

living information as a socially-mediated high school

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B.A. Liberal Arts
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Submitted to the Department of Architecture in partial fulfillment of the requirements for the degree of Master of Architecture at the Massachusetts Institute of Technology, February 2005.

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abstract

“The present epoch will perhaps be above all other epochs of space. We are in an epoch of simultaneity: We are in an epoch of juxtaposition, the epoch of near and far, of the side by side, of the dispersed. We are at a moment I believe, when our experience of the world is less that of a long life developing through time than that of a network that connects points and intersections with its own skin.”

-Michel Foucault¹

Social Network Theory suggests that aspects of quantum systems can effectively describe a constantly evolving invisible web of live information that is entirely contingent upon the varying degrees of trust and social interaction among a defined group of people. Despite traditional assumptions about social structure, order, and hierarchical systems, a vast web of tacit knowledge (i.e. embodied, *living* information) evolves within a group of people, entirely due to naturally informal social interactions. When placed within the socially charged realm of the high school, this premise suggests that significant moves can be made in the design of a school (both in physical form and curricular format) in order to positively engage (rather than *suppress*) an educational program with the enduring social tendencies of a student body.

My thesis proposes a high school with a distinct spatial layout that mediates between the student body’s inherent manner of socially constructing information among peers, and the curriculum’s way of academically propagating knowledge. The design incorporates a layering of densely programmed spaces that reveal void conditions or *between* spaces that are free to be programmed in a variety ways, thus providing opportunities to blur the often strict boundary between social space and academic space. In this blurred area, a project/group-based curriculum can be developed to involve casual work areas that can fluctuate in size, based on the specifications of the project. Through the cultivation of this type of environment, the social energies of the students can begin to infect the rigid aspects of education in a positive way, thus creating an environment that is a mediated cross-fertilization of the social and the academic. The end goal is an involved type of learning that feeds off of the irrepressible social energies of the high school student.

Thesis Supervisor: Ann Pendleton-Jullian
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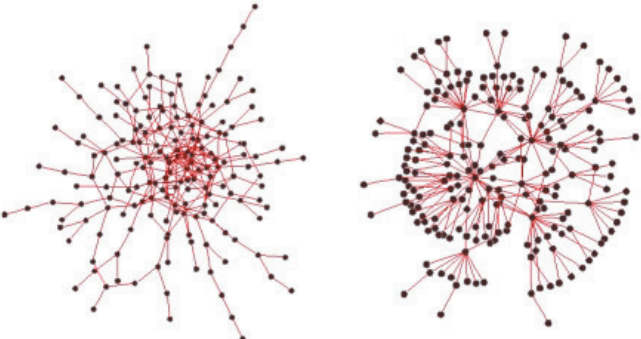


theory

When two quantum systems meet, their particle aspects tend to stay somewhat separate and to maintain shades of their original identities, while their wave aspects merge, giving rise to an entirely new system that enfolds the originals. The two systems relate internally; they get inside each other and evolve together. The new system to which their overlapping gives rise now has its own particle and wave aspect, and its own new corporate identity. It is not reducible to the sum of its parts. We can't say, as in classical physics, that the new system is composed of *a* plus *b* plus the interactions between them. It is a new thing, an 'emergent reality.' In the physical world, such emergence is unique to quantum reality.²

This simple statement offers the fundamental premise upon which to formulate social network theory. Aspects of quantum systems acknowledge an invisible web of live information that is entirely contingent upon the varying degrees of trust and social interaction among a group of people. Despite traditional notions of social structure, order, and hierarchical systems, a vast web of tacit knowledge evolves within a group of people, entirely due to informal social interaction. Current research has begun to define a potent area of inquiry now forming between architectural design and social network analysis. Space, in an architectural sense, can no longer simply concern itself with the notion of placing and arranging bodies *as discrete units*. It is becoming understood, through the analysis of a social network, that despite its reality as a layer of non-physical information, a social network maintains a direct relationship with each individual's physical location (i.e. the simple shift of one individual's location can have profound and unpredictable effects on the structure of an entire network). At a slightly deeper level, the value of architectural design as a latent program for the social network comes into play. Can they inform or respond to one another equally without damaging their respective domains?

Contrasting Social Networks



theory

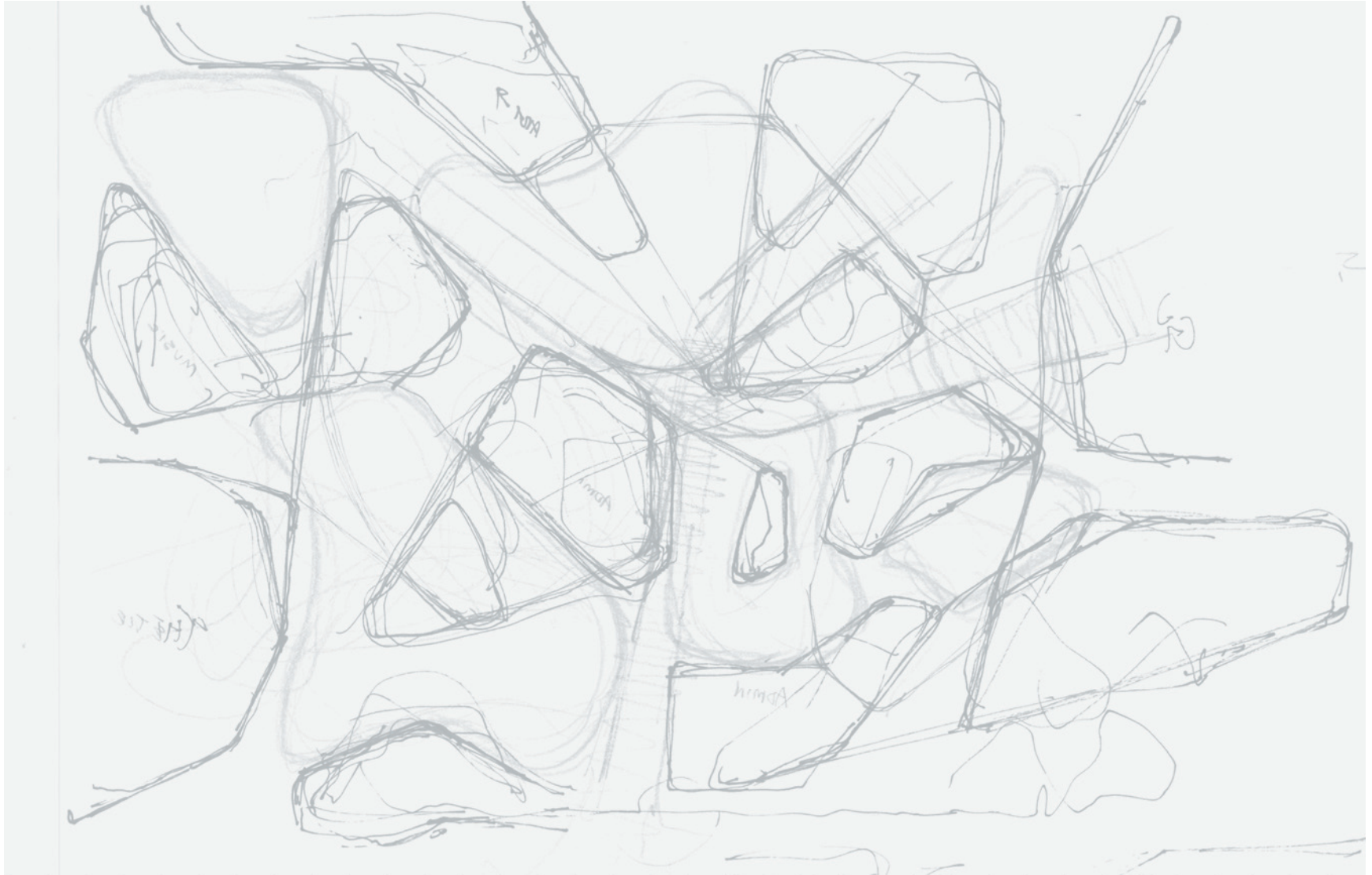
In the *analysis* of a social network, a map or diagram seeks to convey the degree of connectivity between the minds of an institution, organization, or social group. This is normally done in layers of representation as social bodies consist of a multitude of human interactions that appear relevant to their existence. Due to the invisible nature of human networks, mapping requires a calculated glimpse of a specific moment within the network (knowing that it is necessarily overlapped with other networks). The act of measurement seeks not to directly quantify, but to acknowledge possible working models in continuous evolution.

The network diagrams on the left suppose two very different mappings of a social network. Embedded within the connections is a unique group identity that requires each member's involvement. Though each individual is marvelously unique, when he or she is conceptually understood as a discrete unit, the notion of the group or network becomes lost. In these situations, a group is only taken into consideration as an array of points in a field. By mapping the social connections between people, based on levels of trust and engagement over a period of time, a network begins to appear, formed with its own unique identity. This issue of identity plays a central role in high school both at the individual level as well as the group level.



theory

The continuously evolving social potency of a public high school conveniently resists and allows for social interaction within the same walls. Needless to say, social interaction at this stage of a person's life is palpable as well inevitable. Groups form quickly, mutate frequently, and restructure themselves on a day to day basis amidst the physical organization and administrative order that a high school provides. This thesis proposes a model that demonstrates the tenuous inter-play of social behavior, academic conventions, within both physical and digital space, focusing on the notion that social network theory is embedded with principles that, once bound with and energized by program, require significant manifestations of design. That is to say, specific types of program within the academic setting require specific range of social interactions, and vice-versa.



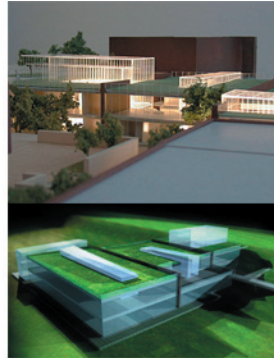
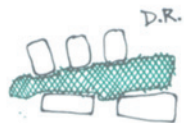
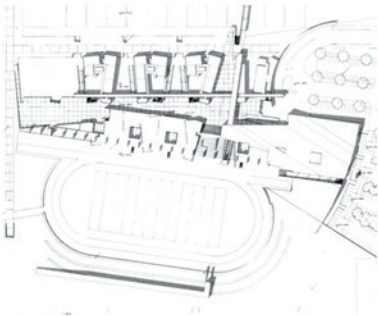
theory

Whether formed naturally and socially, or constructed intentionally through curriculum, a social network naturally fosters each member's communication skills. This layering of the social and the academic seeks to equalize the importance of academic intelligence and emotional (or social) intelligence. While the IQ (intelligence quotient) has traditionally been favored as an accurate evaluation of a person's intelligence, the recent attention regarding the EQ (emotional quotient) suggests that a person's ability to efficiently and confidently interact with others is perhaps equally as important. Instead of relying on the traditional notions of a lecture classroom with the teacher at the front and the students arranged in a grid of desks, a socially intelligent environment seeks to engage students and educators in group-oriented gathering spaces that provide for comfortable group discussions, simple presentations, and flexible workspaces. These principles drive the interest behind this proposition for a socially-mediated high school.

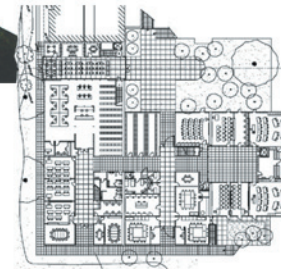
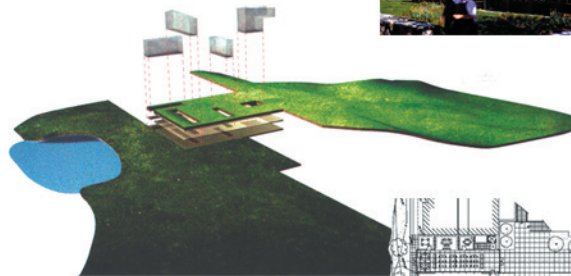
precedents



Diamond Ranch High School
Diamond Bar, CA
Architect: Morphosis
1,600 students
150,000 sq. ft.



Greenwich Academy Upper School
Greenwich, CT
Architect: SOM, Roger F. Duffy
45,000 sq. ft.



G.U.A.



High School for the Visual and Performing Arts, High School #9
Los Angeles, CA
Architect: Coop Himmelblau
1500 students



H.S.L.A. #9

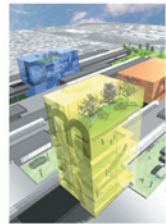
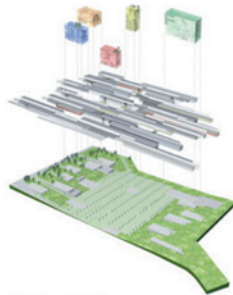




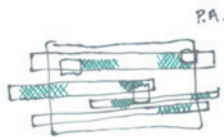
Central Los Angeles Area High School #10
 Los Angeles, CA
 Architect: Johnson Fain
 1,700 students
 231,000 sq. ft.



C.L.A.#10



Perth Amboy High School
 Perth Amboy, NJ
 Architect: John Ronan
 3,000 students
 471,436 sq. ft.



P.A.



Lick-Wilmerding High School
 Technology and Design Center
 Architect: Pfau Architecture, Ltd.
 380 students
 34,000 sq. ft.



L.W.



Science Canyon (K-12)
 Colorado Springs, CO
 Architect: Antoine Predock



S.C.



precedents



Kvernhuset Ungdomsskole
Fredrikstad, Norway
Architect: Pir II Arkitektkontor
94,500 sq. ft.



F.A.I.R. Arts Middle School
Crystal, MN
Architect: Hammel Green and Abrahamson, Inc.
221,000 sq. ft.



WMEP Interdistrict Downtown School
Minneapolis, MN
Architect: Cuningham Group, P. A.
600 students
102,500 sq. ft.



Escuela de Bellas Artes de Carolina
Carolina, Puerto Rico
Architect: Davis, Fuster Arquitectos
900 students
63,000 sq. ft.

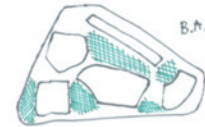
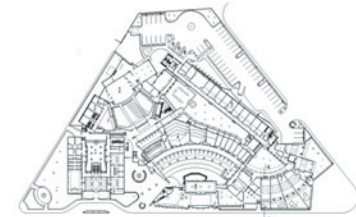
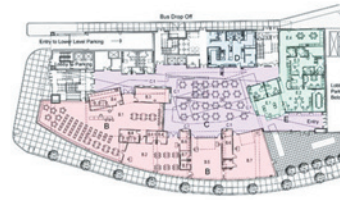
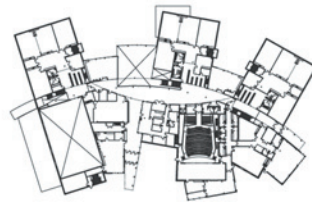
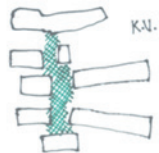
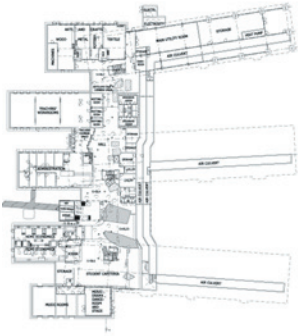
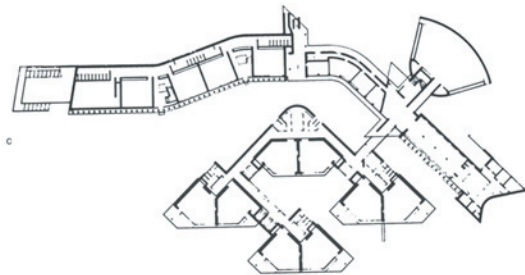
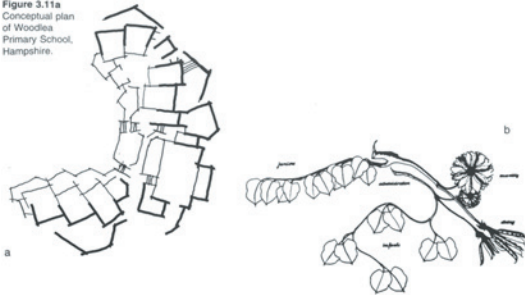


Figure 3.11a
Conceptual plan
of Woodies
Primary School,
Hampshire.



Figures 3.11b and 3.11c
Drawing of plant (Figure 3.11b) as metaphor for the layout of an urban school, Leadun's Hallfield School.

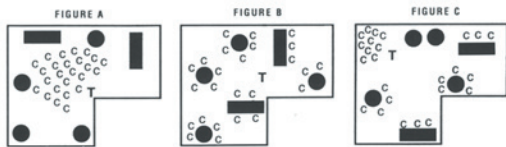
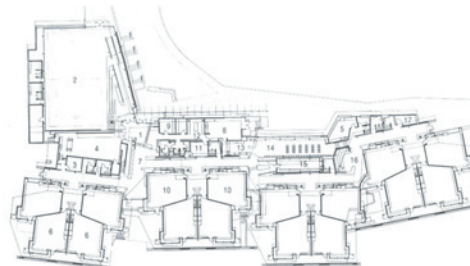


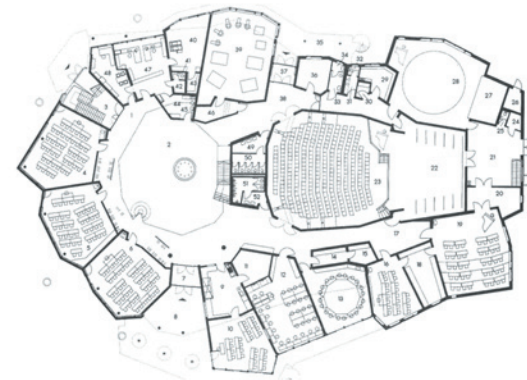
Figure 2.5a
Alternative classroom layouts within the Fat L: figure A shows the class meeting as a group with all the children (c) gathered together in the centre; figure B shows children working in small groups at tables and figure C shows about half the children gathered around the children for reading time whilst the rest work in small groups. James A. Dyck, who carried out this research, believes that the L-shaped classroom can be most easily organized to permit a wide variety of pupil groupings, and with bookshelves and storage cabinets can enhance the sense of separation individual pupils need within the classroom. (James A. Dyck, The Architectural Partnership, Lincoln Square, 121 S. 13th St, Suite 702, Lincoln NE 68508.)



Strawberry Vale School
Victoria, B.C.
Architect: Patkau Associates
448 students
3172 sq. meters



Waldorf School
Chorweiler, Cologne
Architect: Peter Hubner
6150 sq. meters



program

The program for the high school design centers around the notion of academic cores or mini-schools which can host up to 210 students each. They are referred to as *cores* because they contain an open center that radiates outward employing various levels of enclosure. This is intentionally planned as a way to create a identifiable central meeting spaces with smaller subspaces located around each core's periphery. The levels of enclosure relate to the gradation of programmed spaces as listed to the right, complete with square footages and number of students. A total of four two story cores will account for the 1800 students.

Definition of Space Breakdown in Academic Cores

1. **Free Standing / Circulation** – open tables in circulation space
2. **Open / Unfixed / Along Edges** – open tables grouped along specific wall formation or niche
3. **Open / Fixed / Meeting Area** – Fixed table(s) in clearly formed space, yet entirely open to circulation zone
4. **Semi-Enclosed Group Space** – Adjacent to circulation zone, group size meeting space that is enclosable by large sliding doors
5. **Enclosed Office / Meeting (S)** – Two teacher's offices that both include a group size round table discussion area
6. **Enclosed Office / Meeting (L)** – Two teacher's offices that both include a larger group size round table discussion area
7. **Enclosed Lecture (double-height) / Mini-theatre** – Central mini-theatre (seats 30-50) that supports lectures, presentations, films, etc

Overall Size

1800 students

locker-private 1.5' x 1.5' 2.25 sq ft

allotted workspace 6' x 6' 36 sq ft

70,200 sq ft

Sub Cores (8 count)

210 students

7,200 sq ft

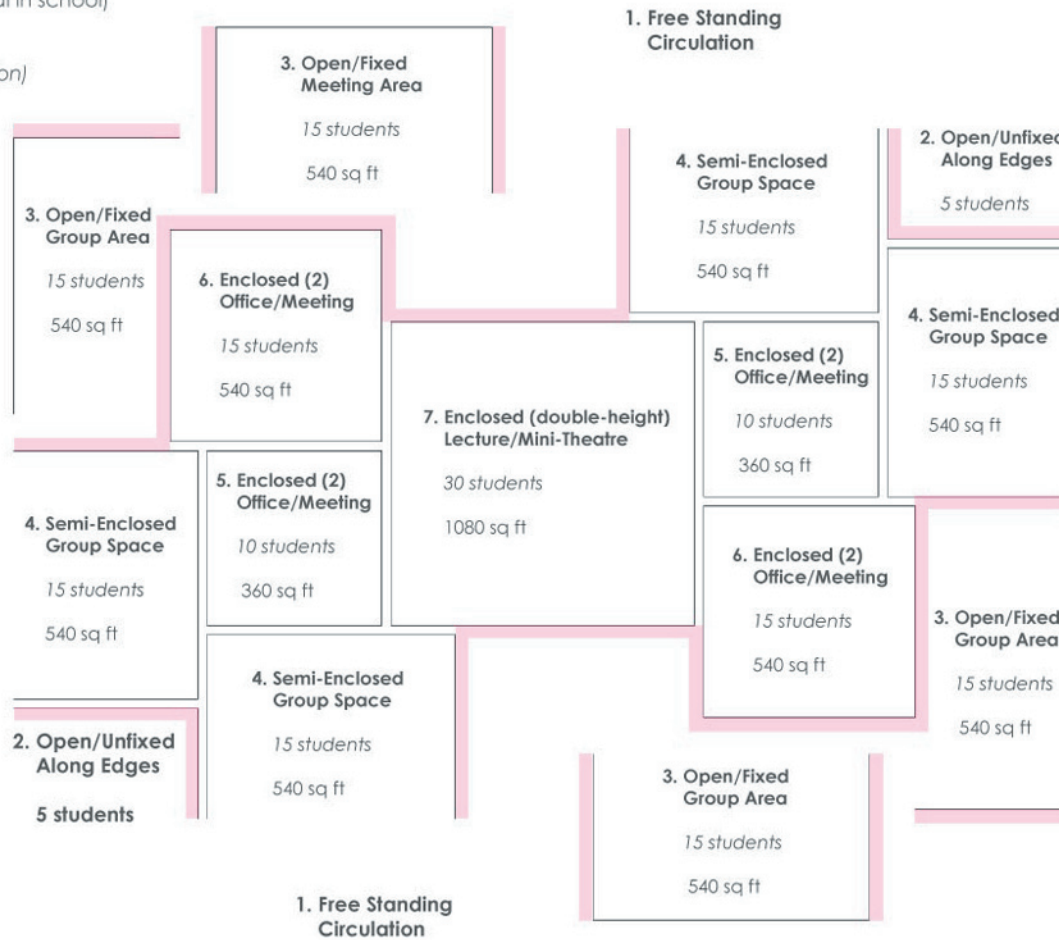
410 linear ft of lockers

Diagram Plan of Academic Core (8 cores total)

210 students (1800 total in school)

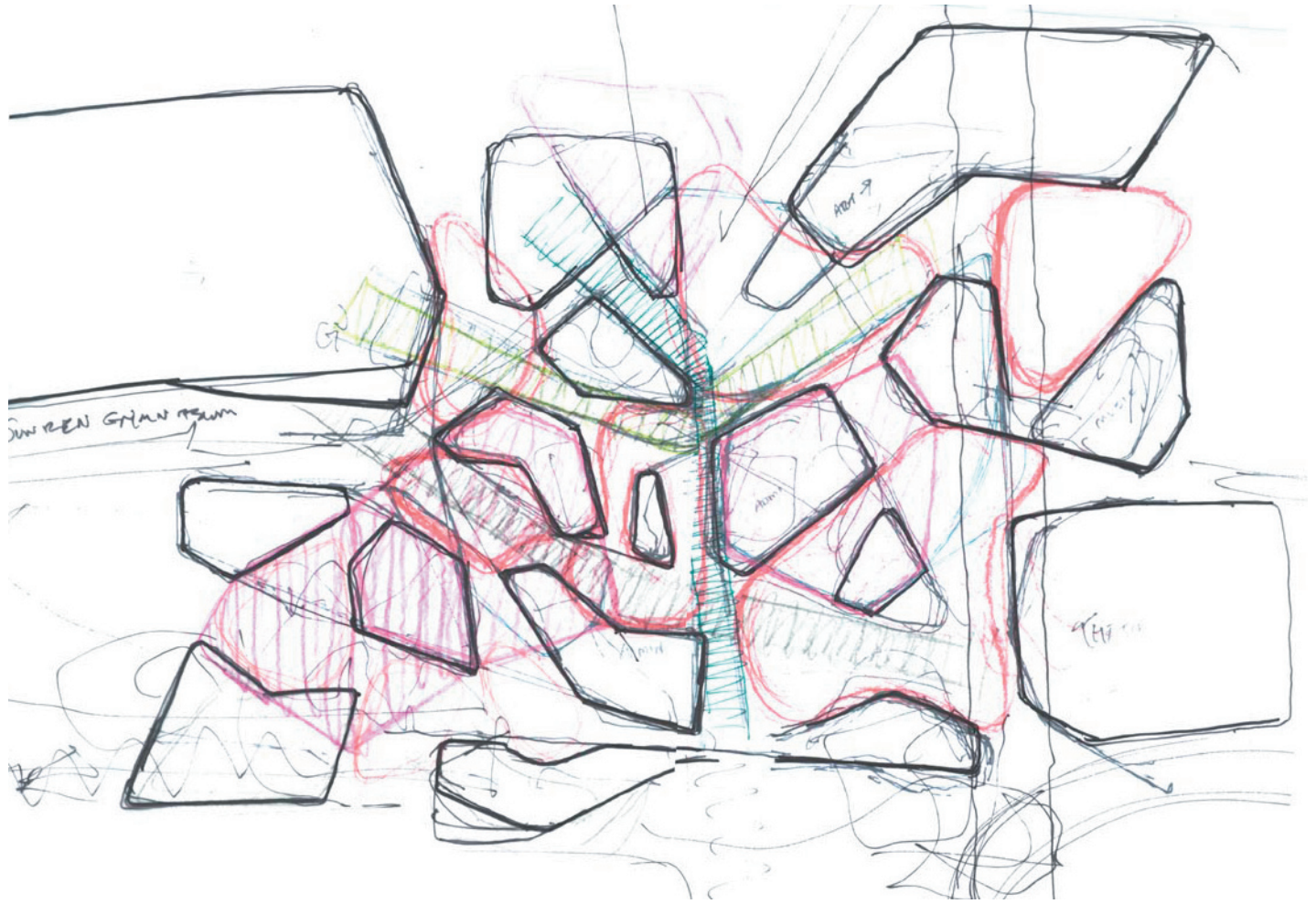
7200 sq ft
(defined/non-circulation)

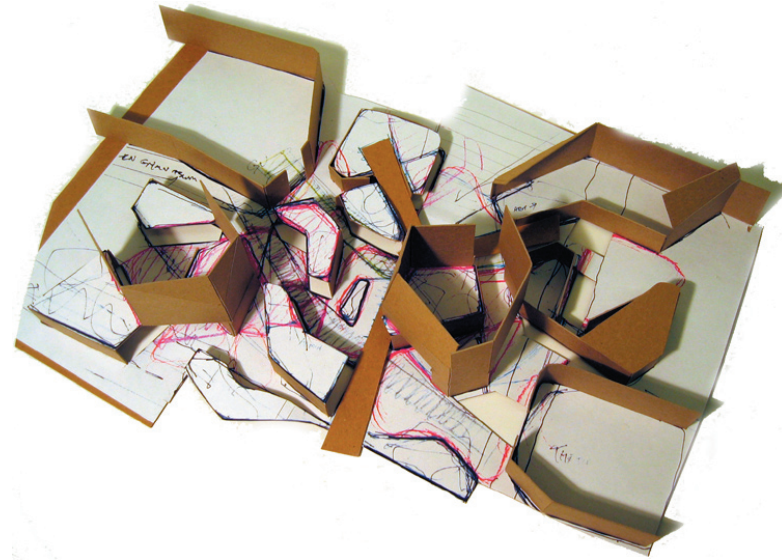
lockers 2' x 1 1/2"
410 linear ft



process

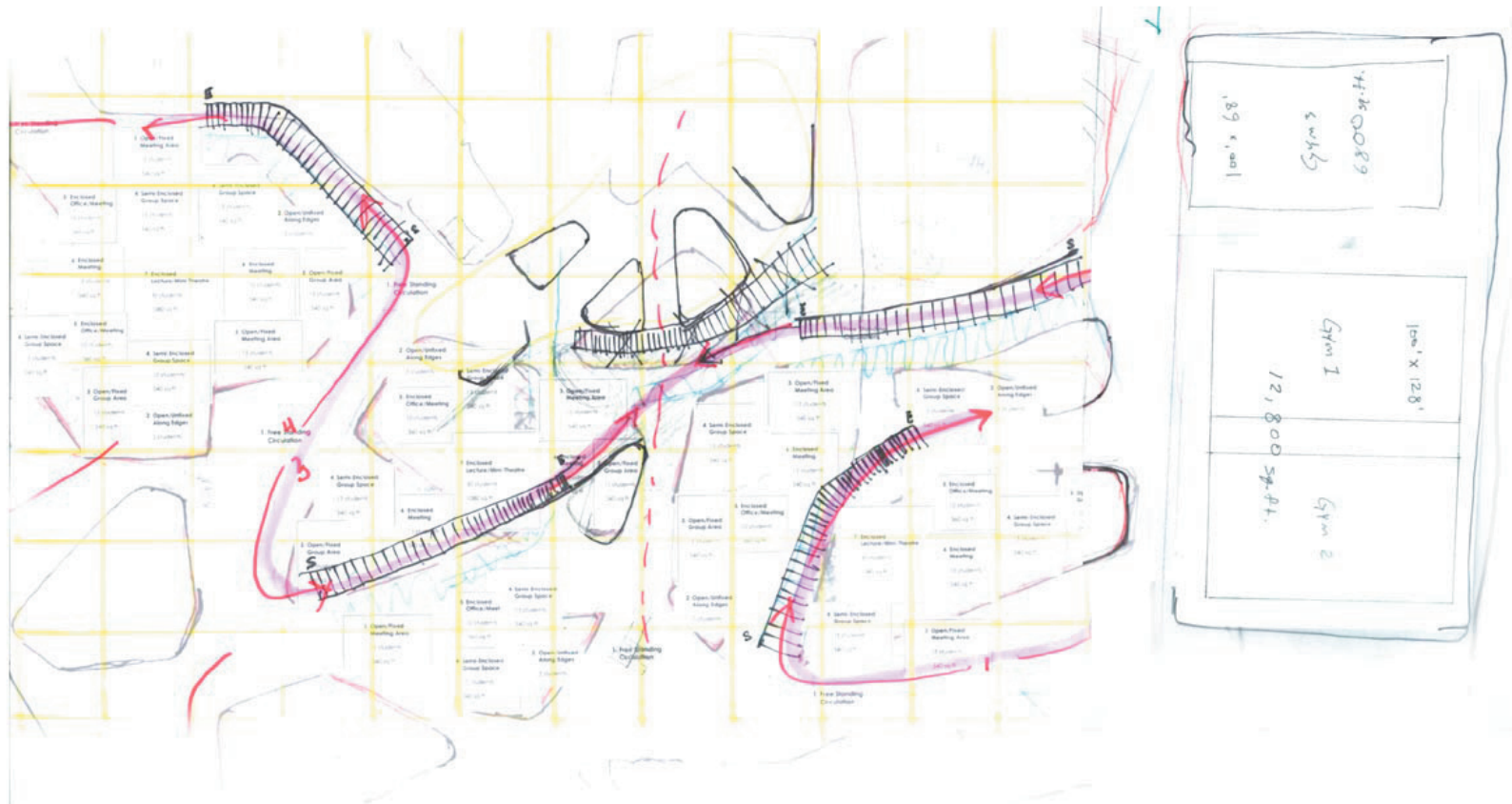
As an attempt at articulating an intuitive viewpoint, this sketch suggests the possibility that a school can physically exist as an array or expanse of dispersed objects that rely on both their internalized and enclosed spaces, as well as their external adjacencies and open spaces. This defeats any notion of the traditional linear double-loaded corridor as the sketch suggests a new type of space that continually expands and contracts, offering the student a consistent fluctuation of spatial characteristics.

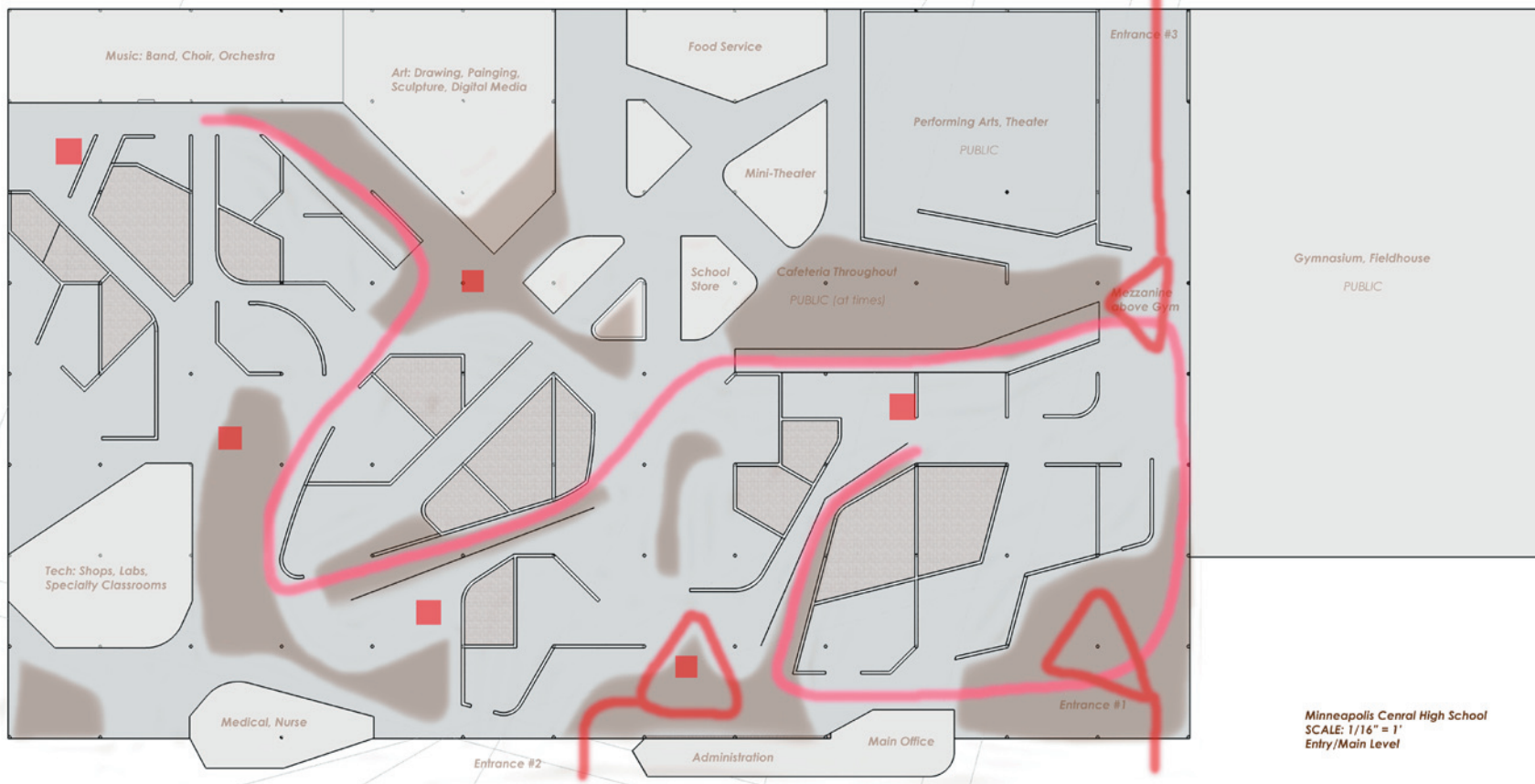




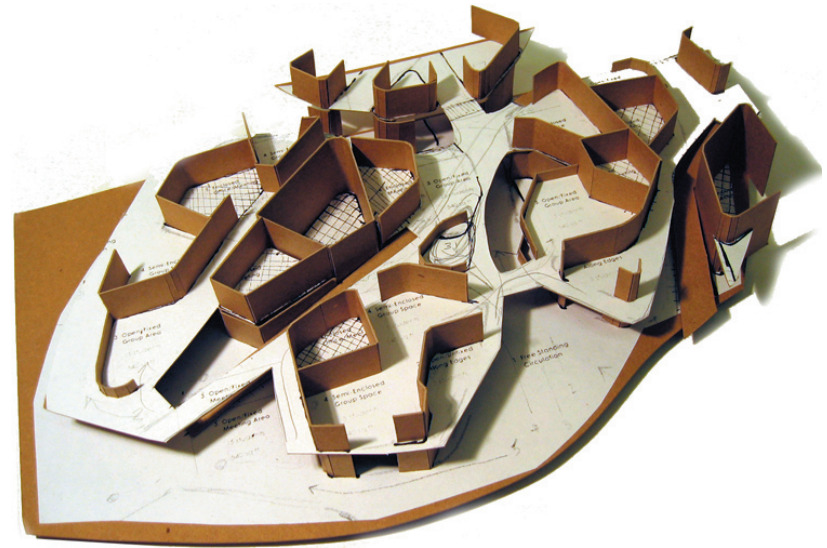
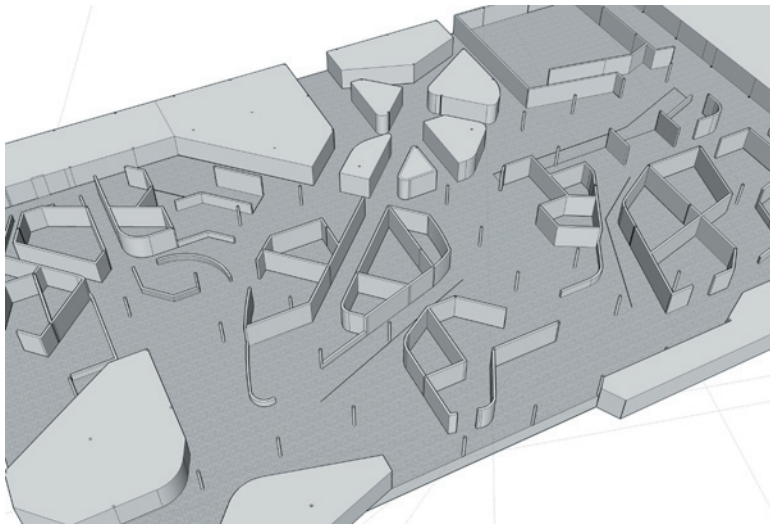
As an overly literal starting point for the design, the previously viewed core diagram and the intuitive sketch were strung together as a first attempt at reconciling the two ideas in a relevant fashion. The academic core diagram was broken into pieces and strategically layed out along the sketch as a very direct method of maintaining the conceptual ideas found in both. As a generative exercise this yielded a problematic result, yet was very helpful in re-configuring the diagram of the academic core. It also highlighted the difficulties alive in establishing efficient circulation throughout the school.

process





Embedded in the goals of the design was the need for primary and secondary circulation pathways as a way of lacing together the pieces of the academic cores. In the iterative process of the design, large scale moves that relate to the site, circulation, and autonomous programmatic elements such as the library, gymnasium, and theater merged organically to construct the layout of the school while maintaining the smaller scale concept of the academic core alive as the much more intimate and repetitive aspect of the design.



The sketch to the left reflected an ambition to address the coalescence of the academic cores into unique local spaces that resembled one another, yet were intentionally unidentical to one another. This enlarged the possibility for orientation and navigation as each space began to resemble a small neighborhood of spaces that were similar to, but not the same as the adjacent ones. Spaces could begin to form their own identity based on spatial layout, relationship to adjacent spaces, and relationship to the exterior, as well as the center. Though these principles were relevant to the entire design project, this sketch and the above physical and digital models were abandoned primarily because they did not sufficiently address sectional changes and did not respond well to the surrounding site and urban context.

site planning

The site occupies a large piece of land on Nicollet Island in the Mississippi River near downtown Minneapolis, MN. Shown at left is the City of Minneapolis school map. Noticeably absent is a school located near the downtown. Nicollet Island sits amidst numerous loft conversions and condominium projects in an urban renewal area on both sides of the long-neglected riverfront. The placement of a public high school in this area could revitalize the notion of education in the urban realm and provide a place of identity for youth in an area soon to be dominated by young professionals and empty-nesters. In some respects, this project can be understood as a youth-oriented reclamation of an urban area.

site planning

The approximate land area of the site is currently occupied by a private catholic high school of 600 students. The site was chosen for its unique proximity to the downtown, the island/river situation, and the urban renewal that is occurring in the immediate area. The decision to use a current private high school's land has very little to do with the existing high school and everything to do with the location. The proposed program includes 1800 students and a radically different design approach that embraces the difficulty of placing a much larger, and therefore much more dense program, on an urban island.

The site is located along Hennepin Avenue, a major street that runs directly through downtown Minneapolis, connecting popular urban locales for students such as Uptown, Northeast Minneapolis, Dinkytown, and the University of Minnesota campus.



site planning



Approach to site on Hennepin Avenue with bridge and downtown Minneapolis in the background. Condominiums on both sides of the street.



Condominium development on Northeast Minneapolis riverfront.





View of site from downtown side of river.

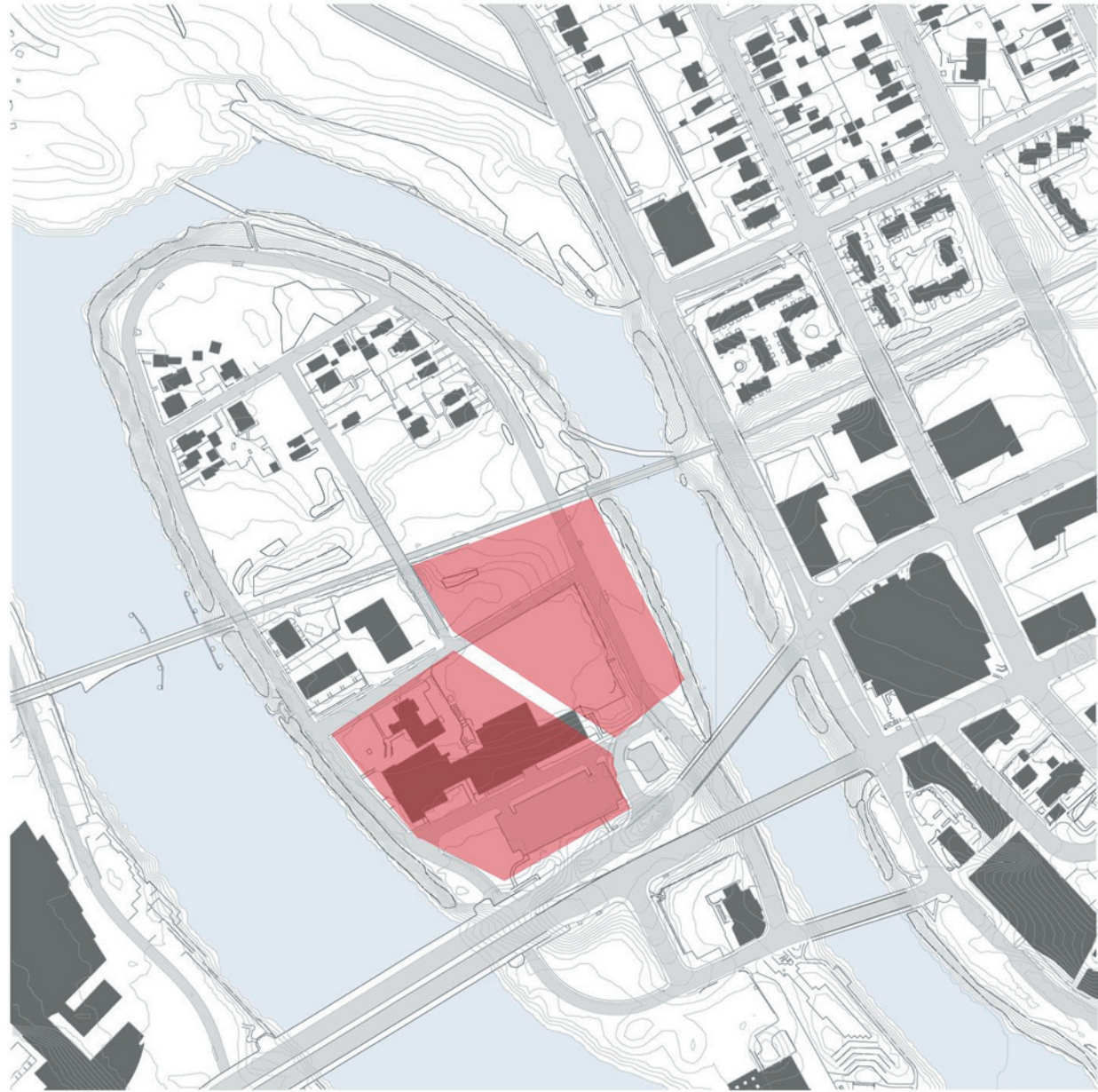


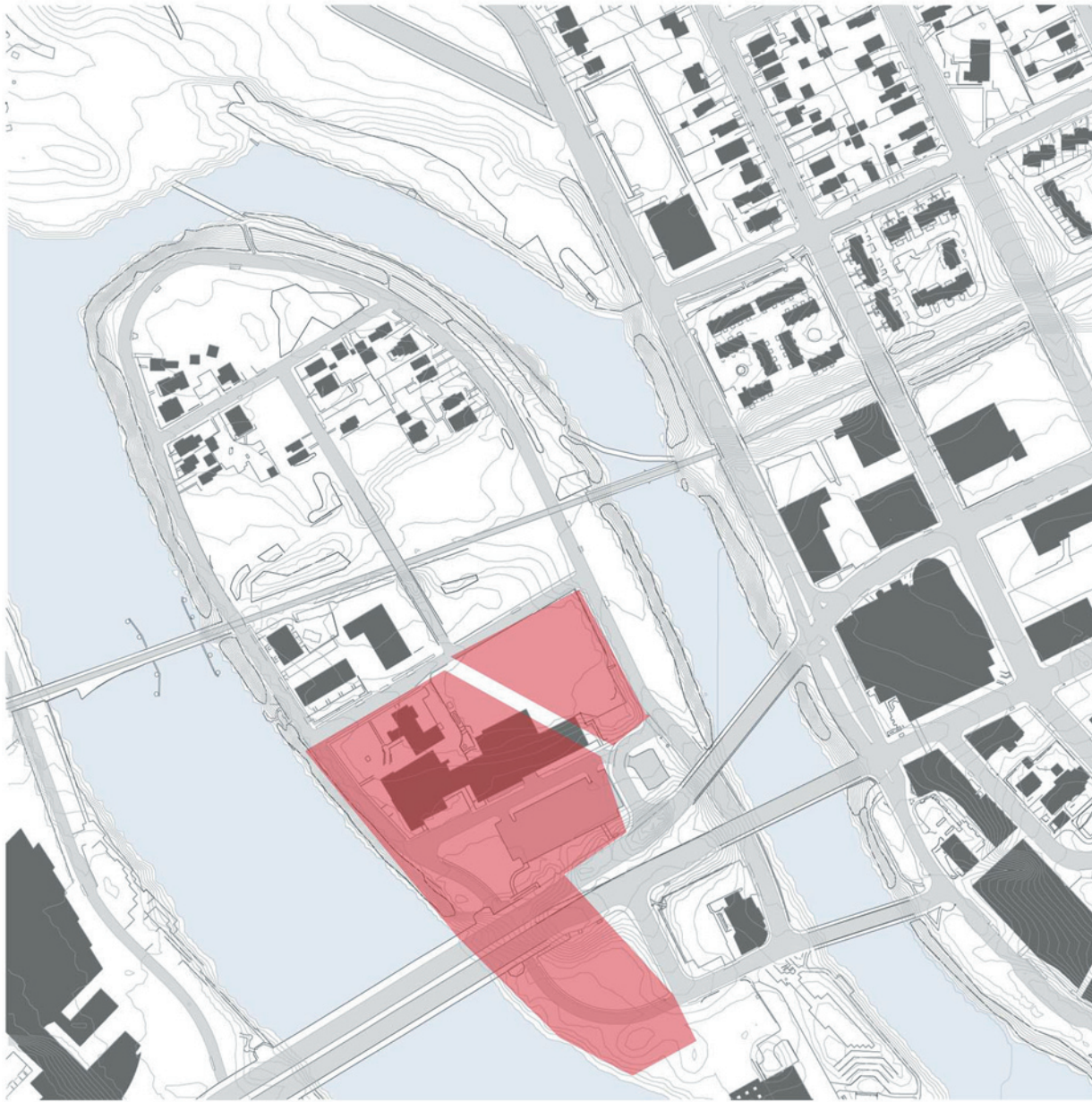
Small community of 20 homes on north end of Nicollet Island.



site option #1

Site Option #1 is the first of two final site ideas based on numerous different options that the layout of Nicollet Island provided. In this option, the removal of a portion of the northeast perimeter road of the island allowed the school's site to gain river frontage along the smaller of the two channels. This option also introduced a new road, noted by the gap between the two color zones, to act as a "main street" through the site. It also connects directly into the central island road which is the only one that bridges over the railroad tracks that bisect the island from east to west.

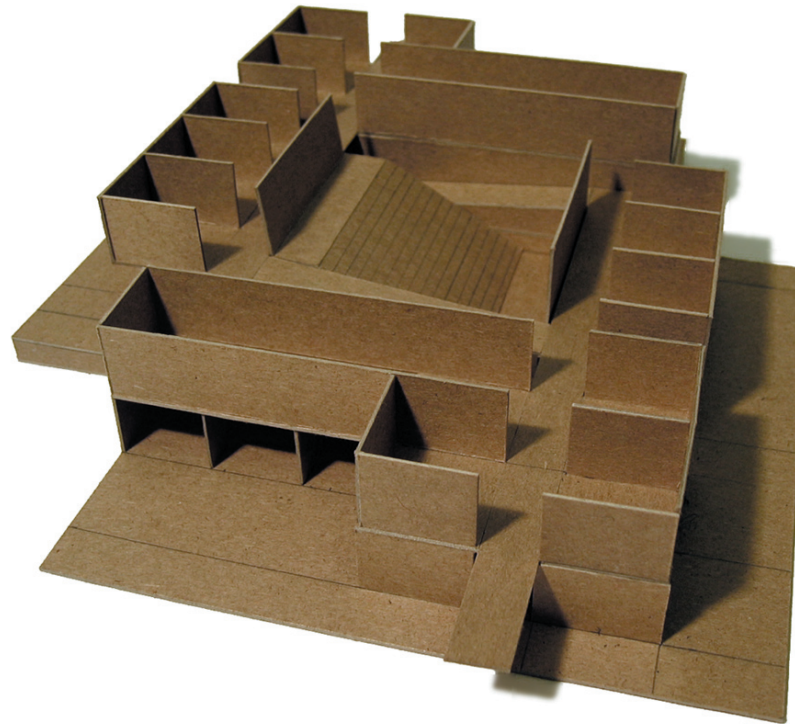




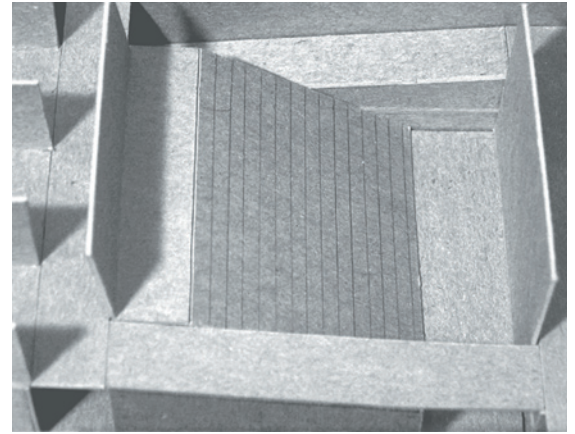
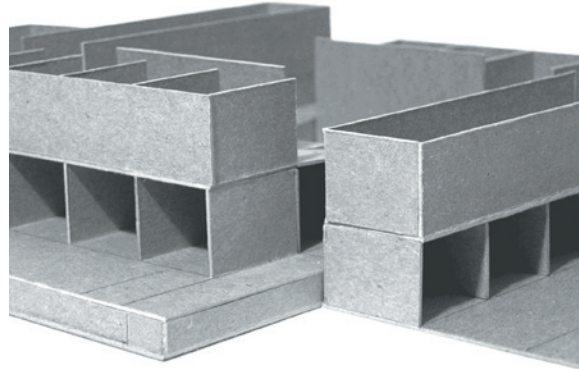
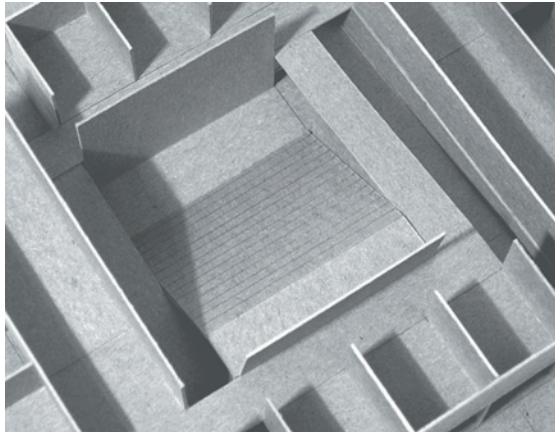
site option #2

The second option introduced the same “main street” connection through to the bridge over the railroad tracks. The difference is that this option removed the southwest perimeter road, thus providing much more expansive southwest facing river frontage with views towards downtown along the larger channel. This option also allowed for the performing arts theater to be built as a satellite building at the southernmost edge of the site, connected to the main building by an underpass beneath the Hennepin Avenue bridge. For these reasons, this site option that was chosen for the subsequent design throughout the following pages.

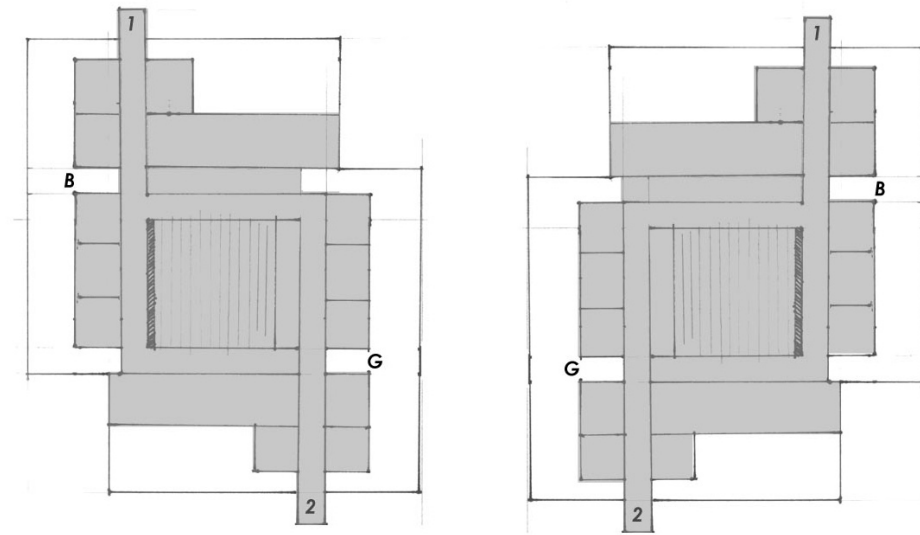
conceptual



The primary vertical circulation was achieved through a ramp that worked in direct relation to notion of the classrooms as a wrapper for the theater. To move up or down in the building, was to circulate around a specific theater. Vertical circulation was always linked to the theater and the specific neighborhood of an academic core. The other significant aspect that the ramp introduced was a sectional offset between the lower level and the upper level. The initial diagram stacked two floorplates, providing an obvious break between the two levels. In the new spiral ramp around the theater, each ramp only rose six feet in elevation, or half of a floor height, thus creating a split level typology in the design. There would now be four levels, each one a half floor higher than the last. This characteristic of the design introduced a new spatial boundary that could be utilized as a marker without enclosing a space.

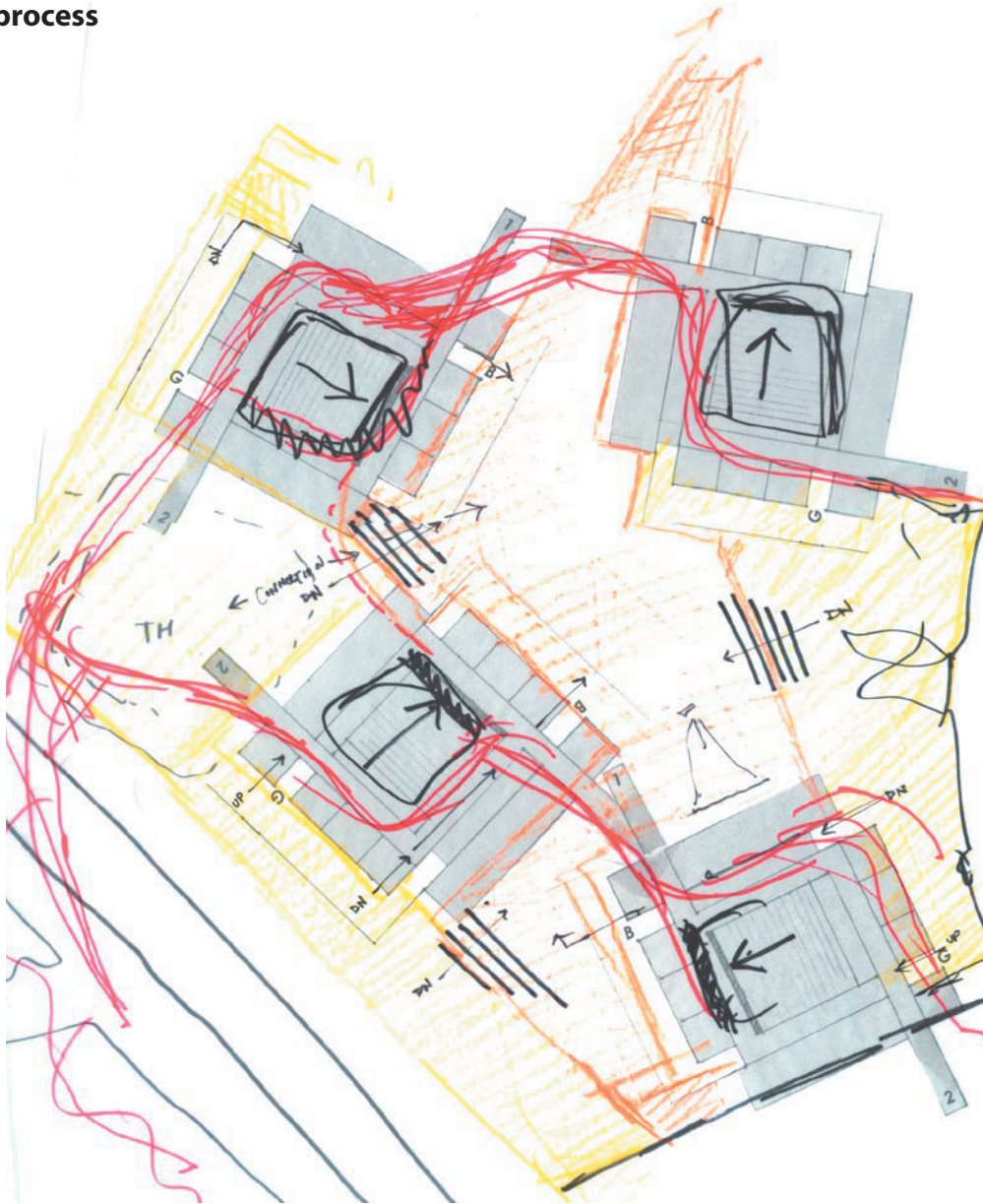


conceptual



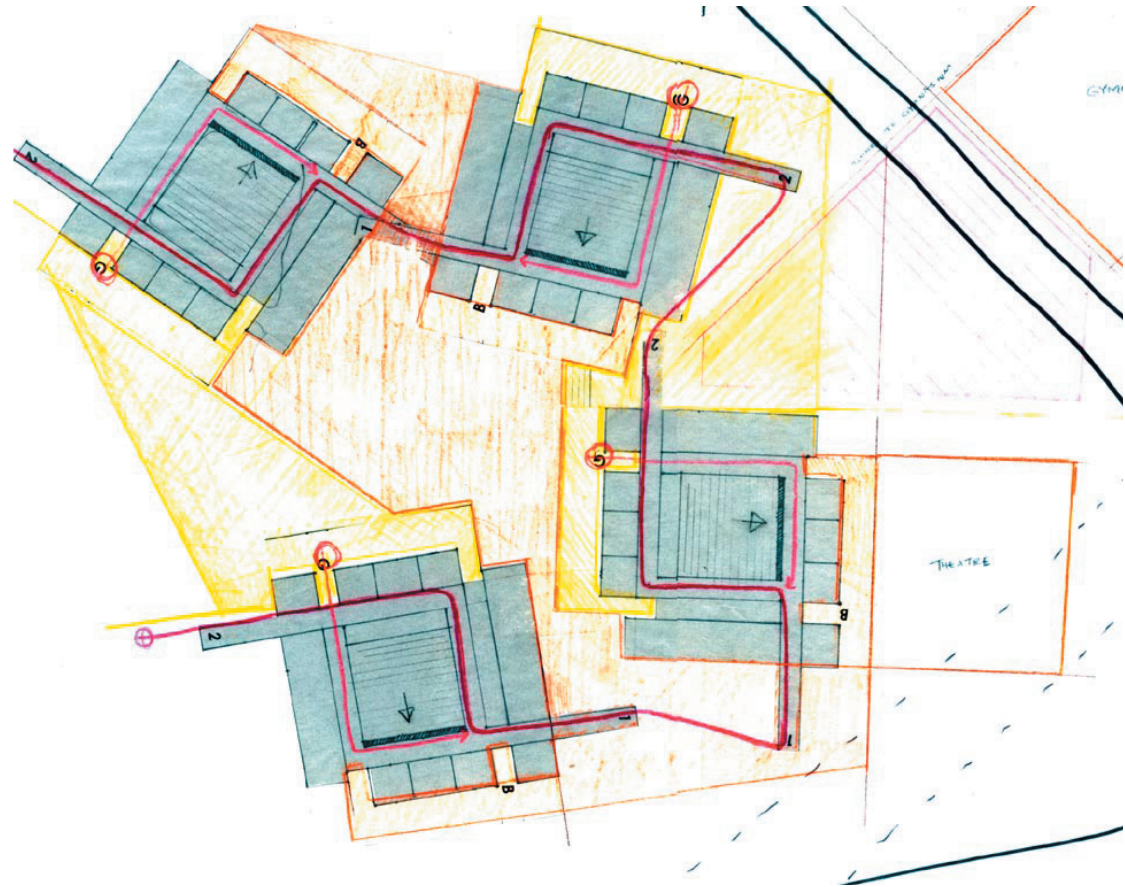
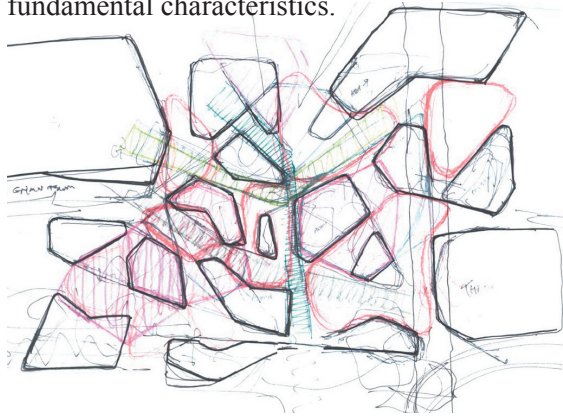
As a method for laying out these new academic cores, now better understood as a spatial unit, they were taken in plan and scaled to the right size in order to functionally spread them out on the site. As the primary program element, four of these units were used as each included two of the core diagrams collapsed into one spatial typology of four offset levels.

process

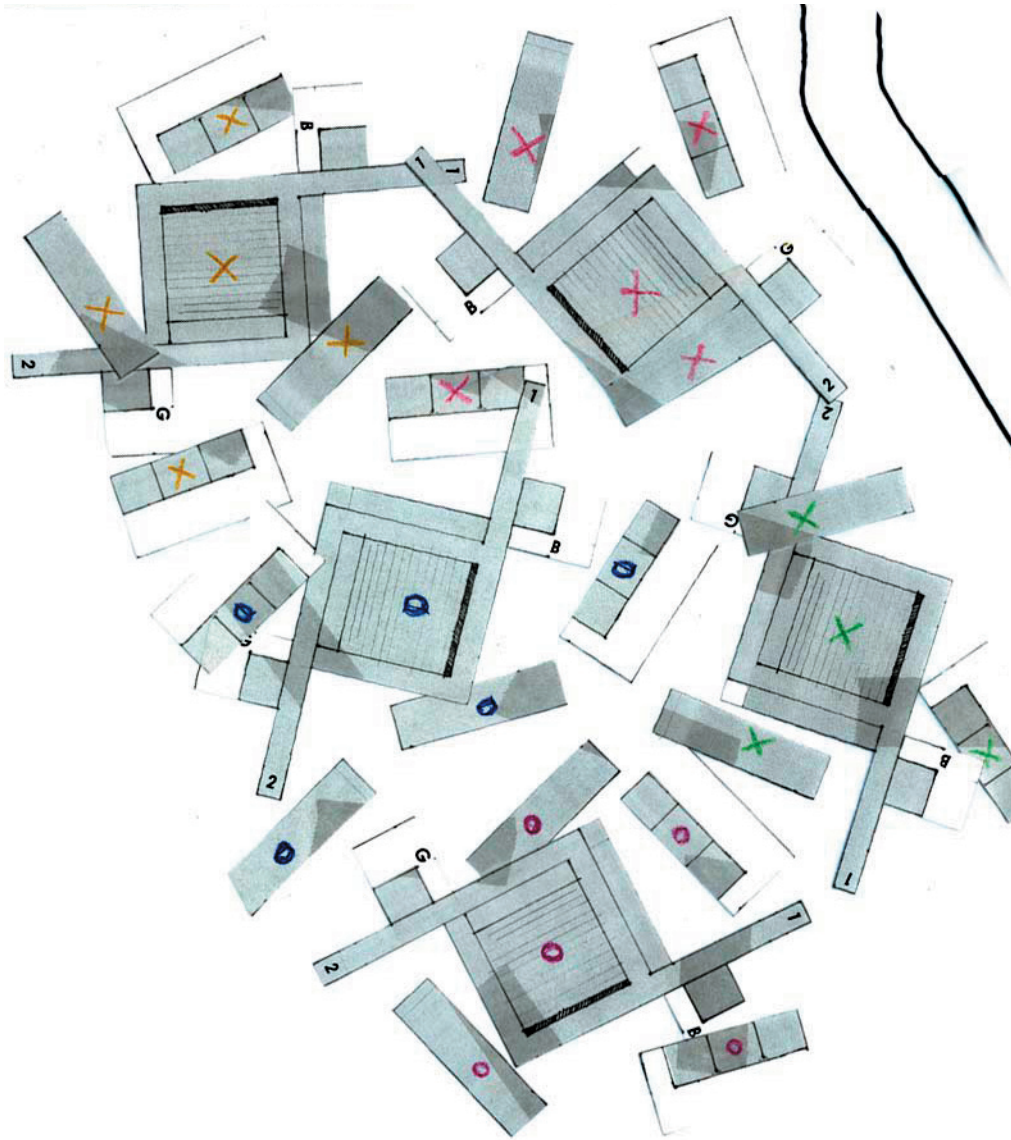


By arranging the units in different configurations on the site, a number of potential layouts were created that began to achieve some of the goals regarding circulation and orientation on the site. The red sketch line denotes a primary circulation route on the upper two levels, while the yellow and orange fields mark where the floor elevation changes (at the yellow/orange boundary) for the lower two levels. What became clear was that the new spatialized model for the academic core created an undulating floorplane on the lower levels that was punctuated by the academic cores. On the upper levels, the floor dropped away once outside the academic cores, allowing views down into the rest of the high school. To be on the upper levels was to be in continuous state of arrival and departure from the neighborhoods of the academic cores. To be on the lower levels was to be moving amongst a series of objects in an open undulating plane.

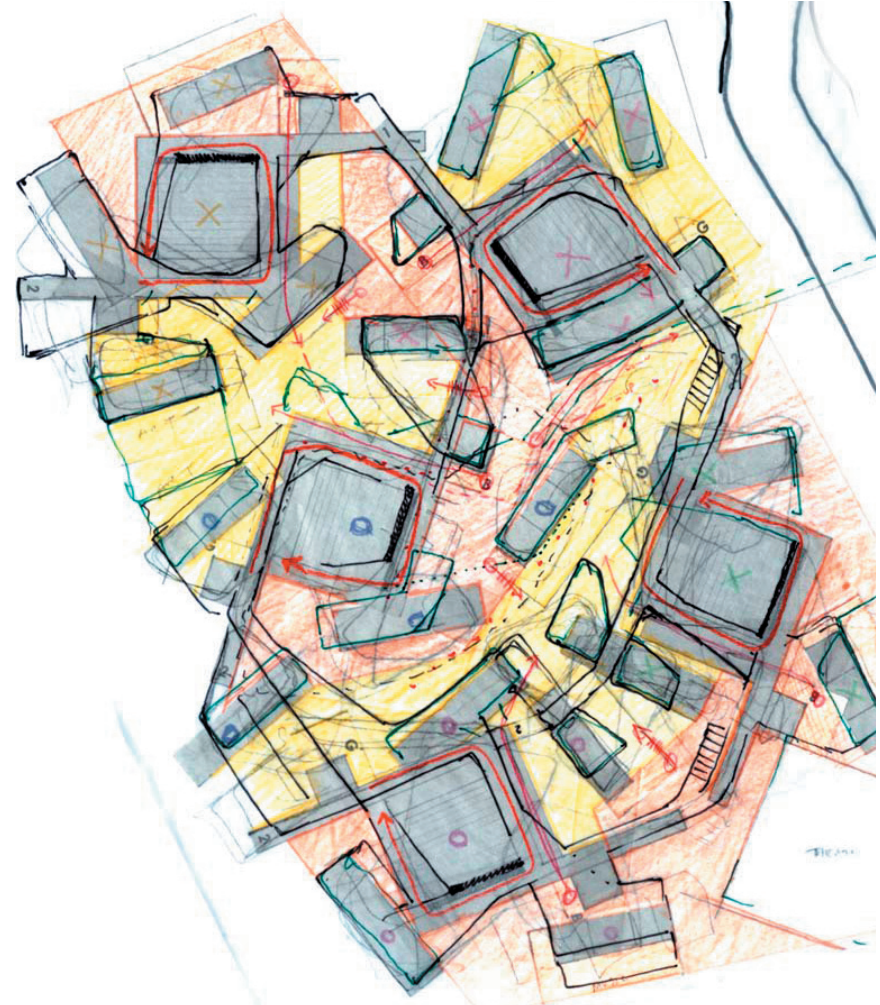
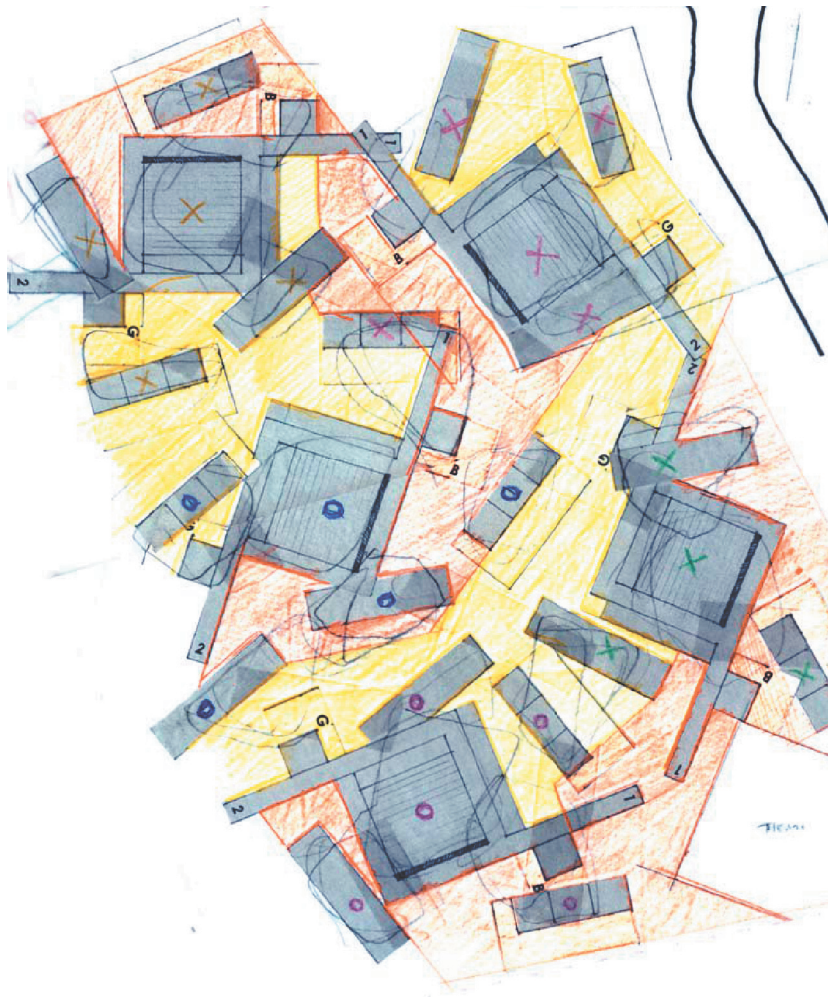
A number of iterations yielded this layout which worked quite well with the second site option. It contained enough promise that it could be developed into a viable design for a high school. What remained in question was the notion of a high school as a undifferentiated array of positioned objects as depicted in the intuitive sketch seen below. This initial concept was lost in the rigidity of the the plan to the right. The academic cores became too dominant and basically formed a generic ring around a common central open space. It was useful, but too didactic. The question became: Can the academic cores effectively fragment to achieve a variable field of programmatic objects (as envisioned in the sketch below), yet still maintain a functional resemblance of their identities? This question, and it is one that became a central challenge of the thesis, relates back to the idea of quantum theory's claim that two systems can enfold each other to create a third emergent entity that is neither of the intial two, yet can co-exist with their fundamental characteristics.



process

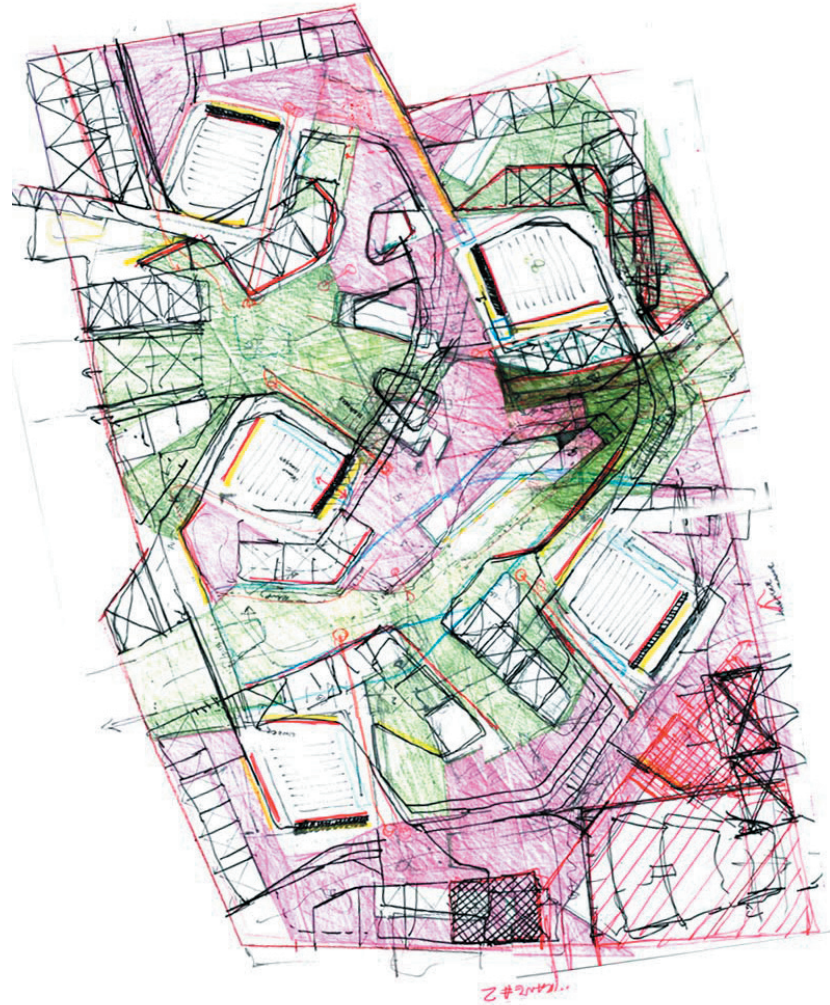
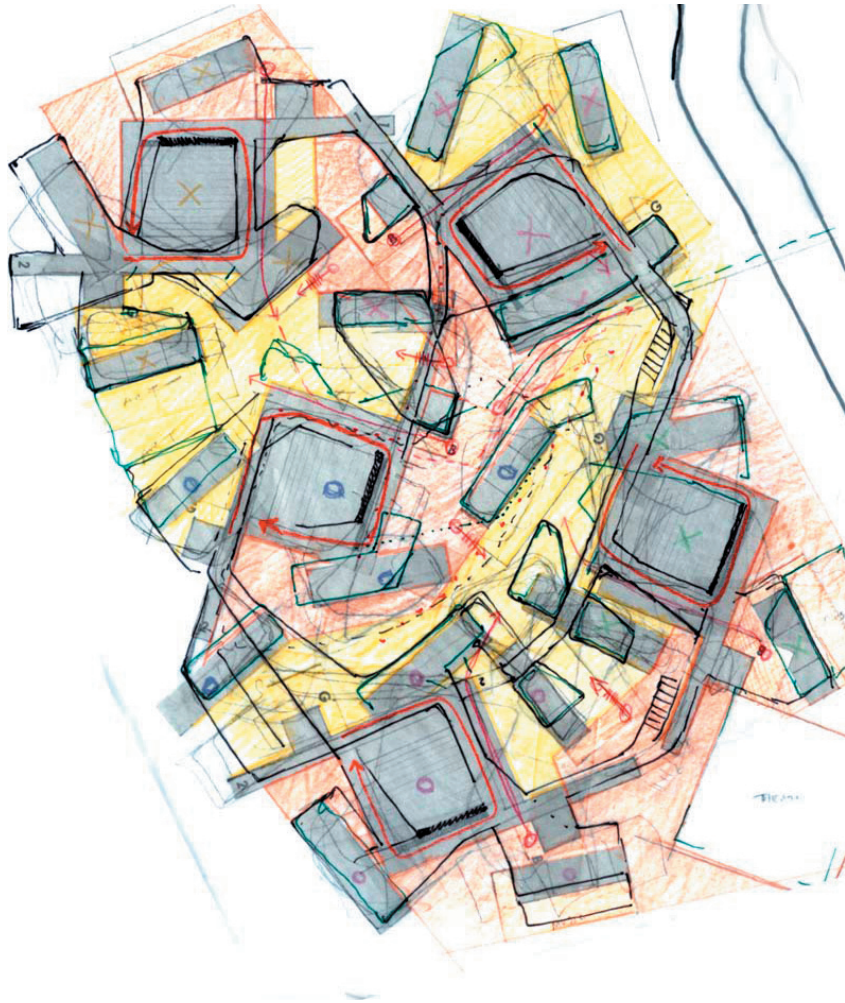


As a response to the question, the clearly defined classroom bars were trimmed from their position around each of the theaters and allowed to migrate strategically in an effort to create the dispersed positive/negative spatial aspects across the site, while still remaining relevant to their initial academic cores. In many ways the enclosed classrooms spaces were visually and functionally tethered to their academic cores, yet allowed to shift enough to create many smaller informal spaces amidst larger structures. Also worth noting is that a fifth core was added in order to create the possibility of hybridizing the cores based on the needs of the larger programmatic aspects of the design. After fixing their locations, the same moves were made to articulate the floorplane (orange/yellow) as seen to the immediate right. The sketching done on the far right began to soften some of the edges and construct a logic of circulation based on the rules embedded in the now dispersed academic core. It became a process of weaving pieces back together towards an emergent spatial identity. The functionality of the building was studied in numerous sketches in plan, keeping in mind the rules of the section that were alive in the spatial core model.



Can the academic cores effectively fragment to achieve a variable field of programmatic objects, yet still maintain a functional resemblance of their identities?

process



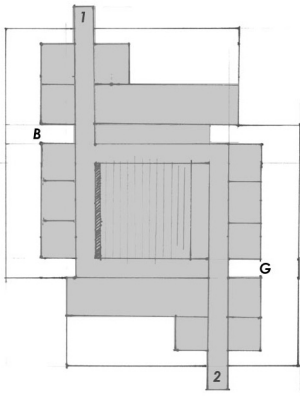
Through an iterative series of sketches, the plan to the right was created. It became the first concrete drawing of the school that wasn't directly attached to the conceptual process that began with the academic core. While this plan exhibited a functional layout with nearly adequate classroom space, it still contained a vast amount of raw and undefined open space, or "in between" space. The next iterations proceeded to increase the density of the enclosed spaces in order to create a more intimate and diverse array of open/informal spaces. This process effectively tightened up the layout to become more efficient in its use of space, while maintaining sufficient open and ambient gathering spaces.



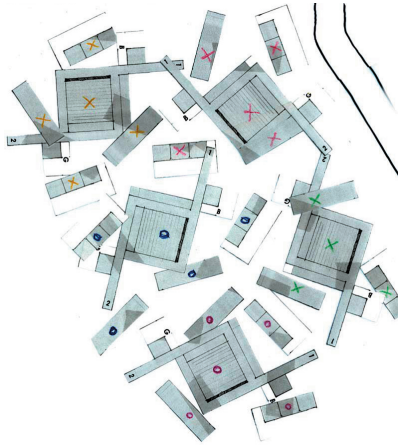
process



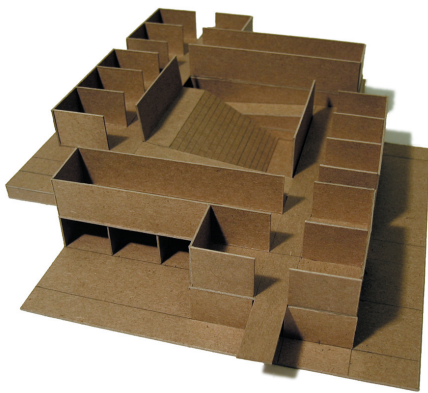
In the shift to a layout with greater density (i.e. from the plan on the left to the plan on the far right), an analysis was done to calculate the square footages and number of spaces necessary for a high school of 1800 students. The design on the right, which follows basic layout of the previous iteration, effectively accomplishes this task by introducing a provocative balance based on the generative principles found in the original two concepts (also depicted on the right): 1) the spatialized academic core, and 2) the dispersed field of objects.



1) The spatialized academic core



2) The dispersed field of objects





On the north end of the island, a former railroad bridge turned pedestrian bridge begins a progression down through the site to the fieldhouse, on to the main school, under the Hennepin Avenue bridge, and down to the theater. This path through the site begins with the athletic fields that are on the south end of an under-developed public park just north of this former railroad bridge.



A view northward at the parkland that could be developed into the high school's athletic fields.

site planning



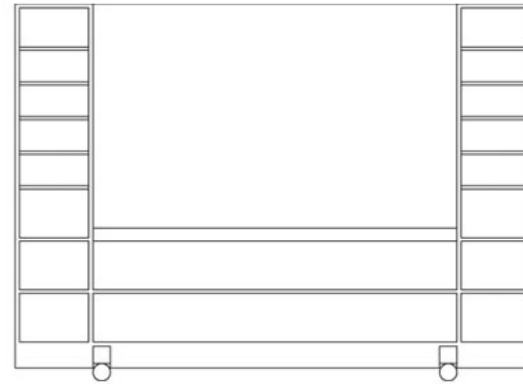
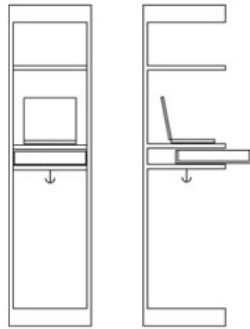
View northward through the former railroad bridge into the proposed athletic fields. The site path from the athletic fields down to the theater can be seen in red on the plan to the right.



conceptual

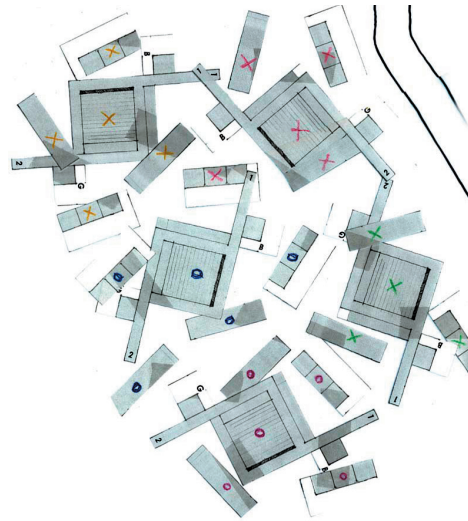
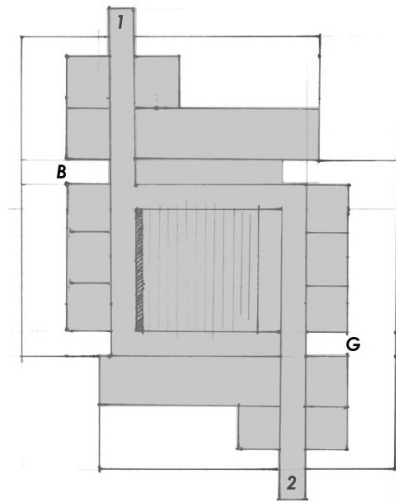


The question of desk space and private workspace was addressed with a re-investigation of the locker as a minimal workstation and laptop hub. The school as a wireless environment would allow for a greater variability of meeting and presentation situations. The width of the locker has been increased to 18 inches to allow for a stand up kiosk type of space where the laptop can be stored and connected to a power source. A small drawer and coat space exists below the laptop shelf and another small shelf completes the upper part of the locker. Storage for the laptop is simple and obvious for those times when a student may not need to bring it to a class or group meeting.

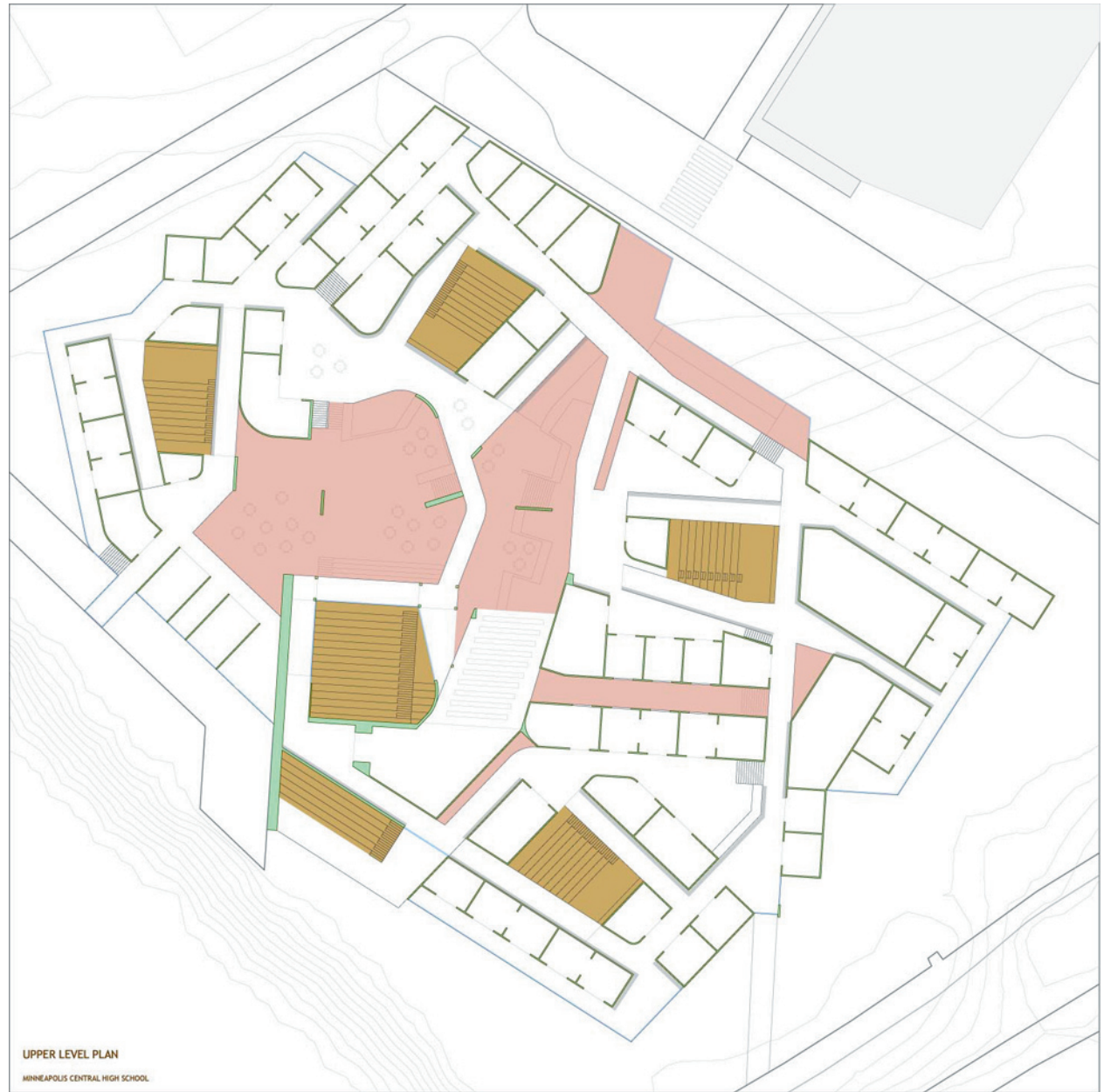


The other small-scale design element that can be found throughout the school is the concept of the classroom door being turned into a mobile panel that can enclose, yet can also be moved to expand, shift, divide, or migrate “classroom” space. One side contains a whiteboard surrounded by shelving space, while the opposite side is a white pin-up board that can also be used as a projection screen. This panel can easily be rolled to any of the various informal spaces throughout the school in order to set up a gathering situation.

final design

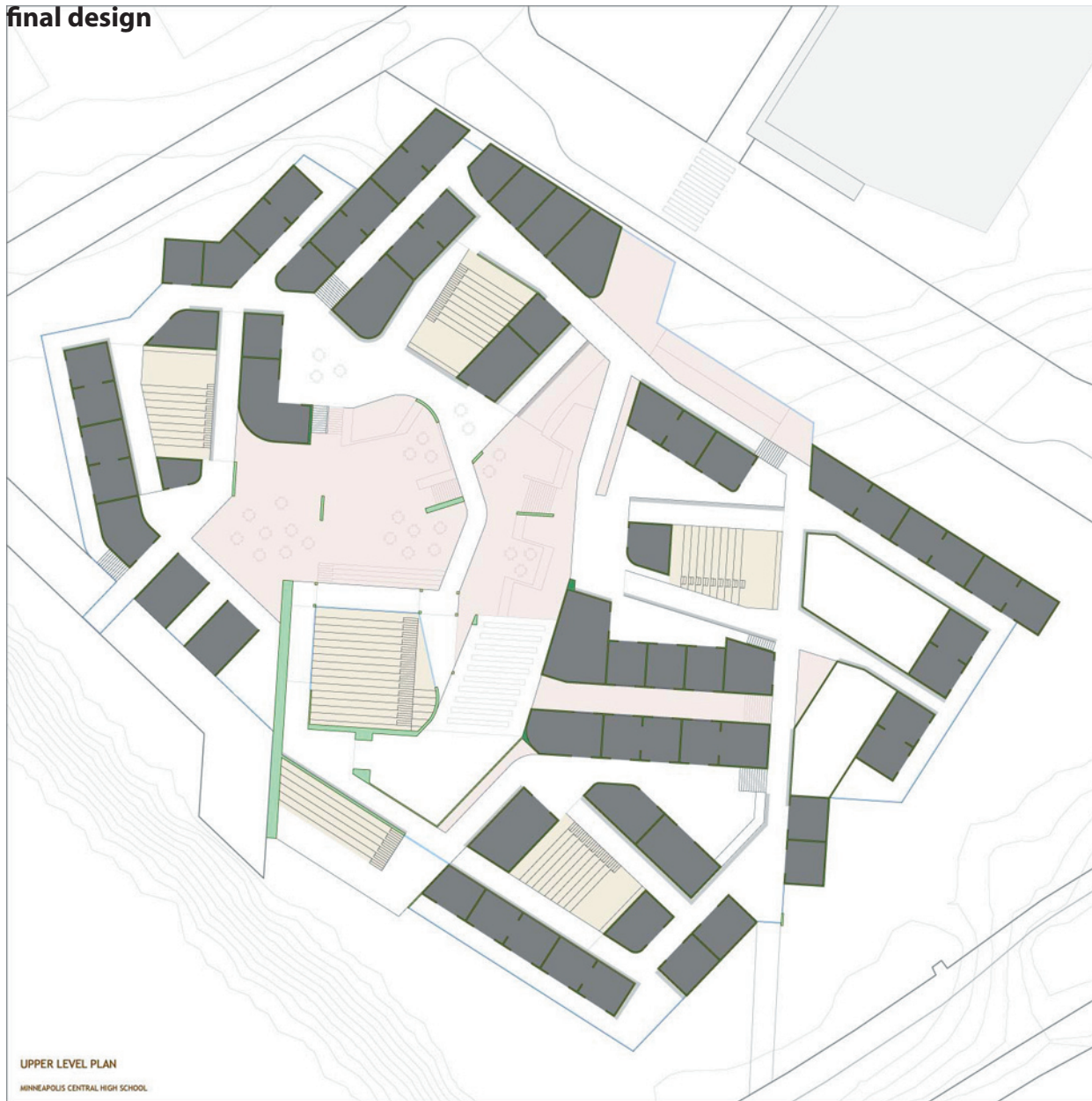


The final design has developed into a synthesis of 1) the spatialized academic core and 2) the dispersed field of objects. The plan on the right is a view of the upper level. It shows the primary theater cores in brown, with the spaces open to the lower levels noted in magenta. This reflects the upper level's character of continuous arrival and departure from the neighborhood-like cores with moments of view downward into the lower levels.



UPPER LEVEL PLAN
MINNEAPOLIS CENTRAL HIGH SCHOOL

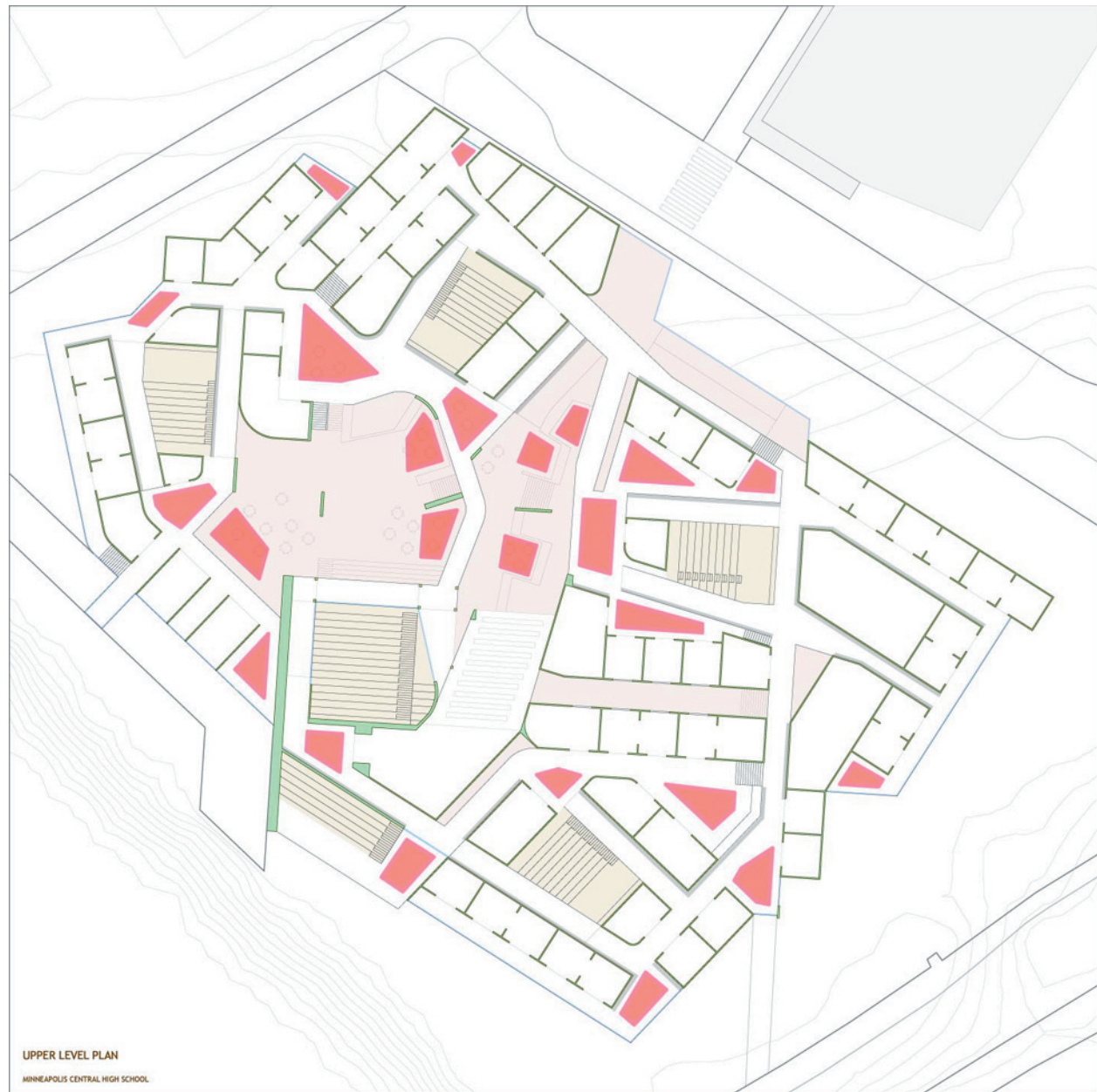
final design



As noted before, the encloseable bars of classrooms create the dispersed field of objects and variety of navigation possibilities when circulating through the building.

UPPER LEVEL PLAN
MINNEAPOLIS CENTRAL HIGH SCHOOL

While moving along a circulation pathway, the open spaces continually expand and contract, allowing for a variety of meeting spaces (as noted by the orange blocks of color) for classes, or any range of group size.



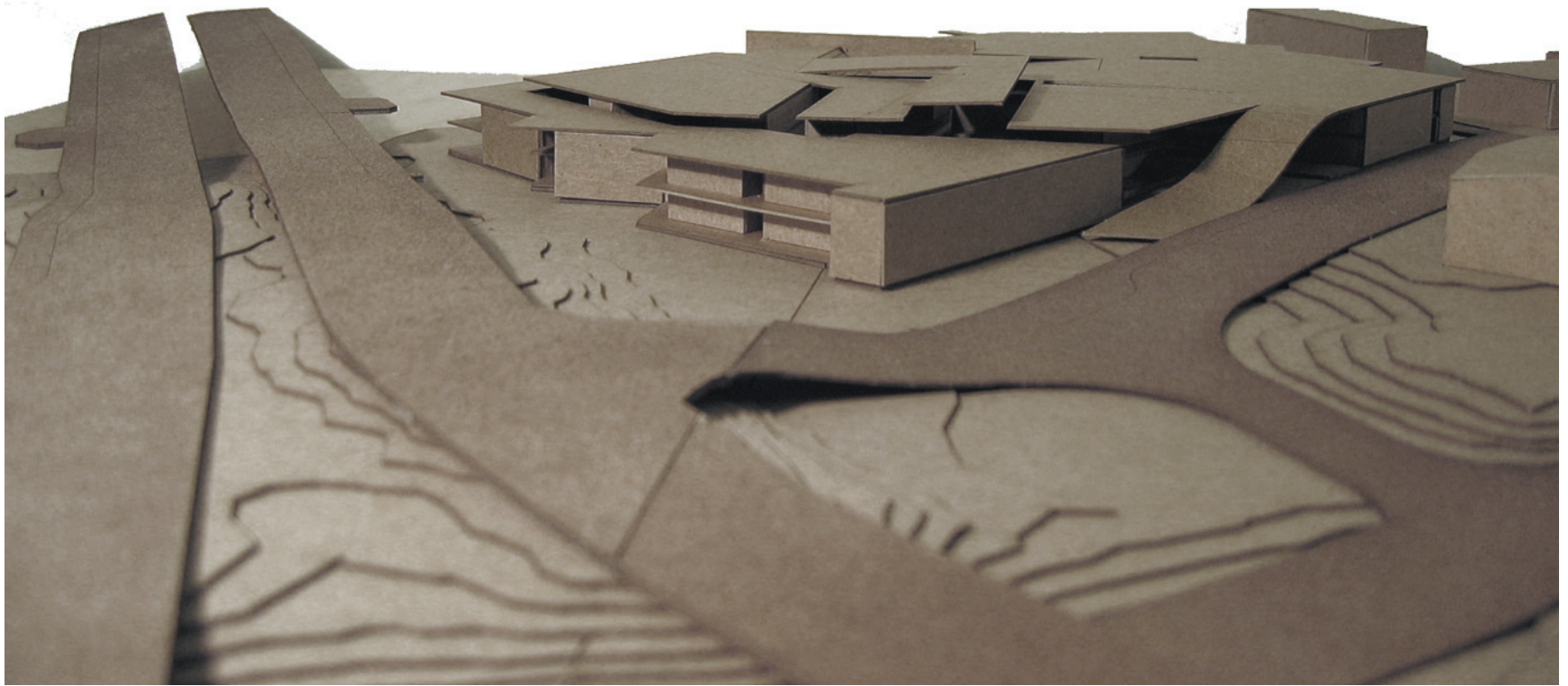
final design

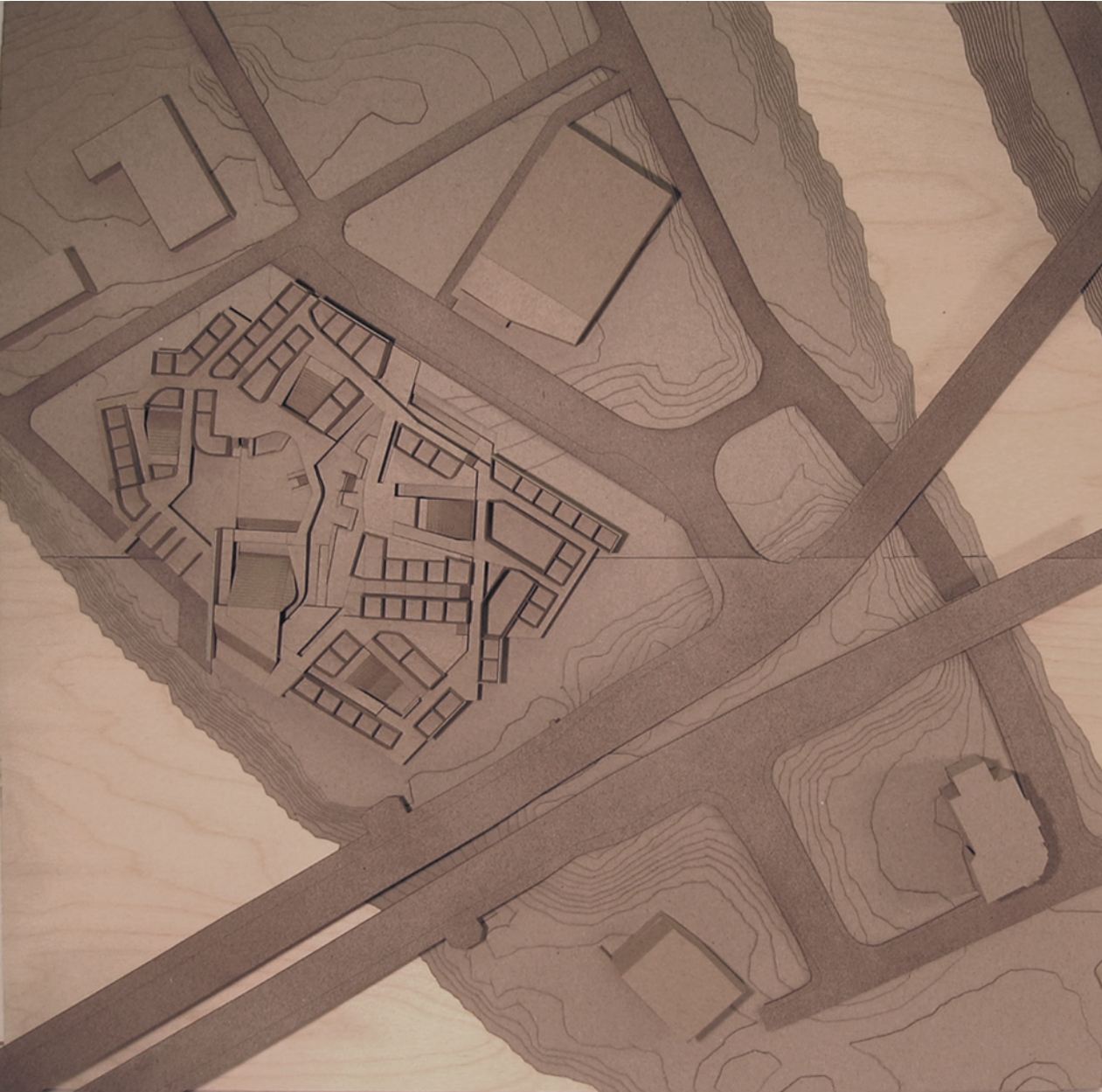
Seen together, the positive/negative aspects of these spaces offer a considerable range of curricular opportunities, while still maintaining adequate classroom spaces for specific activities that require enclosure such as testing, lectures, science labs, music classrooms, etc.

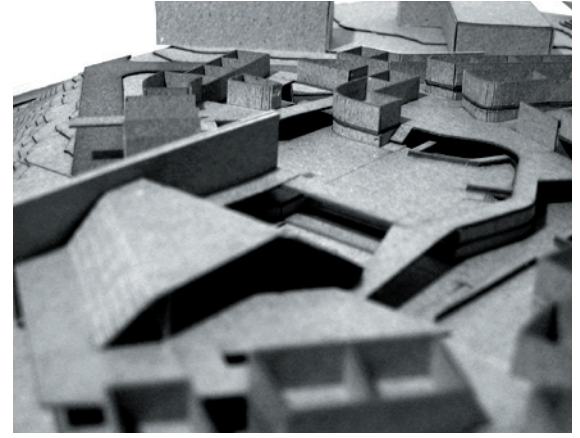
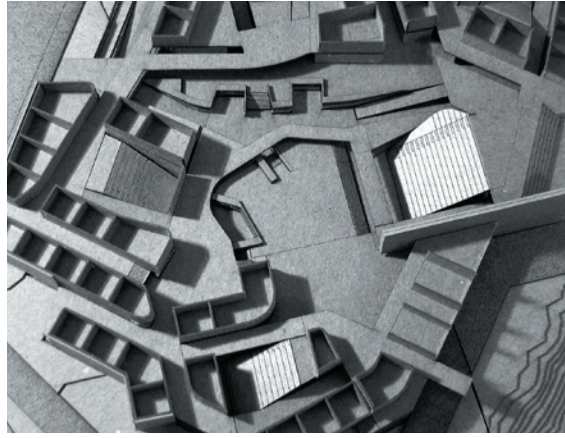
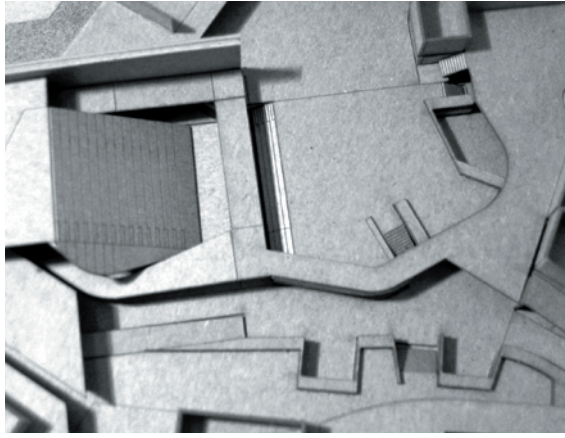


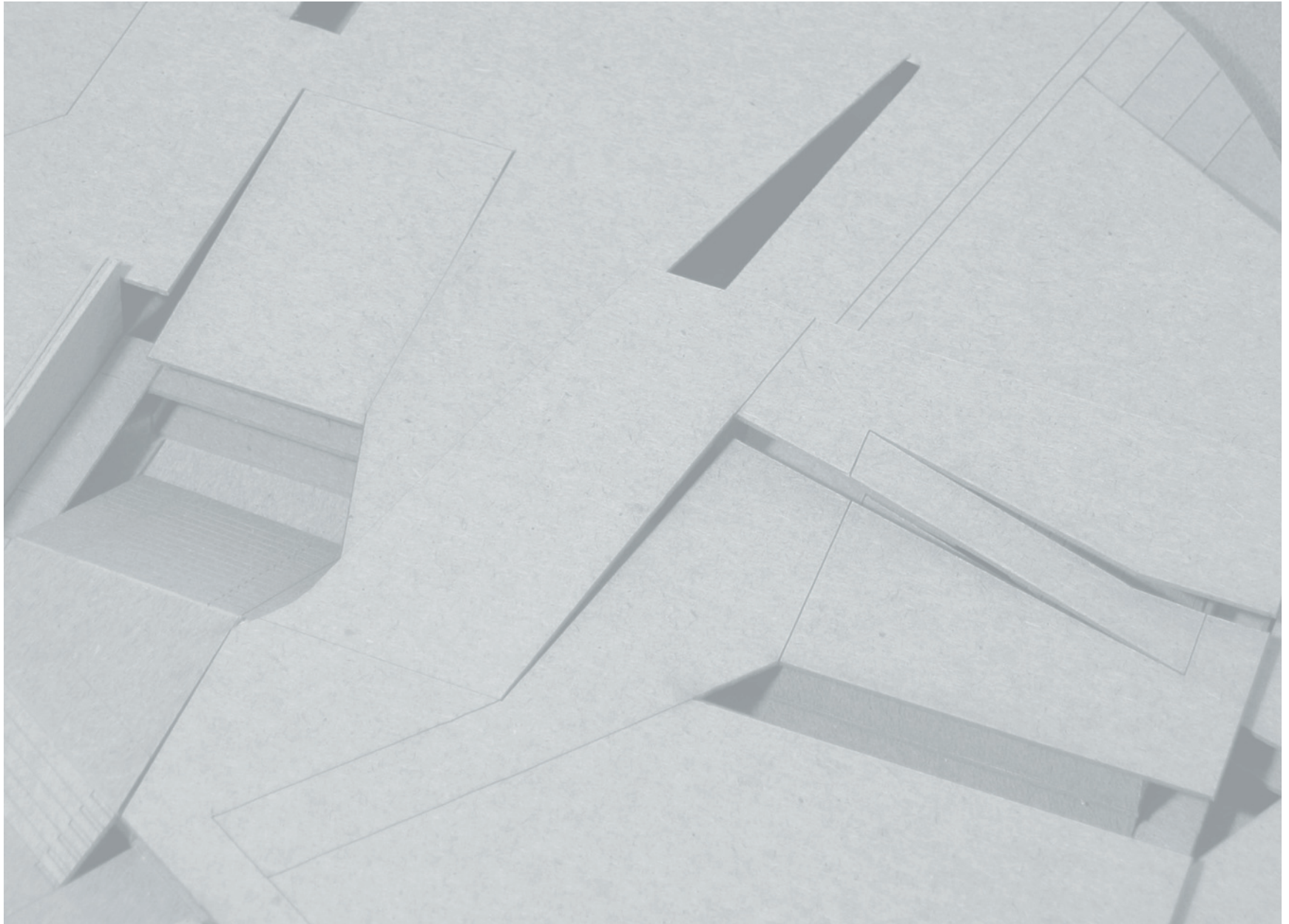
UPPER LEVEL PLAN
MINNEAPOLIS CENTRAL HIGH SCHOOL

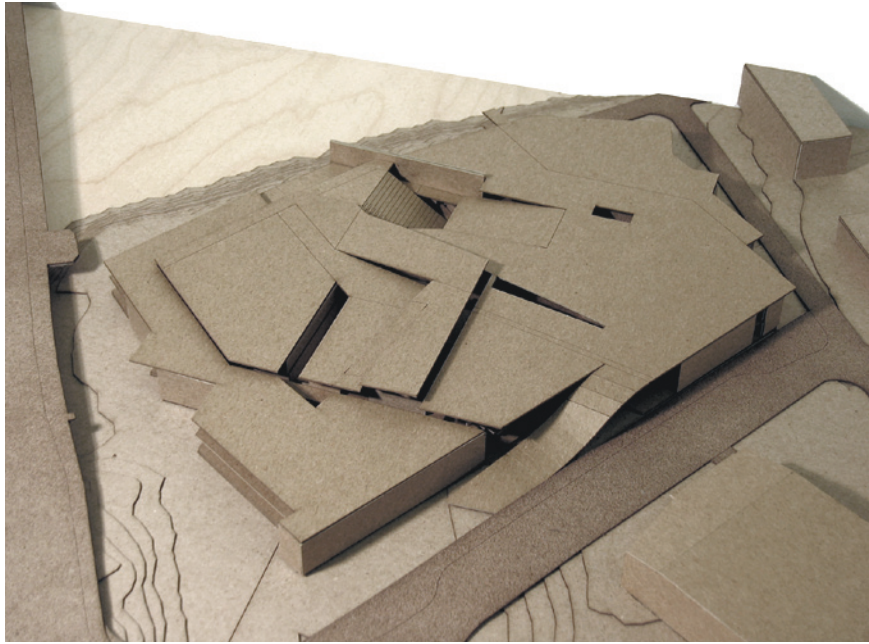






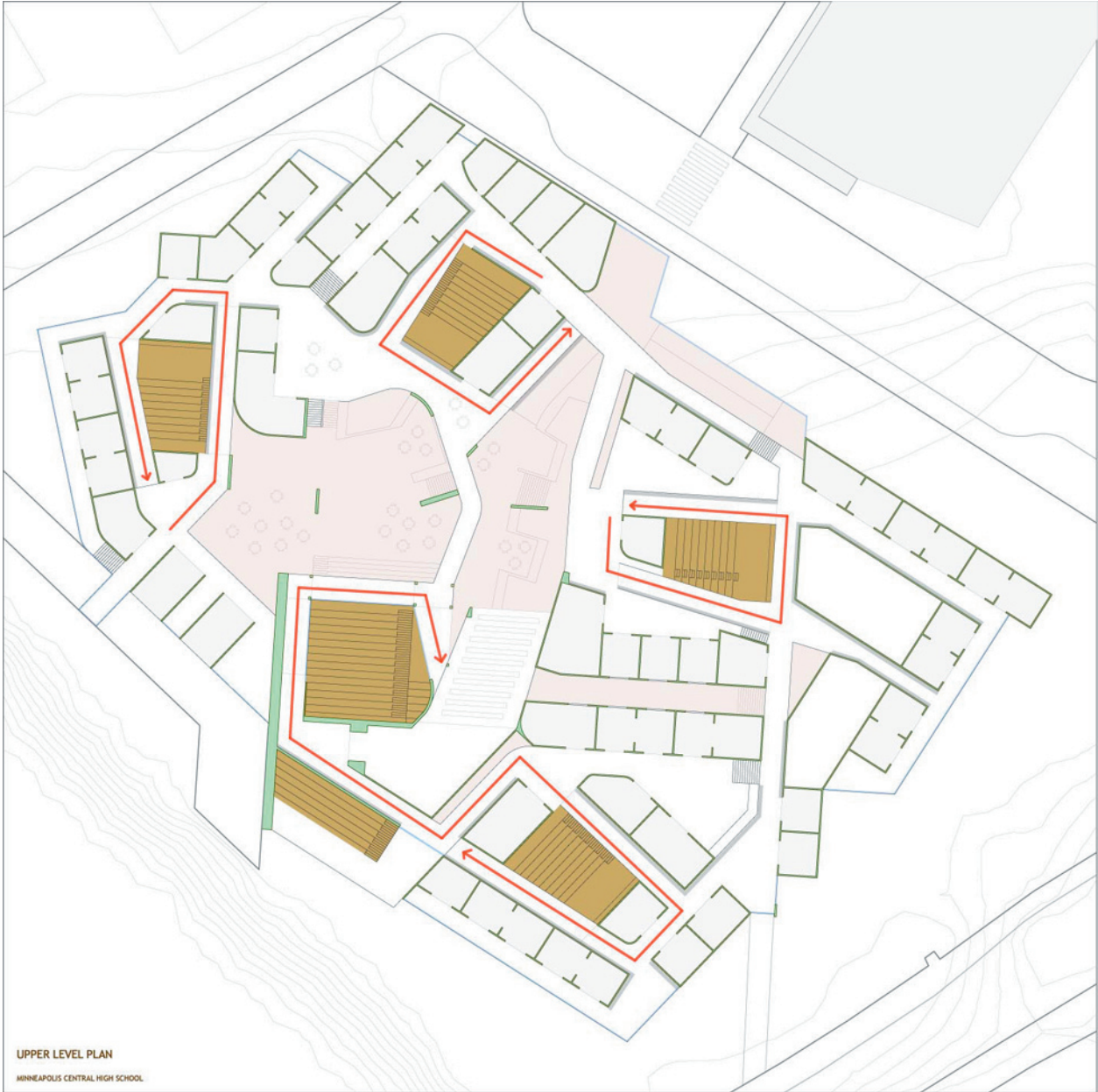






final design

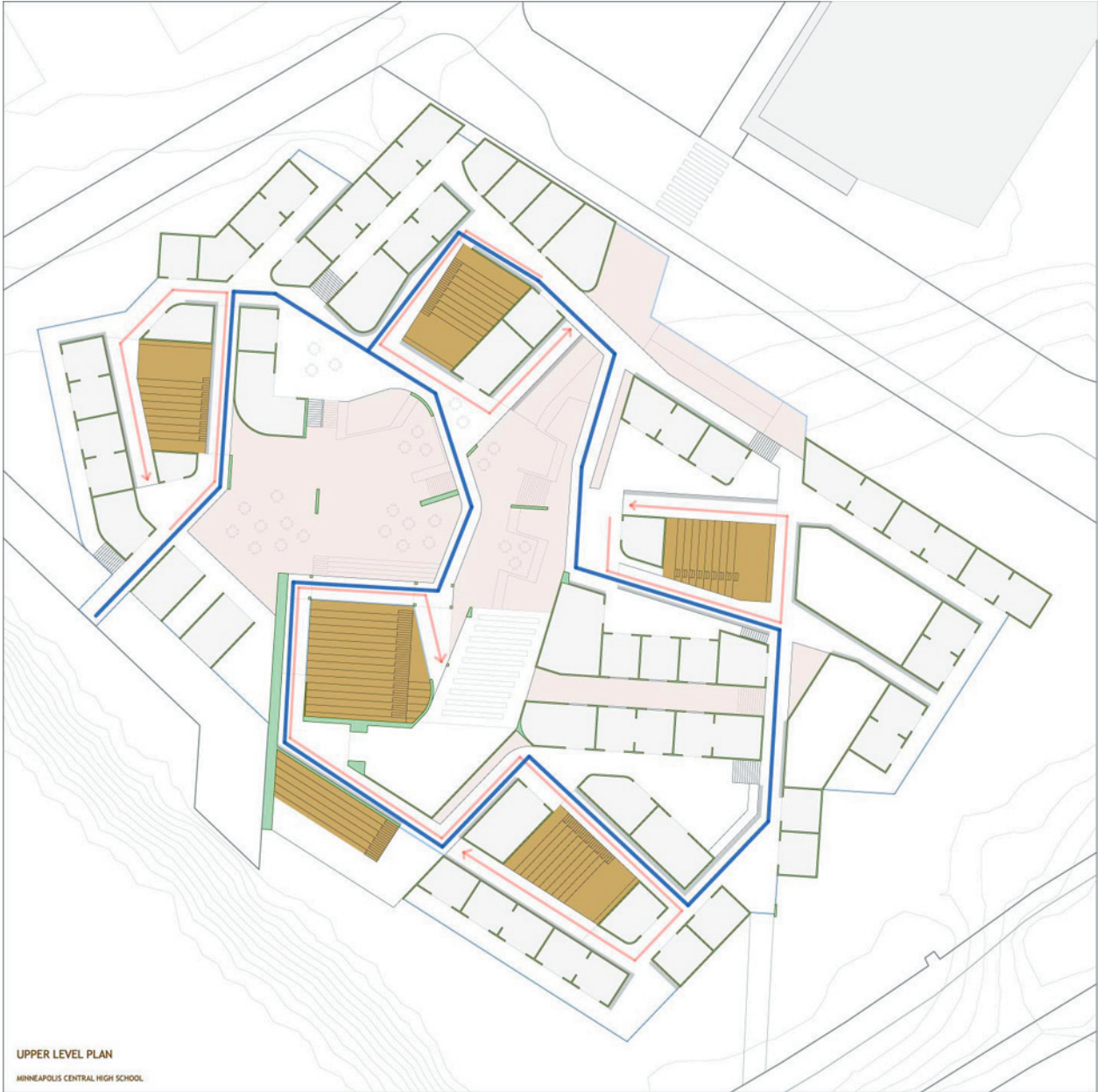
The primary vertical circulation occurs along ramps (as noted by the red arrows). They follow the underlying structure of the spatialized academic core, yet have shifted and adapted to meet the larger needs of the circulation plan.



UPPER LEVEL PLAN
MINNEAPOLIS CENTRAL HIGH SCHOOL

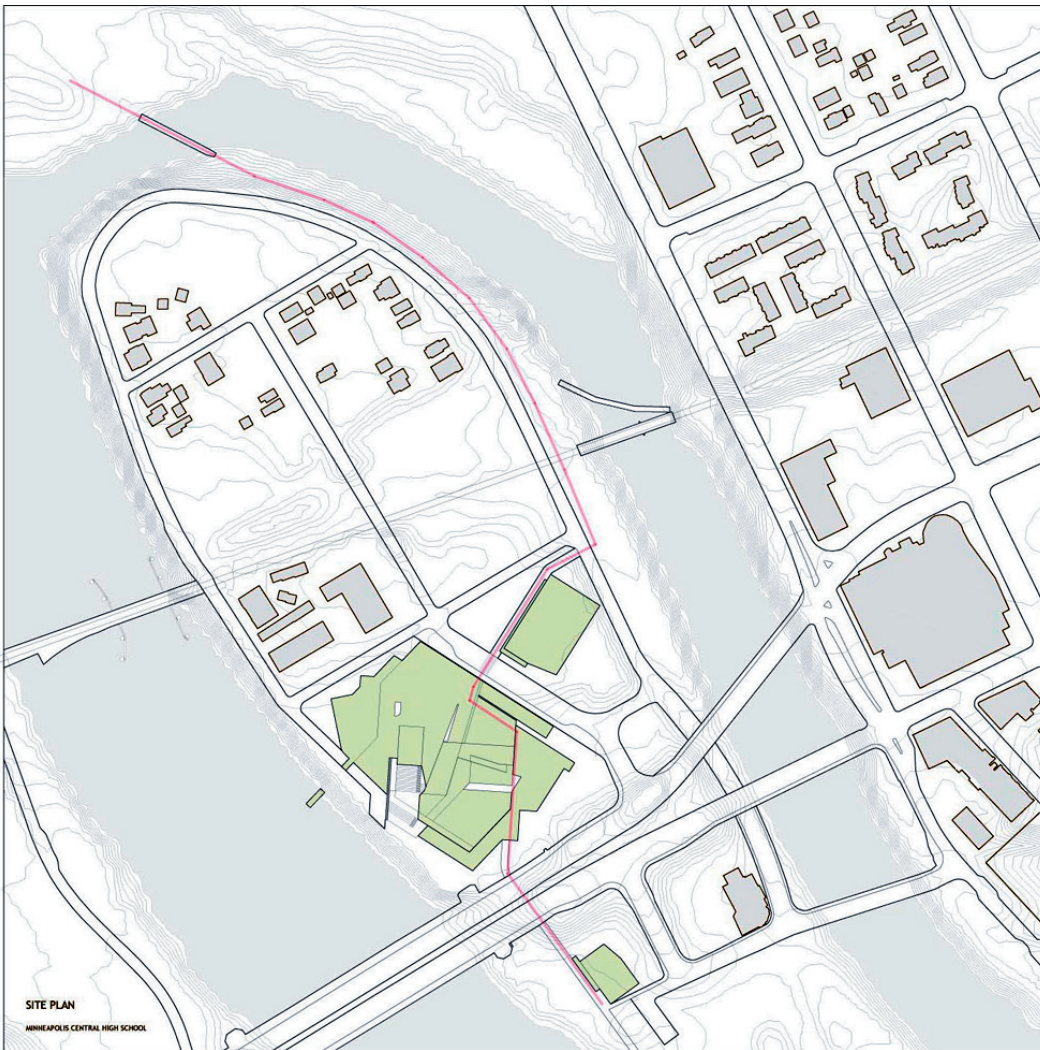
final design

The blue line traces a continuous circuit around the upper levels, continually re-entering the different academic cores and the possibility for vertical circulation. It also has a tail that dead ends at a small cantilevered space that offers a brilliant view of the river and downtown Minneapolis.

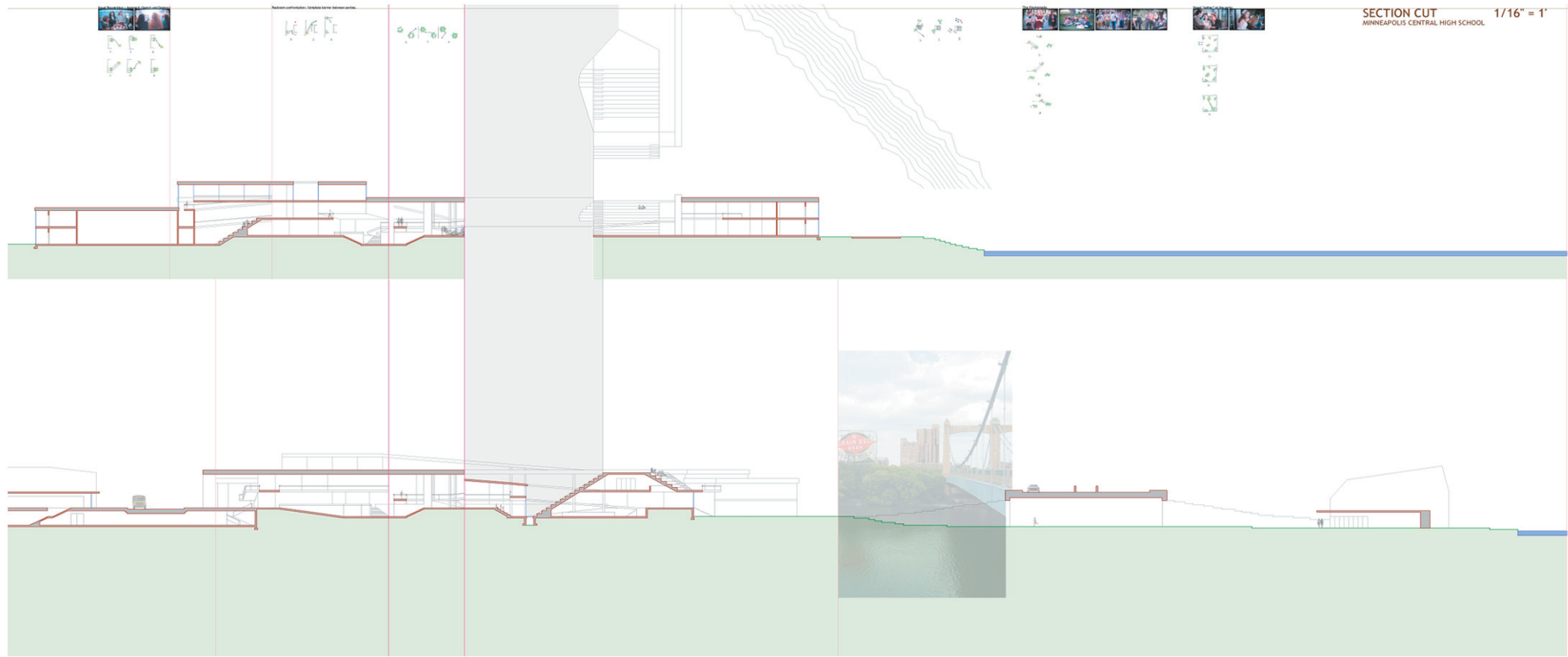


UPPER LEVEL PLAN
MINNEAPOLIS CENTRAL HIGH SCHOOL

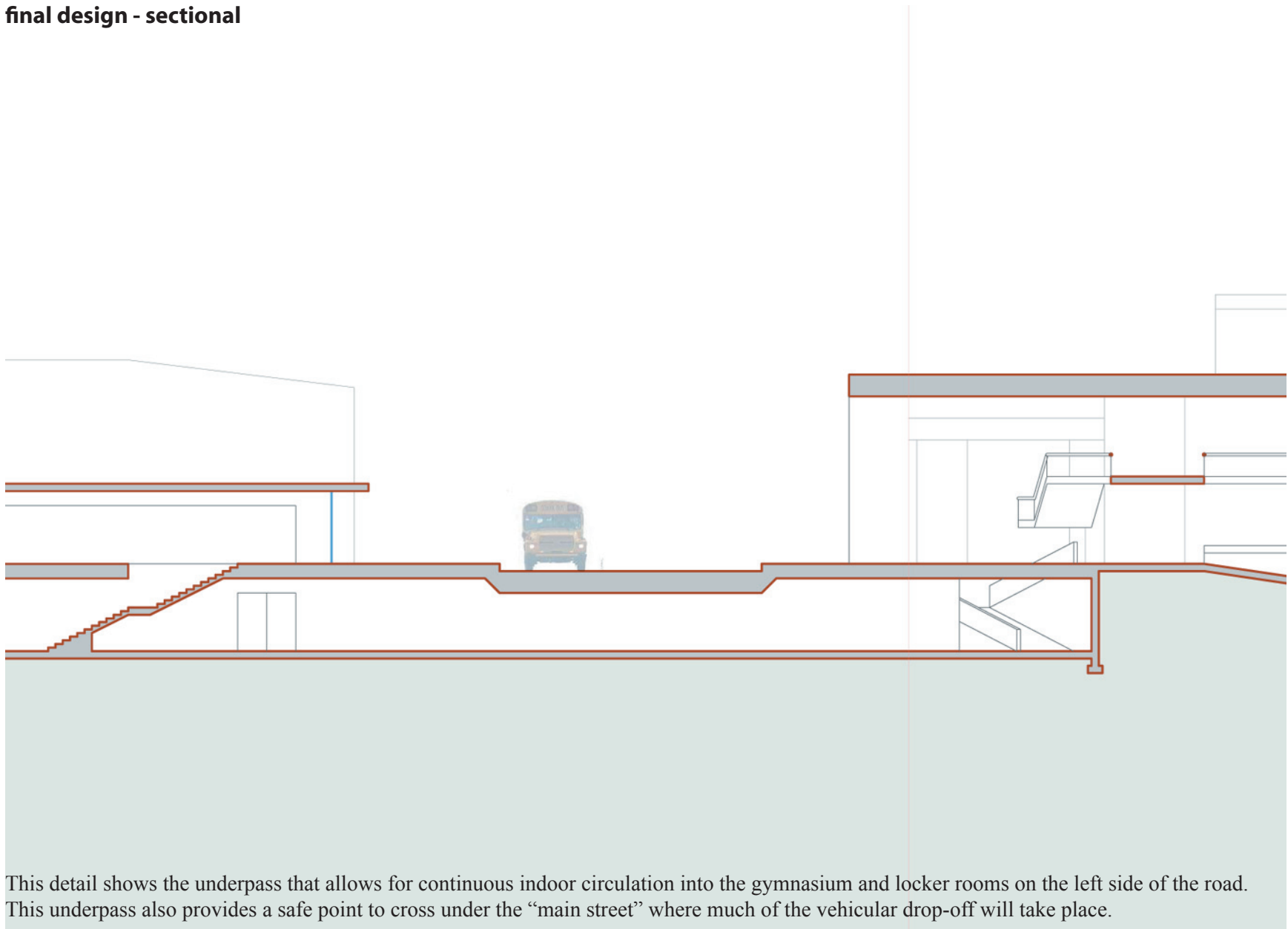
final design - sectional



The sectional foldout drawing on the next two pages is a scaled down version of a final presentation document that details two different pathways through the high school. The lower of the two section drawings essentially follows the site path marked by the red line in the above plan. The drawing's goal was to provide a sense of the scale of the site. The upper of the two section drawings basically makes a perpendicular cut to the upper drawing's path in order to show other significant aspects of the school. Please note that there are a few section details in the pages that follow the foldout.

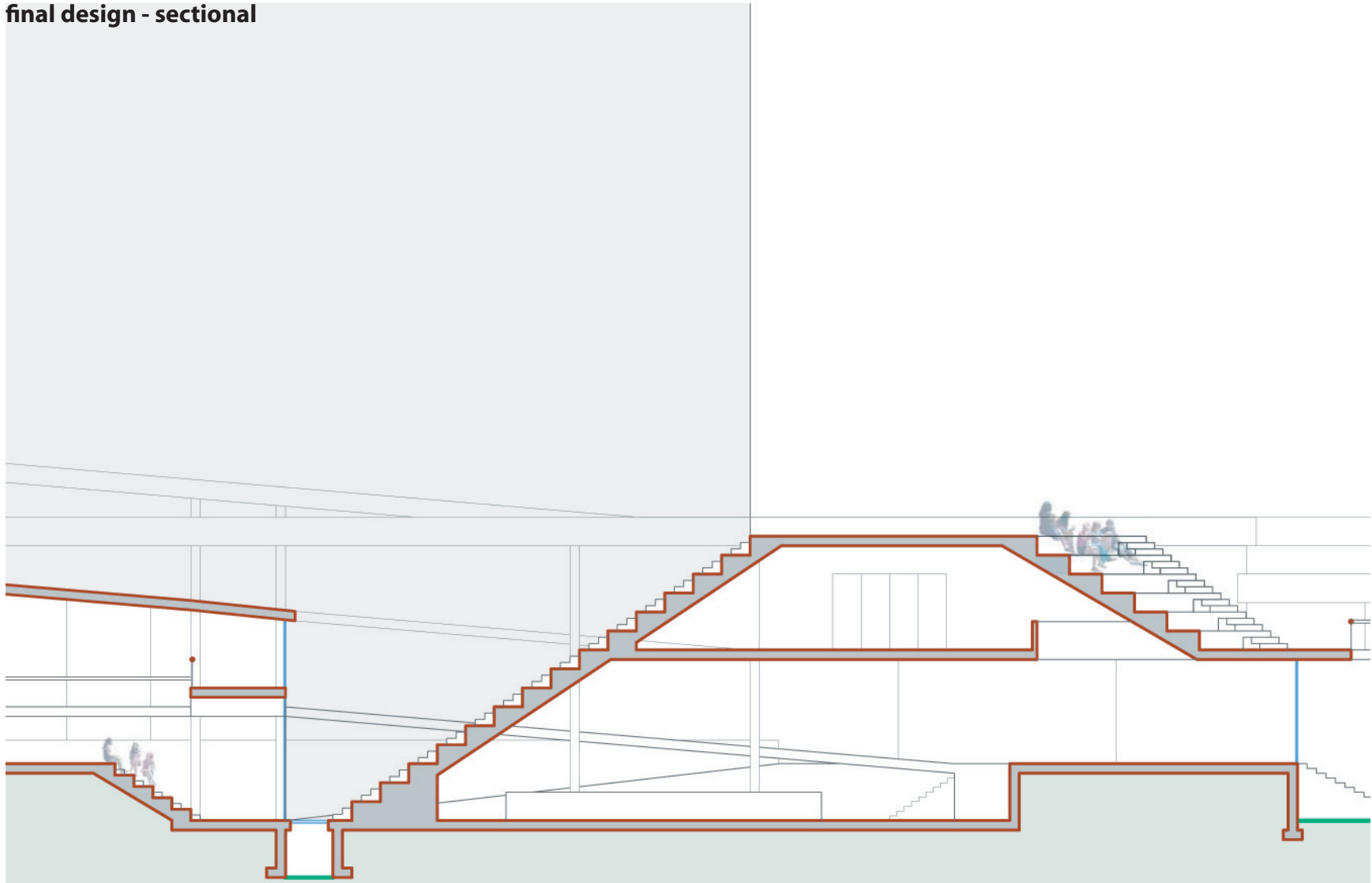


final design - sectional

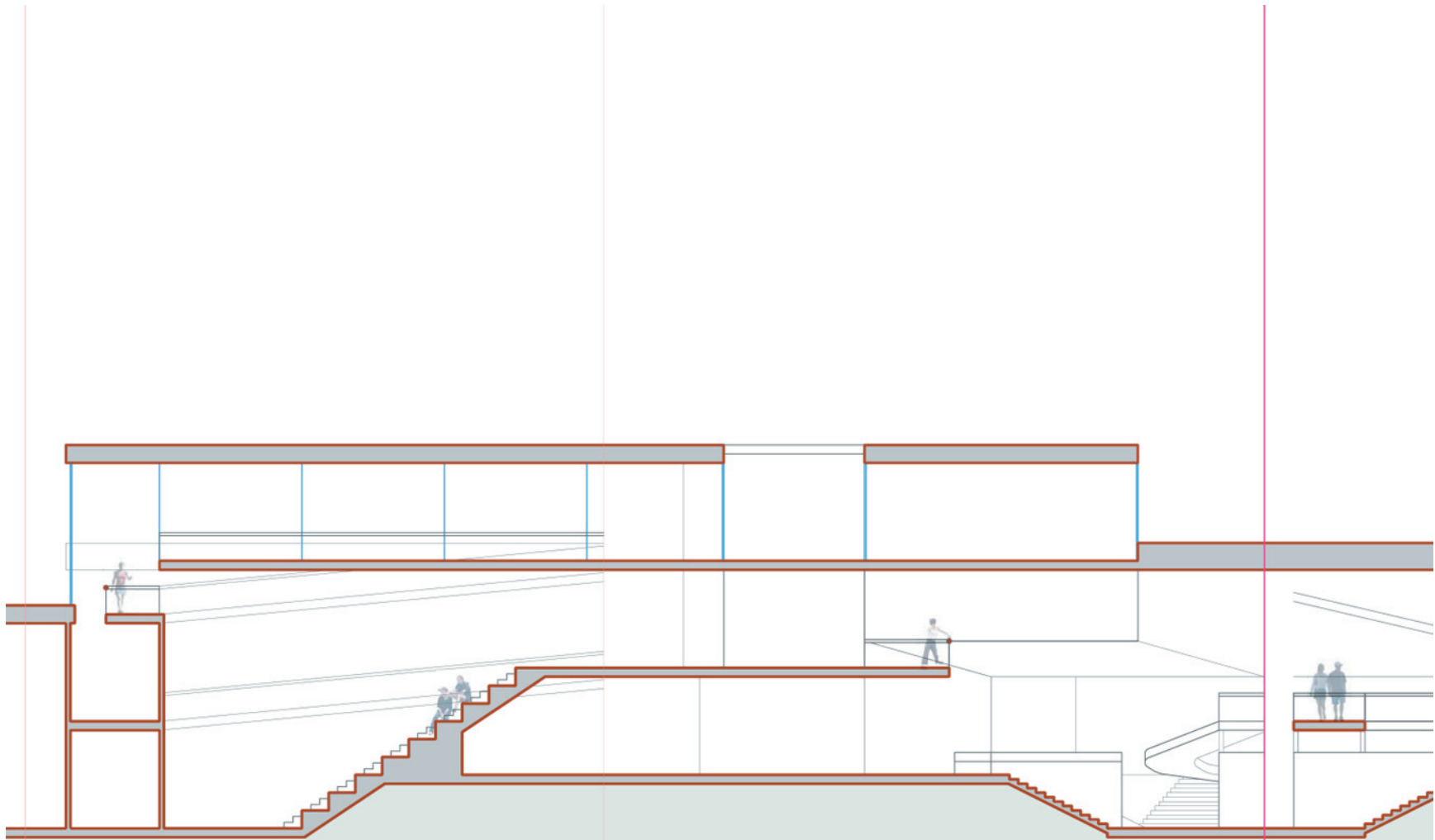


This detail shows the underpass that allows for continuous indoor circulation into the gymnasium and locker rooms on the left side of the road. This underpass also provides a safe point to cross under the “main street” where much of the vehicular drop-off will take place.

final design - sectional



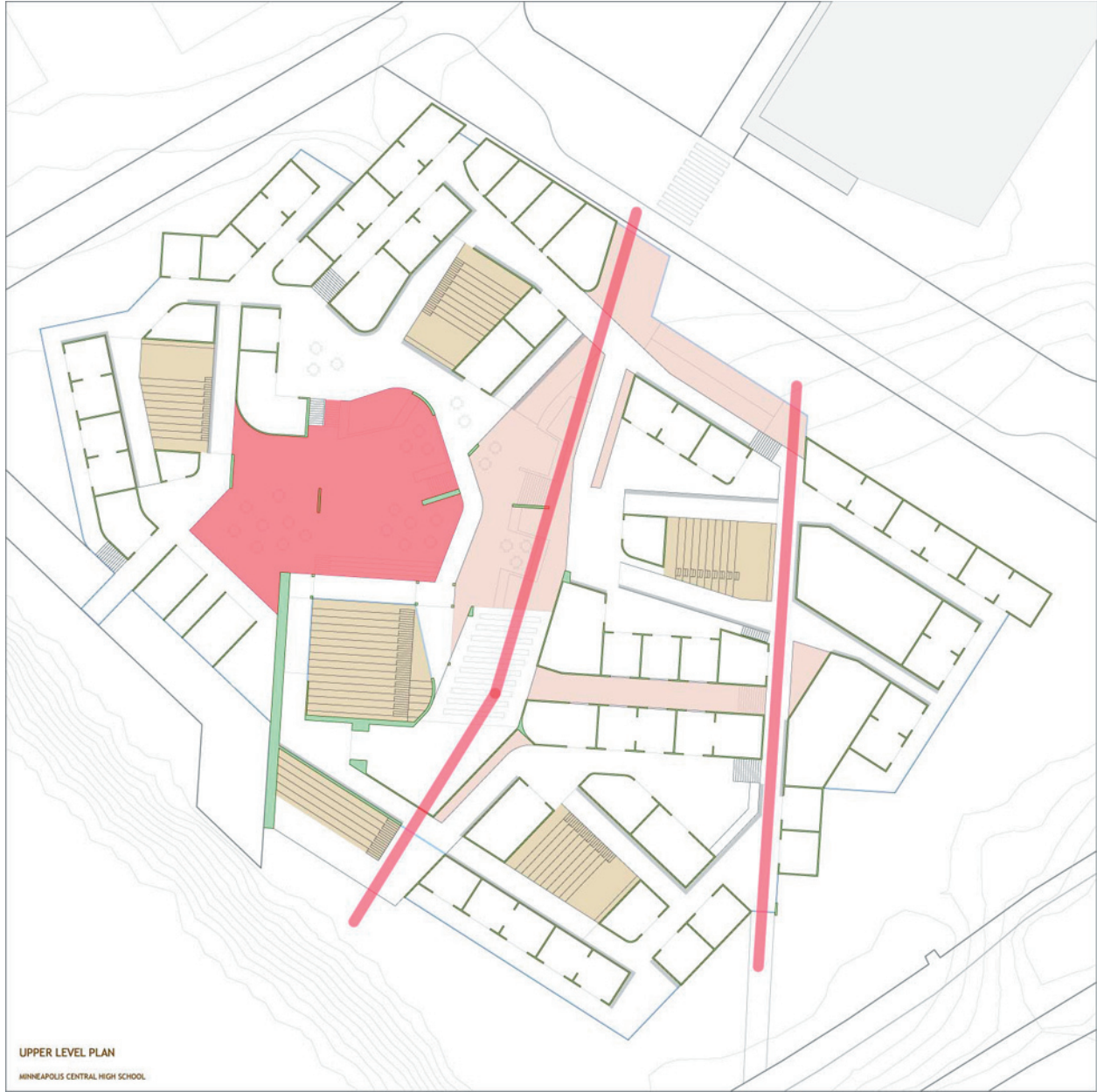
This detail shows off the outdoor amphitheater that acts as a light well for the adjacent cafeteria space. During pleasant weather, the glass panels that separate the two are opened to create a continuous space that steps all the way up to the roof plane and on over to the outward facing amphitheater that looks out over the river and downtown. This also provides access to the portion of the roof that will be developed into a garden.



The main feature of this detail is the cross-section of one of the theaters in the academic cores. It shows how the theater can also operate as a stairwell and casual gathering space. In the background, faint lines describe the ramp circulation that takes students up to the classrooms above the roofplane, as well as the library and roof garden. The right side of this detail shows the central space of the school and its various pathways.

final design

Another major aspect of the design is the notion of orientation and its relationship to the primary spaces of the building. The large central space (the large red space on the right) that includes the outdoor amphitheater/lightwell is intentionally offset with the primary pathway or central “street” through the school (the longer of the two red lines). These two features blend together to create the sense of a large multi-faceted center to the school, even though neither of them are the *exact* center in a geographic sense (the notion of a central space is one design aspect this thesis was attempts to avoid, knowing that the center can become a problematic hole or gap in the middle). By creating this large multi-use space, with the cafeteria being the primary program element, it can be used as an orientation “device” when navigating the school. When moving in and out of the academic cores throughout the day, one is frequently aware of this expansive space from many different angles, thus making possible a mental map of the building. The shorter of the two red lines represents a secondary pathway that leads from the front entrance down to an exit which connects to the performing arts theater (via underpass) located on the other side of the Hennepin Avenue bridge. This path provides a level of clarity to the larger idea about a continuous pathway through the entire site.

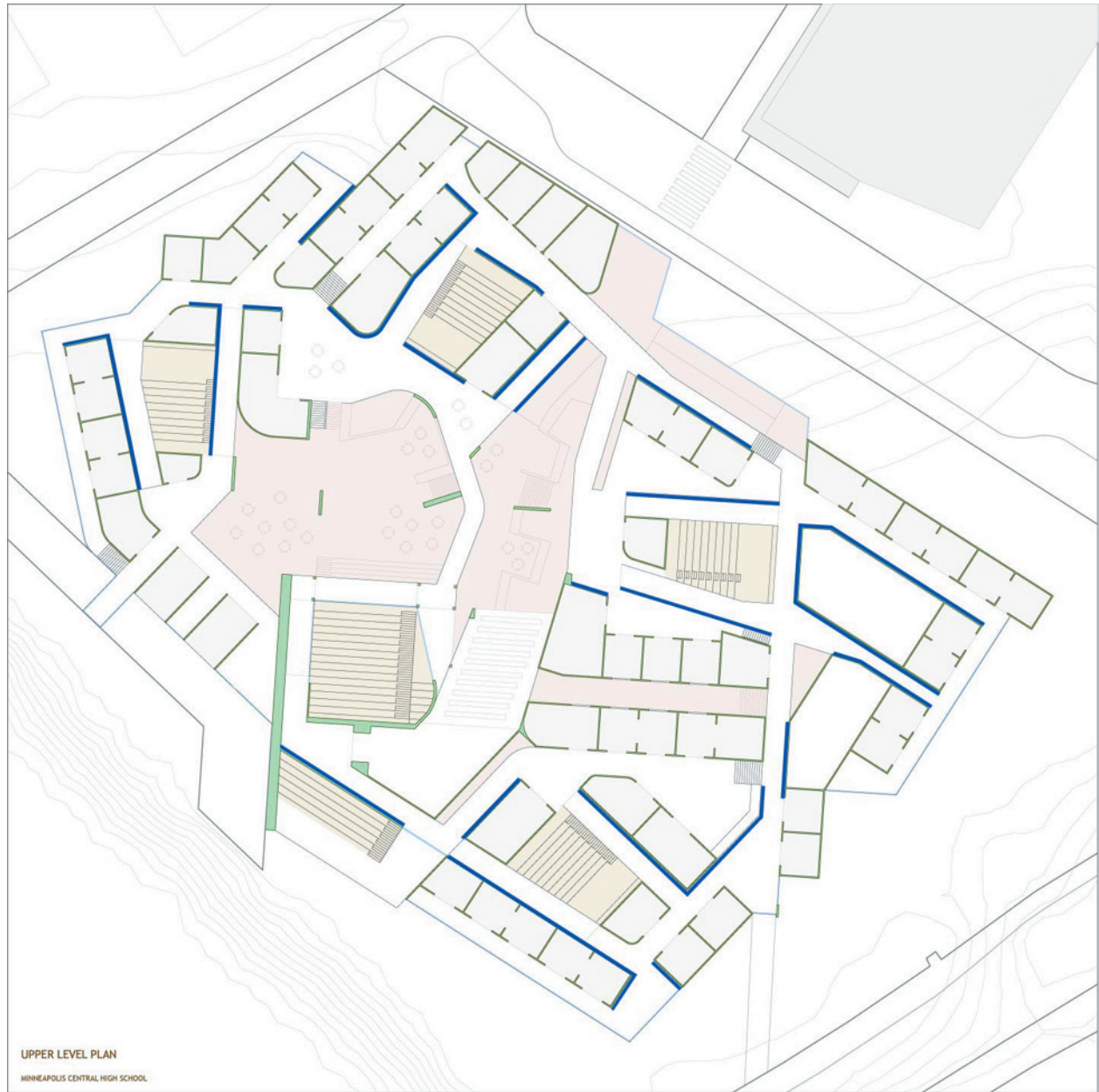


UPPER LEVEL PLAN
MINNEAPOLIS CENTRAL HIGH SCHOOL

final design



Taking the locker idea literally, the blue bars to the right map out the linear feet necessary to provide these wider lockers to every student. Based on this mapping, it is possible to provide these lockers to the 10th-12th grades, while the 8th and 9th grade would start out with smaller traditional lockers and eventually “graduate” to the laptop plan upon entering 10th grade. This would also make the possibility of the school providing subsidized laptops more likely, as it lessens the need from five to only three of the grades.



final design

To the right are the lower levels of the high school. The previous plans have been of the upper levels as they were primarily discussing concepts that are better told from the upper level perspective. The plan of the lower levels specifically addresses the kitchen, serving area, loading dock, and cafeteria, as well as the main office and restrooms.





final remarks

Tell me and I'll forget; Show me and I may remember; Involve me and I'll understand.

The socially-mediated high school challenges many rigid and antiquated notions about education as a facility, as well as a curriculum. Too often, the academic and the social are intentionally controlled and separated in a high school. Why not give teachers some latitude as far as learning environments are concerned? The last thing a student wants to do is sit still and listen quietly for an hour at a time. Students go to school to see their friends. Hopefully as educators we can begin to gradually infuse learning with the social energies of the high school student in a positive manner (i.e. by not letting things get out of hand), rather than retreat towards the mantra of “cells and bells,” a short-sighted and often cited prison-like notion of containment and suppression. By *mediating* the way that group projects can be immersed in social tendencies, communication skills can be expanded through an involved type of learning that is active and naturally curious.

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end notes

1 Michel Foucault, as quoted in Stephenson, K. & Frankel. "Opportunity for Change: Design in the New Economy" *Design*.

2 Zohar, D. & Marshall, I. *The Quantum Society* (London: Bloomsbury Publishing, Ltd., 1993)

illustration credits

From *Towards a Social Architecture: The Role of School-building in Post-War England* by Andrew Saint:

p.2

p.4

p.10 [image 1]

From website (www.nada.kth.se/~jespert/):

p.6

From website (http://www.nsf.gov/od/lpa/forum/colwell/rc02_siam/sld010.htm):

p.8

From *Andreas Gursky* by Peter Galassi:

p.10 [images 2, 3]

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p.14 [images 1-3]

From website (<http://archrecord.construction.com/projects/bts/archives/K-12/default.asp>):

p.14 [images 4-12]

p.15 [images 1-11]

p.16 [images 1-13]

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p.17 [images 1-9]

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From movie *Sixteen Candles*:
p.104 [images 1,2]
p.105 [images 1-3]
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From movie *Elephant*:
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From movie *Heathers*:
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p.111 [images 1-3]
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From movie *Clueless*:
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p.113 [images 1-4]
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From movie *Say Anything*:
p.115 [images 1-3]
p.119

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appendices (01-03)

EDEN PRAIRIE HIGH SCHOOL

AARON WITTKAMPER

VISITOR

Eden Prairie High School
Conn McCarten, Principal
09.03.04

Eden Prairie is the largest High School in Minnesota. It enrolls roughly 3300 students. As a necessity, it now has two cafeterias thanks to a recent addition in the late 1990's. This immediately sets up an interesting scenario. The administration allows students to choose the caf that they eat in, but once they are in that caf, they must remain there for the entire lunch period. The two cafeterias are separated by a long hallway that was once left open so that everything operated as one large self-contained unit. This led to severe congestion and traffic between the two cafeterias. Now that the students are required to choose, the older central caf has naturally become dominated by upperclassmen, while the newer, more remote caf is mostly populated by undergrads. This distinction is not enforced, it occurred socially as the school slowly divided itself.

I've been to other schools where they specifically feed students by grade so that there is very little interaction between the grades. In a case where they are allowed to mingle, they create these rules anyway. I'm curious to what level these subdivisions might be taken. What groups would form?

The older of the two cafeterias forms the central core of the school. It is located along three of four major corridors and opens up quite nicely to form a large double height space in the middle of the building. The majority of the caf floor steps down about three two feet, and skylights project up directly above these space, creating a cozy nest-like quality to the space, despite the enormous student body. The "upper" part of the caf, which stays a floor height, is smaller than the sunken portion. The two areas are bisected by a wide carpeted bench the serves as seating, lunch or no lunch. The edges and adjacencies work quite well, allowing students to flex in and out of the space as they see fit. Within this space, the students are free to travel as they please during lunch.

The principal explained that this space, which is surrounded by a balcony, is a constant draw for students throughout the day. It has a watering hole mentality as it resides along many hallways and is an easy place to stop for a moment.

The other, newer cafeteria forms an edge to the school with a wall of windows and a terrific view of the pond and backyard of the school. It is well lit, open, airy, and stands in contrast to the older one. This caf has a long entry foyer that is considered part of its lunch space. There is plenty of room to spill out into the foyer/entry for conversation and gathering.

Hudson High



AARON WITTKAMPER

Hudson High School
John Staplefield, Principal
09.23.04

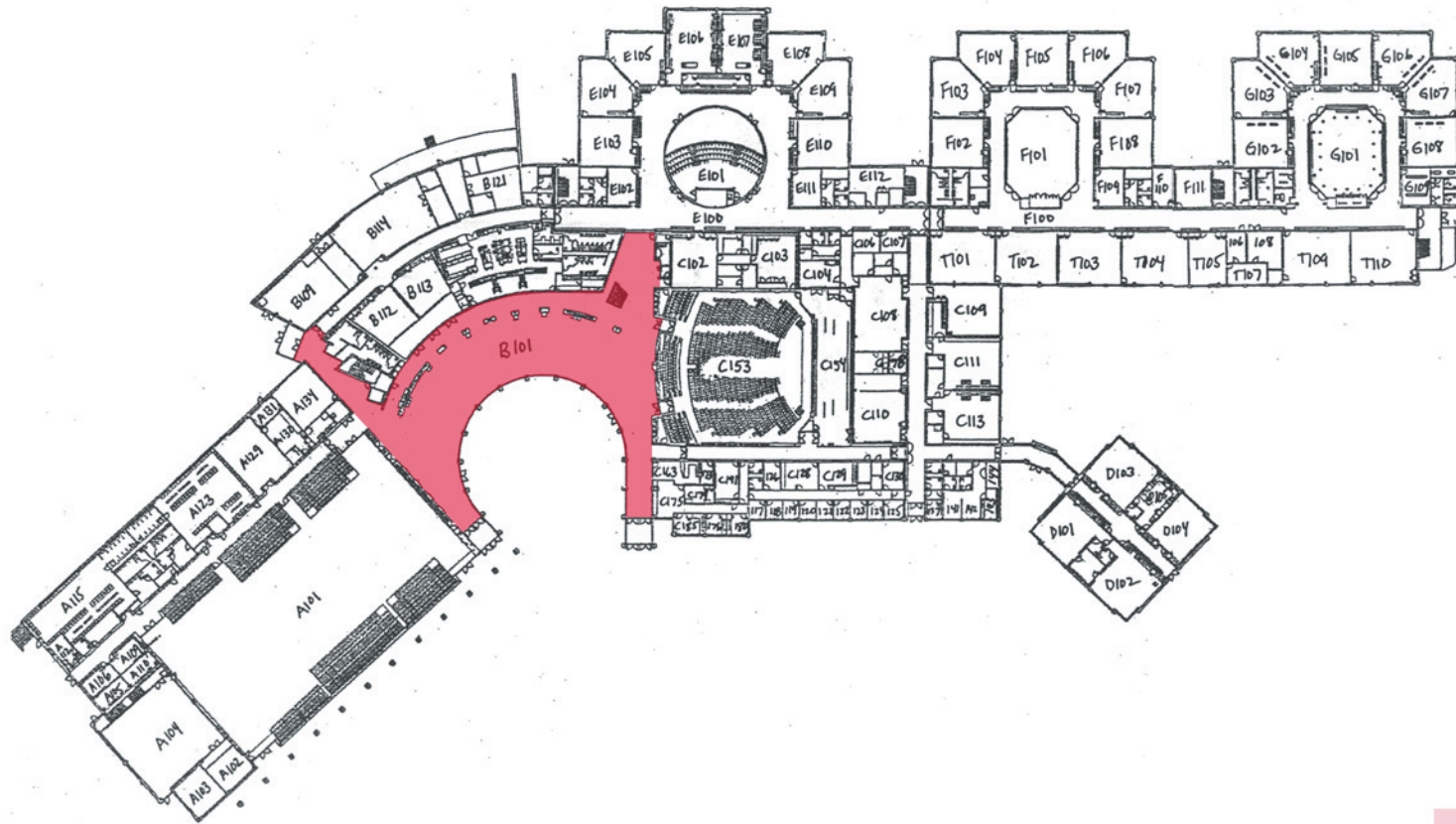
Hudson exhibits a level of clarity immediately upon arrival. An entry vestibule reaches out, offering an obvious location to enter the school. As I walk in, the cafeteria pulls off to the left, opening up into a wonderfully lit space that connects to various parts of the building. It forms an arc, creating a semi-closed courtyard that is available to the students during lunch, as well as before and after school. This multi-purpose space is casual, operating as a grand lobby, an eating area, and a conference center (with a large projection screen in the background). The students are free to mill about during lunch, some taking time to eat, others collecting around the edges to chat. The conscious decision to purchase unfixed table and chairs allow groups to fluctuate through the day and year. Though it is a bit hectic and loud at times, Principal John Staplefield feels “it met their goals as a space, and them some.” It is not a typical cafeteria by any means, which is why it is rather intriguing. Though it is clearly a formal semi-circle in plan, it feels much looser, much more relaxed as an in-between type of space, uniting two major wings of the building, as well as some of the amenities towards the rear. One of these amenities is the library which perches over the space from the second floor, allowing views and light down into the space. The school is very open and ambient, with tremendous visibility throughout. The multi-use cafeteria is clearly the heart of the school, and as the principal pointed out, is quickly becoming the heart of this small community.

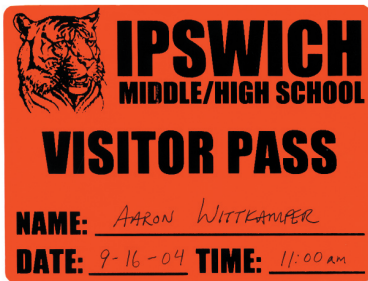
The school was designed to be integrated with the larger community, not just high school students. Throughout the school week, people come and go as numerous different events take place in many of the major facilities located directly off of this grand lobby/cafeteria. Community events such as theatrical performances, public forums, community meetings, sporting events, exercise walking (for senior citizens), K-12 workshops, small conferences, and a photograph session preceding the junior prom, all take place within the building. The design is community minded and has extended itself to many different programs.

This notion of community integration into an already multi-use space is extremely valuable. It could be very helpful to understand one’s high school as something larger than a simple school. Hudson High has quickly established itself as a positive community venue.

Also of note, is the way in which the academic areas are formed into circular cores, each with a central meeting space. The administration divides the school into four interest based groups of about 125 students per grouping. These divisions are technology/engineering/business, arts/crafts/design, public service, science/environmental. They were created to bring together students by academic interest, rather than social interest (which happens inevitably), in order to make decisions, have forums, and discuss relevant issues such as dress code in a democratic fashion. When these groups meet in the central spaces of the classroom clusters, they will often break down into smaller subgroups using the classrooms for more in depth discussion, only to return to the larger group for a round-up of ideas. The idea of communities within communities runs strong at many levels at Hudson High School.

appendix 01





Ipswich Middle School/High School
Cheryl Forster, Principal
09.16.04

I am caught up in cliché notions of a well-oiled machine while observing this school in action. The program of the combined middle school and high school is so well developed, that students appear almost as vignettes of what they administrators and architects may have hoped for. My thesis seems to lean on the notion that this streamlined efficiency is only sought after, not achieved. Though exuberant, these students from Ipswich seem to be along for the ride. I am looking for the cracks in the system and becoming uncomfortable. Where is the drama, the hyperactivity, and the inevitable acting out and goofing off. Students as instinctively social animals, acknowledges the core of my thesis. It is this relentless social energy that I am hoping to engage. Needless to say, I am glad to be here.

The place I actually find this energy is in one of the classrooms. It is actually two classrooms connected by large double doors that open between the two rooms. The two classrooms sit facing each other as the teachers “team-teach” both rooms at once. The doors that have been opened are covered with a white-erase surface, thus allowing either side of them to be written on. The energy in the classrooms is that of two small communities competing with each other. There is a sense of pride between the two rooms, yet it is clear that they are all in this together. What is quite interesting, is the notion that these classrooms are a subset of a larger design element that strongly influences this school. They are a part embedded within a whole.

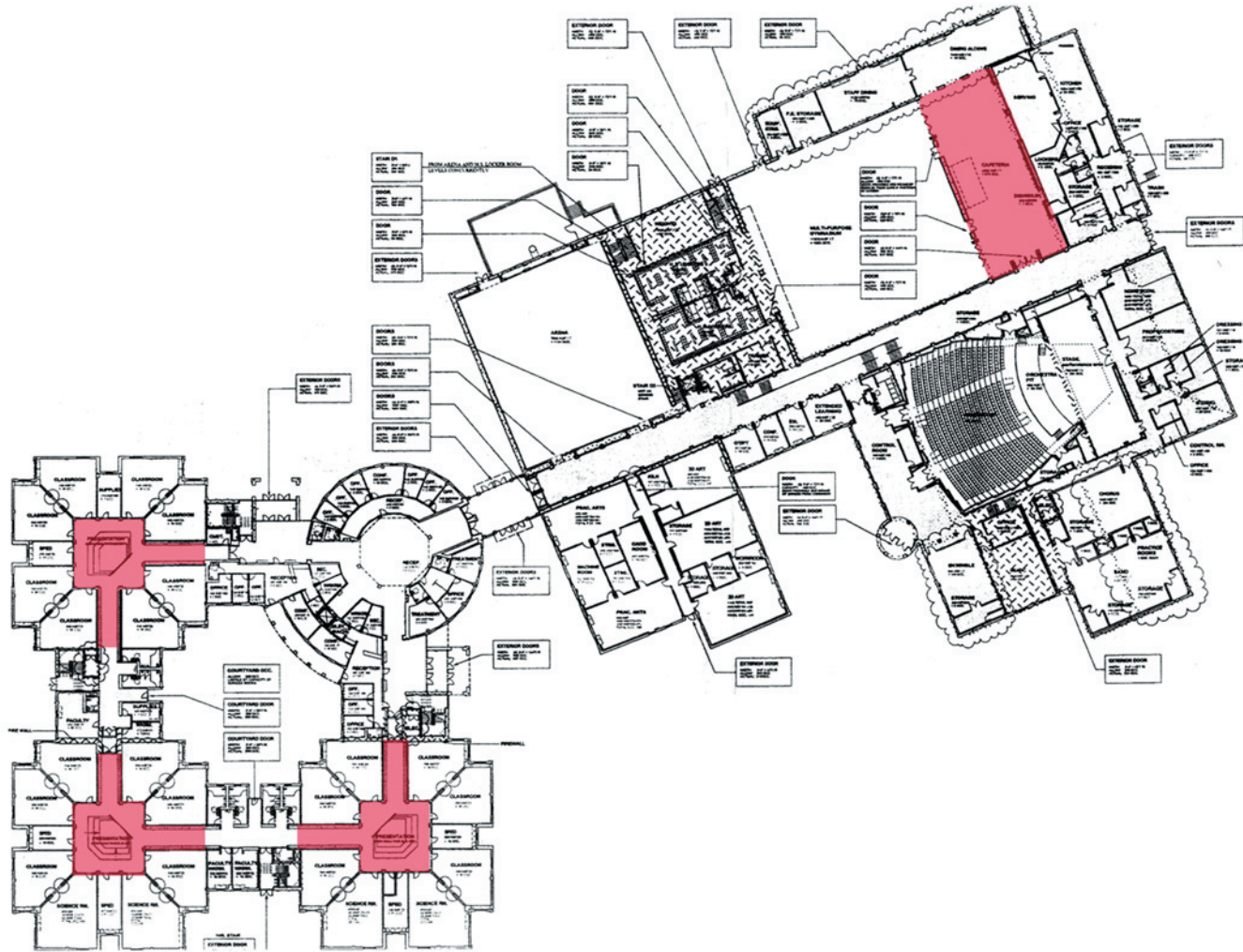
The whole that I speak of is a gathering area at the center of eight paired classrooms, all of which open into the center. This area is referred to as a “kiva” and operates like a community watering hole where everybody can gather. The kiva has a pull down projection screen and wireless capabilities which are surrounded by a floor which steps down, thus creating an amphitheater type space. There are six of these areas in the school, each for a specific grade or section of students. These communal areas along with the immediately adjacent locker halls create an intimate community within a larger school community. When there are larger issues to be addressed, it is down by kiva, with all eight classrooms spilling out to be addressed collectively.

The social spaces of the school are limited, but efficiently self-contained within these kivas. The only other place that is inherently social is the cafeteria, which is placed along a major corridor that breaks apart from the academic cluster of kiva’s, forming what is known as Main Street. The cafeteria is a destination at this school, a locale that is traveled to. When the cafeteria is not in use, doors open at its ends to include it as part of the gymnasium and running track.

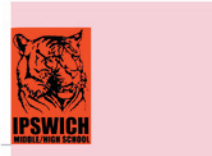
Aside from the very short hallways that bridge the kivas, the typical example of a high school corridor is non-existent at Ipswich. Social space is clustered and localized without any significant space or arena for the student body to exist as a whole. They are essentially schools within schools. In the case of the middle school, they are separated by grade. For the high school it was partially grade and partially by academic program. Any sort of programmatic proximity was generally avoided, either because of the need to keep the grades separate, or to follow larger formal rules of the design, most notably the innovative, yet repeating uniform plan of the kivas, as well as the Main Street which was lined with semi-public program such as the theater, music rooms, art rooms, and gymnasium.

In terms of the efficiency I spoke of earlier, social spaces were very clear and delegated, with very few anomalies in regards to where kids preferred to hang out. It reached a point where I was only being shown where kids might be hanging out in a deviant effort to hide or remove themselves from the rest of the school. The question of social space was a non-issue. The social space was provided in a very clear and effective manner with little or no variation.

appendix 01



thesis_observational.plans.public/social_IPSWICH M.S./H.S.





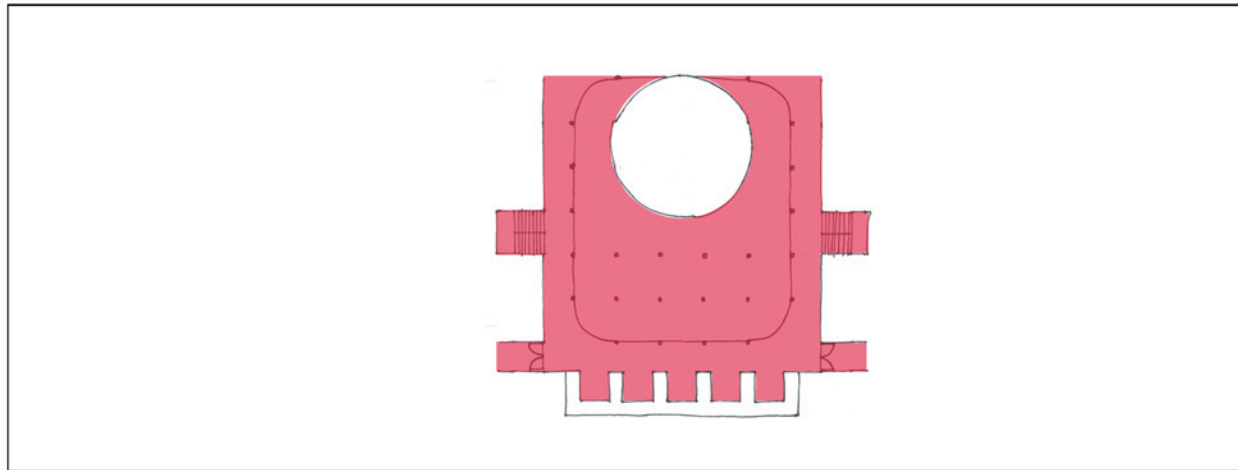
Minneapolis South
Dr. Linda Nelson
05.26.04

Though cavernous, poorly lit and a bit outdated, Minneapolis South High School exhibits a vitality that has a lot to say about the social nature of students. These students seem unconsciously aware of the oppressive nature of the school's architecture. As a response, and I'm guessing an instinctive one, the students have developed gathering areas that resonate with the design, yet were most likely not included in the architect's intentions. Most notably is a space on the balcony overlooking the cafeteria. While the whole of the cafeteria is naturally social, this space in the presence of it, forms a natural apex between a significant class hallway, the expanse of the caf below, and a prominent bank of lockers. The long curved railing that forms the edge of the balcony is the basis from which a large group of students gather and swell into this "apex." What was designed as a serious moment of passage and intersection has become an enjoyment of congestion for the students. They are clearly not interested in moving through this space, but are attracted to it. It has gained a clear identity formed purely of social behaviors over time. Of particular interest is the fact that there is a symmetrical opposite to this railing that remains empty during these times of social interaction.

Another area of interaction is a double-back stairwell that descends from the balcony to the edge of the cafeteria floor. The stairwell is open on all sides, creating a space that is analogous to an island as well as a tree. All parts and edges of this stairwell are periodically occupied throughout the lunch period.

The cafeteria itself is essentially a large windowless void at the center of the school. The balcony wraps around three-fourths of the caf, creating an arena-like atmosphere. The uniformity and symmetry of the space add to its banal presence. It is for this reason that the specific moments of student interaction become so interesting. There is no typical form of architectural instruction embedded in the schools design, although it does have a healthy amount of open adjacencies to the cafeteria. The students have gathered unconsciously.

appendix 01





AARON
WITTKAMPER

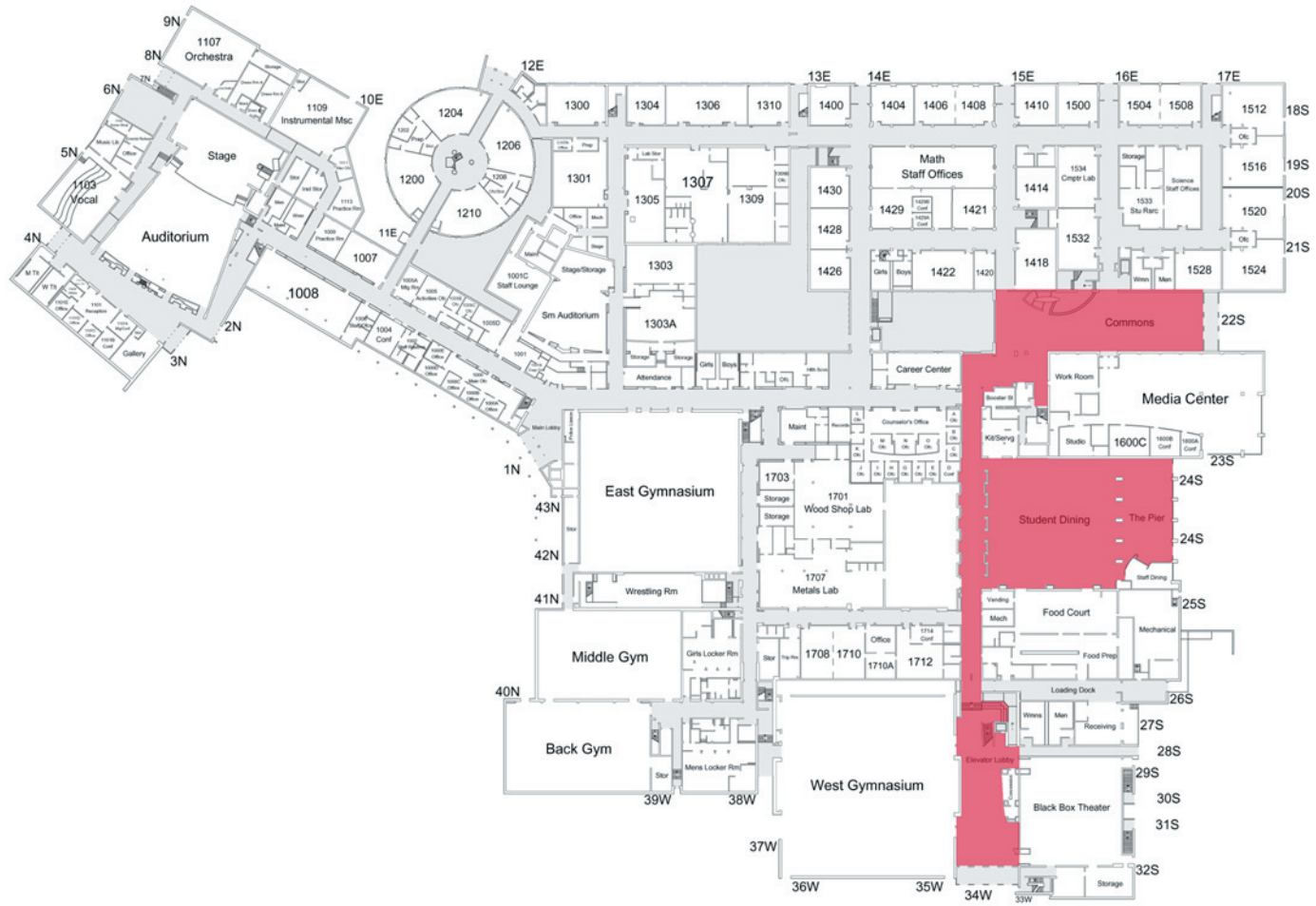
Minnetonka High School
David Adney, Principal
09.03.04

The very large cafeteria and connected common space create a perfect scenario for the school's "free for all" mentality during the lunch periods. Students are essentially allowed to roam a relatively large area during lunch. Many arrive simply to sit at their favorite location with friends before actually going to get their food. Some perch along various niches along the outer edge of the cafeteria. The large hallway that runs along the back of the cafeteria is opened between the long row of columns, giving it an arcade feel. This area stays very social throughout the changing lunch periods. It is a mediated space on the threshold of the main expansive cafeteria space. A very effective space. Students swarm through and are left alone to do as they wish. The common space around the corner from the caf is a bit detached and under-populated considering its size. There are some tastefully formed benches and concrete ledges where people could sit, although they remain rather empty as it seems the caf with its "arcade" is the place to be.

This notion of a space programmed as a large container, yet with different places to hangout and socialize seems to work well, as apposed to a simple box-style caf where the students must sit and wait before their tables are dismissed. It allows for an organic type of interaction that mutates and shifts throughout the period. Though this may be considered loud and perhaps a bit unruly by some administrators, my observation is that the kids trust and respect the set-up, taking advantage of the level of freedom that has been provided.

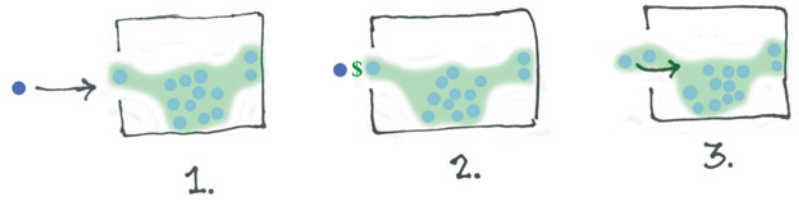
In contrast to the rest of the school, which is primarily and classic floorplan of long faceless hallways and classrooms, this central cafeteria, which is part a major renovation and addition, has become the core of the school. It is where everyone can interact on a very broad scale. There are moments of privacy (as referenced by the niches and columns along the central hallway) as well as great visibility and exposure, an aspect both feared and sought out by high school students. The social culture of the school seems rather healthy.

appendix 01



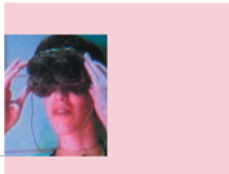
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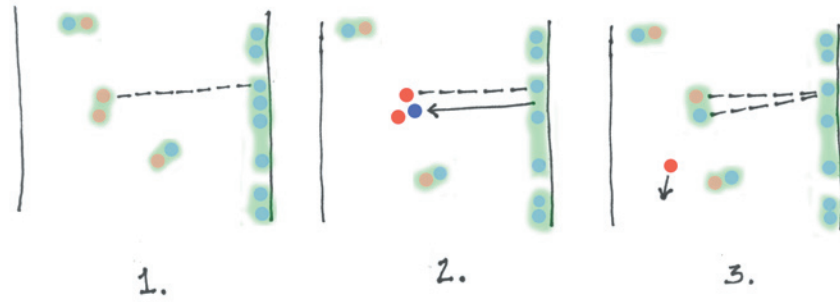


Exchange of Monetary Unit = Access to Group Solidarity

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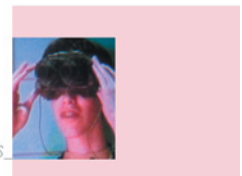


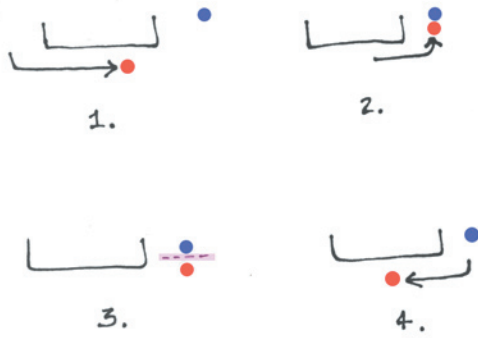
appendix 02



Gendered/Militarized Surveillance and Reconnaissance. At the dance.

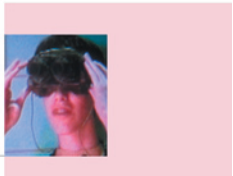
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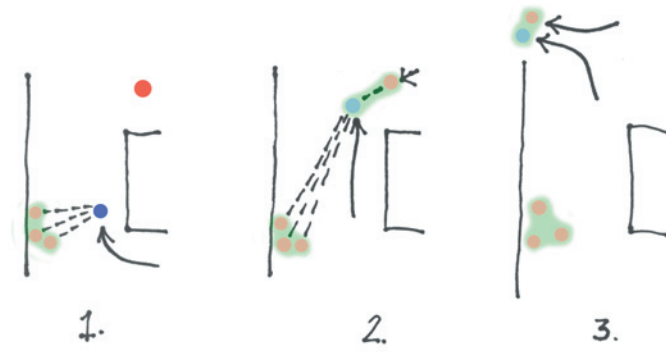


Potential for Male/Female interaction is blocked by a loss for words.

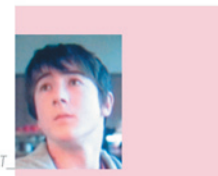
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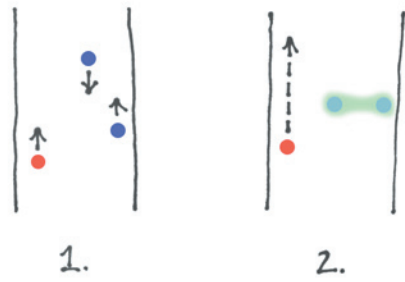
appendix 02



Discussion of attractive passerby.



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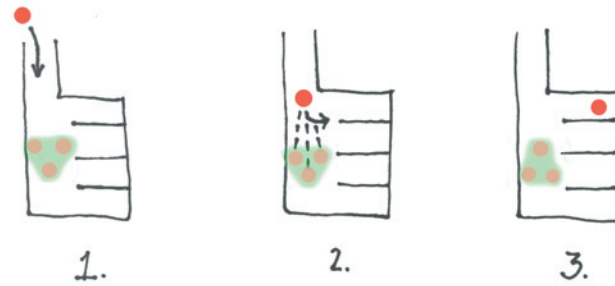


Nervous acceleration in a narrow corridor.

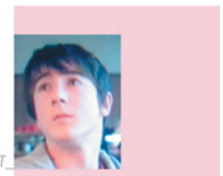


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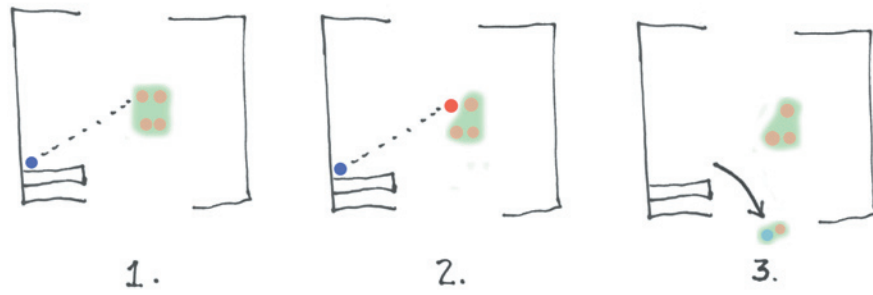
appendix 02



Restroom confrontation. Complete barrier between parties.

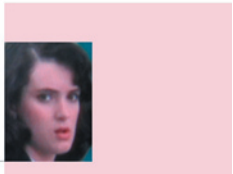


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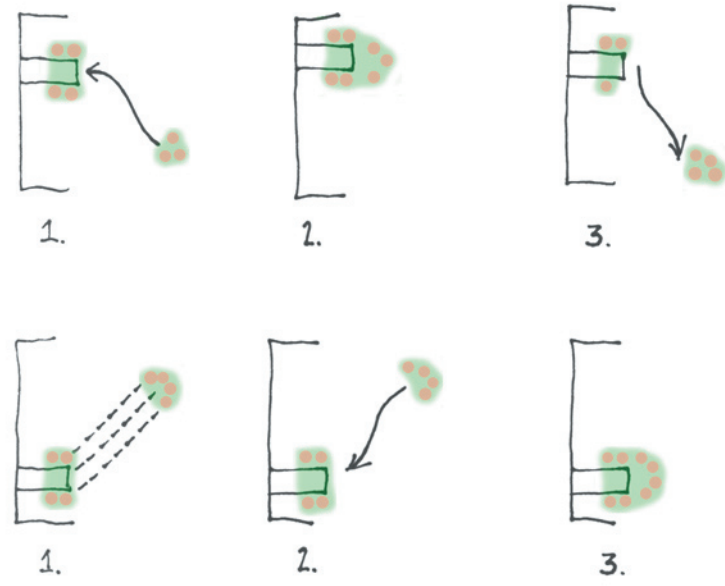


Shifting Interests and Identities.

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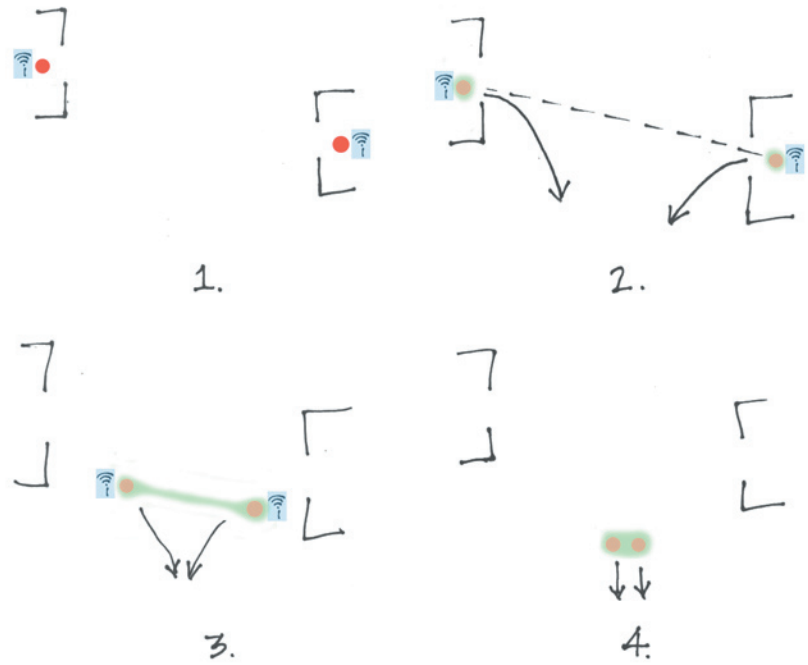
appendix 02



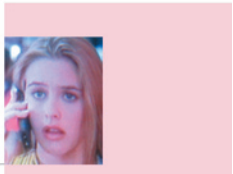
Visual Recognition > Approach (Search and Destroy)



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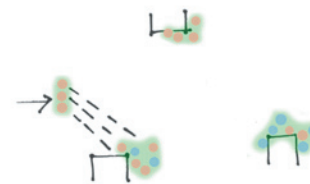
Discussion-based learning.



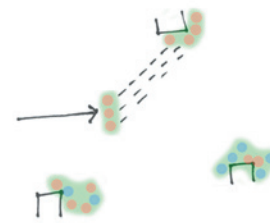
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appendix 02

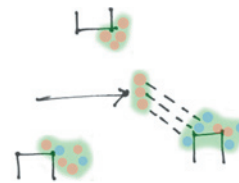
The Promenade.



1.



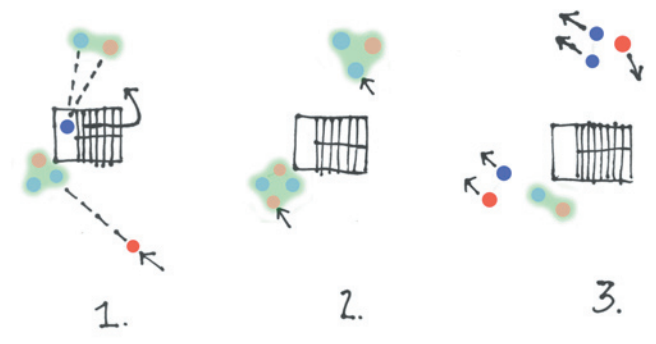
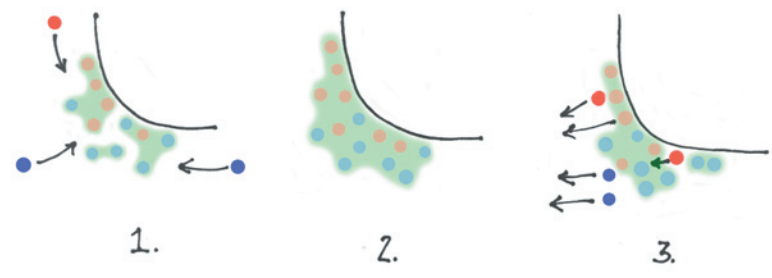
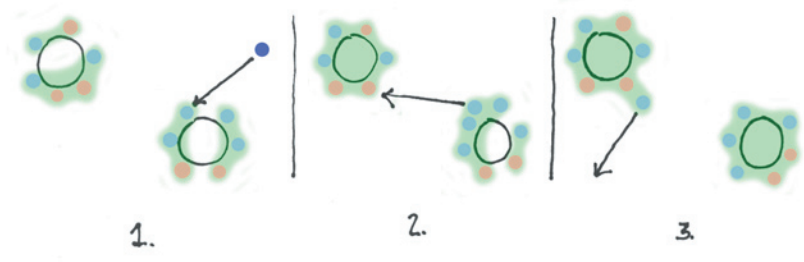
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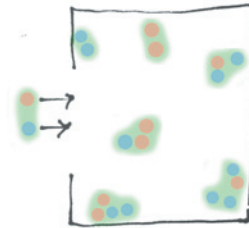
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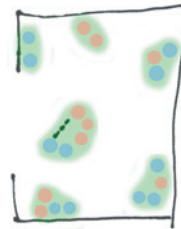




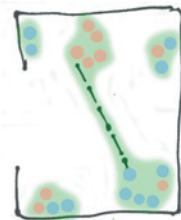
appendix 02



1.



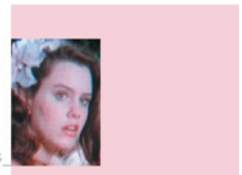
2.



3.



Visual "fether" at a party.



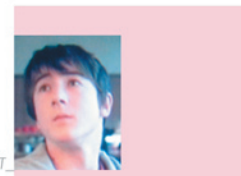
thesis_observational.diagrammatic.film_SAY ANYTHING.

appendix 03

Elephant

Elephant provides a powerful commentary on contemporary high school culture here in the United States. The imagery and cinematography set a quietly hostile mood throughout the film. Long dark corridors, grey skies, and jaded youth dominate this school on the verge of a terrifying incident. The words that come to mind after viewing this film are alienation and disconnect. While there are indeed moments of simplicity and beauty in the story, the sense of foreboding and suppressed rage is evident. *Elephant* follows specific individuals throughout their day, thereby illustrating the brief and often hostile interactions between different students or small groups within the school. There is very little sense of the student body as a culture or recognizable whole, only detached fragments of students that show up periodically during the day. The fact that the film ends in a tragic and remarkably graphic school shooting (on par with the events at Columbine H.S.), is sadly consistent with the long and somewhat subliminal build-up to the shooting.

thesis_fictional.film.text_ELEPHANT_



The background of the page is a collage of semi-transparent film stills from the movie Heathers. The stills show various scenes: a school building, two girls talking, a girl in a car, and a girl in a hallway. The text is overlaid on these images.

Heathers

Though bizarre and satirical, Heathers is oddly relevant to a discussion of social culture within a high school. Through a couple of murder cover-ups made to look like suicides, the students at West-erberg High School in Ohio are made hyper-aware of social status and its deceiving relationship with suicide. The fact that three very prominent students appear to commit suicide, though actually murdered, invokes a relationship between notions of popularity and misunderstood identities. This creates a small outburst of suicidal tendencies in the school, despite the fact that no one actually committed suicide in the first place. One student (Veronica) tries to make good on this state of affairs, while her boyfriend ends up putting the entire school at risk. Despite having been on the road to becoming part of the exclusive club of "Heathers," she understands how the relentless and vicious fight to become popular and attain status is highly detrimental to student relationships. In the end, Veronica manages to disrupt her ex-boyfriend's murderous tendencies, tell off the head "heather," and start up a relationship with a socially-scarred student.

There is a vicious undertone to this movie, despite its satire and humor. The dark side of popularity shows through as severe put-downs and derogatory comments are made at socially vulnerable students.




appendix 03

Say Anything

Say Anything exemplifies the lack of social connection found in certain individuals that, by being overly focused on one's academic goals, remain detached from a school's social culture. Diane's character is just that, a high achieving academic, guided by an overly supportive father. During her high school career she distances herself from the majority of her peers through her constant overachievement, fueled by her father's overzealous support for her success. Through a friendship with Lloyd (John Cusack) that begins in a relatively simple manner (i.e. let's just be friends), she is introduced to and becomes engaged with the social life of the school, despite her initial intentions. Radical change occurs in her life as she discovers a realm of her identity that had been marginalized by her academic mentality. Socially and romantically, her life expands in the new relationship, as well as among her peers.

thesis_fictional.film.text_SAY ANYTHING_

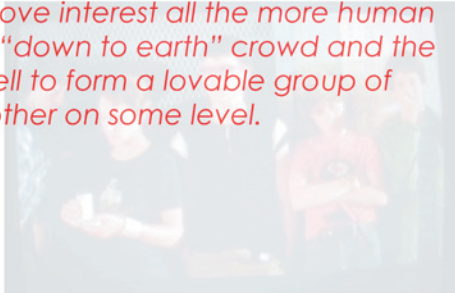
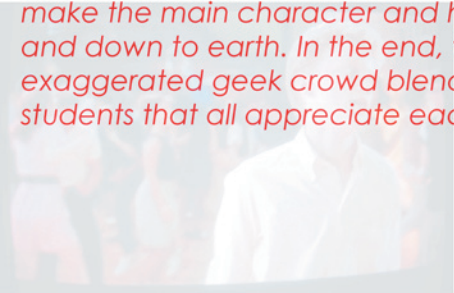




Sixteen Candles

The culture of the school in *Sixteen Candles* is bizarre and hilarious, yet everyone seems to get along well. Students seem to interact quite playfully, despite some social boundaries. There appears to be two major layers of social status at the school. There is the good looking popular upperclassmen crowd with its jocks and rich kids, and there are the stereotypical nerds and geeks crowd, all of which is exaggerated to the point of extreme satire. This division creates a scenario in which overlaps between these groups begin to take place. Some of the overlap involves a typical form of idealism (i.e. popular rich kid pursues shy unknown girl). Whereas other overlaps are entirely comedic (i.e. geek and popular cheerleader spend the evening together).

The exaggerated personalities of these cliques are an attempt to make the main character and her love interest all the more human and down to earth. In the end, the "down to earth" crowd and the exaggerated geek crowd blend well to form a lovable group of students that all appreciate each other on some level.



thesis_fictional.film.text_SIXTEEN CANDLES

appendix 03

Clueless

Clueless demonstrates the profound and endless categorization of social groups, to the extent of using specific names to describe each group (i.e. betties – cute girl, barneys – ugly guy). When necessary, one just creates another category, or subcategory. Beverly Hills High represents an extreme situation wherein the clique dominates and controversy arises when members from one clique form relations that crossover into another. There is a scene where a number of cliques are referenced as Cher (Alicia Silverstone) walks past them. Each one has a distinct name, a specific hangout location, a clear style of dress, certain accessories, and in some cases, a specific type of car (BMW). In the case of Beverly Hills, these locations are outside the school in the California sun. Specific grassy knolls are used. In one case, a student is asked whether or not he should be sitting on "that knoll over there instead of here."

The extent of the school, as told through Cher's narration, is entirely encoded down to the finest details. It is also made clear, at least visually, that the most popular boys, while hanging out together, exhibit their own personal style and a noticeable amount of individuality. This suggests a masculine form of popularity that is individually driven, despite the intensity of the various cliques.

A strong awareness of city streets and neighborhoods as social boundaries is also noted ("You still freak out when someone asks if you live below Sunset Blvd.").

Within the classrooms, the teachers are portrayed as hopeless social outcasts, all with a passion for completely unsocial causes, therefore intensifying the need to leave class, or at least use a cellular phone during it.

There is a long description of high school guys, and why they are like dogs, and therefore undatable. This suggests another echelon of popularity that transcends the high school realm, acknowledging a much larger categorization that a clique of girls can be a part of, thereby expanding their social status.



thesis_fictional.film.text_CLUELESS_