynep Damgacıoglu and Mytreyi Chandrasekhar

Carme Pigem finished her studies in Architecture at the Escola Tècnica Superior d'Arquitectura del Vallès in 1987, and since 1988 has worked with Rafael Aranda and Ramon Vilalta together in their studio, RCR ARQUITECTES, in Olot, Spain. Since 1989 they have been consultant architects to the Natural Park of National Interest in the Volcanic Zone of La Garrotxa. During their careers, they have tutored in Urbanism and Landscape Architecture, founding the RCR BUNKA Foundation in 2013 and the RCR LAB·A in 2017 to increase architecture, landscape, arts, and cultural values in society. Today they promote and lead a Summer International Workshop in their studio based in the ancient foundry Barberí. They won the Pritzker Prize in 2017 and have received continuous distinctions for their work.

Carme Pigem. Photo by: RCR Arquitectes

Dimensions 33
What is the most inspiring art piece you have seen in recent times?

Carme Pigem
I like the work of Jorge Oteiza—he is a Spanish sculptor who is no more. But he had done some extensive and diverse work with sculptures. I am talking about his understanding of the role of the sculpture in space, and the void, and I think it's very inspiring.

D33
We can see a huge influence of art in your architecture. You have also closely worked with the MOMA and Venice Biennale to curate architectural exhibitions. Can you share with us your thoughts on the cross–pollination between these two forms of expression—art and architecture? How do they influence one another?

CP
We think artists work with the same subjects as us, the architects because, for us, architecture has tools. One talks about numbers, another talks about dreams. The numbers are specific in architecture—budget, laws, regulations, gravity, and many more. But at the same time, there are dreams. What do you want to achieve? What do you want to express? What do you want to create? And in the end—we have these two extreme walls in our minds. Even though art mostly talks about the creative side of the brain, its very inspiring for us because we are treating or working with the same subjects. They talk about space and materiality, they talk about impact, they work with compositions, and they work to inspire people. So, in our world, they are

working as us and for us, but have more freedom than us. So art and architecture are very close to one another. But when it comes to how architecture could inspire art—for us, architecture is an art, so when we place architecture on the same wall as art itself, it inspires us like how any art could inspire the other ones.

D33
When you are curating an exhibition on architecture, how do you transcend the boundary of architecture and art to showcase your thoughts and work?

CP
When we are doing exhibitions, we try to recreate the same atmosphere and space again. It is important that when you are in an exhibition, it's not just a series of documents, objects, or pictures. All artifacts could also bring to you an atmosphere of the space itself. So you walk into an atmosphere that allows you and even pushes you into the spirit of the architecture we are showcasing through the different documents. In architecture, you have the idea of the main space but you can also recognize the same architecture through its details. The details can explain the whole architecture. An exhibition works in a similar way. By displaying these little pieces of documents in a particular way, we are creating an atmosphere and an experience in that space.

D33
You use the word 'atmosphere' more than you use the word 'space'. What is your definition of 'atmosphere'?

CP
When you enter a space that involves you, you feel captivated. Your emotions make you want to be there. So I always strive to create an atmosphere that makes you feel captivated by the space and the space evokes your emotions, emotions that are similar to those that are activated in you when you are in front of a piece of art. Architecture plays with your emotions in the same way. It's this atmosphere, it's this ambiance, and it's this space that awakens the emotions within you.

D33
La Lira, the public theater is very informal. Rather than being curated by you, the movement and circulation in the space is more natural and in the control of the users. How do you design an architecture where people can appropriate the spaces as their own?

Crematorium of Hofheide. RCR Arquitectes / Coussée & Goris Architecten. Photo by: H. Suzuki

CP
We prepare the scene to give us flexible spaces for different things to happen. In your apartment, you may have a big room and you may use this space to share, to sleep, to rest, to read, to work, and to play. So you have a space that allows you to perform many different expressions of life. You are not depending on the space to define the expressions for you, you are creating the space that allows all these expressions to coexist.

D33
But, as architects, we always try to plan. Even if it is just one wall or a plinth we try to gain control over the existing space. How do you design the space in a way that it is free of the plan?

CP
It is about flexibility. When you create a space with good quality, so that it has an energy within itself, it can be used as you want.

D33
You have a very arbitrary definition of space that is very deliberate and it creates delicate boundaries that are sometimes hard to find.

CP
Yes, you can design every nook and corner, but this never ends because, in two years, you don't even know if people want to use that corner anymore. They might want to have a different kind of corner and when your design is a bit more open, you can find that corner more easily. It is freer this way—we have a frame and it doesn't matter what happens inside it.

D33
Your projects are so sculptural and a lot of it attributes to the intelligent use of corten steel and natural light. We also noticed that your buildings portray a unique play between the solid and void and transparency and opaqueness. Where do you draw inspiration for these characteristics?

La Lira theatre public domain. RCR Arquitectes / J. Puigcorbé. Photo by: H. Suzuki

CP
We are playing a game of contraries, because, by using corten steel which is heavy and strong we are creating a space that could become ethereal. This also links back to your question of void and opaque. Here in the United States, the landscape is so extensive that it is hard to fathom how big it actually is. You start to understand how big the space is only when you start to put an edge and a limit on it. Only when the limits are in place, do you realize the scale because you can measure the space by your presence in the space. Therefore to create a consciousness about the solid space, it is good to understand the opposing void of space. Similarly, we also know colors don't exist in the darkness—right? In the darkness, everything is black. Colors appear only when there is some light from somewhere. So, the volume, the field, or the space appears, only when you confront it with a void—it's something that works together. So to find the balance, you need to play with contraries. When everything is the same, you don't realize its uniqueness. You start to understand things only when you are confronted with its opposite.

D33
In your interview at Brussels, you stated that using just a single material makes the spaces emerge from within itself. Why do you think so?

CP
Yes, we try to use as few materials as possible because it reveals the space.

D33
You talk about light and its contraries. What do you think about Louis Kahn's quote - "Architecture appears for the first time when the sunlight hits a wall. The sunlight did not know what it was before it hit a wall."

CP
That's true right? There is the light, and there is the sun. But you don't realize that unless you are confronted by an entity that ends this light at that point in time. Louis Kahn also said that "A man with a book goes to the light. A library begins

"...to create a consciousness about the solid space, it's good to understand the opposing void of space."

that way." Again, the light gets its value when it is confronted with darkness, opaque or shadow. It is not a question of absolute values. It is a question of relative values. It is the relationship between things. It is also interesting how when you put irrelative things parallelly, something new appears there, when you try to confront them with each other.

D33
Is that where the frame comes into play as well?

CP
Yes, yes, yes. Because it is the landscape, it is the open space, and it is too much, but when you have the frame it points to a tree or the valley and you start paying attention. Otherwise, it gets too monotonous.

D33
This goes back to the idea of curation—in this case, the curation of the people's attention. Do you think it is better to draw their attention and then manage it?

CP
Sí, sí. Sí, sí, sí. Sí, sí. Because in the end, things are always the same. You can explain this in different words or using different examples, but for us, in the sensuality of things and in the very primary root of our values, everything is the same. It works the same way. One person is nothing by themselves. What starts to be interesting is the relationships this person establishes with others. The relationships that you establish become important.

D33
We do think it is impressive how contextual your projects are. Given that each context is different in its energy and its social, cultural, and natural characteristics, how do you approach the context in each of your projects?

“..architecture is an art, so when we place architecture on the same wall as art it inspires us like how any art could inspire the other ones.”

Crematorium of Hofheide. RCR Arquitectes / Coussée & Goris Architecten. Photo by: H. Suzuki

CP
Every site and every place has vibrant characteristics that you have to catch and reveal. It is like a person. All of us are equal and different at the same time. What is nice is how we try to reveal the different potentialities of each of us. There are things that you cannot do, but you do have your own potential and it is good to try to understand that and expose its value. With a site, it is the same. You have to try to understand these sites and reveal their potential. Even if it seems like there is no potential at face value, you have to find it and show it to others.

D33
Do you spend time at the site before you accept the project?

CP
Not that much. I wish we had the time to.

D33
Do you communicate with the local people near the site?

CP
Yes, to understand climate. It is very important to understand the climate....

CP
Climate, in the end, is also related to the value of culture. The climate is directly related to the availability of natural resources, which defines the geography, and that in-turn affects the people, their culture, and the way they feed themselves. So, climate is an agent that has so much importance in the context.

D33
What is the advice you would like to give to young architects?

CP
I will give the same advice that was given to me when I left school—say no to big developers who come to you with large projects. So I'll give you the same advice—I think it's good advice.

Postscript

Christian Unverzagt
Associate Professor of Practice in Architecture

This year, I had the good fortune to advise a small and dedicated team of students as they developed and refined their ideas into this book.

And this year, like each year, I had the pleasure of working with them as they came into their own, learning to work together, and advocate for their collective achievement.

And this year, like each year, I wondered if this was the time when it would come to an end? (This had nothing to do with them, but my own insecurity about continuing such a remarkable run!)

And this year, like each year, I was given the space to reflect on the past eight months, writing at the last possible moment in the hope of gaining even the slightest distance to locate and articulate what had transpired.

But this year, unlike any other year, I also had the privilege of watching them carry on, with perseverance and grace, despite the never-ending rush of challenges they confronted these past eight weeks.

And in the end, they did it. This volume is dedicated to them, and their five-hundred peers that constitute the 2019–20 architecture program student body. Because, they did it too.

May 2020

Christian Unverzagt *Detroit*
Faculty Advisor

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