

***Building Structure:
Underlying Architectonical Duties***

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Thesis submitted to the faculty of the Virginia Polytechnic Institute and State University in partial fulfillment of the requirements for the degree of

*Master of Architecture
in
Architecture*

Susan Piedmont-Palladino (Chair)

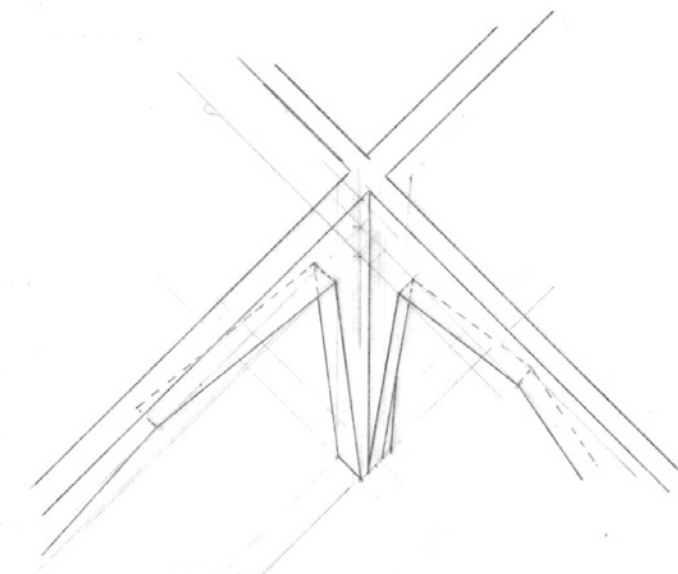
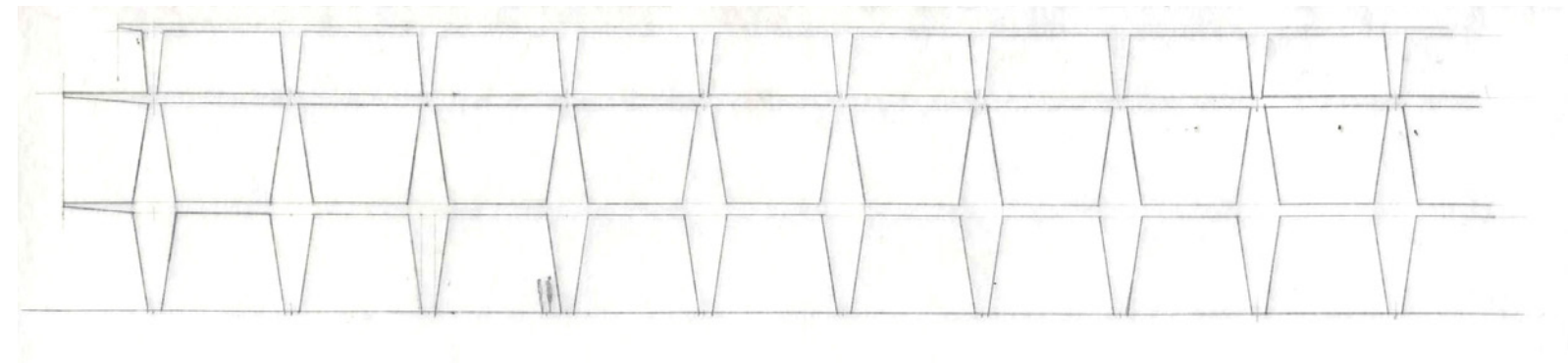
Marcia Feuerstein

Marcus Breitschmid

*June 23, 2015
Alexandria, Virginia*

*keywords:
structure, concrete, multi-family, housing, urban-farming*

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/
Daniel Vincent Ghielmetti

When experiencing a building's interior or exterior conditions, one may be inclined to "feel-out" its spatial and volumetric proportions, judge their appropriateness, its quality of formal conditions, its power, its clearness of the structure, and get a sense for the way its architecture was placed onto the site.

It is said that, "knowledge is key", and knowing how a building is soundly and structurally assembled and seated onto the earth – is key.

This thought brings to the table an important question, why do we build beautifully sound and monolithic (at times) structural systems then choose to cover them up entirely? In the context of the Washington, D.C.'s current building climate – why must we build a dense grove of slender wood posts atop concrete plinths only to cover them up in clothing with certain ephemeral stylistic ideas?

Obvious reasons such as insulation and weatherproofing are valid, but thermal barrier technology now allows for exposing the raw architectural elements without sacrificing thermal qualities.

Can we use this technology to our advantage, and if so, how would one begin to conceive of a structural system which celebrates the bearing members in an architectural manner?

Are there ways to interact more directly with the structure itself?

In what manner will the site specific and environmental constraints play a role in making creative architectural decisions? I believe the research conducted in the past year resulted in a truthful approach toward form finding, space making, and respecting the chosen site and its unique constraints.

To my parents,
for their unending support of my academic studies.

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1, willow tree

/ introduction



2, Dulles Airport exterior



3, Dulles Airport interior



4, Dulles Airport raw structure



3, Dulles Airport interior

The weeping willow near my childhood home was always a fascination of mine. Its far-reaching limbs provided shelter and created a natural space to gather as kids. The willow tree was en-route to my friend's house. I would always make sure that my line of travel would cross underneath its engulfing canopy. The lightness of both the color of its leaves and its porous leaf coverage created a space which seemed impossible to recreate by man. I believe that this may be my first recollection of desiring to explore and investigate space as something that is an actually "thing" and can be analyzed.

It would have to be at Dulles Airport where my first architectural thoughts came to me. Growing up in northern Virginia and having family all over the country and abroad and a father who traveled often for business, I would find myself at Dulles quite frequently. I never minded taking a trip to the airport, even if it meant we were just dropping someone off, or picking someone up. Arriving at the fantastic structure was a trip in itself. I was always fascinated with the angled concrete supports and the massive curved concrete roof structure. I would simply stare upward until someone bumped me to let me know the check in line was moving, or that my parents had left me. Although the physics of all the

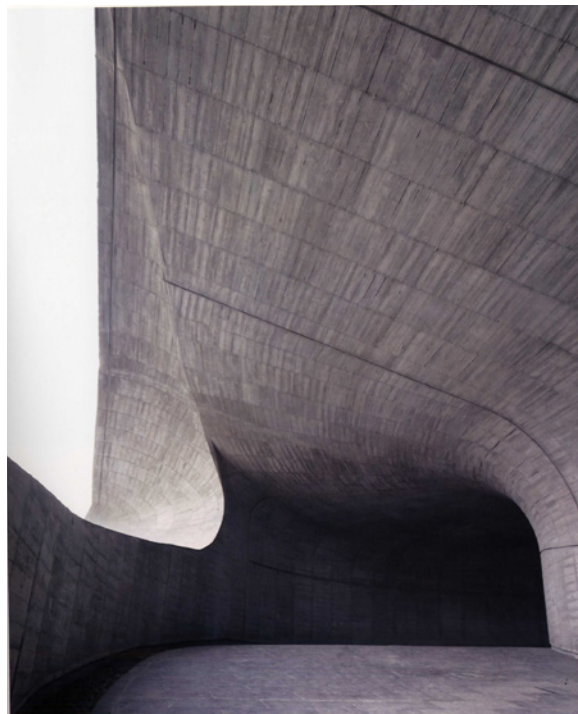
building's structural parts was far beyond my mathematical capabilities at the time, it was still very clear to me that somehow, someway, the curved roof was being supported by the outward angular columns. The ability for the building elements to represent the structural system without exposing the exact reinforcing elements (the rebar, the one inch diameter cables which the roof panels lay on, etc.) is what I consider its greatest "architectural" quality.

Throughout my studies of architecture I have always been searching for a true method in deciding whether something is architectural sound or deserving of respect. I have learned that most of this judgment is based on a multitude of factors and simple opinions of the judging individual. But I truly believe, that when one strives to design a building with the idea of creating a structure that shows its components of construction truthfully, even if this is done artistically, it would be deemed a worthy attempt of high-quality architecture.

Throughout the research process of my thesis I led a deep investigation of structures which attempted to show all parts of the building construction, typically the raw structural elements and typically of concrete. Its properties allow for unlimited studies in form and shape making.



6, Maillart "test tube building"



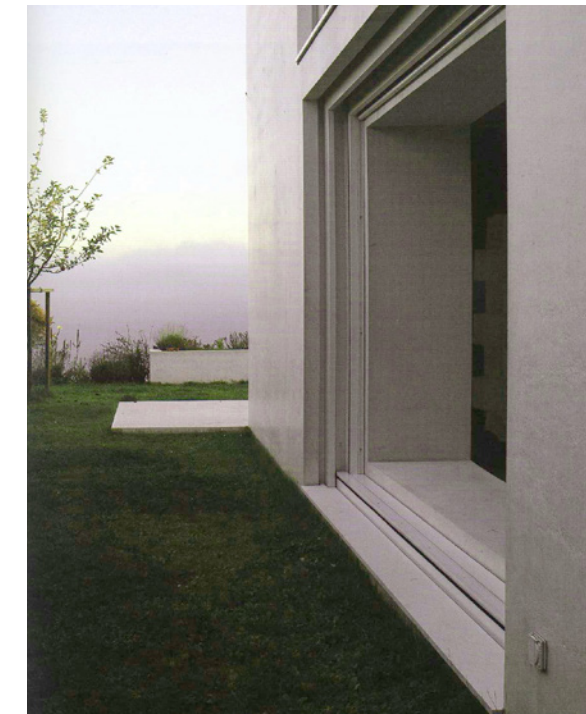
7, curve formed concrete, Norihiko Dan, Taiwan



8, Unite d'habitation, Corbusier, Marseille



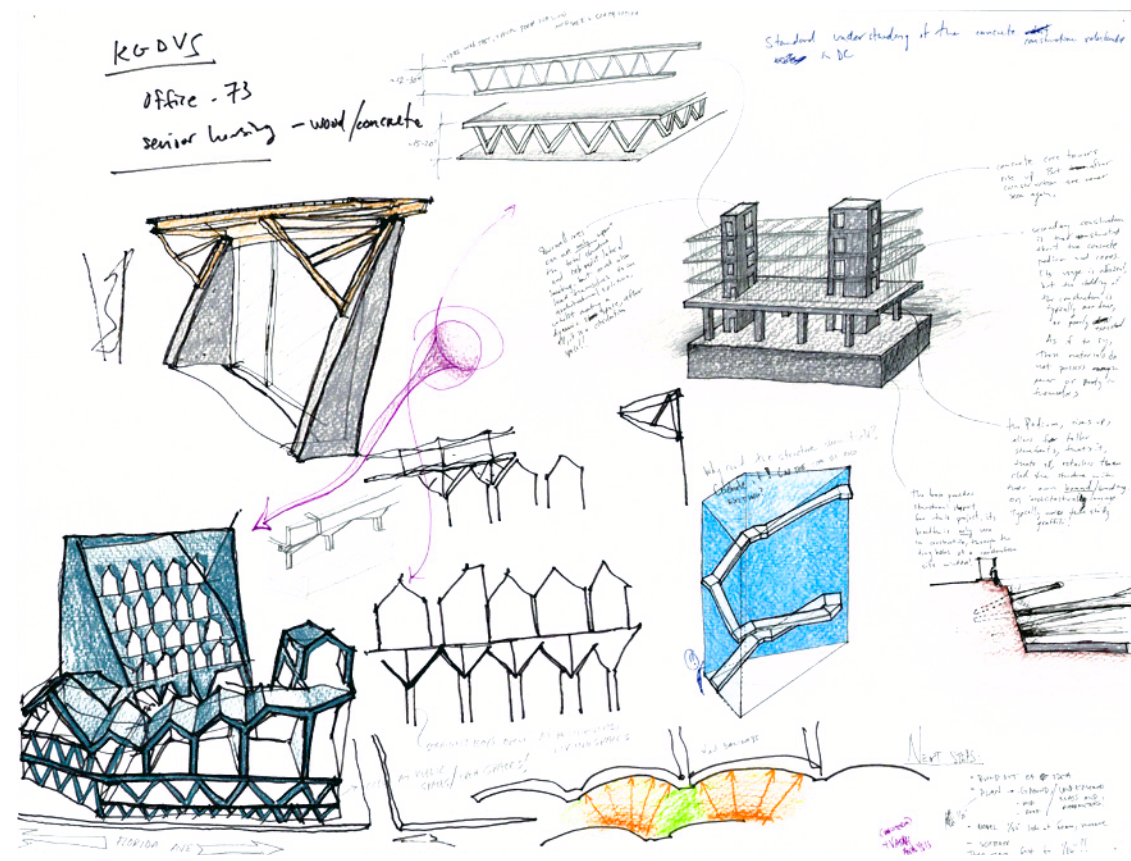
9, Unite d'habitation, Corbusier, Marseille



10, concrete house, resting directly on the landscape



11, Sverre Fehn, Nordic Pavilion



When one takes a look at current trends in residential building construction in the DC area, one sees an array of material play and patterning in the facades. One sees the structural elements of the building completely hidden behind the “cloth” of the facade treatments. I began to develop a negative attitude to this sort of “facadomy” effect from all the examples of newly built architecture in D.C. However, after further analysis it became more clear that if the structure was not covered or enclosed somehow, the building would suffer from very poor insulating qualities.

Why not at least attempt to design portions of the building which hint at its structural make up? A poured in place monolithic concrete structure is somehow quite beautiful when uninhabited. Why go to such lengths in hiding the buildings raw skeleton?

Studying residential buildings, particularly those in D.C, became a central topic in my research. What sort of building has the maximum amount of occupancy - residential. And what would it be like to live within a building which was designed so that the structure is entirely seen.



12, Falls Church apartments

13, Falls Church apartments

/ program



14,15,16,17: plates of Piranesi's *Le Carceri* collaged onto the site, and building concept



18, urban gardening/kindergarten



19, urban gardening/kindergarten

The term “mixed-use” has become a term thrown around so loosely today. It is, as if, the term contains preset types of market-rate housing, and franchise only commercial and retail stores. Mixed-use project can, however, not only mean mixed-occupancy and program type, but a mixed use of the actually space, and provide a “mix” of programmable spaces which can be rented, and used by the community. The example at the top of the page demonstrates diagrammatically how the spaces which Piranesi had dreamed about contained overlapping spatial qualities on the interiors with massive structural elements. The thought to intertwine layers of visible structure throughout multiple floor plates, and within different programmed spaces was an initial launching point in determining a proper building program.

Creating a building with programs that were interconnected with the community and landscape was desired. Urban farming became a logical concept when trying to maintain a connection with the landscape. The kindergarten in Vietnam shown above is a beautiful example of how the architecture allowed for seamless connectivity of site, program, and user experience.

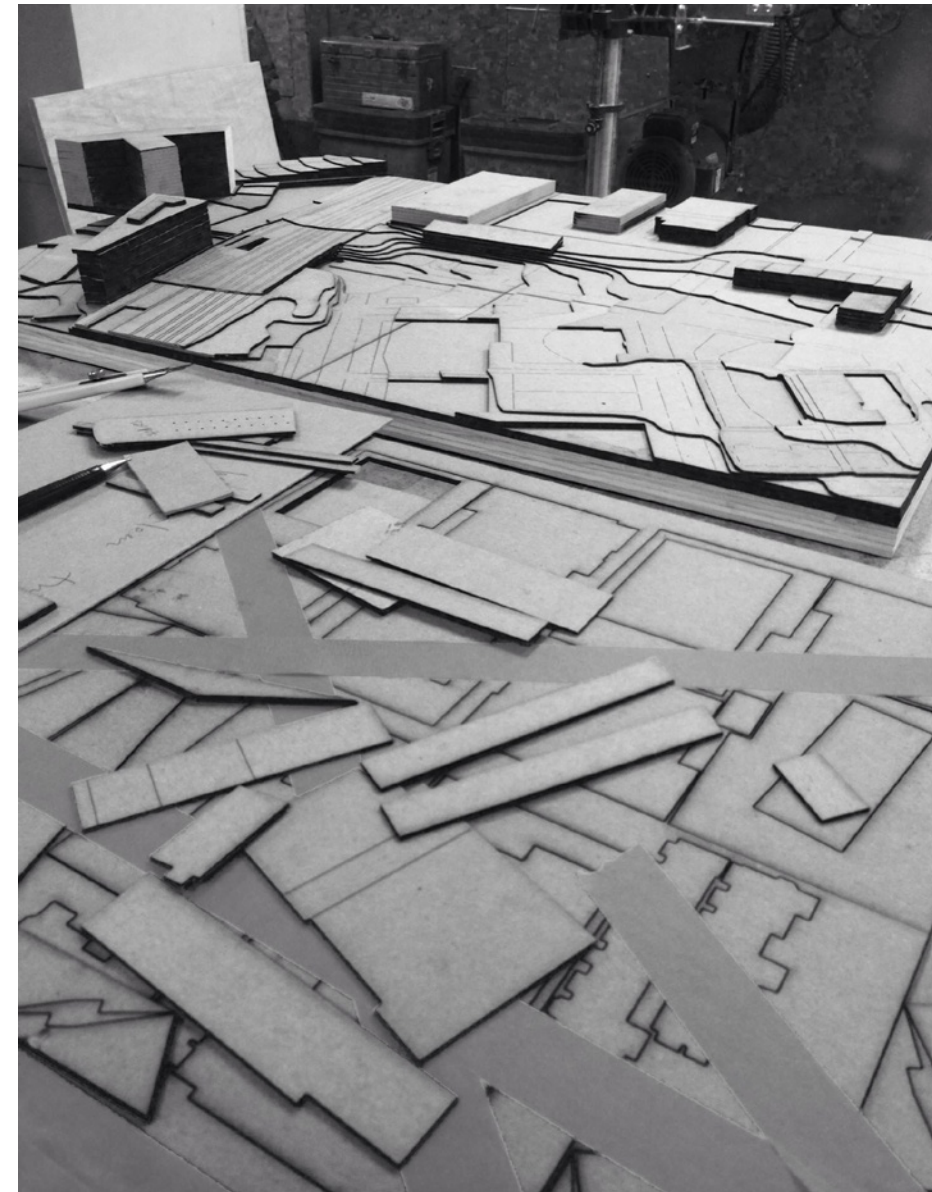
The concept of eat local, buy local, and support local economies is a trend that is no doubt a positive one. Bringing this idea to the balcony of an apartment was a driving factor in creating a terraced housing concept early on. Dividing the spaces in the apartment by program helped to guide the process of creating apartment layouts.

Creating a building with spaces that enriched the community, but also respected the landscape was a major goal. After numerous studies and discussions of what should be “mixed-in” with the urban garden terraced housing development, ultimately four additional spaces were chosen, and designed:

- Communal bath house, perhaps operated by local residents so that the bath house could remain open for long hours. The bathhouse would be an urban oasis, a cool, concrete environment which you can enter to escape DC’s “moving and shaky” city life.
- Urban farm-to-table restaurant, which would foster youngsters in need of work to help out with front and back of house operations. There could be apprenticeship programs which train up-and-coming chefs, and or service industry leaders. The rooftop farm would house a chicken coop, intensive beds for planting at depths of 36 inches, and also a classroom where farming techniques would be taught.
- Art Space/Gallery, where local artists, and street artist converge, discuss, and collaborate. Whether in a gallery, or at a large “blank canvas” concrete wall, ripe for mural art.
- Cafe/Lounge, atop the restaurant there is the cafe/lounge with extensive balcony space which could provide a swing space for yoga classes, seminars, or spontaneous meetings.



*site *



site model under construction, and built at 1"=50' scale



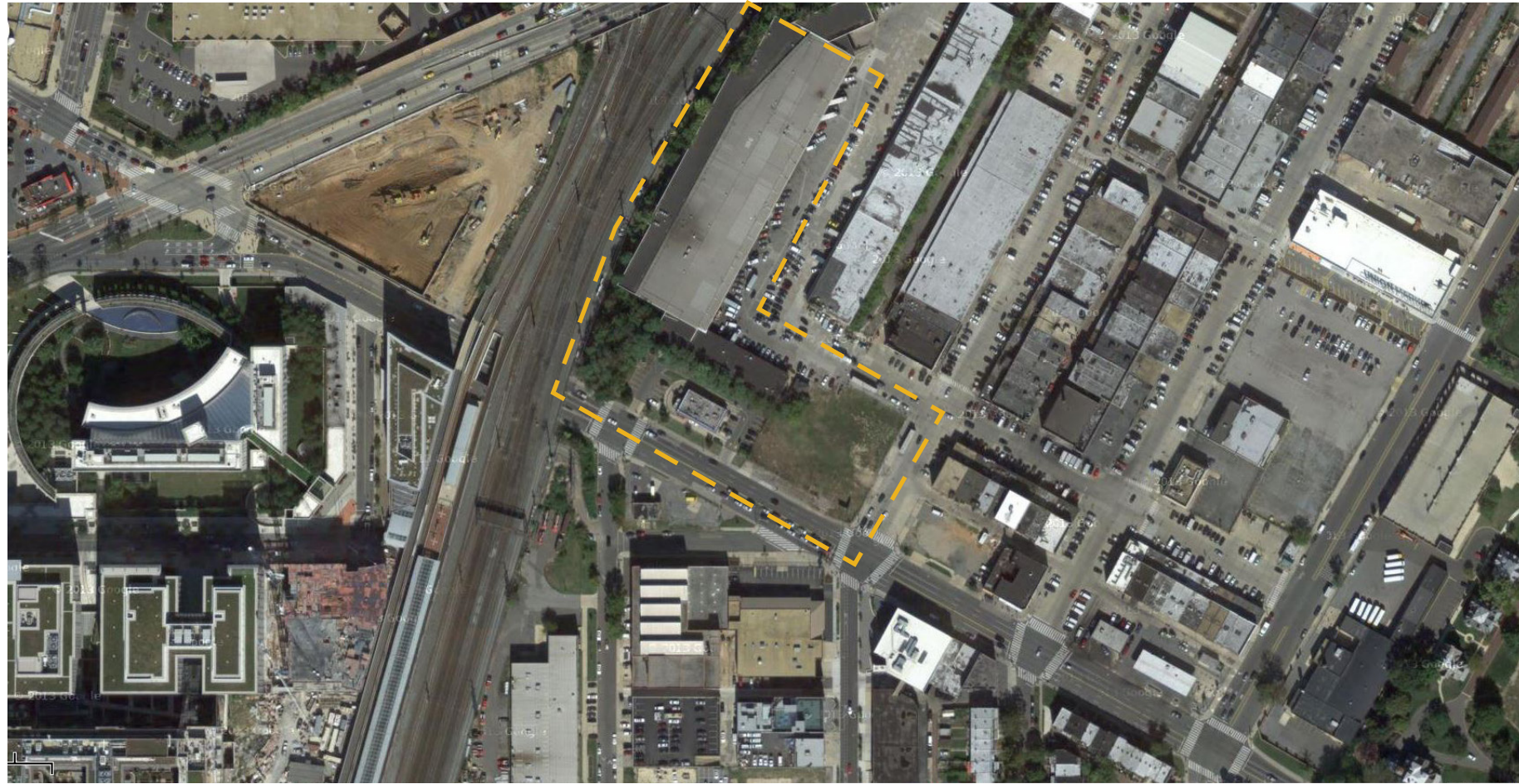
figure / ground plan, Washington, DC



master plan | area of study | building site

0 100 200ft

1 inch = 200 feet



21, aerial photo of site



images showing the current conditions of a "non-thriving" urban fabric



panorama of site on Florida Ave, note existing Burger King

320 Florida Avenue

The site officially lies in the Florida Market Area. It is currently going through a transition of an array of changes in land ownership and zoning changes. All for the better. The NoMA business improvement district adjacent to the FMA received an extreme amount of development in the past 15 years, while its neighbors to the east received no economical boost. However, one would say it is not entirely great. What is now in place, is a district of high-priced 10-13 story apartment complexes with concierge lounges, and lots of property management. The buildings massing respond to the context in no particular manner, and the materiality palette is of the same nature described earlier, and ultimately hiding any true architectural element.

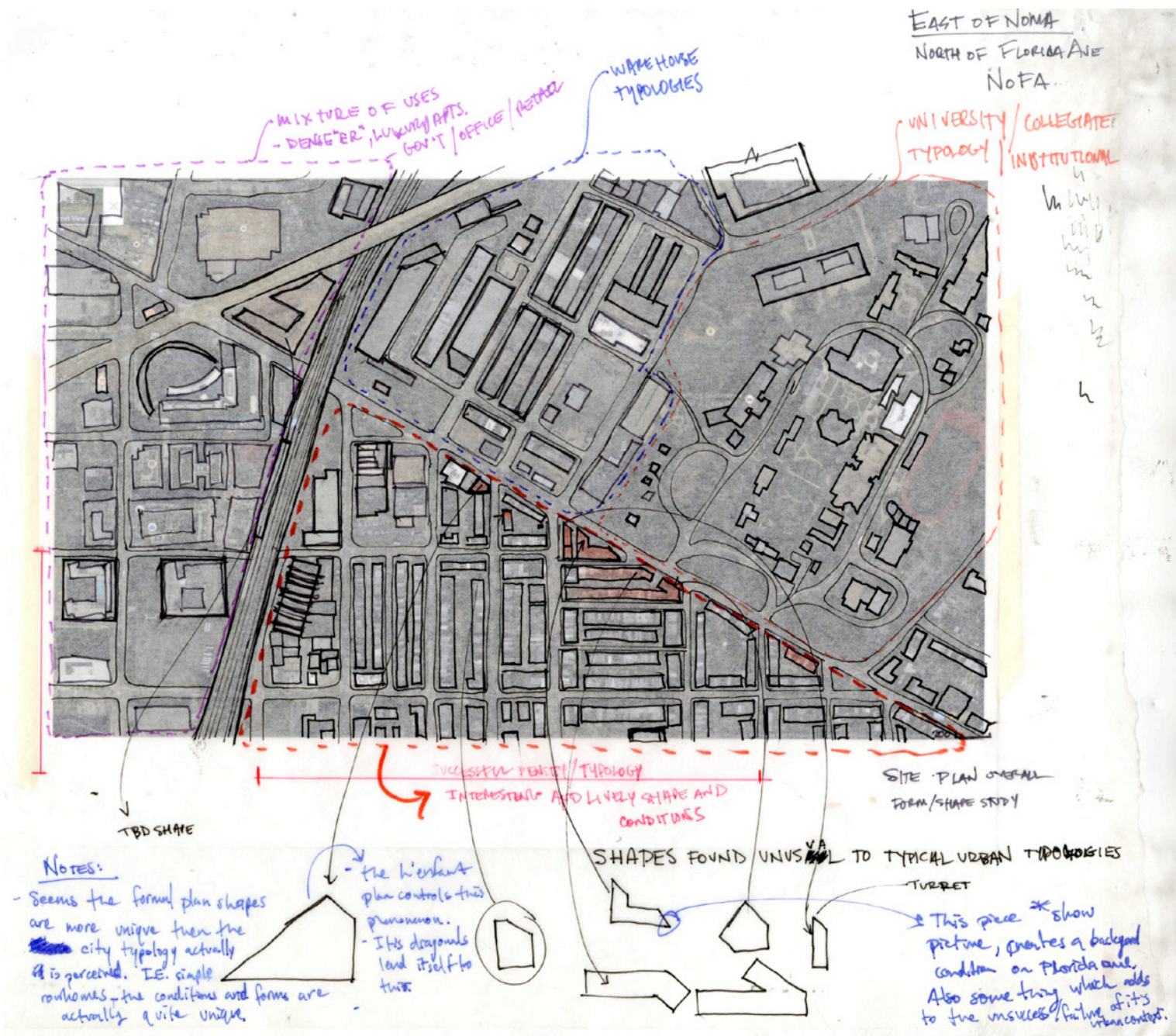


under railroad bridge, Florida Ave



looking into the bluff at the proposed site

The area around the existing warehouses is somewhat dilapidated, although the recent Union Market has become a cultural destination for North East DC. Not only does it attract and maintain local companies, restaurants and various vendors, but the adaptive reuse design shows total respect to its existing site. The building is a wonderful example of how to successfully reuse the warehouses in the FMA.



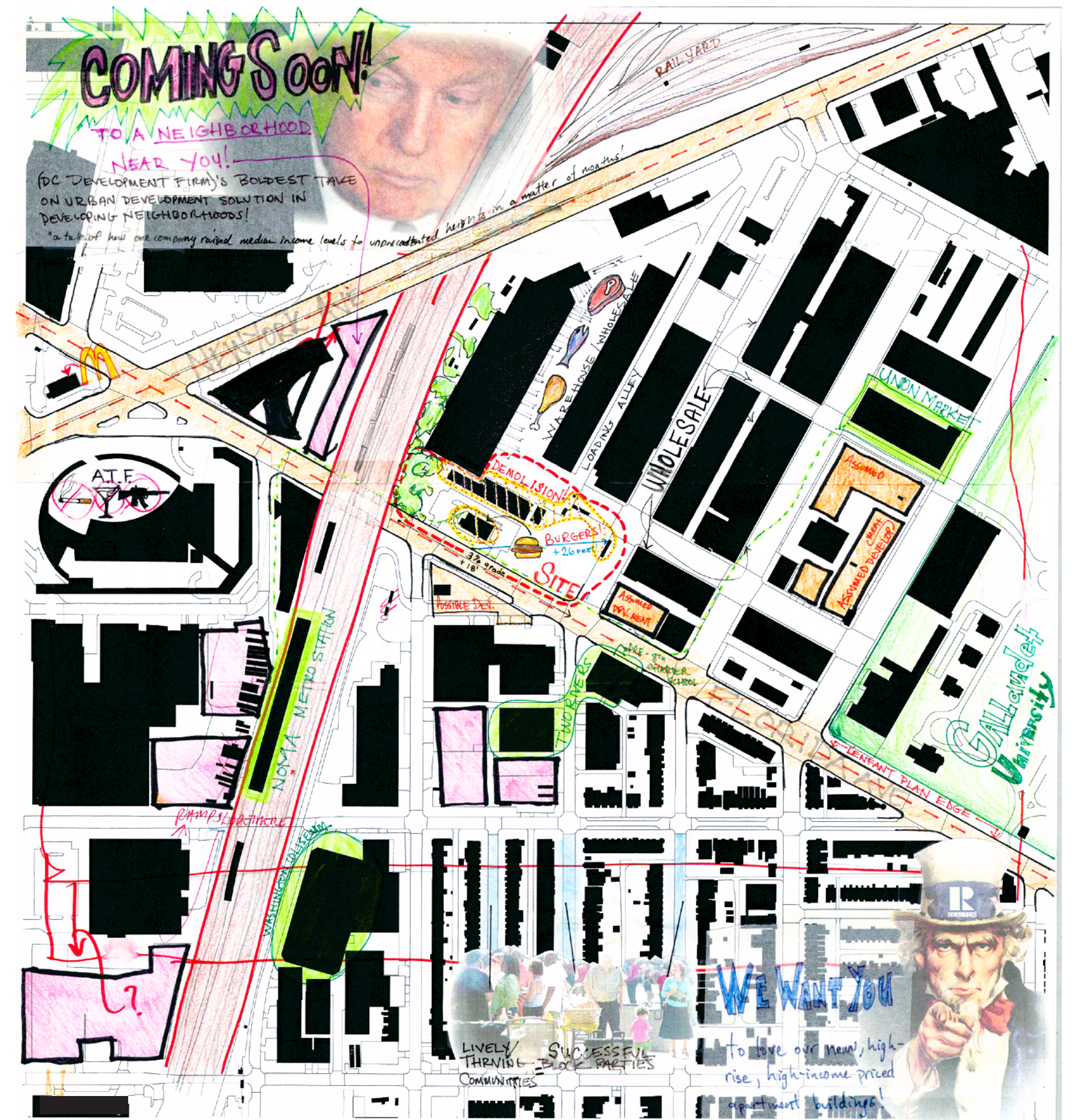
site study, shape finding, massing pattern research

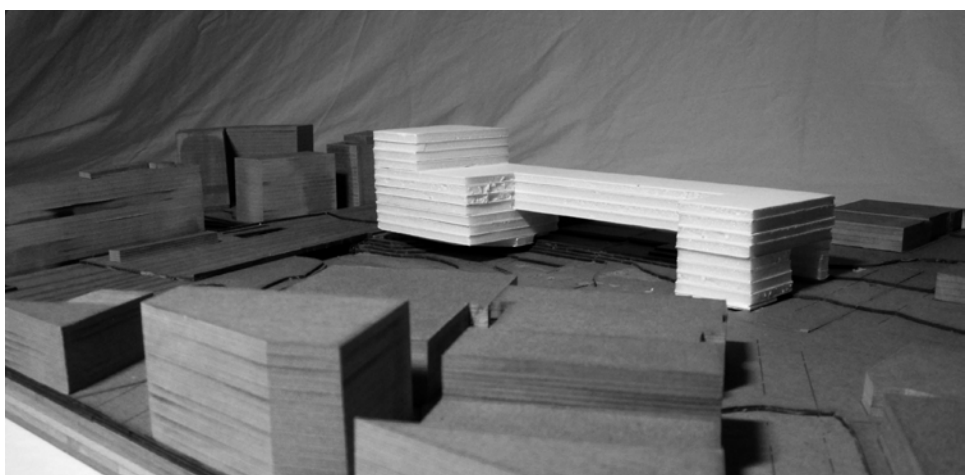
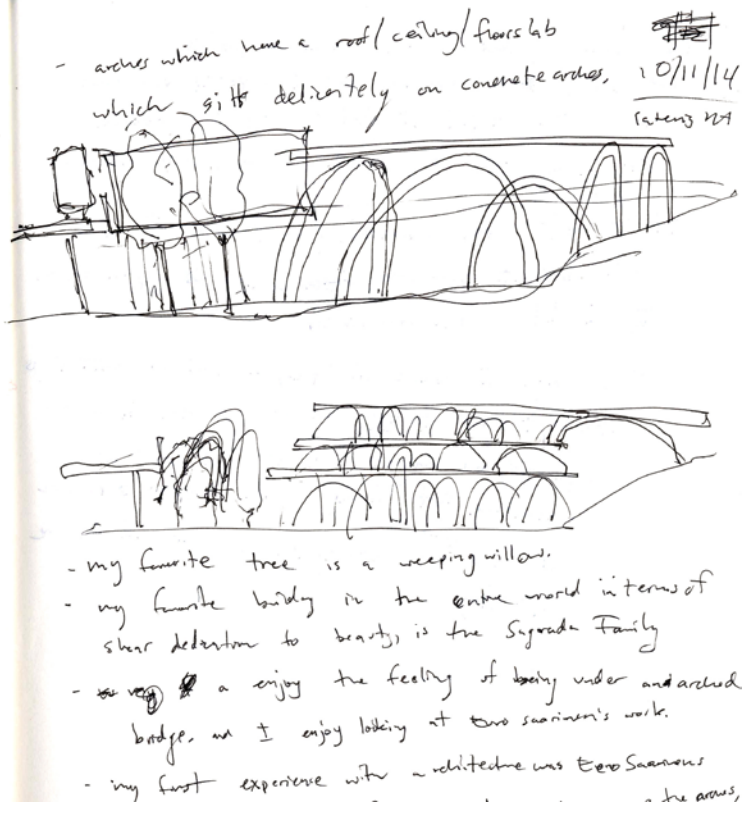
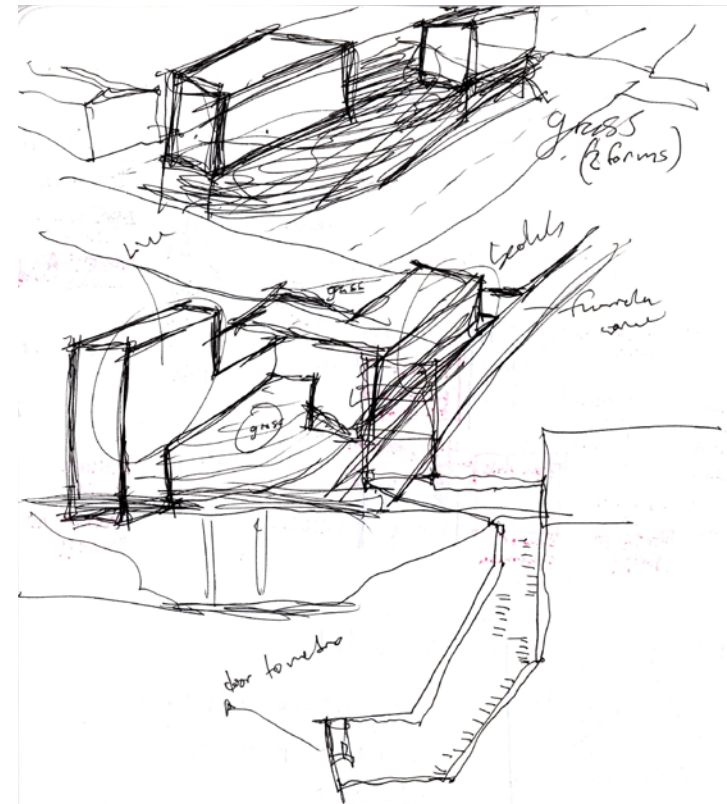
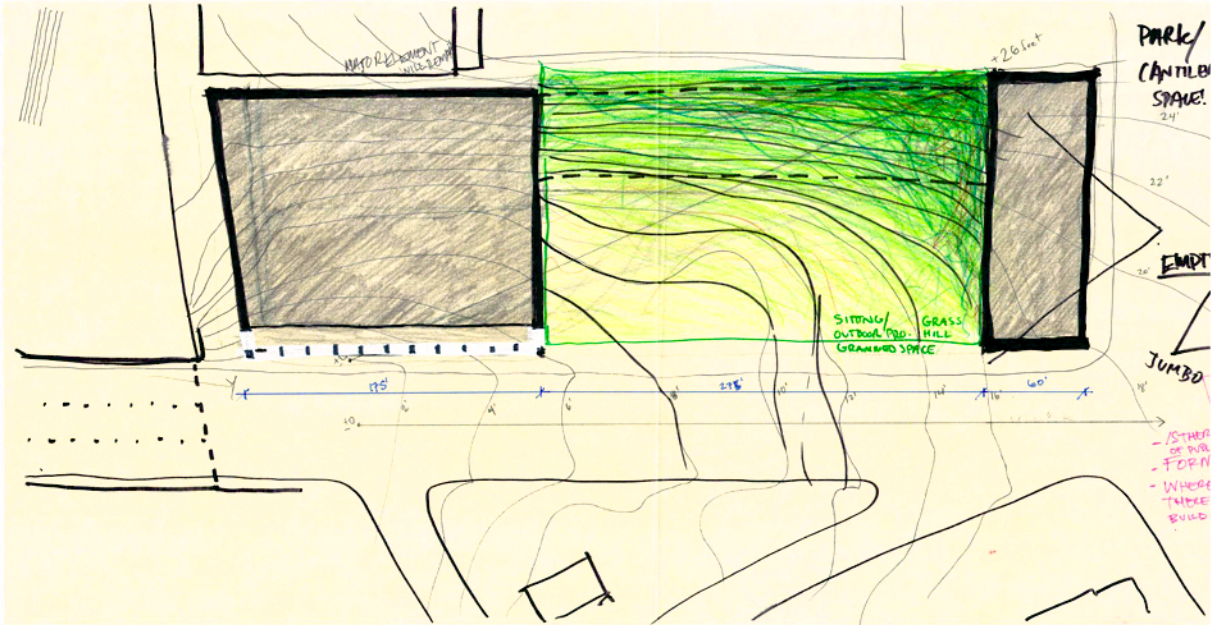
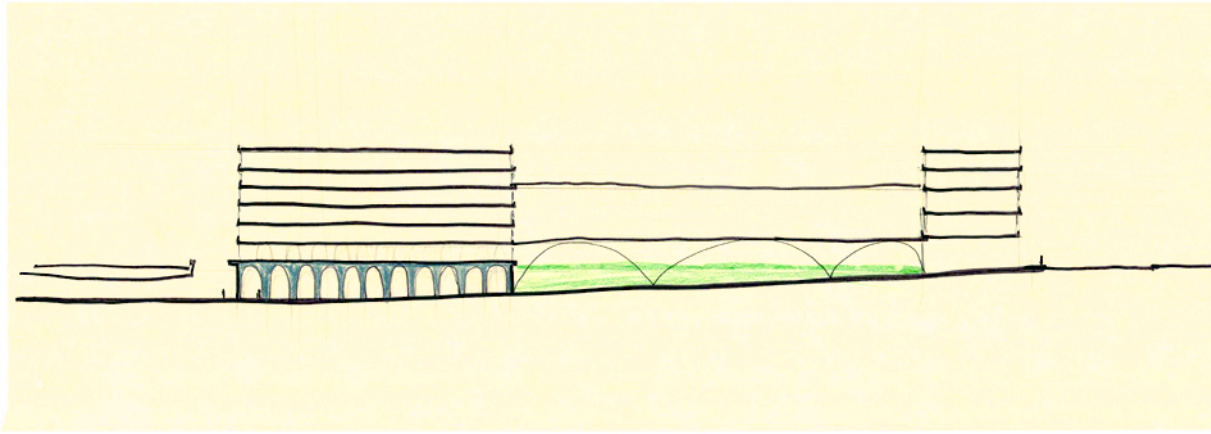
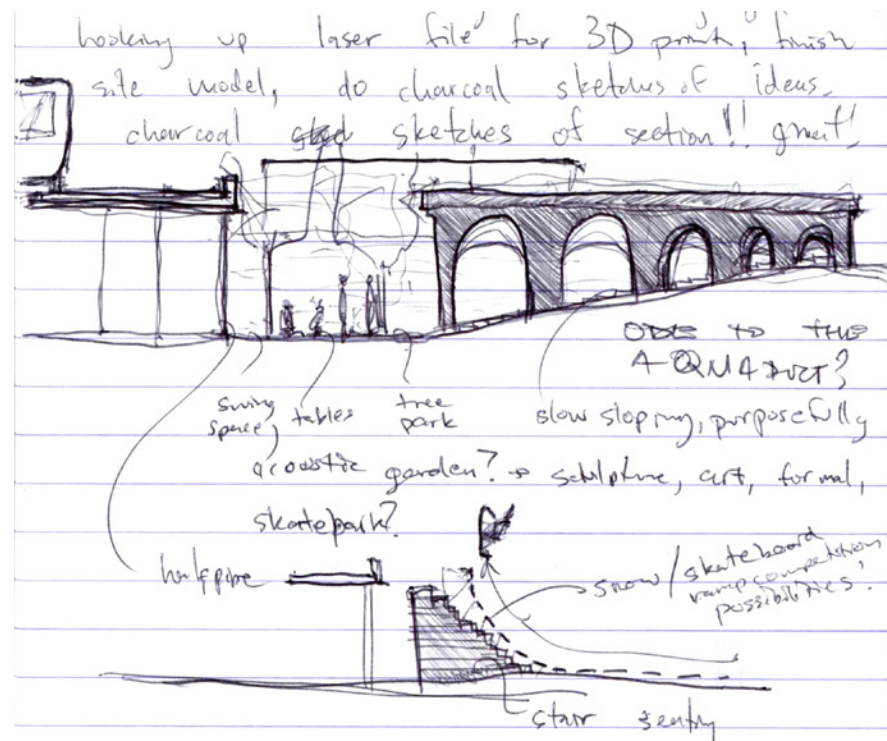
opposite: cartoon critique of DC's developer friendly market, and on-site analysis of existing conditions

Understanding a site means to visit it - often, and for long periods at a time. There is only so much analysis which can be provided from a 2D plan. They are effective in terms of understanding the over-arching planning of the area, but so much more on-site investigation is necessary. Especially to make assumptions on what is successful and what is not. Just because a neighborhood has a low median income does not mean it can not be one of the most vibrant and thriving neighborhood around.

The graphic to the right is a critical evaluation of the way a developer might look onto a site or property: from above, from afar, faded into the background, invested-but not entirely there. Developer greed can create unjust and unstable economical landscapes. Without fully examining the streets, one can miss the fact that there already exists a community which is not ready to sustain such massive economical and real estate development. The idea to provide program with community involvement was a way to mediate between developer and existing resident.

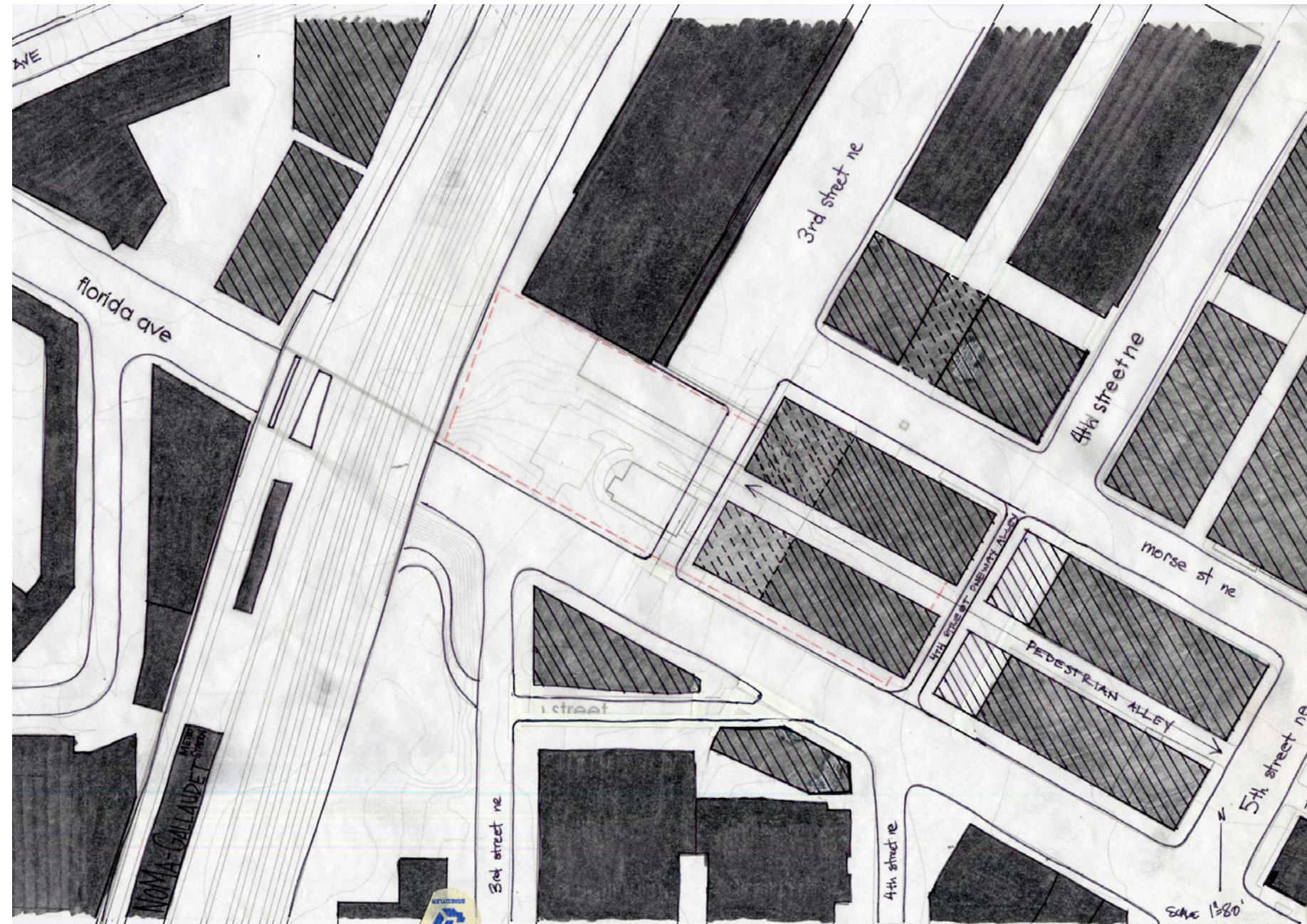
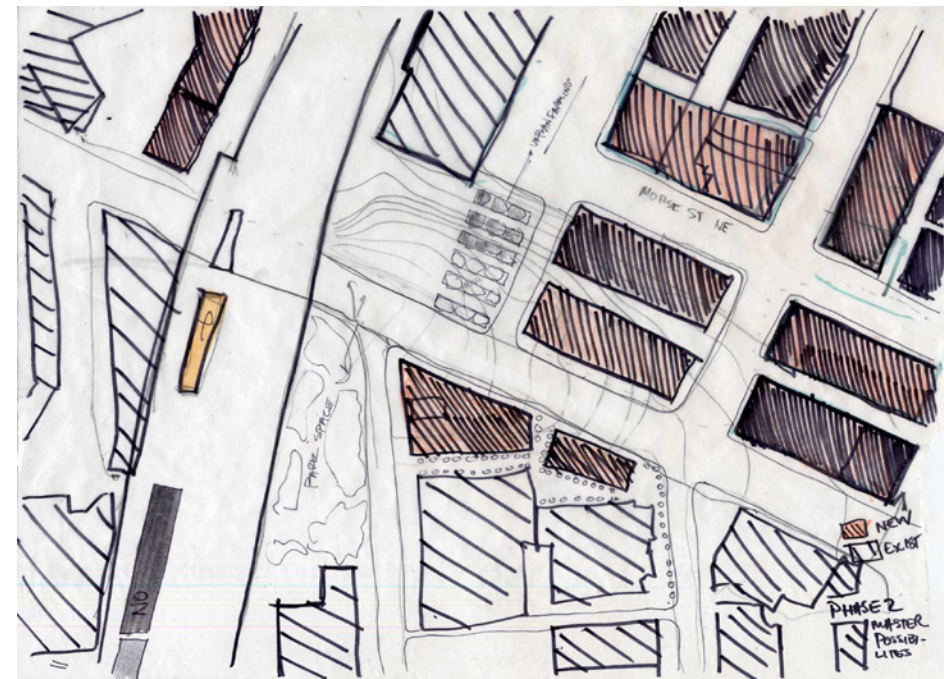
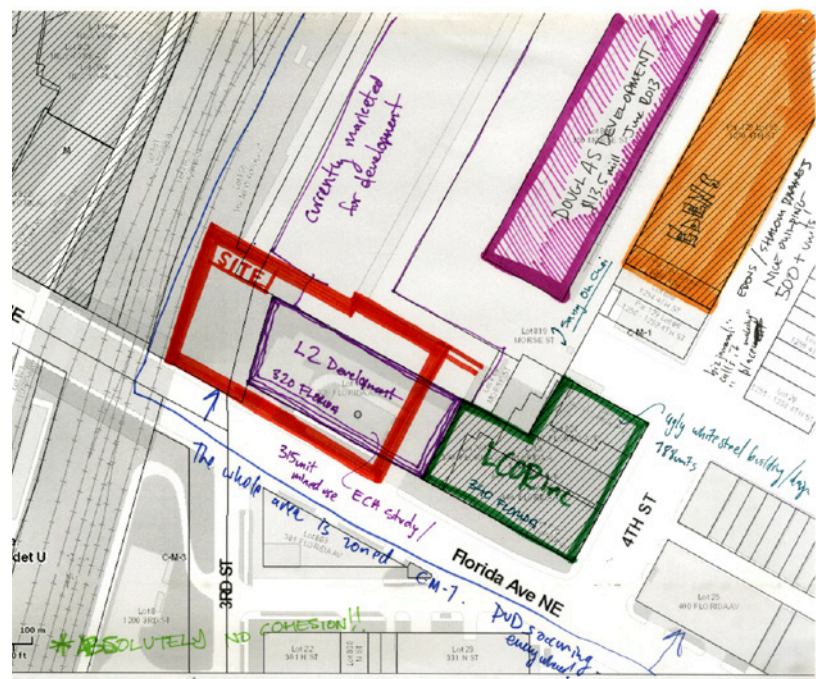
- LEGEND
- PROPOSED DEVELOPMENT NoMA BID
 - ASSUMED FUTURE DEVELOPMENT
 - SCHOOLS/ CIVIC SPACE
 - SITE PERIMETER
 - SUCCESSFUL NEIGHBORHOODS





initial massing study of enlarged site area, deemed far too large for one building

Initial site studies and massing concepts ultimately lead to the decision that the surrounding context needed a brief master plan study before deciding on what and where to design a building.



After looking at up-to-date changes in Planned Urban Development zoning and various amendments in the zoning, it was determined that the site would take on a C-3 zoning which allows mixed use and building up to 90ft. The surrounding properties have the same zoning but achieved up to 140 ft building heights through amendments in the allowable building height. It was then deemed that with a terraced massing form, an allowable height of 140 ft would be hypothetically allowed.

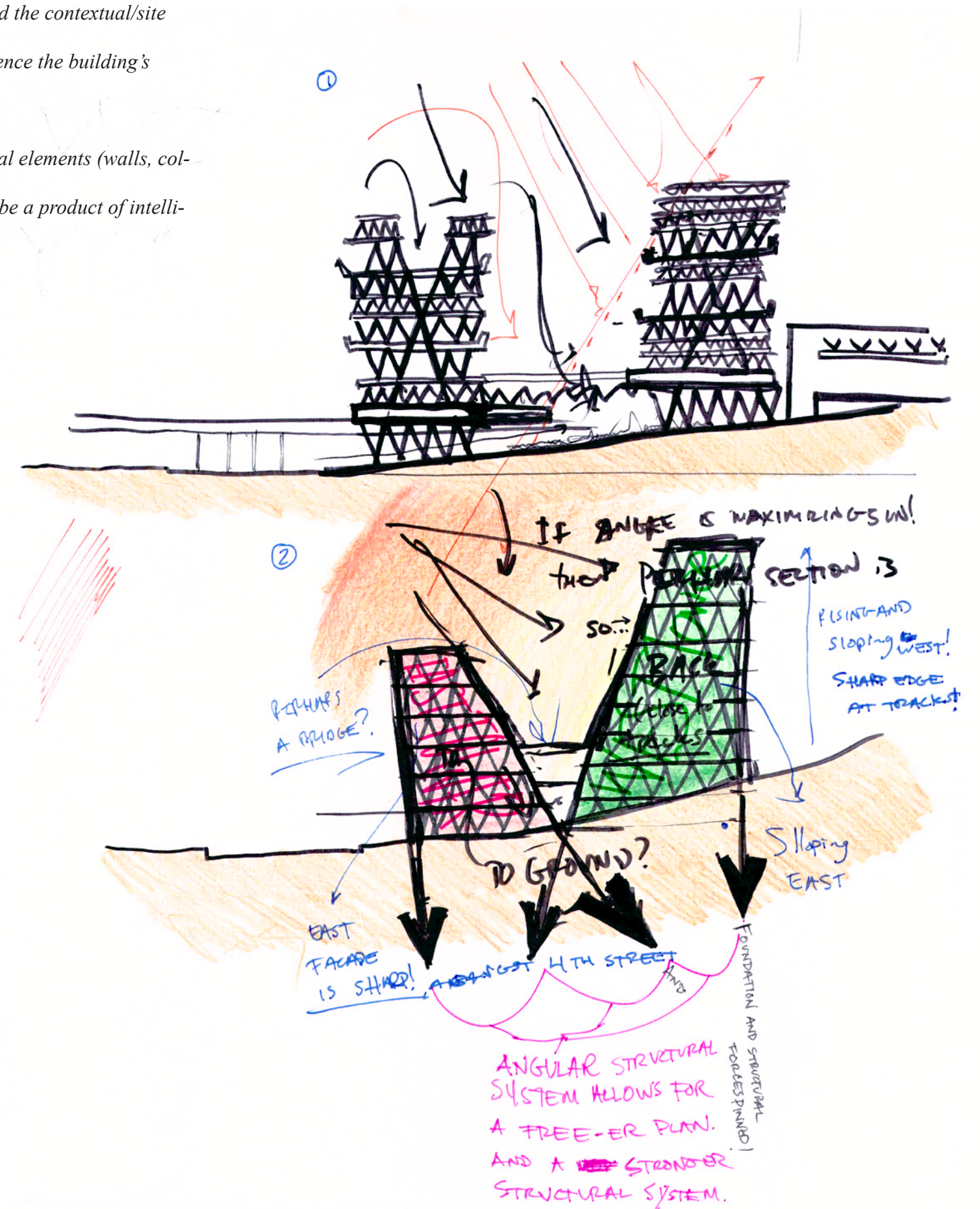
The master plan attempts to create an urban density along Florida Ave. At the same time suggesting that there be a pedestrian alley between Morse St, and Florida Ave.

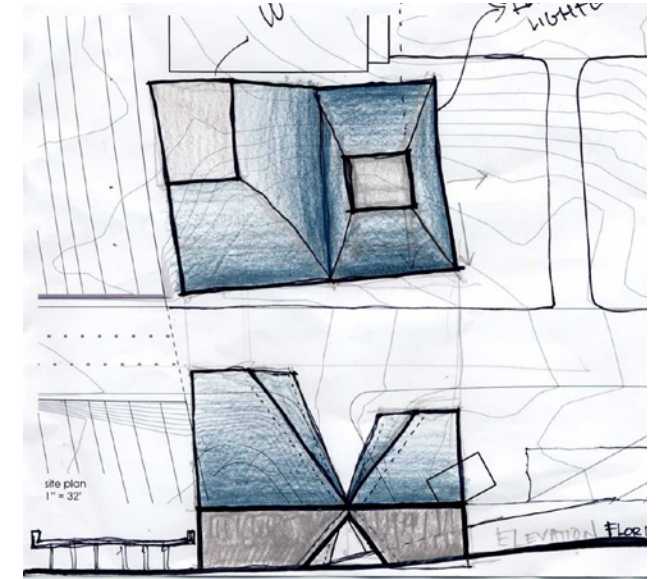
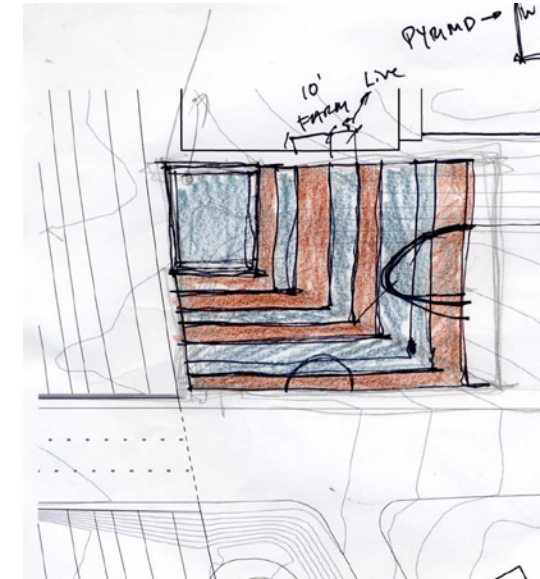
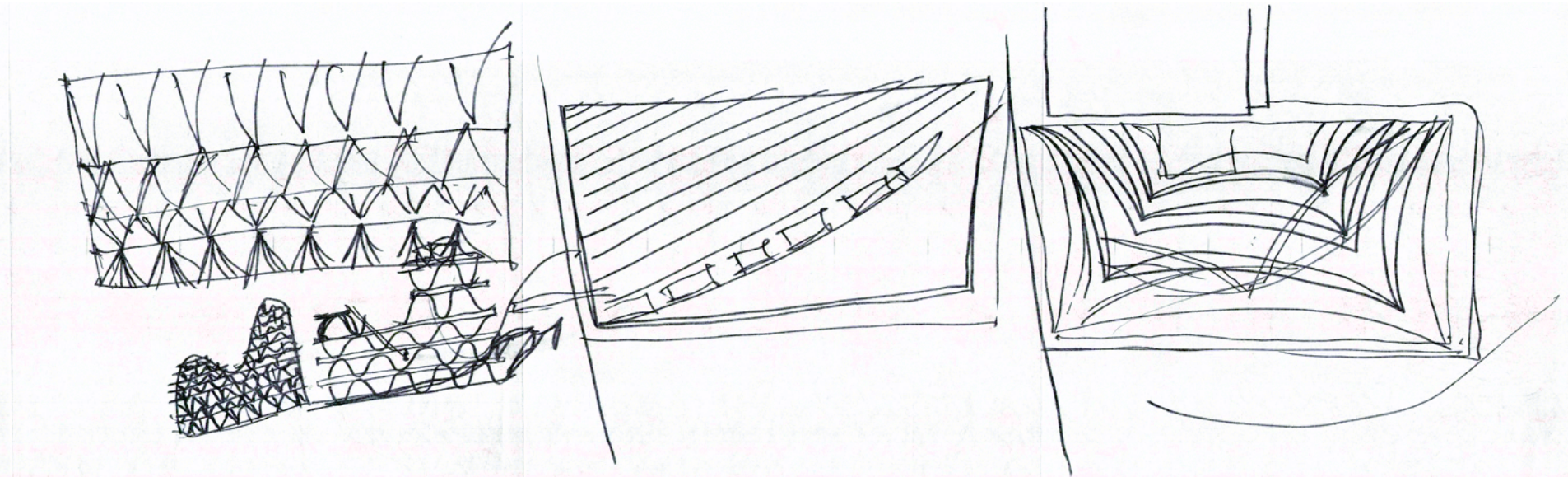
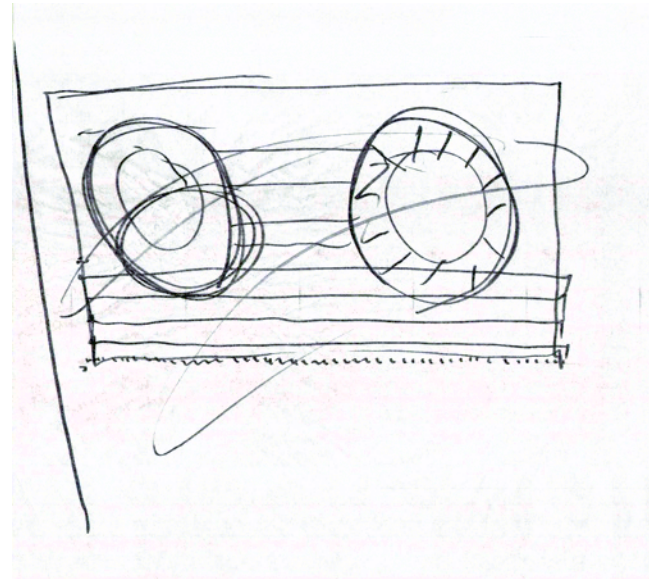
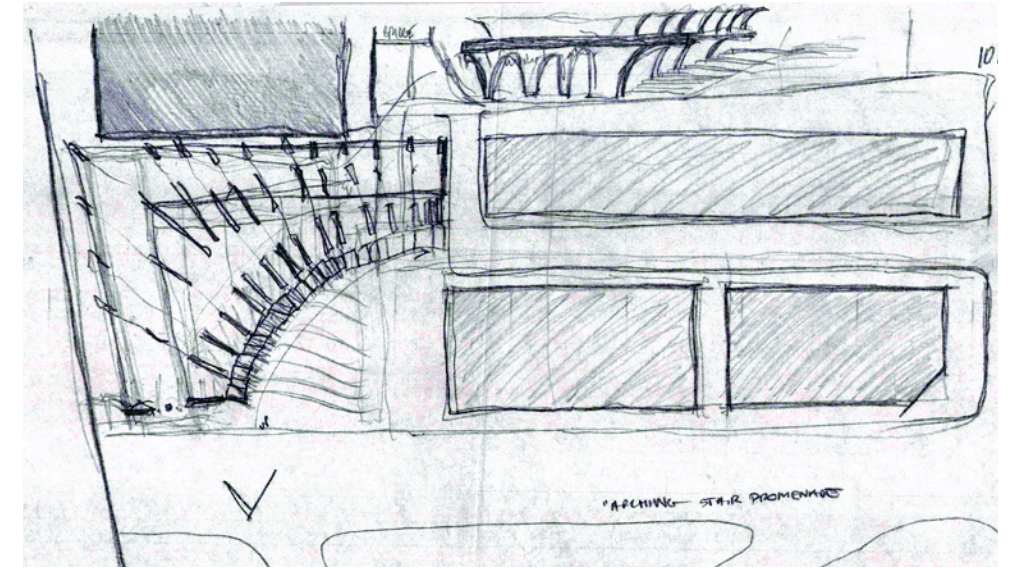
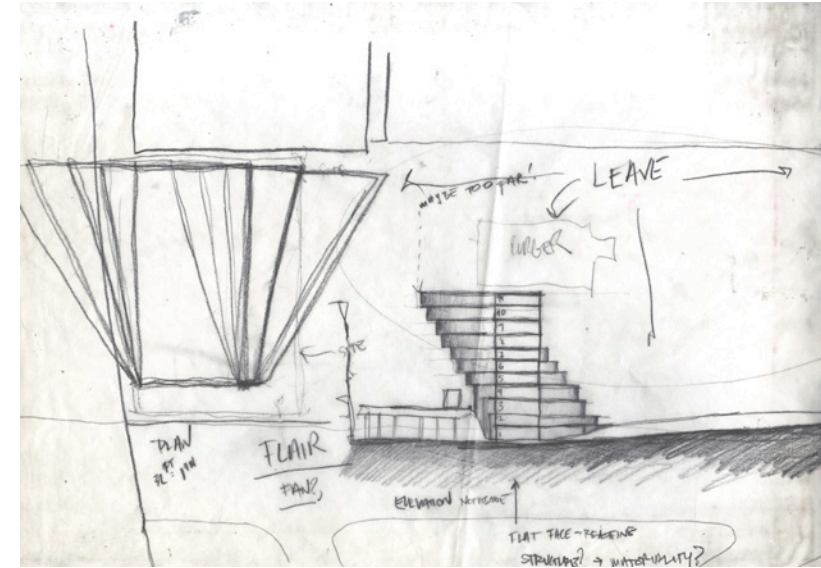
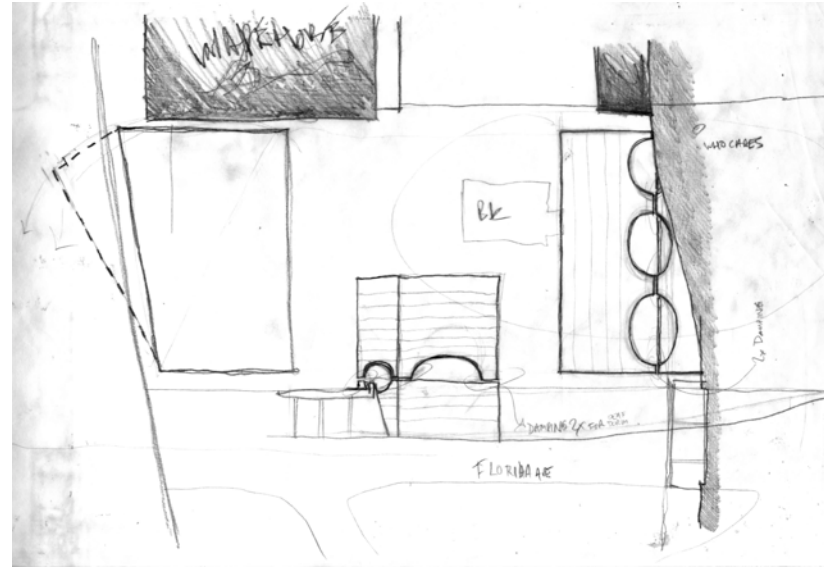
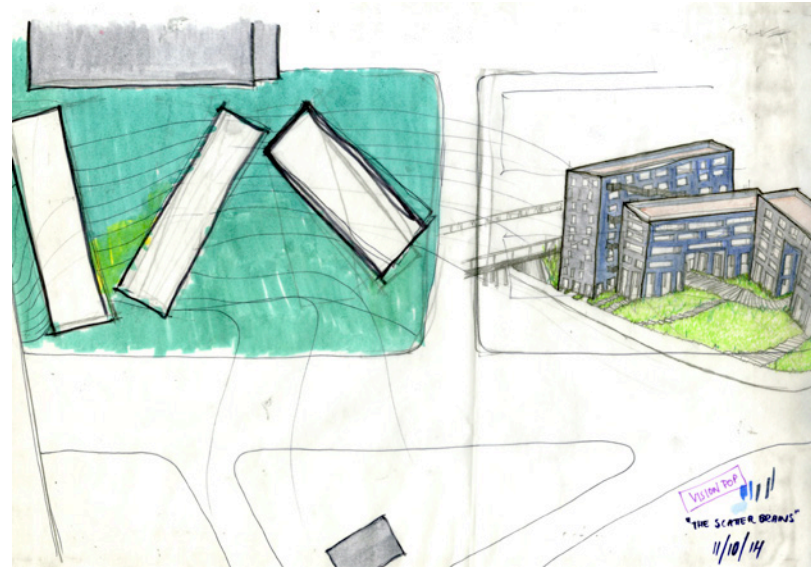
The site chosen would be the *start point* of this new row of buildings which would start directly under the bridge and run along the upward sloping portion of Florida Ave.

C-2-B	Permits matter-of-right medium density development, including office, retail, housing, and mixed uses to a maximum lot occupancy of 80% for residential use and 100% for all other uses, a maximum FAR of 3.5 for residential use and 1.5 FAR for other permitted uses, and a maximum height of sixty-five (65) feet. Rear yard requirements are fifteen (15) feet; one family detached dwellings and one family semi-detached dwellings side yard requirements are eight (8) feet.
C-2-C	Permits matter-of-right higher density development, including office, retail, housing, and mixed uses to a maximum lot occupancy of 80% for residential use and 100% for all other uses, a maximum FAR of 6.0 for residential and 2.0 FAR for other permitted uses, and a maximum height of ninety (90) feet. Rear yard requirements are fifteen (15) feet; one family detached dwellings one family semi-detached dwellings side yard requirements are eight (8) feet.
C-3-A	Permits matter-of-right medium density development, with a density incentive for residential development within a general pattern of mixed-use development to a maximum lot occupancy of 75% for residential use and 100% for all other uses, a maximum FAR of 4.0 for residential and 2.5 FAR for other permitted uses and a maximum height of sixty-five (65) feet. Rear yard requirements are twelve (12) feet; one family detached dwellings and one family semi-detached dwellings side yard requirements are eight (8) feet.
C-3-B	Permits matter-of-right medium density development, including office-retail, housing, and mixed uses. It is intended for uptown locations, where the largest component of development will be office-retail and other nonresidential uses to a maximum lot occupancy of 100%, a maximum FAR of 5.0 for residential and 4.0 FAR for other permitted uses, and a maximum height of sixty (60) stories/seventy (70) feet. Rear yard requirements are twelve (12) feet; one family detached dwellings and one family semi-detached dwellings side yard requirements are eight (8) feet.
C-3-C	Permits matter-of-right development for major business and employment centers of medium/high density development, including office, retail, housing, and mixed uses to a maximum lot occupancy of 100%, a maximum FAR of 6.5 for residential and for other permitted uses, and a maximum height of ninety (90) feet. Rear yard requirements are twelve (12) feet; one family detached dwellings and one family semi-detached dwellings side yard requirements are eight (8) feet.
C-4	The downtown core comprising the retail and office centers for the District of Columbia and the metropolitan area, and allows office, retail, housing and mixed uses to a maximum lot occupancy of 100%, a maximum FAR of 8.5 (or 10.0 if permitted height is in excess of one hundred-ten (110) feet), a maximum height of 110 feet and 130 on 110-foot adjoining streets. (Maximum height and FAR depend on width of adjoining streets.) Rear yard requirements are not less than twelve (12) feet; one family detached dwellings and one family semi-detached dwellings side yard requirements are eight (8) feet.
C-5	Pennsylvania Avenue Development (PAD) permits retail and office, housing and mixed development in the area on the north side of Pennsylvania Avenue, NW between Tenth Street and 15th Street, NW to a maximum lot occupancy of 100%, a maximum FAR of 10.0 to 12.0, and a maximum height of 130 to 160 feet. (Maximum height and FAR depend upon approval of bonus incentives.) Rear yard requirements are not less than twelve (12) feet; one family detached dwellings and one family semi-detached dwellings side yard requirements are eight (8) feet.
C-M-1	Permits development of low bulk commercial and light manufacturing uses to a maximum FAR of 3.0, and a maximum height of thirty (30) (40) feet with standards of external effects and new residential prohibited. A rear yard of not less than twelve (12) feet shall be provided for each structure located in an Industrial District. No side yard shall be required on a lot in an Industrial District, except where a side lot line of the lot abuts a Residence District. Such side yard shall be no less than eight (8) feet. ORIGINAL @ 1270 4th and
C-M-2	Permits development of medium bulk commercial and light manufacturing uses to a maximum FAR of 4.0, and a maximum height of sixty (60) feet with standards of external effects and new residential prohibited. A rear yard of not less than twelve (12) feet shall be provided for each structure located in an Industrial District. No side yard shall be required on a lot in an Industrial District, except where a side lot line of the lot abuts a Residence District. Such side yard shall be no less than eight (8) feet. 3409 and NOW C-3
C-M-3	Permits development of high bulk commercial and light manufacturing uses to a maximum FAR of 6.0, and a maximum height of ninety (90) feet with standards of external effects and new residential prohibited. A rear yard of

How can the program and the contextual/site specific parameters influence the building's mass and form?

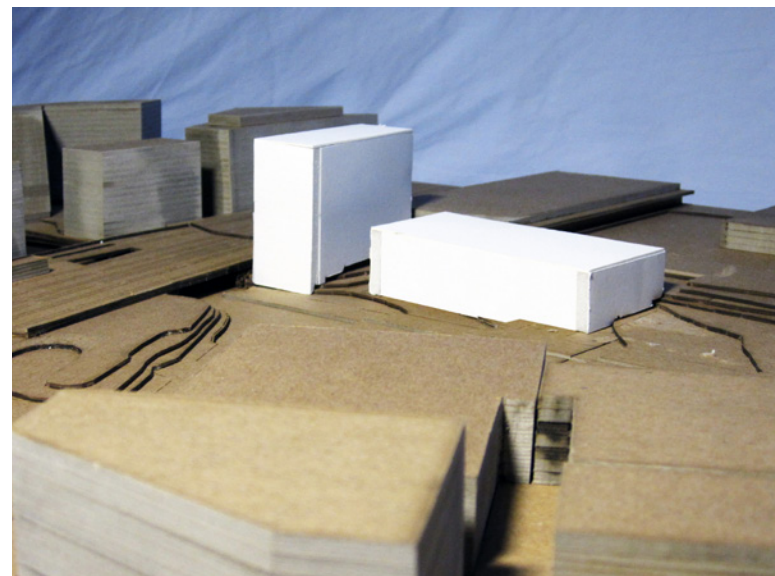
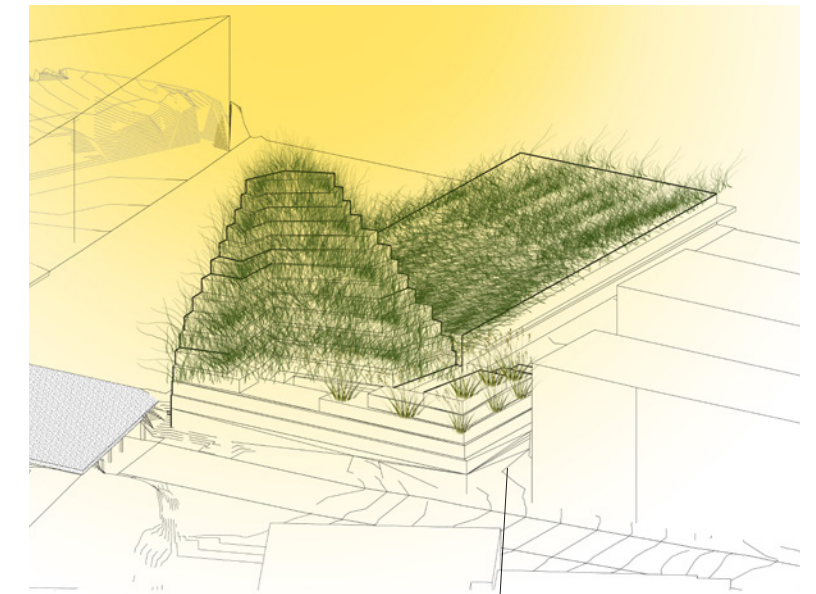
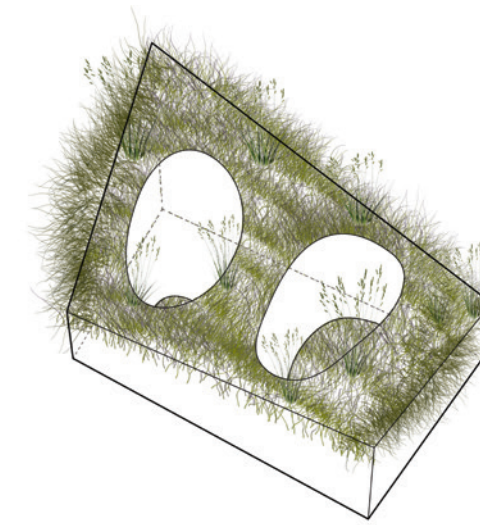
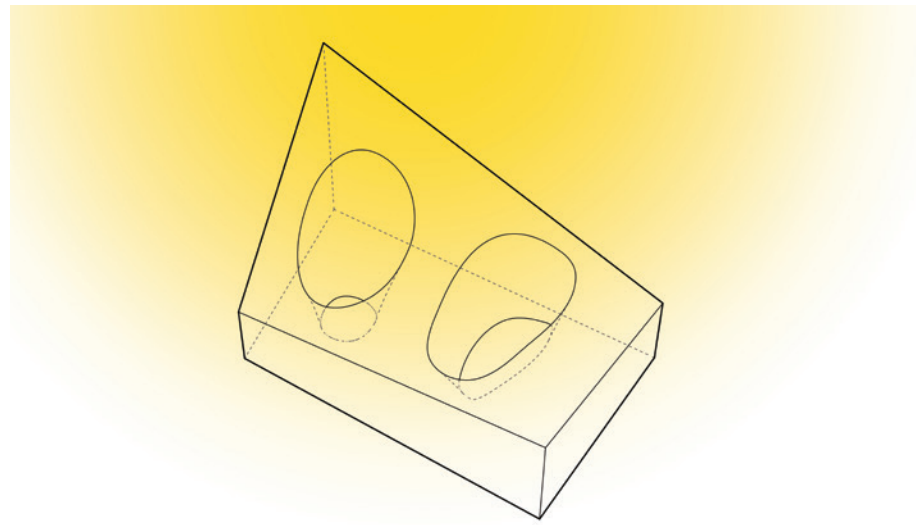
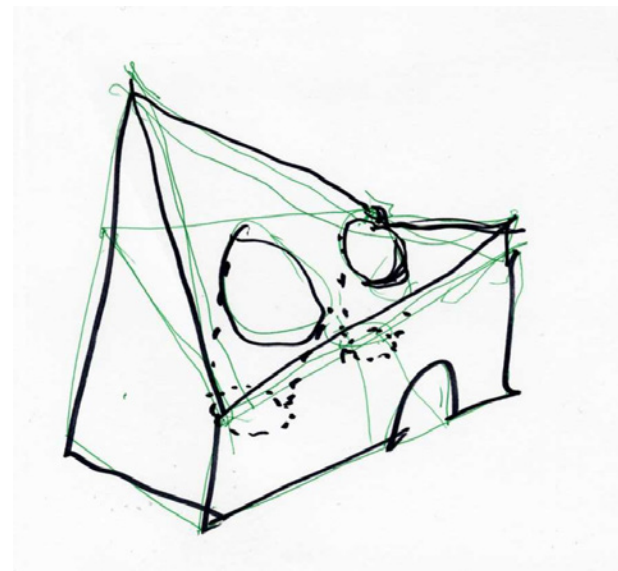
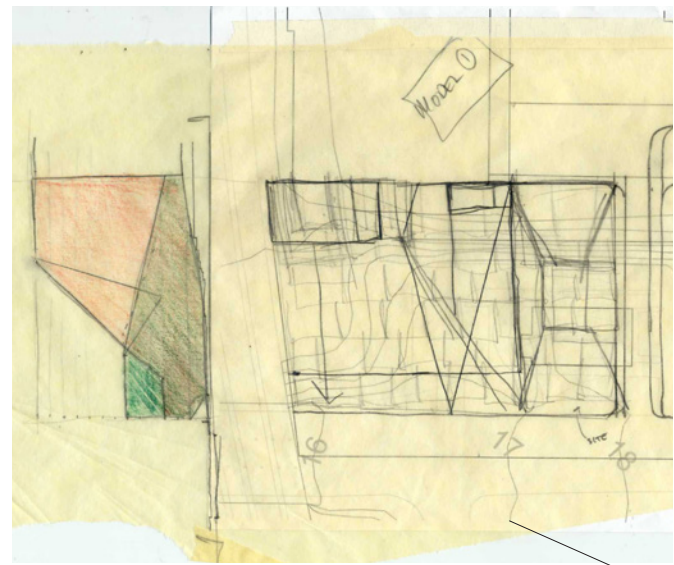
Disregarding architectural elements (walls, columns, etc), can the mass be a product of intelligent solar analysis?



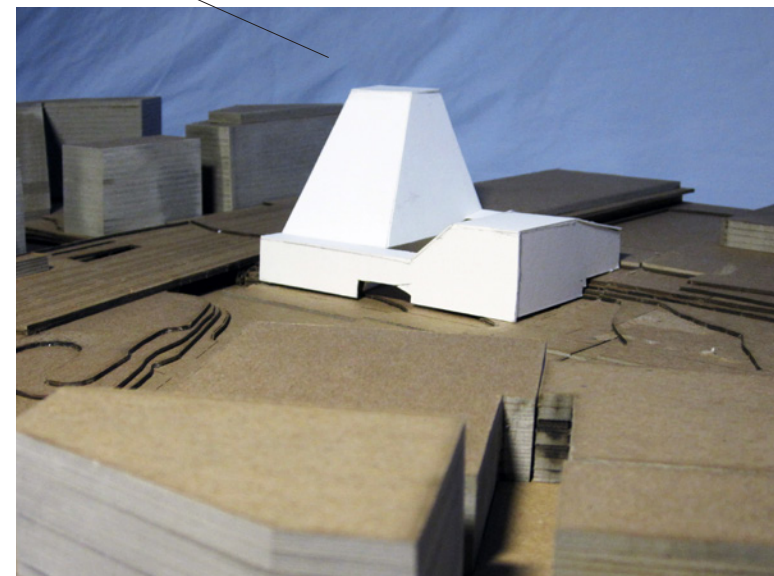


Once the site was narrowed down and a building mass and size was determined to a certain extent, I began to flood the empty rolls of trace paper with every idea, concept and design possibility that had been on my mind.

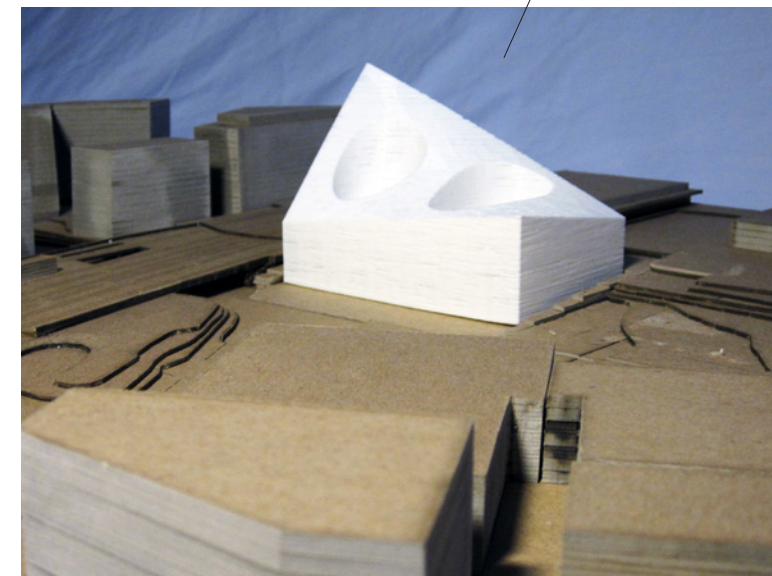
The value of the sketching exercises were not entirely to make concrete decisions about the buildings form, but more importantly to grasp the scale of the site and what a building over 100 feet looks and feels like at a schematic level of design.



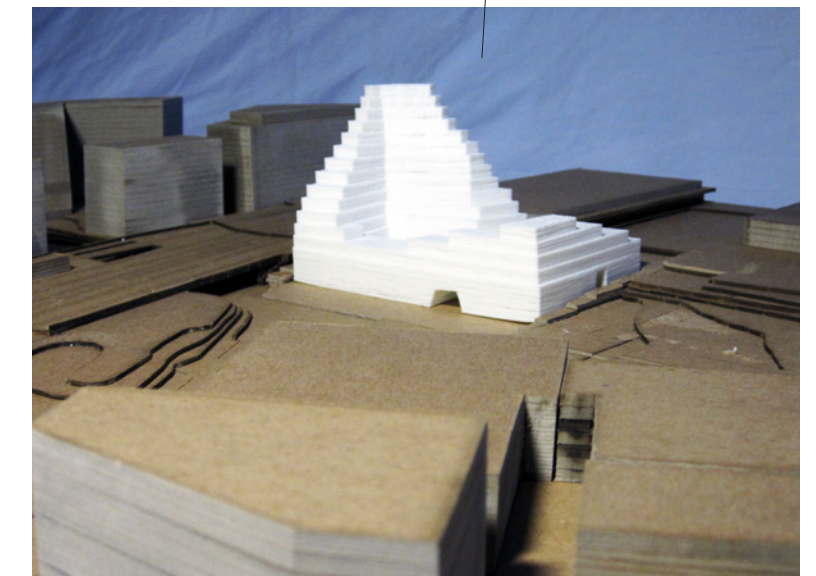
massing based on pure FAR and height limit constraints



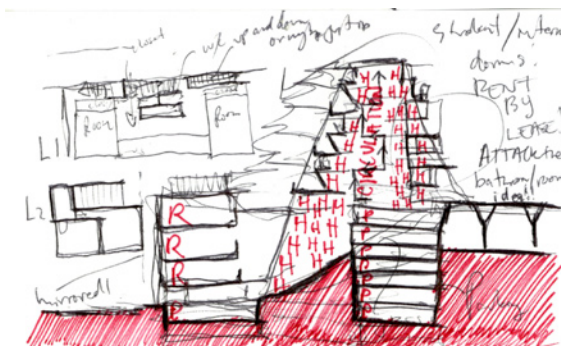
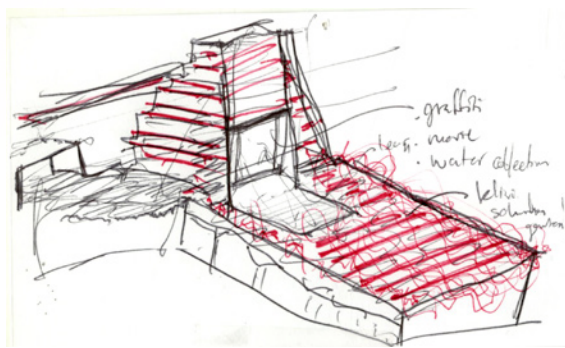
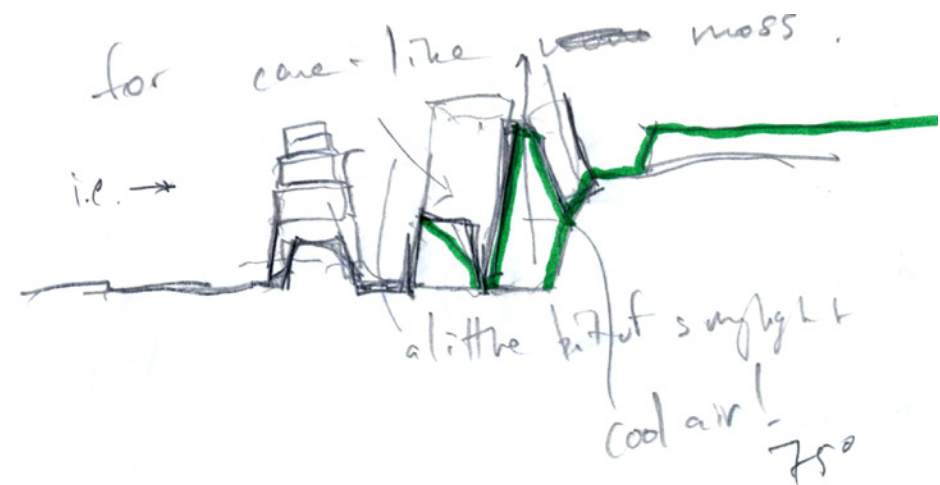
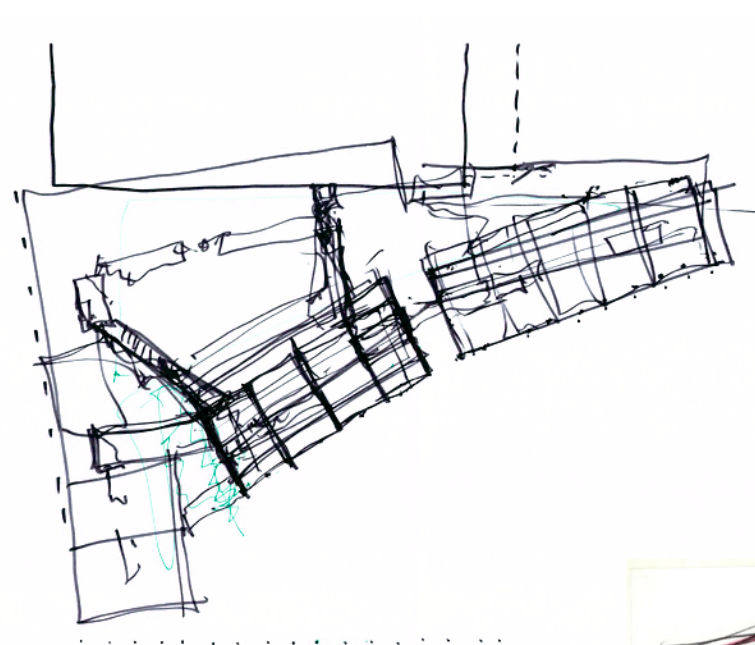
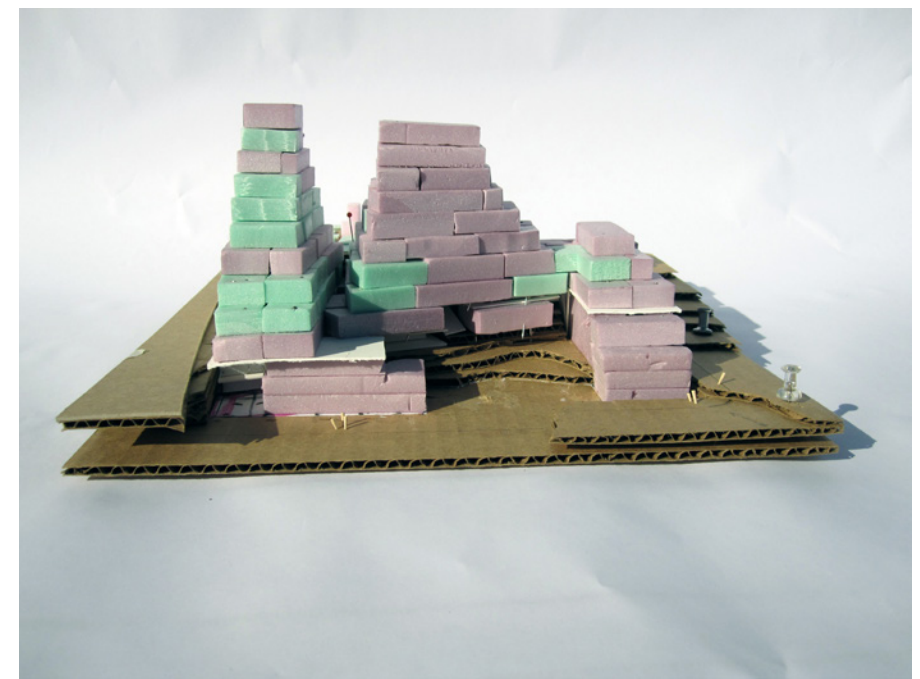
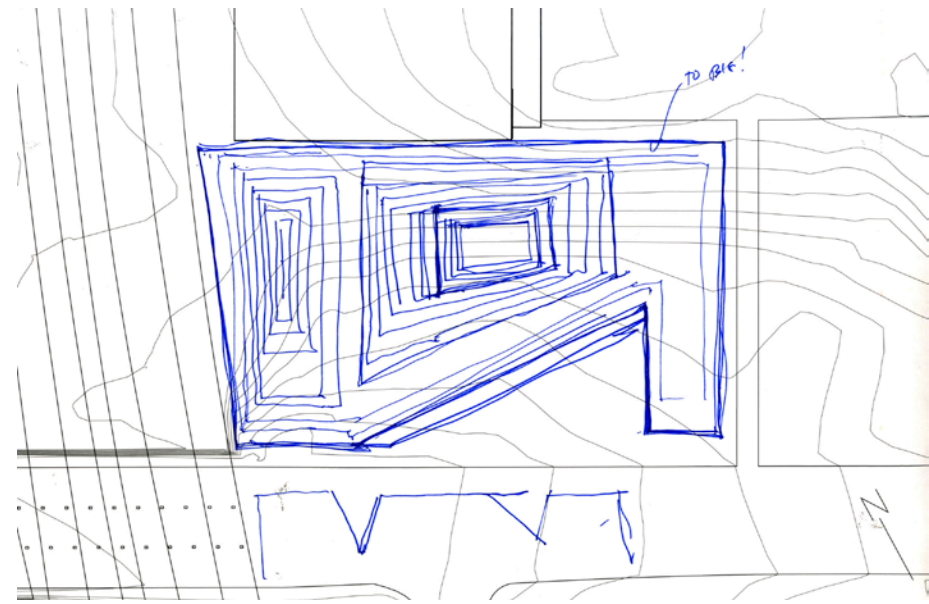
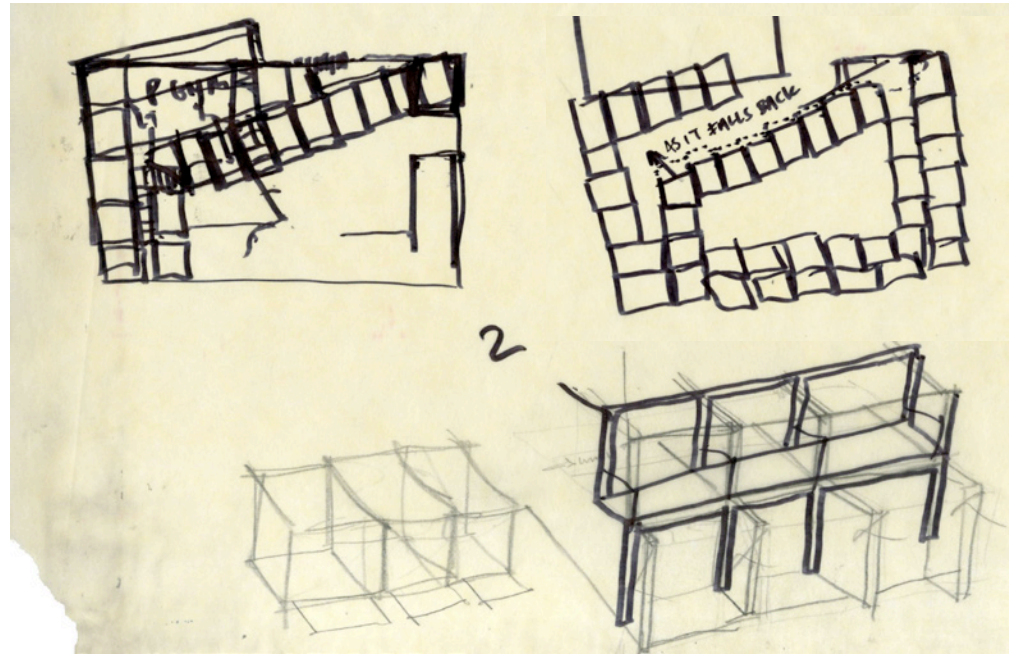
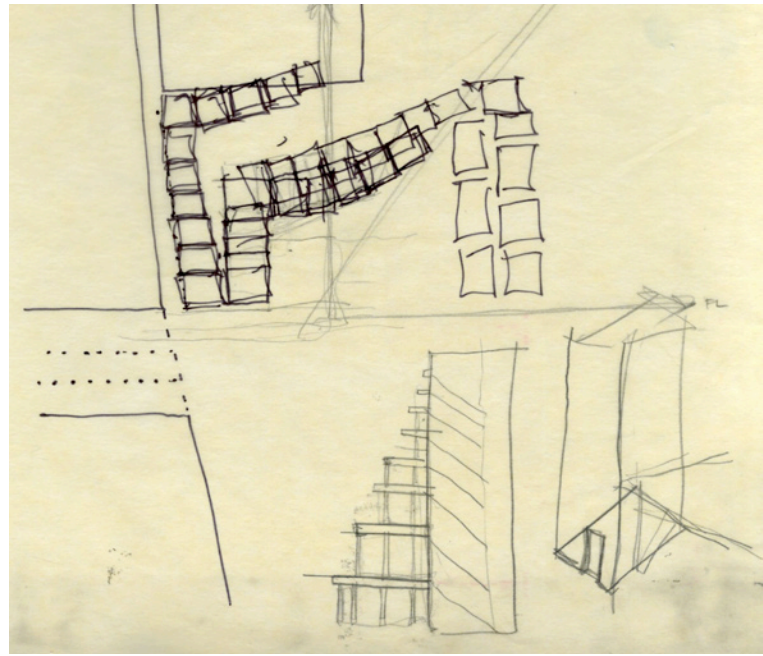
initial massing study based on solar gain for balconies and more bountiful urban farming concepts



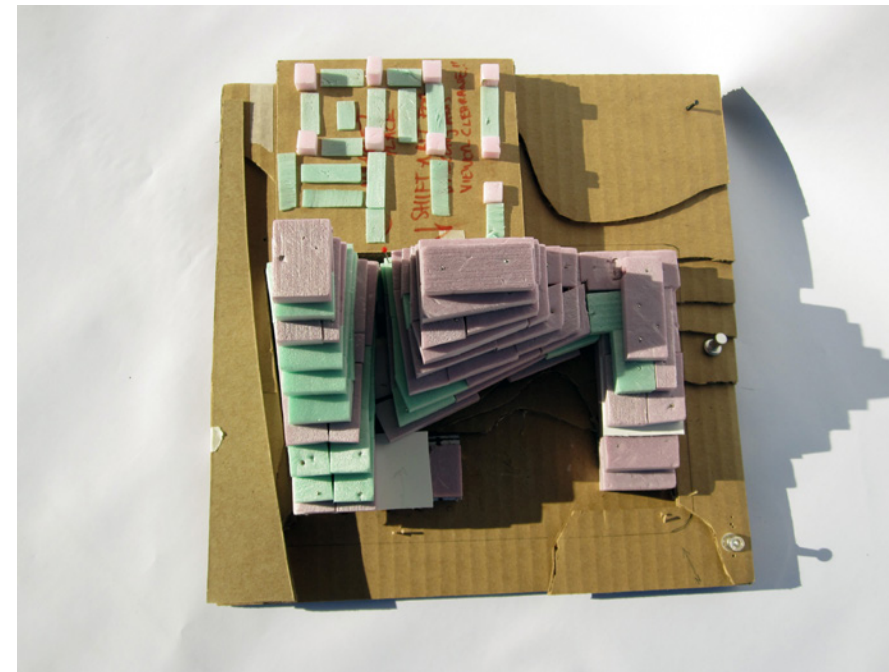
3D printed massing study examining the potential for deep courtyards and radial balcony and floor systems to provide as much solar heat gain to southern facing apartment units



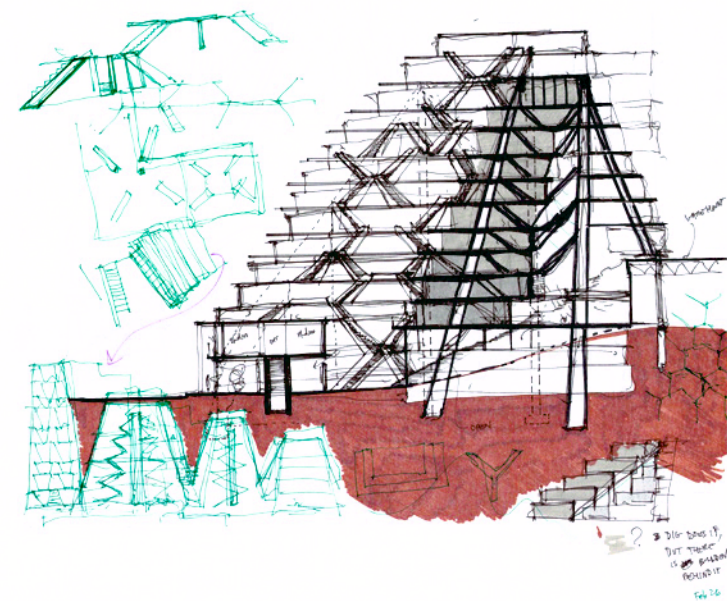
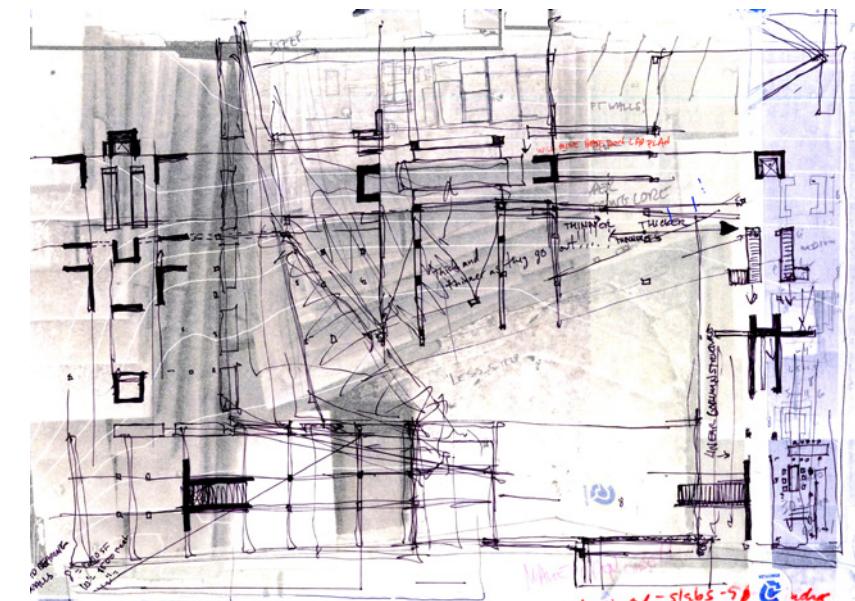
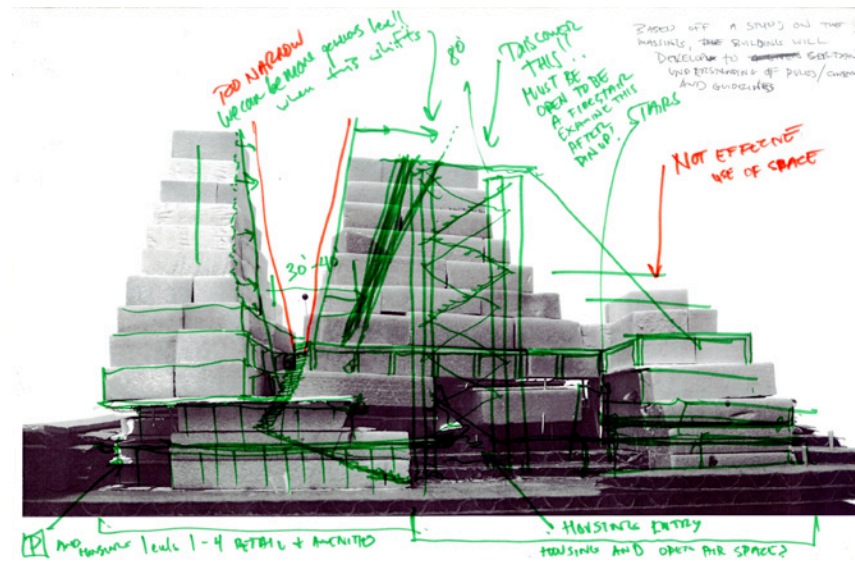
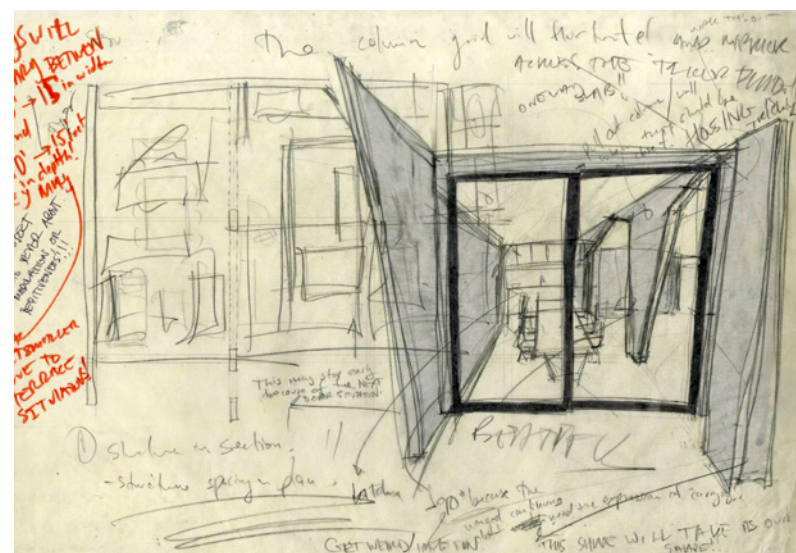
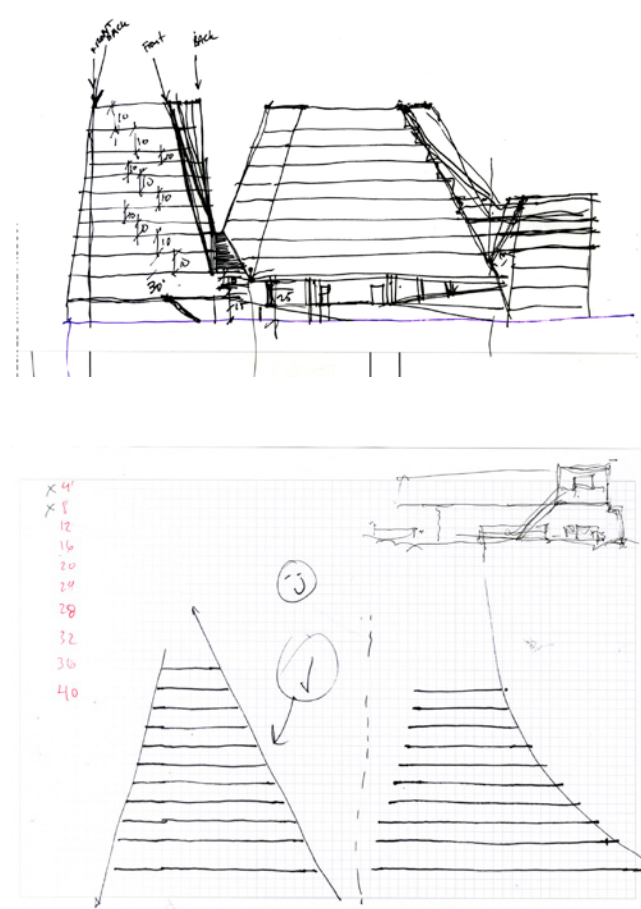
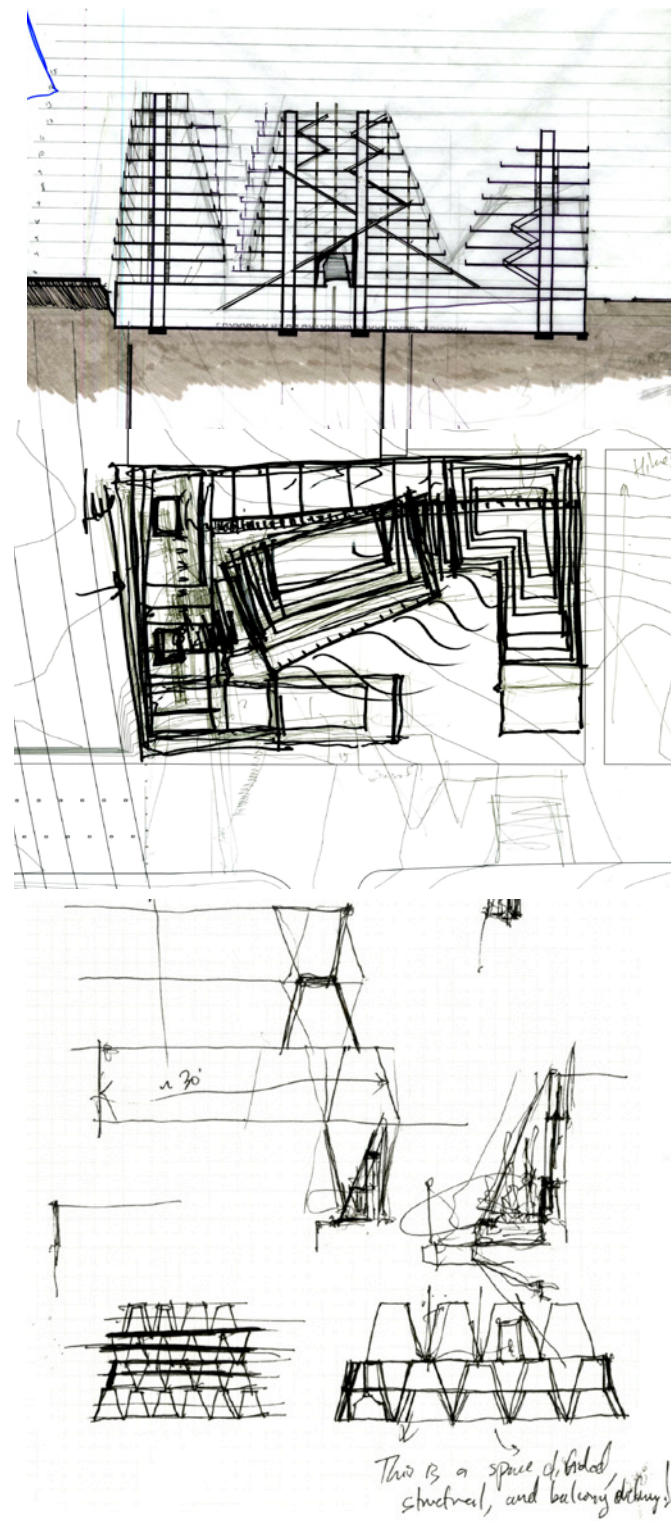
3D printed massing study examining a more viable option in terms of creating individual apartment units as a stepped scheme. This study was taken forward into the next phase of the design evolution.



Foam massing studies were very beneficial in examining stacks of units to scale. The foam blocks allowed for rapid terracing of a variety of apartment sizes. However, foam will only progress the design so far. In terms of looking at the structure, foam model studies were no longer beneficial in creating the type of architectural concepts I wished to present physically.



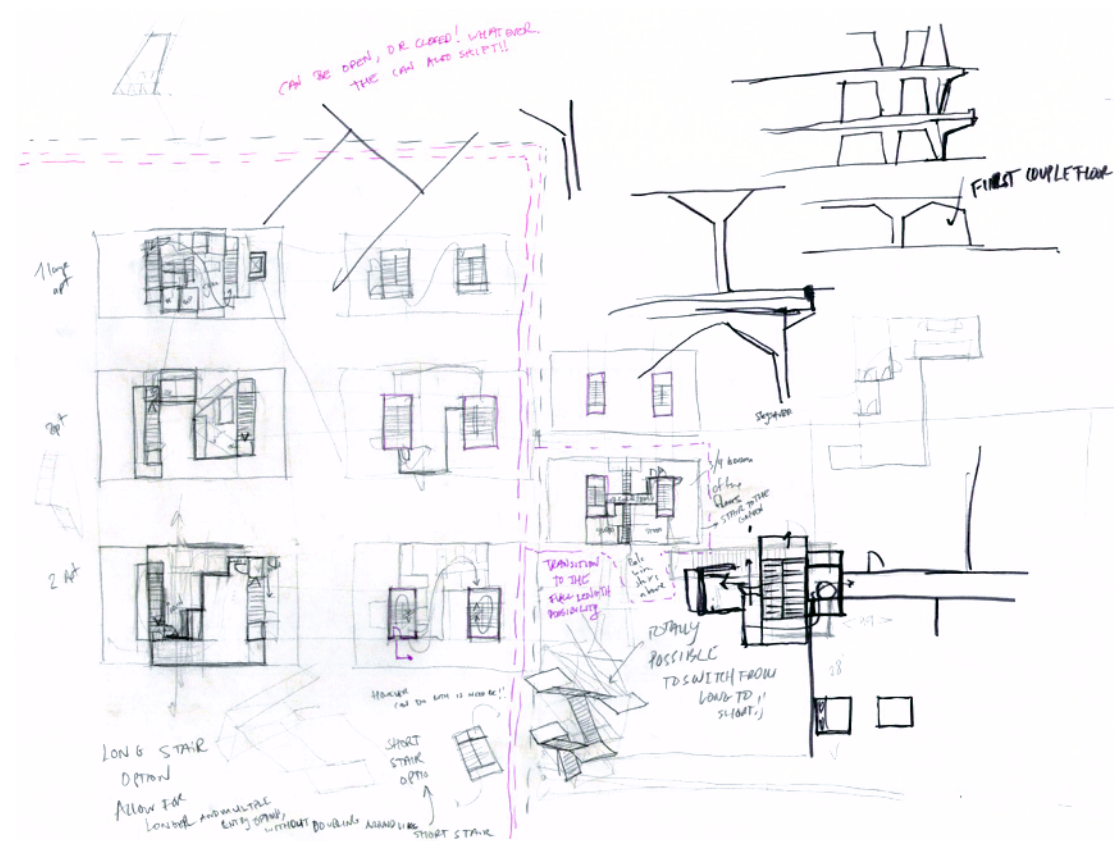
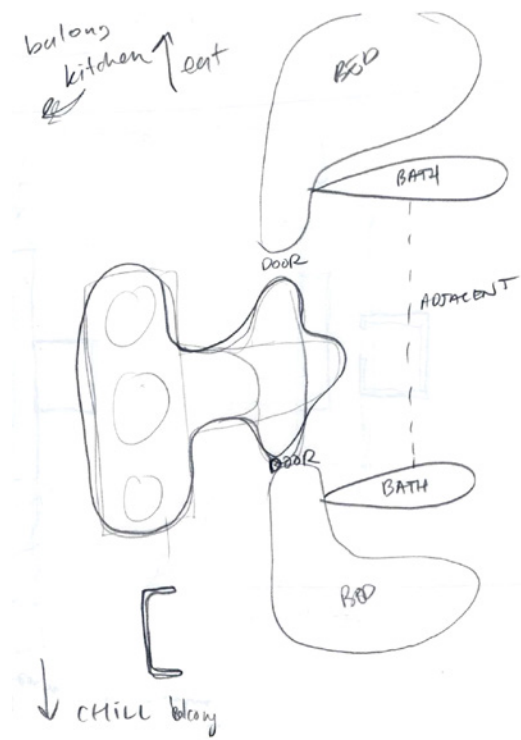
After coming up with a desired massing concept, the next phase of the design was to understand how deep, or how narrow apartments dimensions should typically be drawn. This led to an investigation of a multitude of housing projects. The major finding was that there is a "sweet spot" when determining the maximum depth for apartment designs. The more light, the better, and the deeper the apartment, the less light you will receive into the apartment.



Moving from the foam massing models to a more detailed level allowed me to study the structure much more intensely. Prior to constructing the next iteration of models at $3/32"=1'$ scale, there was an in-depth look at the core elements of the building. How would one circulate? What are the goals of the interior spaces? How are the terraced floor slabs held up? Should they appear to be floating? - Absolutely not.

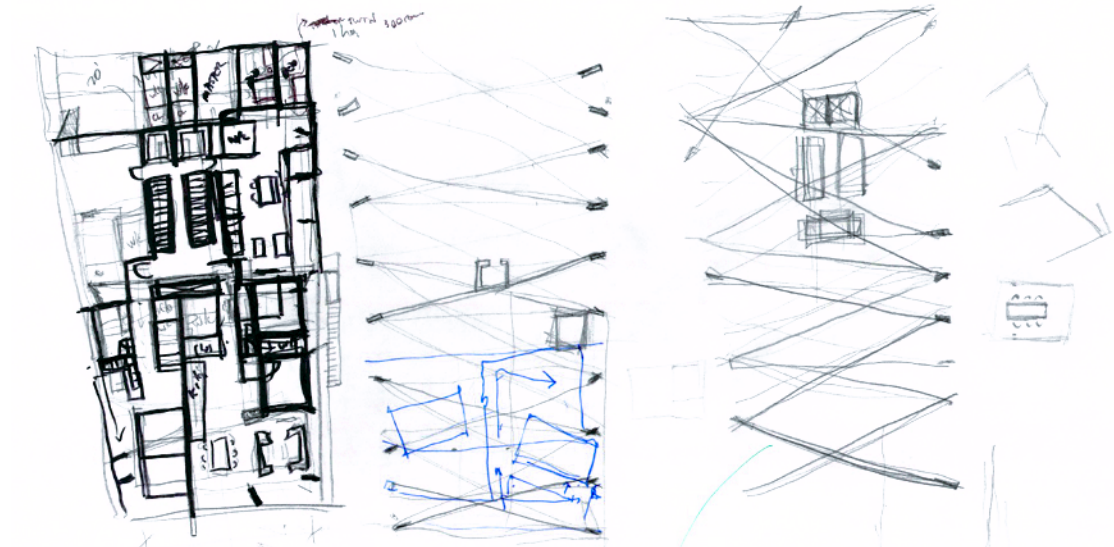
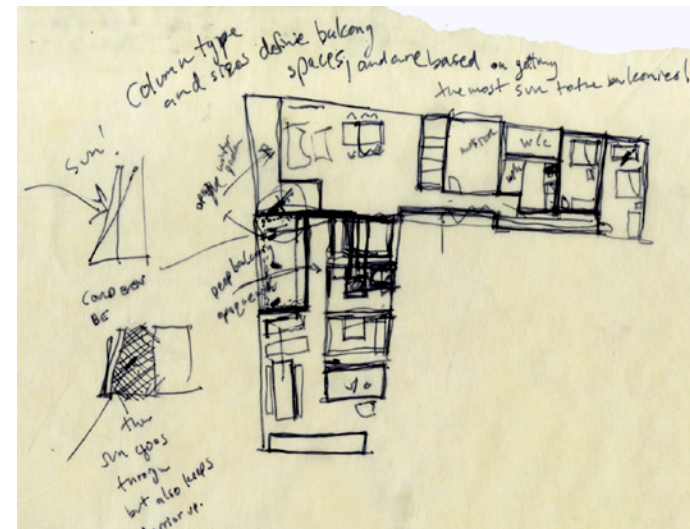
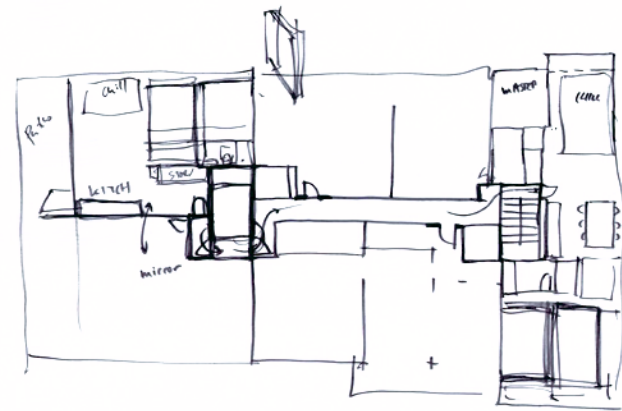
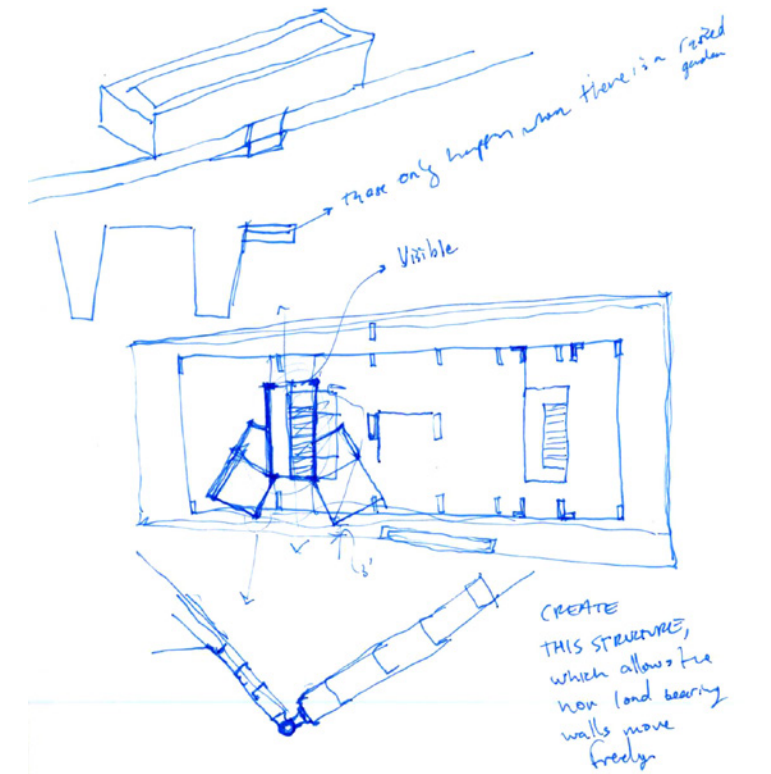
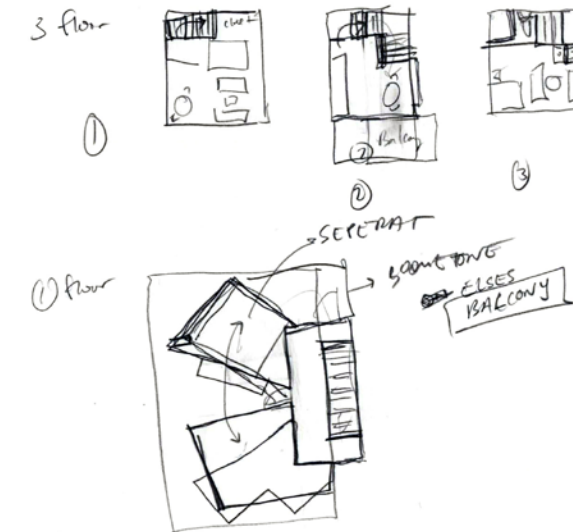
The sketch from the balcony looking into the interior truly captured a moment which I wanted to create in my design. This would ultimately lead to the concept of a totally visible structure.

Jumping scale with the foam core model to the right also became a shift in the way the building would be wholly structured. For example, how would interior spaces react to columns which were placed according to floor set backs. How should a column look if its loads are not entirely vertical? Enter the angled column - it shall stretch, twist, and rotate. All of which were studied in the model on the right page.



The housing type:

Where one doesn't even want to share common space, but only a kitchen, and balcony



Sun

- Make a beautiful section to be in E take best of sun
- problem is the long balconies?
- Should I put out from off?
- The system doesn't allow for modules or adaptations.
- Should I go for that?
- The cars - very noisy, but don't want to be noisy.
- Maybe it should be a smaller scale?
- If the long balconies are really noisy, maybe have a screen or something.

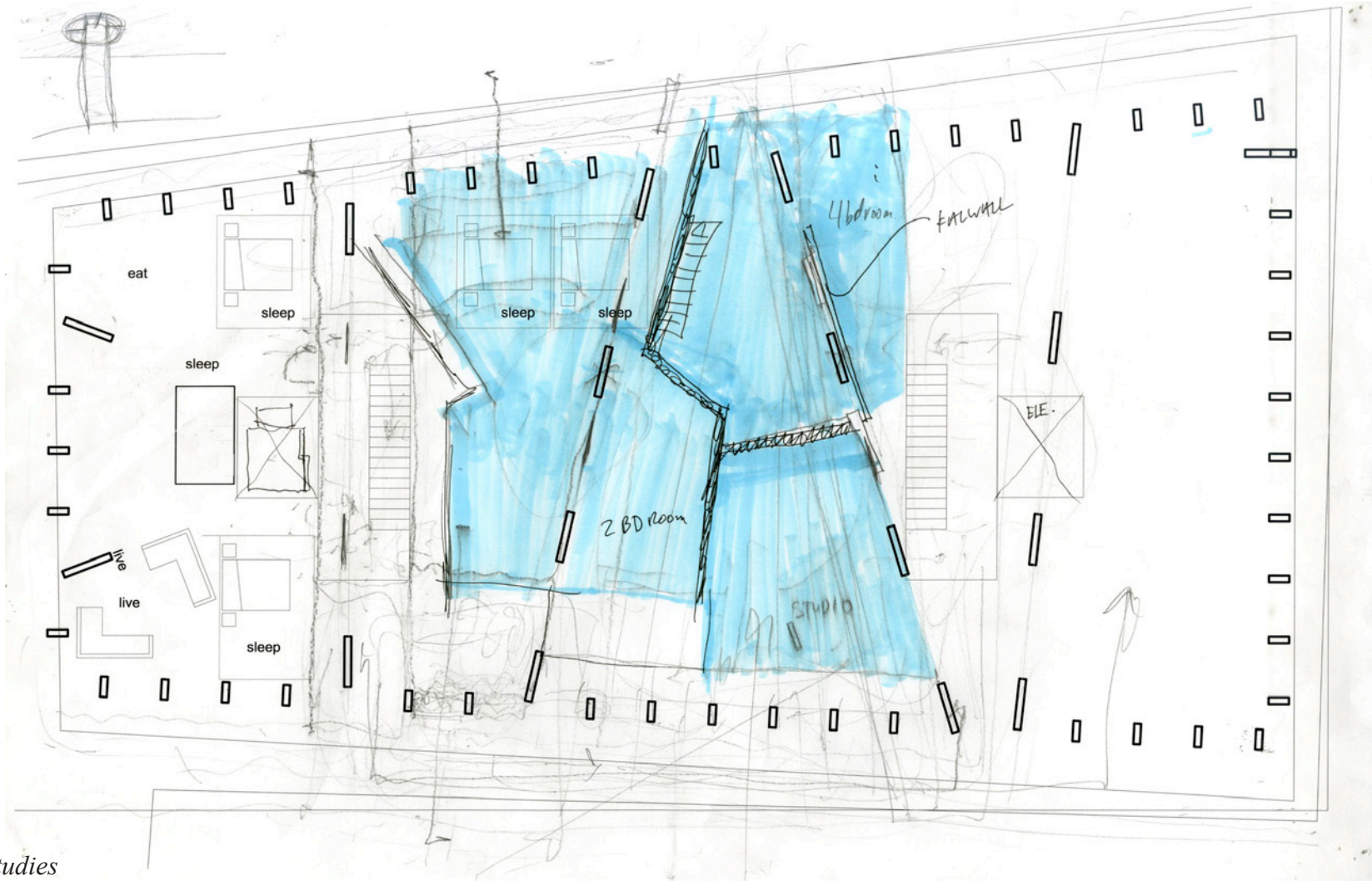
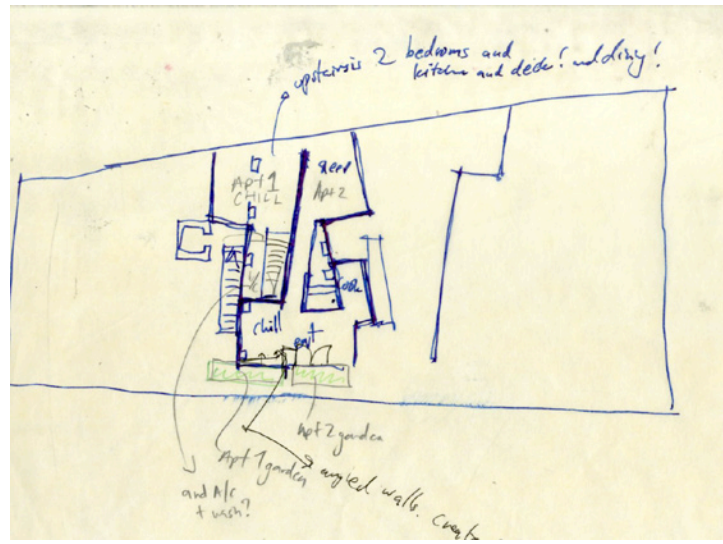
Be smart about this!
- make it simple so it can be beautiful & living it!!

MODEL

- Perhaps it should be a smaller scale?
- If the long balconies are really noisy, maybe have a screen or something.
- Maybe it should be a smaller scale?
- If the long balconies are really noisy, maybe have a screen or something.

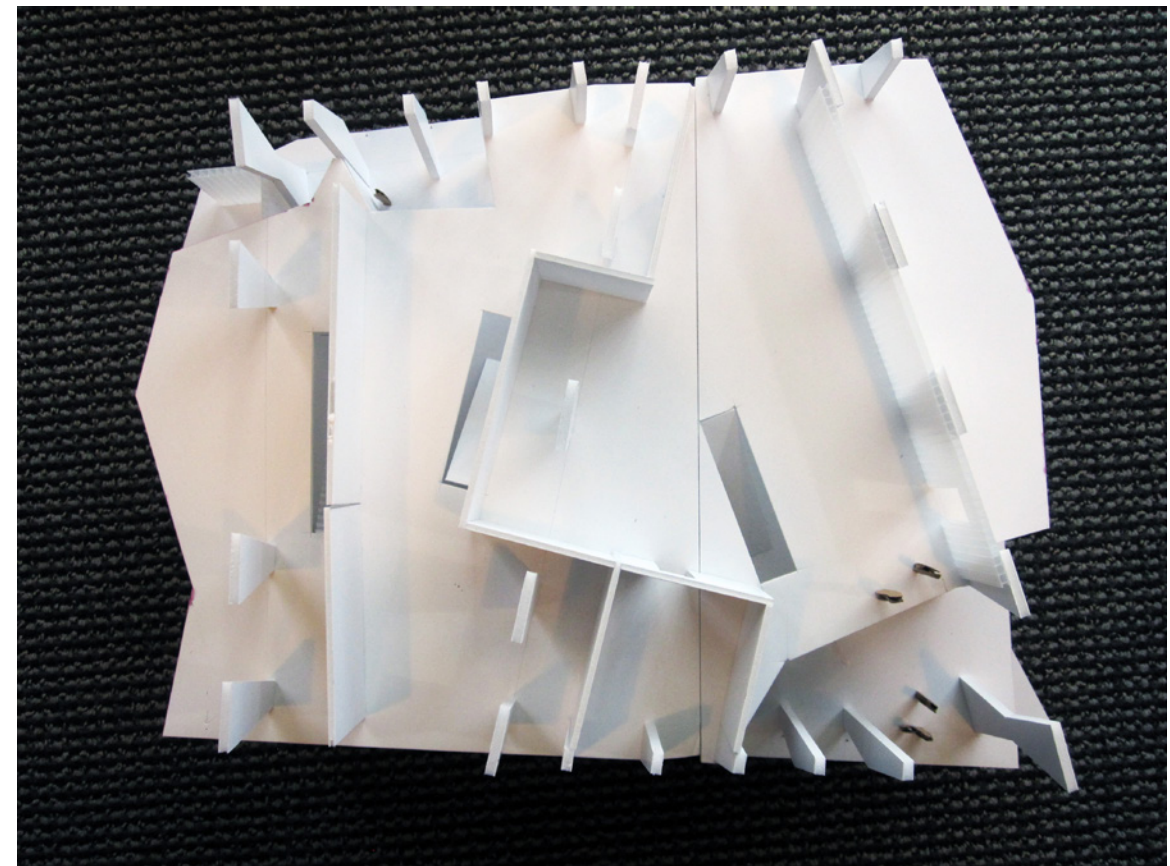
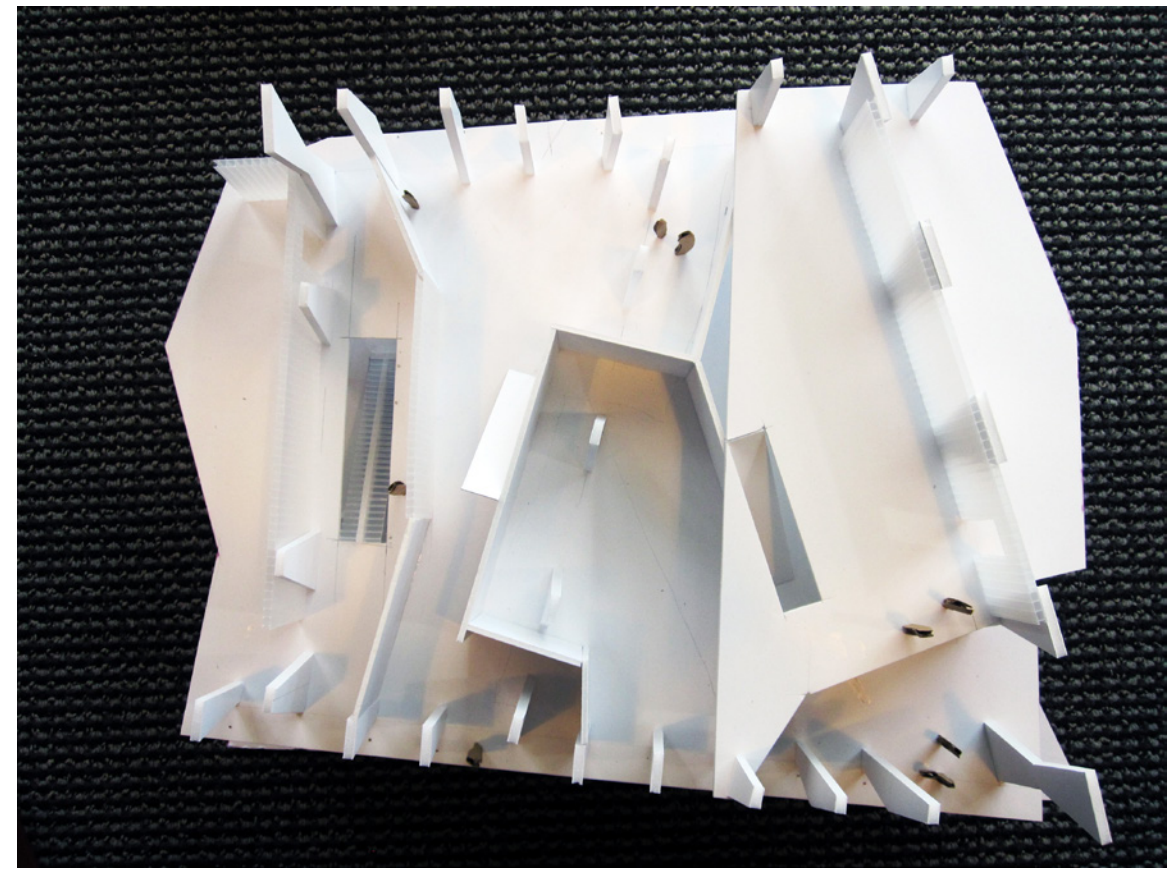
Placing units which stacked vertically and which repeat throughout the project was understood early on that this task would be difficult, especially with the non uniform floor slabs and structural system.

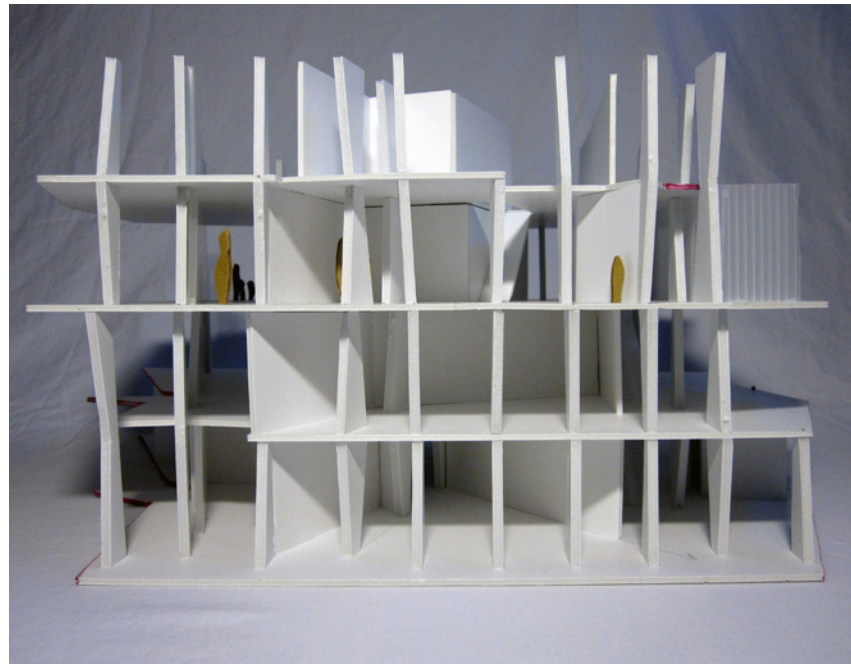
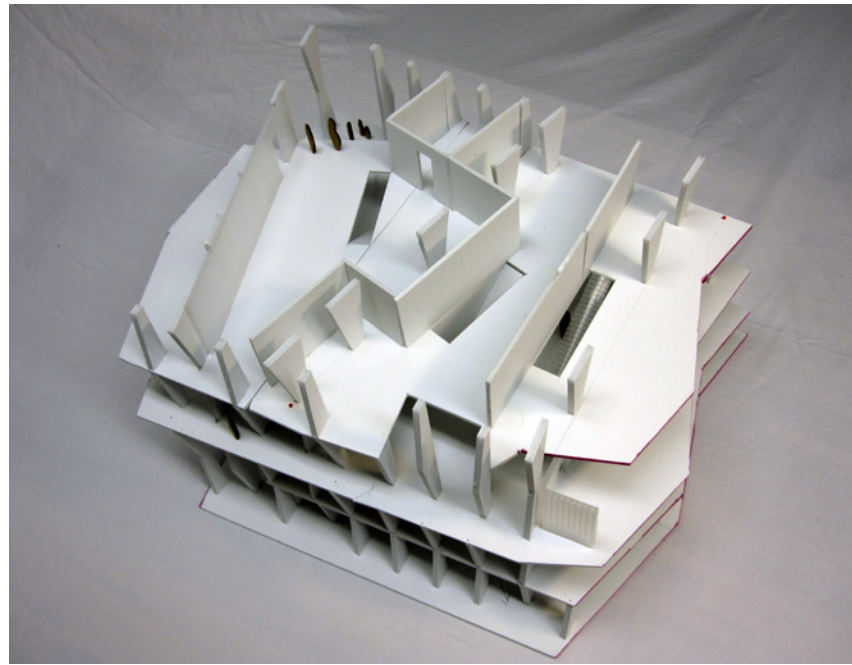
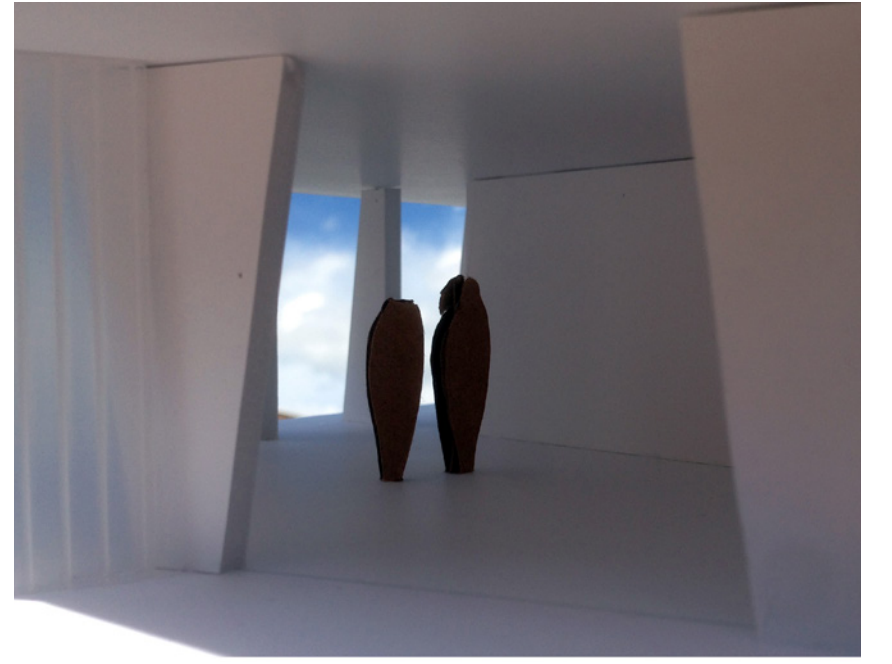
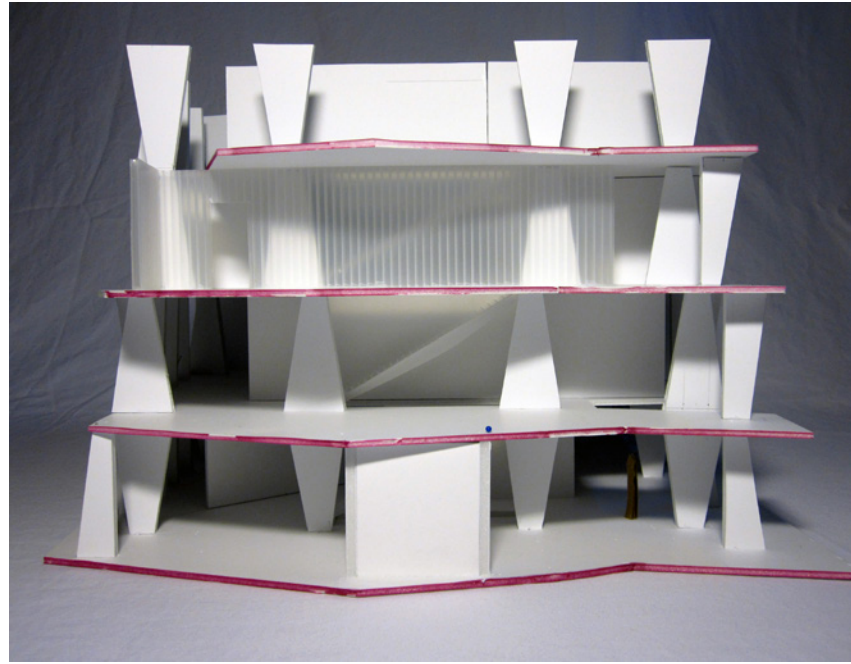
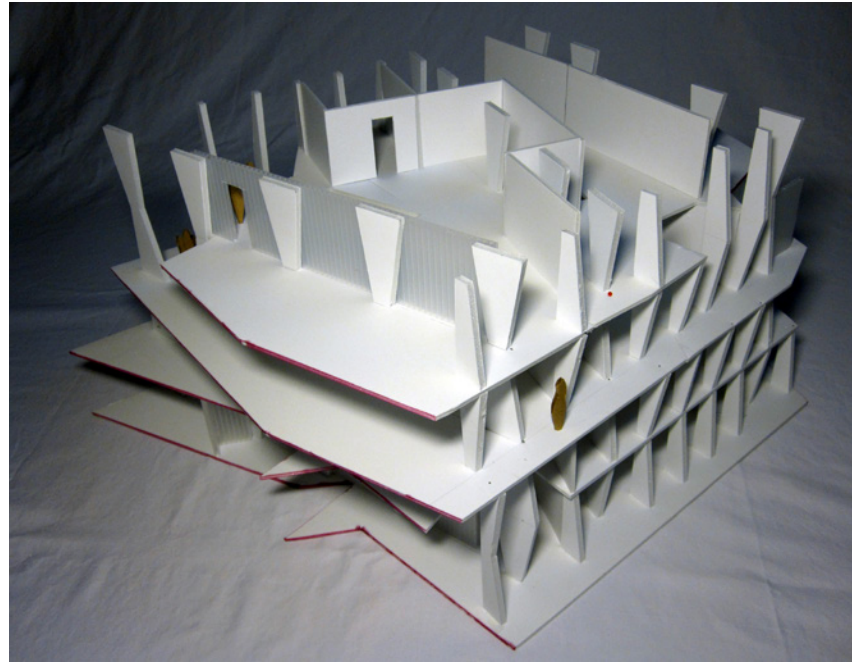
Ultimately, the decision to allow the structure to help guide the placement of unit types was the solution to developing plans and interior walls in a manner consistent with the thesis concept. That is to say, that the interior walls were entirely independent from the main structure. They could be light weight, translucent at times, and opaque partition walls as well.

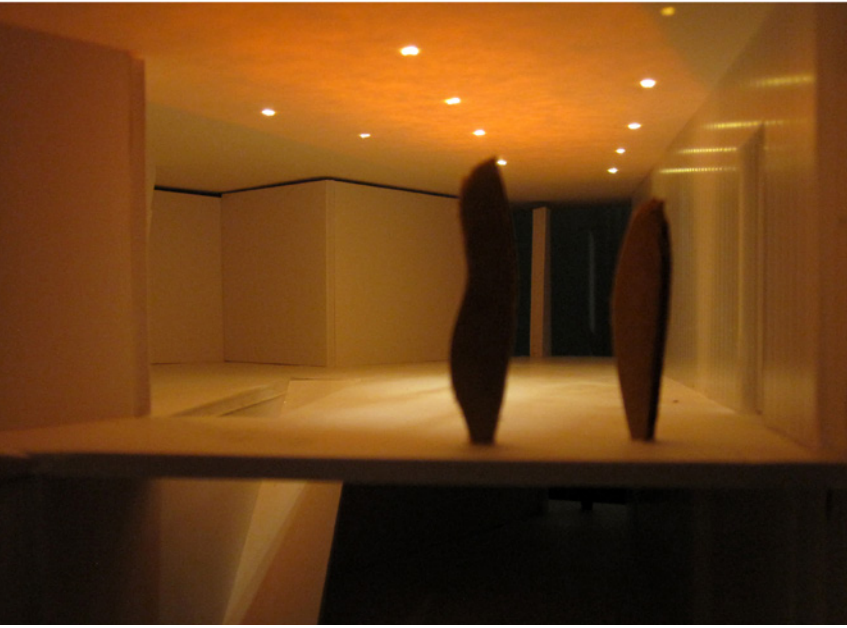


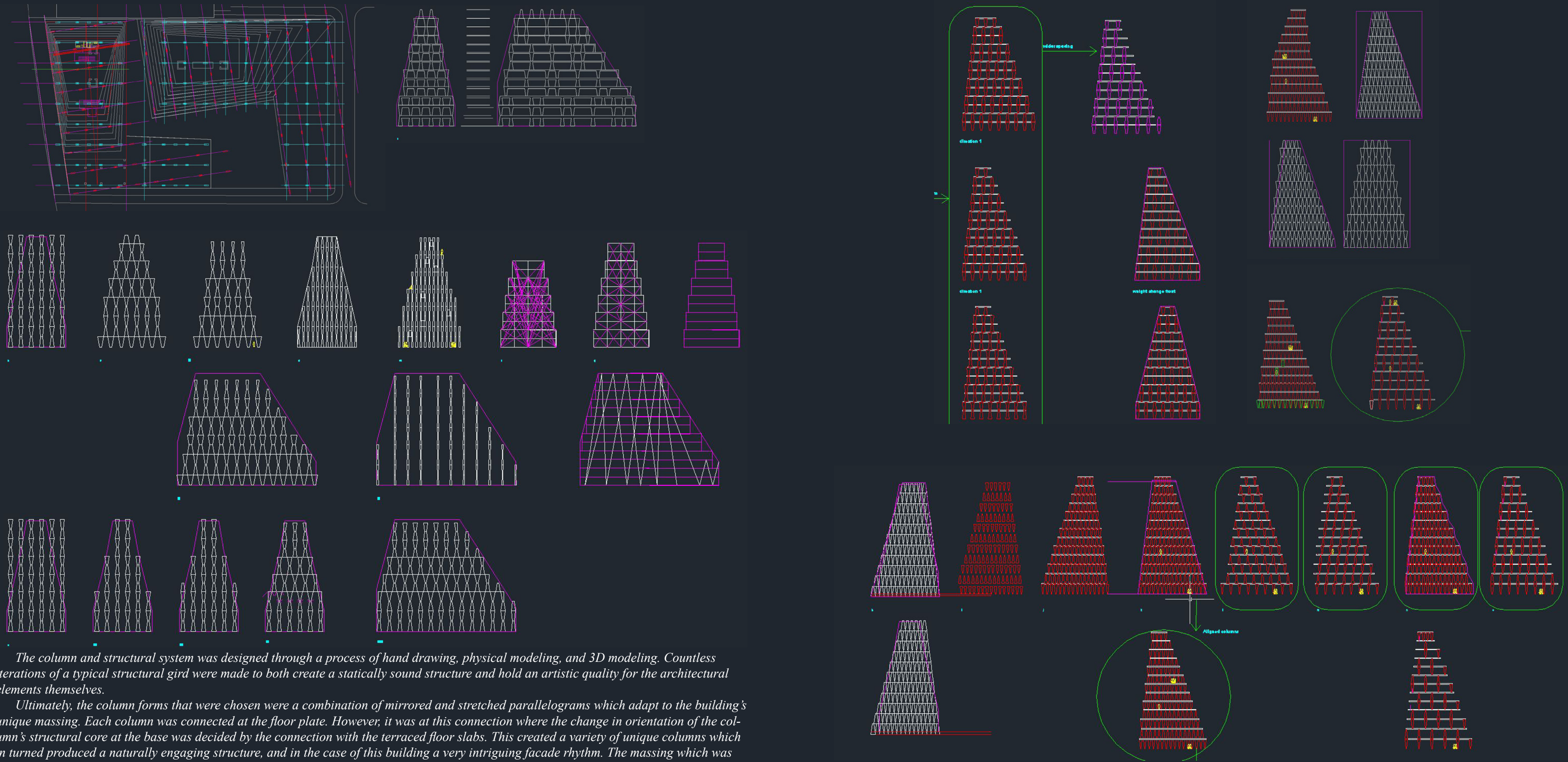
plan studies

Pictured on the opposite page is the 1/4" = 1' foam-core model which successfully investigates the structural system and the independent interior and partition wall systems. The model was made of a variety of materials which helped demonstrate the potential to have privacy but also see the structure beyond a translucent wall system. The units themselves became entirely unique from every other unit type. This concept, while more work, creates a sense of individualized spaces within each unit and could perhaps foster more ownership and pride of each unit by the owner or inhabitant.



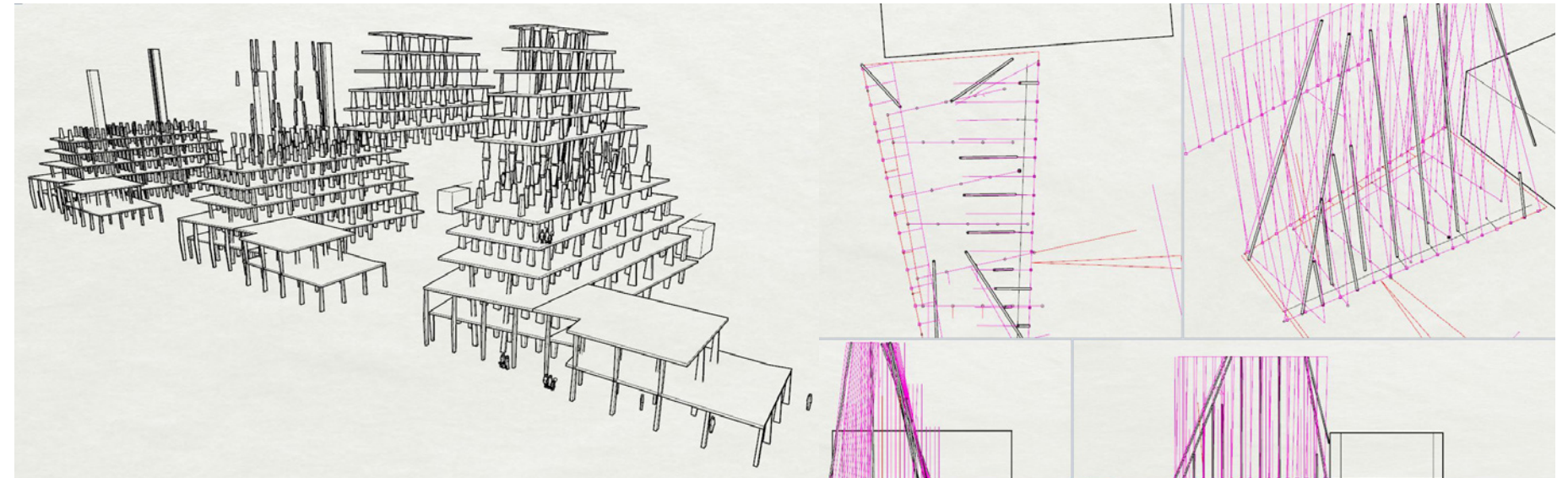
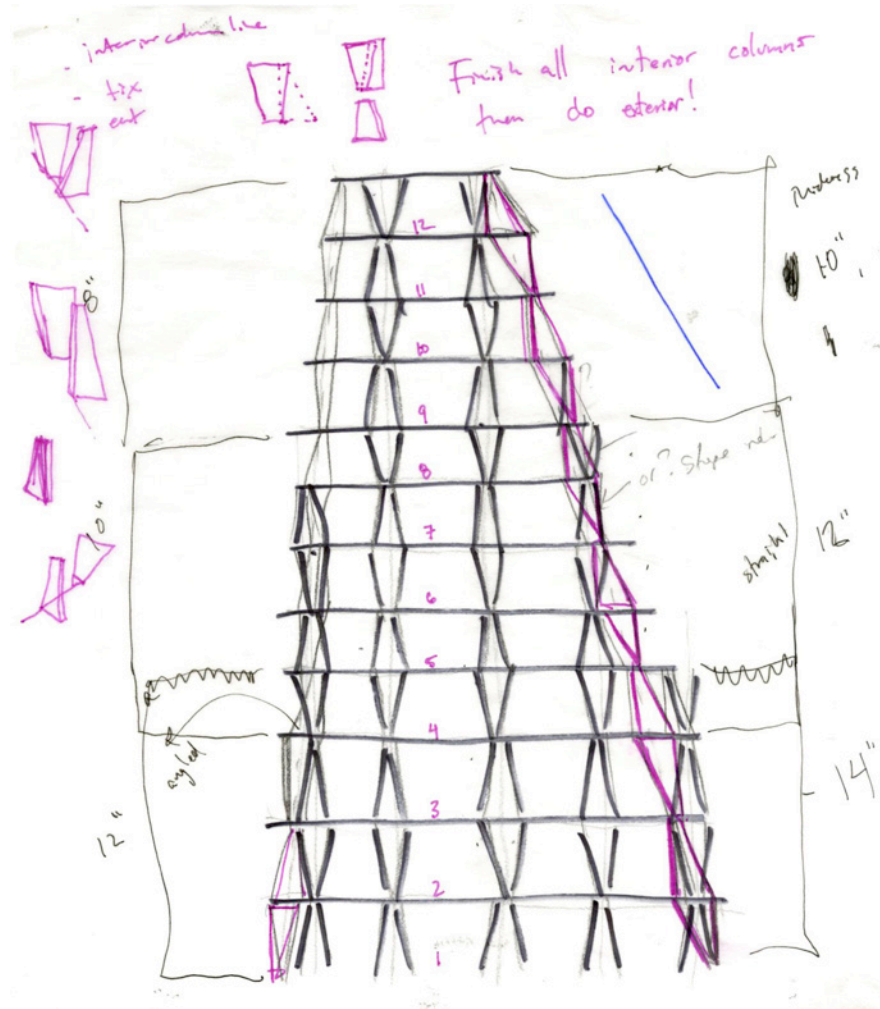
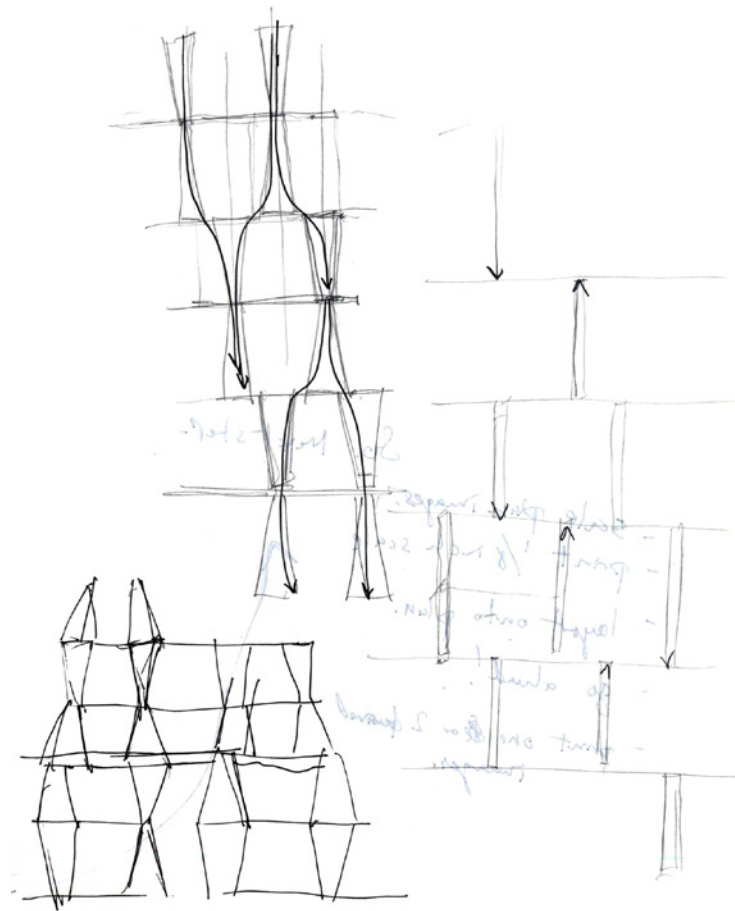






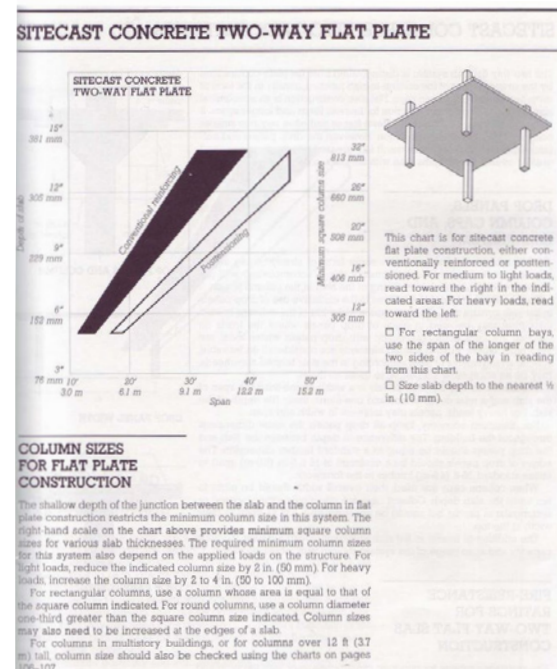
The column and structural system was designed through a process of hand drawing, physical modeling, and 3D modeling. Countless iterations of a typical structural gird were made to both create a statically sound structure and hold an artistic quality for the architectural elements themselves.

Ultimately, the column forms that were chosen were a combination of mirrored and stretched parallelograms which adapt to the building's unique massing. Each column was connected at the floor plate. However, it was at this connection where the change in orientation of the column's structural core at the base was decided by the connection with the terraced floor slabs. This created a variety of unique columns which in turned produced a naturally engaging structure, and in the case of this building a very intriguing facade rhythm. The massing which was created based on solar studies and massing models, ultimately set the parameters for the design of each column.

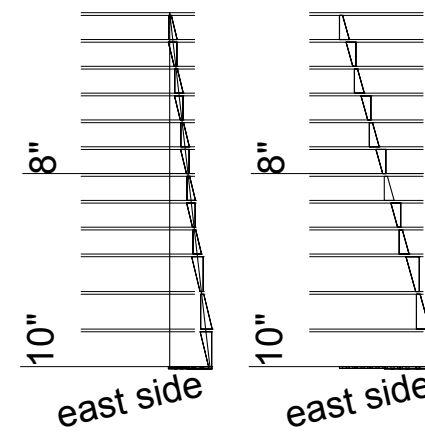
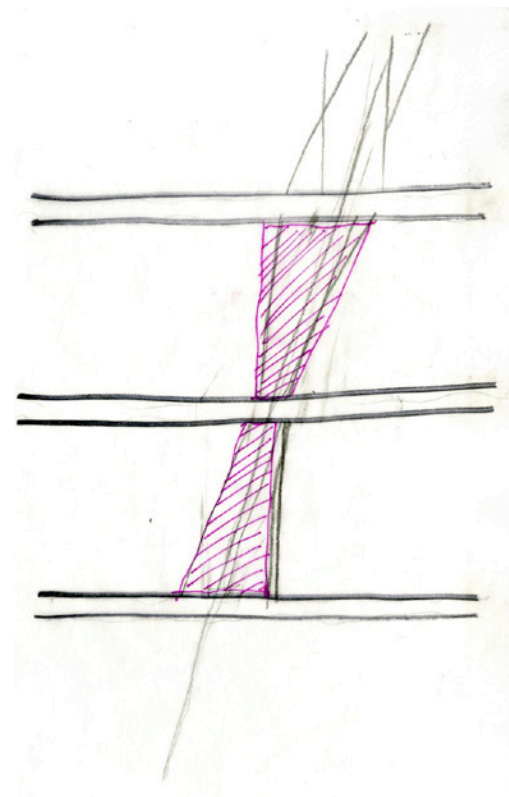


iterations of the column build up in 3D modeling software

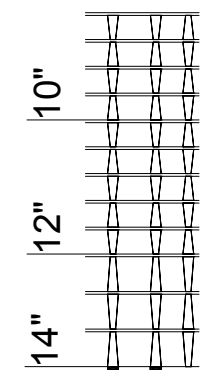
The magenta vectors represent a continuous line of load which the final column system was adapted to. In the end, this was the most logical system. After this stage of vertical line loading was understood, the freedom to stretch, pull and rotate the column elements became an exercise of complete sculptural freedom. This became truly the point where the thesis question was answered in the rawest form of architectural expression. The timing at which this was realized is irrelevant, it was the perfect realization.



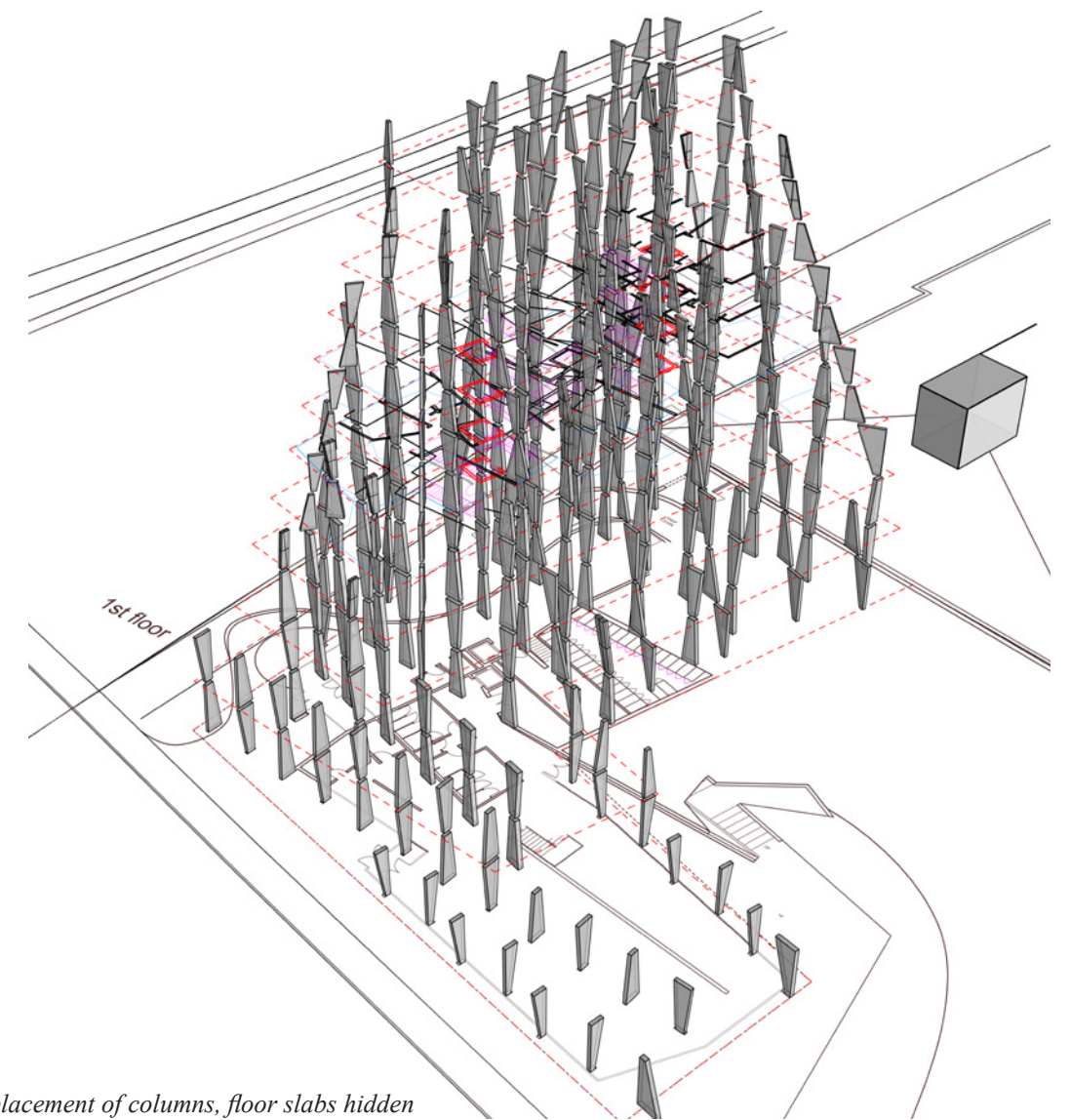
22, sitecast concrete rules



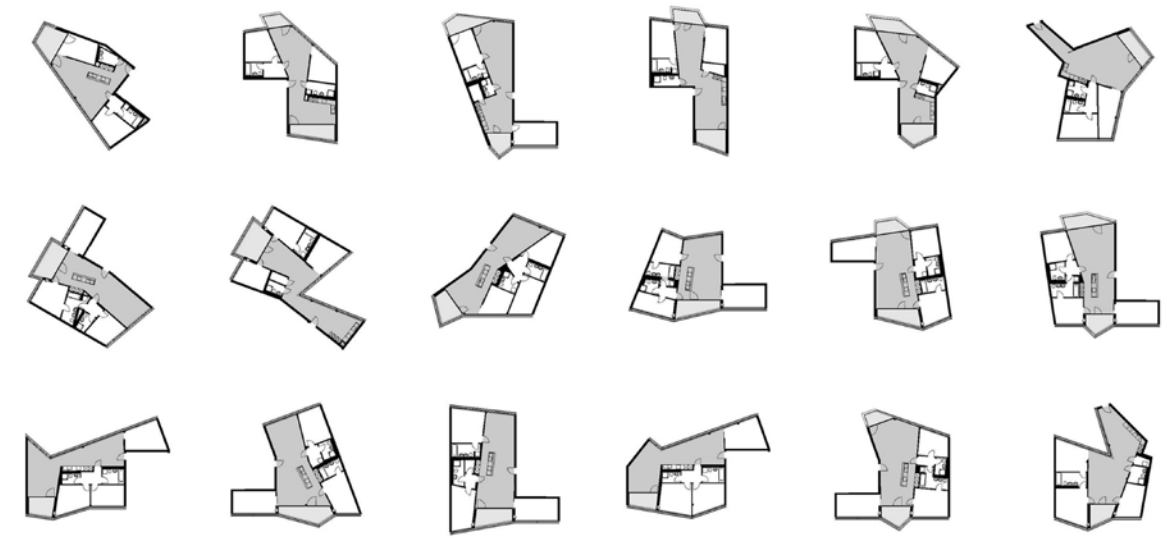
varying column thickness diagram



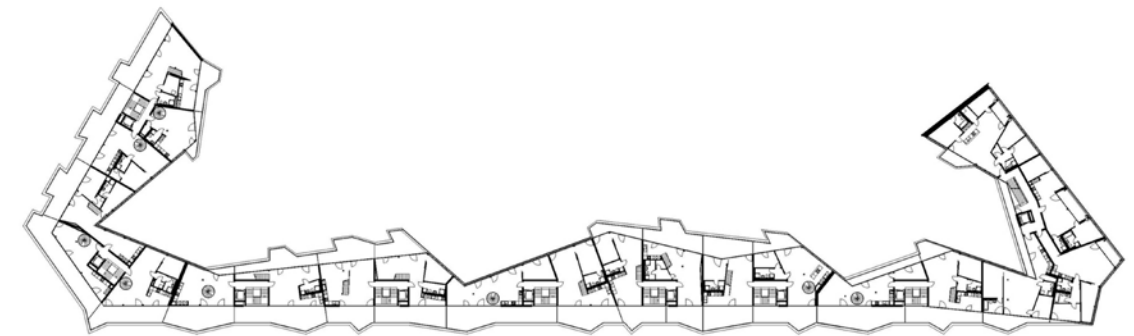
final placement of columns, floor slabs hidden



final structural diagram iterations and studies



1st - 3rd floor

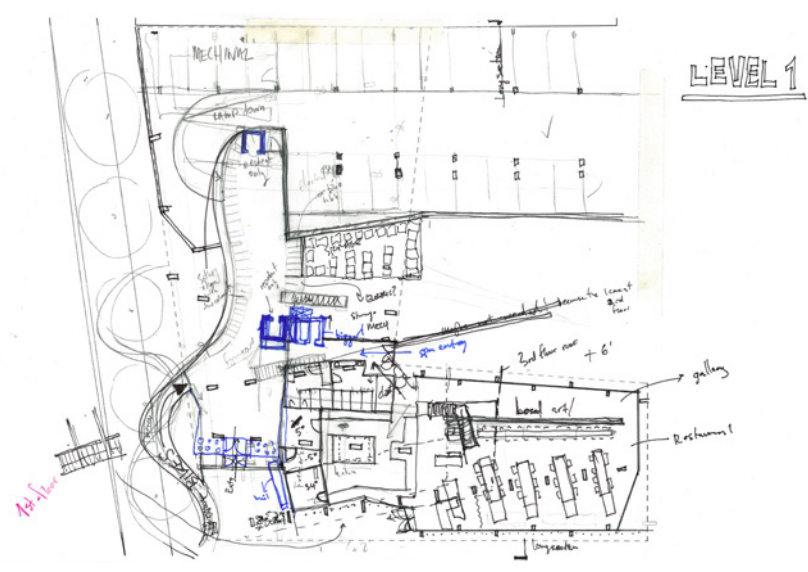


4th floor

23: Christ & Gantenbeim drawings from Voltamitte project

Modular and repetitive residential housing is extremely efficient. However, it does not push the discussion of making site specific architecture, or architecture which is designed with environmental factors as form givers. Apartments which have see-through corridors, or have cross-breeze capabilities can be quite beautiful, and also have inherent passive cooling and shading qualities as well as provide a factor of breath-ability to a space. That is to say, the apartments can be opened up to the elements by doors or windows and ventilate across the entire space. Christ and Gantenbein's Voltamitte housing project in Basel, Switzerland is a built project which was referenced multiple times to provide real world solutions to problems in designing the interior spaces of my project. The sketches on the following pages represent a culmination of almost every idea which was thought of during the research portion of the thesis. Once the columns were finalized, the process of unit layout design was a "rapid-fire" charette: drawing each plan one after the other, cross-referencing floors above and below to ensure that the vertical circulation remained consistent and accessible.

*final design development *

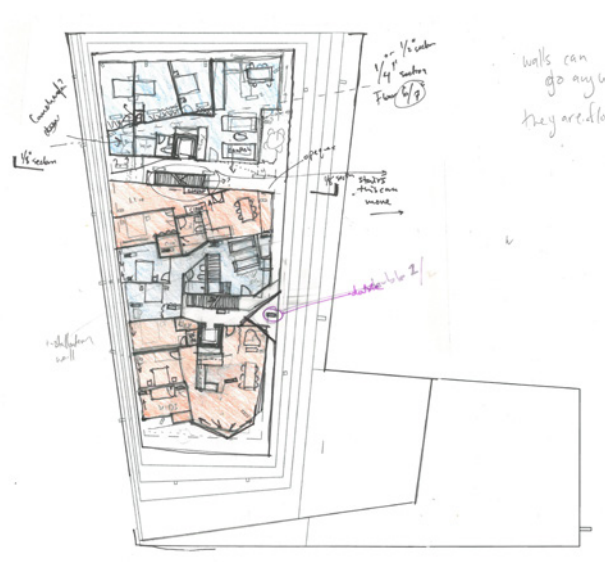


LEVEL 1

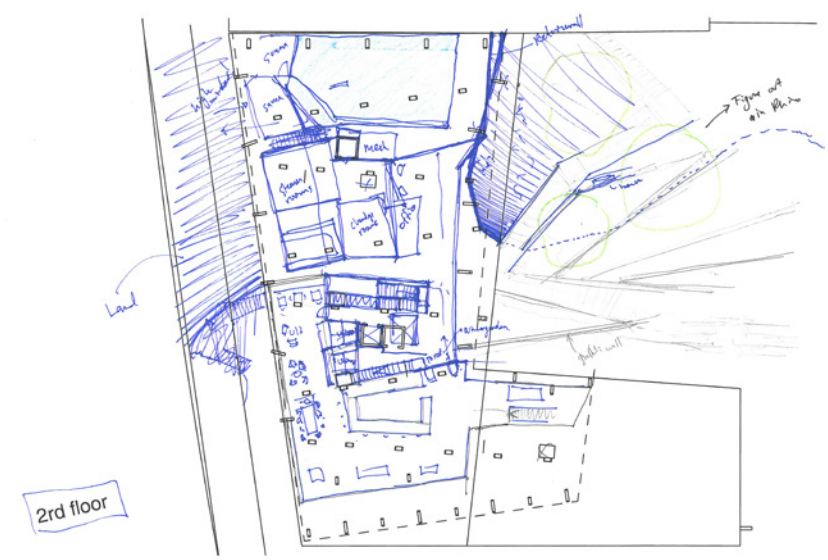
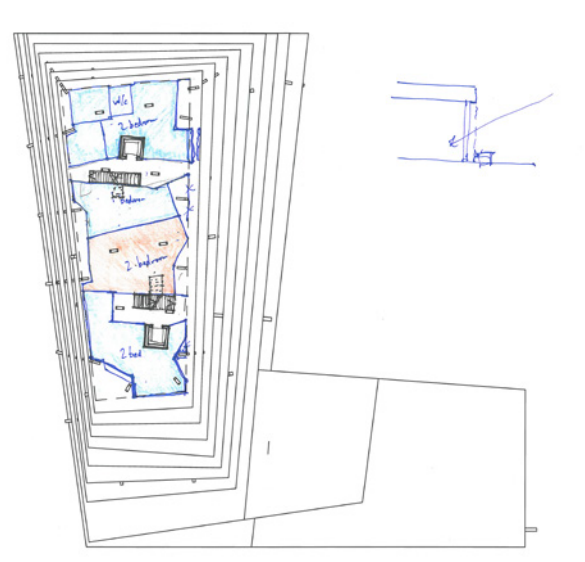
level 4



level 7



level 10



2nd floor

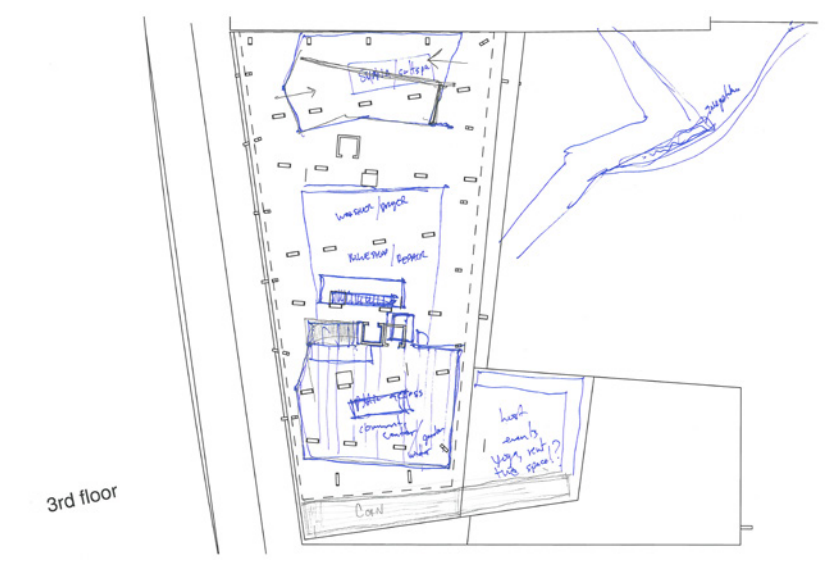
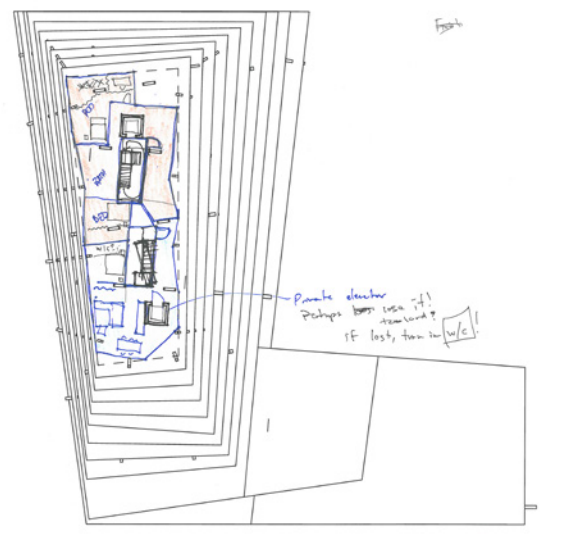
level 5



level 8

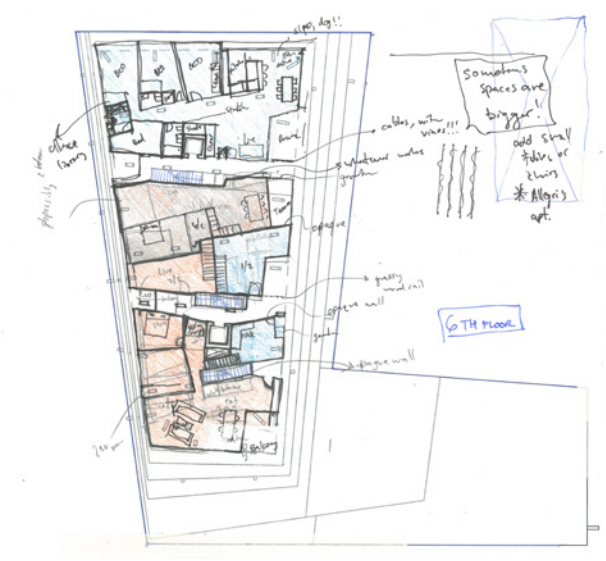


level 11

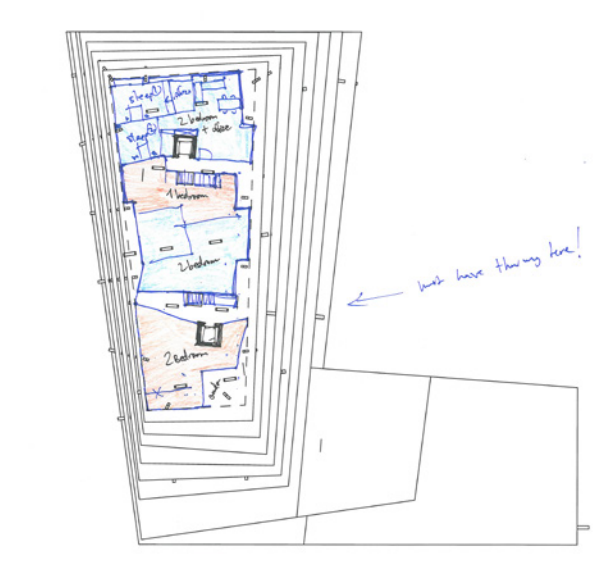


3rd floor

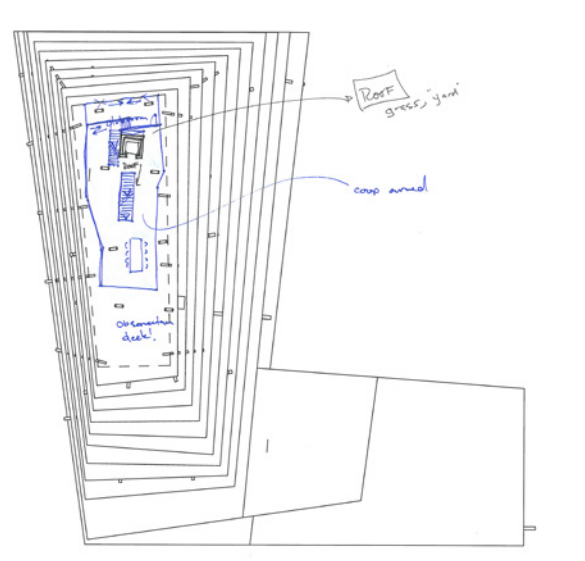
level 6

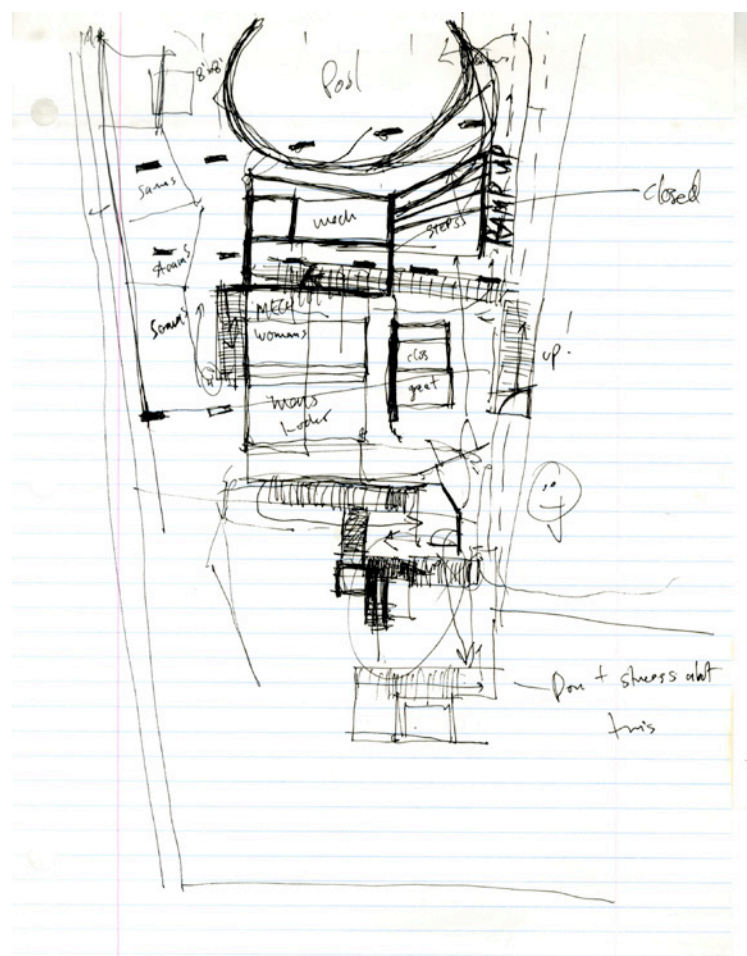


level 9



level 12





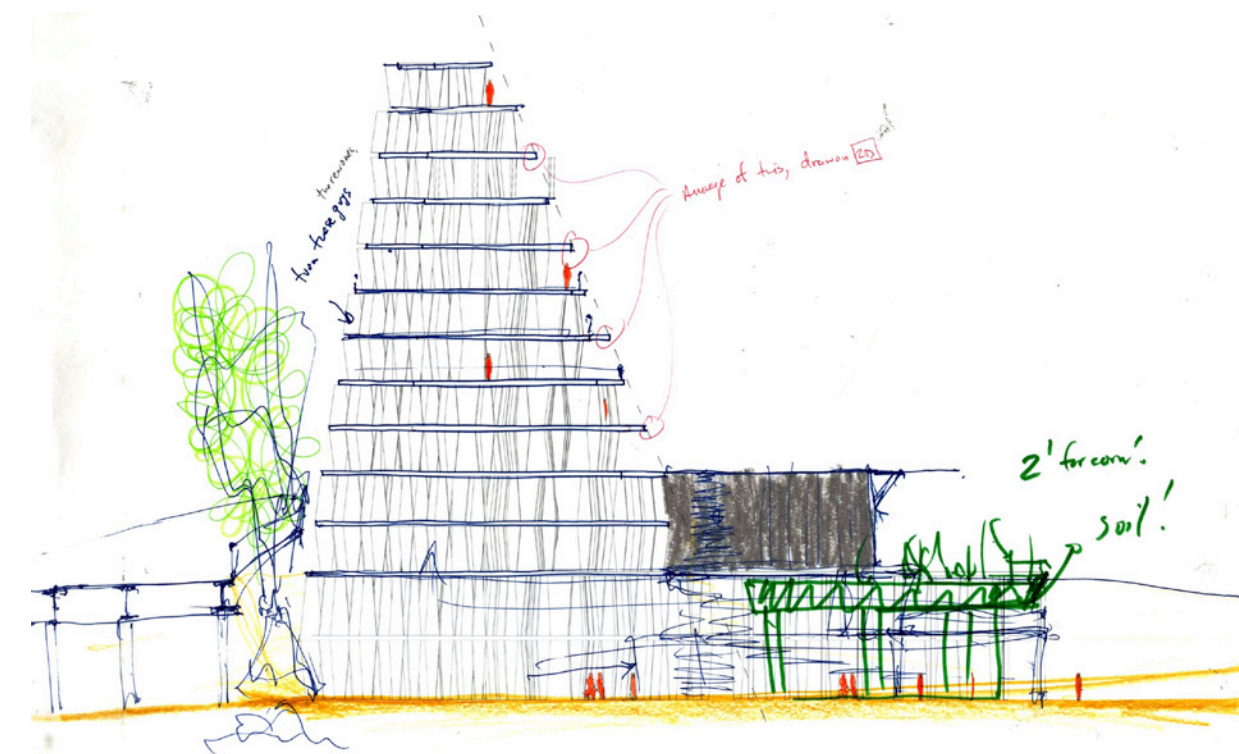
final sketch of bath house, and egress conditions



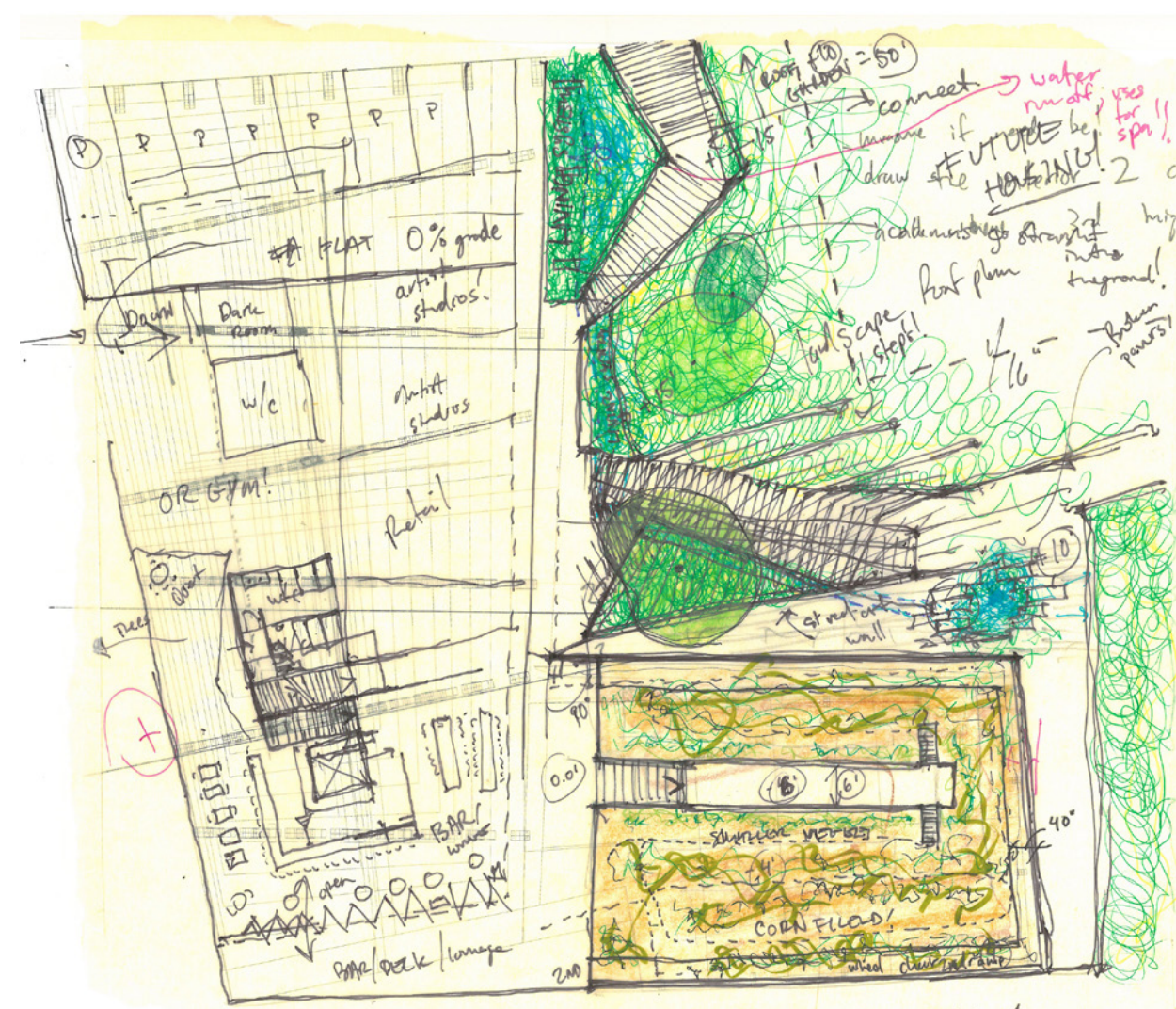
Above are the proposed conditions of future community garden plots atop the existing warehouse roof. The gardens would be accessed by the bluff promenade which helps to mediate the 26 ft elevation rise, and its run-off through various living system zones and basins. Water would be collected at these points to be used for the various gardens on site and also pumped back up the warehouse roof and accessed by garden plot owners.

At the lower-right corner is a sketch of overall conditions at the second level prior to the conception of the bathhouse. The bar and lounge on the second level is accessed either by elevator or interior stair which divides the restaurant and gallery space on the first level. The stair and landscape features are in place to bring life to an otherwise empty landscape. Performances could be held at the open space at the base of the stairs. One could stroll up the low rising promenade, take in local art at the mural wall, peek into the bath house, hear frogs and crickets chirping in the wild grass and living system run-off basin, have a coffee at the second floor bar on the balcony against a row of baby corn. The “bluff-promenade” celebrates an important edge of the L’Enfant master plan of DC. The rise in elevation at this point of Washington created natural edges to the city plan. The edge created became Florida Ave. At this point, the only celebration of topography east of the metro tracks is the existing Burger King, and at this point in time, they offer no hillside seating...

Creating a public promenade so close to the private areas of the building proved difficult for circulation design, but successfully achieving a public/private buffer is necessary when designing residential buildings which do not stand on the site with complete disrespect for the current inhabitants of the surrounding context. The idea was to create a building which engages the site, in a physical manner, to provide program which “gives back” to the community, instead of simply turning a profit with its “built” investment. A give and take process is necessary for more site specific and community-sustaining, non-invasive architecture.



final sketch of the restaurant/gallery space at the first level



*solution *

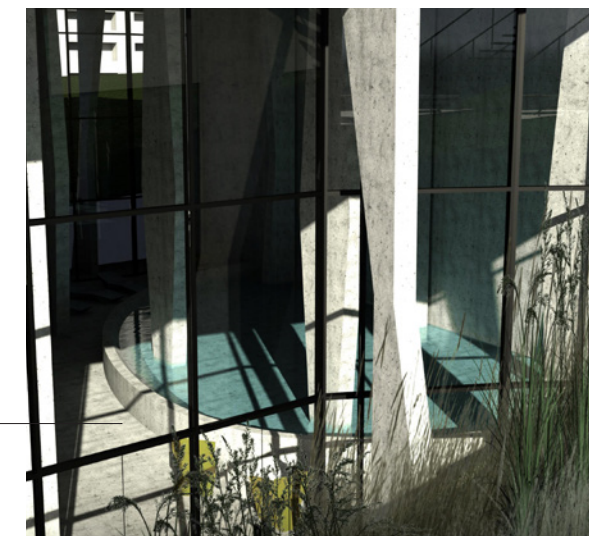
The following pages contain the architectural drawings and images which were presented as the solution to the multi-faceted investigation of my thesis.



first floor plan
52



second floor plan



looking into bathhouse above the run-off basin



close up of the restaurant roof garden, and communal garden terrace belonging/and accessed by the residents



enlarged portion of the "urban farm-to-table" restaurant roof garden and terrace



sixth floor plan - 5 residences



seventh floor plan - 4 residences



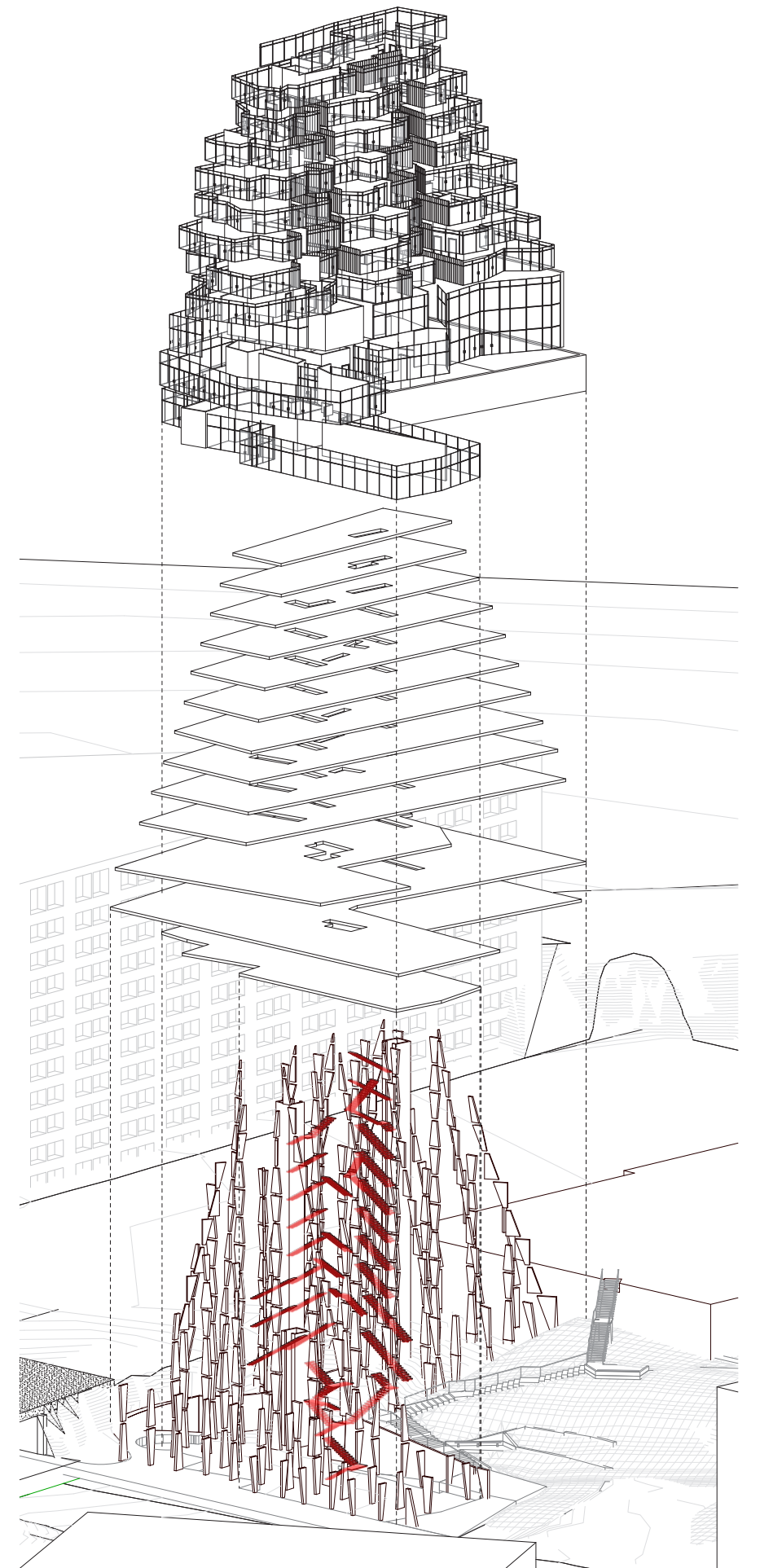
vignette of a typical living room



vignette of proposed balcony conditions



section AA



exploded axon and stair/egress diagram



facade vignette



close up of proposed street art exhibit



section BB

0 5 10 20ft



Florida Ave

Florida Ave

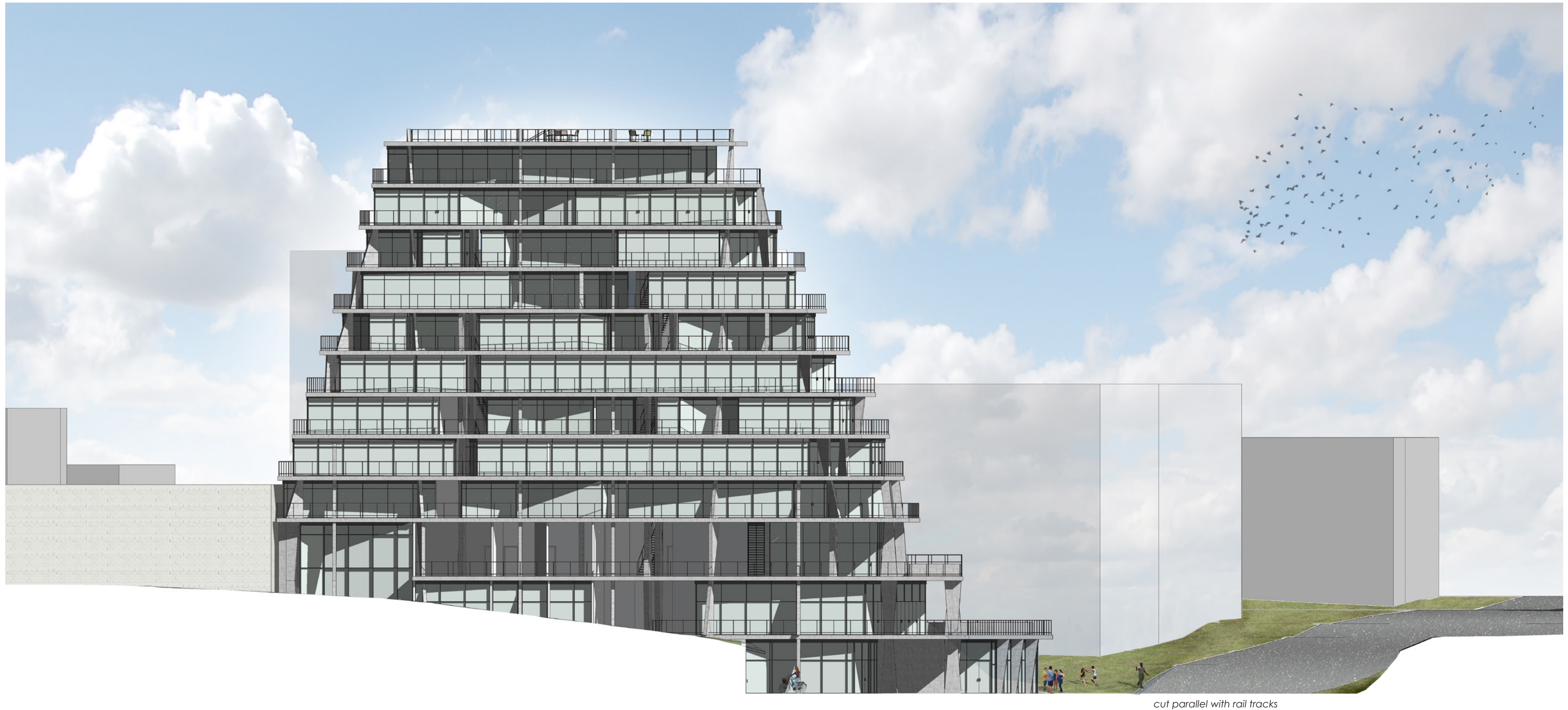
south elevation



entrance space along the curvilinear bike entry



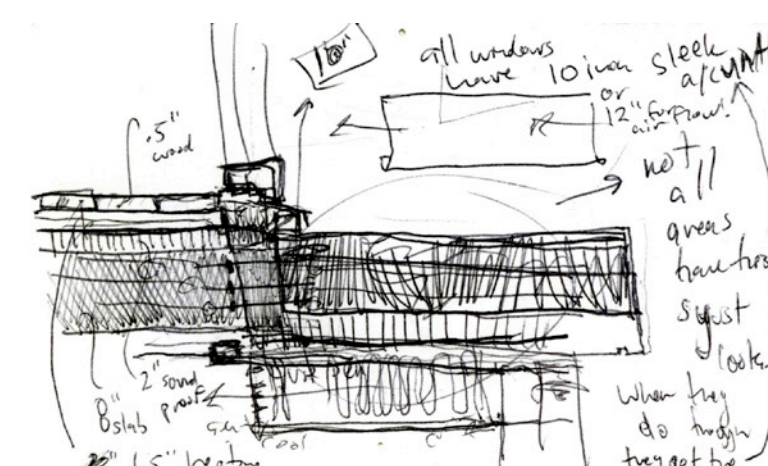
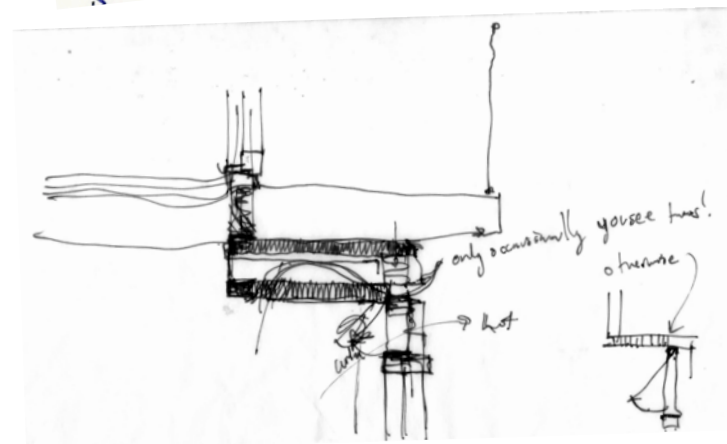
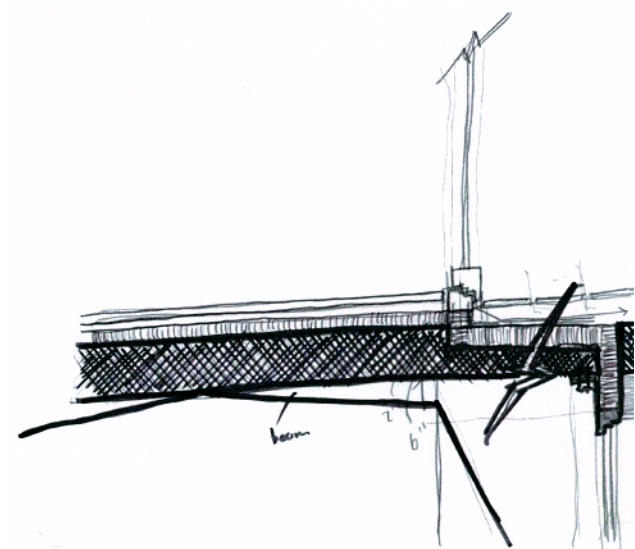
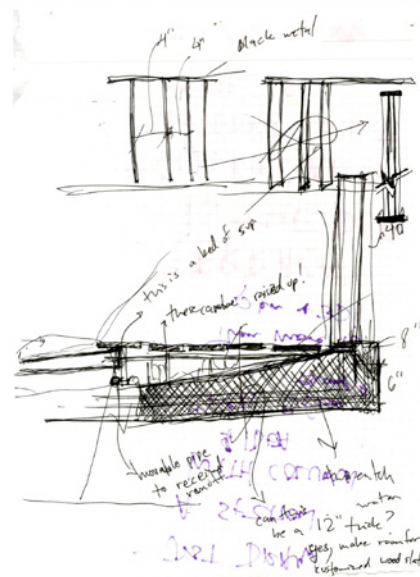
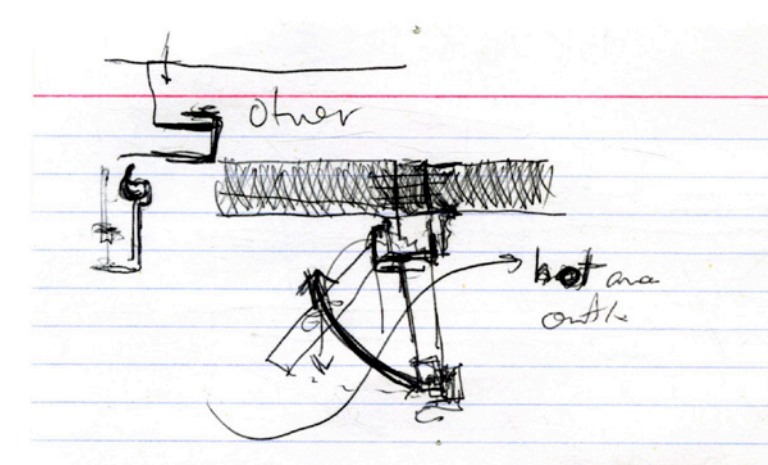
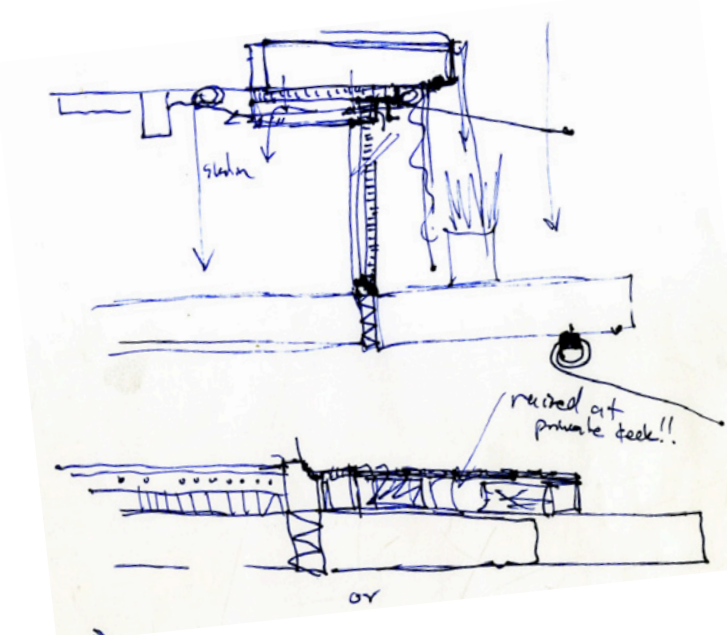
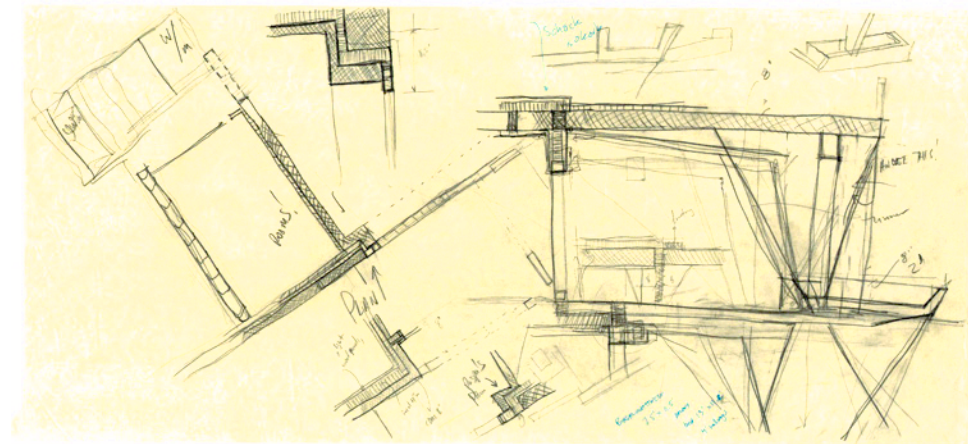
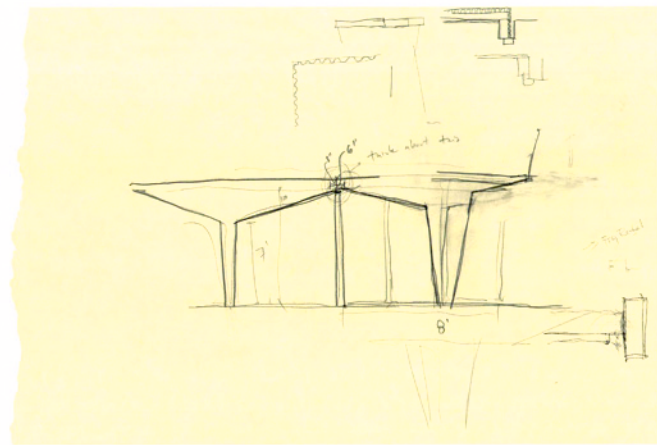
climbing up to the roof level



cut parallel with rail tracks

west elevation



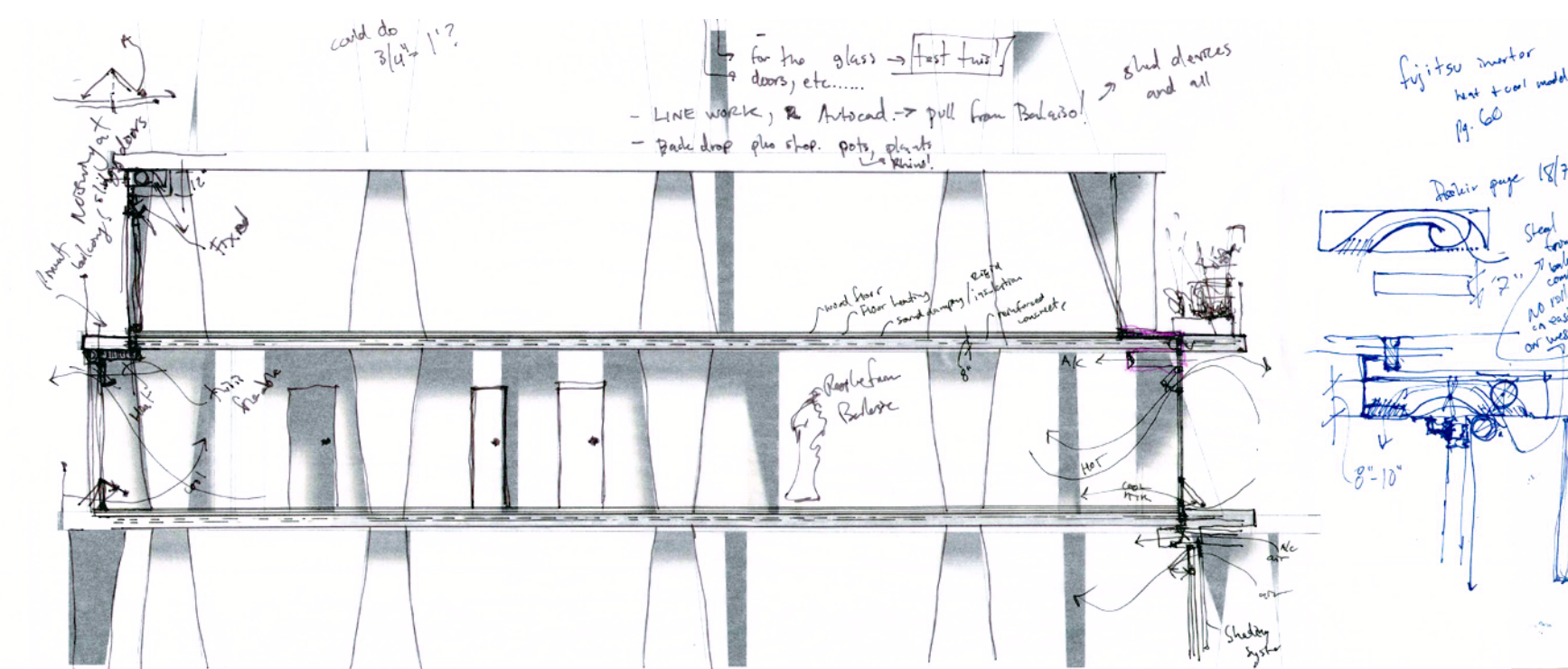


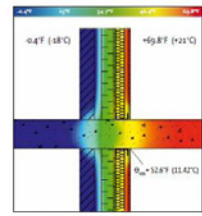
“The above is true only as a generalization, of course, with allowance for transitional variations and overlapping notions. Much depends on the nature of the building, and perhaps still more on the material that is used. At the present point in architectural history, when reinforced concrete flamboyance seems fashionable, one might say that no other material has the potential for such complete and convincing fusion between structure, enclosure and surface; between architecture and detail; between the minute great form and the great small particle.”
 (Breuer)

Sketching “in-detail” played a heavy role in determining how the building would be enclosed, how the spaces could remain conditioned and sheltered from the elements.

When one enters the detail sketching phase too early however, it can cause tremendous delays in moving forward with the overall project. At a certain point, I was told how great these sketches were, and that I need to abandon them at the same time. It is necessary to think about these details during design. But also necessary to place a bookmark on them, and save for a more appropriate time to develop it further.

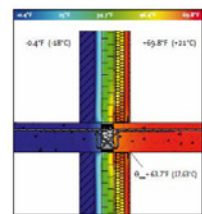
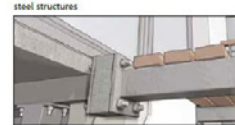
The decision to create a detail section for the presentation came late in the finalization process, but the decision was correct as the drawing on pages 68-69 shows the culmination of all the thesis’s parts. At a scale which is much closer to the project than any of the other drawings, it shows the intent of the sketches and enclosure studies in a final state. It shows a concept of how the stepping back of floor slabs can still be achieved with fabricated and stretched window mullion systems and elements. When designed with the idea of a total building system, one could install ultra slim and independent ventilation systems. Whether these generate cool air, heat, or simply push fresh air into the residential space would be dependent on the inhabitant. When properly used, lower building emissions would be the result, and detrimental impacts onto the surrounding environment would be reduced.



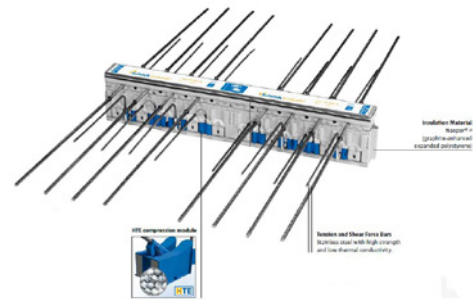


Schock Isokorb® is part of the structural design and allows various connections including reinforced concrete-to-reinforced concrete and steel-to-steel.

The Schock Isokorb® thermal break element is the only product of its type that allows thermally efficient load bearing connections between:



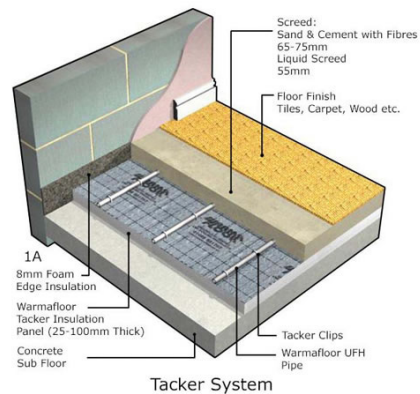
24, Schoeck system thermal analysis



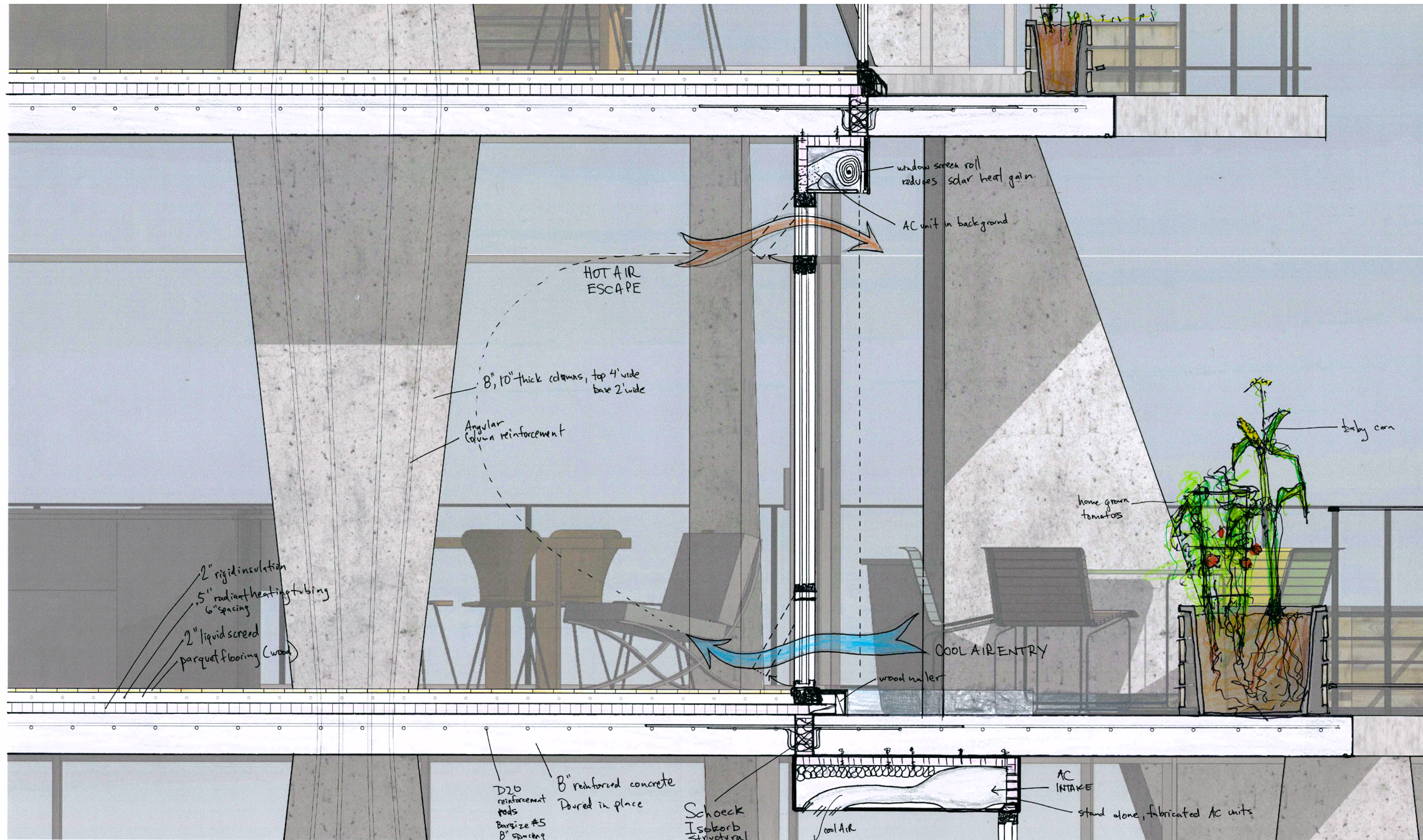
25, Schoeck isokorb drawing



26, Fujitsu stand alone A/C



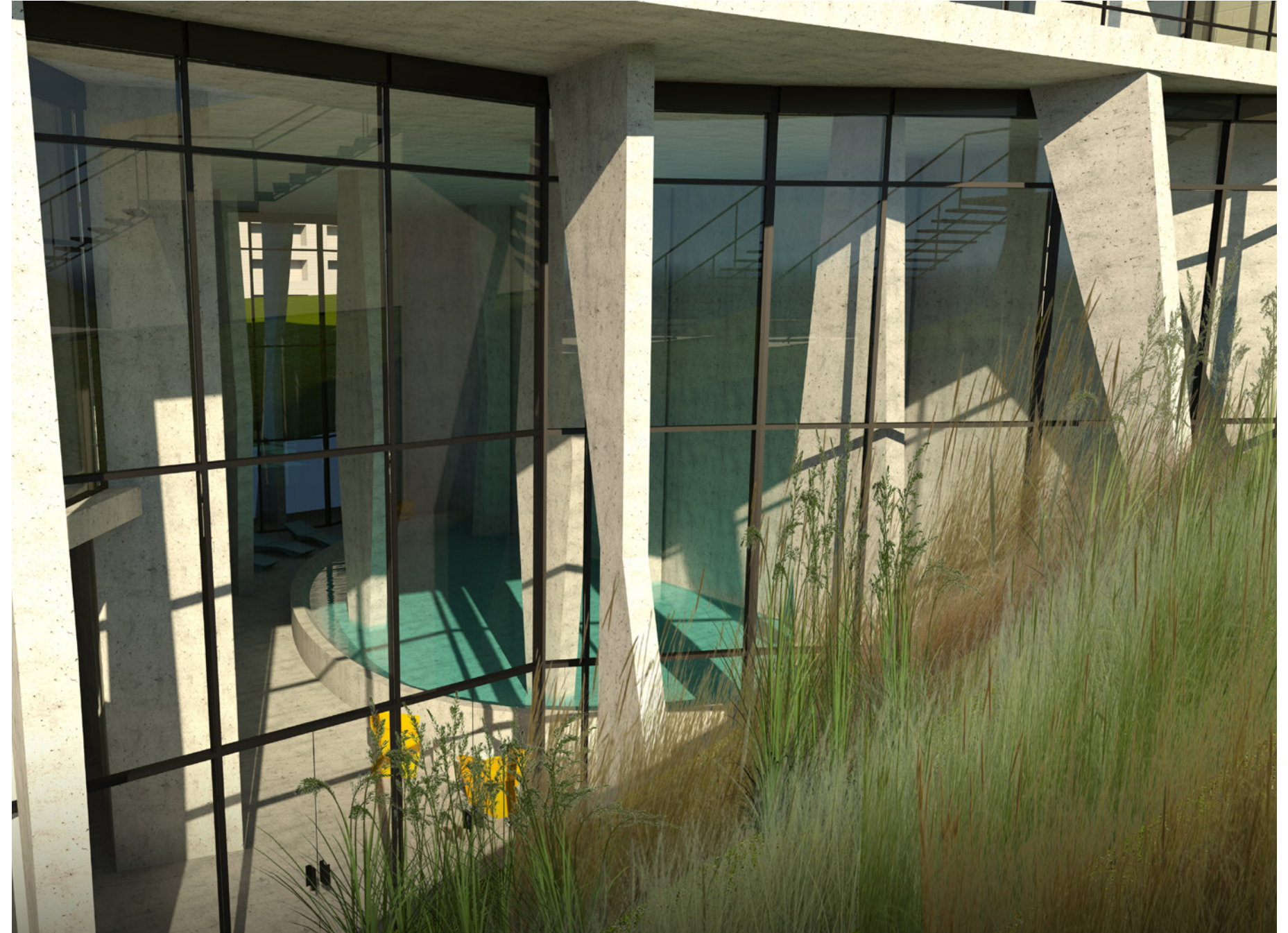
27, radiant heating construction image



section detail



arriving through the NoMA and Florida Market Area threshold (rail bridge)



looking into the bathhouse from the wild grass buffer



group staying up-to-date with the mural wall's local art



the eastern facade, late morning



a sun soaked morning in the northern most residence on the sixth floor



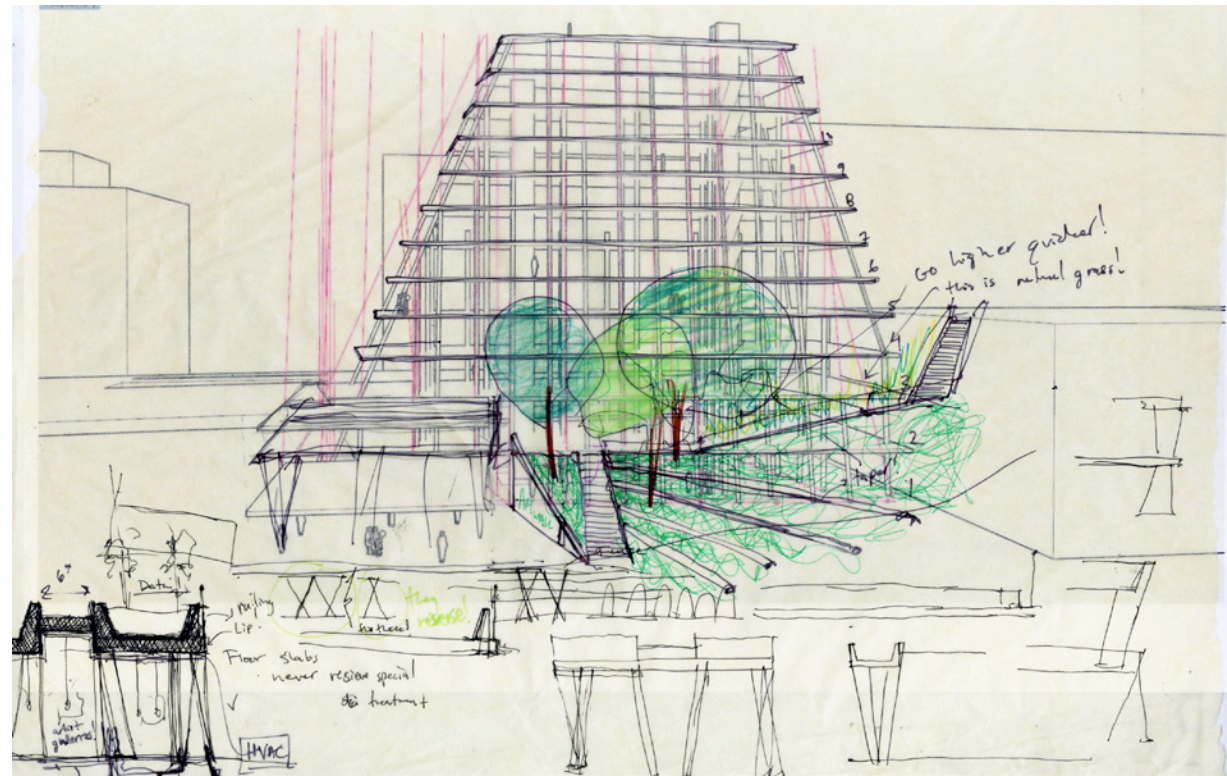
catching the last bit of the sun for a monumental snapshot



a slow morning on the balcony



late evening from the north side



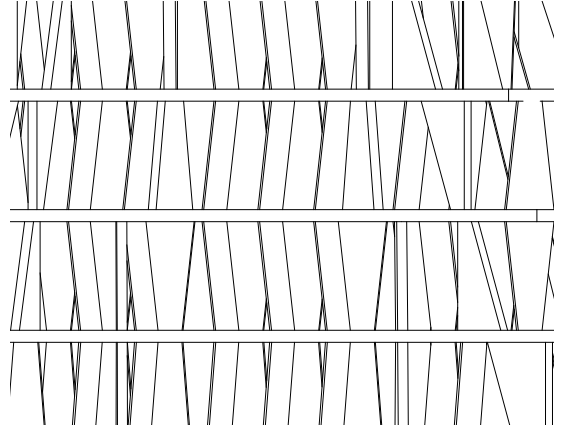
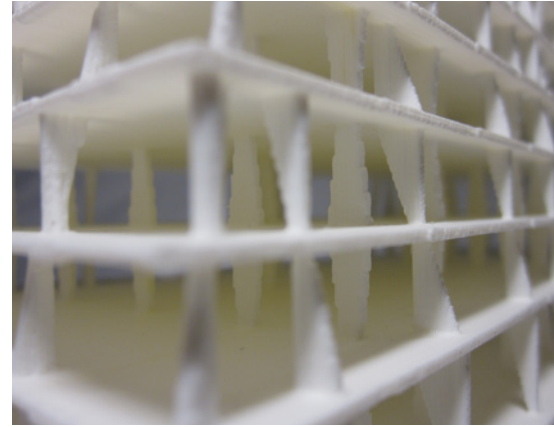
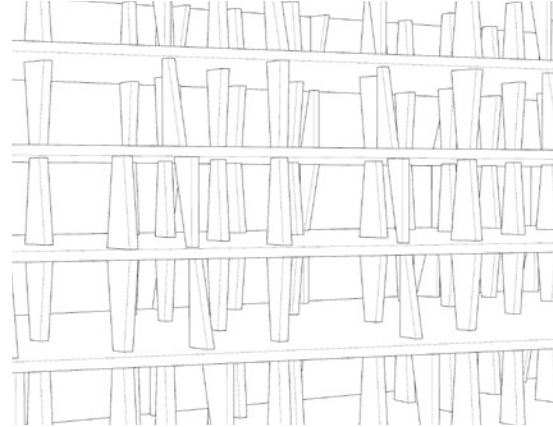
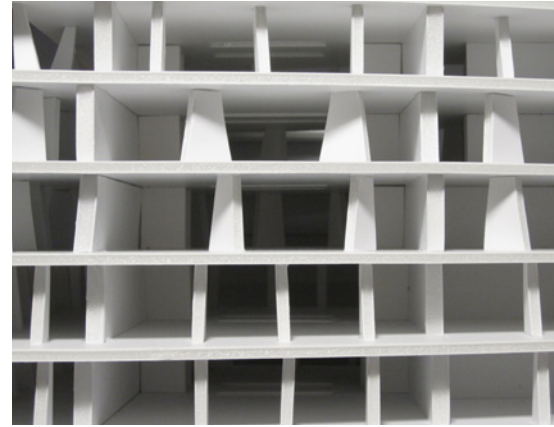
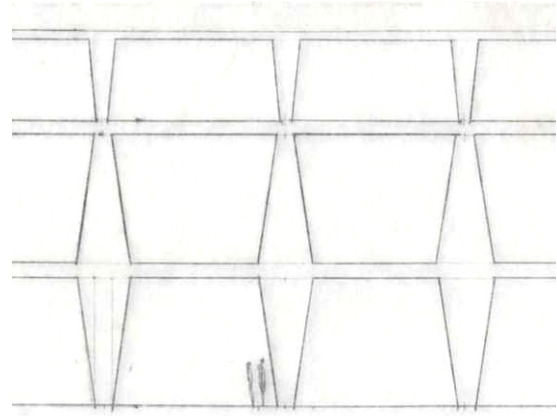
vision sketch of bluff promenade and warehouse roof garden plot access



existing conditions on the bluff



taking back (taking-in) the bluff at 320 Florida Ave



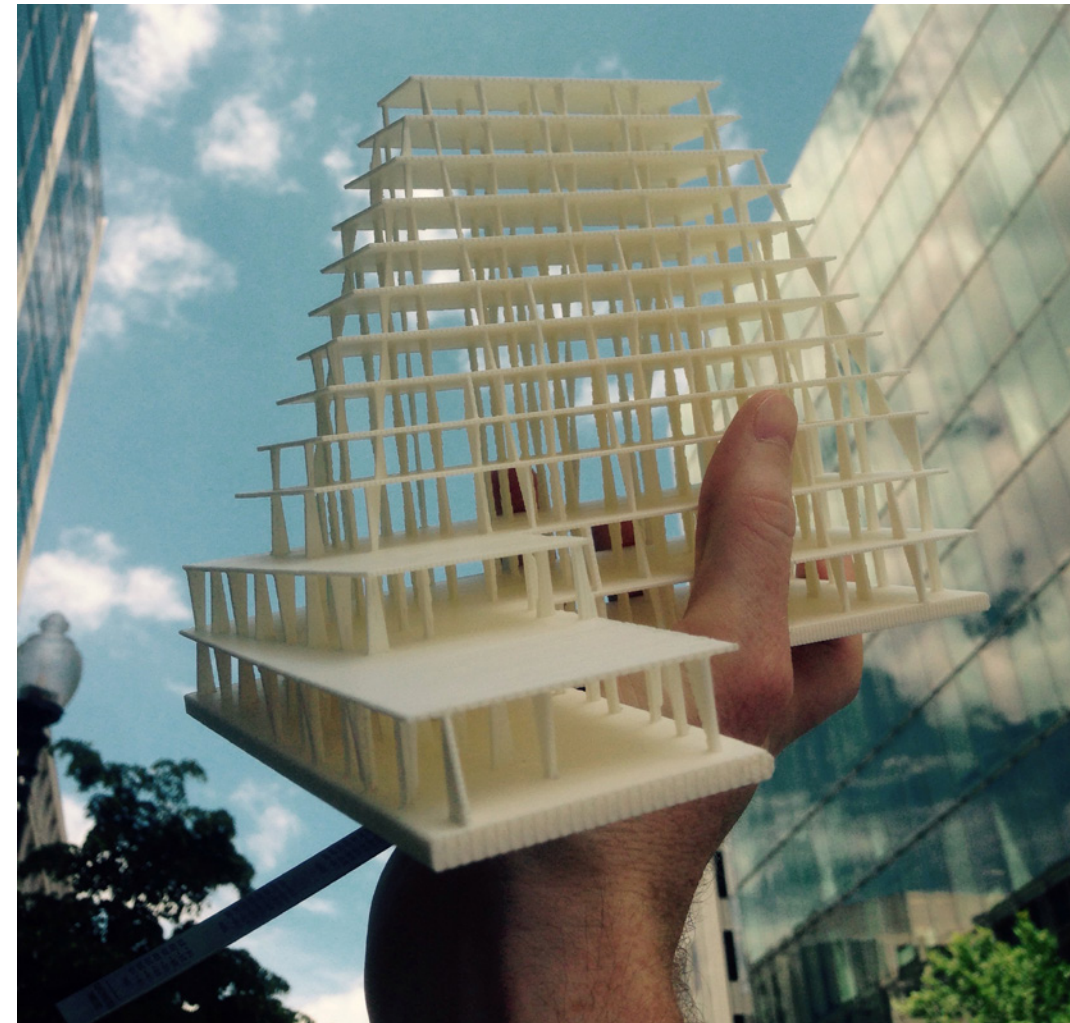


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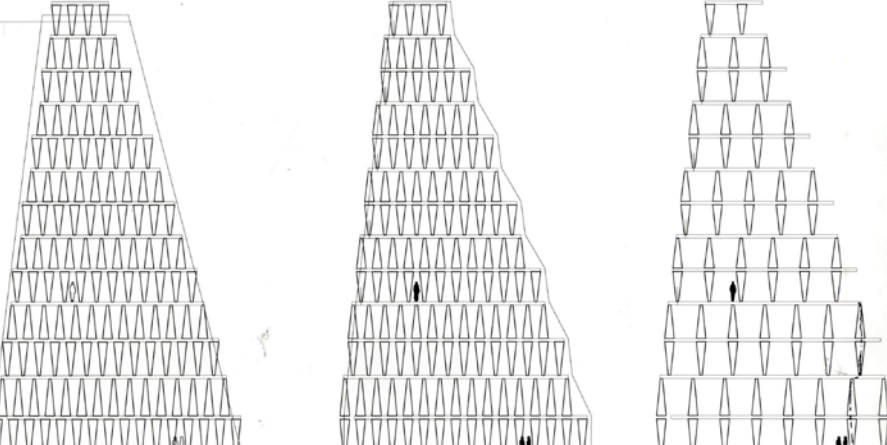
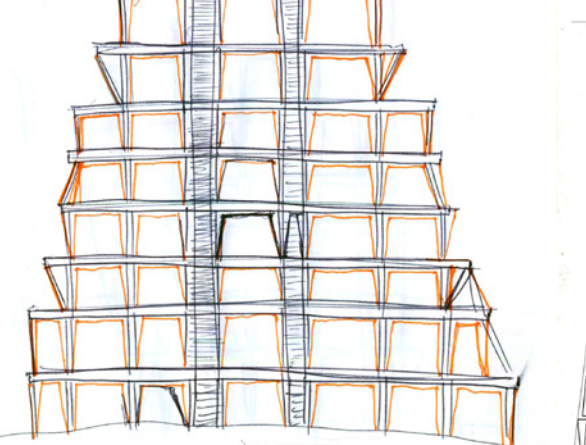
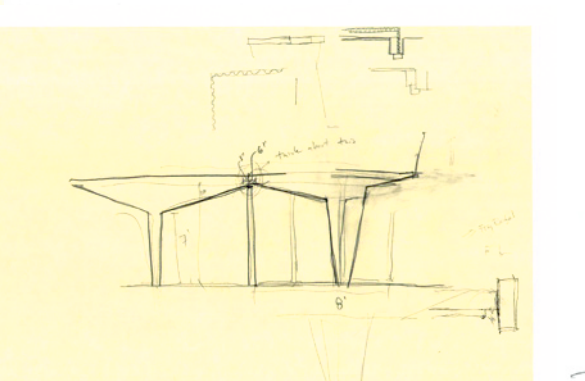
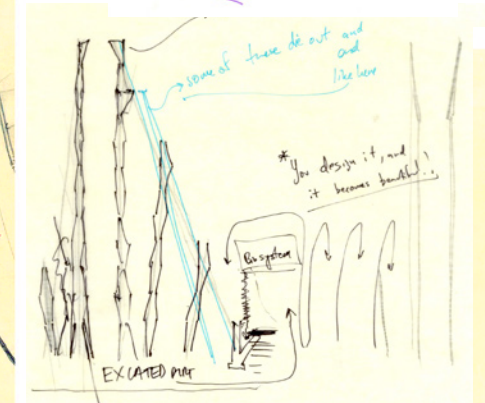
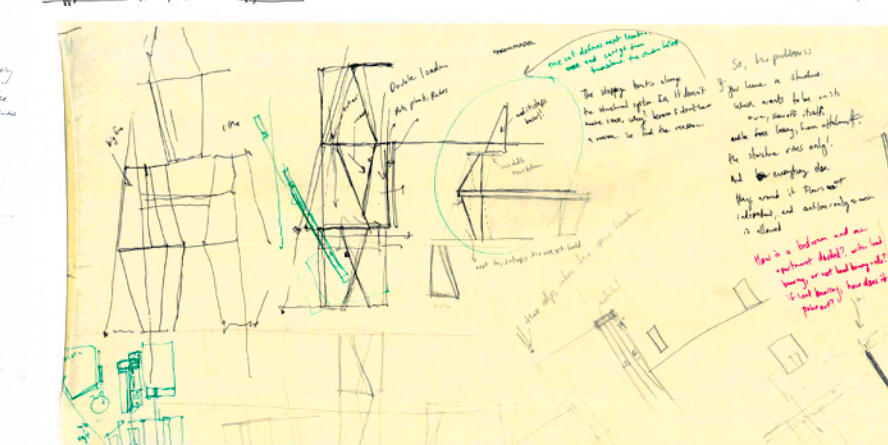
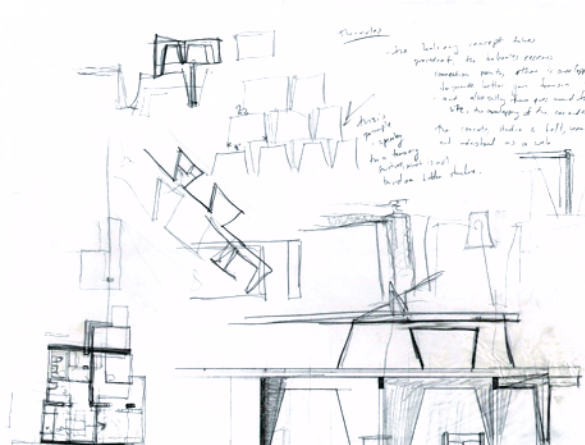
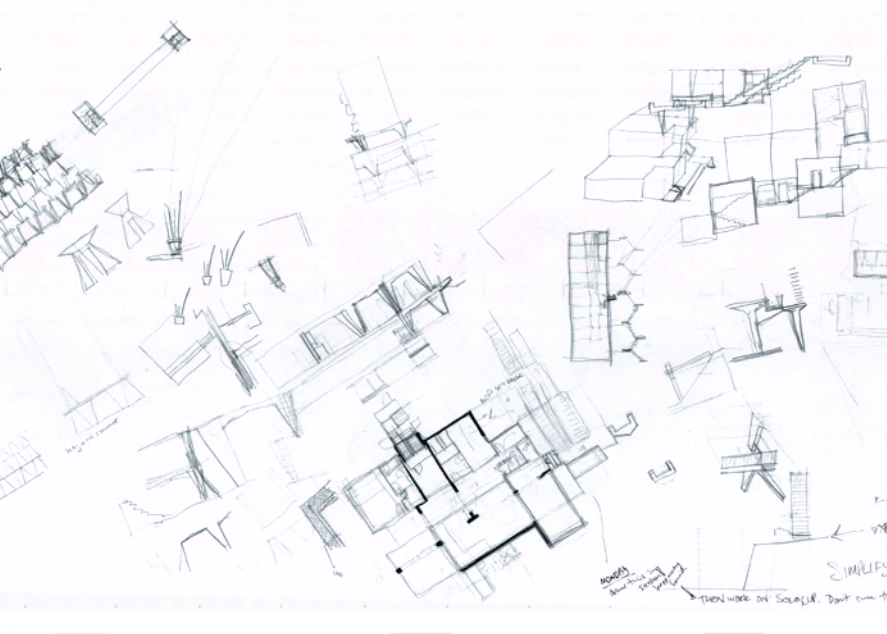
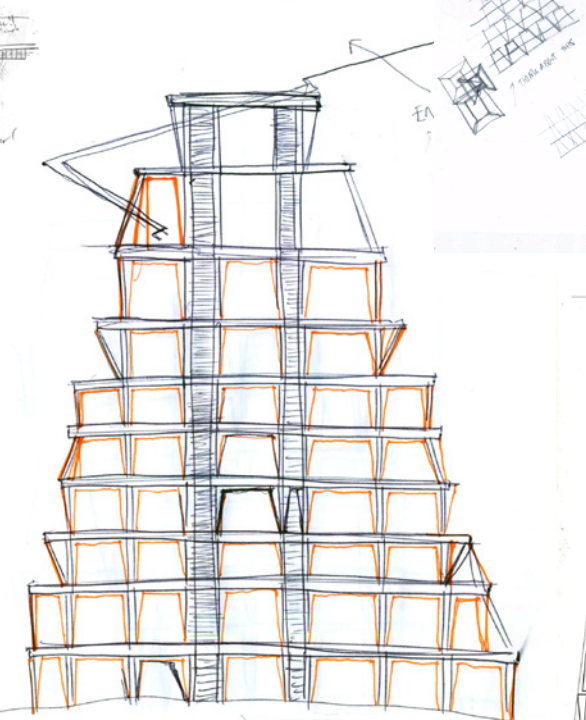
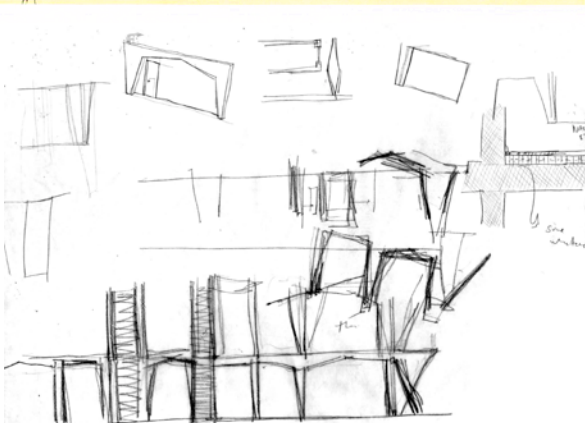
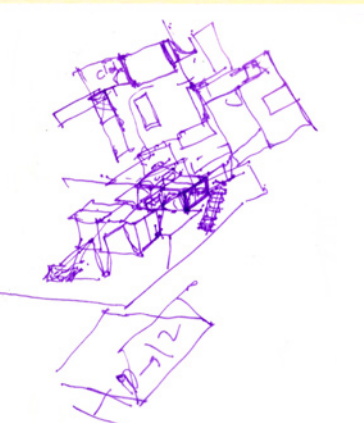
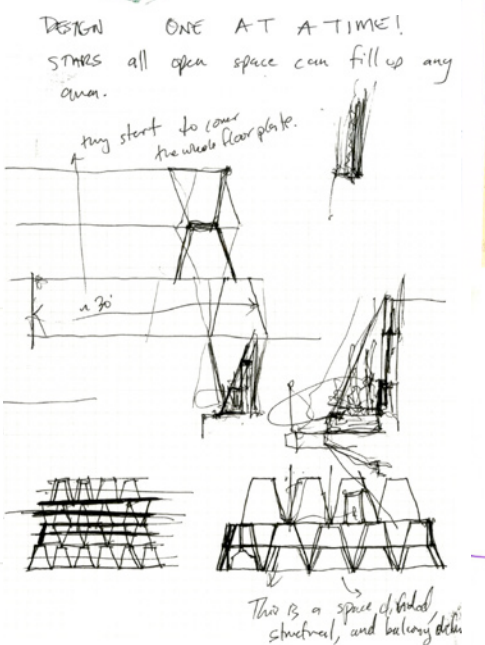
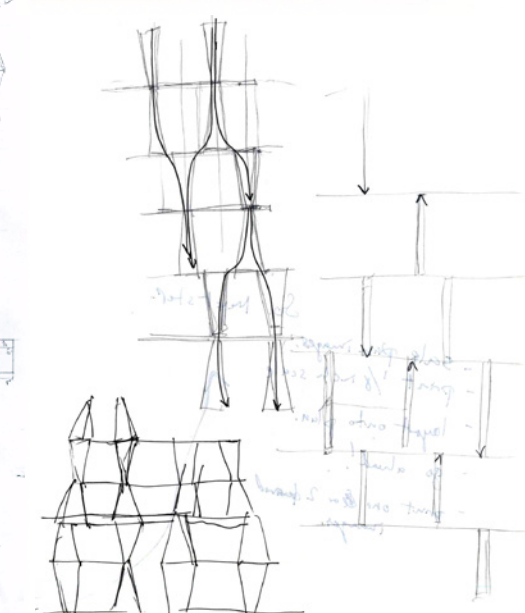
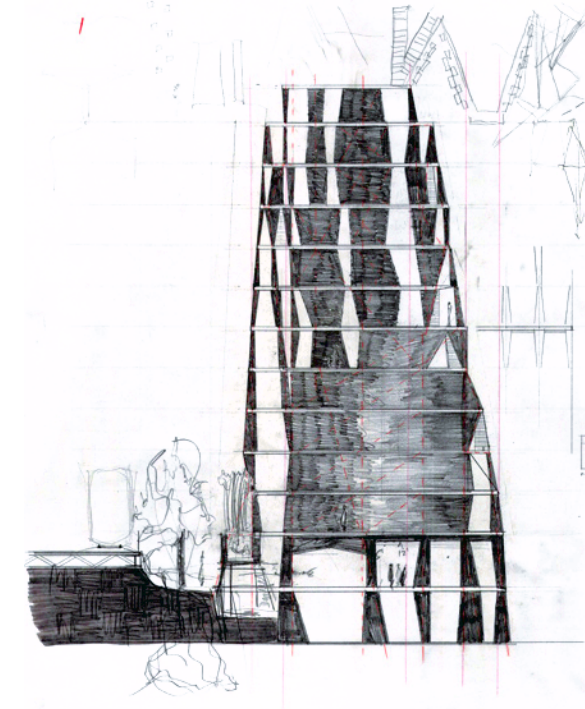
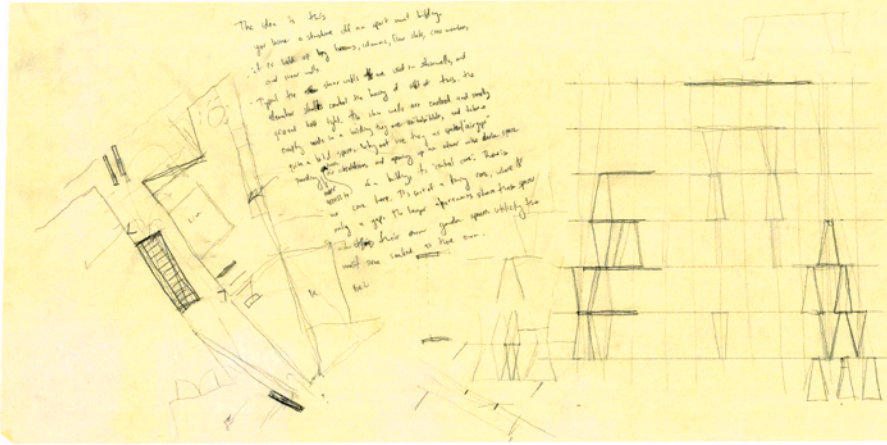
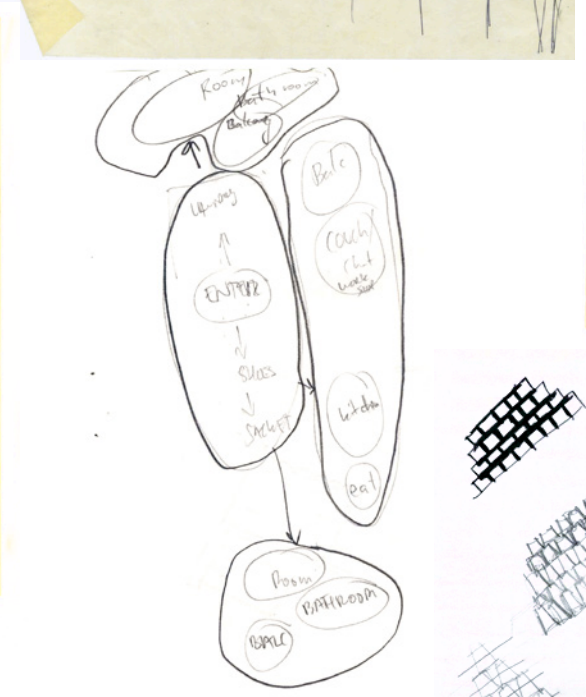
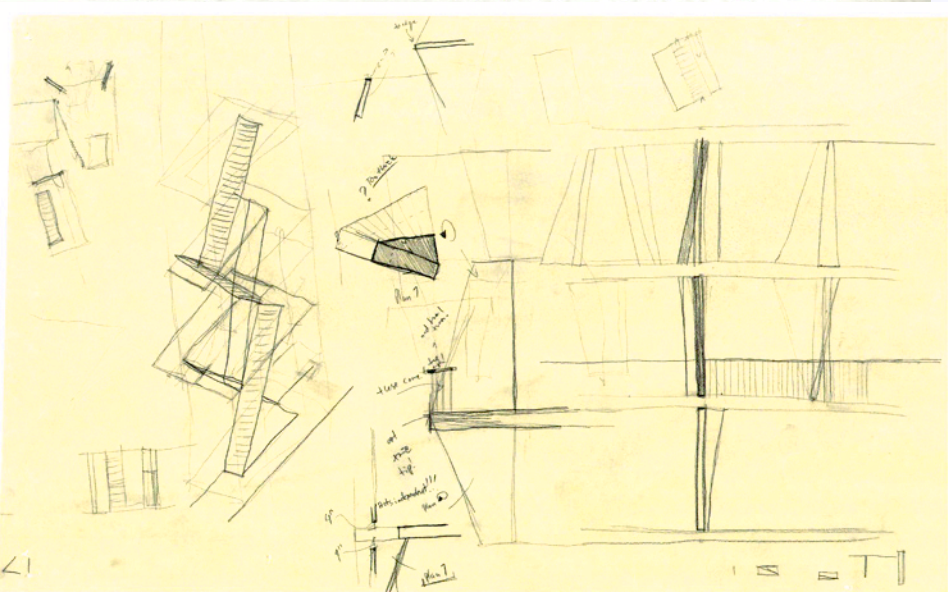
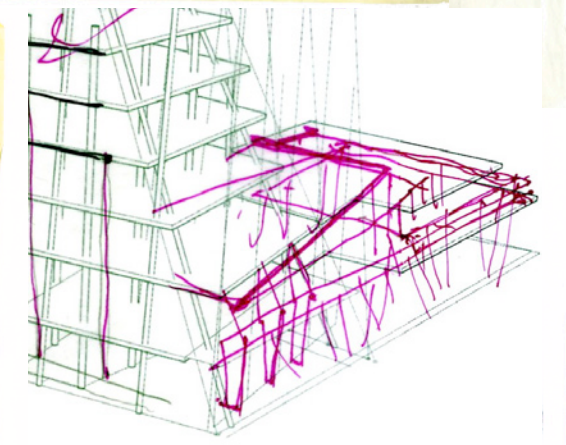
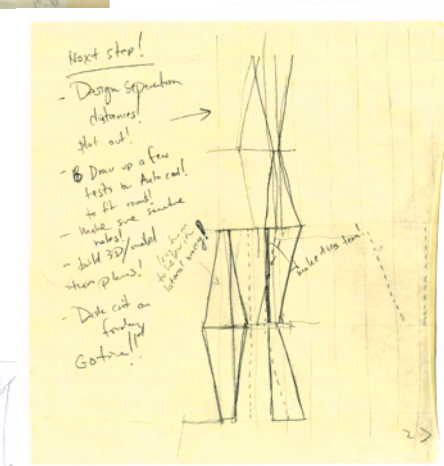
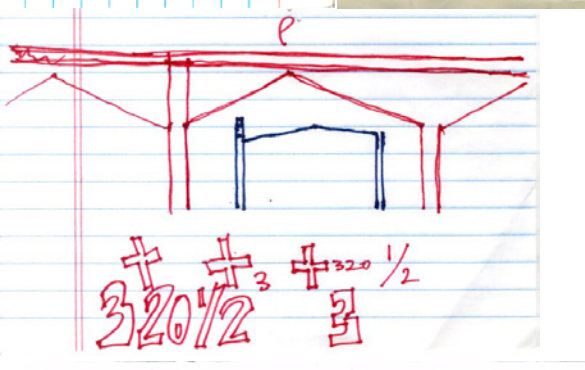
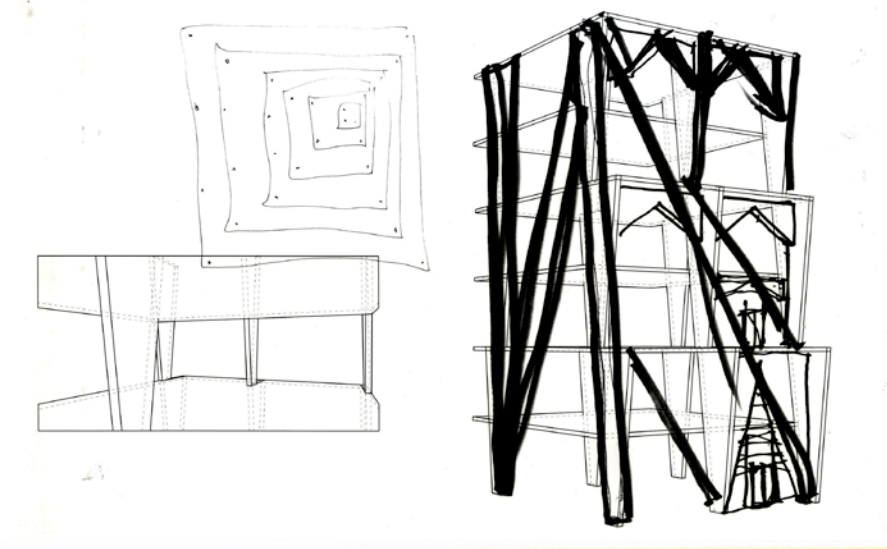
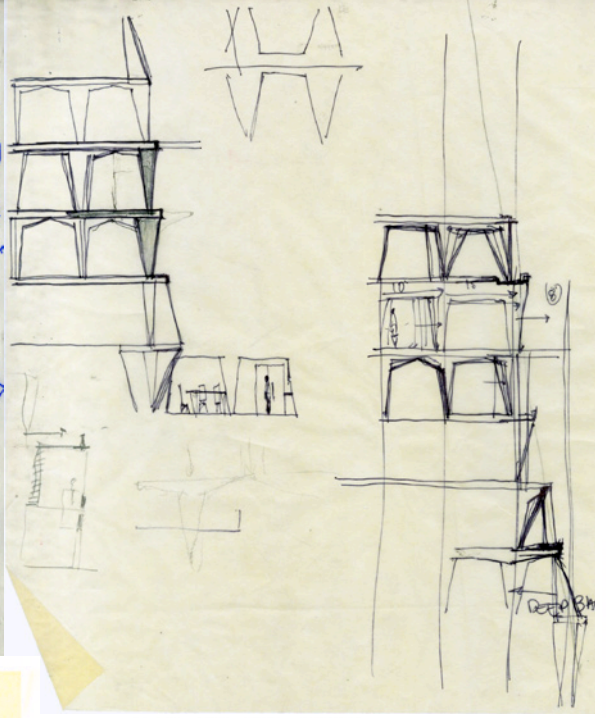
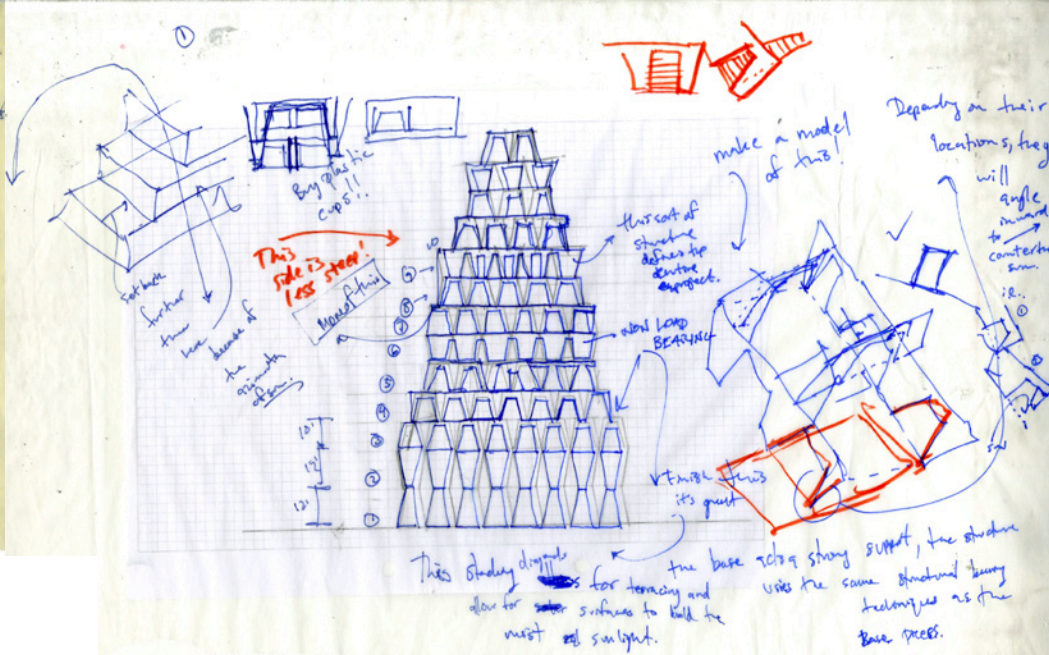
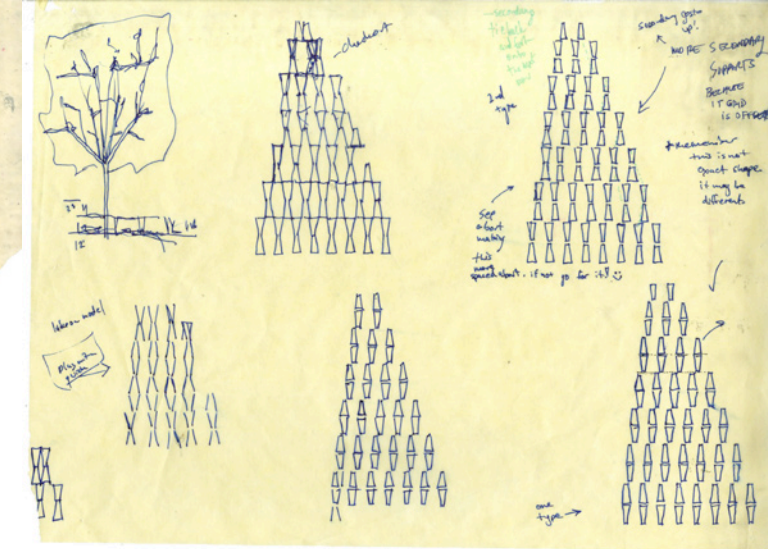
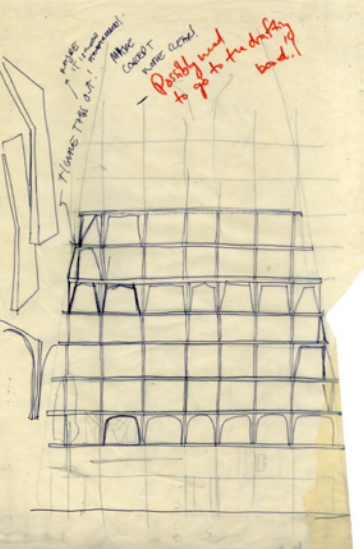
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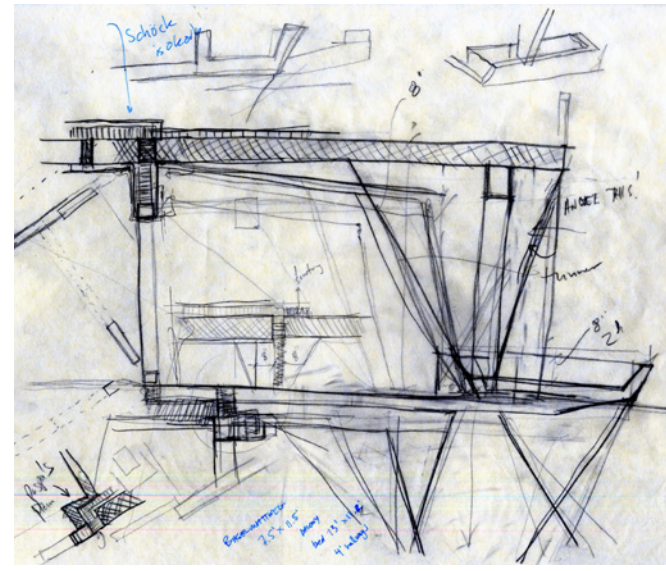
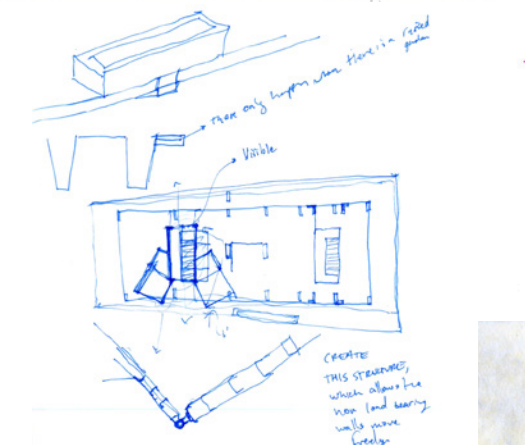
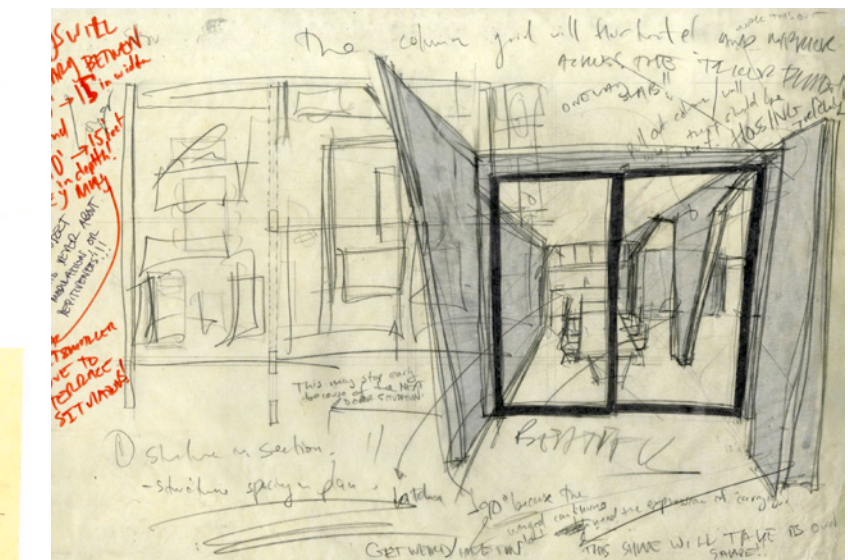
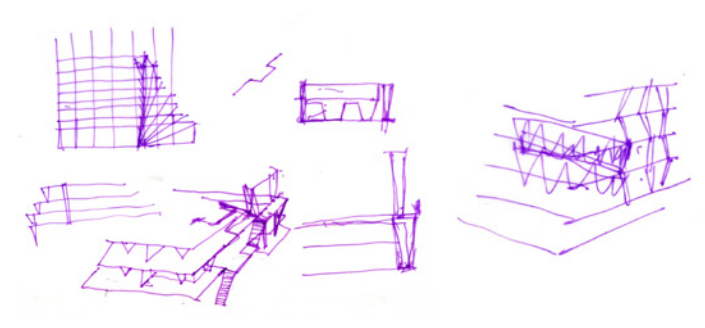
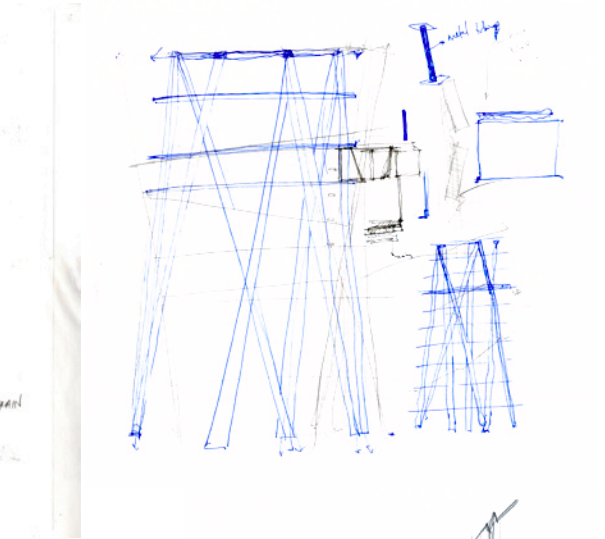
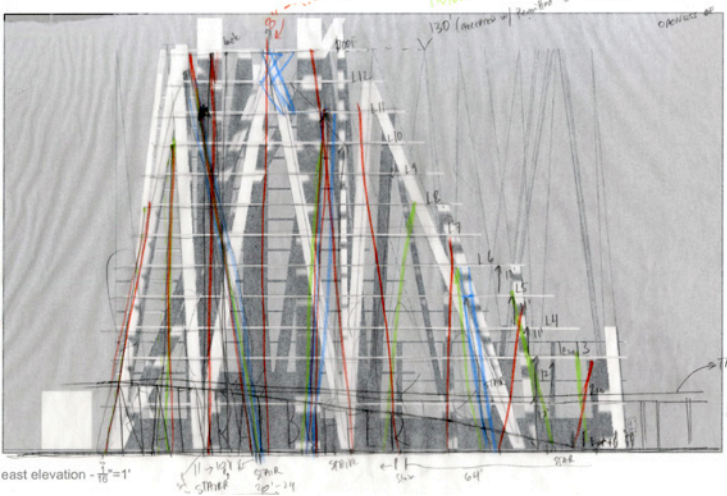
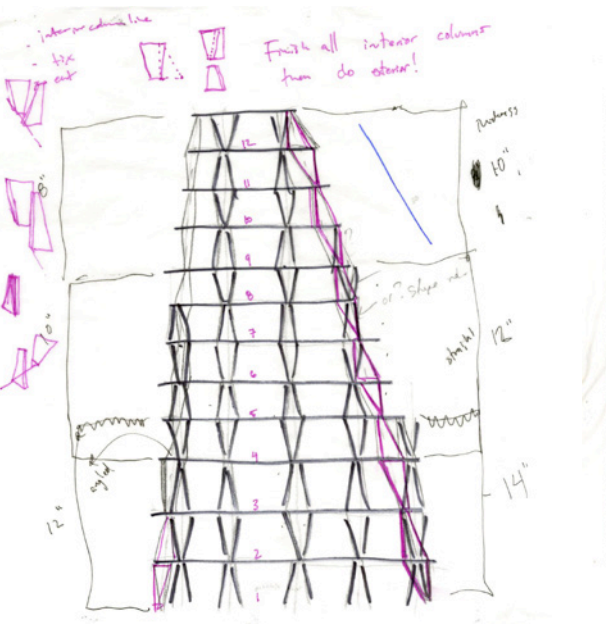
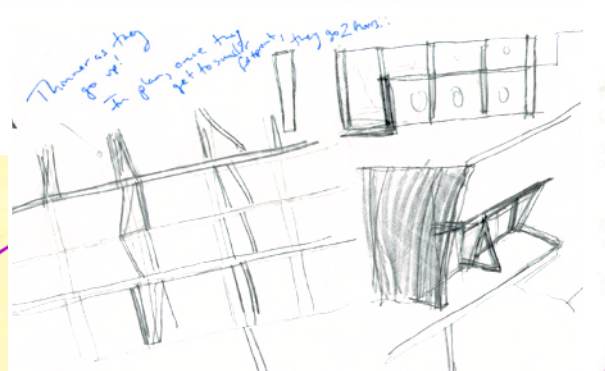
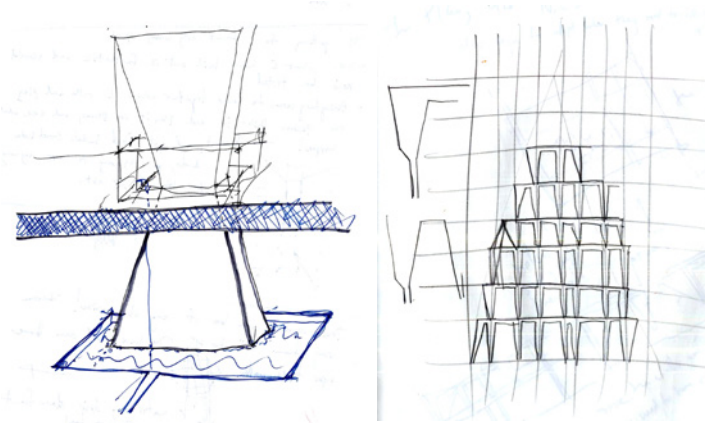
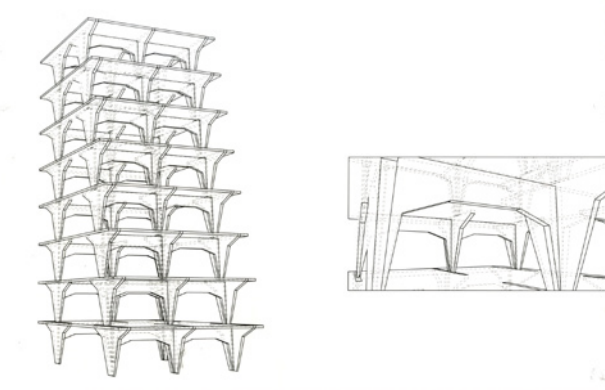
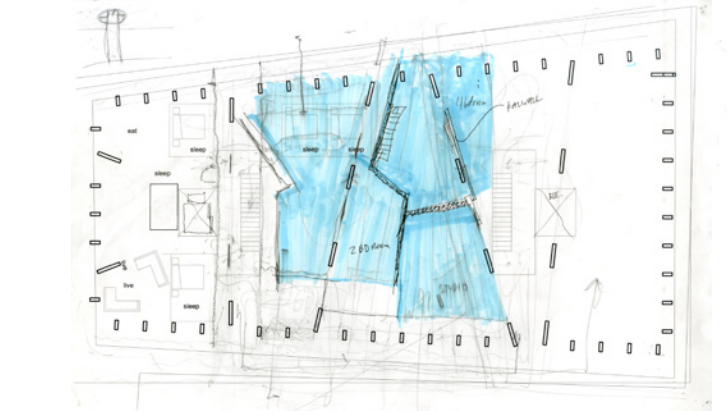
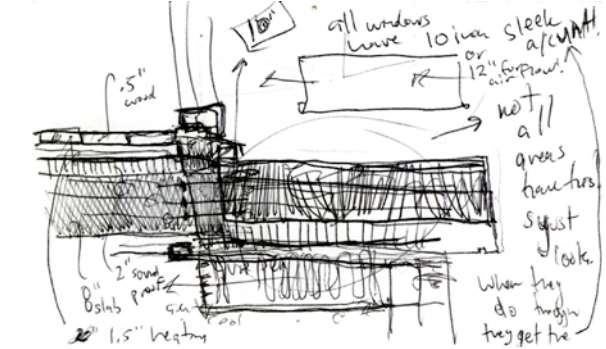
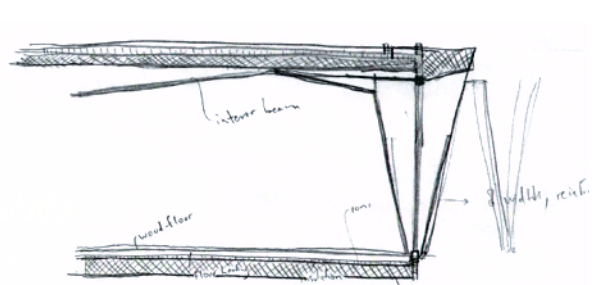
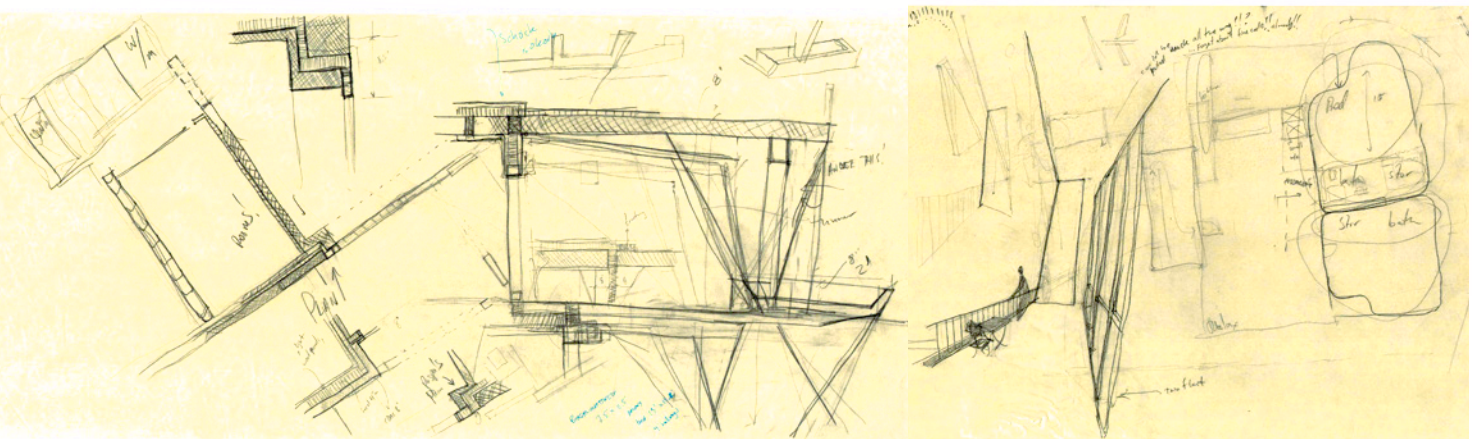
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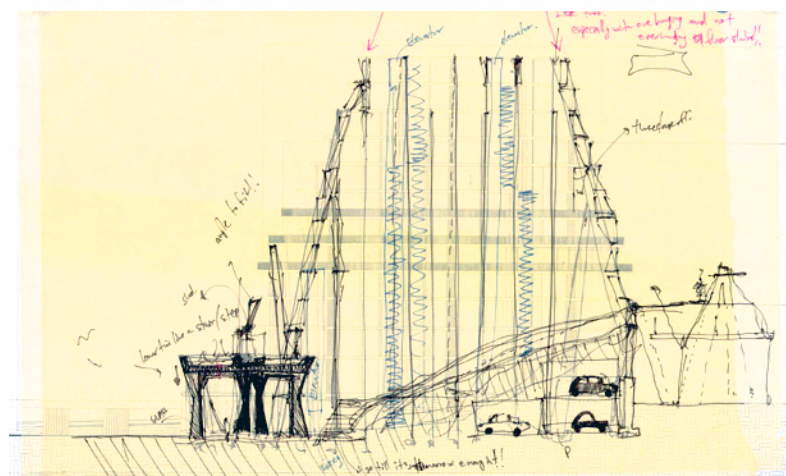
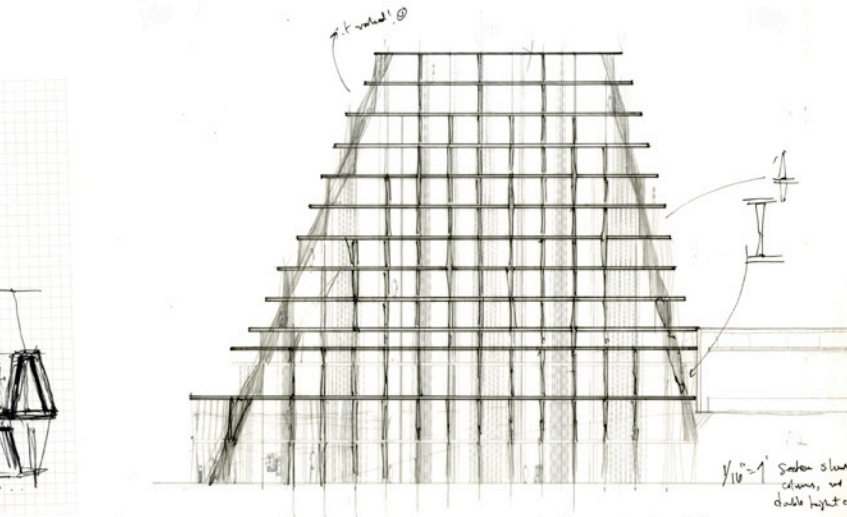
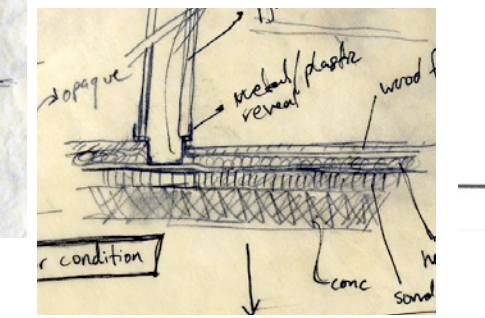
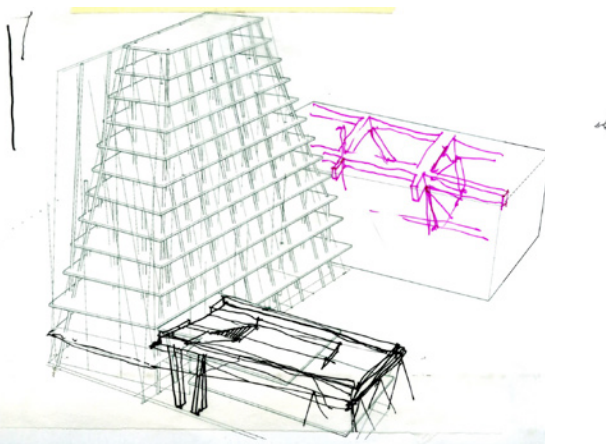
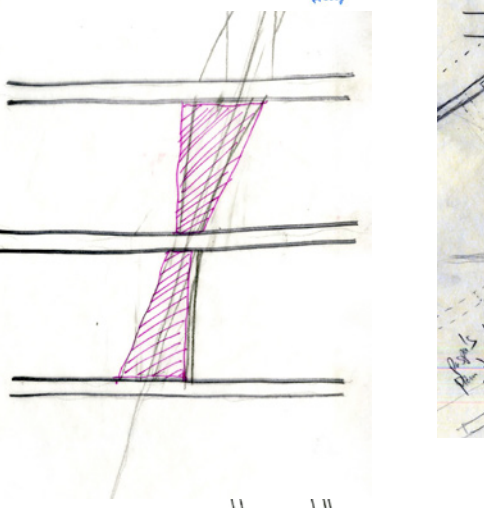
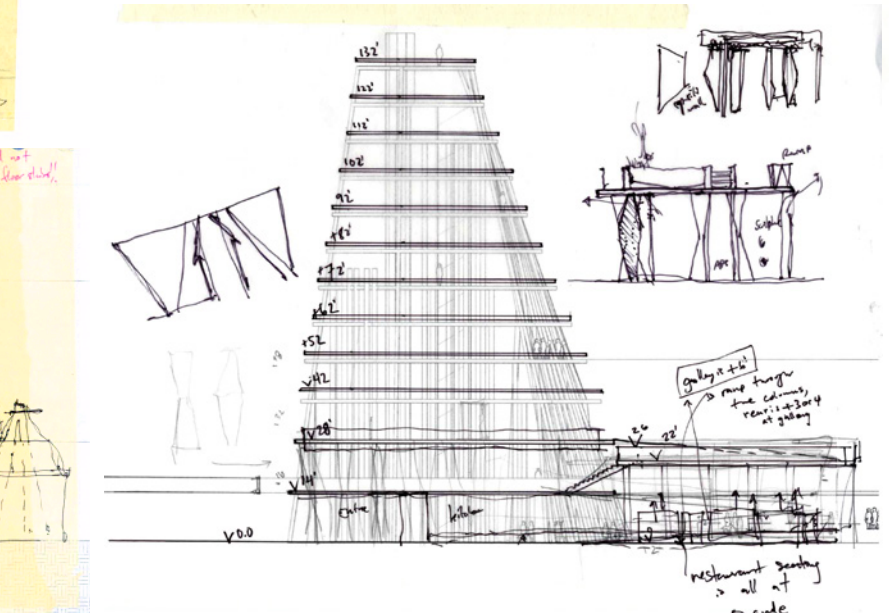
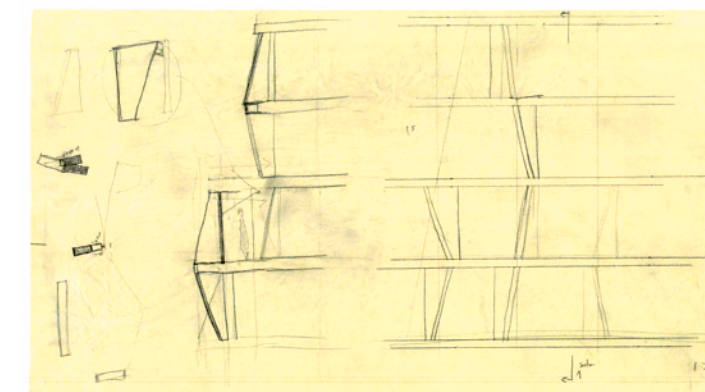
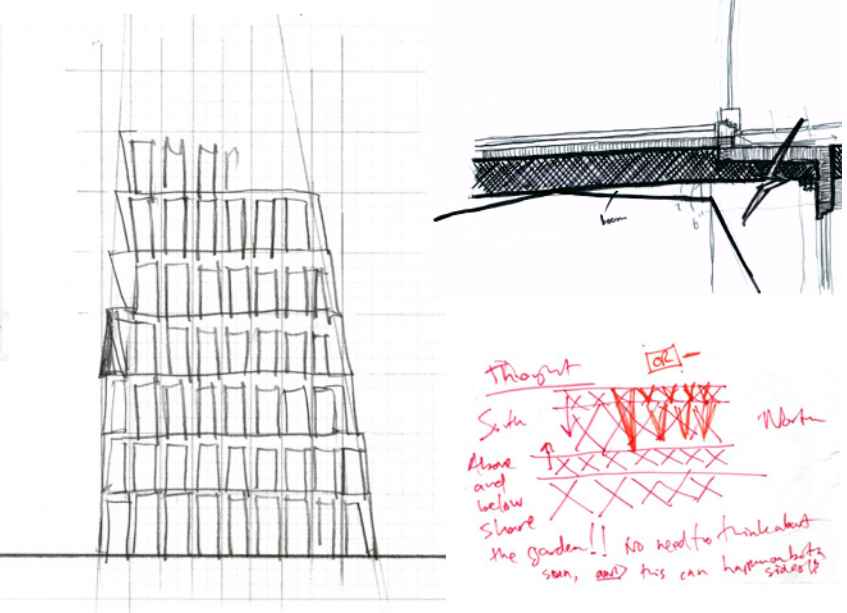


1/24 of span if post-tensioned = 5-7.5 SO... ~6"
10 FT IS FT
column see 5% rule with advice!
8" can support approx 1,200 ft of slab?
perhaps at base the walls are 12-24 inches





- STRUCTURE → VISIBLE
 - MATERIALS → UNDERSTAND
 - SPACE → LIVABLE AND BEAUTIFUL
 - PROGRAM → LESS INTRUSIVE TO COMMUNITY
 - IDEA → TERRACES ALLOWING SUSTAINABLE LIFESTYLES!
- BME ACCESS
 - SUPPORT THE SLUFF / CELEBRATE THE GRID
 - PUBLIC ACCESS TO TERRACES, COMMON SPACES, OPENINGS AND WALKWAYS
 - PUBLIC HOUSE / RELAX CENTER (AND PLANT)
 - STREET ART GALLERY (WITH A KIDS)
 - SUPER DENSE ENTRANCE ROOF FOR "2nd floor" (can hold)



Thought
Side
More and below
slow
the garden!! no need to think about sun, and this can happen with sides!

1/10" scale slung
columns, no
double height

= *end*