

value engineering the palace of learning

by

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B.A. Williams College 2002

Submitted to the Department of Architecture in partial fulfillment for the degree of
Master of Architecture at the Massachusetts Institute of Technology, September 2009.

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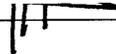
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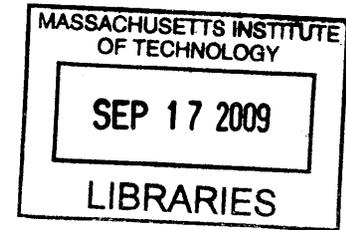
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For the past fifty years the institution of public education has struggled to evolve beyond its Fordist origins and adapt to a society that favors innovative thought and interpersonal collaboration over a steadfast adherence to an assembly line mentality. During this time the architecture of public education has stubbornly resisted. The result has been the codification of a typology derived from authoritarian organizational strategies that prioritize spatial efficiency while failing to question whether the architecture is aligned with a school's educational philosophy.

Educational research suggests that student success is linked to strong communal support networks. The public school as Civic Monument, however, represents an architecture isolated from the communities it serves. Meanwhile serial organization of classrooms accessed by double-loaded corridors lined with the ubiquitous student locker represents a public space incapable of fostering healthy interactions.

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This thesis offers a critique of the architecture of public education. The relationship between school and community is examined at an urban scale. Massing, facade, and site logics are addressed in an effort to reevaluate the role of the school as an organizing tool capable of activating previously neglected space while reinforcing the existing fabric and character of the site. On an architectural scale, the project addresses the nature of public space within the school, presenting an alternative to the double-loaded corridor. The relationship of classroom to circulation is inverted in an effort to activate the public space of the school and empower a student body with a sense of ownership in its academic environment.

Thesis Supervisor - Alexander D'Hooghe

Title - Class of 1922 Career Development Associate Professor of Architecture and Urbanism

introduction

During the 2004 presidential election Massachusetts Senator John Kerry captured the general sentiments of the United States towards public education stating, “If we want to build a stronger America, we need an educated America. Our schools should be palaces of learning.”¹ Before dismissing this as a political sound bite, it is worth examining Kerry’s implication of the relationship between government and education, as well as architecture and education. The “Palace of Learning” in particular suggests a causal relationship between the aesthetic quality of the school and the quality of the education received within its walls.

Three years later, a Massachusetts community is questioning the role of architecture in public education. On July 2, 2007 ground was broken for a new public school facility in Newton, MA, a wealthy Boston suburb renowned for the quality of its public school system. The estimated cost of the 400,000 square foot facility is \$186 million, nearly \$100,000 per student, making this the most expensive school project in Massachusetts history. Newton citizens, concerned about the escalating cost and the elitist image it portrays of their community, have criticized the architect for creating an “educational showpiece” rather than focusing on the programmatic functionality of the building.² In the economic landscape of urban public education where decisions are made between teacher training and purchasing textbooks, is an architecture of excess appropriate? More broadly, is it the role of architecture to assert that design, in and of itself, improves the quality of education? Or as Giancarlo de Carlo questions, “Is there a direct and reciprocal relationship between the educational activity and the quality of the buildings in which it goes on?”³

De Carlo’s critique of public education and the school typology describes an authoritarian relationship between institutions of government and mass education. “The organizational structures of a school building can always be brought back to outlines based on the principle of authority: hierarchy of spaces, absence of osmosis between the constituent parts, interruption and control of internal and external communications,

1 Kerry, John, 2004, *The Promise of Opportunity*, Phi Delta Kappan, Vol 86, 2004

2 Source: *The Boston Globe*, Feb. 11, 2008

3 Giancarlo de Carlo, *Why/How to Build School Buildings*, Harvard Educational Review, Vol. 39 No. 4 p. 12

etc.”⁴ Fueled by a behaviorist philosophy towards the educational environment, attempts to soften this authoritarian typology have traditionally been laden with a post-modern symbolism. These designs often place tremendous importance on replacing the institutional monumentality of the building with facades whose character is more sensitive to the building’s context. These same designs fail to address the structural organization of spaces that have remained essentially unchanged from a user group perspective.

At the heart of this organizational structure is the hallway. The familiar imagery of the school hallway flanked on both sides with student lockers every twelve inches has become an icon for public education. The spatial efficiency of the double-loaded corridor and the ease in which it provides accessibility to essentially serialized classrooms is undeniable. It is readily adaptable to provide smooth paths of egress of the size and location demanded by rigid building codes without substantially increasing gross square footage or compromising design intent. These characteristics have resulted in the stubborn proliferation of a typology that is so ingrained in our society that its continued implementation is rarely questioned due to a mentality that this is the way schools have always been done.

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The earliest instances of public education are credited to Boston Massachusetts where the foundation of Boston Latin School in 1635 marked the first public school in North America. In 1639 Mather School in Dorchester became the first elementary school, and in 1647 Boston formed the first school district.⁵ Although the first public high school was founded in 1821, the luxury of secondary education remained an opportunity reserved primarily for the societal elite until the turn of the 20th century.

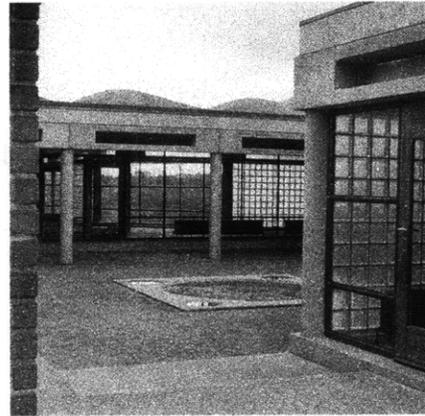
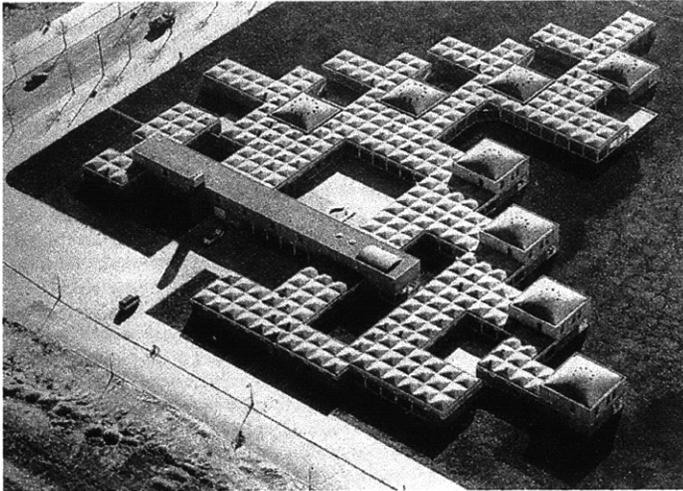
The origins of the modern school typology, marked by the transition from the schoolhouse, can be traced to the early 20th century and corresponds to the rise of Taylorism as a model for industrial production, and the development of the public high school as a uniquely American institution. “The demand for juveniles in manufacturing decreased substantially just prior to the rapid increase in high schools and the demand for white collar-workers, particularly in offices, rose. A decade or two later, in the 1920’s the demand for high school-educated blue collar workers would increase in the more capital intensive and higher technology industries of the day.”⁶ The predecessor of the modern school typology - the schoolhouse - was a structure more analogous to the family dwellings and other forms of “domestic” buildings that fell “outside the domain of ‘public’ architecture.”⁷ The development of the modern school typology as an efficient organization of age-graded classrooms is a result of the industrial philosophy that the educational system served. The high school fed the demand for higher skilled industrial and office workers while this increasingly industrialized society in turn built and developed educational buildings and curriculum.

In the 1960’s Aldo van Eyck a member and cofounder of Team X (whose membership included Giancarlo de Carlo) called for the rejection of functionalism and a return to a humanist philosophy towards architecture. Buildings such as Van Eyck’s Amsterdam orphanage and Herman Hertzberger’s Montessori School in Delft became influential precedents for an educational architecture based on the tenet’s of behaviorism, namely

5 <http://www.bostonpublicschools.org/node/34>

6 Goldin, Claudia, America’s Graduation from High School: The Evolution and Spread of Secondary Schooling in the Twentieth Century, *The Journal of Economic history*, Vol. 58, No. 2 (Jun., 1998), pp. 371-372

7 Hennon, Lisa, *Urban Planning and School Architecture: Homologies in Governing the Civic Body and the Social Body*, U.S. Dept of Education, Education Resource and Information Center, Paper Presented at the Annual Meeting of the American Educational Resource Association April 19-23, 1999, p. 10



Aldo Van Eyck, Amsterdam
Orphanage, 1960

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that the built environment has a direct influence on the quality of education. This humanist discourse from the perspective of a Columbia student of architecture in the late 60's is described as "a concern for making places for people, with justifying the formal and functional decisions by explaining the quality of life they would produce."⁸

The renewed interest in the behaviorist model along with curricular reforms based on spatial reorganization led to the development of the open-plan school throughout the 1970's. Designed on notions of flexibility and user-defined spaces, the open plan model ultimately failed due to a general conservatism of educators and an inability to control acoustic interruptions between classroom groups. A visit to a model open plan school in Missouri 15 years after its opening revealed "most classrooms were walled off from each other and innovative structures were no longer being utilized for their original purposes." Staff members were "more oriented to a traditional back-to-basics educational philosophy."⁹

By the 1970's the rest of the industrialized world had begun to meet or surpass the advances in secondary education achieved by the United States between 1910 and

8 Schuman, Tony, 1981, "Form and Conterform in a Non-Heroic Age", JAE Vol. 31, No. 1, p. 2

9 Dwyer, David C. 1982, *The Kensington School Today: Sailing Stormy Straits. A View of Educational Policy*, Paper presented at the Annual Meeting of the American Educational Research Association, New York, NY March 19-23, 1982

1940. Fears based on a Cold War mentality along with the decline in the performance of the U.S. educational system compared with other industrialized countries led to the 1983 publication of a report entitled “A Nation at Risk.” The report, heavily laden with Cold War rhetoric, summarizes the decline in educational performance and calls for a bold recommitment and reform of the Nation’s public school system. Such passages as “Our society and its educational institutions seem to have lost sight of the basic purpose of schooling, and the high expectations and disciplined effort needed to attain them”¹⁰ indicate that the responsibility of public education had shifted beyond the local and state levels to primarily that of the federal government. Moreover, it suggests that the government as an institution of authority (even if that authority promoted democracy and individual freedoms) saw education as a crucial tool necessary to perpetuate that authority.

Since 1983 education reform has become increasingly politicized, particularly in the inner-city districts demonstrating the greatest academic deficiencies. “Amid the 1990’s scrutiny of education nationwide, including the call for new national standards for education reform, a number of education theorist and practitioners, in the tradition of (John) Dewey, began to look seriously once again at the environment in which education takes place, particularly in large, anonymous and highly bureaucratic school districts such as New York, Boston, and Chicago.”¹¹

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The increased public pressures for reform, along with an increase in the appropriation of financial resources have created a demand for new educational facilities. An architectural profession that is becoming increasingly specialized in the scope of their design focus has met this demand. Several mid to large-sized firms in the Boston area alone have developed practices that specialize primarily in educational facilities. With all due respect to the individuality of any design project and its client, these firms have developed an almost mass-produced approach to school design. Schedules of course sizes, meeting times, and infrastructural requirements dictate a traditional organization of classrooms and corridors. Any idiosyncratic curricular needs such as small meeting rooms, arts facilities, or flexible assembly spaces “unique” to that particular educational pedagogy are shoe-horned into the traditional classroom-corridor model. In an effort to break away from the monumentality characteristic of older authoritarian institutions,

10 A Nation at Risk 1983, www.ed.gov/pubs/NatAtRisk/risk.html p. 1

11 Harr, Sharron, 2002, Schools for Cities: Urban Strategies, Schools for Cities, Princeton Architectural Press, New York, NY, p. 8

façade treatments tend to blindly mirror the surrounding contextual landscape (often at the client's behest). Meanwhile the overall organizing structure is composed of the same authoritarian relationships between classroom and corridor that the behaviorist agenda is rebelling against.

This project proposes a new pilot school for the Boston Public School district. It addresses the shortcomings of the existing school typology on three levels, site organization, relation to the contextual surroundings, and the internal organization of classrooms and circulation.

With respect to site organization, the project proposes a decentralized urban campus embedded within the existing fabric of the site. In so doing, the boundaries between communal and academic environments are blurred bringing the student population into direct contact with the surrounding community. This approach is in direct contrast to the model of school as Civic Monument and the Jeffersonian Campus both of which serve to isolate the school from the community it serves.

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In response to the contextual surroundings the project looks to distill the vernacular essence of the community into a stripped, powerful expression of component parts rather than simply mimic the surrounding buildings. The architecture stands as a bold statement and critique of the essential character of its setting capable of reorganizing the traditional relationship between school and community.

Finally, the internal organization of the school is examined at the architectural scale. Rather than focussing on the needs of the classroom, the project is driven by an exploration of the building's circulation - the public space of the school. The double-loaded corridor is rejected in favor of a large circulation atrium. The locker is replaced with individual and small group study carrels flanking the atrium's perimeter. The hierarchal relationship between classroom and circulation is inverted, activating the public space of the school.

deploying the urban campus

In recent years, Boston has become a target for educational reform and has been hailed as a model for the success of its methods. The oldest public school district in the country had become one of the worst performing institutions of public education in the country. In the 1970's court ordered bussing as a measure of institutionalized desegregation led to riots and civil unrest across the city.¹² Throughout the 70's, 80's and 90's performance gaps, high dropout rates and instances of classroom violence continued to increase. Simultaneously nearby wealthy suburban districts boasted some of the best schools in the nation with test scores and college admittance rates rivaling those of the most prestigious private institutions.

The re-organization of the Boston school board in the mid 1990's along with the hiring of Thomas Payzant as superintendent in 1995 has ushered in a new era of reform for the Boston Public Schools. In 1996 Payzant drafted a reform policy entitled "Focus on Children" that outlined an ambitious set of goals and evaluation criteria for the underachieving school district. Among the policy initiatives outlined by Payzant was the establishment of "Pilot Schools" – educational experiments that function independently from the curricular methods of the rest of the district. These institutions are established as replacements for the worst performing schools where standard educational practices have proven insufficient.

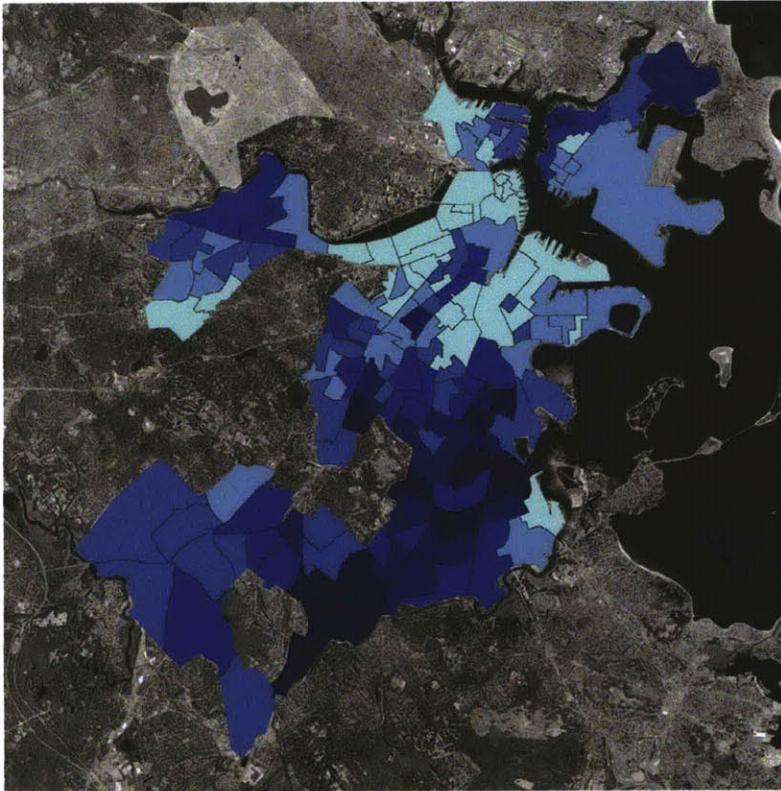
At present the Boston Public School district is comprised of 30 citywide high schools including two district-funded charter schools and one funded pilot school. Students are free to enroll in any of the citywide schools with the exception of the three exam schools that admit students based solely on grand point average and standardized test scores.¹³ Several of the older schools including the South Boston Education Complex and Dorchester Education Complex, built when the construction of large centralized educational facilities was standard practice, have recently undergone significant reorganization. The monumental buildings have each been divided into two to three smaller independent institutions.

12 Nelson Adam, 2005, *The Illusive Ideal: Equal Educational Opportunity and the Federal Role in the Boston Public Schools 1950-1985*, University of Chicago Press, Chicago, IL

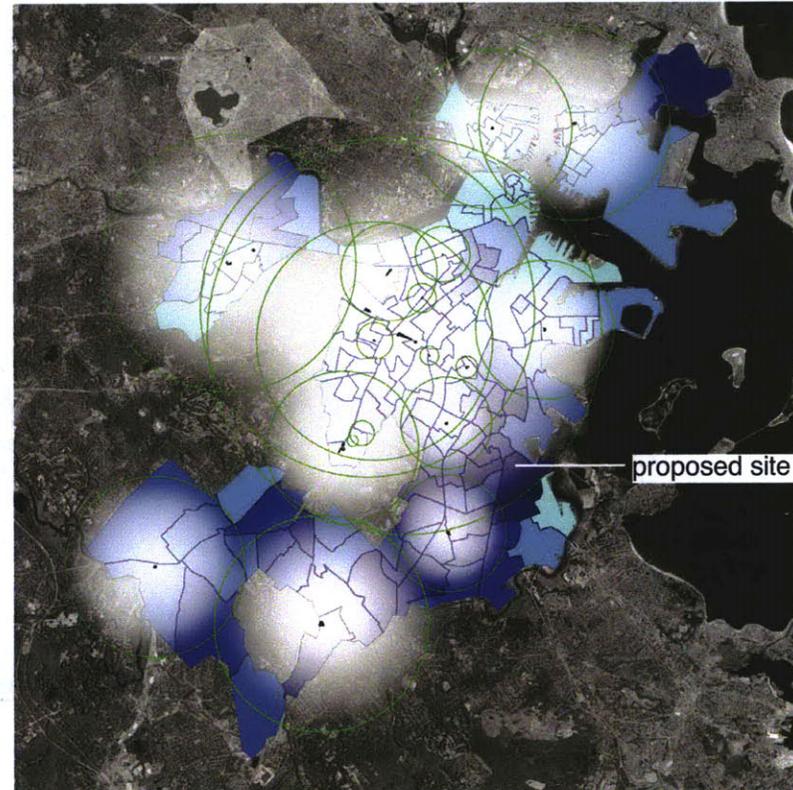
13 Boston Latin Academy, Boston Latin School, and the John D. O'Bryant School of Mathematics and Science comprise the three exam schools of the Boston Public School district
Source: Boston Public Schools www.cityofboston.gov/bps/pdfs/IntroBPSEng.pdf



The Boston Public
School District

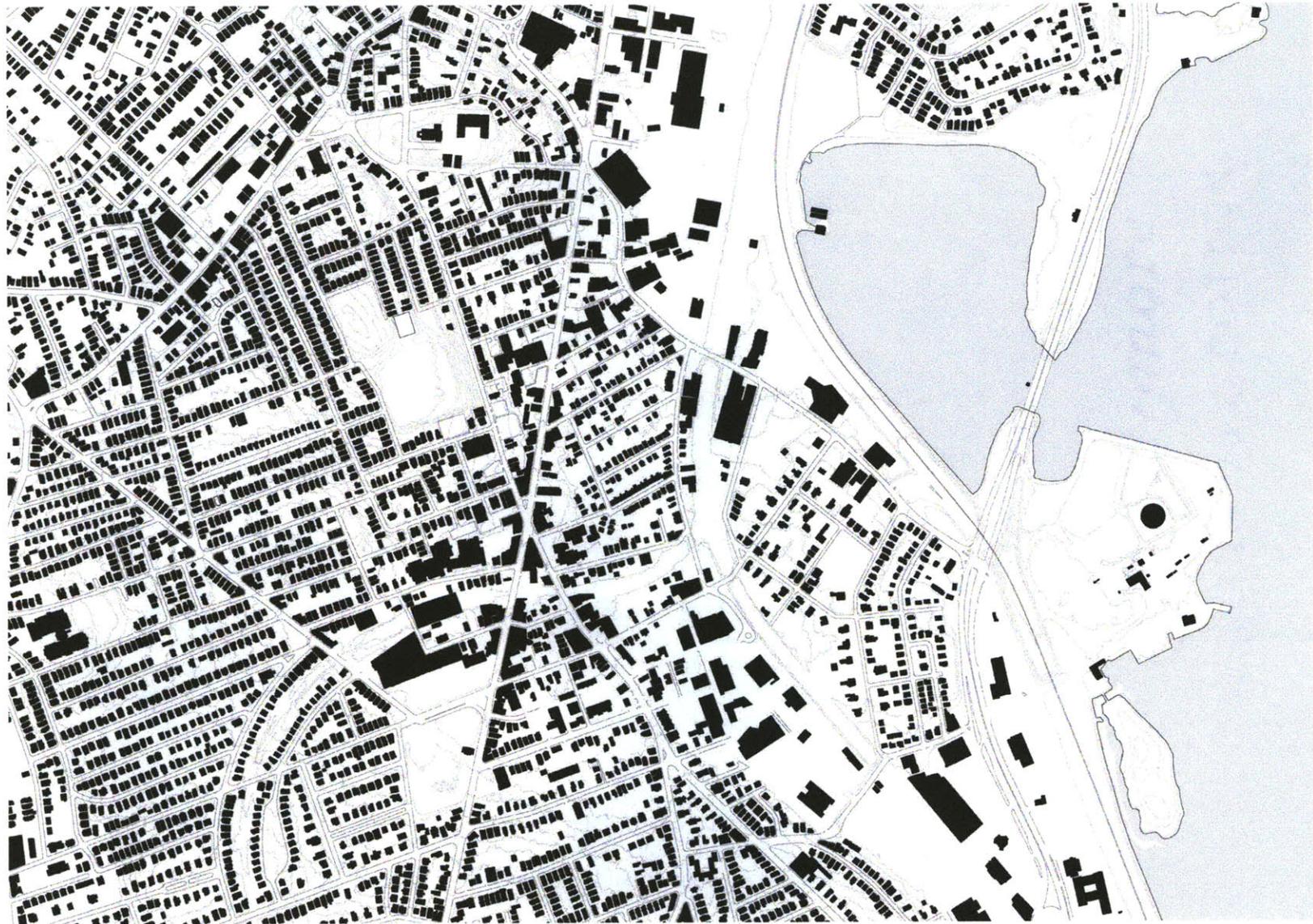



 H.S. Student Density by
 Census Tract

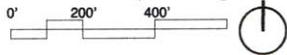



 Location and relative enrollment of
 existing Boston Public High Schools

Analysis of year 2000 census data illustrates the density of children ages 13-18 throughout the Boston Public School District. Overlaying this information with the location and enrollment data of the existing public high schools shows underserved areas of the greatest need within the school district. Each high school is denoted by a ring and cloud masking the intensity of the underlying density information. The radius of each ring is determined by the enrollment of the school it represents. The resulting diagram highlights a potential site for a new high school facility.



Urban Plan (existing conditions)





View from Ronan Park



Field's Corner



Dorchester Avenue

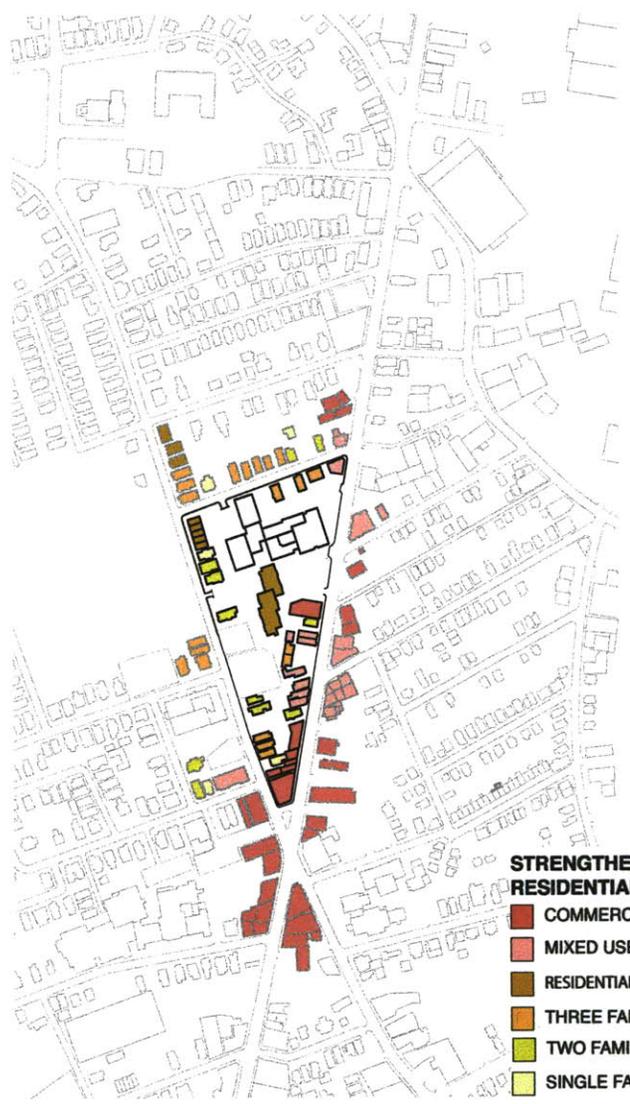
Geographically located between the South Boston and Dorchester educational complexes, the proposed site is highlighted by the Field's Corner neighborhood of South Dorchester. Comprised of an ethnically diverse and historically lower class population, Field's Corner represents one of the most underserved population of high school age students in the Boston School District.¹⁴ Year 2000 educational attainment data shows that only 60% adult residents have a high school diploma (this figure drops below 50% for the Asian population).

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Additional analysis of land use, transit and civic infrastructure further highlights Field's Corner as a target for expansion of the Boston public high school system. The triangular block fronted by Adams Street to the West and Dorchester Avenue to the East has been specifically targeted as a potential site. This block is situated at the boundary of the residential fabric and commercial frontage along Dorchester Avenue. Adjacent to the site is Ronan Park – an 11-acre Olmstead designed open space atop Mt. Ida that includes several athletic playing fields and represents one of the few public green spaces in South Dorchester. MBTA subway and bus lines provide access to the wealth of higher education institutions throughout Boston and Cambridge as well as limiting the need for extensive parking facilities to serve teachers and administrators. Finally the proximity to Mather Elementary School and Grover Cleveland Middle School presents the potential to provide a sense of K-12 educational continuity to the neighborhood with the addition of a new public high school facility on the site.

¹⁴ demographic composition of the Field's Corner neighborhood is 42% African American, 23% white, 14% Asian, 12% Hispanic and 11% other races

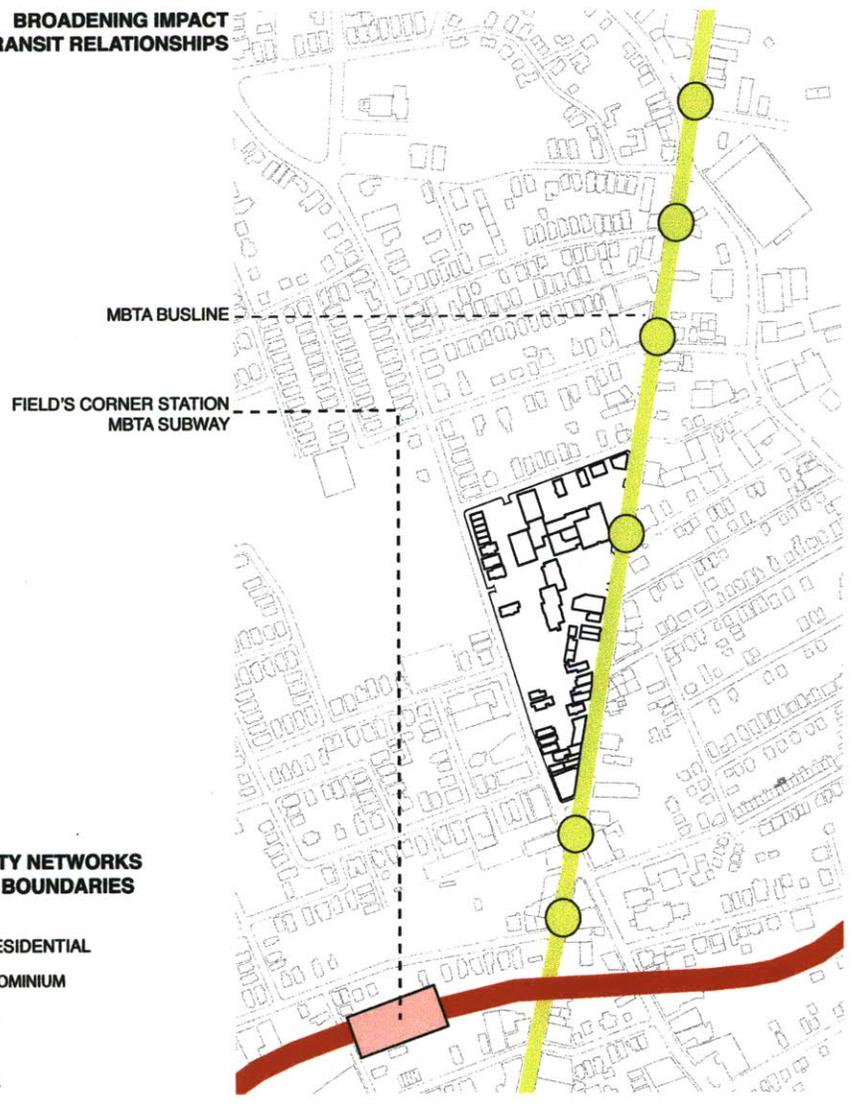
Source: U.S. Bureau of the Census, Census 2000



**STRENGTHENING COMMUNITY NETWORKS
RESIDENTIAL/COMMERCIAL BOUNDARIES**

- COMMERCIAL
- MIXED USE COMMERCIAL/ RESIDENTIAL
- RESIDENTIAL APARTMENT / CONDOMINIUM
- THREE FAMILY RESIDENTIAL
- TWO FAMILY RESIDENTIAL
- SINGLE FAMILY RESIDENTIAL

**BROADENING IMPACT
TRANSIT RELATIONSHIPS**



MBTA BUSLINE

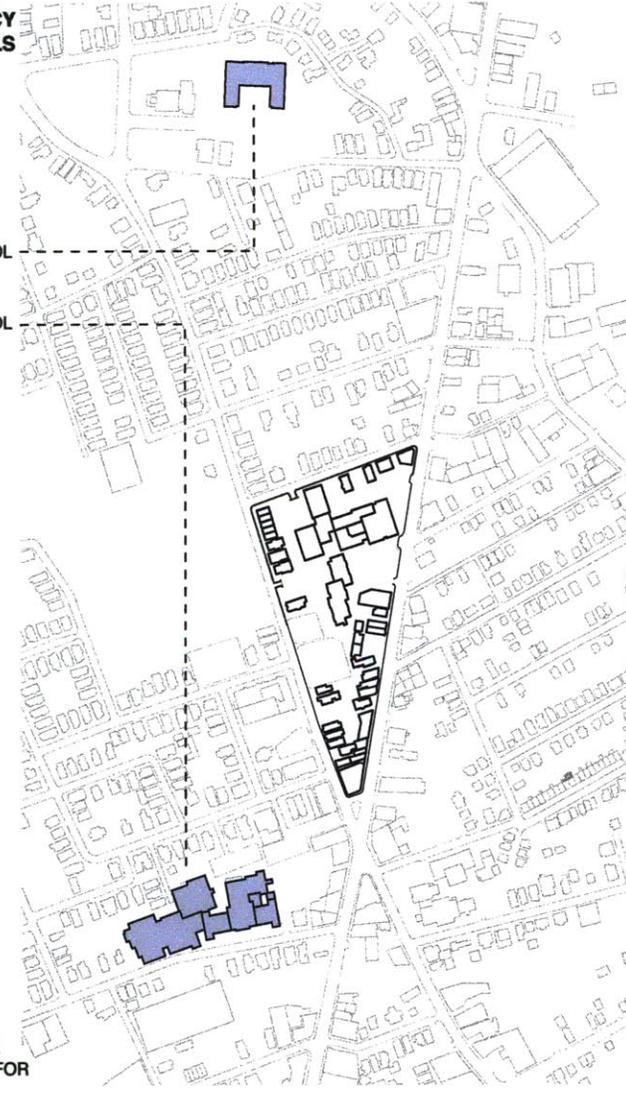
FIELD'S CORNER STATION
MBTA SUBWAY

**FOSTERING K-12 CONSISTENCY
IN THE BOSTON PUBLIC SCHOOLS**



MATHER ELEMENTARY SCHOOL

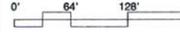
GROVER CLEVELAND MIDDLE SCHOOL



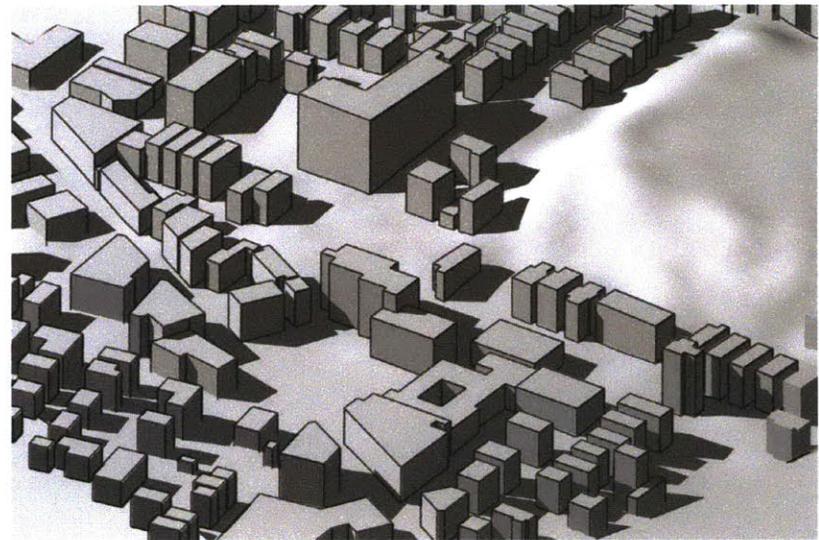
**RELATIONSHIP TO RECREATIONAL PUBLIC SPACE
ADJACENCY TO RONAN PARK PROVIDES ENVIRONMENT FOR
ARRAY OF KINESTHETIC LEARNING OPPORTUNITIES**

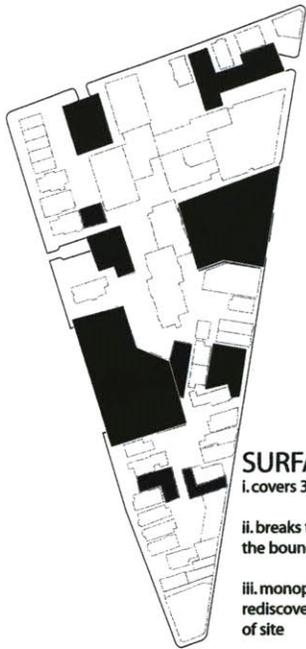


Site Plan
(existing conditions)



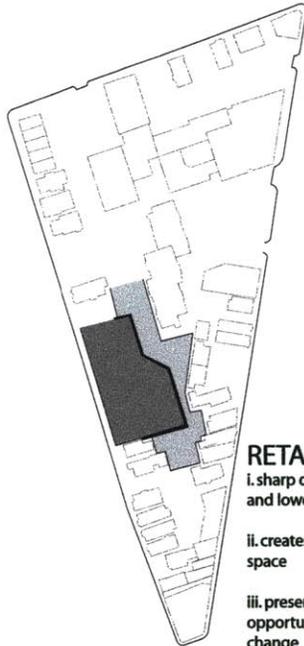
Axonometric
(existing conditions)





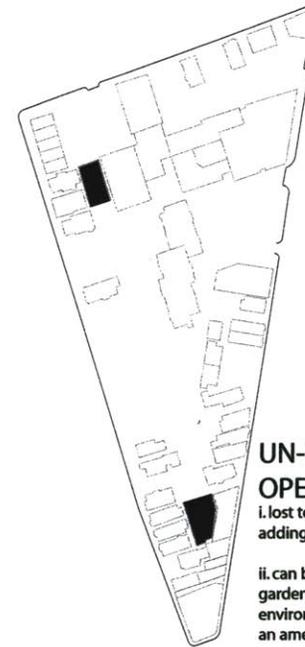
SURFACE PARKING

- i. covers 30% of site
- ii. breaks the street edge that defines the bounds of urban space
- iii. monopolizes the opportunity for rediscovered public space at interior of site



RETAINING WALL

- i. sharp divide isolating the upper and lower halves of the site
- ii. creates boundary without defining space
- iii. presents architectural opportunities to deal with elevation change



UN-UTILIZED OPEN SPACE

- i. lost territories that are neither adding spatial value nor utility
- ii. can be reclaimed as community garden or activated by built environment and transformed into an amenity



Documentation of existing issues provides insight into what at the site needs to be addressed but also highlights potential for improving the urban character of the neighborhood.

The site can be distilled into three primary organizing elements:

Ronan Park

- defined by the residential fabric with the exception of the East where the park opens upon a steep hillside fronting Adams Street
- contained space that has minimal impact upon the larger urban context
- no relation to the Dorchester Avenue commercial frontage

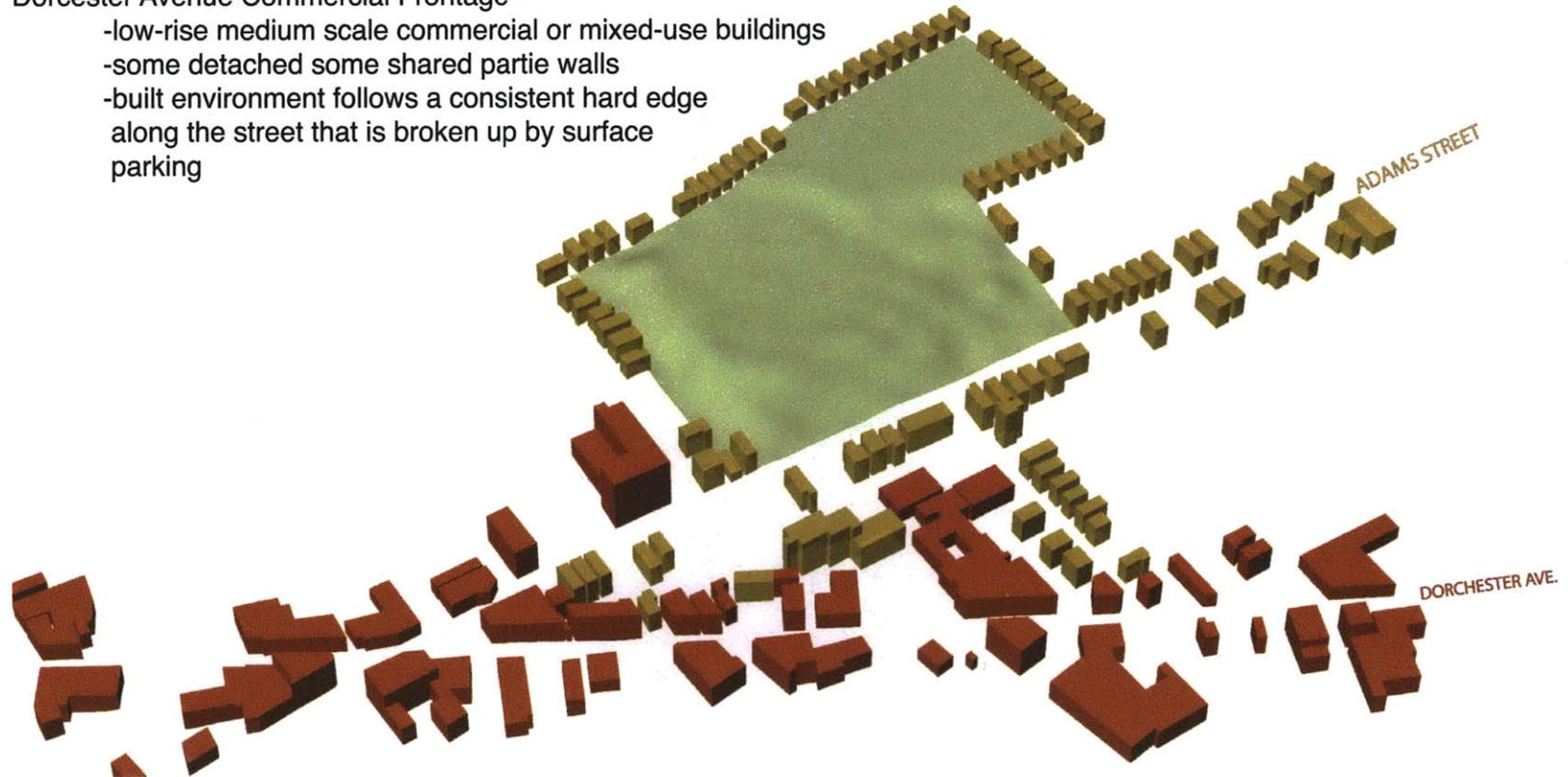
Adams Street Residential Fabric

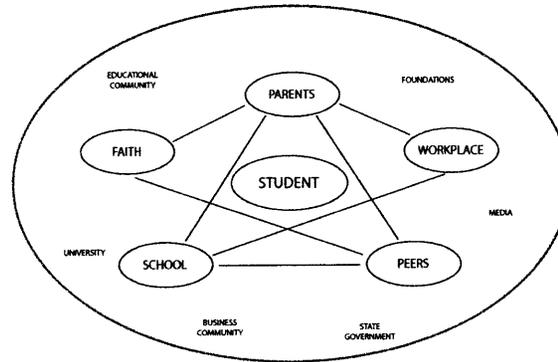
- repetitive detached two and three story multi-family housing units
- suggests a continuous but porous street edge

Dorchester Avenue Commercial Frontage -

- low-rise medium scale commercial or mixed-use buildings
- some detached some shared partie walls
- built environment follows a consistent hard edge along the street that is broken up by surface parking

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Recent research has suggested an Ecological Systems approach to education reform. In *New Hope for Urban Schools: Cultural Reform, Moral Leadership and Community Partnership* Lisa Gonsalves and John Leonard chronicle sixty years of reform at Dorchester High School in South Boston. Observations over this period have helped the researchers identify the following five relational factors that greatly impact the ability of teachers

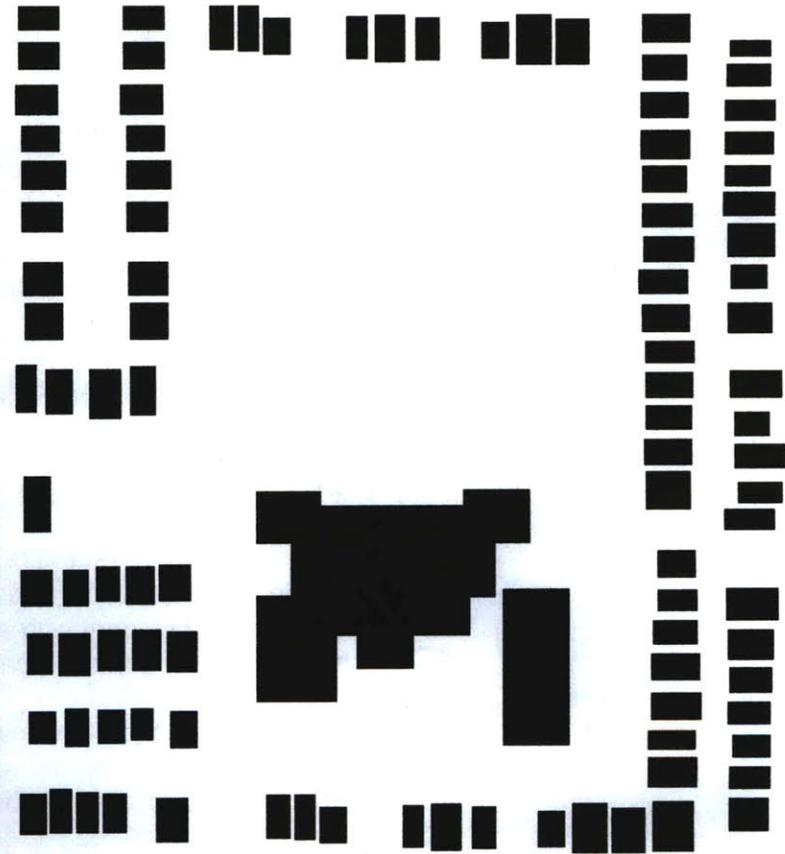
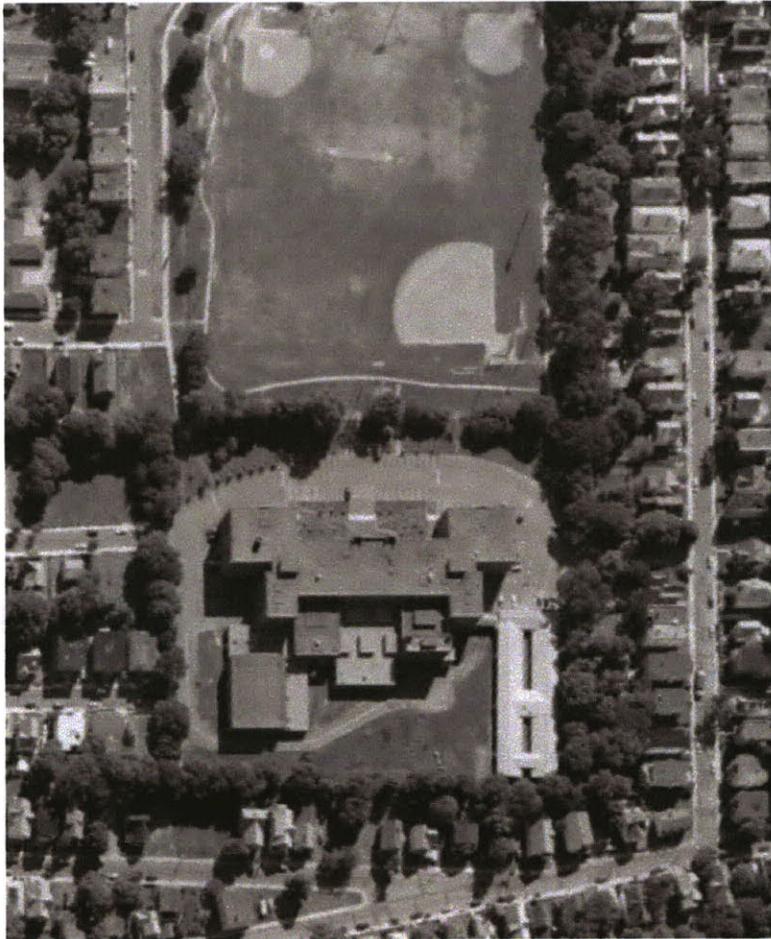
The Ecological System of the teenage student

and administrators to cultivate and maintain student success: student engagement, relational trust, role expectations, parent involvement, and the influence of school neighborhoods.¹⁵ These factors are reinforced by engaging the larger support network of third party actors and bringing them into student environment. Stronger relationships within these networks and greater levels of direct involvement in the student environment provides the student with support system to counter the myriad of negative influences retarding the student’s academic development.

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Unfortunately the architecture of education traditionally reinforces exactly the opposite relationship between the academic environment and surrounding community within which it is sited. The school as Civic Monument, typified by large self-contained monolithic structures surrounded by a buffer of surface parking, athletic fields, landscaping and unprogrammed green space, creates a clearly delineated academic environment that is essentially isolated from the surrounding community. An argument used in support of the Civic Monument model is that it provides a safe environment for students. In the most troubled urban high schools the Civic Monument simultaneously protects students from the negative influences of an impoverished community, and the community from a population of troubled students. It is unclear which group is being protected from whom. It is clear, however, that an isolated academic environment is eliminating “opportunities for choice, responsibility, and decision-making” from the

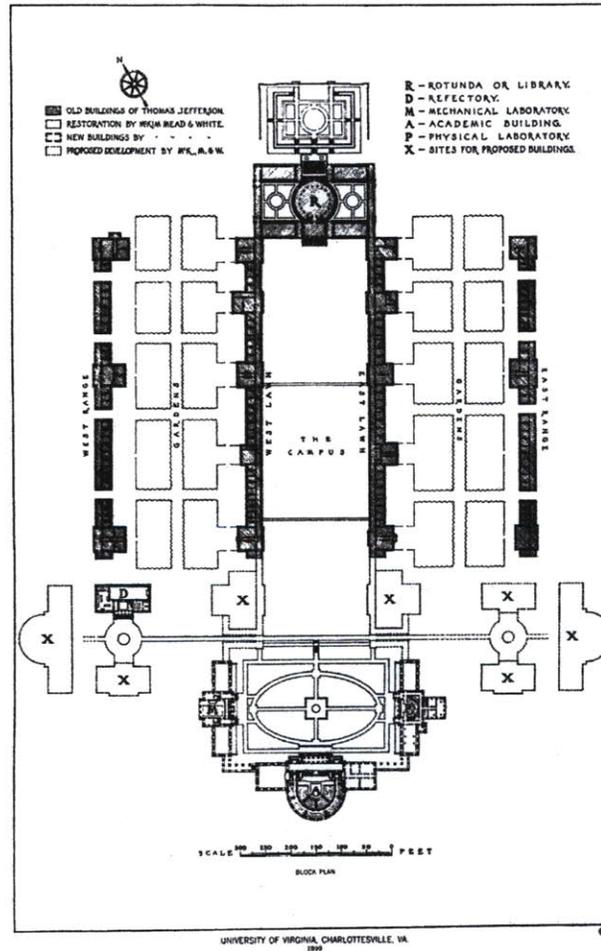
15 Gonsalves, Lisa and Leonard, John 2007 *New Hope for Urban High Schools: cultural reform, moral leadership, and community partnership*. Praeger Publishers. Westport, CT p. 146



The isolating character of the Civic Monument, Dorchester High School

student. On the issue of closed campuses there is “something that conveys a lack of trust in our urban students. Teachers and school leaders do not believe they will return to school or act responsibly while they are away from campus; therefore, we have simply removed the option for them to exercise responsibility and face the consequences when they are unable to do so.”¹⁶

In contrast to the Civic Monument model, I propose the Urban Campus as an alternative means of situating the academic environment within the urban fabric. The nature of the Urban Campus is to embed a series of smaller academic buildings into the existing fabric of the urban environment thus blurring the boundary between the school and the community that it serves.



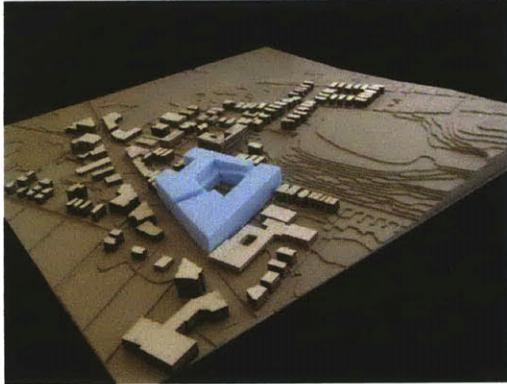
University of Virginia Main Campus Plan, original Jefferson buildings shaded

The Urban Campus model is deployed in contrast to the picturesque underpinnings of the Jeffersonian Campus that became the prototype of American Colleges and Universities. Embodied by his design for the University of Virginia, the Jeffersonian model represents a series of detached buildings, pavilions and open spaces organized by an autonomous internalized logic. This organizational logic exists independently of the surrounding urban fabric and in this sense is just as isolating as the Civic Monument. The academic environment is clearly defined within the boundaries of the campus and its internal logics. “Jefferson and (Lord Henry Home) Kames both sought to apply new scientific methods to their understanding of the world, but neither man believed that the human mind was a tabula rasa or that humans were immune from environmental influences. For Jefferson as for Kames, humans had the innate ability to appreciate beauty whether natural or man-made, but they also were affected by their environment, both for better and for

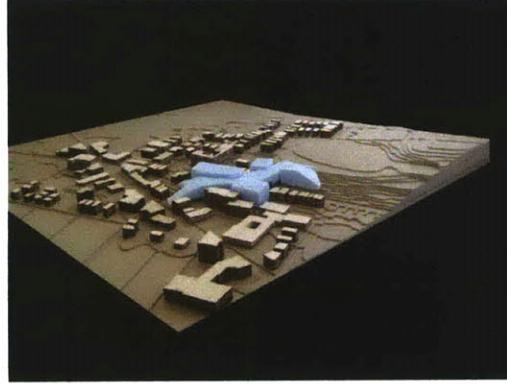
worse. The University of Virginia, chaste temples set in a garden, avoided the corrupting temptations of city life.”¹⁷

The Urban Campus model proposed here injects a series of academic buildings into the existing urban fabric. The goal of the project is to respond to and reinforce the urban character of the community while simultaneously deploying an organizational logic of pedestrian circulation and public spaces that blend academic and communal environments into a unified whole.

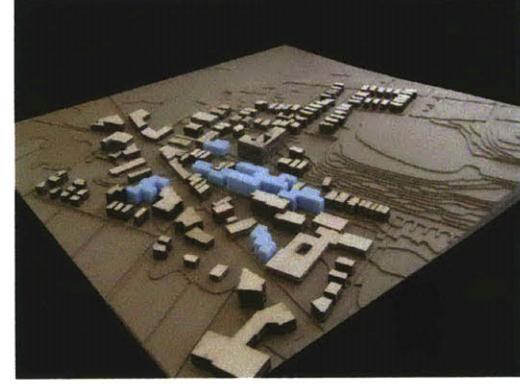
17 Hafertepe, Kenneth “An Inquiry into Thomas Jefferson’s Ideas of Beauty” *The Journal of the Society of Architectural Historians*, Vol. 59, No. 2 (Jun., 2000). p. 229



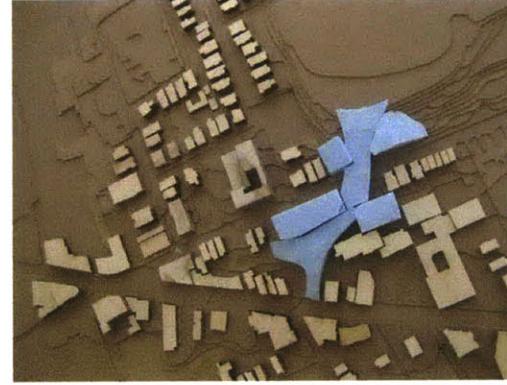
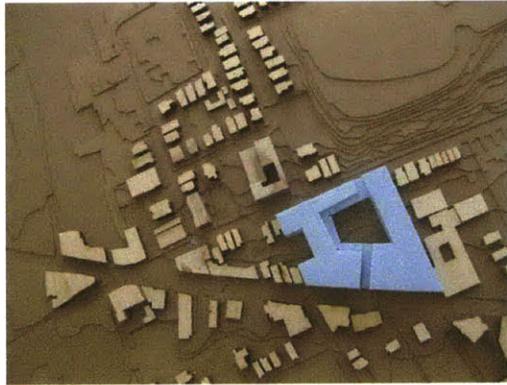
embedding the urban monument



extension of the Ronan Park Greenscape

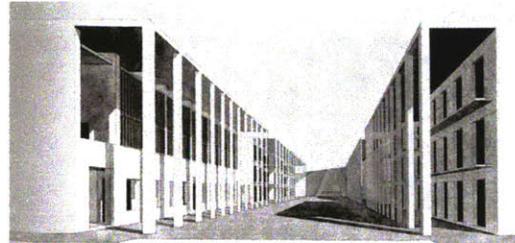


the urban campus



reflections on the urban fabric

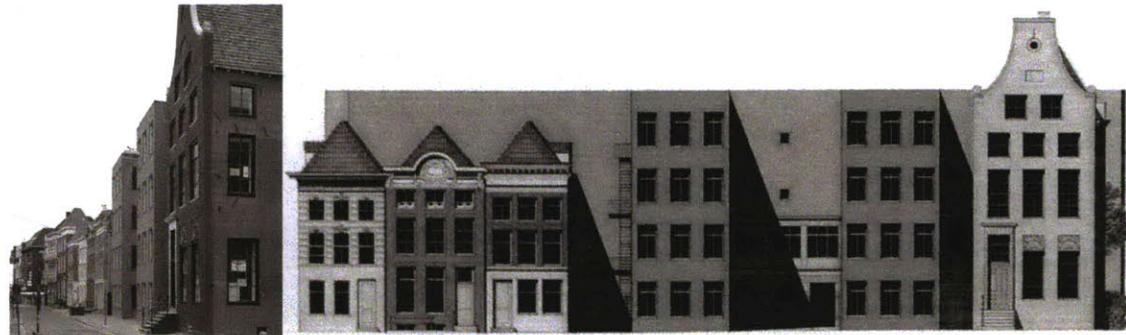
“Silence can be resounding when surrounded by noise.”¹⁸Tafuri’s reference to the neorationalist project of Giorgio Grassi suggests an alternative to the post-modern contextualization of an architecture to its surroundings. Grassi’s architecture represents a certain stripped classicism, a deliberate lack of inventiveness that communicates as much through omission of unnecessary detailing and ornamentation as the sharp delineated purity of forms that remains. Grassi’s slender square columns offer more than structural necessity, but begin to represent a self-referential essence of a column as a column. The exclusive use of running bonds in his masonry facades produces a clean monolithic surface devoid of ornamental coursing that allows the joints to form a fine



Student Hostel, Chieti, Italy 1976

serialized grain. Deep, punched fenestration represent as much the embodiment of a window as the functional role of bringing light into the building. Grassi’s buildings stand not as objects in space but as an architectural framework that defines space. By stripping away every extraneous and unnecessary element the strength and importance of the architecture that remains is laden with intent.

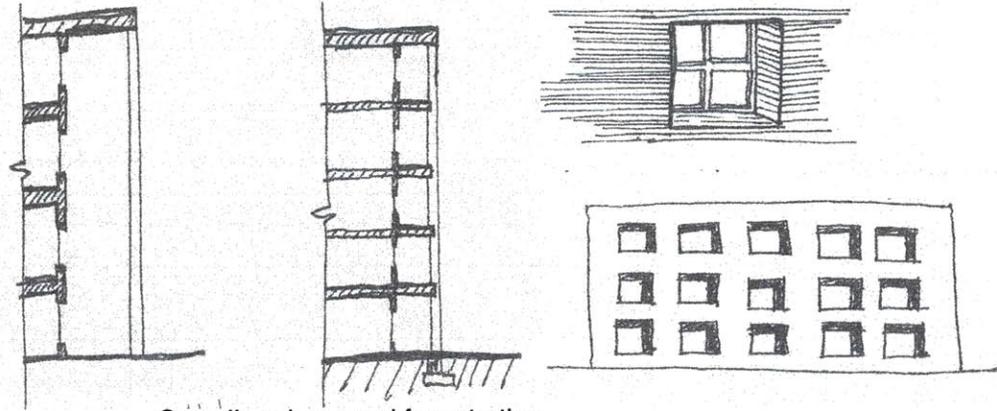
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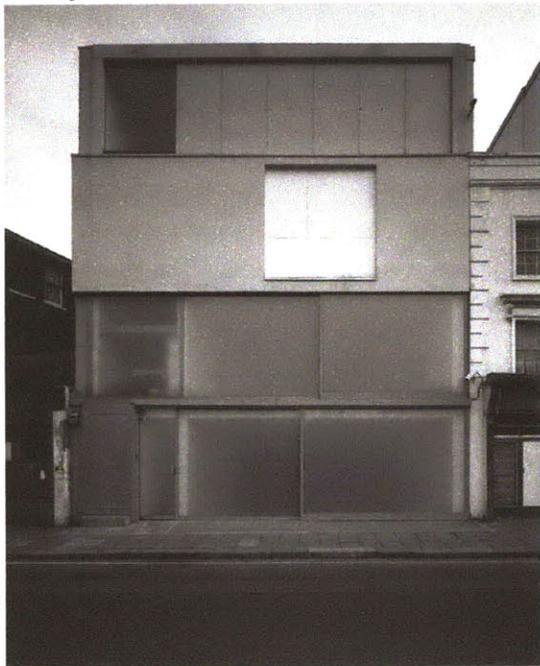
Council Library, Groningen, Holland 1989

18 Tafuri, Manfredo *History of Italian Architecture 1944-1985*, MIT Press (Cambridge), 1989 p. 142

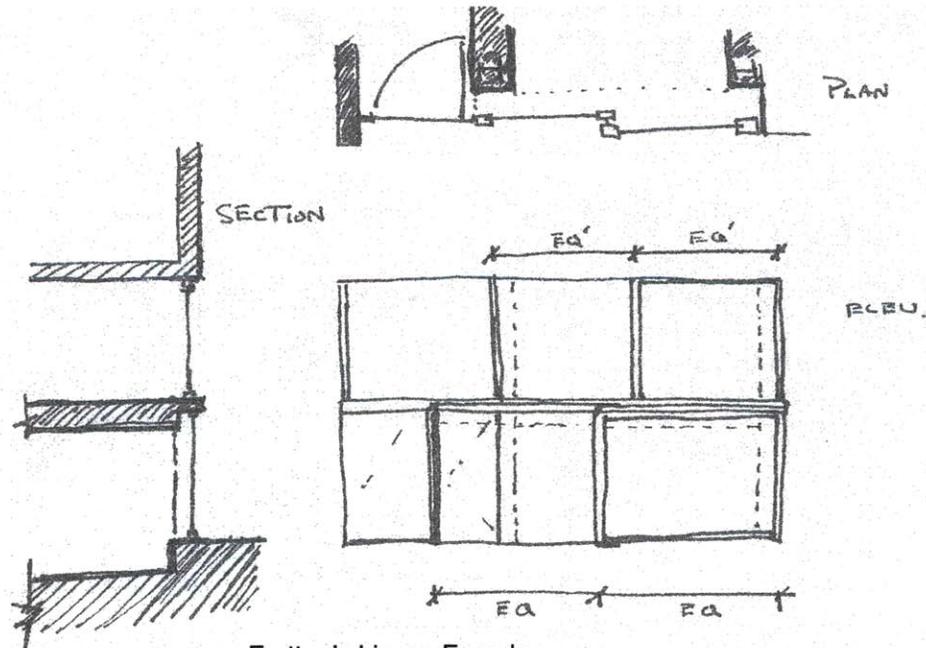
Grassi's writing and buildings clearly situate his work within and in response to the Italian architectural tradition, particularly in relation to the work of Leon Battista Alberti.¹⁹ The contextual landscape of South Boston, however, does not exhibit the type of rich architectural tradition of Italian cities. South Boston and Dorchester are characterized by a dense residential fabric of two and three level multi-family homes - a typology referred to as the triple-decker. This urban context is one formed not by the architect but by the builder.



Grassi's column and fenestration



Lisson Gallery, London, UK 1990



Fretton's Lisson Facade

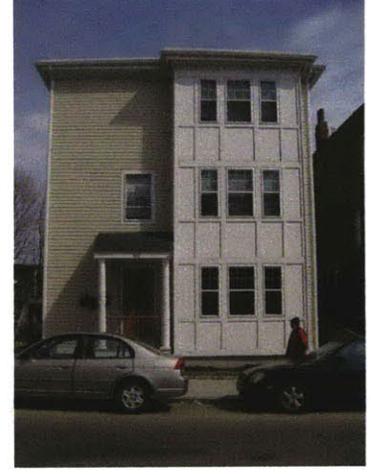
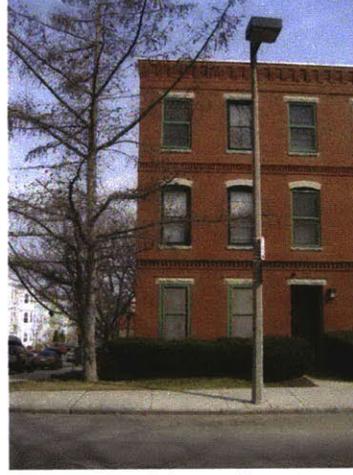
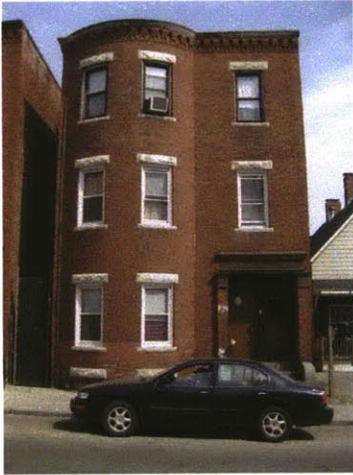
19 Tozzi, Lucia, "An Interview with Giorgio Grassi" *Architectural Design*, Vol. 77 No. 5 pp. 26-29 2007

Commenting on his two buildings for the Lisson Gallery in London British architect Tony Fretton refers to a critical participation in “the fiction of the city.” “The buildings in British cities have been made mainly not by designers but by builders and functionaries. Each time they build they alter and slightly improve or disimprove and their work is authorless because unlike the artist, they don’t have a position. The dimension they add is populist and homogenized because they are building what people like and in this they are masters of the art of communication... the vernacularising of building can be seen to embody the experience of the builders and to convey a fiction to which we all subscribe, a fiction which is the city.”²⁰ Fretton’s buildings are an architecture that frames an urban environment formed by neglect and mistakes but also one that has been formed through the participation of its inhabitants.

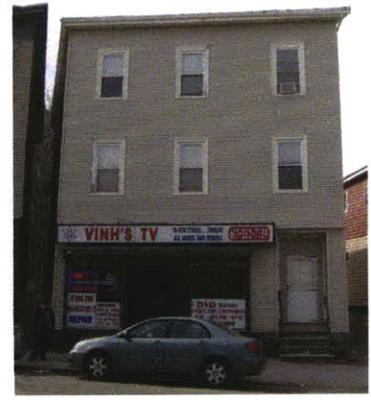
The search for the architectural character of the urban campus finds resonance with the work of Fretton and Grassi, both of whom frame and situate their projects within a certain contextual vernacular. Embedding the project within the urban fabric provides the opportunity to communicate a critical response to the surrounding context. Naively mimicking this context in an effort to humanize the project and blend into the character of its surroundings serves only to dilute the architectural statement. Instead, the project looks to distill the contextual vernacular into its intrinsic component parts. By stripping the architecture of excess articulation the project is able to more clearly communicate intent and thus is better equipped to counter the traditional relationship between communal and academic environments.

The contextual vernacular of Dorchester is primarily represented by a dense residential fabric of three story multi-family homes. The “triple-decker” is in essence a formulaic architecture of component parts. Street facades are composed almost exclusively of two primary elements, the bay window and the elevated covered entrance. Varieties of cladding that range from masonry to shingle to vinyl siding can be distilled away into a monolithic surface. The articulation of fenestration varies but generally falls into standardized commercially available window styles. The covered porch entrance is sometimes doubled forming a terrace on the second level, but generally treated as a small porch tacked onto the buildings surface. The bayed window represents a blatant signifier of what is almost always the living room, the public space of the residence.

20 Tumbull, David *Conversation with Tony Fretton* Editorial Gustavo Gili, S.A., Barcelona 2005 pp. 10-11



Adams Street



Dorchester Avenue

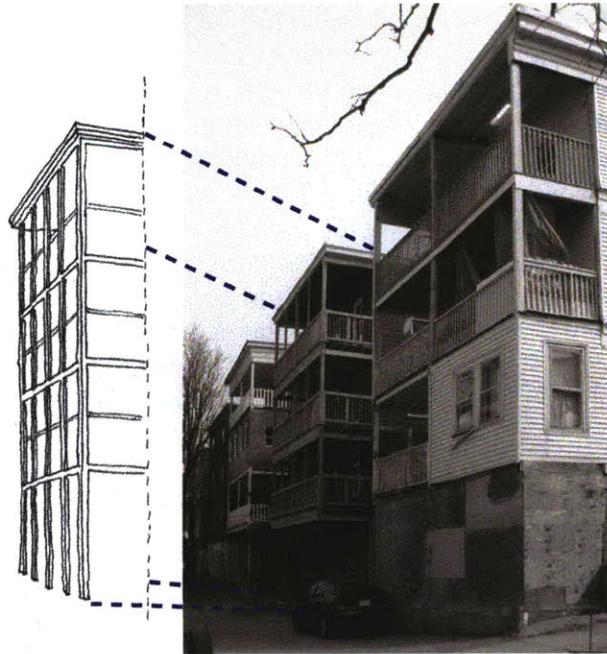
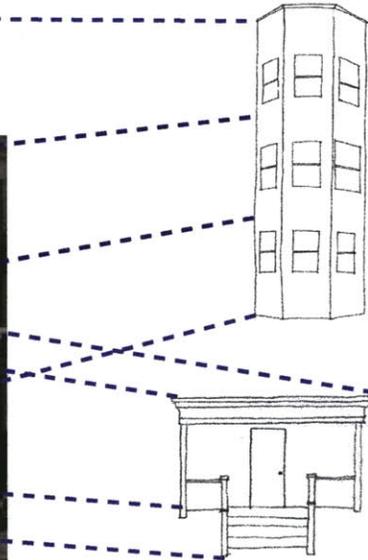
Selected Site Elevations

Of significant note is a subcategory of the typical facade that is found along the commercial frontage of Dorchester Avenue. The bimodal facades of these mixed use structures consist of storefront glazing and entrances at street level topped topped by typical triple decker facade on the upper two levels. The composition of these two constituent parts is often entirely independent of the other, as if a house from one location were simply stacked atop a store from another.

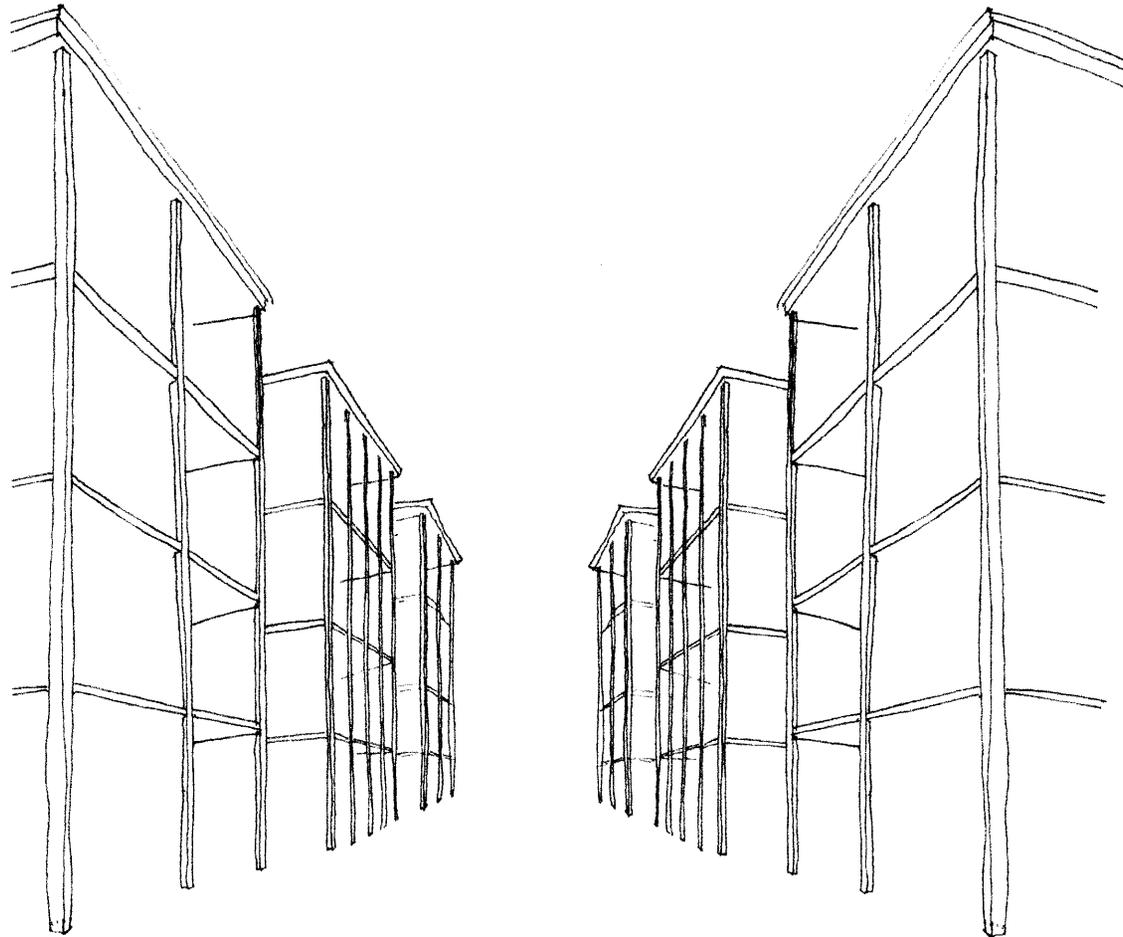
While the character of the front facade presents a generic standardized presentation of the private realm to the public space of the street, the rear facade of the triple-decker is often represented by a series of informal terraces. The interior of the residential block can be generally classified as the semi-private shared domain of the individual residents. The terraced rear facades fronting this sheltered semi-private space exhibit a certain level of porosity and suggest the potential of a shared communal environment between neighboring residents.

Unfortunately in these densely populated residential communities the cooperative motivation necessary to develop the communal environment on the interior of the residential block is missing. This shared domain suffers from a certain tragedy of the commons where the efforts of the whole can become marginalized by the neglect and disregard of a single landowner. As a result the interior of the residential block is generally used for off-street surface parking, small private patios, or generally neglected and left to accumulate refuse and debris.

The obstacles to creating a shared communal environment are magnified at the boundary of commercial and residential zones such as that found at this particular site. Here a proportion of the constituent agents have no stake in creating this positive communal environment. The character of the triangular site identified for this project exhibits a variety symptoms of inefficient land-use documented in the previous section.



front and rear facade analysis of the triple-decker typology



framing the communal environment
on the interior of the residential block

The agenda of this project at an urban scale is to activate the under-utilized interior of the triangular block creating a newfound public space. Framed by a series of academic, residential, and commercial buildings the nature of this space is one of communal interaction, bringing the neighborhood into direct contact with its academic environment. The site is activated by a pedestrian walkway that traverses a 30' grade change from the northernmost corner along Dorchester Avenue to the entrance of Ronan Park along Adams Street. The proposed community garden and public plaza sited at the southern end of the block provides a valuable outdoor space serving to draw the community into the interior of the block.

Drawing from the analysis of the existing residential fabric, the character of the academic buildings reflects a formal distillation of the vernacular in the tradition of Grassi and Fretton. The facades fronting Adams Street present a strong hard edge that reinforces the public space of the streetscape. The serial array of a standard 4'x8' fenestration echos that of the surrounding buildings while the deliberate lack of surface ornamentation in the masonry reinforces the architectural statement that is articulated by a sharp vertical edge.

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The facades fronting Dorchester Avenue take on the bimodal characteristic of a mixed used commercial frontage where two bays of the standard array of 4'x8' windows from the second level are combined to form a storefront presentation at the street level.

The stripped monolithic surface of the street facades are contrasted by a more porous colonnade along the inward facing facades and mark the entrance to the new public realm on the interior of the block. The strong contrast between the treatment of the streetscape to that of the interior imbues the architecture with a certain autonomy that serves to communicate the nature of this newly formed public realm.

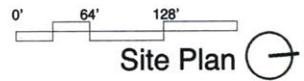
Of particular importance to the project is the Academic Building A and Administrative Building that together frame the entrance to the community gardens at the focal point of the scheme. At this point the project turns its focus to these buildings as representatives of the ideas towards education and community developed at an architectural scale.

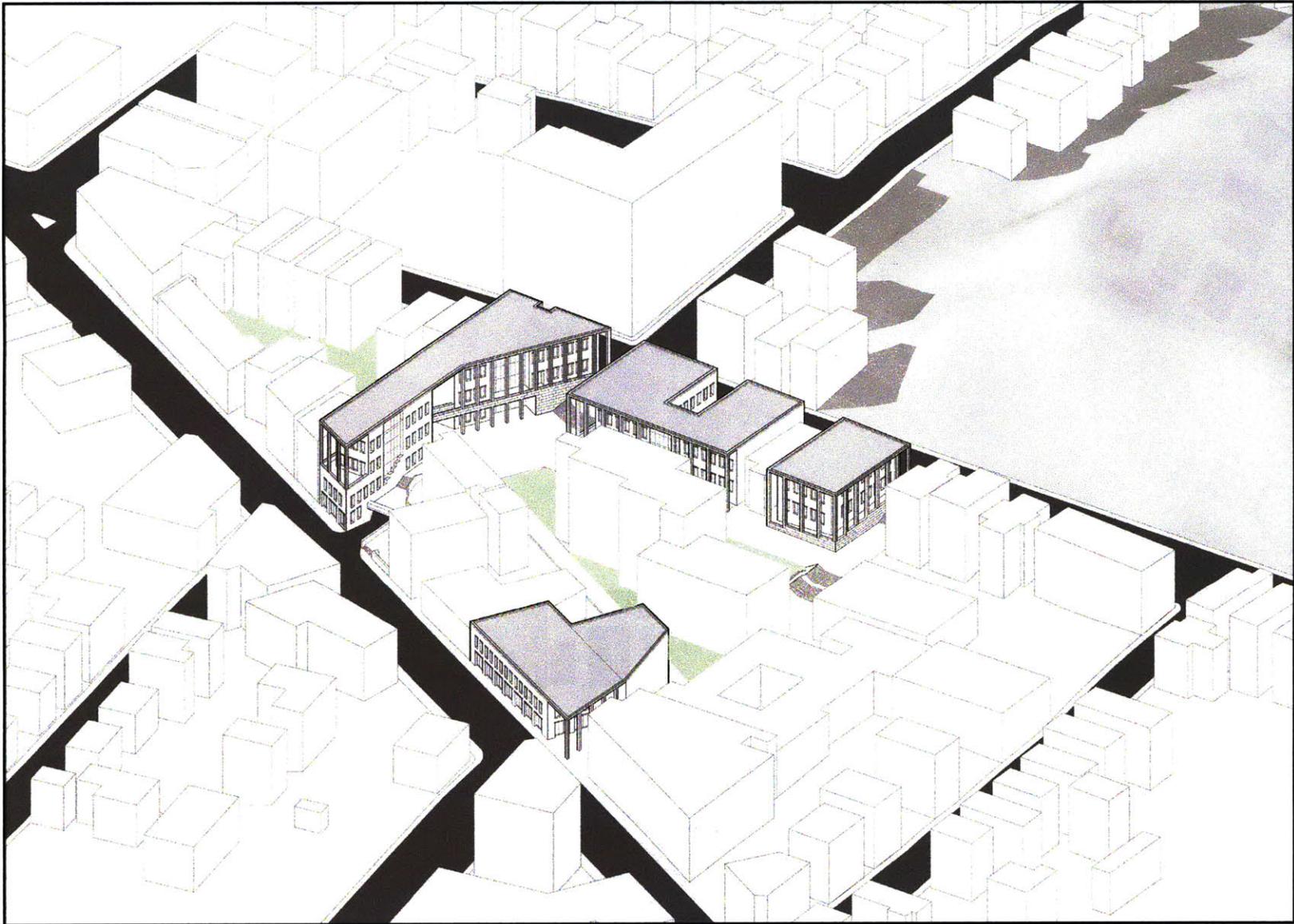


community garden

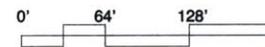
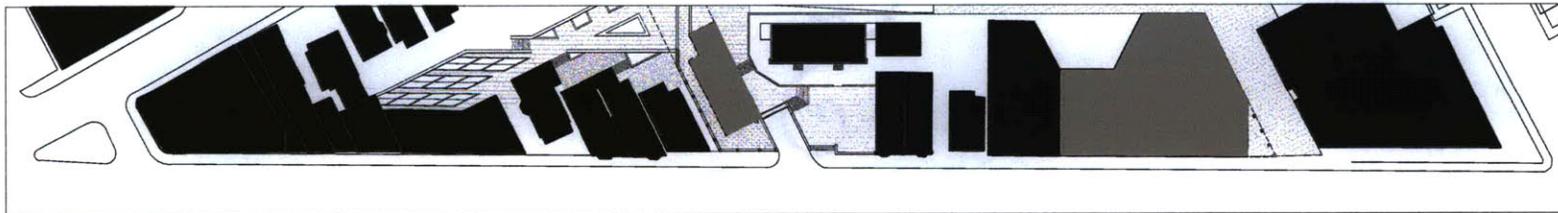
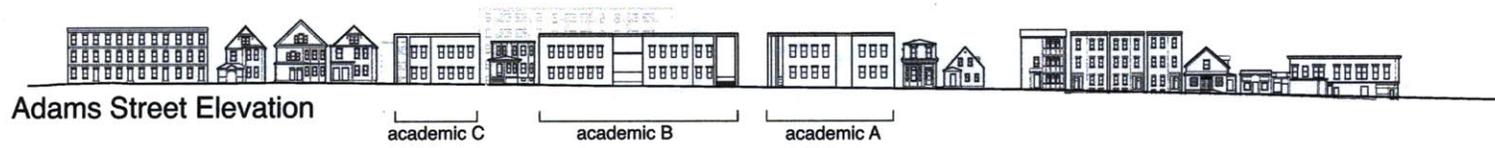
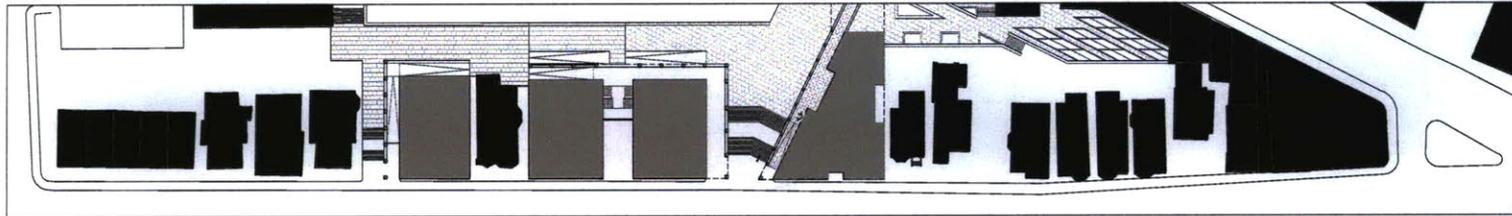
administrative
continuing education

visual and performing
arts center

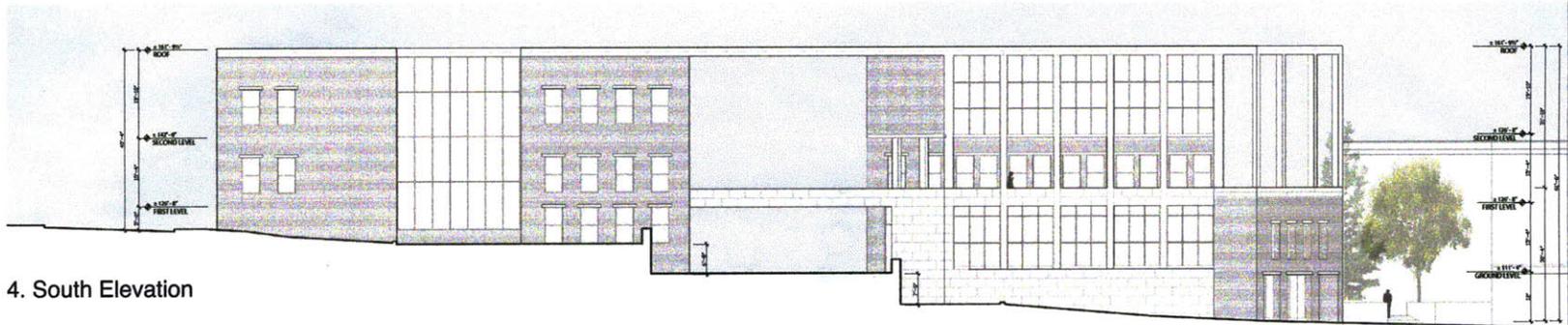




Birdseye Axonometric



Site Elevations



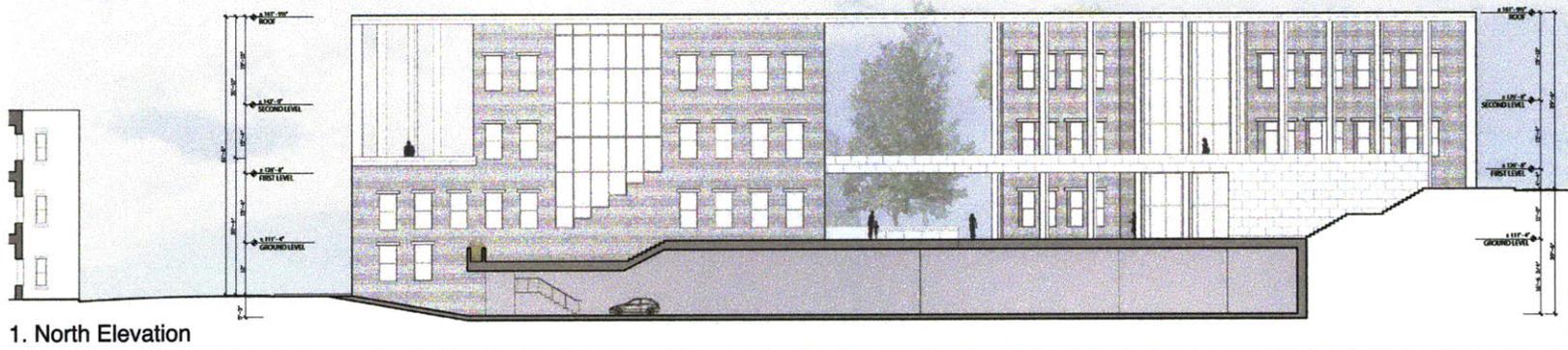
4. South Elevation



2. Adams Street Elevation



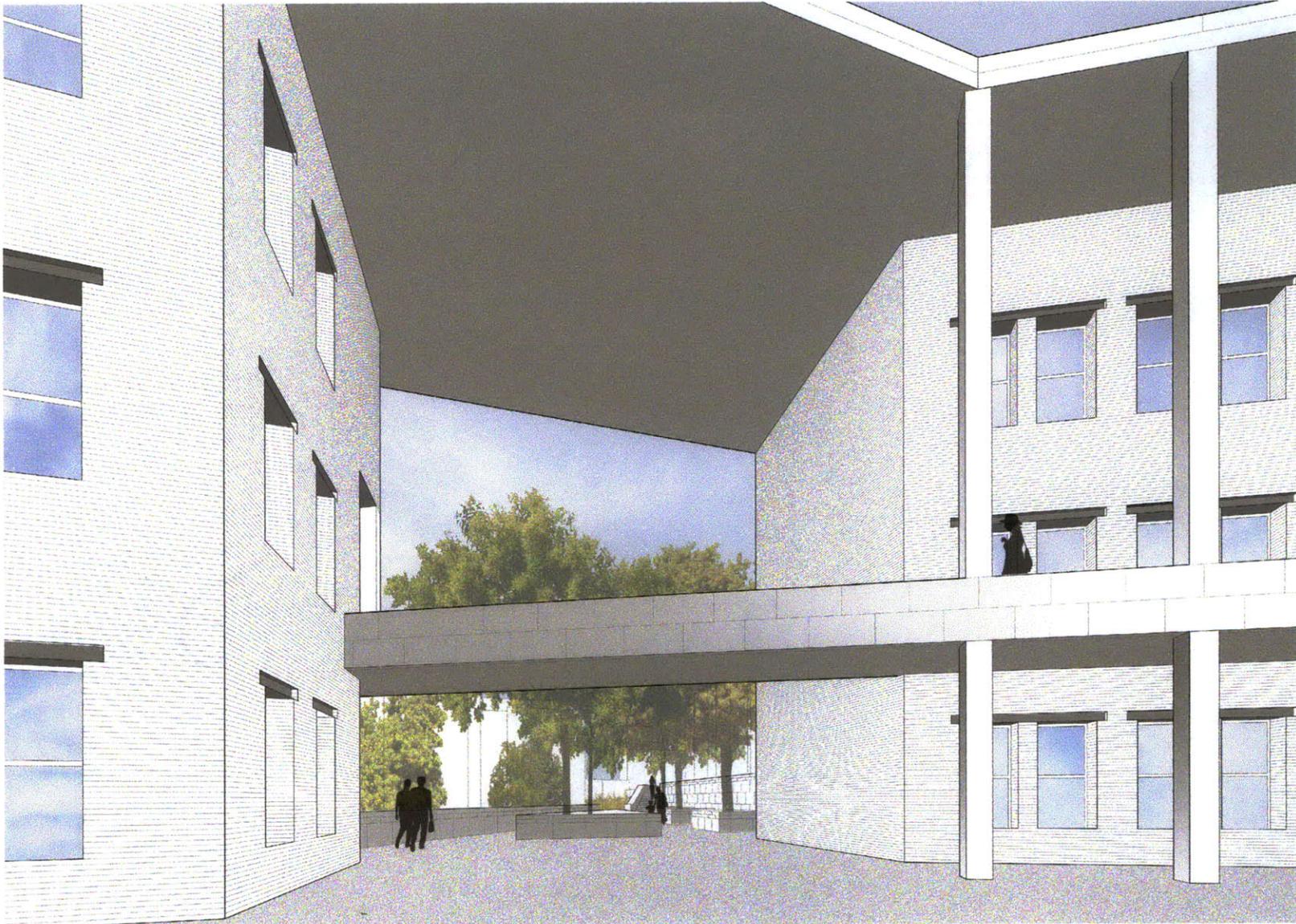
3. Dorchester Avenue Elevation



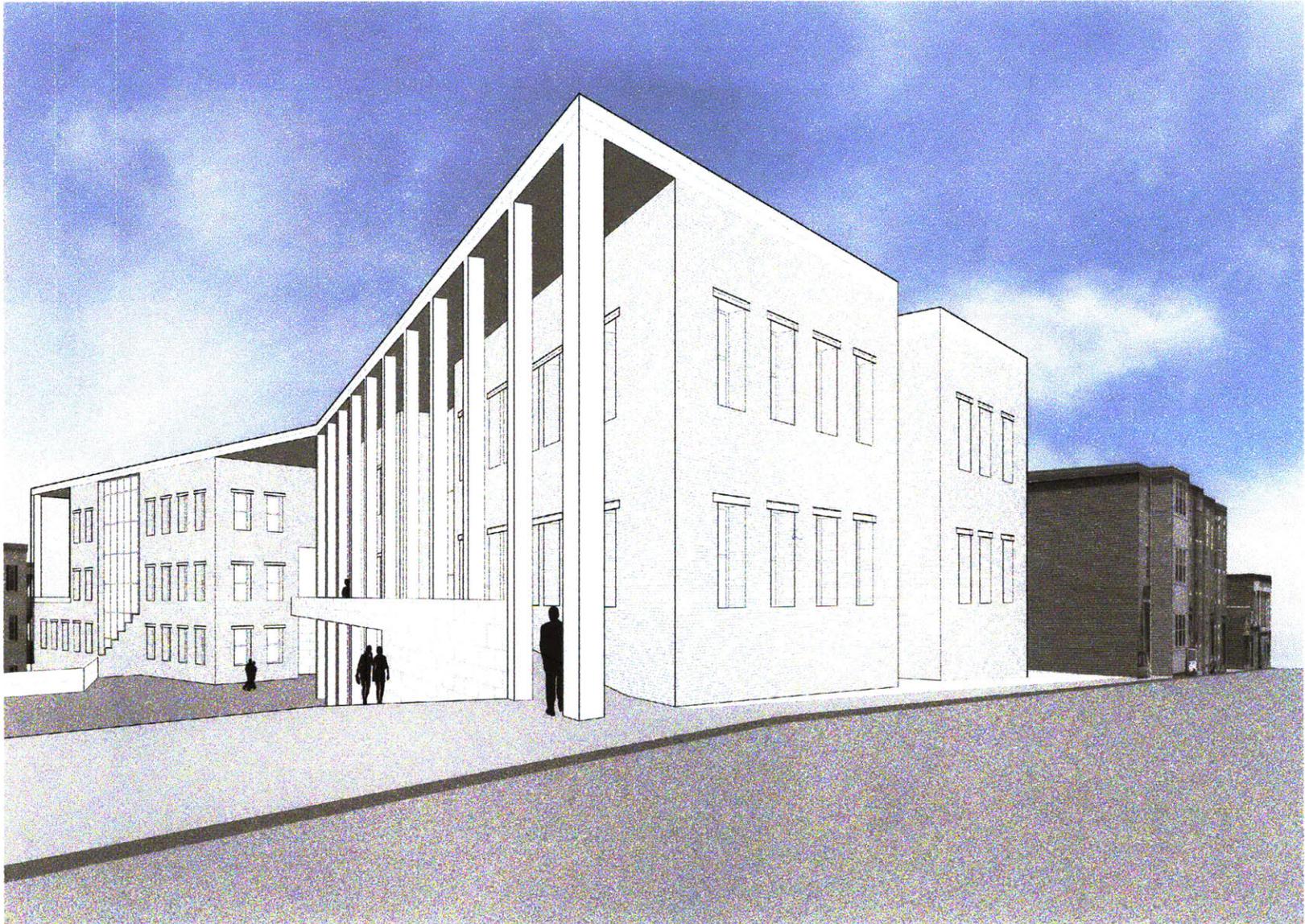
1. North Elevation

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Building Elevations 0' 18' 32'



View into community garden



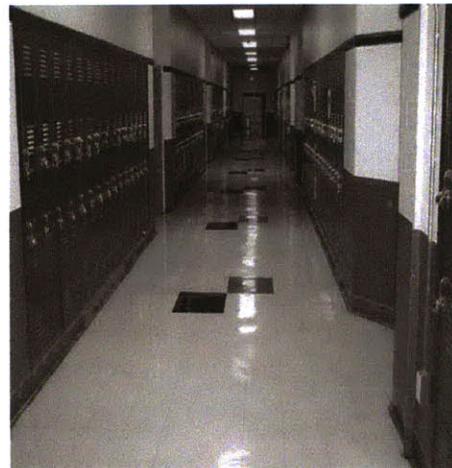
View from Adams Street

destroying the double-loaded corridor

Nowhere is the Fordist origin of the public education typology more brutally evident than in the serial organization of classrooms off the ubiquitous double-loaded corridor. Every inch of wall space occupied by the iconographic student locker spaced nine to twelve inches apart. Given the historic background of public education and the society need to train a more sophisticated industrialized workforce this organizational model had some sense of validity. The authority driven hierarchy of spaces, corridor serving the classroom, reinforced a company-line chain of command philosophy towards education as america's workforce was being trained intellectually and psychologically for the industrialized workplace.

Today's society demands an assertive self-reliant workforce capable of creative innovation and a sophisticated set of interpersonal skills. The ability to productively work in increasingly collaborative environments while developing an internal sense of responsibility and accountability has become absolutely crucial to enjoying success in the Capitalist landscape. The development of these skills occurs as much outside a classroom setting as it does in. Informal study sessions, collaborative learning, and general sharing of ideas are more effective outside the instructor dominated environment of the classroom.

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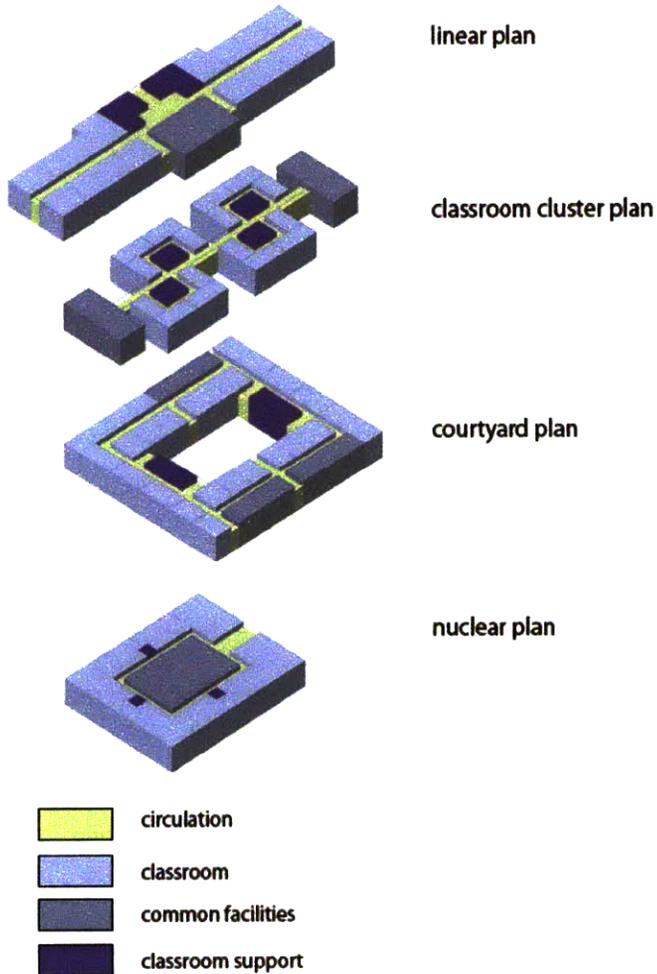
The double-loaded corridor

The previously ignored public space of the school has become a topic of critical importance for its ability to foster these informal interactions between students, teachers, and administrators. Here the student exercises autonomy and relative freedom from the supervision and rules of the classroom setting. Students have the opportunity interact with their peers outside the curricular mandates for group learning sessions.

In the existing high school typology the public space is defined by the double-corridor. The architectural character is dictated by egress codes and occupancy regulations. The arrangements of

lockers forces students to squeeze into uncomfortable proximity to each other forced to intrude into their neighbors personal space. Furthermore, the heavy poche created by embedding the locker into the walls dividing classroom from hallway serves to isolate the classroom environment from the public space of the school. This reinforces the hierarchal relationship between classroom and circulation.

existing organizational typologies



This project seeks to invert the traditional relationship between classroom and public space. Rather than public space serving the classroom, we seek an environment where the classroom serves the public space of the building. By eliminating the heavy poche of the student locker we are able to create a more transparent transition from circulation to classroom. Large sliding glass panels allow flexibility in dealing with varying acoustical needs of the classroom.

Rather than confining teachers with an overly specific classroom design, these spaces are treated as generically as possible. This allows the individual teacher to define his/her instruction space as they see fit. It also allows the classroom to conform to a variety of programmatic uses such as lectures, meetings, seminars, group sessions, etc.

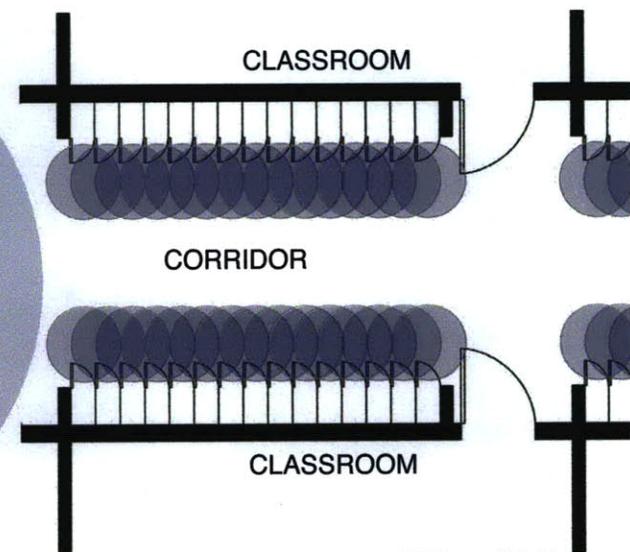
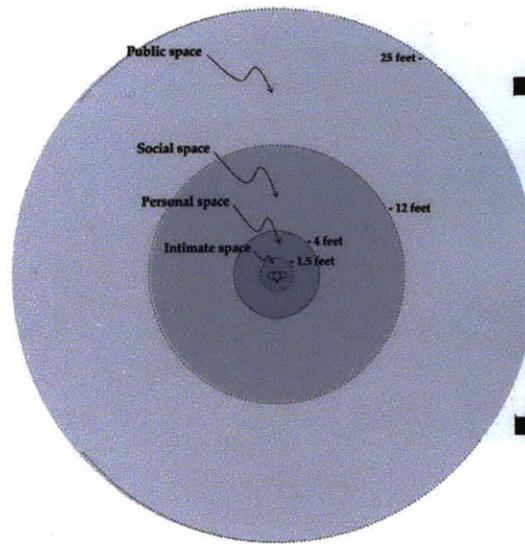
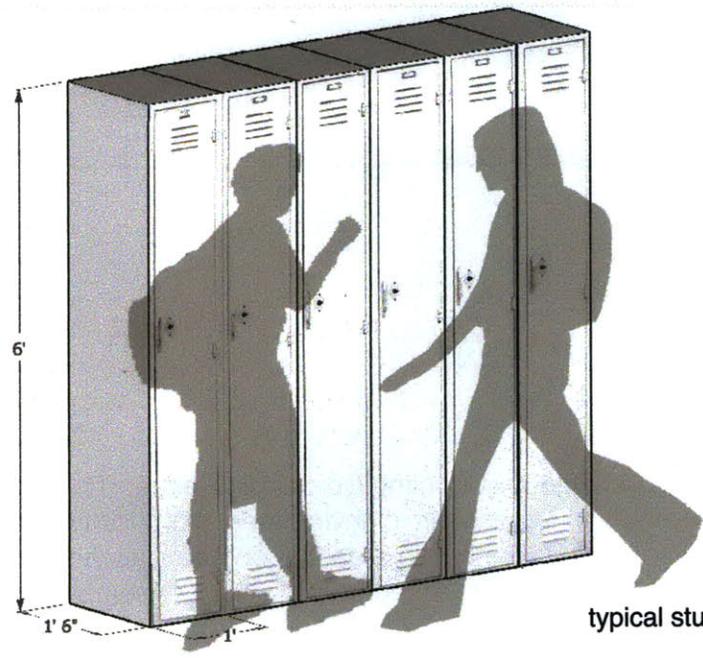
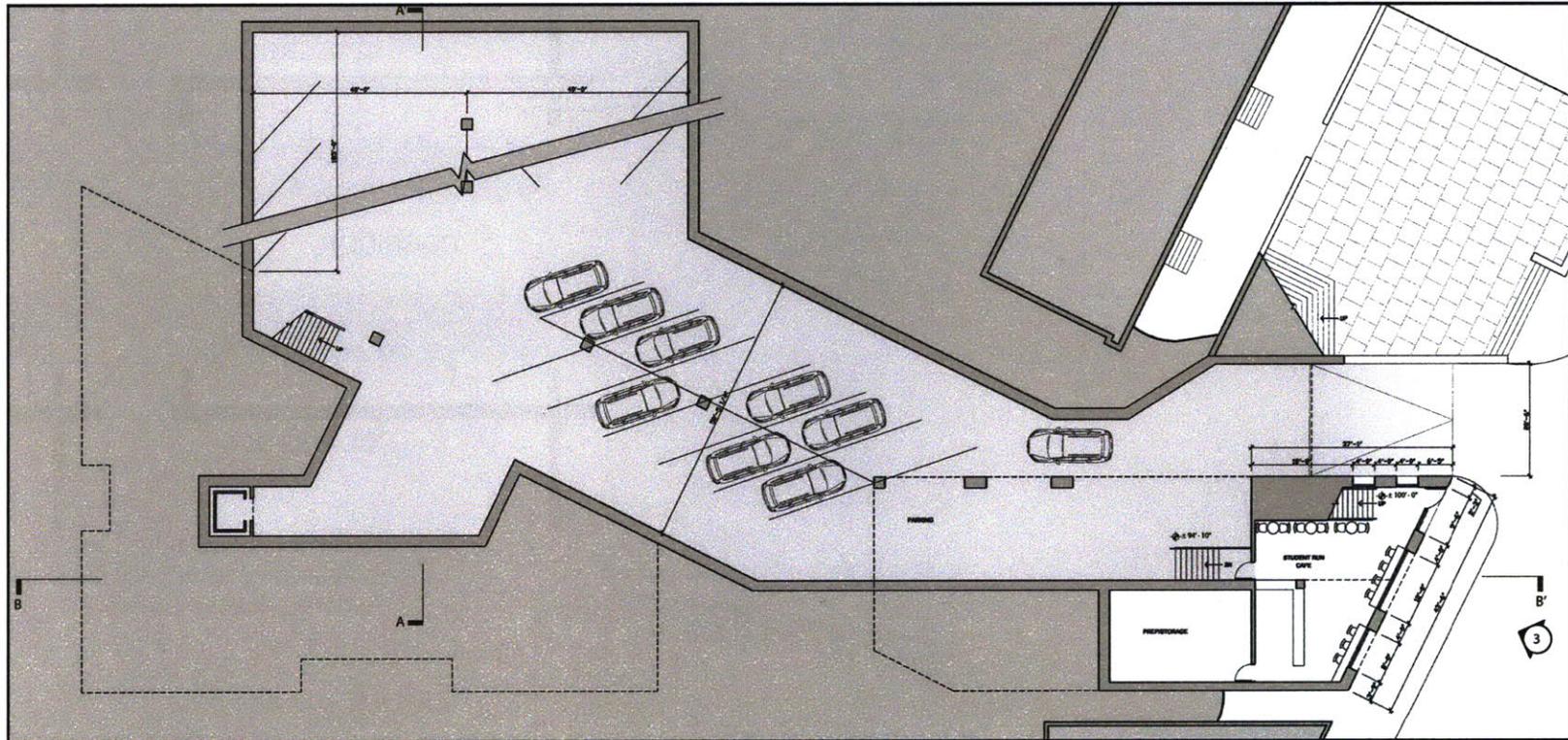


Diagram of Edward T. Hall's reaction bubbles applied to the double-loaded corridor.



typical student lockers



Lower Level Plan
(Dorchester Avenue)



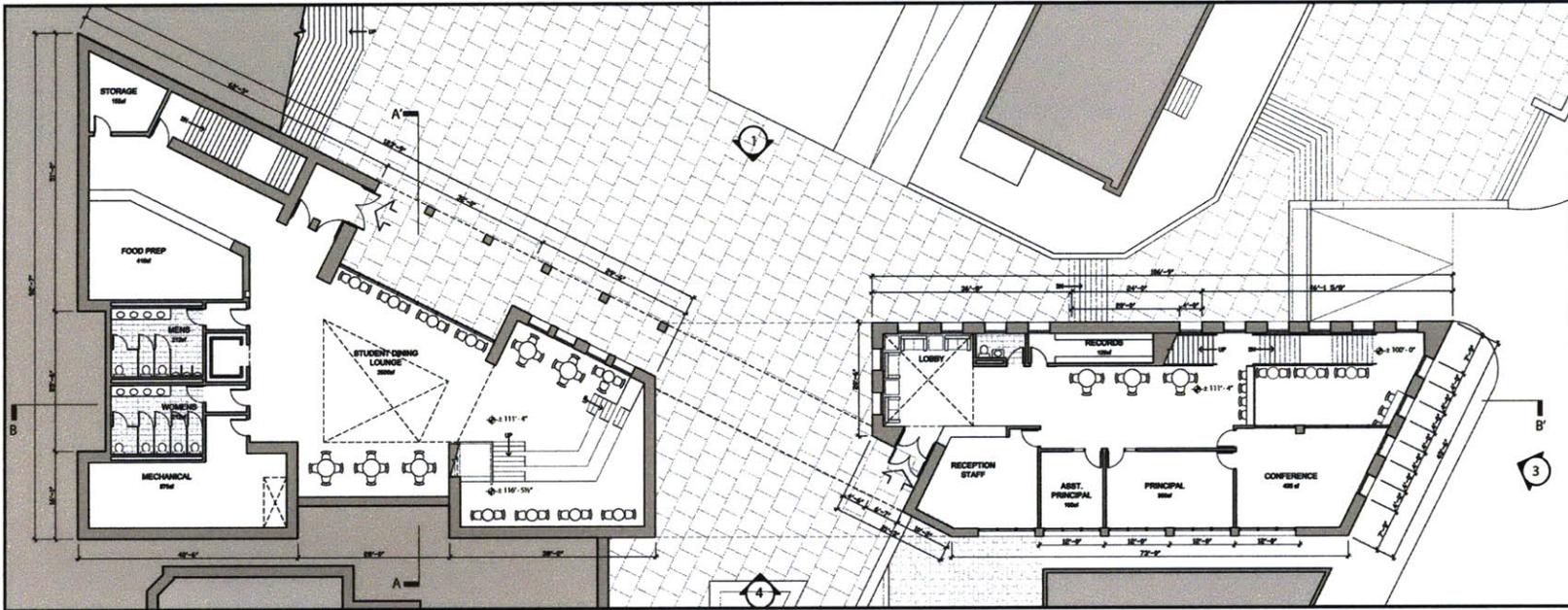
Program:

- student-managed cafe
- food prep/storage
- below grade parking

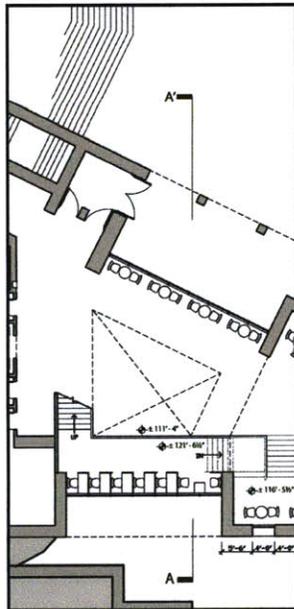
(ground level opposite)

- administrative suite
 - principal office
 - conference room
 - asst. principal office
 - reception and office staff
 - records storage
 - restroom
- student dining and lounge
- food prep/storage
- restrooms
- mechanical

The lower level consists of a student managed cafe fronting Dorchester Avenue. The cafe serves as an invitation of the community into the academic environment of the school. The cafe opens above to the reception and administrative area that operates as the public face of the project. Below grade parking is accessed from Dorchester Avenue via a ramp that slides beneath the pedestrian plaza above.



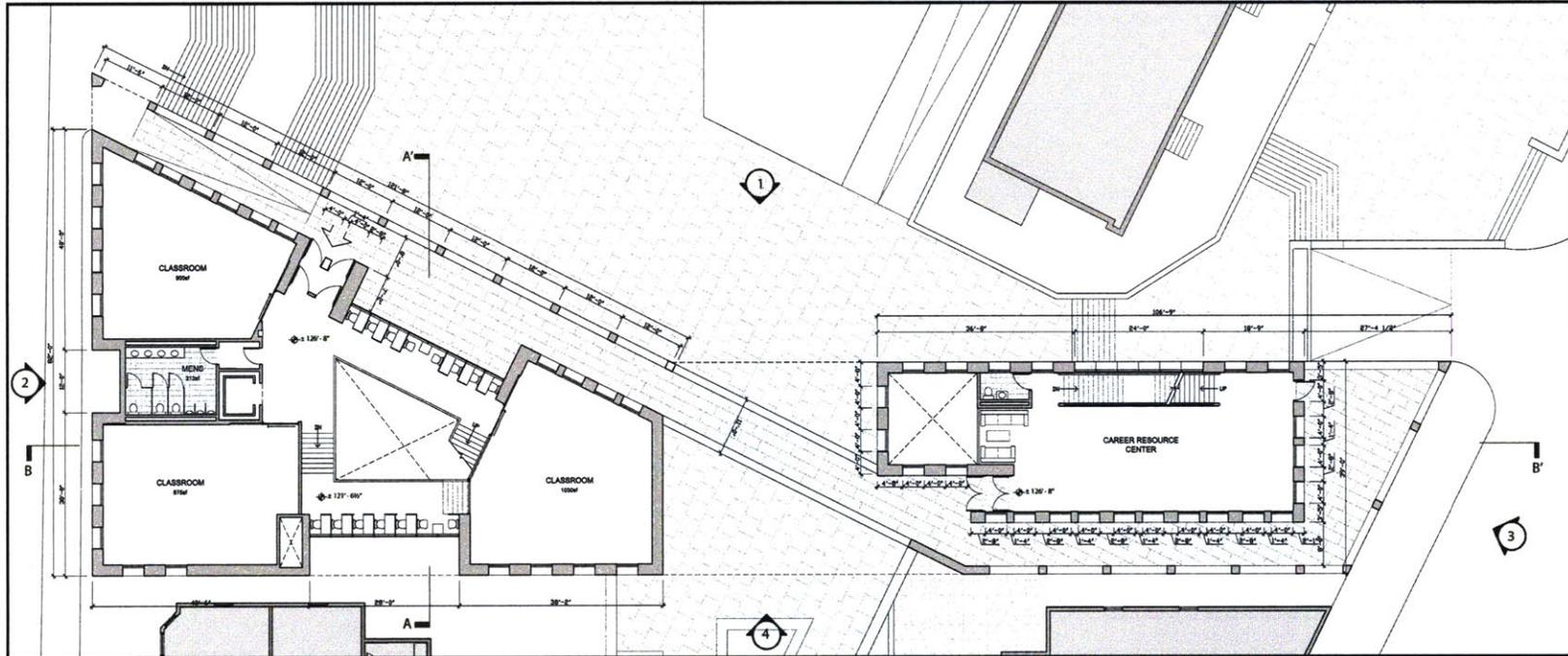
Ground Level Plan (Pedestrian Plaza)  



First Mezzanine

The pedestrian plaza provides access to both buildings at the ground level. This level includes the primary administrative space of the campus consisting principal and assistant principal offices, reception and lobby area, records storage, restroom and open seating that serves as an extension of the cafe below. The academic building fronting Adams Street consists of a large dining and student lounge space, including a tiered amphi-theatre style lounge area. Restrooms, food prep/storage, and the mechanical room are also housed on this level. The center of the dining area is open above creating a three-story circulation atrium flanked by individual and small group study carrels.

The first mezzanine is accessed from the tiered seating area and acts as an intermediary study space between the ground and first levels. It also creates a more sheltered “cave-like” study space below.



First Level Plan
(Adams Street)



The first level is situated approximately three feet above Adams Street and features a pedestrian colonnade that serves as the primary entrance to the academic building. Three core academic classrooms are arranged along the perimeter of the central circulation atrium. The internal organization of the project becomes evident here. The atrium represents the public and dominant space of the project. The circulation paths are flanked at the perimeter with individual and small group study carrels that also function as student storage. This vibrant active public space provides students with the opportunity for healthy informal interactions between one another as well as teachers and administrators.

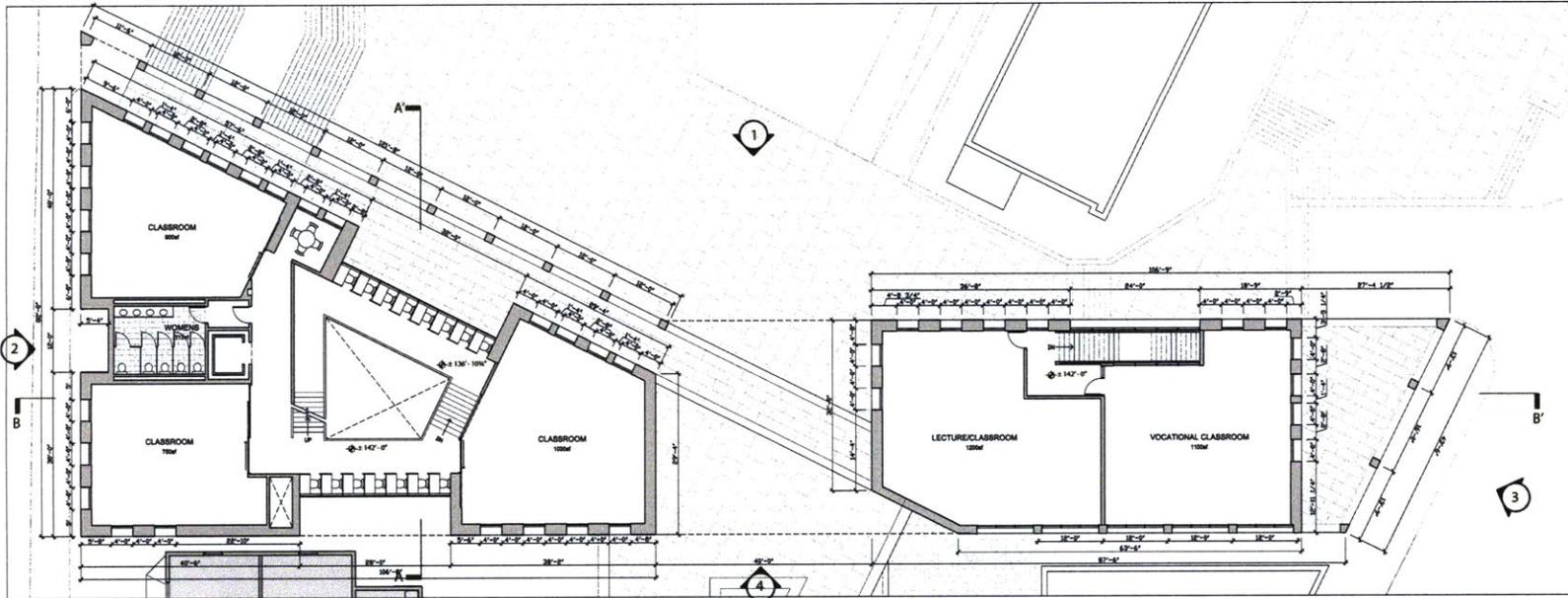
The pedestrian colonnade continues past the academic building forming a bridge to the administrative building and a small public terrace with views of the harbor. The administrative building houses an open plan career resource center at this level that is intended to serve both the student body and community alike. It opens below to the main reception and lobby area.

Program:

career resource center
restroom
public terrace
three core academic classrooms
men's restroom
informal student study and lounge

(second level opposite)

vocational/lecture classroom
vocational/media classroom
three core academic classrooms
women's restroom
informal student study and lounge



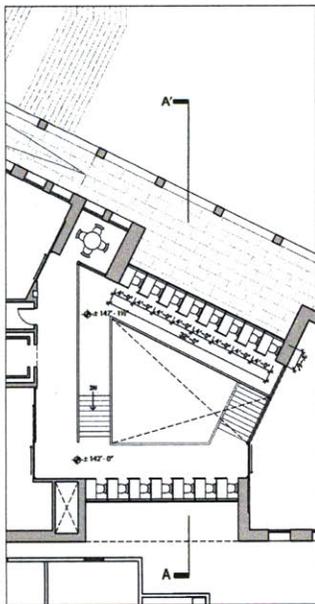
Second Level Plan



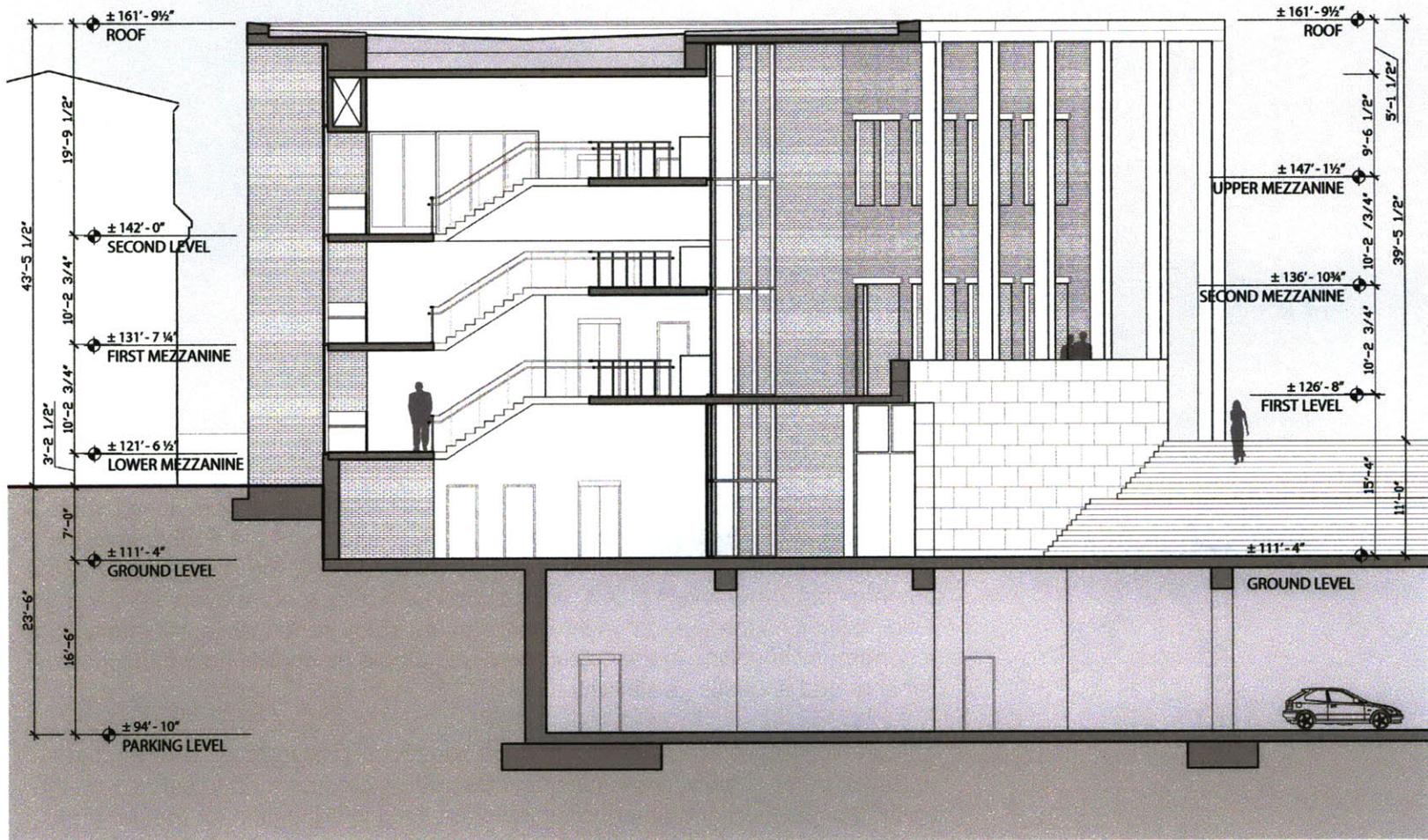
The second level continues the relationship between classroom and circulation defined below. The autonomous student-focused environment provided by the circulation atrium justifies the small trade-off in efficiency of the double-loaded corridor. Each flight of the atrium is staggered at 5' 1 3/8" intervals, such that the primary classroom levels (15'-4" floor to floor) are accessed at every third flight. This maximizes the amount of informal student study space while still maintaining a generous 11' ceiling in the classrooms and ample plenum to house mechanical, lighting, and acoustic treatments.

The administrative wing consists of large vocational classrooms. Like the career resource center below, the vocational classrooms are intended to serve both the student population and an opportunity for continuing education for the general community. The integration of mixed academic and community function found in this project, particularly the administrative building is illustrative of the over-arching educational philosophy outlined earlier.

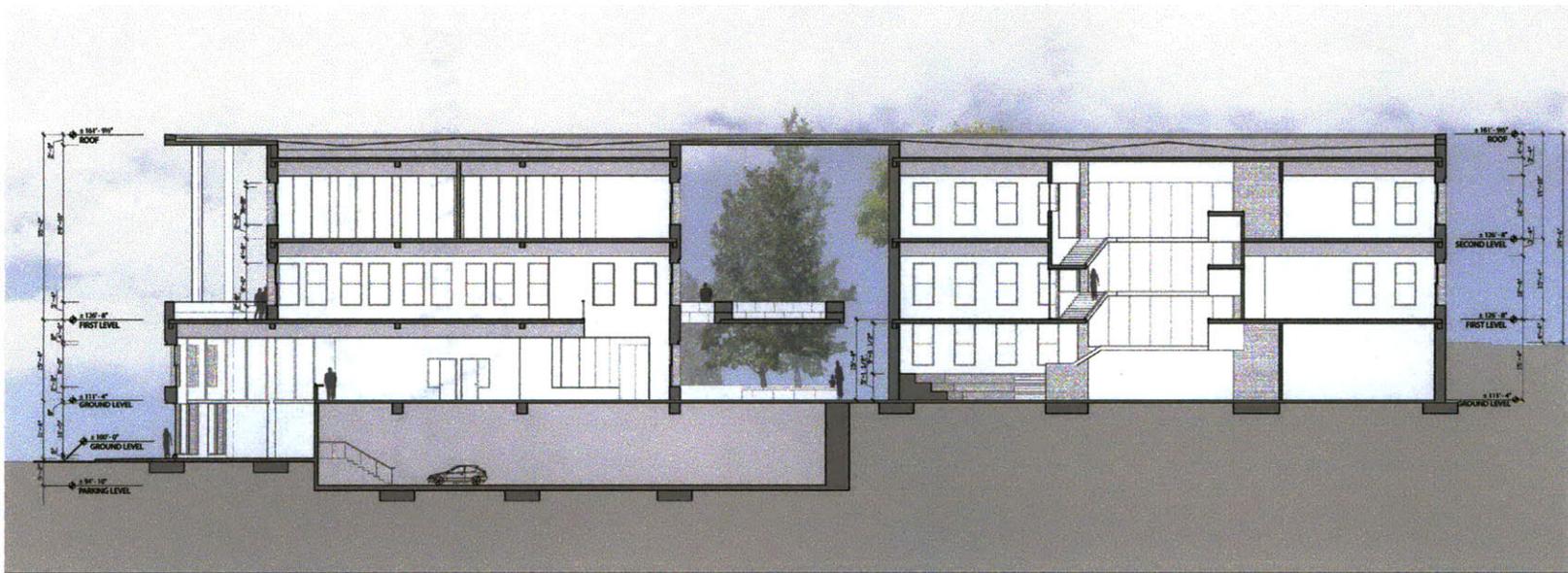
Upper Mezzanine



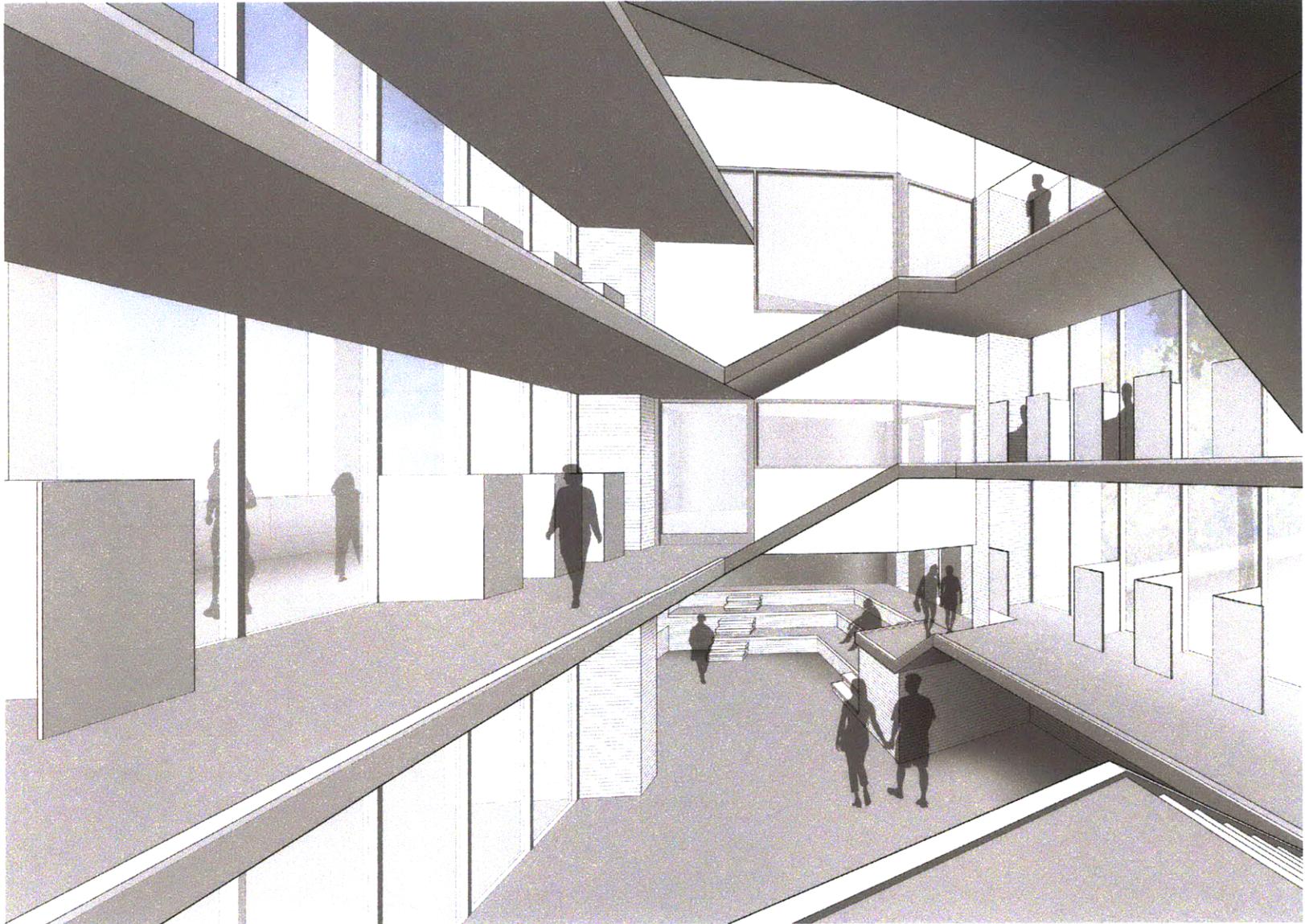
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Section A - A' (enlarged) 0' 8' 16'



0" 16" 32" Section B - B'



Circulation Atrium featuring informal study carrels

conclusion

This project represents an alternative to the traditionally authoritarian relationships exhibited in the architecture of mass public education. This urban campus brings the educational and communal environments into direct contact. It provides students with the opportunity for positive face-to-face interactions beyond the academic environment and serves to strengthen a student's larger support networks.

The project rejects the authoritarian structure of the double-loaded corridor as a spatial organization tool. Instead, the design aims to activate the public space of the academic environment by focusing on the circulation of the building. A series of informal study spaces are integrated into the circulation atrium providing an environment that promotes positive student interaction.

The architecture of public education is a stagnant typology demanding change. This thesis begins to identify the primary inconsistencies that persist between educational research and its spatial manifestation. It provides an architectural response that aims to resolve these inconsistencies and promotes an academic environment refocused on the needs of the student.

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I owe a debt of gratitude to my professors, colleagues, friends and family whose support and encouragement throughout this process gave me the strength to push through countless challenges and obstacles.

Endless thanks to my advisor Alexander D'Hooghe for his commitment, patience and support. His keen insights and critical assessment throughout the development of this project challenged me to continue striving for greater clarity of hand and mind. For believing in me and the project even in those moments when I did not and driving me to maximize my potential. You are an excellent teacher and a compassionate man.

To my readers Yung-Ho Chang and John Ochsendorf, thank you for your time and input. For inspiring and helping me to realize this project.

To my classmates with whom I began this journey four years ago, thank you for a fresh set of eyes, a helping hand, and the support and friendship through the trials of our education.

Thank you to my parents for your continued support in every challenge I chose to undertake. Your love and commitment has been a guiding beacon as I find my way through all of life's joys and pitfalls. And to my brother, for always being there, offering all that you have, and helping me push through every obstacle.