
RAYMOND
GABRIELE
URBANISM
DEVELOPMENT
ARCHITECTURE
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RAYMOND A. GABRIELE

URBANISM, DEVELOPMENT, ARCHITECTURE

PORTFOLIO OF SELECTED
ACADEMIC + PROFESSIONAL WORK

URBAN ISM DEVELOPMENT ARCHITECTURE

Presented on the following pages is a compilation of architecture, urban development, real estate work and fine art that represents a liberal breadth of design issues, artistic interests, and socio-urban concerns that have uniquely characterized and informed my academic and professional work over the past decade. This portfolio has been designed to provide readers with a concise and diverse cross-section of work samples, intended to represent some of my most passionate interests, while featuring my unique proficiency in representational strategies and problem solving methodologies.

TABLE OF CONTENTS

URBANISM - DEVELOPMENT-ARCHITECTURE

APPROPRIATE ARCHITECTURE: DESIGNING A MORE EFFECTIVE DEVELOPMENT PARADIGM

LOCATION:	SOUTH PROVIDENCE, RI
ADVISORS:	THOMAS GARDNER, JONATHAN KNOWLES
RISD B.ARCH THESIS:	18 WEEKS

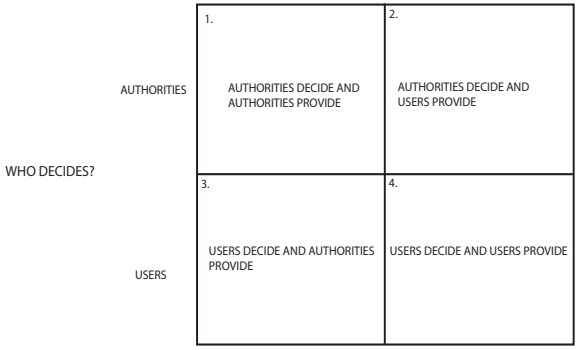
Operating under the basic premise that appropriate development builds off of the collective wisdom of existing peoples and organizations on the ground, this study has attempted to re-conceptualize the practice of community development by giving formal dimension to existing, local activities within derelict urban neighborhoods through the deployment of actionable, modestly scaled urban interventions designed to help cultivate new, more palpable ideals of community, self-reliance and participation. By appropriating existing community activities in the built environment, a new urban presence is introduced in ways that expand the boundaries of our common understanding of the ordinary and routine, and that make the ordinary more recognizable and accessible by disturbing the customary order of these activities in the interest of more enduring change.

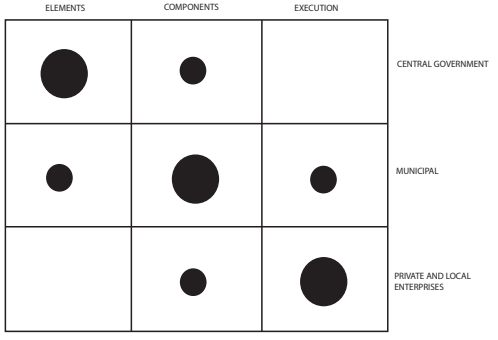
Born of a broader, more conceptual interest in the appropriation of marginalized activities and communities in developing cities, this investigation became increasingly focused on understanding the socio-urban effects of property and activity appropriation in the revitalization of derelict First World communities. This work seeks to understand and invent a more effective development paradigm through the study and design of actionable, phase-able interventions in local communities that seek to both publicize and "legitimize" community legislated activities. Working in collaboration with the Southside Community Land Trust, a non-profit community organizing and property management company in South Providence RI, this project sought to initiate a more immediate, grass-roots form of urban revitalization by stoking a more appreciable sense of community and neighborhood pride in South Providence by designing and building a series of urban community gardens that would host a variety of community ordained activities , while formally advertising the desire within the community for more substantive and immediate socio-urban change.

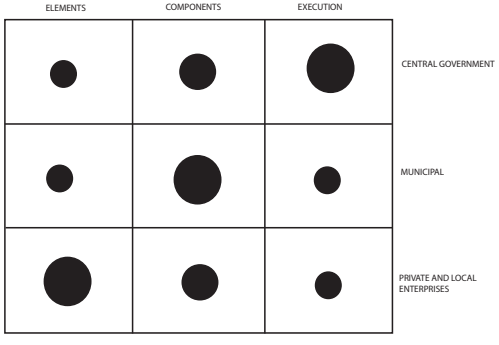
Above: Existing home-made "garden" in S. Providence

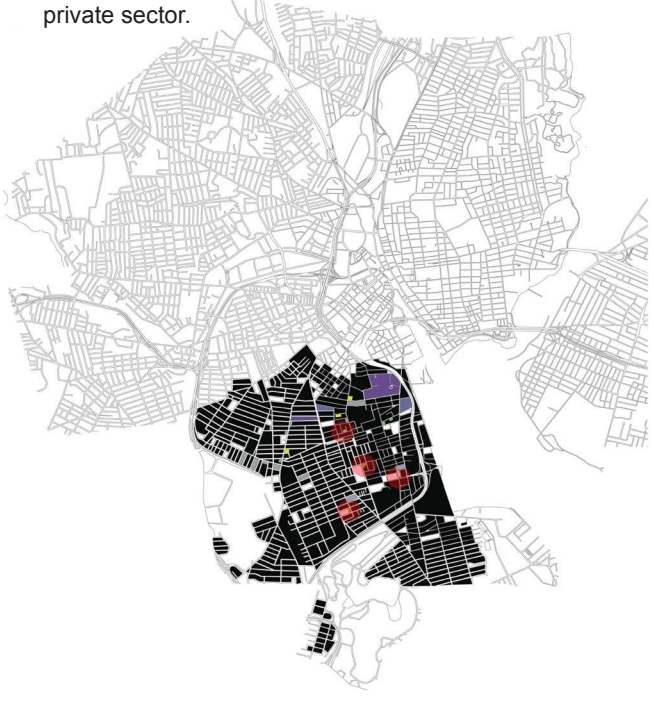
The operational distinction between centrally administered programs, which substitute for activities that are traditionally controlled locally and the provision of support systems that enable local action is critical in understanding the effectiveness and importance of homemade built environments in ways both nuanced and profound. This general concept is illustrated in the comparative diagrams to the right. In the middle, a normal distribution of levels of action and authority is presented, in which central governments' role is to guarantee equal access to basic resources, in which municipal government's role is to provide infrastructure, and where local communities and private enterprises themselves are responsible for the construction/realization of the project. At the bottom, is depicted a common distribution of levels of action and authority, in which central government's dominant role is the provision of built environments, and in which land and finance are controlled mainly by the private sector.

The first diagram on the top highlights the importance of appropriate matching and coordination of levels of authority and action as well as their dependence on local circumstances. The practical and pedagogical issues of user or citizen involvement in any complex socio-urban problem are to be solved by answering a basic question in ways that fit particular circumstances -- i.e. *Whose* participation in *whose* decisions and *whose* actions might be the most effective? The design strategy taken in the approach of the urban gardens in South Providence, in particular the garden at Glenham Farm sought strainfully to address and reconcile these questions.









Interpolated from the Providence Tax Assessor's map, the diagram to the left illustrates the availability of neglected space in South Providence and their proximities to existing neighborhood elements and to each other. The potential for community integration and even renewal is increasingly suggestive in the highlighted areas if necessary program is implemented on the sites with appropriate design.

Locating Glenham Farm in the context of a grander strategy of urban interventions is a more theoretical exercise and one that is conceived of in a series of varying scales and phases. The common denominator between both the program and design of Glenham and any putative interventions within South Providence is focused on how readily and successfully the design and construction parameters employed at Glenham can be reappropriated and deployed to activate other vacant lots within the city to supply communities with more accessible spaces for gathering, learning and gardening.

Strategically programing and building on select sites throughout South Providence could happen in successive phases that would metastasize from one modest site in a localized neighborhood until it has achieved a truly urban presence. The diagram above illustrates these phases by progressively consuming derelict properties and phasing out from the scale of a neighborhood block, up to the metropolitan scale.

Opposite: Conceptual sketch of staging intervention on existing site

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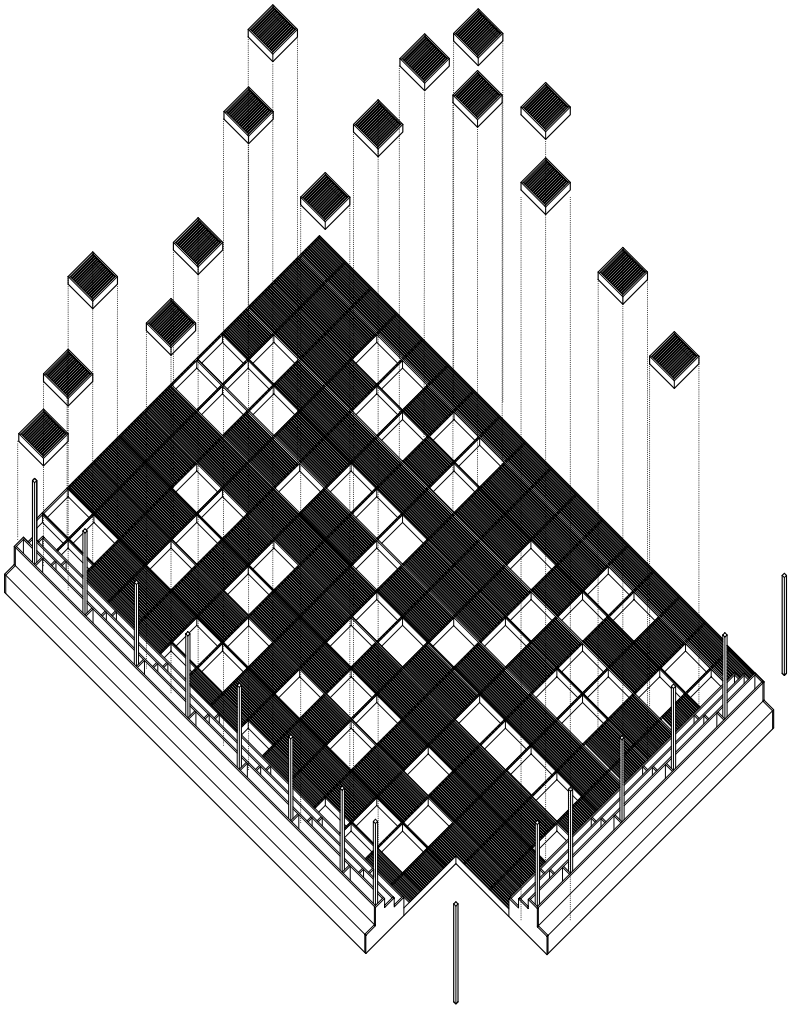


Above: Exploded Axon of preliminary decking plan at Glenham Farm

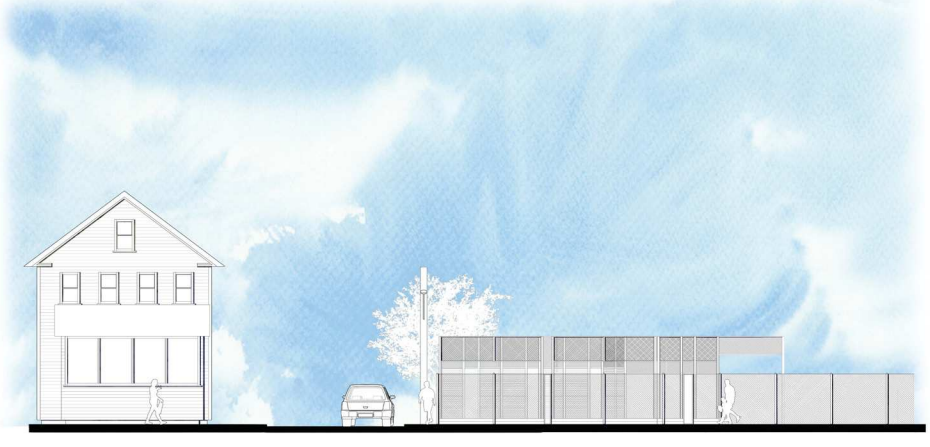
Right: Conceptual Street View of Decking Scheme at Glenham Farm

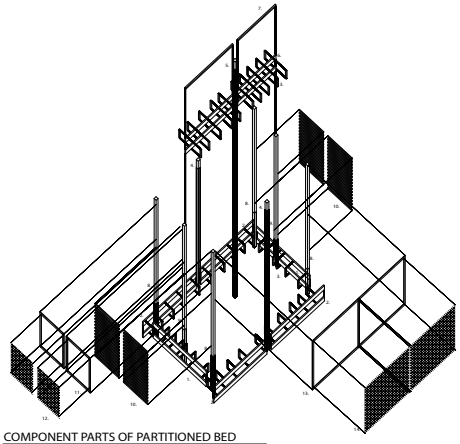
Early planning strategies for Glenham Farm are negotiated around the logistical need to accommodate a seasonal influx in planting and user occupancy, while also allowing for and encouraging a spontaneity of individual uses and multiplicity of community programs. Each developmental scheme is conceived of not merely as an urban garden, but more conceptually as a catalytic type of civic space, in which community activity is given dimension around, and in between the programmatic objects that characterize the space as “garden.” Planting beds are conceived of planometrically as the elements that define boundaries, thresholds and direct circulation within the site, while also distinguishing the site as a kind of community “hub” that preserves the parcel’s perception as a valuable center of community activity throughout the year.

The intervention at Glenham Farm is aimed at introducing a workable set of design parameters and elements to the community that can be modified, critiqued or rejected by the users, and potentially deployed on others sites to accommodate similar types of community activity. This type of engagement, rather than being conceived of and ordained as a prescriptive, absolute solution, is intended to be a solution that users can interface with easily and assume a certain level of authorship of for themselves. The infrastructure supplied to the site at Glenham was initially designed around the concept of a negotiable, constructed ground that can be reconfigured depending on occupancy, use and season. The panelized ground system accommodates both an explicit gardening program while additionally providing customizable spaces for gathering, seating, and enclosure. Vertical elements provide the infrastructure for both enclosure and growing, and engages the street in much the same way that conventional street-tree schemes do.

Through a series of both large scale community charrettes and individual neighborhood meetings, the final design and construction schedule for Glenham Farm was calcified into an efficient, economical and actionable interpretation of earlier conceptual strategies. Using simple and readily available materials, and standardizing dimensions and fabrication methods, the users of Glenham Farm were able not only to understand and participate in the design process but to also initiate the construction process as well. The more developed the design strategy and more clearly illustrated the construction the process, the more engaged and excited the community members were. Levels of participation in the neighborhood increased even more once construction began and neighbor's willingness and generosity with their time, tools and even property was a profound form of revitalization and growth.

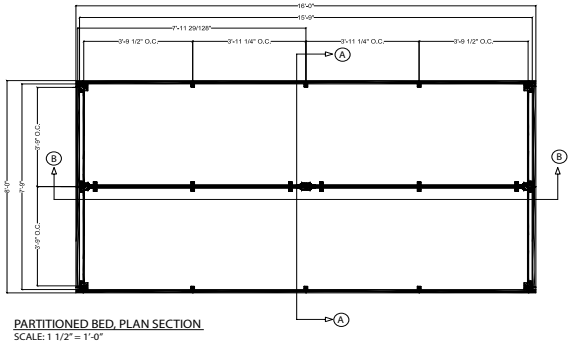
Below: Initial On-Site Community Charette



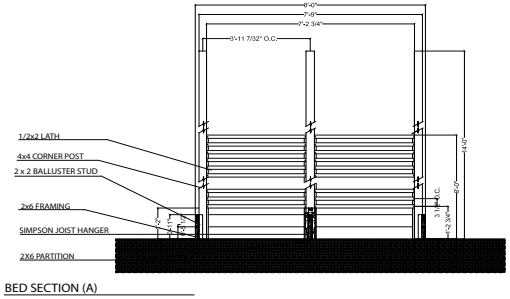


1. 8 ft LONG, DOUBLED 2x6 BED WALL, 8 ft SIDE
2. 8 ft LONG DOUBLED 2x6 BED WALL, 16 ft SIDE
3. 2x2 BALLUSTER STUD
4. 4x4 MEDIAN WALL STUD
5. 4x4 MEDIAN PARTITION STUD
6. 8 ft LONG, DOUBLED 2x6 BED PARTITION
7. 2x2 PARTITION WALL RAILING
8. 4x4 CORNER POST
9. 4x4 MEDIAN POST
10. 1/2 x 1 LATH
11. 1x2 TRELLIS FRAMING, 8 ft SIDE
12. 4x4 WIRE FABRIC TRELLIS
13. 1x2 TRELLIS FRAMING, 16 ft SIDE
14. 4x8 WIRE FABRIC TRELLIS

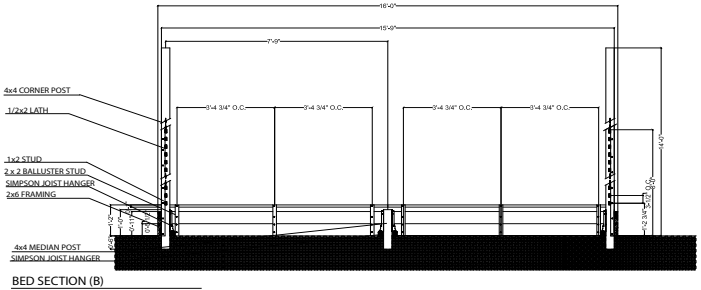
COMPONENT PARTS OF PARTITIONED BED
NTS



PARTITIONED BED, PLAN SECTION
SCALE: 1 1/2" = 1'-0"



BED SECTION (A)
SCALE: 1 1/2"=1'-0"



BED SECTION (B)
SCALE: 1 1/2"=1'-0"

In standardizing and simplifying fabrication methods and dimensions for the bed and fence components of the garden, community participants at Glenham Farm were more willing to participate in the design and construction of both the garden itself, as well as the prototypes and mock-ups. Illustrated above and to the right is a final mock-up of one type of raised planting bed used at Glenham Farm. With the participation and assistance of several Glenham Farm gardeners, this mock-up went up quickly and easily for a much appreciated demonstration to the rest of the neighborhood.

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Above: Construction Diagrams and Early Mock-Up of Typical. Raised Bed
Opposite Left: Early Construction at Glenham Farm

View of Glenham Farm from Street Corner

View into Glenham Farm from Entry Gate

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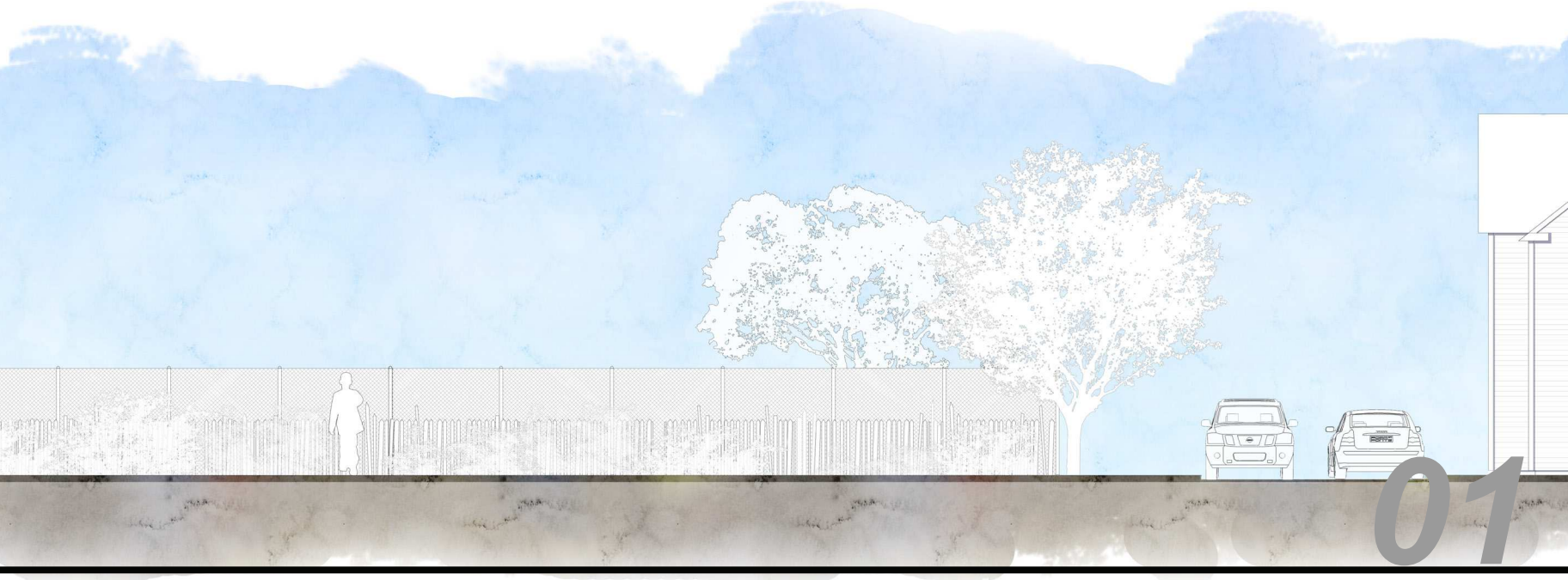

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AFFORDABLE HOUSING IN SALEM POINT

LOCATION: SALEM, MA
SPONSOR: NORTH SHORE CDC
2012 AFFORDABLE HOUSING DEVELOPMENT COMPETITION

This proposal for the construction of three affordable rental developments in Salem Point is a heroic first step in the revitalization of a marginalized and often publicly neglected community in the historic town of Salem Massachusetts. Assembled in partnership with The North Shore CDC this proposal for a community revitalization initiative sought to fundamentally alter Salem's common understanding of The Salem Point neighbourhood and help to cultivate new, more palpable ideals of community, self-reliance and participation.

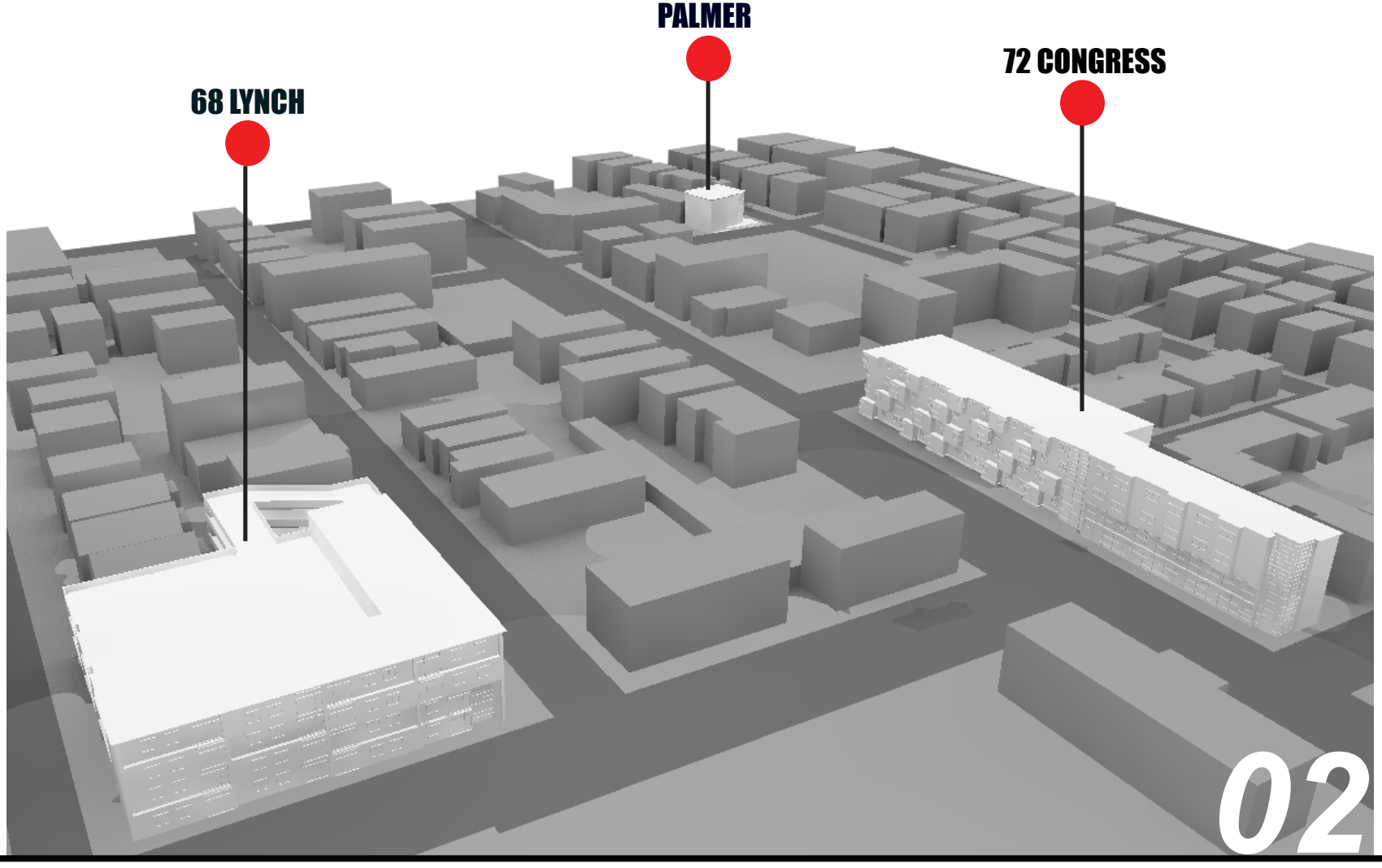
Spread between three separate sites in Salem Point, this proposal responds directly to Salem's brimming need for affordable housing while integrating the existing community's pent up need for accessible community spaces. The proposal provides a total of sixty-eight units of affordable rental housing between three separate buildings on Lynch Street, Congress Street and Palmer Street, along with 6,000sf of new on site office space for the CDC, a new day care center and 3,000sf of community space located in the Congress Street property. Existing covenants on the Congress and Lynch parcels required a minimum parking requirement of 187 spaces, which this proposal has attempted to integrate into its design and financing plans as responsibly as possible.

Above: Under maintained, littered street in Salem Point Neighborhood

The three sites have been designed to both work together as an urban whole, as well as independent architectural objects. Unifying all three sites formally and programmatically are dramatic, glazed, common atrium lobbies that anchor each building to the corners of their respective sites and activate the street fronts with transparent public spaces.

Between the three parcels approximately 62,000 sf of new housing with close to 9,000sf of office and community space is also proposed. Together this proposal will initiate an aggressive and iconic revitalization initiative in the Point neighborhood, reappropriating underutilized properties and engaging residents and community institutions in a long term process of design, planning and participation that will set a new tone for the Salem Point neighborhood.

With such a dramatic scale of new construction in the neighborhood, these three sites will generate a new enthusiasm in the Point and help to generate new activity and connectivity between the Point, the Downtown and other neighborhoods.



EXISTING SOCIO-DEMOGRAPHIC PROFILE

The Point has a population of 3,904 with 1,560 housing units over approximately 0.3 square miles. This translates to a density per square mile that is 2.6 times higher than the rest of Salem.

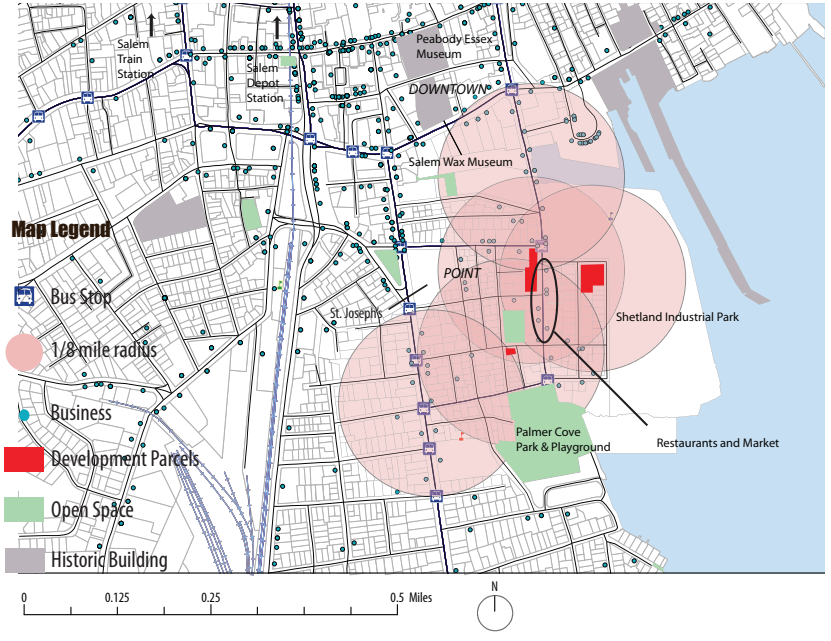
The residents are predominantly low-income Dominican families, with 19% non-US citizens. Most recently, there has been growth in the Haitian Creole population. The neighborhood is also characterized by its narrow streets and high density relative to the rest of the city.

Poverty
The poverty and unemployment rates are substantially lower in the Point than in Salem as a whole. While government officials recognize the high incidence of poverty in the neighborhood and the CDC has received funds to create programs to help residents, larger barriers to economic success still remain.

Vulnerable Groups
Single mother households and immigrant populations could benefit from specifically targeted programs, particularly to alleviate the burden to dependents and assist with activities related to their children. For this group, 27% are living below poverty. Job training programs may also be important in the neighborhood, responding to the 26% of householders without a high school diploma.

Housing
The Point has more rental units coupled with a greater amount of overcrowding in comparison to Salem as a whole. The average household size for renter-occupied units in the Point is 2.41 and for owner-occupied is 2. While for overall Salem, the average household size for owner-occupied units is 2.68 and for renter-occupied units is 2.17.

The median monthly housing costs for both rental and owned units is lower the Point than in Salem as a whole. This may be due to the lower quality and smaller housing available in the Point. Many of the rental apartments in the Point are owned by absentee landlords and are in dire need of repair.



Above: Locus map, illustrating concentration of small businesses to the north of The Point and location of primary bus routes in the neighborhood relative to the downtown.

Travel to Work
For those who are travelling to work, 18% walk in this community while only 6% of the Salem population walks to work. This could be related to the higher percentage of people in the Point who do not own cars, 34% compared to 15%, but also suggests that a larger portion of people in the Salem Point community work closer to their homes than the rest of Salem.

Crime
Crime in Salem is a major problem, with the crime rate 36% and property crime 21% greater than the Massachusetts average. The crime index is 23% greater than the Massachusetts average and 8% less than the national average.

Opposite: (Top) Cleared Brownfield Site at Palmer Street, (Middle) Existing Parking Lot Site at Lynch Street, (Bottom)Existing Parking Lot Site at Congress Street

PROPERTY AQUISITION AND PARKING STRATEGY

The requirement to maintain 187 parking spaces posed a significant challenge for the acquisition and design of any future development on the Lynch and Congress Street properties. At a cost of $20,000 per parking space, 187 adds an additional $3.7 million dollars to the already complicated development of affordable housing. Maintaining the full 187 spaces is financially unfeasible for the development and irresponsible for the neighborhood.

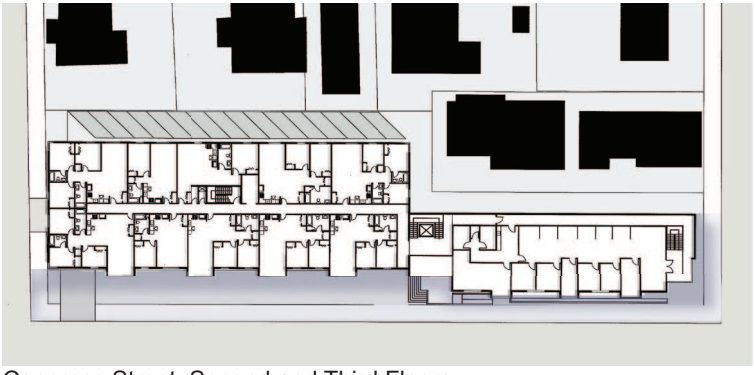
In preparing both the acquisition and design for the project, the proposal was sensitive to the ongoing negotiations and cognizant of the existing owner's status as the second largest tax payer to the City of Salem. As a compromise, the design proposes to include only 50 additional parking spots within the development. These spots would be funded separately through a reduction in the acquisition cost and would not produce any undue financial burden on the development and CDC. These additional parking spaces would be located in a new garage on Lynch Street. This structure will be funded through a Tax Increment Financing Bond. Because the development proposes to convert previously unused lots into affordable housing, office and community spaces, and provides some parking spaces to the City of Salem through a lease, this project would likely qualify for TIF funding. Additionally, the project generates a significant amount of tax revenue for the City of Salem.

While this request does not fully meet the current owner's requirement of 187 spaces, since the owner is a valued tax payer and the development of affordable housing is also highly valued, the project proposes that the City of Salem enter into a reciprocal parking space lease arrangement with the current owner outside the terms of this project. Under this agreement, the owner would be able to lease public parking spaces at a preferred or discounted rate from the City of Salem if it was ever 90% or more occupied.

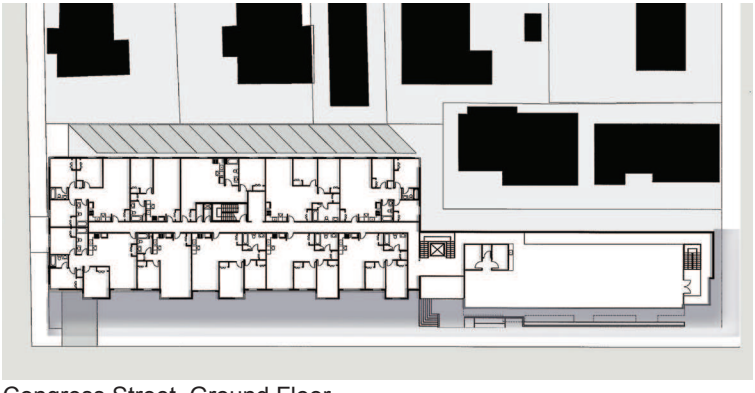
Similarly if the City of Salem's public parking garages are ever more than 84% occupied, it would be allowed to lease spaces back from its lesee. This is a more immediate possibility since the current owner's parking lot is typically 55% vacant and the nearby Commuter Parking Garage is under renovations. These existing parking lots are also within walking distance of downtown Salem and the Commuter Rail Station.

The existing property owner is an influential presence within the City of Salem and it was important that such an agreement be brokered to help catalyze other lot owners to enter into parking space leases with the city thereby increasing the supply of available parking within Salem without the creation of new parking lots. Salem's Comprehensive Parking Plan recommends creating a municipal management program for private parking facilities similar to what we are proposing.

Having met the parking conditions, the CDC should be able to acquire 16 Lynch Street and 78 Congress Street for a total of $432,000, which is consistent with the property tax assessment for the parcels, and comparable land prices of $7.5 to $9 per square foot in Salem.



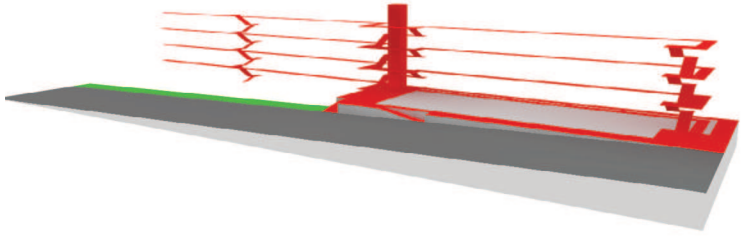
Congress Street, Second and Third Floors



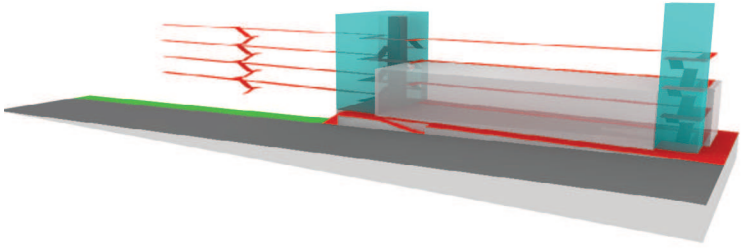
Congress Street, Ground Floor

CONGRESS STREET

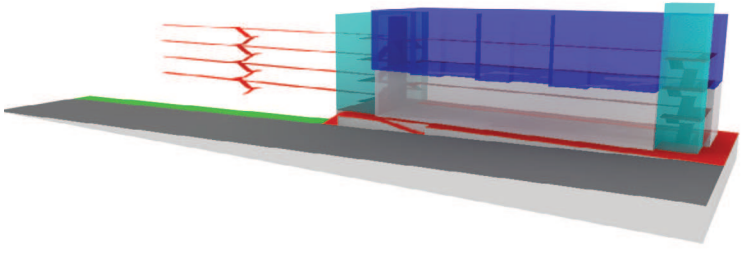
Currently 78 Congress Street is a large, underutilized parking lot servicing an adjacent office park. The strategy for this site sought to integrate a community space that would unify North Shore CDC's new office spaces with the residential wing of the development and provide a much needed amenity to the Point's residents . Two iconic atrium lobbies link the wings and provide a powerful common entry space for residents. Forty, one, two and three bedroom units are housed in the residential wing on Congress street, while a new community center and offices occupy the eastern end of the site. An articulated facade on the residential wing, increases glazing area in each unit and creates a dynamic street profile.



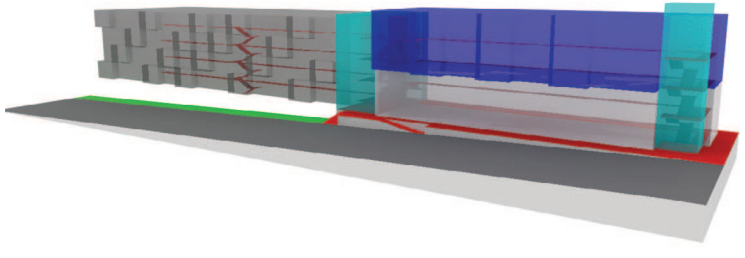
Primary Circulation System



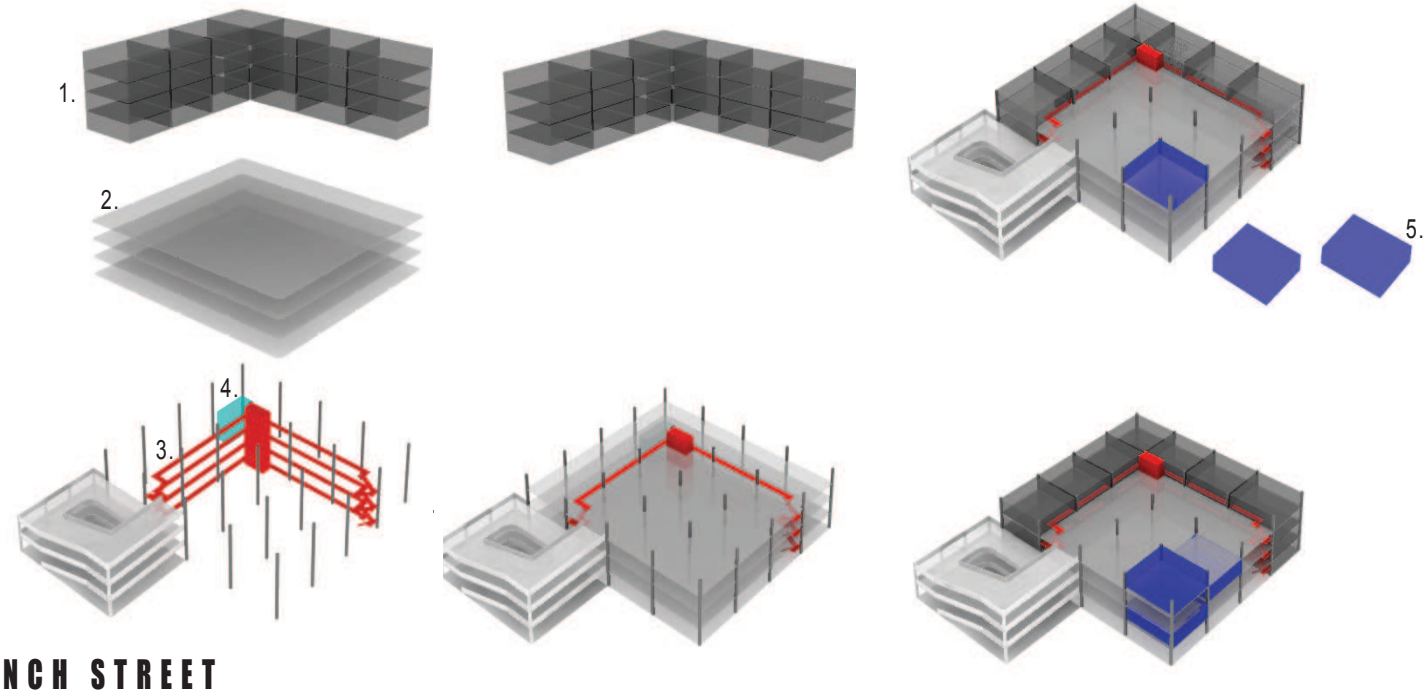
Common Spaces



Common Spaces with Office Massing



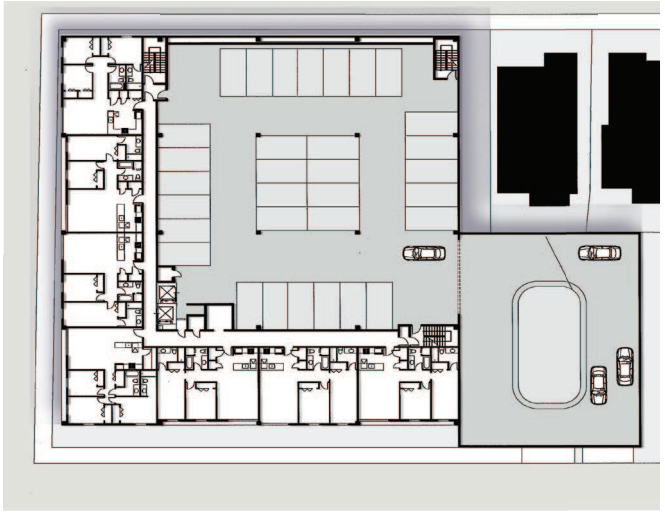
Residential Massing Connects to Office and Civic Spaces



LYNCH STREET

Lynch street provided a unique and challenging design problem with the seemingly prohibitive provision for parking. The strategy for this site centered around the design of a parking garage that could later be strategically infilled with housing and commercial uses as the demand for parking in the area decreased. The current proposal shows how a standard parking structure can be designed with a workable structural grid that can be built out with enclosed, livable units. In the future, as demand for structured parking dwindles, the remaining sides of the garage can be built out and appropriated as needed. Twenty-seven, one, two and three bedroom units were proposed to fill out the east and north sides of the site, disguising the parking structure behind it.

Above: Component Parts: 1. Proposed Residential Infill, 2. Parking Trays, 3. Primary Circulation System, 4. Common Atrium Entry
5. Proposed Future Units



Above: Typical Building Plan

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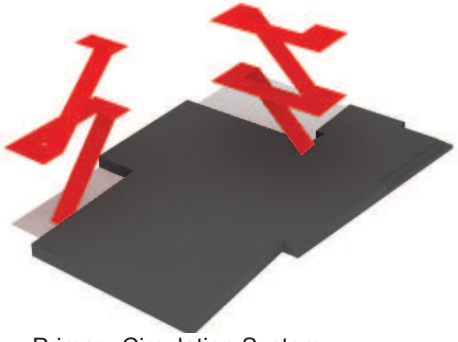
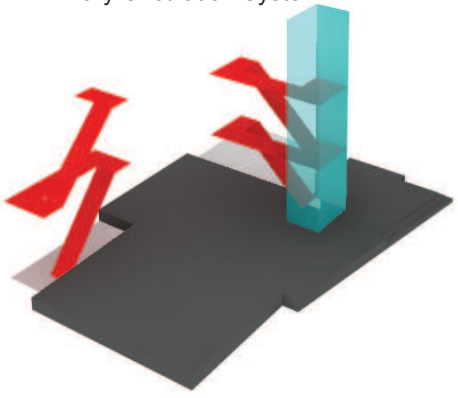
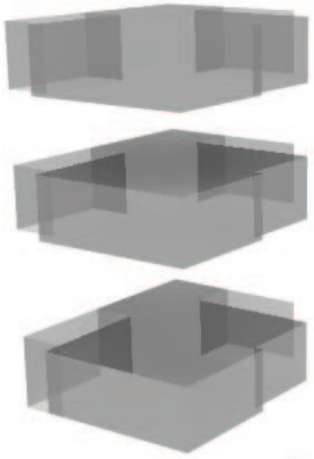
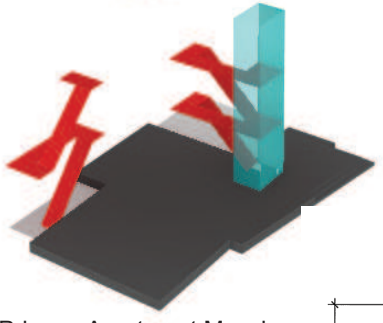


Primary Circulation System

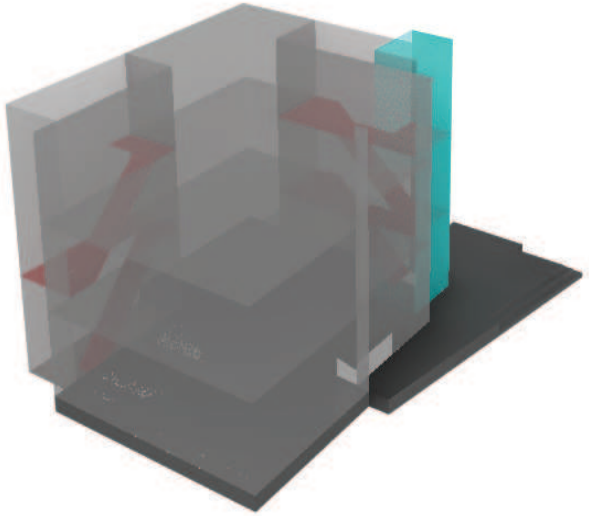


Primary Circulation System with
Common Entry Atrium





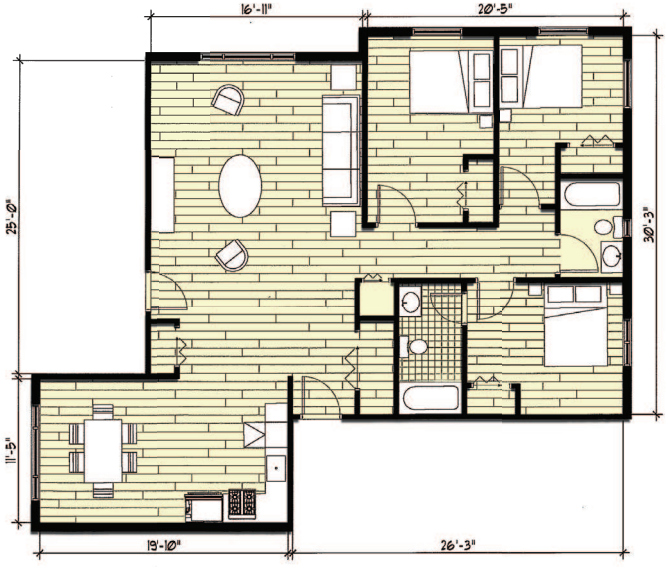
Primary Apartment Massing



Completed Component Massing

PALMER STREET

Palmer St is a recently demolished lot, which overlooks the Mary Lee Jane Park directly across the street. This lot sits at the corner and is surrounded by streets on three sides. The property line is angled off of the existing adjacent lots, which allows for a dynamic building orientation. The strategy for this site involved orienting the building's public face towards the existing park and integrating a sizeable front porch that leads to a transparent entry hall on the corner of the building. Three, three-bedroom flats are designed to accommodate growing families and provide easy access and views to the existing park.



Above: Typical Floor Plan

PROPOSED FINANCING STRATEGY

Low Income Housing Tax Credit, (LIHTC)
With 4% credits the NSCDC will be able to raise equity more quickly for this project than with 9% credits, whose supply is very limited. After suffering a severe blow during the financial crisis, LIHTC rates have recovered and are currently between .85 and 95 cents per credit as reported in affordable housing finance.com. Due to the increase in current rates we anticipate being able to raise .89 cents per credit based on the current market conditions and NSCDC experience as a developer.

Salem HOME Funds
As a new construction affordable housing development this project qualifies for Salem HOME funds. Salem only received a total allocation of $102,250 in 2013 due to budget constraints. Ideally we would have liked to receive a larger allocation of local subsidy through the CDBG Program, however after speaking with Jane Guy from Department of Planning and Community Development we determined that as a new construction project this development would be ineligible for CDBG funding.

North Shore HOME Consortium
Salem is a part of The North Shore HOME consortium and as such projects within the city can apply for subsidy funding from the NSCH. The allocation of the funds is achieved through a competitive process during which suitable projects apply for funding annually through and RFP in the Spring. Lisa Greene of the North Shore HOME consortium noted that the NSHC requires projects to have other matching public funding as well as private investment dollars, to leverage the NSHC's subsidies. The match does not have to be a dollar for dollar and there is no Maximum award or minimum award. We have estimated an award of $5,000 per unit. This is consistent with a recent award the Holfcroft Park HomePhase II development in Beverly.

FHLB
We believe that we will be allowed the maximum grant amount of $200k. After careful consideration we decided not to pursue FHLB advance funding.

Affordable Housing Trust Fund
We believe that we will be allocated the maximum amount of $1,000,000 as a subordinate loan under the AHTF's program.

Tax Increment Financing
Tax Increment Financing is used for projects that would yield significant property tax revenue to the community as a result of their development. These projects not only yield tax revenue but increase the value of the surrounding properties by their development. Typical projects include significant commercial and business development, however we believe that because of the unique nature of this project and because the parking spaces can in the future be leased to the City of Salem, that this project would qualify for TIF financing. With TIF Financing the City raises a bond and the developer tax payment reduced, however the developer would be required to pay back the bond investors. We have calculated the bond repayment over a period of 15 years and included it in our Pro Forma. The maximum repayment term for a TIF bond is 20 years. We have also decided to use the TIF financing to fund the creation of the parking garage on Lynch Street and to only request financing totalling $2.6 million.

DEVELOPMENT COST BREAKDOWN

AHDC Project	Total Development Cost		
	Per Unit	Per Gross Square Foot	Per Bedroom
Salem	$ 273,734	$ 133	$ 127,493

	Percentage of Units of Affordable at Respective Affordabilit		
	30% MIF	50% MFI	60% MFI
Salem	13%	0%	87%

PERMANENT LOAN CALCULATION

MAXIMUM MORTGAGE AMOUNT	Total	
Net Operating Income	$	696,451
Debt Covarage Ratio		1.25
Available for Debt Service	$	557,160.80
Annual Constant		6.881%
Interest Rate		5.50%
Amortization Term		30
Maximum Mortagage Amount	**$**	**8,097,633**

SOURCES OF FUNDS

GRANTS	Amount	Percentage of Total
Brownfield's	$ 50,000	0.3%
Brownfield's Grant	$ 200,000	1.1%
FHLB Grant	$ 200,000	1.1%
Salem HOME Funds	$ 102,250	0.5%
North Shore HOME Funds	$ 341,230	1.8%
TOTAL GRANTS	$ 893,480	4.8%

EQUITY	Amount	Percentage of Total
LIHTC	$ 3,556,084	19.1%
Deferred Developer's Fee	$ 2,326,743	12.5%
Sponsor Equity	$ 100,000	0.5%
TIF Funds for Lynch Parking Structure	$ 2,640,000	14.2%
TOTAL EQUITY	$ 8,622,827	46.3%

DEBT	Amount	Percentage of Total
Permanent Loan	$ 8,097,633	43.5%
Affordable Housing Trust Fund	$ 1,000,000	
TOTAL DEBT	$ 9,097,633	48.9%

TOTAL FUNDS	$ 18,613,940	100.0%

UNIT MIX

UNIT TYPE	Number of Units	Square Footage	Gross Rent	Monthly Rent/SF	Annual Rent
Congress Street					
1 Bedroom - 30% AMI	1	616	$ 588	$ 0.95	$ 7,056
1 Bedroom - 60% AMI	7	616	$ 1,175	$ 1.91	$ 98,700
2 Bedroom - 30% AMI	2	825	$ 661	$ 0.80	$ 15,864
2 Bedroom - 60% AMI	18	825	$ 1,322	$ 1.60	$ 285,552
3 Bedroom - 30% AMI	2	975	$ 793	$ 0.81	$ 19,032
3 Bedroom - 60% AMI	10	975	$ 1,586	$ 1.63	$ 190,320
Lynch Street					
1 Bedroom - 30% AMI	1	572	$ 588	$ 1.03	$ 7,056
1 Bedroom - 60% AMI	2	572	$ 1,175	$ 2.05	$ 28,200
2 Bedroom - 30% AMI	2	918	$ 661	$ 0.72	$ 15,864
2 Bedroom - 60% AMI	14	918	$ 1,322	$ 1.44	$ 222,096
3 Bedroom - 30% AMI	1	972	$ 793	$ 0.82	$ 9,516
3 Bedroom - 60% AMI	5	972	$ 1,586	$ 1.63	$ 95,160
Palmer Street					
3 Bedroom - 60% AMI	3	1,080	$ 1,586	$ 1.47	$ 57,096
TOTAL	68				$ 1,051,512

CASH FLOW FROM TOTAL OPERATIONS

YEAR	2012	2,013	2,014	2,015	2,016	2,017	2,018	2,019	2,020	2,021	2,022	2,023	2,024	2,025	2,026
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
INCOME															
Gross Potential Residential Rental Income	$ 1,051,512	$ 1,072,542	$ 1,093,993	$ 1,115,873	$ 1,138,190	$ 1,160,954	$ 1,184,173	$ 1,207,857	$ 1,232,014	$ 1,256,654	$ 1,281,787	$ 1,307,423	$ 1,333,571	$ 1,360,243	$ 1,387,448
Residential Rental Vacancy	$ (52,576)	$ (53,627)	$ (54,700)	$ (55,794)	$ (56,910)	$ (58,048)	$ (59,209)	$ (60,393)	$ (61,601)	$ (62,833)	$ (64,089)	$ (65,371)	$ (66,679)	$ (68,012)	$ (69,372)
Community Room Space	$ 12,000	$ 12,240	$ 12,485	$ 12,734	$ 12,989	$ 13,249	$ 13,514	$ 13,784	$ 14,060	$ 14,341	$ 14,628	$ 14,920	$ 15,219	$ 15,523	$ 15,834
Office Space	$ 180,000	$ 183,600	$ 187,272	$ 191,017	$ 194,838	$ 198,735	$ 202,709	$ 206,763	$ 210,899	$ 215,117	$ 219,419	$ 223,807	$ 228,284	$ 232,849	$ 237,506
EFFECTIVE GROSS INCOME	$ 1,190,936	$ 1,214,755	$ 1,239,050	$ 1,263,831	$ 1,289,108	$ 1,314,890	$ 1,341,188	$ 1,368,012	$ 1,395,372	$ 1,423,279	$ 1,451,745	$ 1,480,780	$ 1,510,395	$ 1,540,603	$ 1,571,415
EXPENSES															
Adminstration	$ 21,390	$ 21,818	$ 22,254	$ 22,699	$ 23,153	$ 23,616	$ 24,089	$ 24,570	$ 25,062	$ 25,563	$ 26,074	$ 26,596	$ 27,128	$ 27,670	$ 28,224
Utilities	$ 36,639	$ 37,372	$ 38,119	$ 38,882	$ 39,659	$ 40,452	$ 41,261	$ 42,087	$ 42,928	$ 43,787	$ 44,663	$ 45,556	$ 46,467	$ 47,396	$ 48,344
Operating & Maintenance	$ 242,359	$ 247,206	$ 252,150	$ 257,193	$ 262,337	$ 267,584	$ 272,936	$ 278,394	$ 283,962	$ 289,641	$ 295,434	$ 301,343	$ 307,370	$ 313,517	$ 319,788
Taxes & Insurance	$ 194,097	$ 197,979	$ 201,939	$ 205,977	$ 210,097	$ 214,299	$ 218,585	$ 222,956	$ 227,416	$ 231,964	$ 236,603	$ 241,335	$ 246,162	$ 251,085	$ 256,107
TOTAL OPERATING EXPENSES	$ 494,485	$ 504,375	$ 514,462	$ 524,751	$ 535,246	$ 545,951	$ 556,870	$ 568,008	$ 579,368	$ 590,955	$ 602,774	$ 614,830	$ 627,127	$ 639,669	$ 652,462
Net Operating Income	$ 696,451	$ 710,380	$ 724,588	$ 739,080	$ 753,861	$ 768,939	$ 784,317	$ 800,004	$ 816,004	$ 832,324	$ 848,970	$ 865,950	$ 883,269	$ 900,934	$ 918,953
Annual Debt Service	$ 255,789	$ 255,789	$ 255,789	$ 255,789	$ 255,789	$ 255,789	$ 255,789	$ 255,789	$ 255,789	$ 255,789	$ 255,789	$ 255,789	$ 255,789	$ 255,789	$ 255,789
TIF Bond Payment	$ 254,344	$ 254,344	$ 254,344	$ 254,344	$ 254,344	$ 254,344	$ 254,344	$ 254,344	$ 254,344	$ 254,344	$ 254,344	$ 254,344	$ 254,344	$ 254,344	$ 254,344
CASH FLOW AFTER FINANCING	$ 186,319	$ 200,248	$ 214,455	$ 228,947	$ 243,729	$ 258,806	$ 274,185	$ 289,871	$ 305,871	$ 322,191	$ 338,838	$ 355,817	$ 373,136	$ 390,802	$ 408,820
DEBT SERVICE COVERAGE RATIO	1.37	1.39	1.42	1.45	1.48	1.51	1.54	1.57	1.60	1.63	1.66	1.70	1.73	1.77	1.80

STATION PARK

LOCATION: PROVIDENCE, RI
ADVISORS: JIM BARNES
ADVANCED STUDIO: 12 WEEKS

Located to the south of Providence's iconic State House, this project sought to reinvent station park as both a bold new transit station and urban attraction.

The parcel's central location within the city, uniquely surrounded by the city's densely developed downtown, the sprawling residential fabric of college hill and the classical symbolism of the state house, makes it both a practical and poetic location for the city's train station.

The design proposed to preserve the center of the lot as an open park with the western edge of the site enclosed by a long hotel running the length of Francis Street, creating a strong directional edge up toward the State House along both the street and within the park.

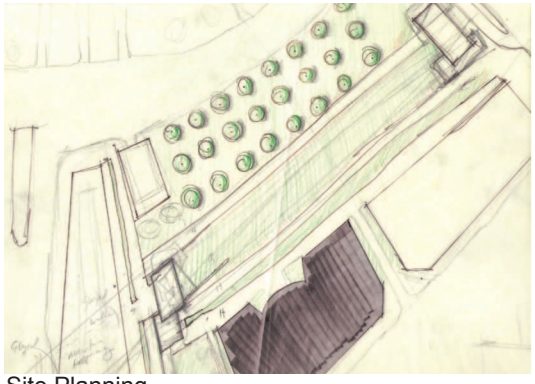
The southern border of the park is enclosed by a mixed-use residential building that encourages activity to spill out into the park. A dense allay of trees encloses the northern edge of the site buffering the park from Gaspee Street while leaving the park's dramatic views to the capital unobstructed.

The train station itself is developed in the form of two iconic towers that bookend the park and straddle the existing platforms allowing direct access down to the tracks. Derivative of an earlier idea of siloing program throughout the park in the form of a series of "folly-like" structures, the towers matured into a much grander urban gesture, engaging the city's skyline and defining a "Mall-like" condition within the park that can be seen as the "station's" formal "concourse."

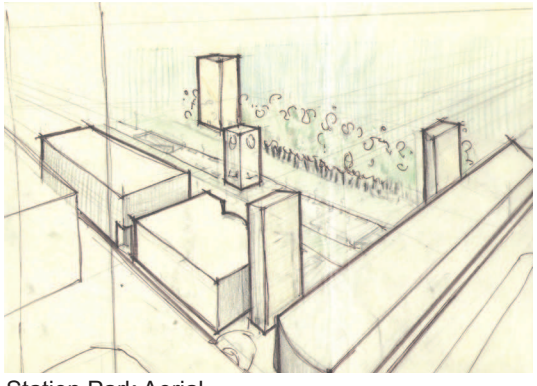
Right: Early Site Zone Sketch

The park's planning strategy sought to engage the entire length and breadth of the parcel, while preserving the center of the site as an occupiable and non-prescriptive park space.

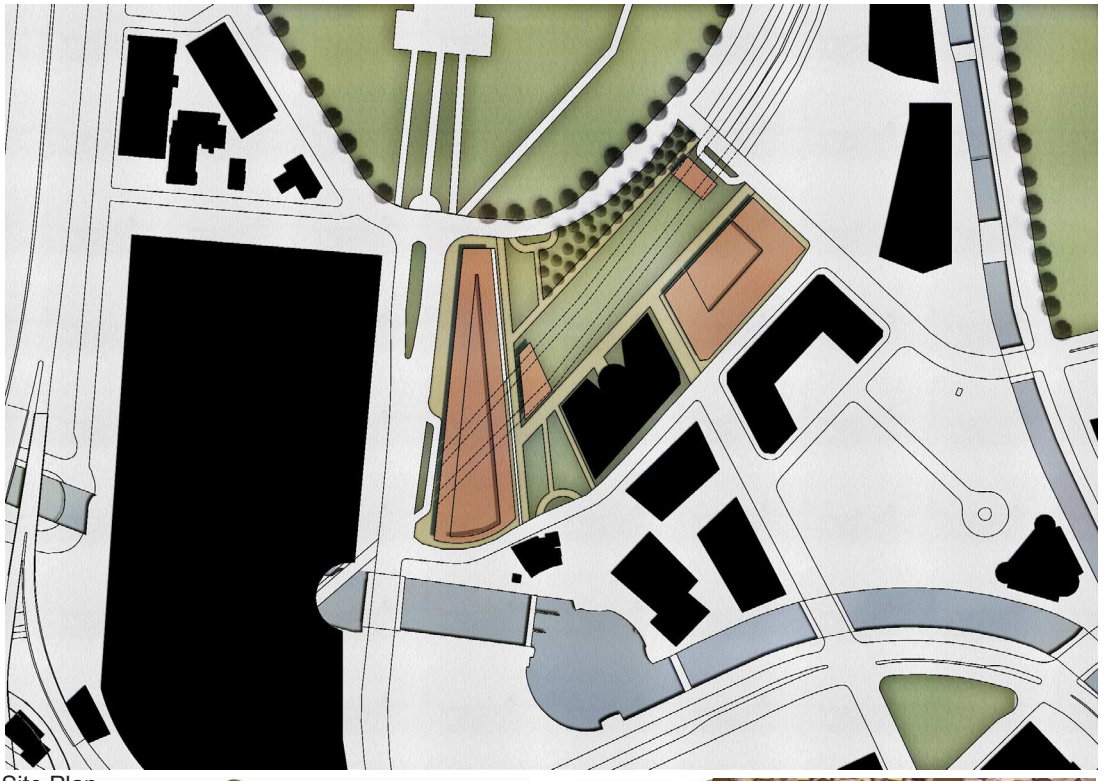
The orientations and forms of the proposed buildings are developed to encourage both circulation and views through the site, towards the State House, downtown as well as to Prospect Street, and the design of the park's walks in conjunction with the planning of the proposed structures similarly seek to reference this directionality.



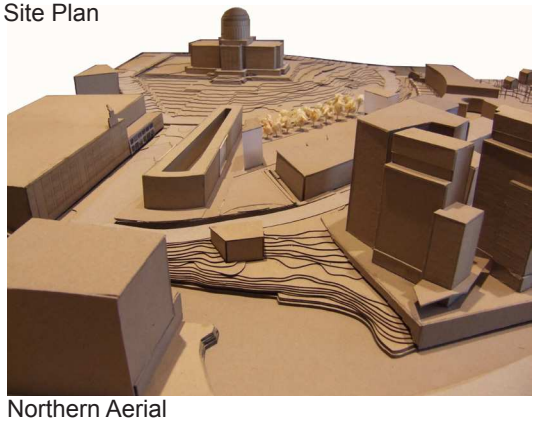
Site Planning



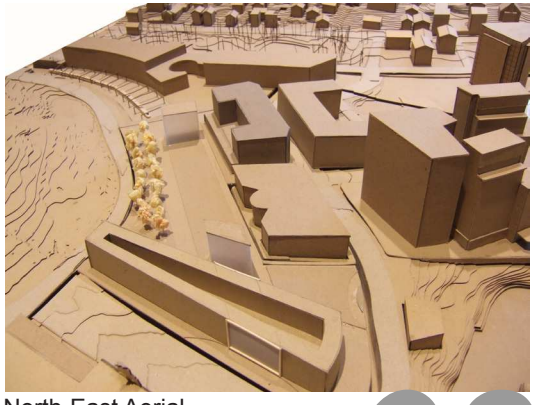
Station Park Aerial



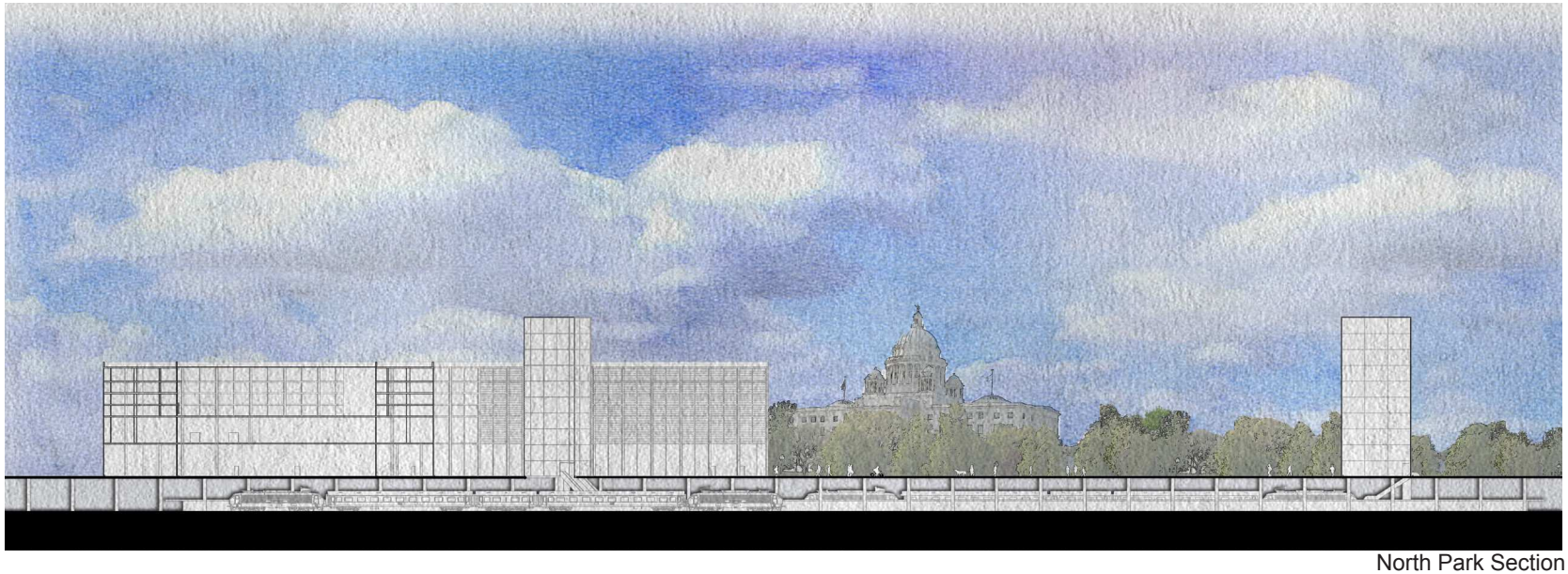
Site Plan



Northern Aerial

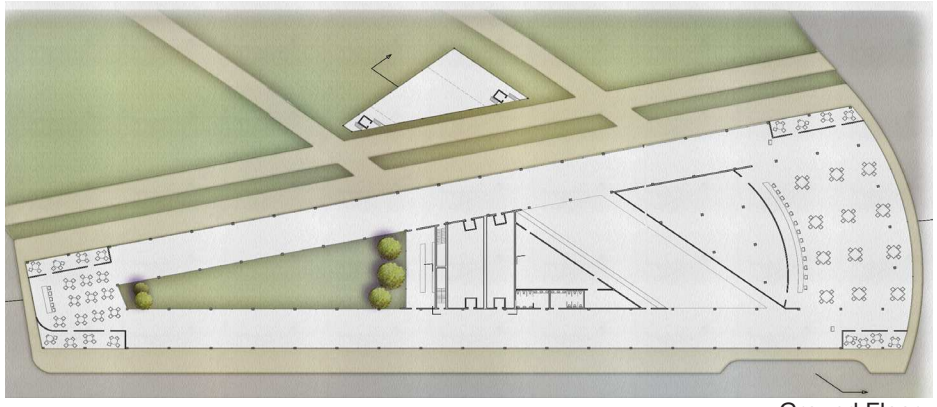


North-East Aerial

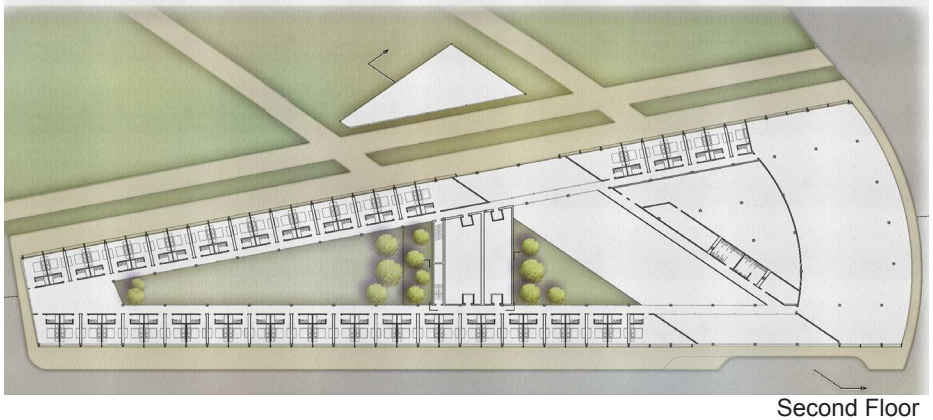


North Park Section

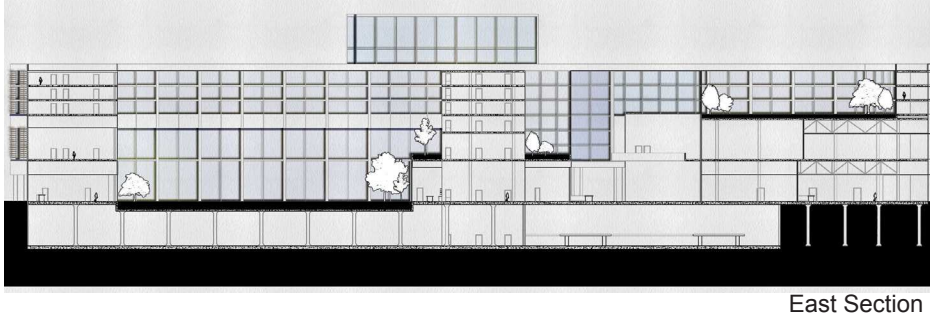
South Park Section



Ground Floor



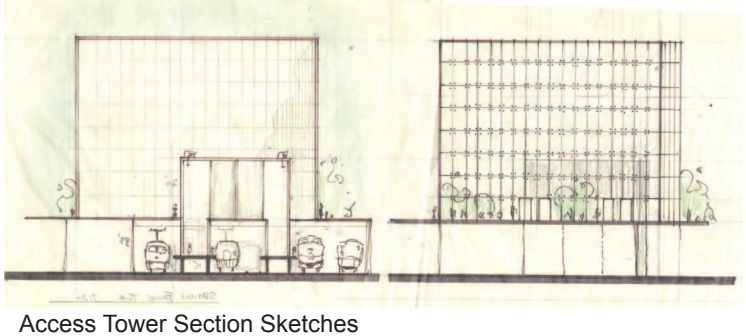
Second Floor



East Section

While the schematic design for the mixed-use hotel and retail portions of the project's program, never evolved passed the early conceptual stages, the building's placement and form are nonetheless important components of a greater urban strategy. This long trapezoidal-like building is designed to parity the Providence Place Mall in both scale and siting and direct focus and circulation up towards the State House.

The main entry and lobby to the building is conceptualized in the form of a grand, semi-open glass atrium space that bisects the building obliquely to the street, allowing for pedestrian traffic to move freely through the building from the mall to the park and train station. The first of two iconic glass access towers presents itself to passers by on the park-side of the building's atrium allowing for easy access to the train platform from the hotel and mall

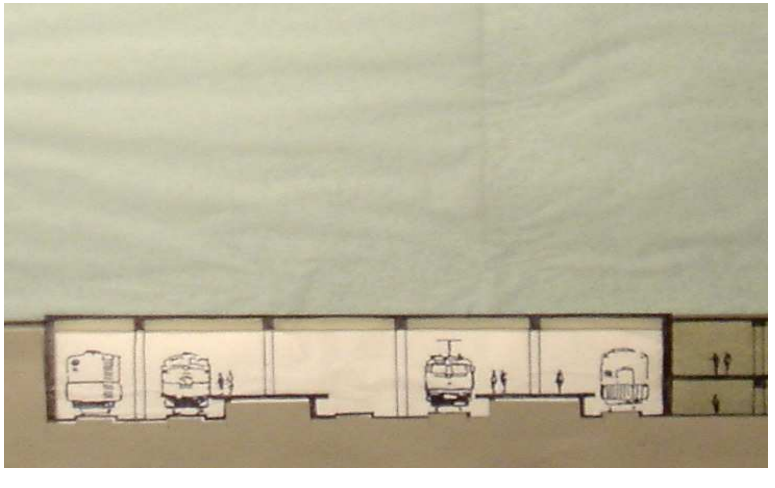


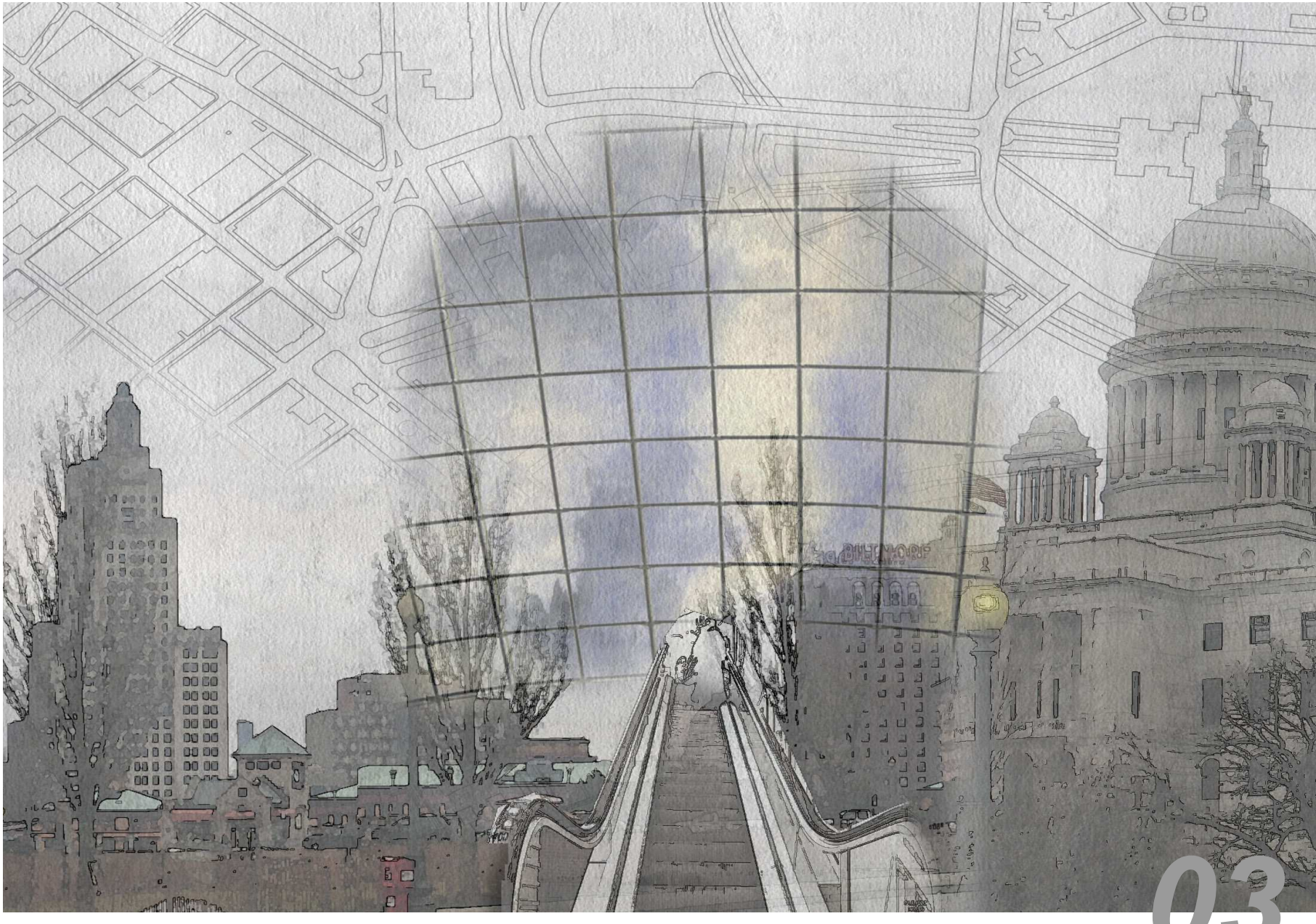
Access Tower Section Sketches

Atrium Rendering

Underlying nearly every iterative massing strategy and planning decision was a deep concern for the quality of the pedestrian experience and its contribution to the existing urban fabric. The rendering above illustrates this concept of an “urban commons” offering pedestrians an elegant park space that connects college hill with downtown, relegating the program of the train station to a subterranean amenity.

By re-conceptualizing the program of a train station for Providence to a “glorified” subway station, travelers’ and commuters’ experience upon entering and exiting the city is dramatized through a simple and iconic processional from train platform to access tower, to park which directs attention and movement towards the city’s downtown district, college hill and State House. Illustrated on the opposite page is this unique experience whereby the traveler ascends through the glass tower and is located between the city and the capital.





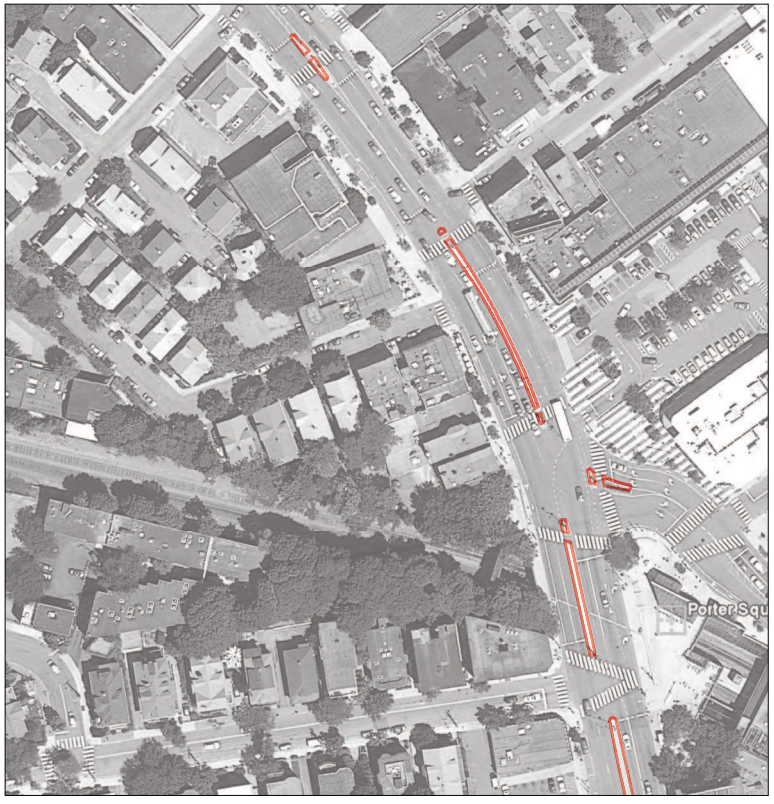
03

RE-ENVISIONING PORTER SQUARE

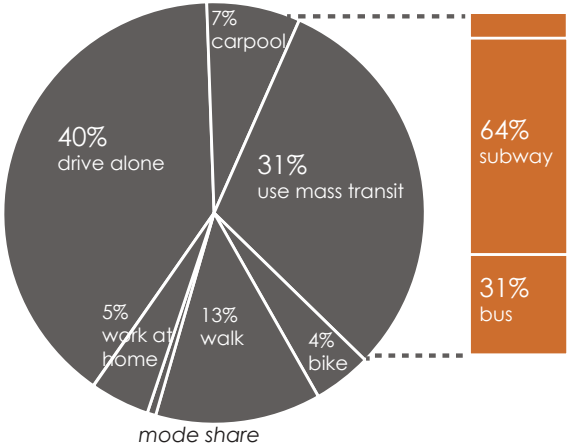
LOCATION: CAMBRIDGE, MA
ADVISORS: RICK DIMINO
SEMINAR CASE STUDY: 4 WEEKS

Through an ongoing and consistent dialogue with all segments of the Porter Square community, this project sought to help create a vision for a diverse, active community in Porter Square that will ultimately function as both a vital transportation hub, as well as an urban attraction within the city of Cambridge. The primary aim was to enhance and improve the quality of life within and around the Porter Square neighborhood through the dedicated improvement of underutilized public spaces, the promotion and engagement of local cultural institutions and the support of local commercial and retail businesses.

This analysis and proposal was built around addressing three key objectives. First the project sought to improve streetscape and pedestrian safety by reconstructing intersection crosswalks, developing existing open spaces, redesigning pedestrian pathways, and engaging local institutions, such as The Art Institute of Boston and Lesly University into the redesign and maintenance of open spaces. Additionally the project sought to encourage the design of mixed use developments that privilege local commercial and retail businesses on the ground floors. Finally the proposal attempted to help a better integrate modalities by consolidating key MBTA bus routes near high usage and retail areas improving bike lanes.



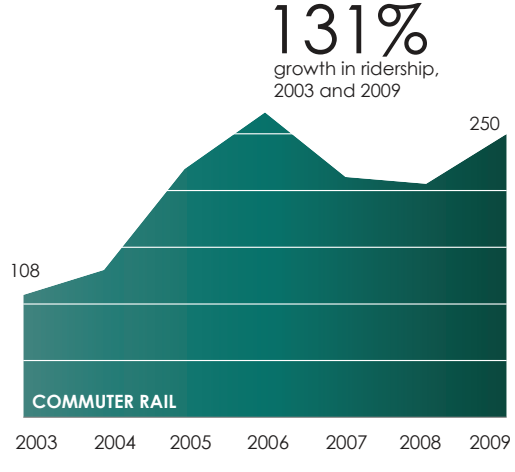
Right: Aerial map of primary areas of Porter Square Intersection
Opposite: Existing Conditions at Porter Square (Right) and existing transportation and commuter analysis (Left and Bottom)



mode share

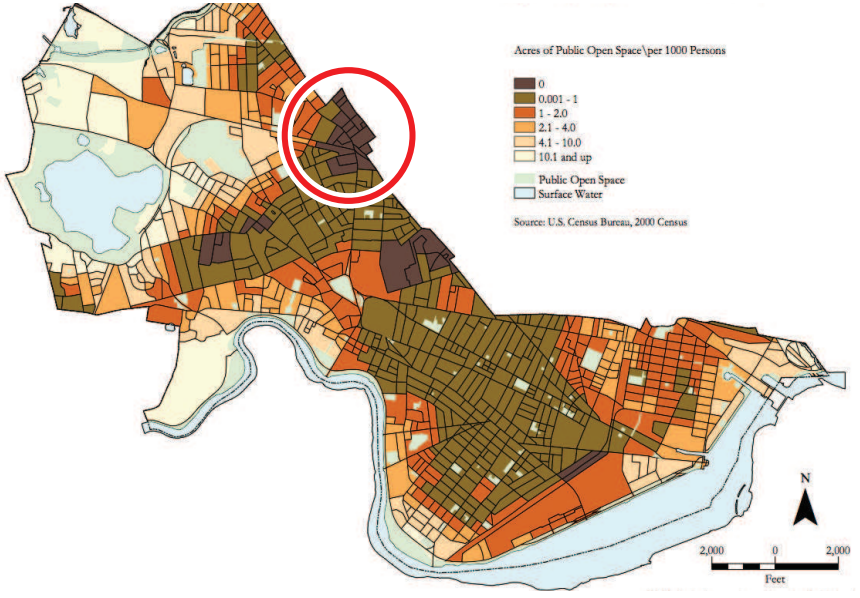
place of work

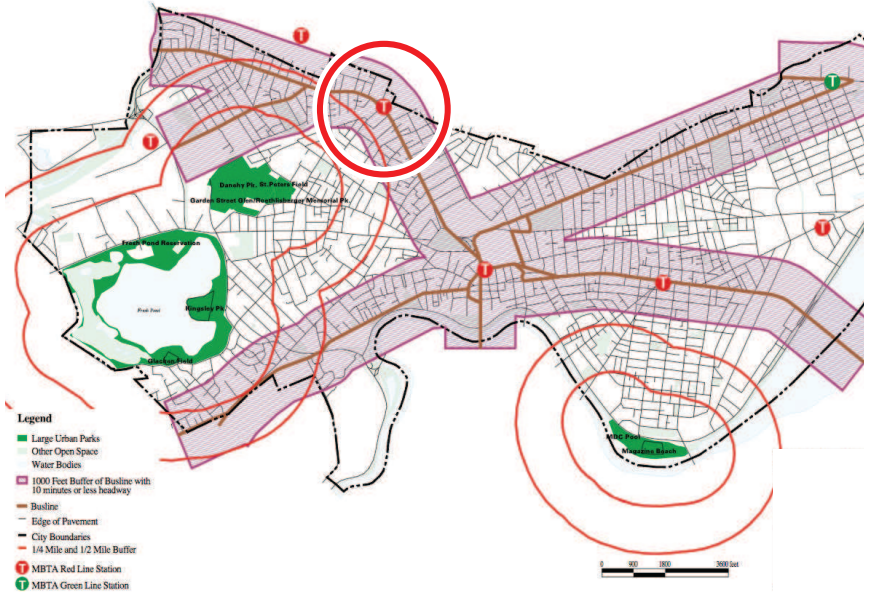
access to motor vehicles



A cursory analysis of Cambridge's existing public open spaces reveals an alarming lack of adequate recreation or conservation space with some of the greatest building densities occuring near the Porter Square neighborhood and into Somerville. Those notable open spaces that are regularly cited and utilized are severley limited in both their physical accessbility from transit lines and main roads and their efficacy in terms of hosting public attractions.

This proposal seeks to mediate these two seemingly extraneous programs by incorporating both an urban attraction and easily accesbile public and event space into the heart of an historically dense transit hub.





Above: Porter Square Bus Stop Along Mass Ave. (Top) Intermittently used parking lot for shopping center
Right: Public Open Spaces in Cambridge Per 1000 People (Top), Cambridge Public Space Accessibility Map (Bottom)

1

1

2

3

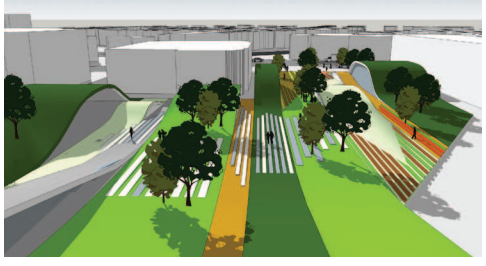
Above: Empty Parking Lot for Retail Facility During Business Hours

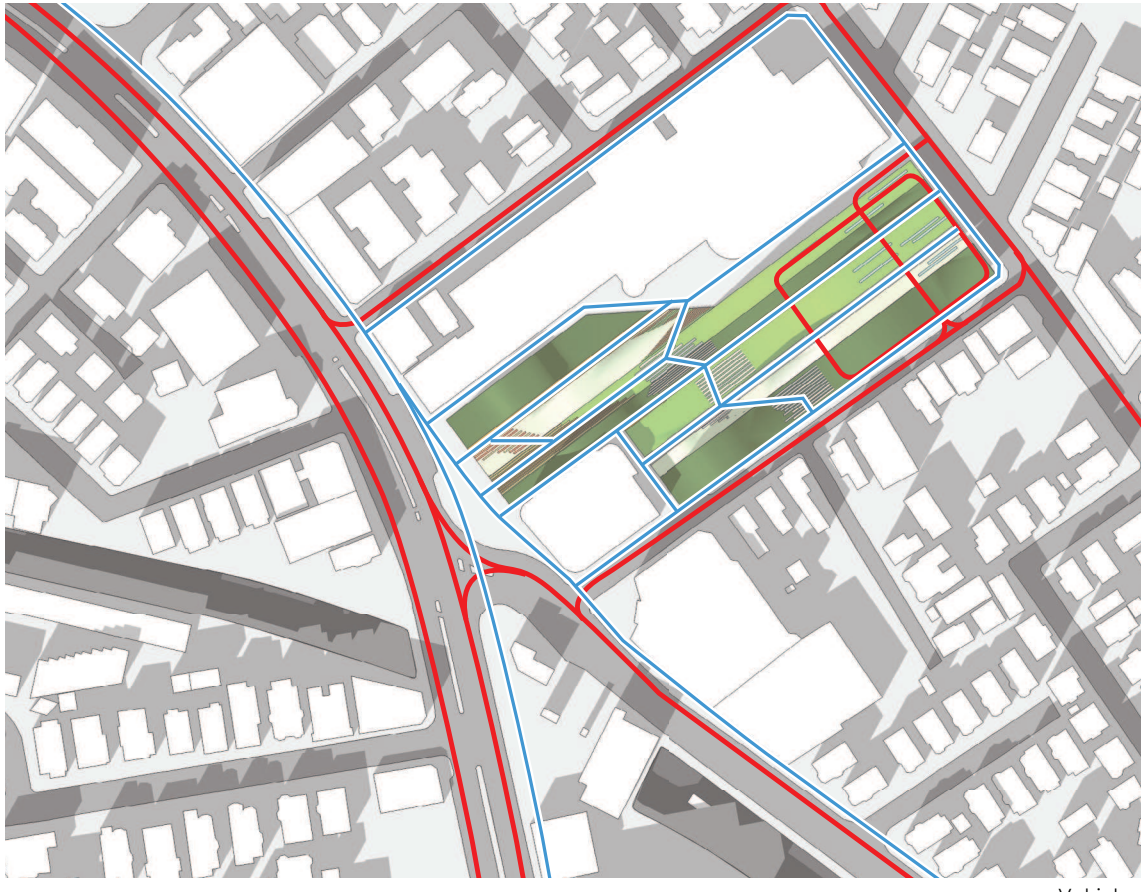
Identifying opportunity areas in Porter Square involved mainly documenting the conditions and potential of several underutilized parking lots in the area and troubleshooting a number of programming options with property owners and neighbors.

Map Legend:
1. Parking Lots
2. Existing Vacant Parcels
3. Infrastructural Buffer Areas

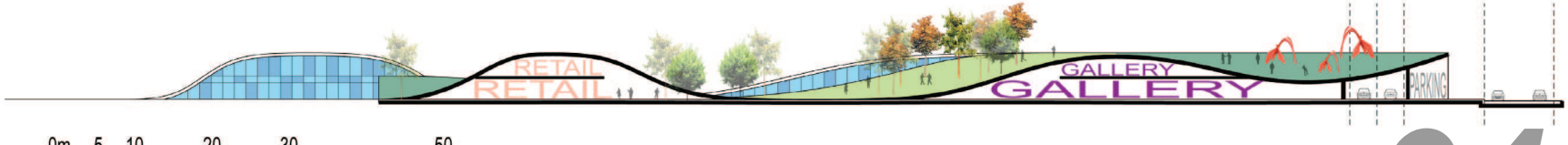
The largest and most central parcel for experimenting withthe incorporation of infrastructure and open recreation spaces was the large parking lot that serves an exisitng shoping center. This proposal attempts to integrate both transit stops, adeqaute parking space, recreation and landscape amenities into the existing paved landscape. A constructed ground swell scheme creates a dramatic urban attraction while forming new retail and parking spaces underneath. Consolidated bus routes, hubway stations and bike racks are integrated around the park's perimeter.

Right: Proposed circulation routing
Bottom Right: Existing views toward site
Opposite: Aerial view of proposed park (Top) site cross sections showing how parking and new retail facilities are incorporated inot the constructed ground (Bottom)





Above: Proposed views of park from street level (Right) and from atop one of the swells.



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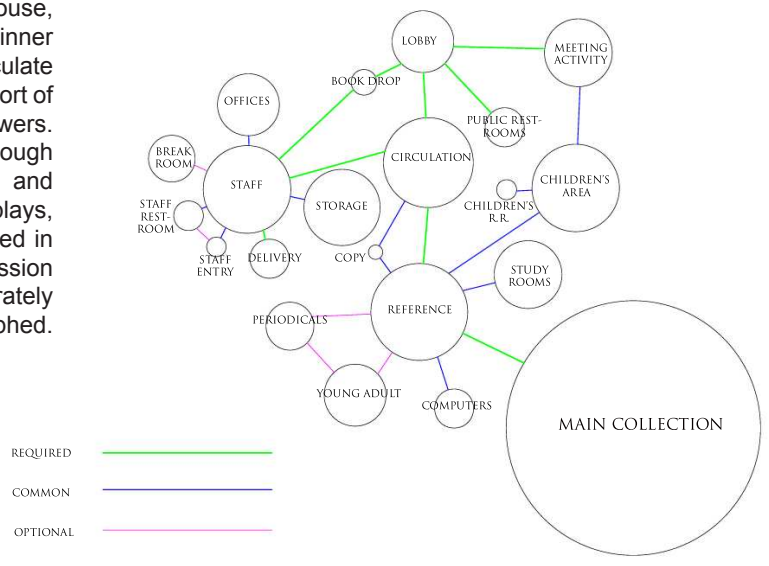
LONG ISLAND CITY PUBLIC LIBRARY

LOCATION: QUEENS, NEW YORK
ADVISORS: PHILIP RYAN, ANDREW TOWER
ADVANCED STUDIO: 12 WEEKS

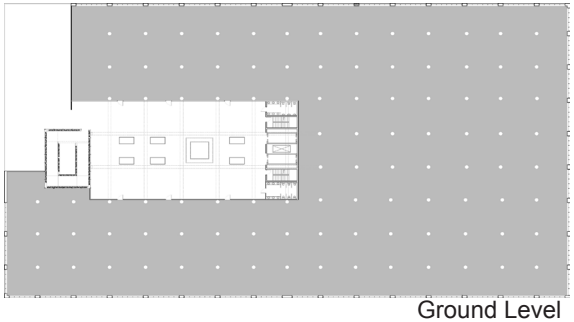
The role of the library and the public's engagement of it has changed irrevocably over the past two decades and the viral nature of new media outlets will undoubtedly continue to erode the library's role as an epicenter of archival knowledge.

This proposal for the construction of a new public library in an old warehouse in Long Island City, was developed around the premise that the "book" is no longer the pre-eminent medium for recording or disseminating information and consequently the library has become less a center devoted strictly to learning and knowledge and more a dynamic, flexible and less prescriptive civic space.

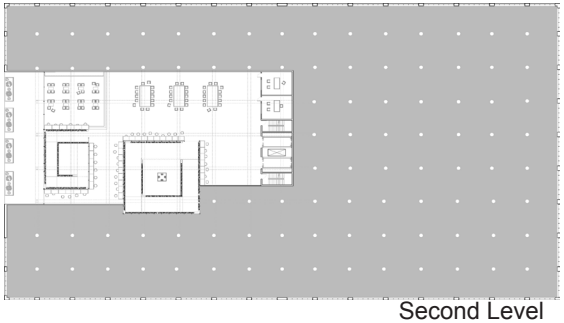
To that end the design of this scheme sought to formalize the collection of the library as a series of glass volumes that bisect the floor plates of the existing warehouse, accommodating shelving around the inner perimeter and allowing users to circulate through the building by entering into a sort of procession up and around the book towers. The structure of and procession through the book towers conjures up formal and experiential allusions to museum displays, where the items to be viewed are stored in glass enclosures and the visitor's procession through the exhibition is deliberately and strategically choreographed.



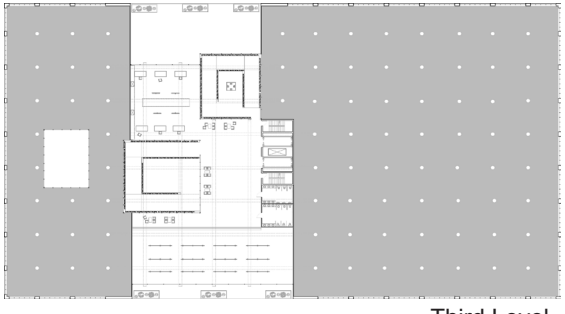
Right: Space Adjacencies' Diagram
Opposite: Library Floor Plans



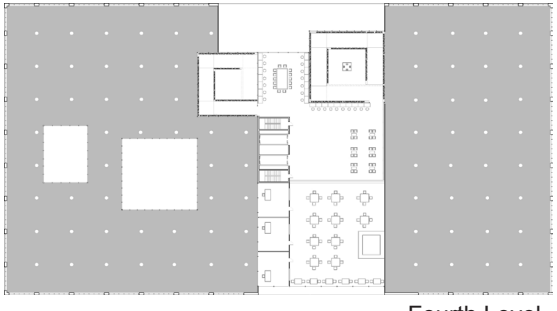
Ground Level



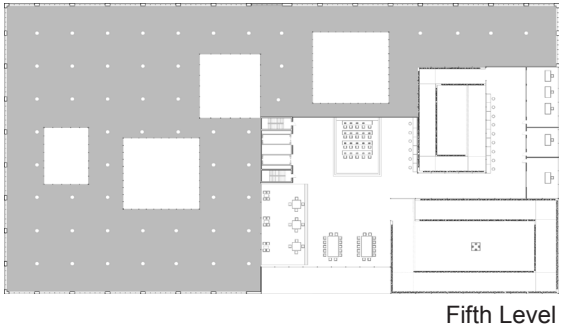
Second Level



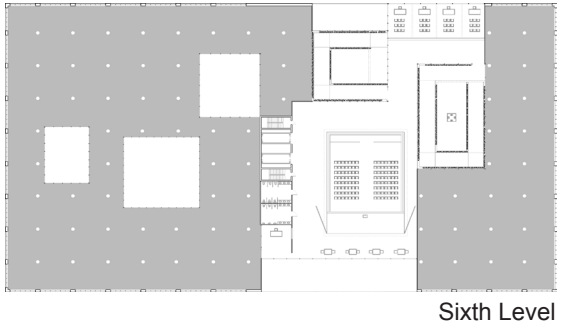
Third Level



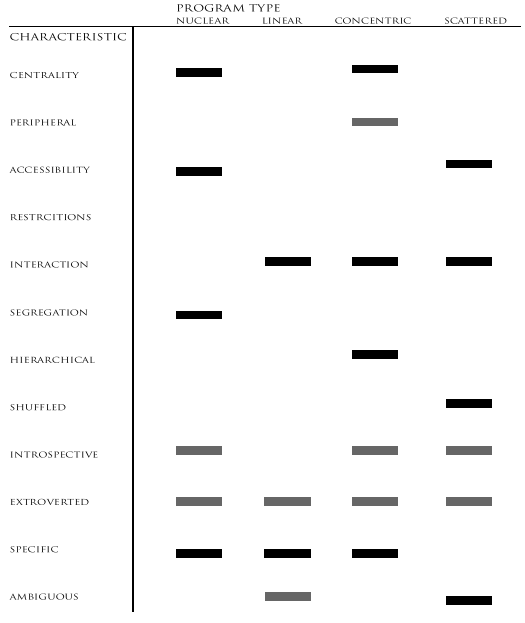
Fourth Level



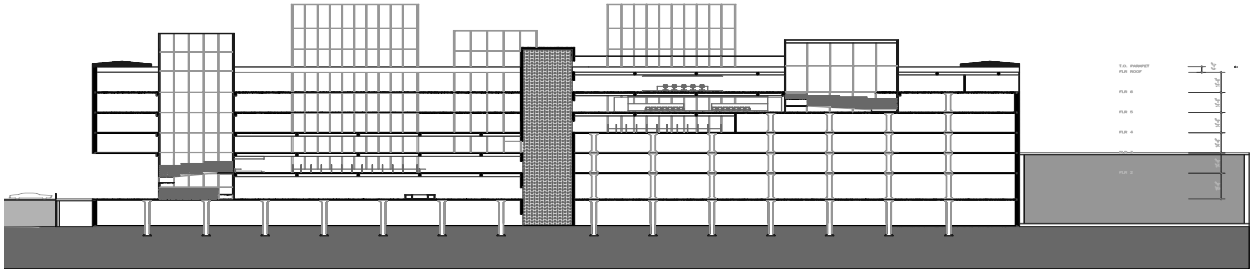
Fifth Level



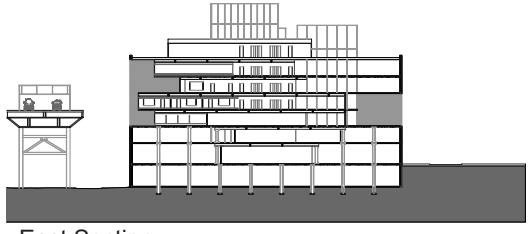
Sixth Level



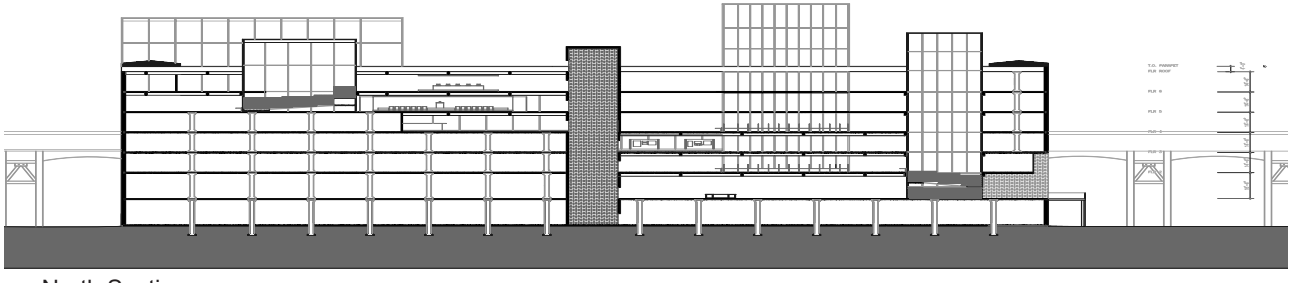
Represented in the chart above is a comparative profile of the plan typologies studied in precursor to the final scheme presented to the left. In the “Program Type” row is a word that defines the “typology” or quality of a particular plan study, while the “Characteristic” column features a word that describes the spacial or occupiable implications of that particular typology. The dark grey bars denote a strong or primary characteristic under a particular typology while the light grey bars suggest a secondary effect. This crude method of documenting progressive plan studies provides a simple chart to compare the cause and effect relationship between different plan decisions.



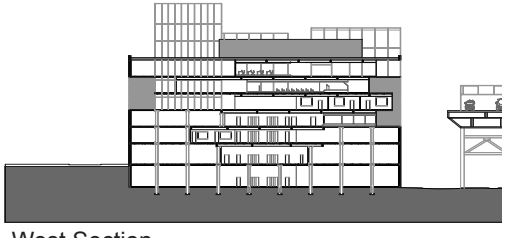
South Section



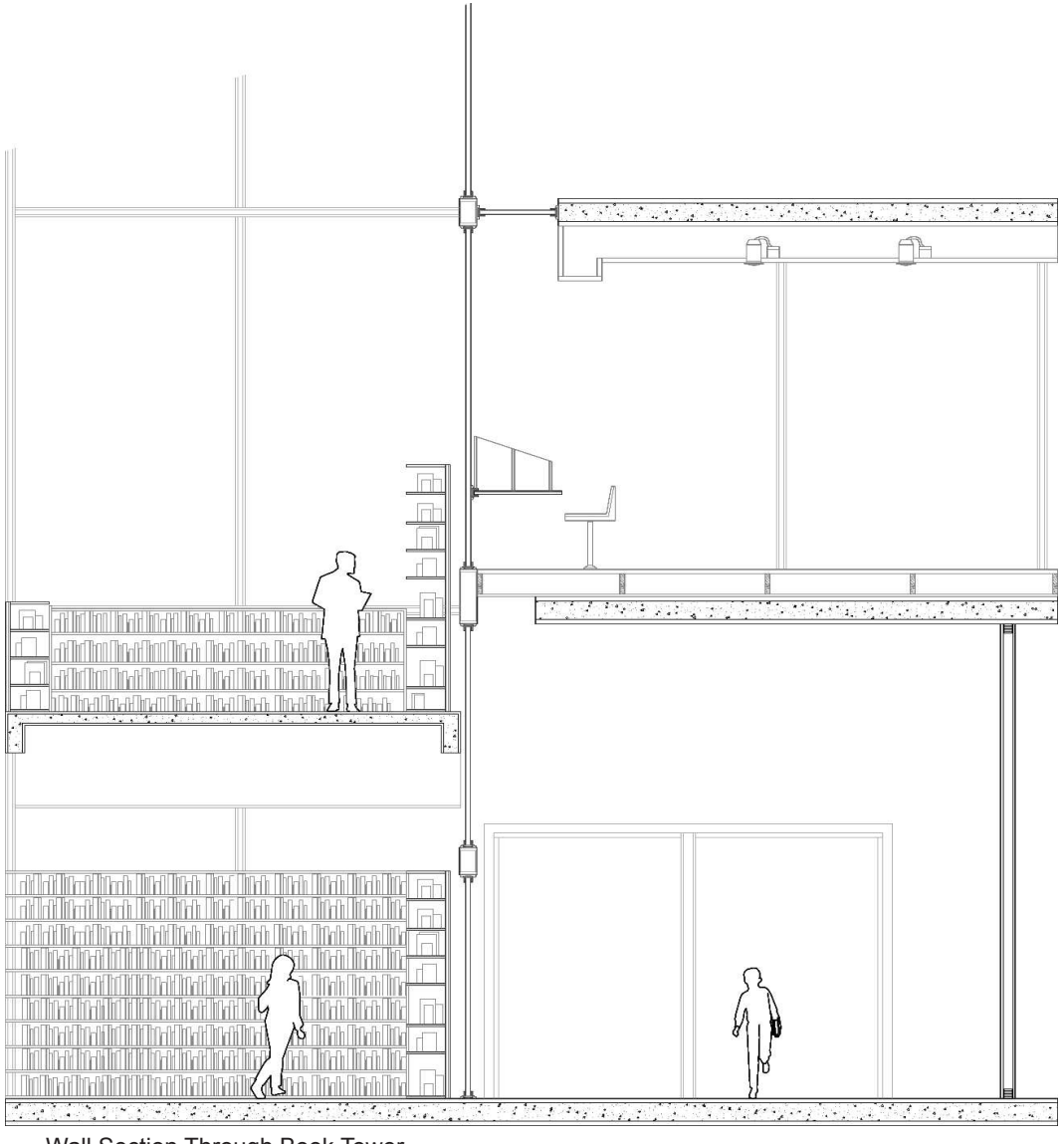
East Section



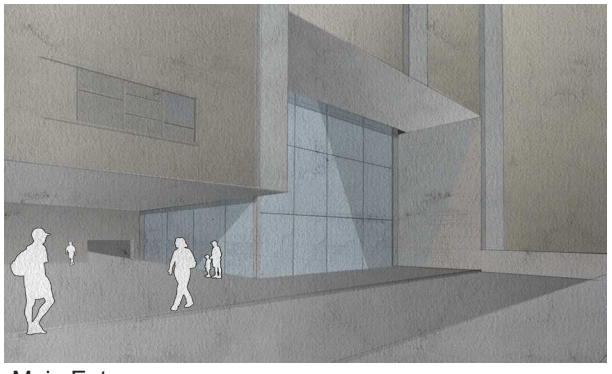
North Section



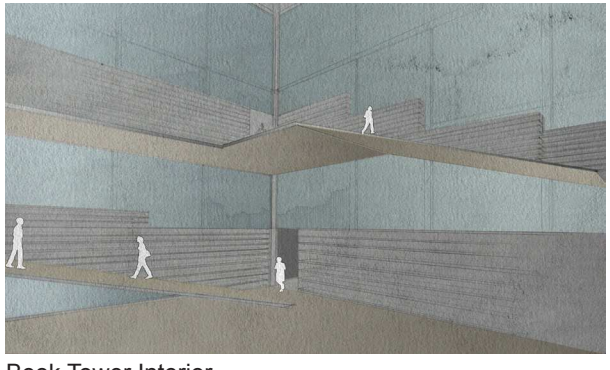
West Section



Wall Section Through Book Tower



Main Entry



Book Tower Interior

Commons Btw. Towers

FOREST HILLS PARK DEVELOPMENT

LOCATION: BARRINGTON, MARYLAND
ADVISORS: EUGENE KOHN, JOHN MCCOMBER, CHRIS GORDON
SEMINAR CASE PROJECT: 4 WEEKS

Operating under the premise that Forest Hills' proximity to the Barrington Mall will continue to act as the site's emeritus retail anchor, current demographic data suggests that the site could feasibly sustain a higher-end "eat, work, play" product centered around Class A quality office facilities and a combination of convenience and leisure retail facilities to cater to higher-income professional service firms. Subsequent retail, entertainment and hotel products will come online to service both existing workers in the area as well as the new influx of higher-earning professional workers brought in by upgraded office spaces. These retail and entertainment amenities will include a diverse mix of both leisure retail and dining as well as convenience lifestyle services such as markets, dry-cleaners and fitness facilities.

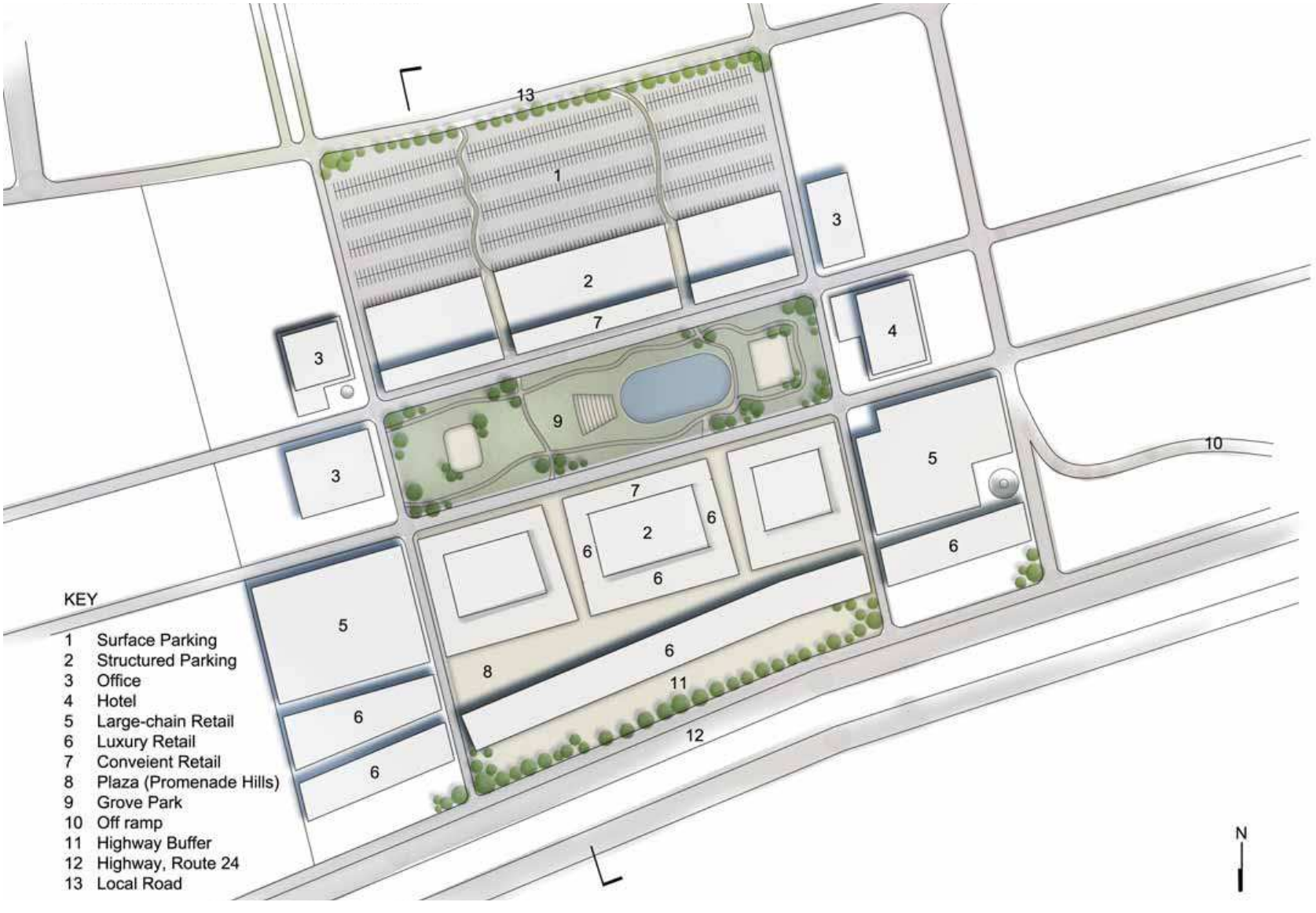
Barrington's demographic data suggests, the regional affluence provides the potential for developing a mixed-use development of office and hotel spaces capable of supporting a retail component. The slow population growth and projections do not support the development of housing, and thereby do not support the development of the traditional mixed-use model of housing and retail. Furthermore, the site's location does not seem likely to attract the type of housing that would accomodate the wealthier users of the retail and commercial proposal.

As the parcels exist currently, this proposal calls for the development of a hotel and its attendant restaurants and amenities on parcel A. Given the site's existing value, this strategy will allow the developer to raise enough debt to finance new construction without pursuing outside equity. Retail and subsequent office development will be developed primarily on property B where most of the existing office space is located, and will be financed from debt phased on a property-by-property basis. The two parcels however, once built out will interact as one comprehensive development, whereby office and hotel users patronize the retail and entertainment amenities that unite the two parcels.

Effectively developing this type of product is largely contingent on calculating the right product mix and on the successful design and phasing of a well-crafted master plan. This redevelopment proposal will be phased so that part of both the retail and upgraded office component will be added first, followed by the completion of both components and the addition of the hotel. The hotel is the riskiest component in the development and should not be developed until the office-retail experience has proven successful.

	SF (Thousands)	Percentage (w/ Parking)	Percentage (w/o Parking)
Office	2,250	33%	69%
Retail	600	9%	18%
Residential	0	N/A	N/A
Hotel	200	1%	2%
Public/Recreation Space	360	5%	11%
Parking	3,600	52%	N/A
TOTAL		100%	

Proposed Development Mix



Proposed Site Plan

Forest Hills Park

Office	Current	Pro Forma
Office A SF	930,819	200,000
Rent/ SF	$12	$38
Potential Gross Revenue	**$11,169,828**	**$7,600,000**
Less Vacancy	*26.0%*	*5.0%*
Effective Gross Revenue	**$8,265,673**	**$7,220,000**
Office B SF	500,902	2,050,000
Rent/ SF	$12	$38
Potential Gross Revenue	**$6,010,824**	**$77,900,000**
Less Vacancy	*26.0%*	*5.0%*
Effective Gross Revenue	**$4,448,010**	**$74,005,000**
Total Office Gross Revenue	**$12,713,682**	**$81,225,000**
Retail		
Mini Anchor	0	100,000
Mini Anchor Rent	$0	$45
Gross Revenue	**$0**	**$4,500,000**
Grocery	0	25,000
Grocery Rent	$0	$35
Gross Revenue	**$0**	**$875,000**
Restaurants	0	56,000
Restaurants Rent	$0	$40
Gross Revenue	**$0**	**$2,240,000**
Fast Casual	0	10,000
Fast Casual Rent	$0	$65
Gross Revenue	**$0**	**$650,000**
Specialty	0	214,000
Specialty Rent	$0	$65
Gross Revenue	**$0**	**$13,910,000**
Entertainment	0	195,000
Entertainment Rate	$0	$40
Gross Revenue	**$0**	**$7,800,000**
Total Retail Gross Revenue	**$0**	**$29,975,000**
Hotel		
Number of Rooms	0	225
Average Room Rate	$0	$150
% Occupancy	*0.0%*	*65.0%*
RevPAR	**$0**	**$98**
Hotel Revenue	**$0**	**$8,007,188**
Mixed Property Total Effective gross Revenue	**$12,713,682**	**$119,207,188**
Operating Expenses	$4,988,015	$46,769,082
% Revenue	*39.2%*	*39.2%*
Implied NOI	**$7,725,667**	**$72,438,105**

Assumptions

Total Office	2,250,000
Total Retail	600,000
Total Hotel	200,000
Current Vacancy*	*26.0%*
Pro Forma Office Rent /SF	$38
Pro Forma Office Vacancy	*5.0%*
Expenses % Revenue*	*39.2%*

**Based on $12/SF and Rent Revenue ~$12K given in case*

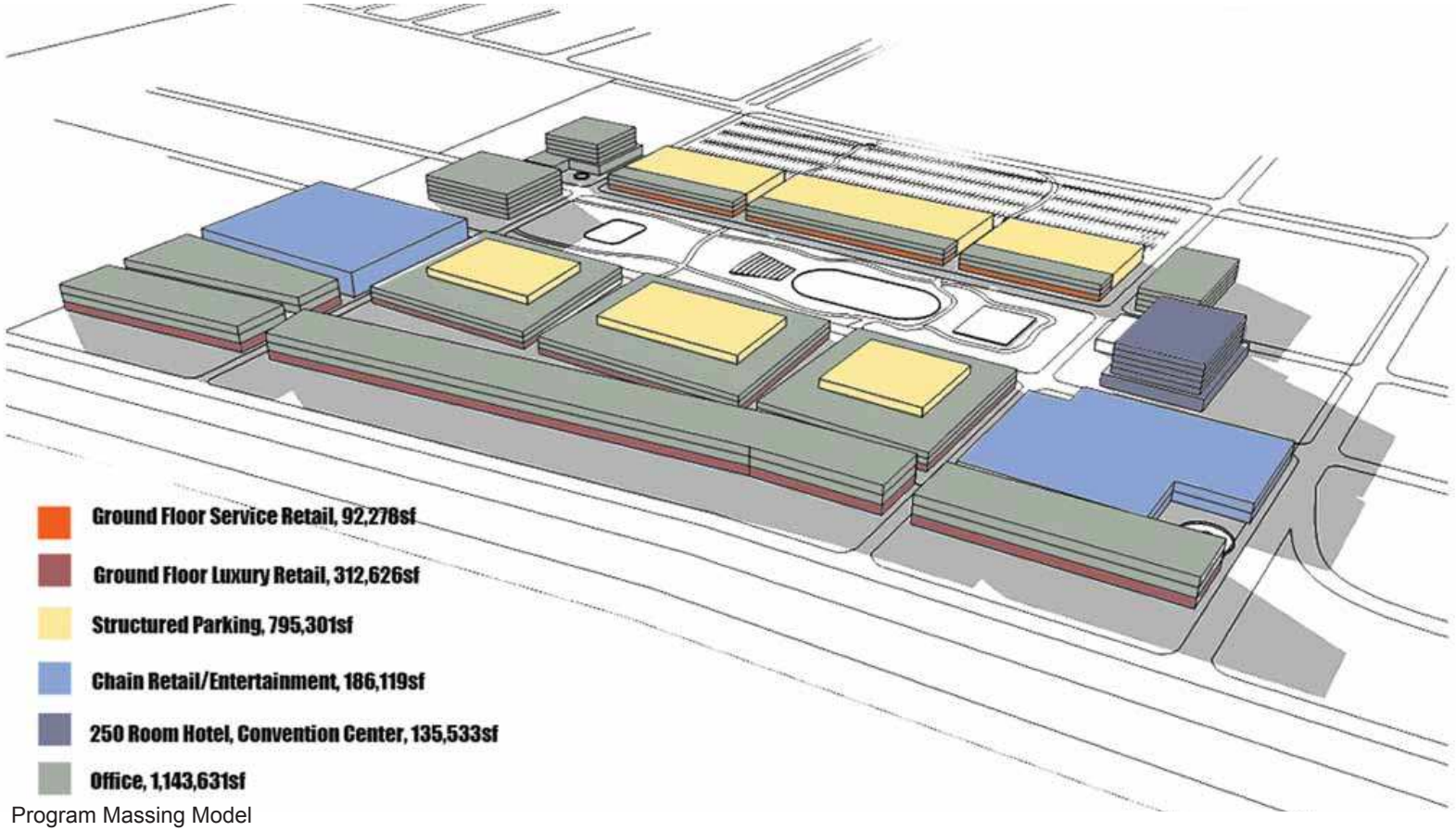
**Retail Rates Based on Exhibit 10d*

**Based on Exhibit 5*

"What If" Exits

Implied Office Revenue	$81,225,000
Implied Office Expenses	31,867,363
Implied NOI	**$49,357,637**
Office Cap Rate	*7.5%*
Office Residual Value	**$658,101,830**
Office Cost PSF**	$275
Implied Office Cost	**$618,750,000**
Implied Retail Revenue	$29,975,000
Implied Retail Expenses	11,760,224
Implied NOI	**$18,214,776**
Retail Cap Rate	*7.0%*
Retail Residual Value	**$260,211,085**
Retail Consolidated Cost PSF**	$250
Implied Retail Cost	**$150,000,000**
Implied Hotel Revenue	$72,438,105
Implied Hotel Expenses	28,419,962
Implied NOI	**$44,018,144**
Hotel Cap Rate	*10.0%*
Hotel Residual Value	**$440,181,438**
Hotel Cost PSF**	$300
Implied Hotel Cost	**$60,000,000**
Public Recreation Space Cost**	$10,800,000
Parking**	$168,012,000
Total Residual Value	$1,358,494,353
Total Costs	1,007,562,000
Total Profit	**$350,932,353**
% Profit	*25.8%*

***based on discussions within team*



Program Massing Model

Current projections are dependent on a number of key assumptions on both the revenue and cost side. On the revenue side, the primary driver is expected to be the level of rental rates achieved for retail space. While this is most directly determined by the composition of the retail, the demographics of the area coupled with the upgrade to Class A office will enable the project to raise rents from $12/sf (current office rents on site) to $38/sf (a blended rate) and lower vacancies. In addition, leases will be structured to provide flexibility to replace underperforming tenants on an ongoing basis.

While vacancy rates willlikely be low for office and retail, currently the vacancy rate assumption for the hotel is more uncertain. To guarantee a more stable occupancy rate, the hotel's sales team will reach out to office tenants and set up corporate contracts.

On the cost side, construction estimates are largely known since the site is already built out with a number of smaller office products. However, demolition will require more site preparation than an undeveloped land.

Finally, the project assumes a 7.5% office capitalization rater and 7.0% retail capitalization rate to calculate exit value. This makes sense given that the redevelopment will bring substantial new amenities to the area and optimize the site's easy accessibility, thereby driving up the location's real property values.The addition of this high-end "eat work play" center will likely not draw away significant traffic from the nearby mall. While the mall has a broad mix of retail tenants, this center will primary focus on convenience lifestyle services as well fine dining services.

Opposite: Preliminary Pro Forma

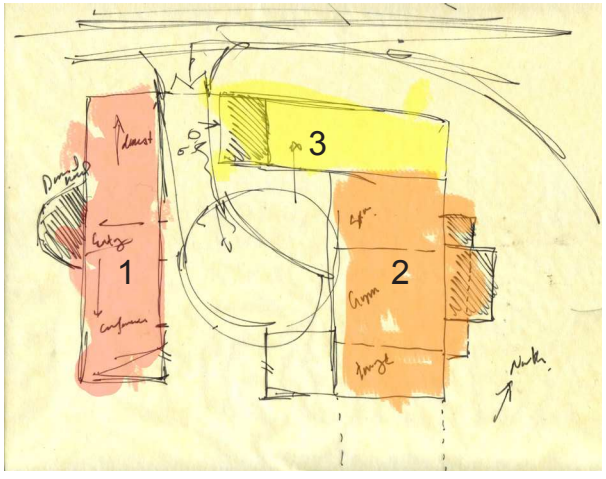
NEFF OBSERVATORY + HACIENDA

LOCATION: CERRILLOS, NM
EMPLOYER: DA SILVA ARCHITECTURE INC.
TITLE/ROLE: ARCHITECTURAL DESIGNER, IN CHARGE OF CONSTRUCTION DOCUMENTATION AND COORDINATION

Originally conceptualized as a modest and independent accessory structure adjacent to the owner's main house, the program and plan grew from a simple, rectangular adobe volume (building 1) designed as a private observatory intended to house the owner's astronomical equipment and private office, into two contending buildings later connected by a large indoor pool room (building 3). The second wing of the plan (building 2) was added a year after the original design for the observatory had been proposed, and is designed to accommodate recreational spa and gym facilities for the owner's friends and family. After the original observatory wing had been located and programmed, additional program evolved in the form of an opposite wing building intended to enclose a landscaped courtyard adjacent to the main house's entrance. The later addition of an indoor pool room running perpendicularly between the two wings more fully enclosed the courtyard, turning it into corral in which circulation and access to the three buildings was granted.

Further development of the massing plan experimented with varying levels of enclosure and permeability between the corral, road, and ranch property.

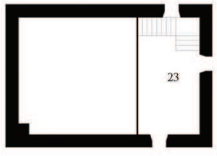
The observatory's original design was conceptualized in the form of a modest tapered torreon, or watch tower, designed to house a retractable 24in revolving telescope. As the owner's requirements grew, so too did the original 1200sf torreon. In order to accommodate a control room to house the owner's computer servers, a private office and a large conference and screening room, the torreon was incorporated into a larger structure and more complicated pumice structure. The observatory torreon later became re-programmed to accommodate only the server room and office, displacing the retractable telescope into another, ancillary building re-sited in the Cerrillos mountains. Thus the requirement to design a telescope mechanism as an independent 30ft deep siloed pier was alleviated, freeing the torreon to become fully occupiable.



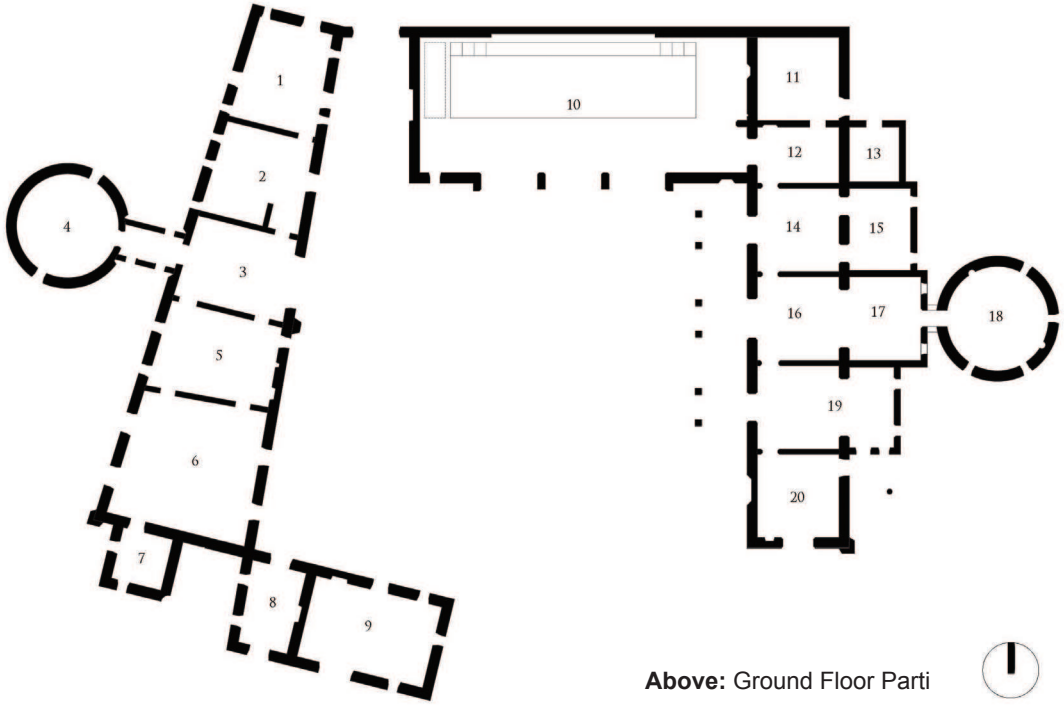
Above: Conceptual Programming Scheme

PLAN LEGEND

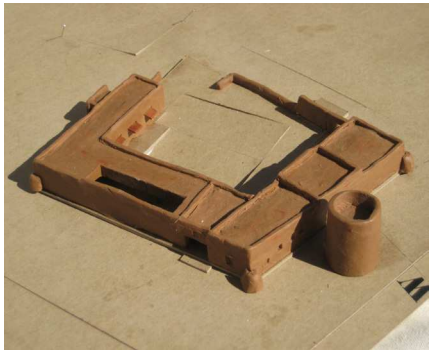
1. Kitchen
2. Reception Room
3. Main Foyer
4. Control Room
5. Art Gallery
6. Conference Room
7. Conference Storage
8. Arched Passage
9. Guest Suite
10. Pool Room
11. Pool Equipment Rm
12. Utility Room
13. Pool Mech. Rm
14. Changing Rm Foyer
15. Changing Rooms
16. Hammam Foyer
17. Cold Plunge Rm
18. Hammam Massage Rm
19. Exercise Rm
20. Yoga Rm
21. Study
22. Sanitorium
23. Guest Loft



Above: Second Floor Parti(s))



Above: Ground Floor Parti

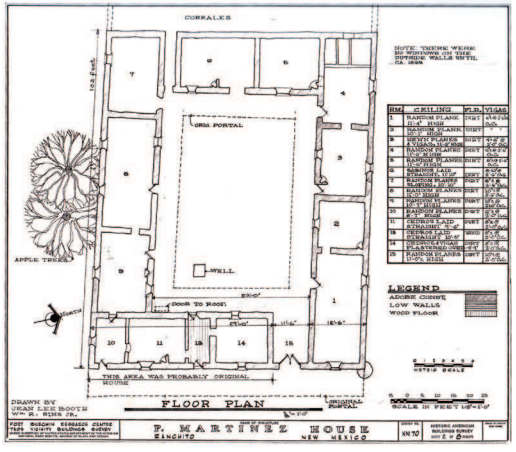


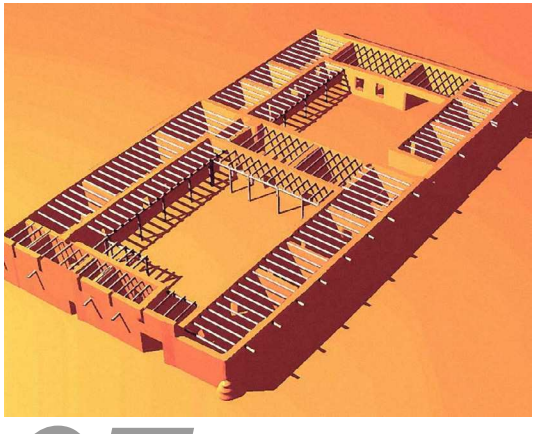
Early Clay Massing Study,
Open Southern Edge

Clay Massing Study with
Southern boarder

Clay Massing Study
with Programmed
Southern boarder

Both the planometric and aesthetic typologies of the Neff Hacienda and Observatory were derivative of the famed Martinez Hacienda in Taos New Mexico. The fortress like mien and cellular nature of the Martinez plan was unexpectedly conducive to accommodating the unique and varied programs of the Neff Hacienda and Observatory and the vast, austere character of the Hacienda's exterior faces was easily customizable to speak naturally with the dessert landscape and existing structures of the Cerrillos site.





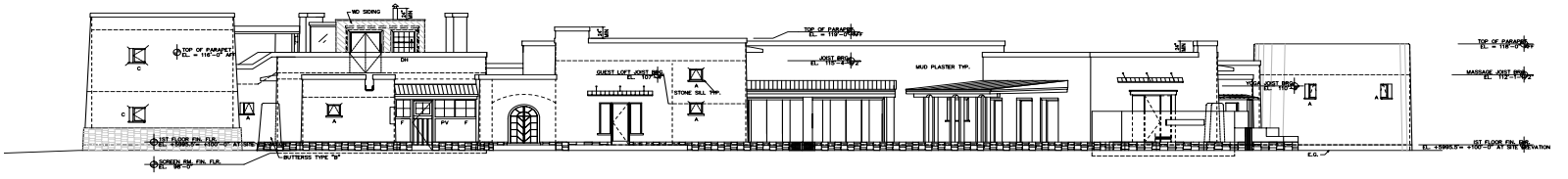
Entry Gate, Martinez Hacienda

Proposed Southeast Perspective

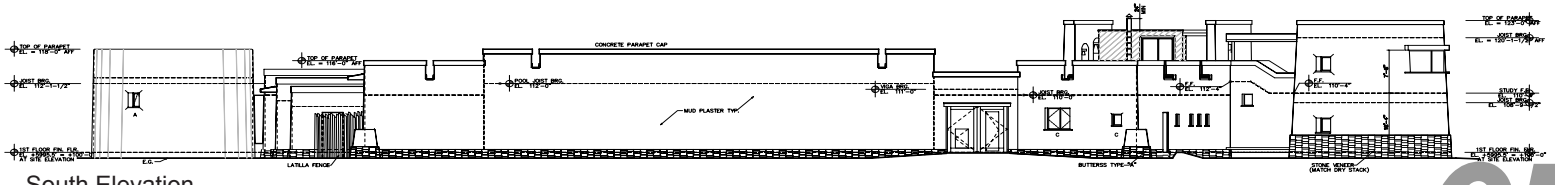
07

Top: Martinez Hacienda Corral Plan
Bottom: Martinez Hacienda Aerial Model

Rendered Site Plan



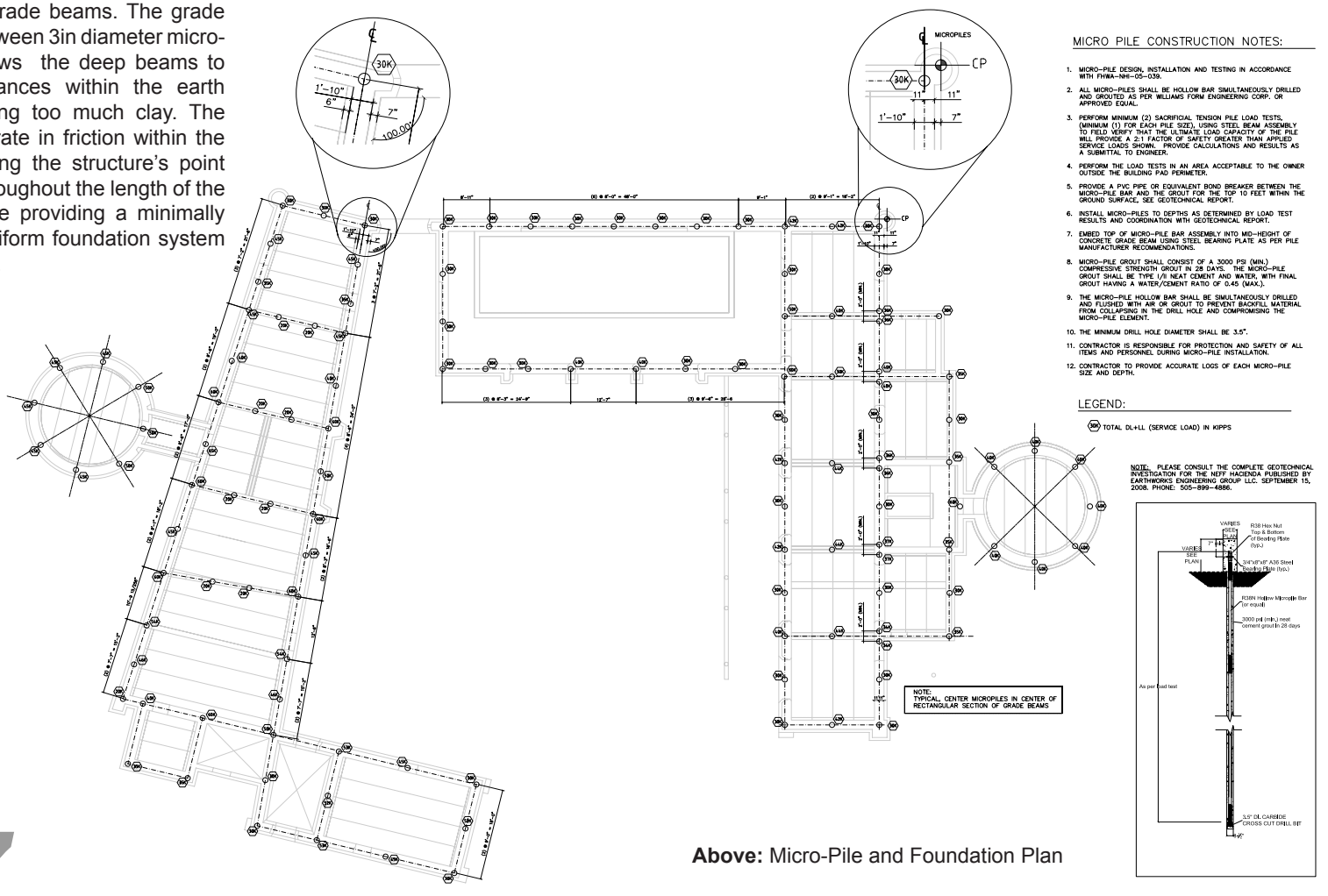
North Elevation



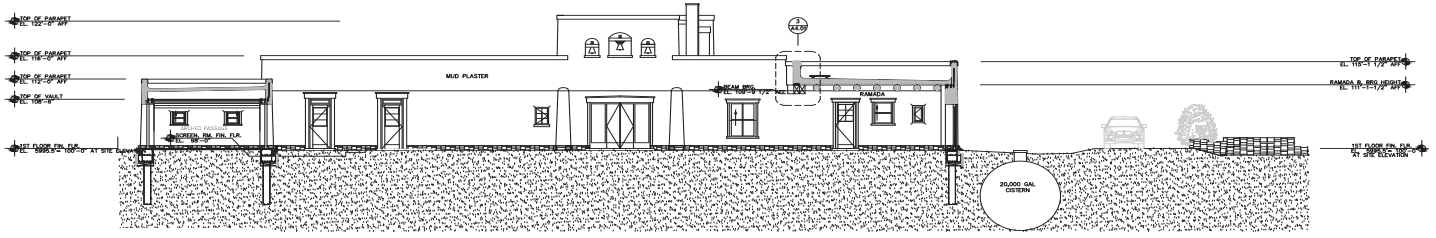
South Elevation

CONSTRUCTION DOCUMENTATION

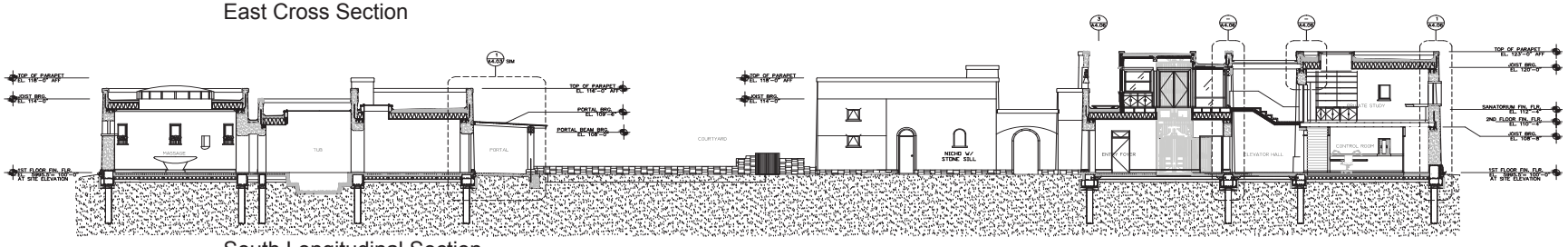
Originally built of 24in thick adobe brick, the soil on the site was determined to be of inadequate quality to handle the load of such a dense wall structure. In order to preserve the dense look, feel and conditioning qualities of adobe, the wall structure was changed to a 24in pumice-crete composite, poured and stirruped over concrete grade beams. The grade beams span between 3in diameter micro-piles which allows the deep beams to span long distances within the earth without displacing too much clay. The micro-piles operate in friction within the earth, transmitting the structure's point loads evenly throughout the length of the pile's shaft while providing a minimally invasive and uniform foundation system for the structure.



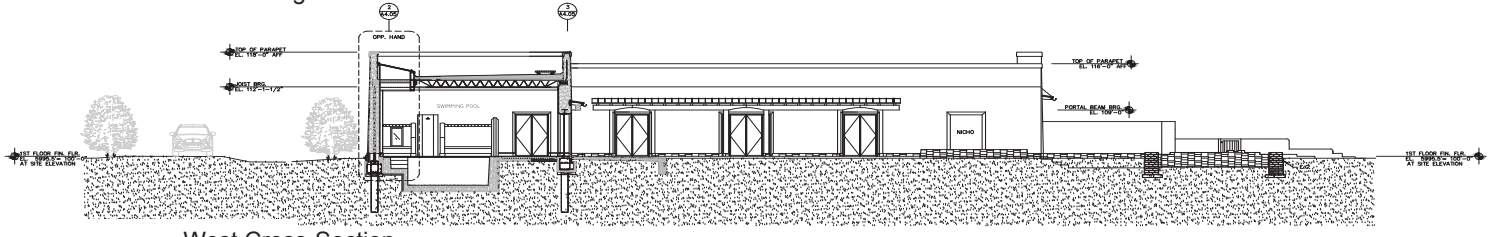
Above: Micro-Pile and Foundation Plan



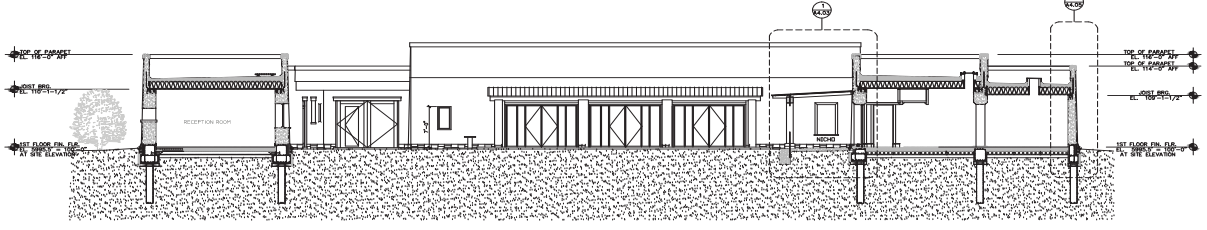
East Cross Section



South Longitudinal Section



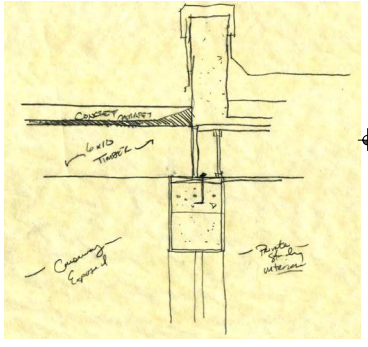
West Cross-Section

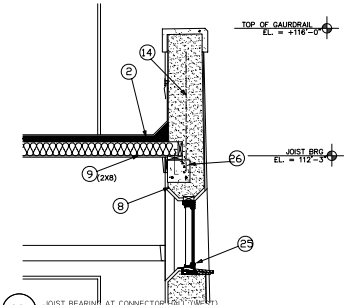


North Cross-Section

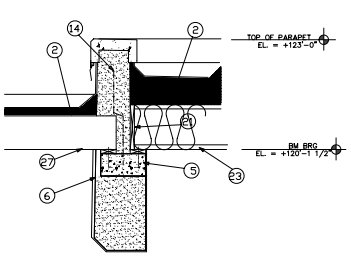
WALL ASSEMBLY DESIGN

Once the building's wall structure had been changed from a stacked mass-bearing system of adobe brick and mud, to a lighter pumice-crete structure, the roof, footing and framing details similarly had to be redesigned. With the exception of the pool room, the roof framing of the entire building bears on 10x8in cast in place bond beams embedded in the pumice-crete walls. Joist and timber framing is either anchored into the bond beams with J-shaped anchor bolts, or directly porcupined into the pumice-crete. The thickness of the pumice walls over-insulates most spaces of the structure and the roof in most areas is a composite section of E.P.D.M over recovery board, on top of I.S.O. and 3/4" plywood decking, creating an R-40 roof system.

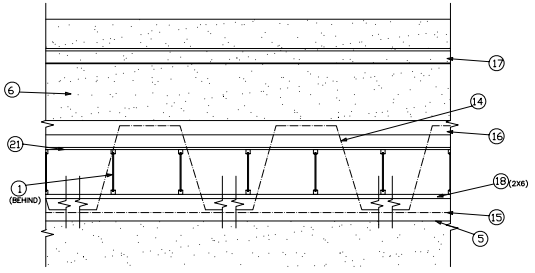




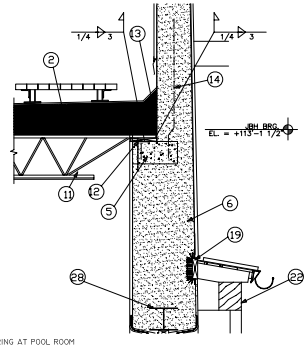
14 JOIST BEARING AT CONNECTOR WALL (WEST)



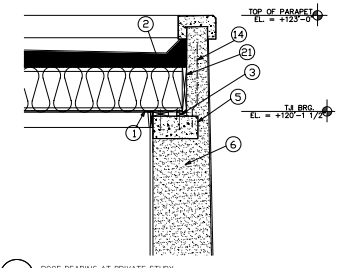
15 CAUSEWAY ROOF DETAIL (NORTH/SOUTH)



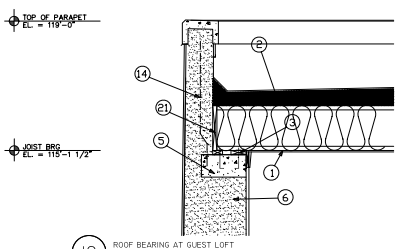
16 BOND BEAM AND REBAR DIAGRAM IN TYP. PARAPET



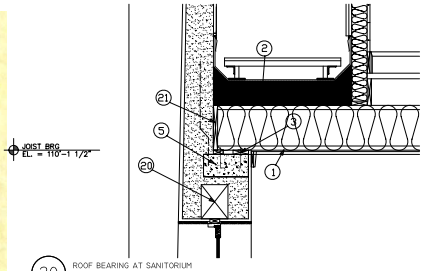
17 ROOF BEARING AT POOL ROOM



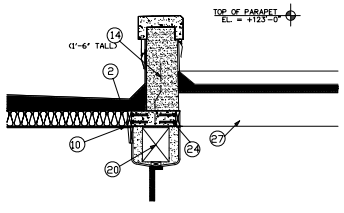
18 ROOF BEARING AT PRIVATE STUDY



19 ROOF BEARING AT GUEST LOFT



20 ROOF BEARING AT SANITORIUM



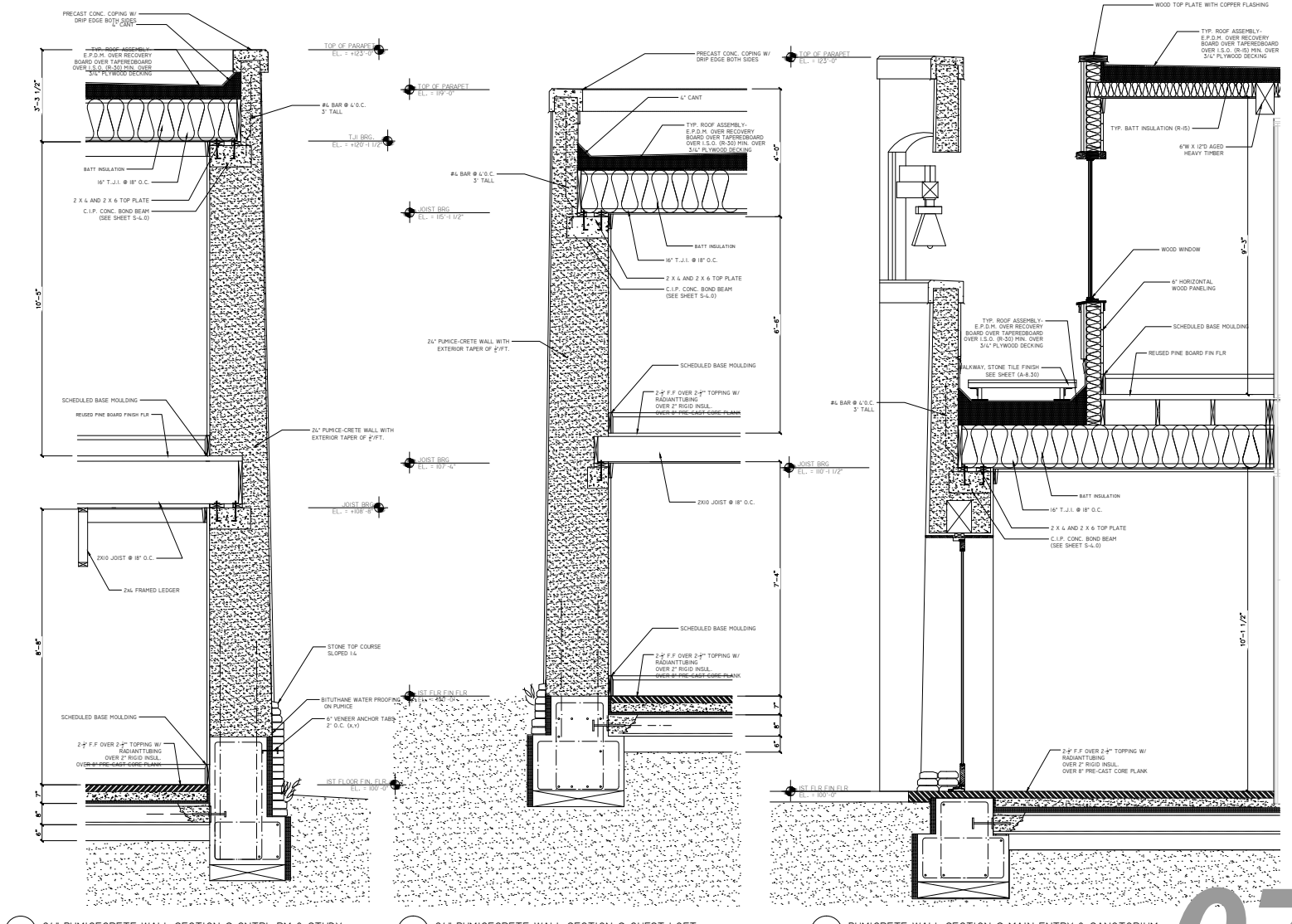
21 ROOF BEARING AT SANITORIUM & EXT. PASSAGE TO STUDY

KEYED NOTES:

1) TJI ROOF JOIST @ 24" O.C. W. FLAT BOTTOM CHORD BEARING, SEE FRAMING PLANS FOR SIZE.
2) ½" APA-RATED SHEATHING, SEE FRAMING PLAN NOTES FOR ATTACHMENT.
3) CONTINUOUS 2X6 AND 2X4 BEARING PLATE, ATTACH TO CONCRETE BOND BEAM WITH ½"Ø X 6" ANCHOR BOLTS @ 24" O.C., STAGGERED WITH ROOF JOIST.
4) 1½" TIMBERSTRAND LSL TAPERED LEDGER TO MATCH JOIST PROFILE. CONNECT TO PUMICE-CRETE WALL WITH ½"Ø X 8" ANCHOR BOLTS @ 24" O.C.
5) 16" (W) X 8" (D) X CONT. CONCRETE BOND BEAM WITH (4) - #5, LONGIT. (MIN). SEE CONCRETE LINTEL BEAM SCHEDULE FOR SIZES OVER OPENINGS. LINTEL BEAM SIZE & REINFORCEMENT GOVERN AT LOCATIONS WHERE LINTEL BEAM AND BOND BEAM COINCIDE.
6) 24" PUMICECRETE WALL; REINFORCE AS PER MANUFACTURER RECOMENDATIONS.
7) 10"(W) X 8"(D) X CONT. CONCRETE BOND BEAM WITH (2) -#5 LONGIT. (MIN). SEE KEYED NOTES ABOVE FOR LINTEL BEAM COMMENT.
8) 15" PUMICECRETE WALL, REINFORCE AS REQUIRED PER MANUFACTURER RECOMENDATIONS.
9) 2"X8" WOOD JOIST @ 16" O.C.DF-L, NO.2.
10) 2X6 WOOD JOIST, 24" O.C., DF-L, NO 2.,
11) 16K5 STEEL JOIST @ 4'-0" O.C.
12) PL 6" X 8" X ½" JOIST BRG. PLATE W/ (2)-5/8" X 6" H.A.S.
13) L 3 X 3 X ¼ CONT. DECK ANGLE, WELDED TO JOIST.
14) #4 BAR @ 4' O.C., 3' TALL.
15) #5 BAR @ 3" FROM BTTM OF BOND BEAM
16) 4" ROOF CANT BEHIND PARAPET
17) SPRINGLOCK FLASHING BEHIND PARAPET
18) 2X10 WOOD PLATE CONNECTED TO CONC BOND BEAM W/ ½" X 8" ANCHOR BOLTS @ 24" O.C.
19) PORCUPINED WOOD LEDGER CONNECTED TO PUMICRETE WALL
20) 9 1/2"W X 12"D TIMBER LINTEL
21) 11/2" TIMBERSTRAND LSL RIM BOARD, DEPTH TO MATCH JOIST DEPTH, CONNECT TO JOIST END WITH (2)-16d NAILS.
22) 8"WX10"D TIMBER LINTEL
23) 14" TJI/360 ROOF JOIST @ 24" O.C. BOTTOM CHORD BEARING BOTH ENDS.
24) 5 1/2" X 16" CONC. BOND BEAM
25) WOOD WINDOW. (SEE WD SCHEDULE ON SHEET A-7.00)
26) 8" X 8" CONT. BOND BEAM W/ (2) -#5. LONGIT. (MIN). SEE KEYED NOTES FOR LINTEL BEAM COMMENTS.
27) 6"W X 10"D HEAVY-TIMBER BEAM.
28) W10 X 22 STEEL BEAM HEADER.

07

Above: Structural Bearing Conditions
Opposite: Typical Wall Section Conditions



1 24" PUMICECRETE WALL SECTION @ CNTRL RM & STUDY

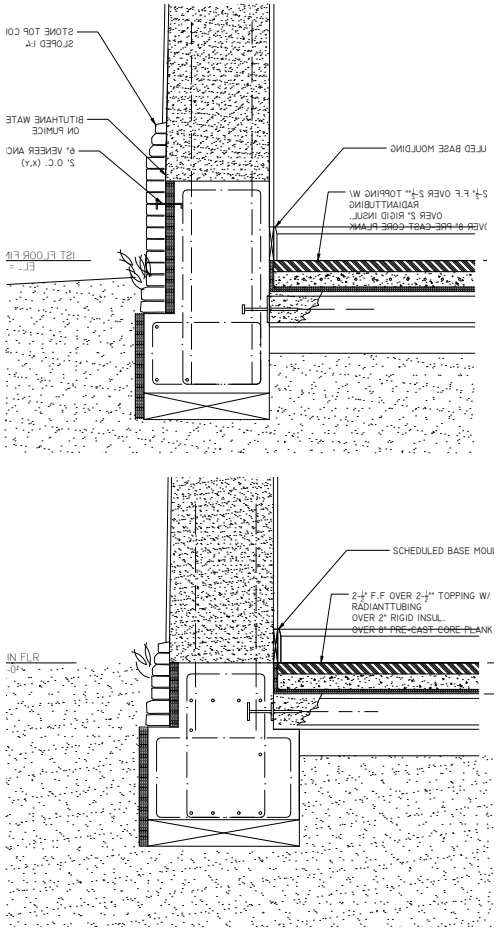
2 24" PUMICECRETE WALL SECTION @ GUEST LOFT

3 PUMICRETE WALL SECTION @ MAIN ENTRY & SANOTORIUM

07

CONSTRUCTION ADMINISTRATION

Foundation design and construction of the observatory wing began with the drilling and pouring of eighty-four micro piles along the building's perimeter and the subsequent pouring of lateral grade beams between them. Stem walls were then formed to accomodate the deep pumice-crete walls that make up the majority of the building's envelope.



07

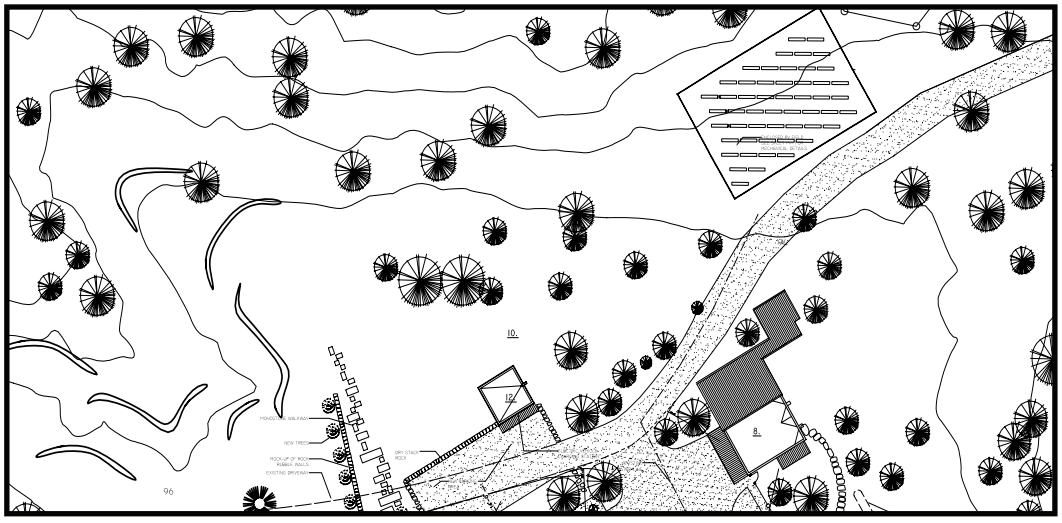
Top: Typical Grade Beam at non-bearing Section with Pumice Wall
Bottom: Grade Beam and Stem Wall at Bearing Condition

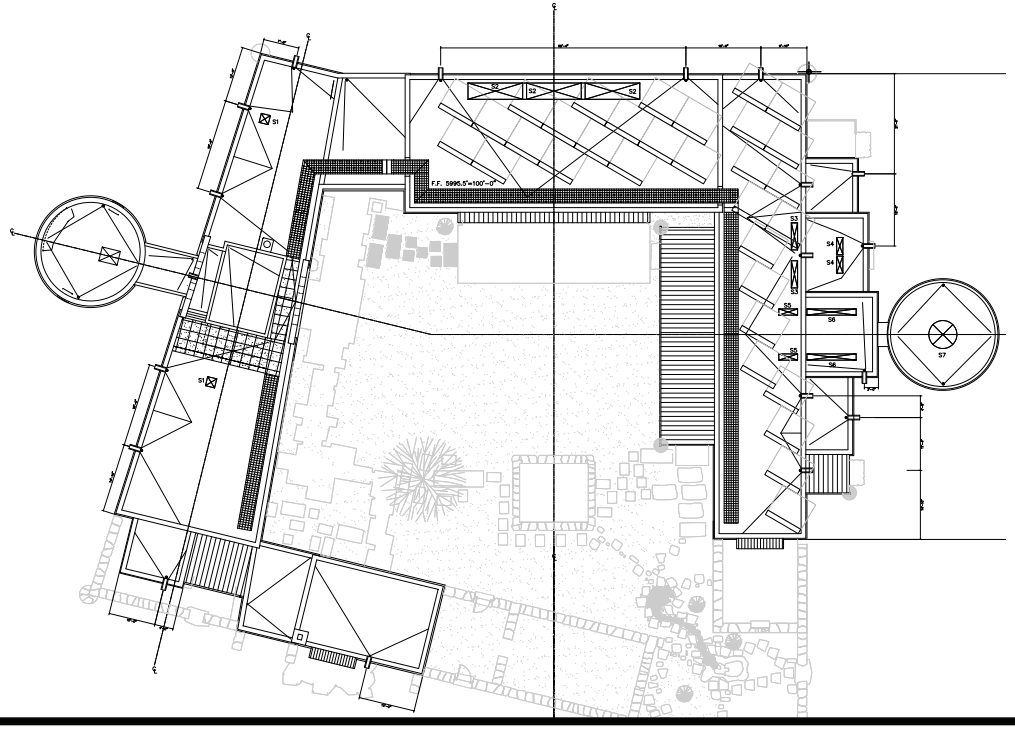
Construction of West Torreon

View of Courtyard looking North

SUSTAINABILITY IN THE DESERT SOUTHWEST

The extreme climatic variations of the region, combined with the delicate sandy clay earth of the site make sustainable planning and construction an unusual challenge, especially for a structure as large and as complicated as the Neff Hacienda and Observatory. Water scarcity and strict water regulation in the region requires new construction of this scale to supply 40% of its water itself, and the Neff Hacienda and Observatory is serviced by three 20,000 gallon, subterranean cisterns which are able to fully supply the new structure as well as the existing main and guest houses. A 33 unit array of solar-hydronic collectors is housed on the roof of the structure and hidden by the building's 3ft tall pumice parapet surround and is able to effectively condition and heat water for domestic use within the new structure as well as for the indoor pool. A heliotropic photovoltaic array to the north of the building produces enough energy to service both the new and existing structures while generating enough excess to allow the owner to sell an average of between 50 and 80 AMPS of electricity back to the county utility company.





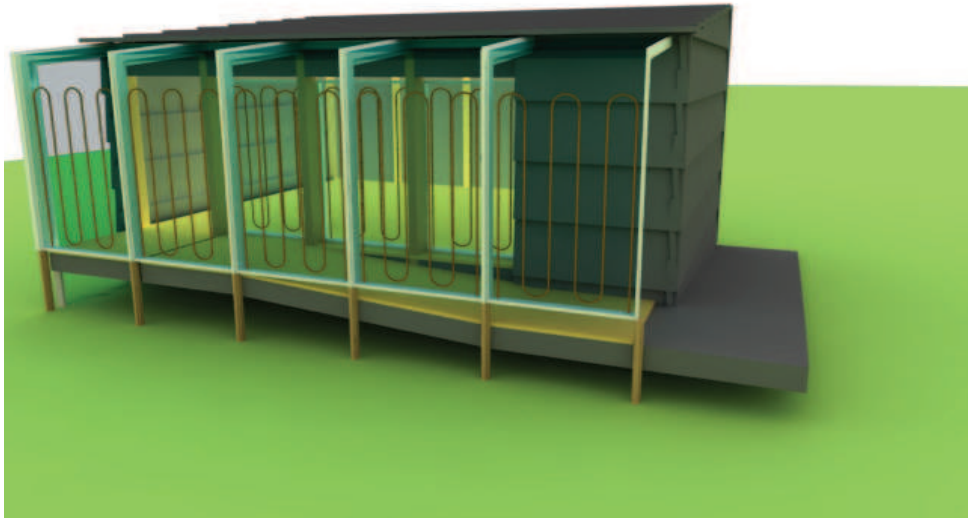
Top Right: Located 80 Panel PV Array
Bottom Right: Roof Mounted Hydronic Array
Opposite: Reception Montage--Conceptual Entry Sequence

07

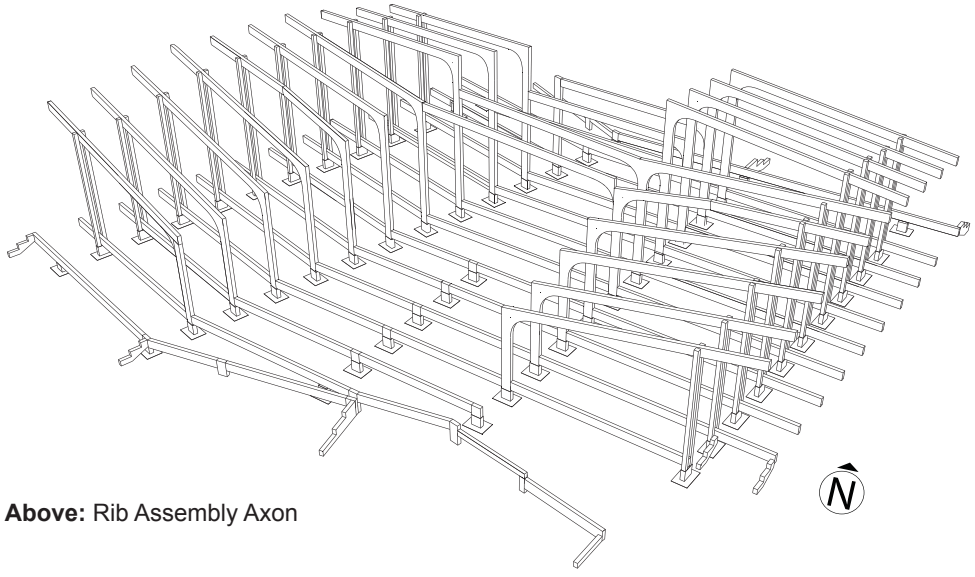
RISD-BROWN ALTERNATIVE ENERGY LAB

LOCATION:	**PROVIDENCE, RI**
ADVISORS:	**JONATHAN KNOWLES (RISD), CHRISTOPHER BULL (BROWN UNIVERSITY)**
ADVANCED STUDIO:	**18 WEEKS**

Originally created as a studio course for the National Renewable Energy's Solar Decathlon Competition in Washington DC, the RISD Solar program has since grown into a collaborative workshop between RISD's Department of Architecture and Brown University's School of Engineering. The workshop has become focused on designing and building an off-grid, solar thermal pavilion for the Roger Williams Park and Zoo. Working off of earlier conceptual designs for solar-thermal enclosures, including namely the ambitions of the Solar-Skin House presented earlier, the design has been distilled into a much smaller 460sq pavilion built of the same structural rib and absorptive panel bays pioneered by the Solar-Skin House. Taking advantage of both passive and active conditioning strategies, the RISD-Brown Solar Pavilion is intended to be erected as an inspiring proof of concept, to stoke both public awareness and interest in sustainable design while also serving as an invaluable learning and fund-raising tool for both schools to take advantage of.



Right: Rendering of how Rib System Forms a Module
Opposite: Rendering of possible module arrangement

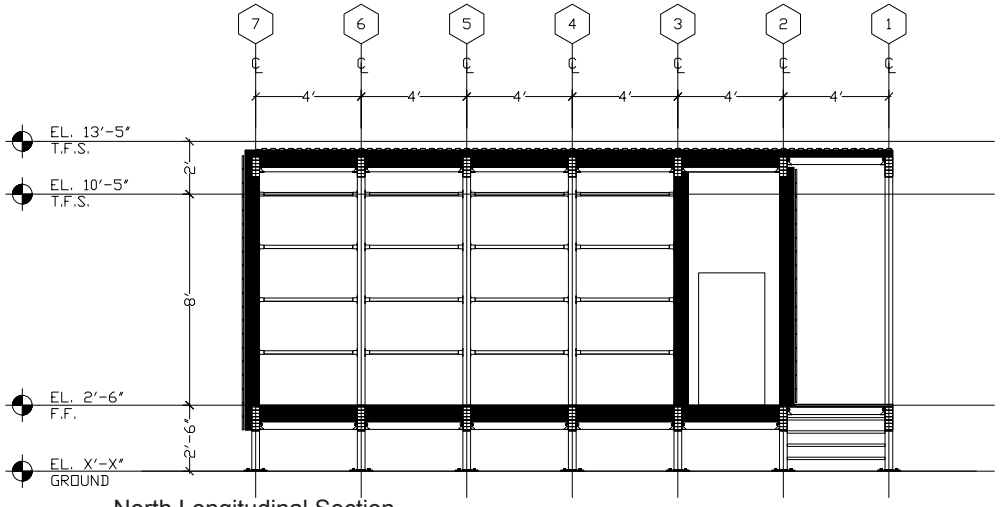


Above: Rib Assembly Axon

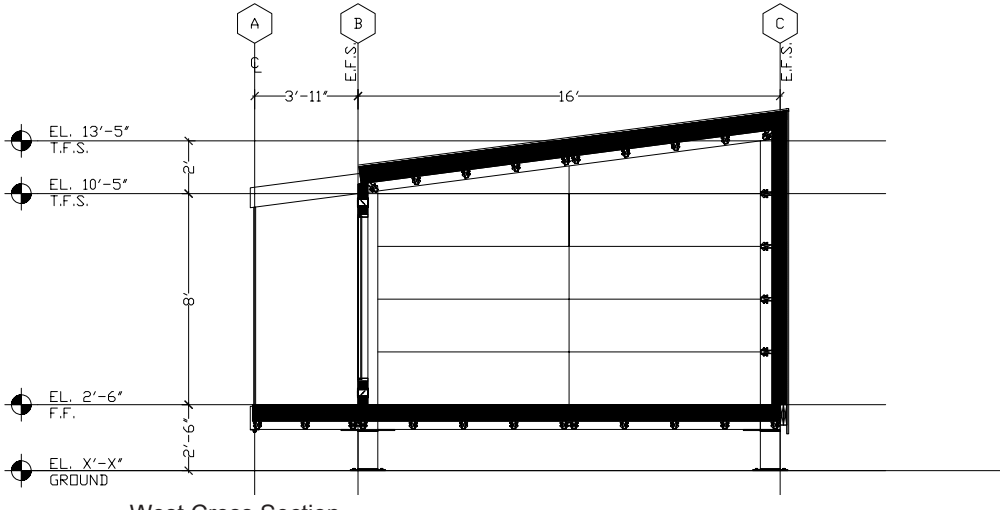
The structural ribs and infill panels were prototyped by hand in the model shop prior to finalizing and submitting the shop drawings and schedules to the manufacturing company. The images to the right illustrate the early fabrication process of the 1:1 mock-up.

Once a panel bay had been assembled, problem areas such as the roof panel to rib detail and vertical glazing element to Glulam detail were more clearly identified and studied. Several other critical details were identified as potentially severe thermal bridges as well, namely more basic mock-up conventions such as lagged timber connections and joist-footing connections. These details were thus revisited to reduce the incidence of thermal bridging and to prevent obvious areas for leakage.

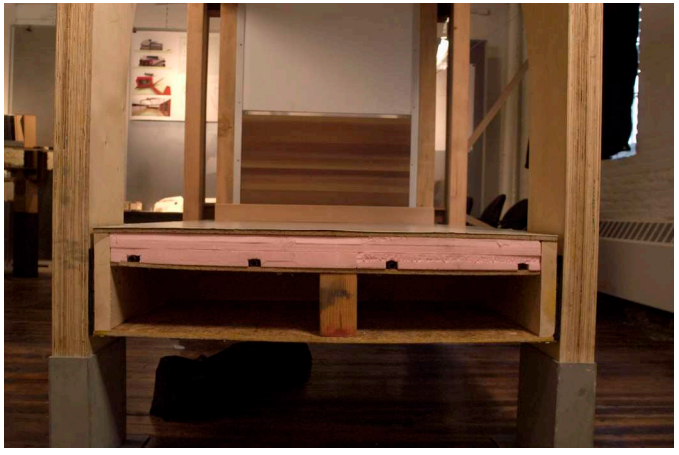
Above: In-house mock-up of Rib and Panel Bay



North Longitudinal Section

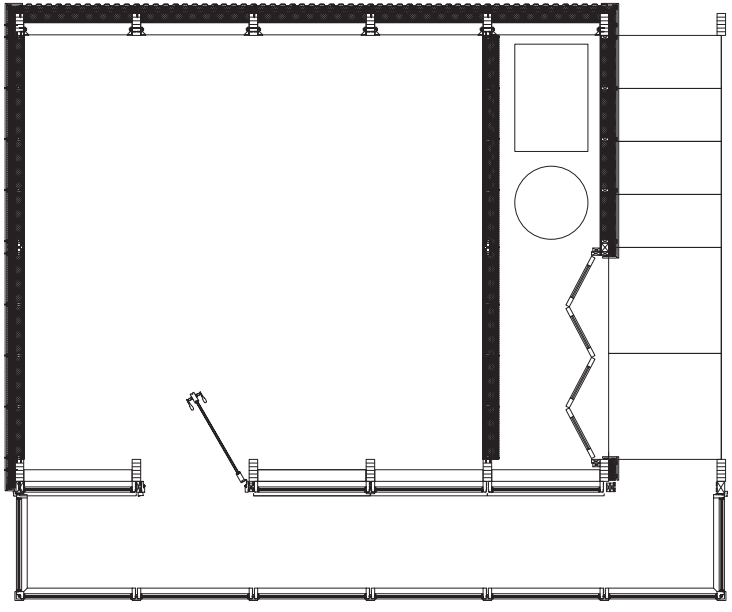


West Cross Section

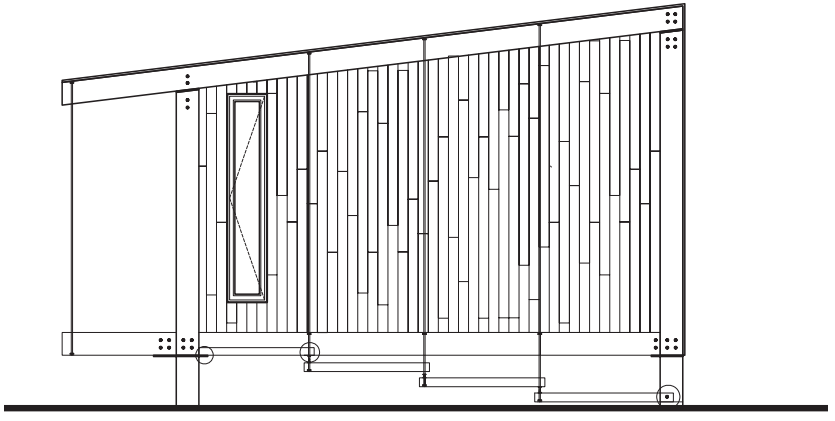


Floor Assembly of typical Rib-Panel Bay

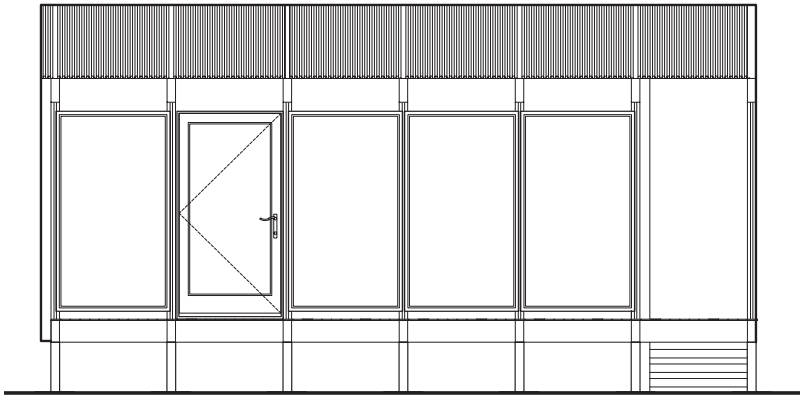
Roof Assembly of typical Rib-Panel Bay



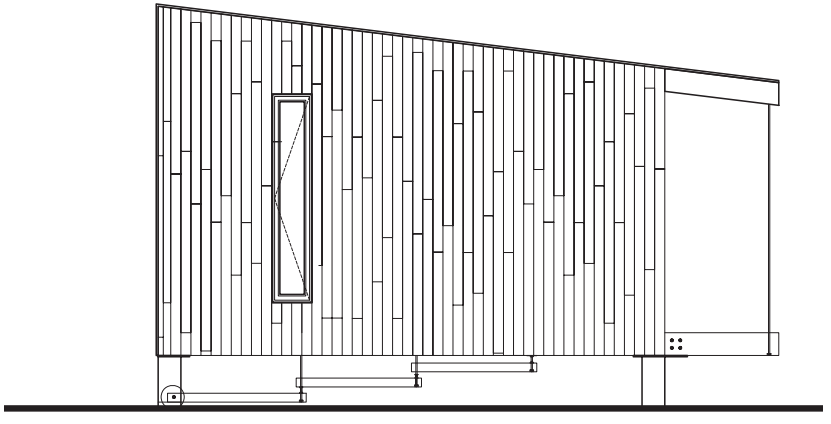
Pavilion Plan



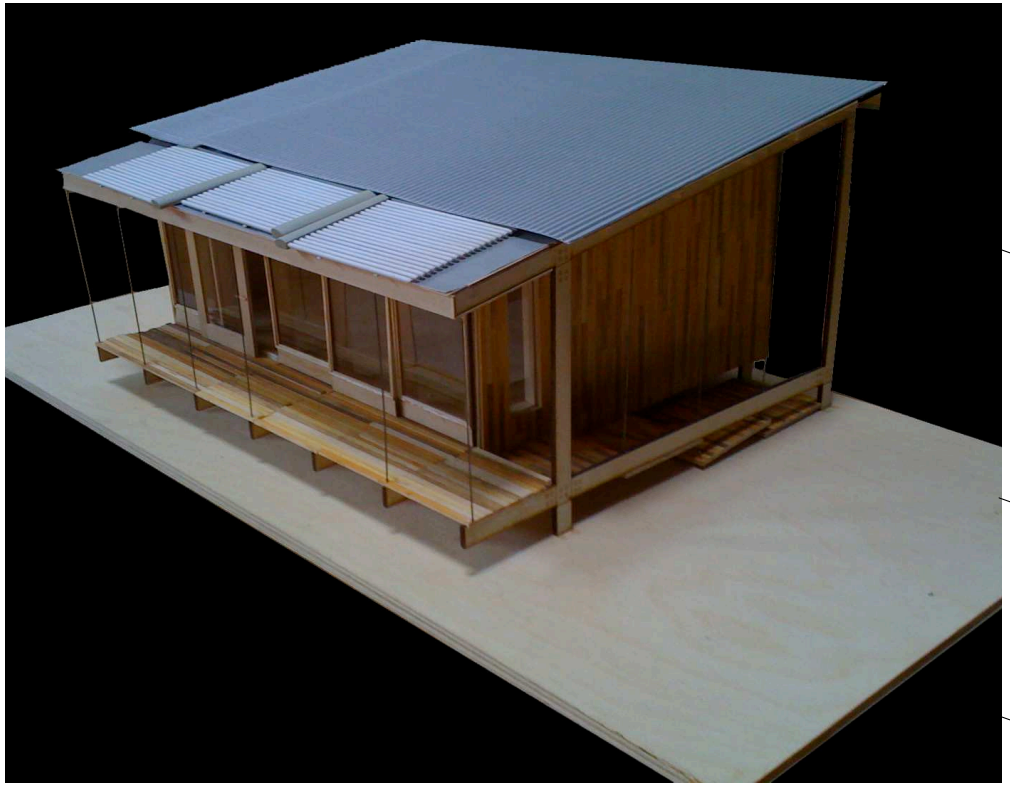
East Elevation

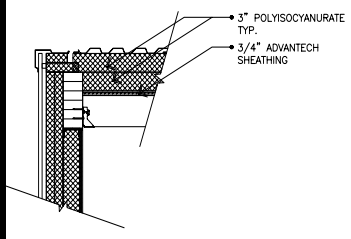


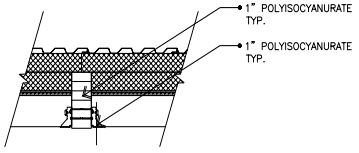
South Elevation

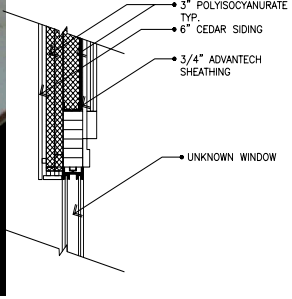


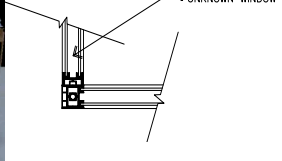
West Elevation



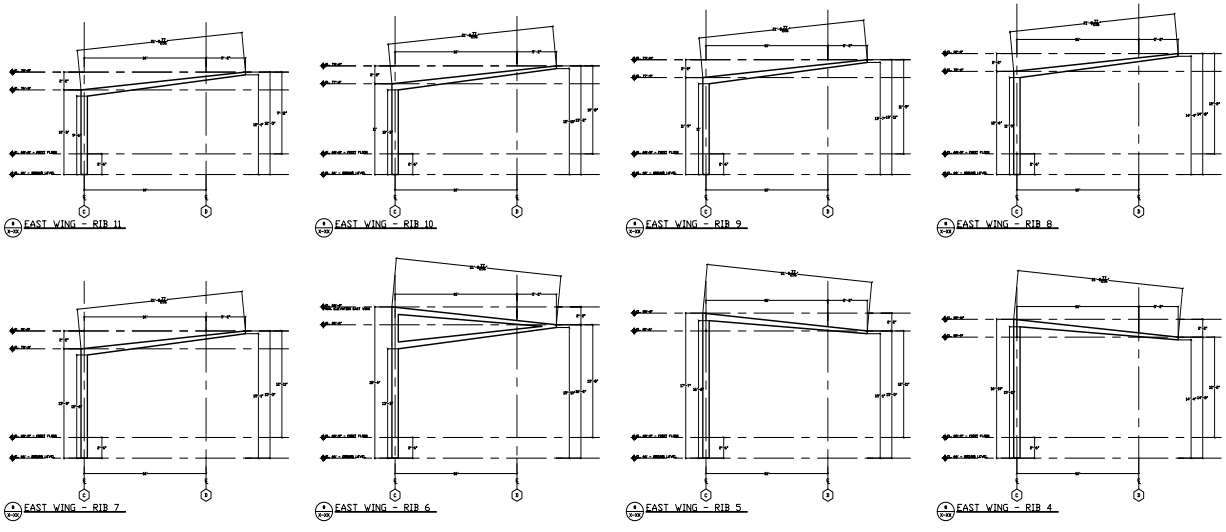








Above: Plan Section of Wall Panel Assembly



After two uncertain years of design, redesign, and unorthodox financing strategies, construction of the solar pavilion finally began in the fall of 2009. With the solar thermal panels still in their prototypical stages, the Glulam ribs were fabricated and erected into their light-weight steel boots. The pavilion was fabricated and erected close to campus along the Providence River for careful study and observation before it would be disassembled and transported to its permanent site at the Roger Williams Zoo. Volunteer teams of RISD and Brown students were the primary force behind most of the physical construction work for the pavilion and will continue to be the force behind the creation of the mechanical equipment that will eventually be machined and housed in the pavilion.

PROJECT TEAM:

Rhode Island School of Design, Dept. of Architecture

Brown University, Dept. of Engineering

Wilbur Yoder PE

Veissman

Jonathan Knowles RA

Christopher Bull PE

The final fabrication strategy for the solar pavilion involved a re-examining and alteration of the conceptual prototypes for the absorptive panel system which were ultimately reinvented into a larger “wall-system” rather than modular panel system. In an effort to keep construction and prototyping within the studio’s reduced budget, the thermally-absorptive enclosure system was re-designed along the same principles as the light-weight bay-panels proposed by the Solar Skin House, into a more easily assemblable wall unit constructed of appropriated Structural Insulated Panels (SIPs). The larger SIP panels were purchased off of the shelf, and the Styrofoam insulation was manually routed out to accommodate the Glycol tubing that would ultimately absorb and transfer solar-thermal energy to the structure’s mechanical equipment.

Several areas, including the roof extension over the pavilion’s south facing entry corridor, were custom made to accommodate concealed window frames on the underside, and more importantly to accommodate the building’s evacuated tube collectors. These panels had to maintain a low profile with the addition of the tube collectors along the length of the overhang while still effectively shading the pavilion’s southern exposure and maintaining an operative angle of incidence.

MAPPING GLOBAL LOGISTICS INFRASTRUCTURES

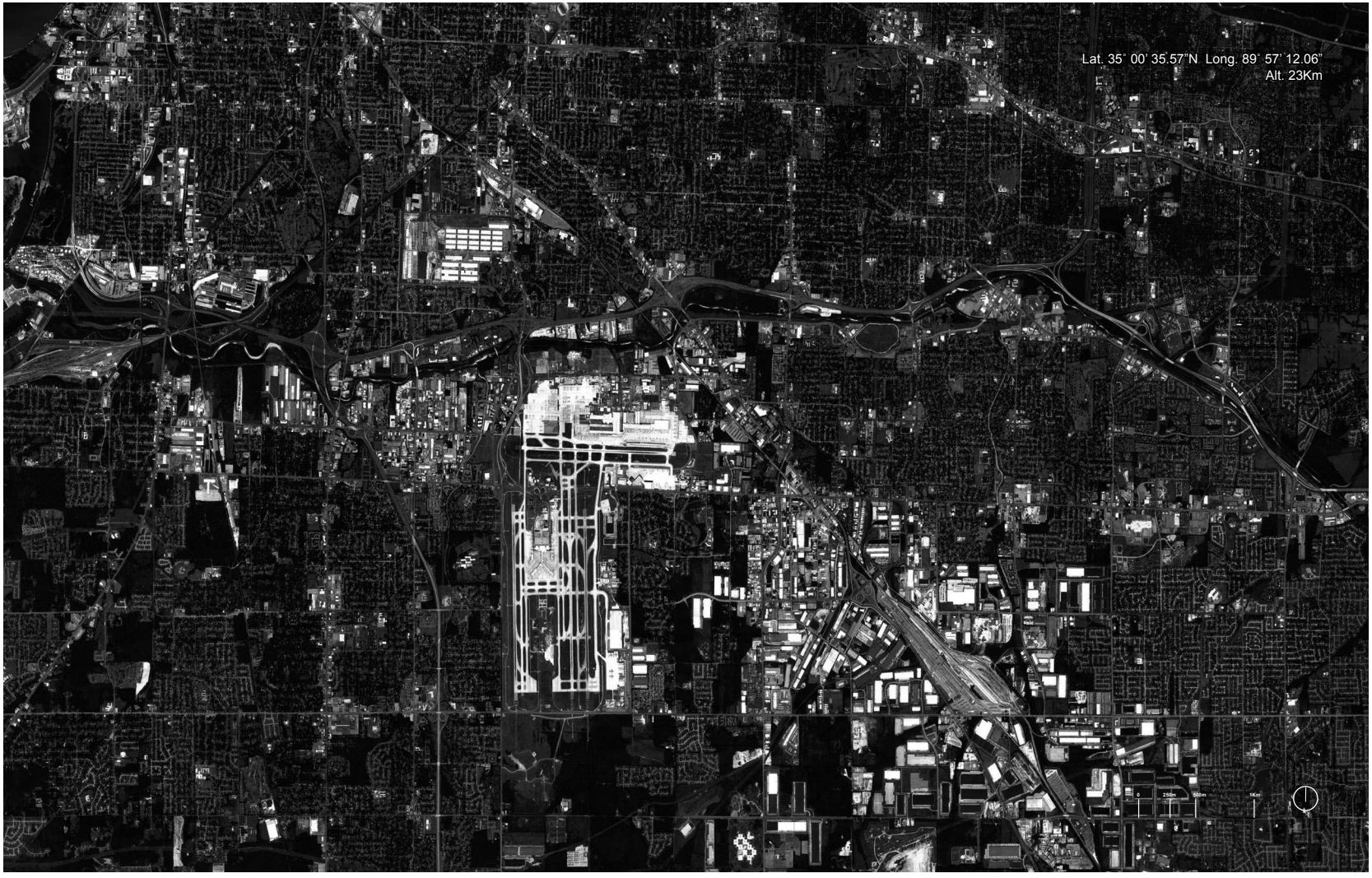
LOCATION: MEMPHIS, TN
ADVISOR: PIERRE BELANGER
SEMINAR CASE STUDY: 6 WEEKS

The purpose of this exercise was to broadly isolate and document a particualr process of contemporary, global urbanization currently underway as a result of changing political and economic geographies. Using an explicitly visual and geographic mapping methodology, this study sought to document the exisitng and growing FedEx logisitcs network based in Memphis TN, and study its impact on concurrent global patterns of urbanization.

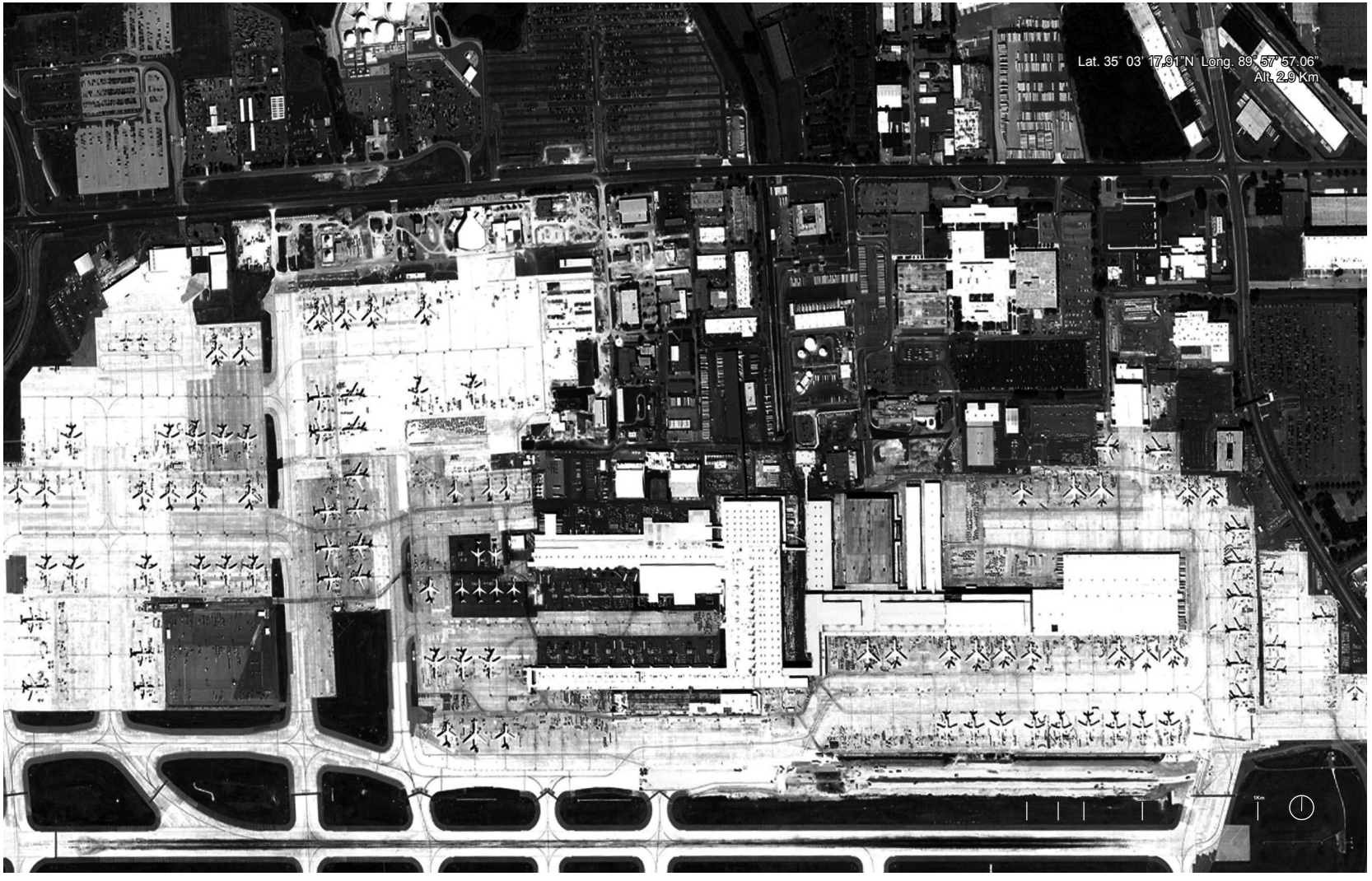
Referring to itself as “North America’s Distribution Center,” Memphis’ location along the eastern bank of the Mississippi River in southwestern Tennessee has privileged the region as an important East-West crossroads within the United States. While the Mississippi River has historically formed the continental division between eastern and western United States, expansions in rail networks and the Interstate Highway system have provided the region with one of the most efficient systems to transport bulk cargo in the country. Since the 1970s however, Memphis has positioned itself as a significant international hub as well with the establishment of the FedEx Express Super Hub at Memphis International airport in 1973. Located just three miles south of Memphis’ central business district, the FedEx Super Hub has since grown into a city all its own, employing more than 15,000 people, while maintaining a fleet of 75,000 trucks and 684 jets.

Above: Cargo plane landing in Memphis. Illustrates the airport’s proximity to and reliance on adjacent infrastructure networks (Source: Malcolm Miller 2007).
Opposite: FedEx Super Hub Facility manages a fleet of 684 jets and averages between 150 and 200 plane loadings and reloadings per day (Source: Andre Quiros 2010).

09



Above: FedEx Super Hub and Memphis Airport are located adjacent to each other, between the I-69 and I-240 Corridors (Source: GE DigitalGlobe 2011).



Above: The FedEx Express Super Hub is adjacent to the Memphis International Airport, but dwarfs it in size (Source: GE DigitalGlobe 2011).

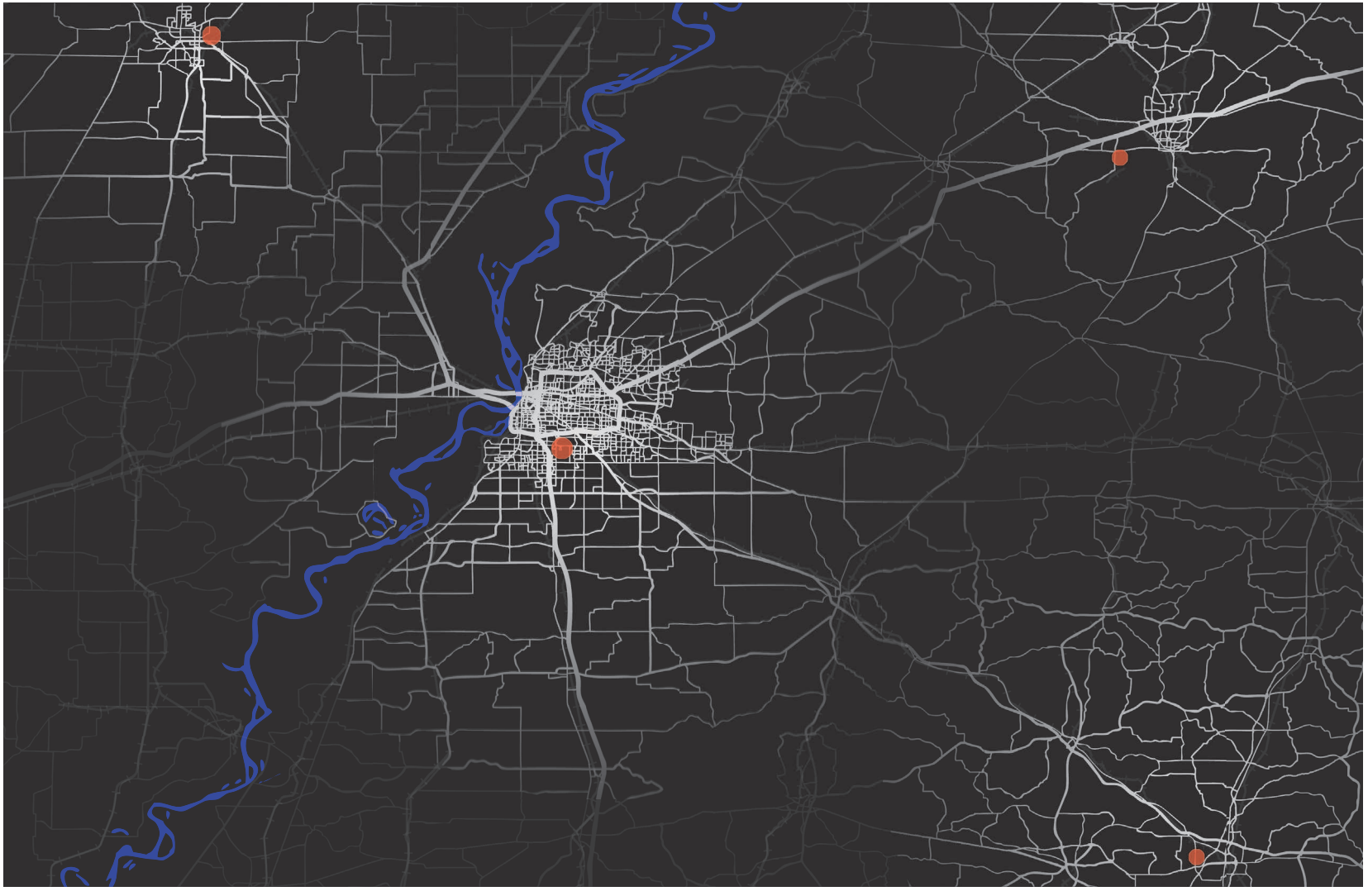
Less than two miles north of the Tennessee- Mississippi State Border, the FedEx Super Hub and Memphis International Airport are circumscribed by Interstate 240 to the north, Interstate 69 to the west and the Burlington Northern Santa Fe Rail Depot to the east. Within this infrastructurally circumscribed geography, FedEx's hub in Memphis has universal connectivity to all major global markets. From its hub in Memphis, airfreight is sorted and routed to one of four major North American sorting facilities either in Newark, Oakland, Fort Worth or Indianapolis.

Cargo destined for locations within less than "one day's truck drive" or approximately 400-500 miles of the sorting facility is trucked via Interstate to a local FedEx facility, while air freight bound for destinations farther than one day's truck drive is flown to regional airports, via a contracted cargo airline and delivered to a local facility closer to its final destination. International cargo is routed to one of five major global sorting hubs in Narita Japan, Guangzhou China, São Paulo Brazil, London England or Paris France and delivered to either regional FedEx facilities or contracted out to other air freight couriers and flown to the country of destination.

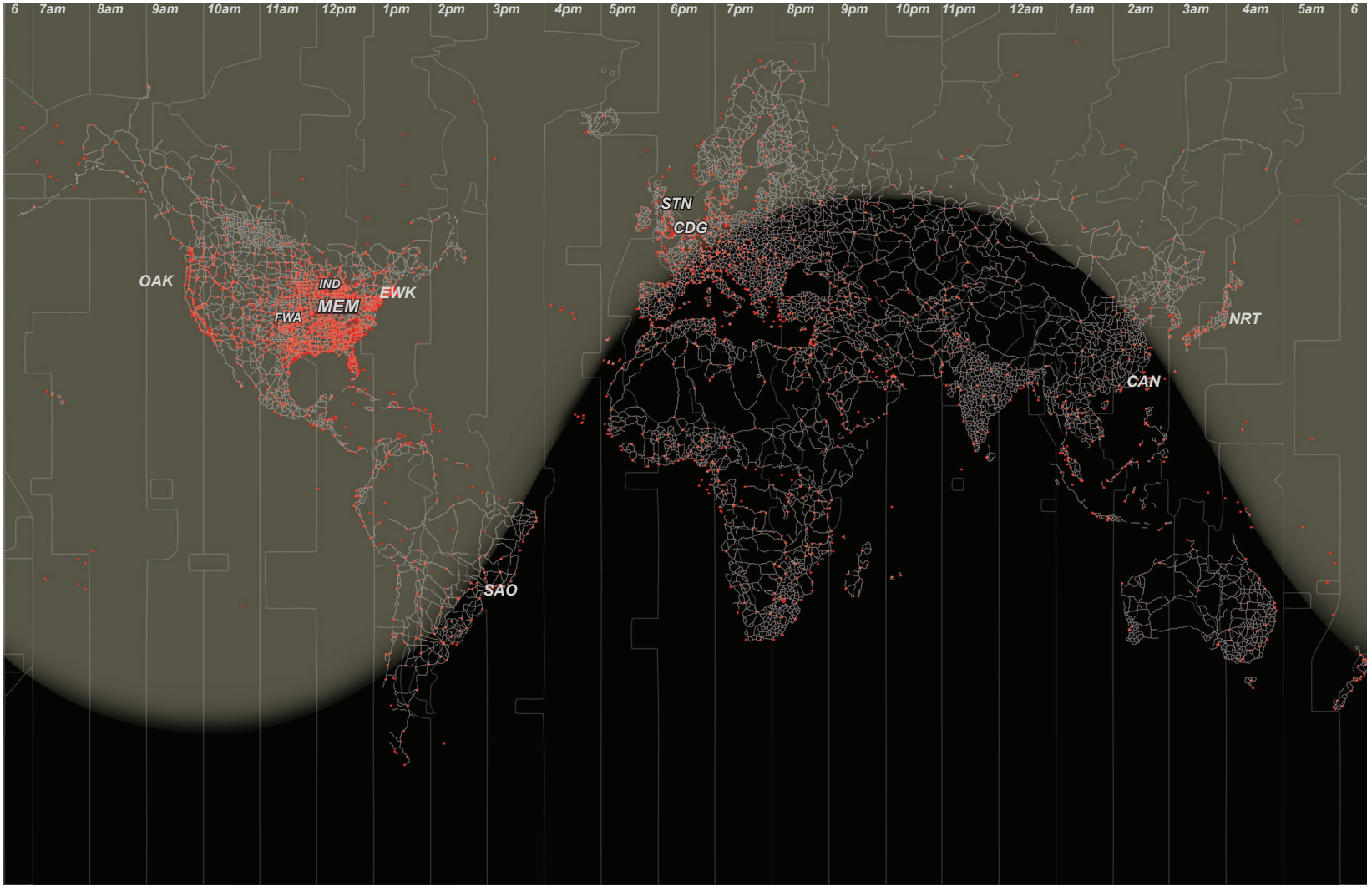
Right: Aerial Diagram of Memphis International Airport, illustrating hierarchy of ground shipping routes by volume. Bold lines indicate heavily traffice primary routes along interstates and rail, while thin lines represent secondary regional routes. Gray lines represent local roads. (Source: Shelby County GIS).

Opposite: Packages not directed to outbound flights, are off-loaded to the ground fleet, and distributed throughout the Memphis region. With Memphis positioned in the center of the map along the MIssissippi River, the orbiting red dots indicate locations of regional airports and their relationship to surrounding transport networks (Source: Shelby County GIS).

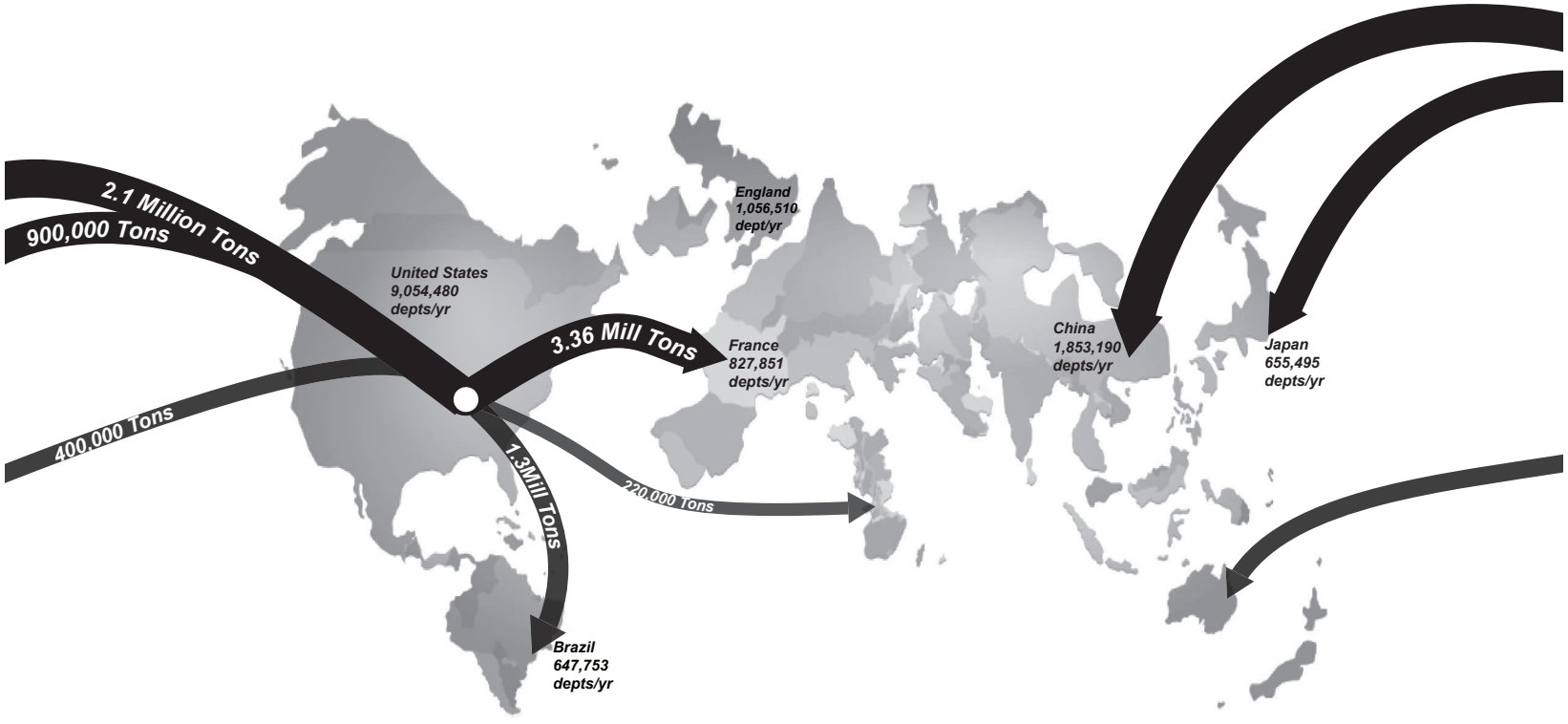
Above: Aerial Diagram of Memphis International Airport, illustrating hierarchy of ground shipping routes by volume. Bold lines indicate heavily traffice primary routes along interstates and rail, while thin lines represent secondary regional routes. Gray lines represent local roads. (Source: Shelby County GIS).



Above: Infrastructural “Stim and Dross” created by FedEx’s network in the Memphis Metropolitan Region.



Above: FedEx's sorting and transit hubs operate in synchronous netwrok around the globe that conflates geography and time.



Both time and geography are conflated by FedEx's network, making the only barriers relevant in this system the ones created by the aviation and auto infrastructures that enable FedEx's operation. The geospatial logic of FedEx's operations is brought into lucid focus by studying the continental networks of high-capacity freeways and international airports that give global dimension to FedEx, and FedEx's economic research has shaped an interconnected world where demographic and economic cartograms, not projected geopolitical maps, are the most operative forms of representation for their business.

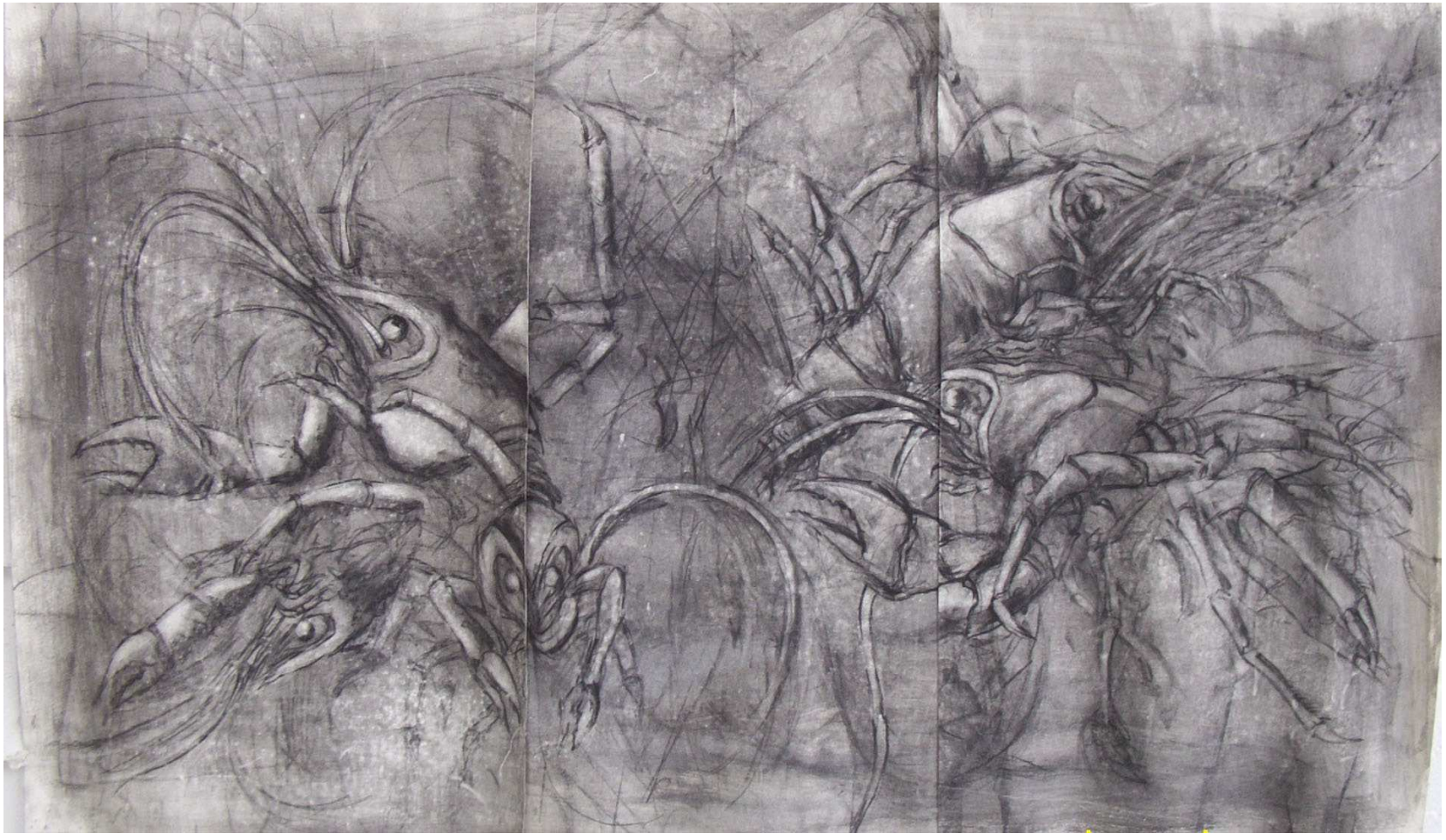
Opposite: Map of global interstate highways (Gray Lines) in relation to every regional and international airport in the world (Red Dots) with FedEx's major sorting hubs identified by airport code. From its headquarters in Memphis TN, FedEx has universal connectivity to its five international sorting hubs.

In looking at its facilities on the ground, the scale of FedEx's operations in Memphis is given truly human dimension. At its busiest peaks, FedEx's hub in Memphis operates revolving shifts of ground staff on twenty-four hour cycles, with fueling, maintenance and security staff working all day cycles throughout the year. These continuous cycles of labor, transportation and goods in Memphis mirror the truly global mechanics of the FedEx network, constantly at work at an international level. At any given time somewhere in the world, day-time labor and movement corresponds with night-time operations somewhere else, literally dissolving the physical and geopolitical boundaries that identify and locate the operations.

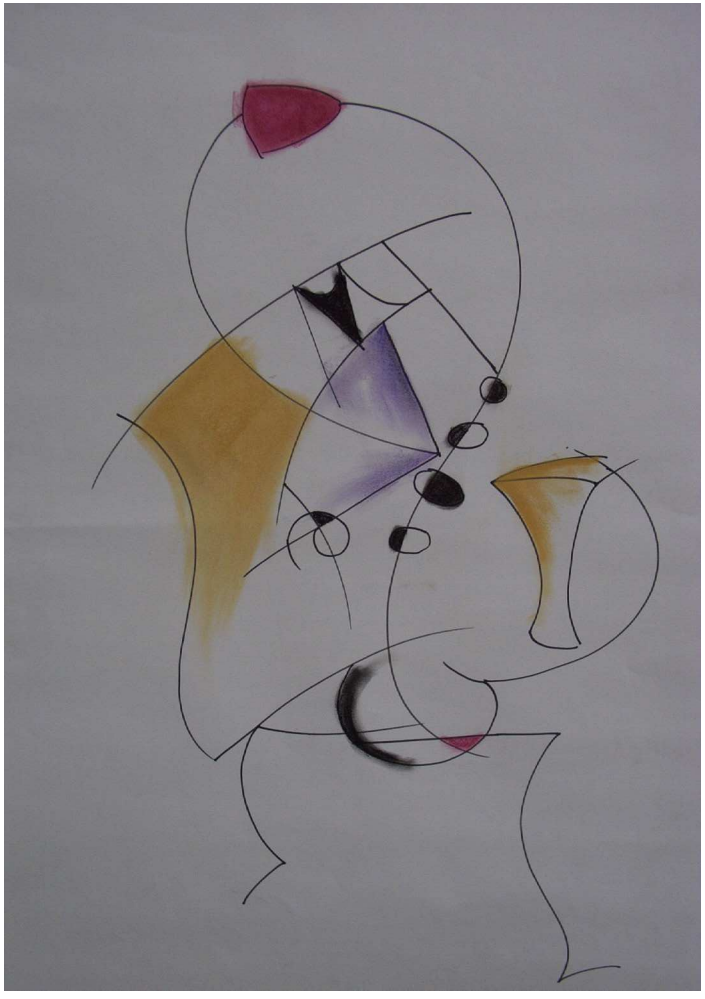
Above: This cartogram proportions the globe in terms of annual international flight departures per country and shows it along side FedEx's largest routes by volume in 2011.

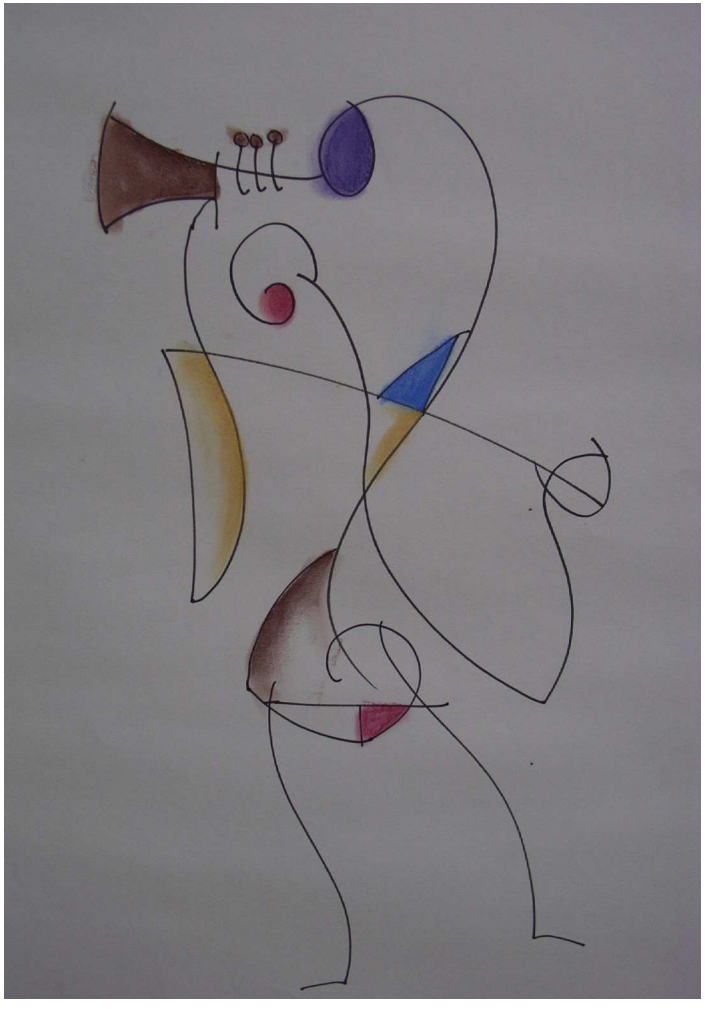
FINE ARTS

Figure Studies, Conte on Newsprint



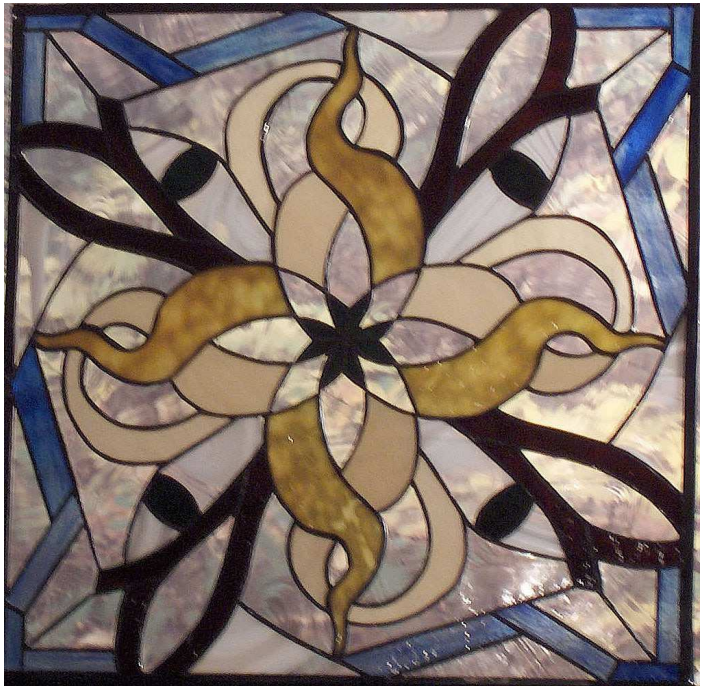
Crayfish, Charcoal and Chalk on Illustration Board





Rhythm and Color Series, Pastel and Ink on Paper

Flutist, Charcoal and Chalk on Paper



Stained Glass, Yacki Gamey Glass, Lead Came

Smoke Texture Studies, Charcoal and Ink on Paper, Digitally Edited

Creek House
Watercolor and Colored Pencil on Paper
Architect, Ferris + Partners

Neff Collaborative
Watercolor, Ink, Photographic Montage, Digitally Edited
Architect, da Silva Architecture Inc.