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Tune in: Berklee College of Music, Center for Music Technology, Boston, Massachusetts

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Tune In

Berklee College of Music: Center for Music Technology

Boston, Massachusetts

An investigation of how technology shapes society's perception and utilization of space and form.

Nicholas Proto_Masters of Architecture
Roger Williams University
Andrew Cohen

ARCH 641/613_Graduate Research Seminar/ Design Studio
School of Architecture, Art, and Historic Preservation
December 2009

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Signature Page

_tune in_Berklee College Center for Music Technology

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Abstract

Society is so influenced by technology that the rhythm of daily life has changed. Inventions and gadgets of today have molded the aspects of interaction. The ability to be “somewhere else” while being with someone has created a disconnect with present day interactions and behaviors. This has enabled people to not “Be Here Now” because their physical presence is not important anymore. Technology has provided society with an option to be somewhere else all the time.

On the other hand, digital technologies and breakthroughs in the realm of architecture has provided designers the ability to create free-flowing, intensely complex buildings that are able to show their specific design intent. The need to use technologies to create places to bring people back into the “now” is a challenge. Emphasizing visual and aural experiences in design will break these split worlds we live in and will enhance different experiences.

The Center for Music Technology unifies a busy, broken corner in the Back Bay of Boston. The in fill project establishes a continuity to Bolyston Street, while addressing pedestrian circulation issues on Massachusetts Ave. The corner plaza offers chance interaction and performance areas for the community that generates an active hardscape. Public program on the first level such as retail and dining reinforce the Bolyston axis. The public rise to the second level where the 200 seat performance hall offers internal and external performances that enriches the experience.

The two education towers are lifted up from the public zone to provide privacy and focus for the production, editing, and practicing of music. The towers twist and shift to create interior and exterior break out spaces. This procedure of twisting and shifting breaks the towers and creates an atrium space for chance encounters and interactions.

The program of the towers are enclosed in a series of trussed frame boxes. Column lines run the height of the towers while the cross bracing of the frames provide stability and strength. There are two cores that provide vertical circulation as well as services and mechanical. Each level is serviced separately according to the demands. The towers are cladded with a perforated metal mesh system that changes according to the use of each box. The solid sound stages and mixing studios have one panel system that differs from the more open panel at the education boxes. These panels have different perforations that enable the users to view out to the urban environment.

The center provides Berklee with much needed space while unifying two busy streets in Boston. The new design will create different experiences for the public and help ground them in their surroundings and make them aware of the urban environment around them.

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Boston Massachusetts

"Shock someone out of a sense of acceptance and distraction, everyone just walks through architecture without even noticing it so I do believe in the project of critical architecture where you need to actually disrupt someone's lifestyle enough that they break out of their habits and pay attention to their environment..."

_Greg Lynn

INTRODUCTION/ PROBLEM STATEMENT

Society is so influenced by technology that the rhythm of daily life has changed. Inventions and gadgets of today have molded the aspects of interaction. The ability to be "somewhere else" while being with someone has created a disconnect with present day interactions and behaviors. This has enabled people to not "Be Here Now" because their physical presence is not important anymore. Technology has provided society with an option to be somewhere else all the time.
On the other hand, digital technologies and breakthroughs in the realm of architecture has provided designers the ability to create free-flowing, intensely complex buildings that are able to show their specific design intent. The need to use technologies to create places to bring people back into the "now" is a challenge. Emphasizing visual and aural experiences in design will break these split worlds we live in and will enhance different experiences.

PROJECT STATEMENT

__The design proposal is a center for music technology for the Berklee College of Music. The technology of music will blend with the technology of design to create a new, different place. The concept is to develop generative proposals that break the norms of “everyday life” through the creation of digital tools and processes. The ability to “disrupt someone’s lifestyle” is not done out of negative intentions, but to inspire one to break out and experience something new and exciting. Digital technologies enhance the process to provide key information in order to design and construct.

PROGRAM OUTLINE AND AREAS

RESEARCH zone:

Shared Music Studios with Control room and Isolation rooms _	4@ 2100sf	8,400sf

Whisper room for recording purposes and provides space for video authoring capabilities as well. A partial listing of equipment includes a dual processor G4, 36GB of storage space, Motormix fading controller, Mackie CR1604 analog console, two Lexicon effects processors, K2500S keyboard/sampler, MIDI patch bay, and DVD/CD recording drives.
Citation_ Music Technology at North Western University

Shared Scoring Stages with Control room and Isolation rooms_	4@3,000sf	12,000sf

Similar to the shared music studios, these stages are for large ensembles and classes in order to have adequate space for interactive lessons and practices.

Media Labs_	8@ 650sf	5,200sf

Macintosh computers hosting a suite of multimedia applications. 5-channel speaker system and a slew of audio and MIDI peripherals.
Citation_ Music Technology at North Western University

Computer Labs_	2@ 1000sf	2,000sf

Separate from the Media Labs, these computer labs offer spaces for general study and accommodate some of the applications that the Media Labs offer.

Labs_	4@ 500sf	2,000sf

These labs offer all of the latest technological equipment needed for serious research and development studies. They are interactive enabling the public to view in to see what type of research is going on.

Individual Music Rooms_	10@100sf	1000sf

Linked near the Music Studios, these individual rooms enable students to get the privacy they need when working on projects and performing music

Office Wing with Conference Rooms _	2@2500sf	5,000sf

Manufacturing Lab_	1@3,000sf	3,000sf

The construction of new instruments and auditory devices will be developed in the manufacturing lab in parallel with the explorations done in other labs. The ability to fabricate and construct these technologically advanced instruments on site will give great advantages to the phases of research and development.

Media Library_	2,000sf	2,000sf

An increasing digital lab that houses collections of documents (books, scores, periodicals, commercial and unpublished music recordings, videos...) allowing for their combined use by library patrons on- and off-site.

Citation_ The IRCAM Multimedia Library: a Digital Music Library by Michael Fingerhut

Support and Mech_	5@500sf	2500sf

PERFORMANCE zone:

Studios for small performances_	2@ 3,000sf	6,000sf

These studios will house the technological research projects to show the development of the school as a whole. These spaces will be experiential designs that push the limits of technology and architecture.

Rehearsal Studios_	2@ 1,000sf	2,000sf

Rehearsal spaces for the main theater and studios for practice and preparation.

Support and Mech_	1,200sf	1,200sf

PUBLIC zone:

Coffee House/ Lounge_	1000sf	1000sf
Experiential Galleries_	3@1000sf	3,000sf

The public access that culminates with the main theater, these galleries express the ideals of the center and bring the public in to focus on their surroundings to generate pure experiential feelings.

Support and Mech_	1,000sf	1,000sf
RESEARCH		45,100SF
PERFORMANCE		14,700SF
PUBLIC		3,900SF
TOTAL NET		58,200SF
TOTAL GROSS SF @ NET x1.3		75,660SF

AREA ALLOCATIONS/ INTERRELATIONS AND ADJACENCIES

The center will be broken up into a series of zones:

Faculty and Student zone

Performance zone

Gallery zone

__The public will have a series of experiences while circulating through the Gallery zone to the Performance zone. These spaces are designed to ground the public in the building, making them focus on their surroundings. These feelings will culminate by entering into a performance hall for a show. The students and staff help mold these gallery spaces with their research and development. The studios and labs provide the much needed space for technological advances and discoveries. The interaction between public and student (private) will form in the gallery zone and the performance zone by the interaction of performance and sensory experience. The building is a series of interactions that create a whole new experience that is formed by technology.

NARRATIVES

Student: Students at the Center for Advanced Musical Technology start their day with a normal student schedule. However, seminars and lectures are deeply focused in new developments and techniques in music technology. A group of students have a semester long project that they have been working on intensely. They split up using the Media Lab and Lab spaces doing their research and work. The group meets up and moves through the exhibitions in the gallery spaces toward the cafeteria for lunch. Half the group continues doing research in the Media Library while some go back to other campus buildings for other classes of study.
The studies bring about new models and instruments that emphasize new advances in the music world. The group is set to perform and present their findings in one of the studios at the end of the semester. A series of groups set up for a student exhibition open to everyone that displays their research and work.

Public: The public grabs a coffee and lunch on their break and goes to see the student work. Calendars show when the Main Theater is being utilized for performances. While walking through the exhibits, the public notices new discoveries in the field of music and reflects on the advancing technologies. They see all the student work that has been done throughout the semester and enjoy the new experiences that are formed. Friday night, the Main Theater is sold out, the public meanders through the galleries and settles in the theater for the entertainment. The interaction between student and public are interconnected and strong through these zones. The building is a new experience that is formed from the intense research done and the advancements in technology that enables the architecture to be expressive and unique.

PROGRAM PRECEDENTS

Berklee College of Music_ Boston, Massachusetts
Music Technology
Stephen Croes, Dean

* Music Production and Engineering
* Music Synthesis

The Music Production and Engineering Department recording studio complex consists of 12 professional production facilities, which include multitrack digital and analog recording capability, automated mixdown, digital audio editing, video postproduction, 5.1 multichannel surround mixing, and comprehensive signal-processing equipment.

Music Production and Engineering students acquire extensive hands-on experience with a wide array of professional studio equipment and multiformat systems. In collaboration with students from the Professional Performance, Professional Writing, Professional Education, and Music Technology divisions, MP&E majors gain specialized experience in producing and engineering a wide range of contemporary music styles.

The recording studio complex has room configurations optimized for effective teaching and professional-level student production needs. The facilities are appointed with industry-standard equipment from Solid State Logic, Neve, GML, DigiDesign, Lexicon, Neumann, Quested, Sonic Solutions, Sony, Studer, Yamaha, and other manufacturers.

There are five multitrack control rooms appointed with 24-track Studer and Otari analog 2” tape machines, 8 to 32 tracks of DigiDesign ProTools, and 8 tracks of Tascam DA-88 digital storage plus video playback and synchronization capability. Three of these multiformat studios feature 5.1 multichannel surround mixdown options. Six additional studio/classrooms support 8–16 channels of DigiDesign ProTools, 8 tracks of Tascam DA-88 multitrack storage, video playback, dubbing, and synchronization. The 12th facility is a multiformat dubbing and editing studio. Here, students have virtually 24-hour access to DigiDesign ProTools digital audio workstations, CD burners, DAT, cassette, and analog formats. “Black Box” experimentation and analog alignment assignments are also facilitated in this room. All 12 studios have high-speed access to the college Intranet and Internet services.
www.berklee.edu/facilities/recording_studios.html

IRCAM (Institut de Recherche et Coordination Acoustique/Musique)_
Paris, France

European institute for science about music and sound and avant garde electro-acoustical art music. It is situated next to, and is organizationally linked with, the Centre Pompidou in Paris. The extension of the building has been designed by Renzo Piano and Richard Rogers.
http://en.wikipedia.org/wiki/IRCAM

IRCAM is one of the world's largest public research center dedicated to both musical expression and scientific research. Over 150 people - including composers, researchers, engineers, performers, and technicians - contribute to the institute's activities.IRCAM is the world's leading center for computer-music training.

IRCAM offers several educational workshops that enable teachers to present a special encounter between their students and contemporary musical creation. In keeping with their multidisciplinary vocation and mission of creation, the Centre Pompidou and IRCAM offer are offering a pilot project in art education that builds bridges between visual art, sonic art, and new technologies.
Works for acoustic instruments and real-time electronics are progressively making up their own repertoire. IRCAM has joined forces with conservatories, music schools, and instrumental ensembles to organize an annual series of courses intended for novice musicians and young music professionals. The role of the Department for the Coordination of Scientific and Musical Research is to create productive links between the scientific and musical research communities in IRCAM as well as with IRCAM's partners outside the institute. These links are built around six main forms of activity.
Music Research centers around Activity of music research through the organization of thematic work groups (on score following, orchestration, physical model synthesis, musical and choreographic gesture tracking) as well as collaboration of composers working on research and musical productions. This activity also includes the development of relations with other centers active in creative musical production.

Georgia Tech Center for Music Technology_ Atlanta, Georgia

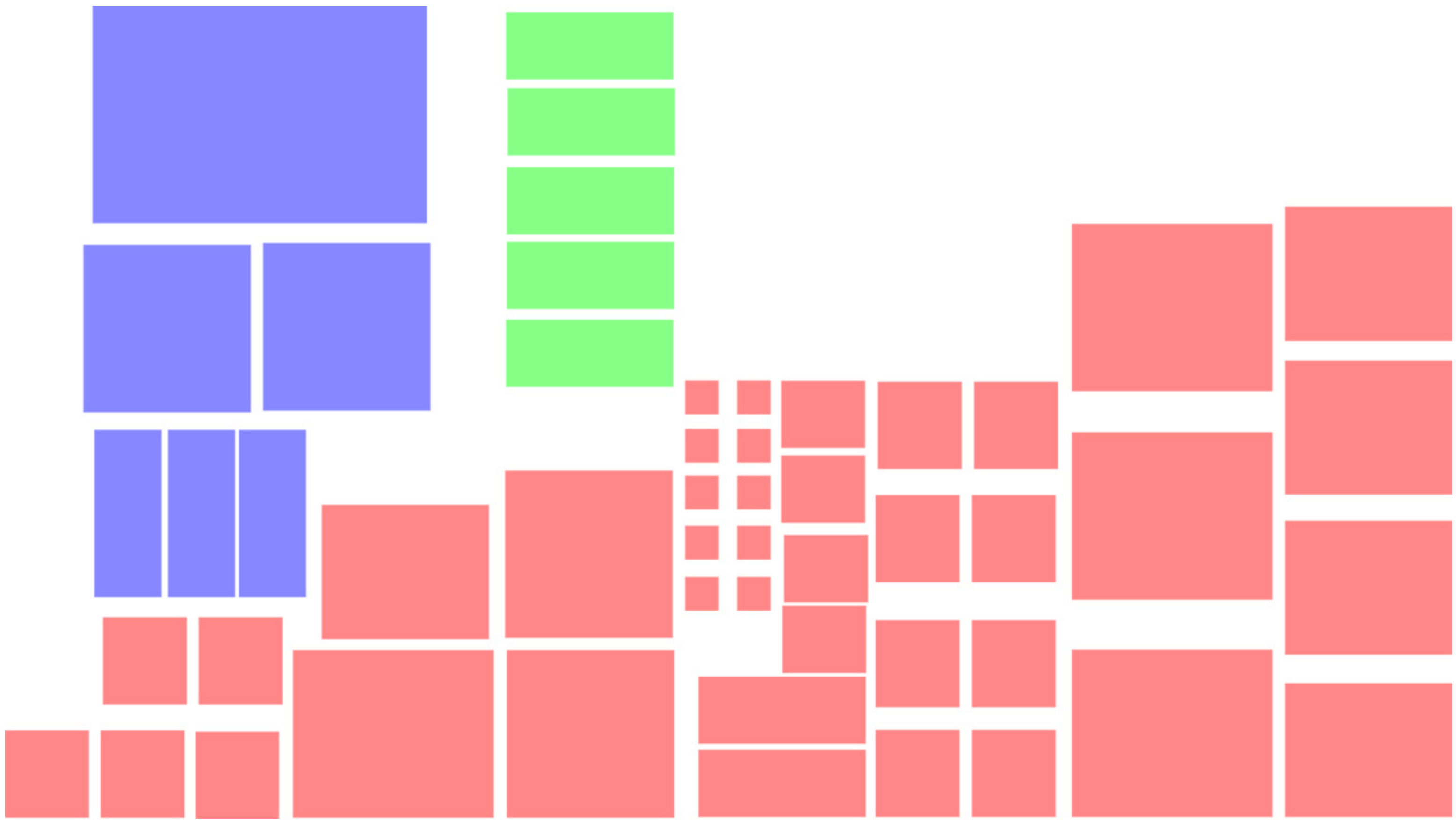
Class Description

MUSI 6001 - Music Perception & Cognition - 3 Credit Hours
This course examines how humans process musical sound, including topics such as the auditory system, psychacoustics, music cognition, and psychology.
MUSI 6002 - Interactive Music - 3 Credit Hours
Theoretical and practical issues in computer supported interactive music. The course involves readings, class discussions, student presentations, and the design of a final project.
MUSI 6003 - Music Technology History & Repertoire - 3 Credit Hours
Overview of the history, aesthetics, and technology of electronic and computer music over the past century through selected readings, musical analysis, and individual research projects.
MUSI 6004 - Technology Ensemble - 3 Credit Hours
Practice and performance of original and repertoire works in live audio settings using commercial and propriety technology.
MUSI 7100 - Music Technology Research Lab - 12 Credit Hours
Advisor guided research and creative work in music technology. Investigation of novel technological and artistic concepts. Design and develop new hardware, software, and musical artifacts.
Computer Music Research and Engineering
The Computer Music Research and Engineering concentration focuses on the design and development of novel enabling music technologies.
"Our goal is to build an international center for creative and technological research in music that will redefine the way we create, perform, listen to and consume music," says Dr. Gil Weinberg, co-founder and director of the Georgia Tech Center for Music Technology.
http://gtcmt.coa.gatech.edu/

Gross SF of zones

PROGRAM DIAGRAMS

RESEARCH	45,100SF
PERFORMANCE	14,700SF
PUBLIC	3,900SF



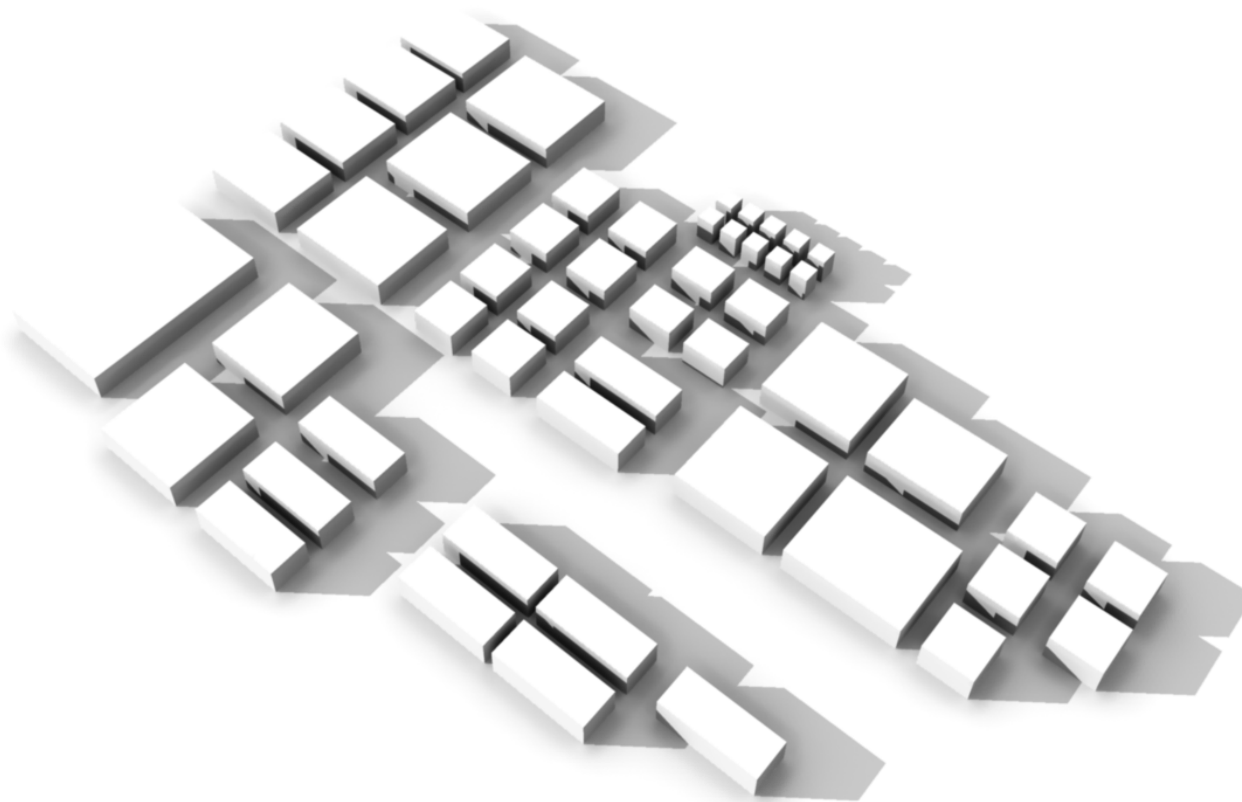
PROGRAM EXCERCISE

The progression of digital technology has expanded the possibilities of design in architecture. Because of this, there is an ability to generate different and multiple forms with ease. Variation creates Interesting exercises in the overall process of design.

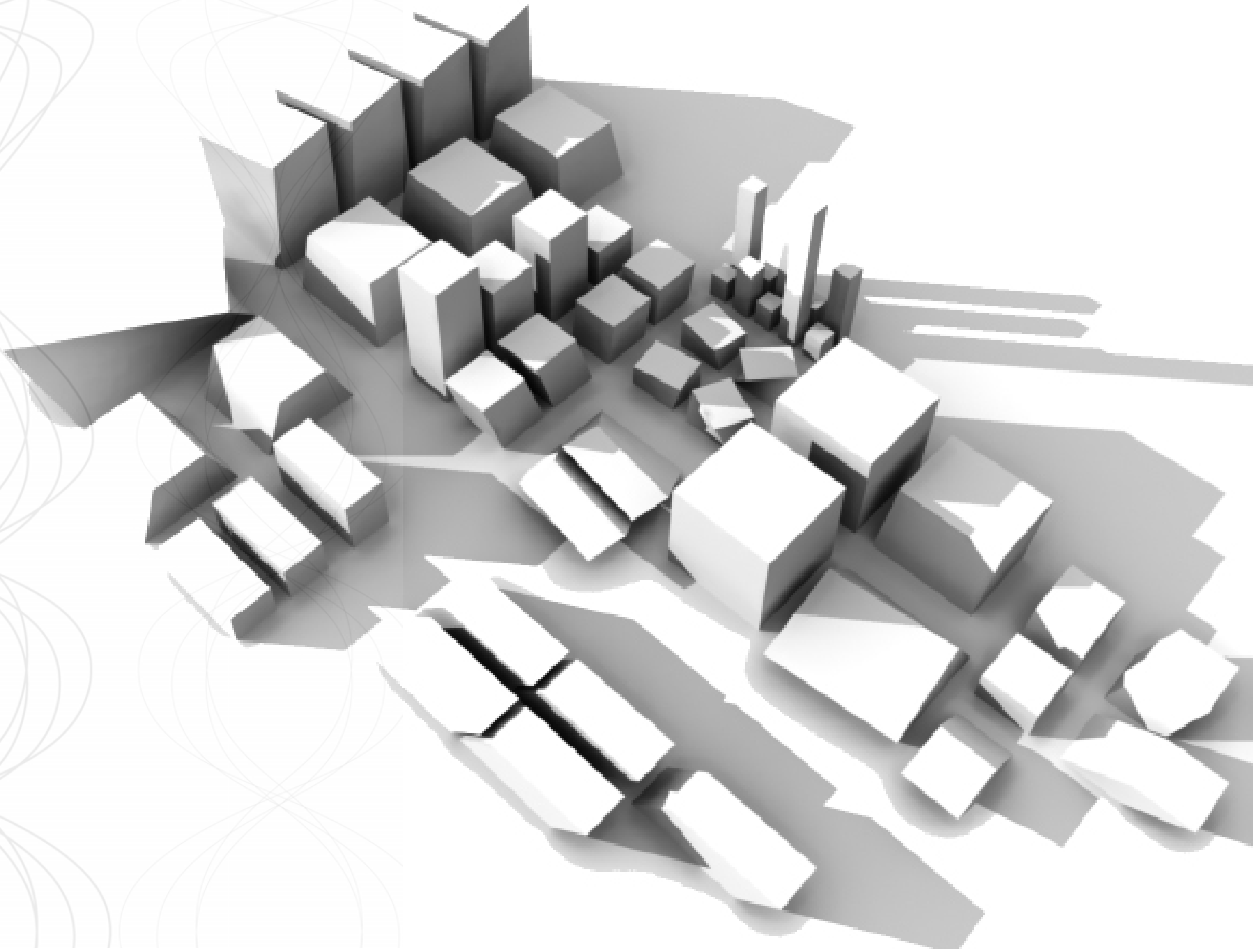
Taking the basic program diagram and extruding it to give it three dimensions creates interaction between each piece of program.

From there, different operations are performed to sculpt and mold these pieces into varied forms. There is a new interaction between each piece which can be manipulated in a series of ways.

Simple extrusion of program



Transformation of extrusions vary forms and interactions



PROBLEM THEMES/ ARCHITECTURAL INTENTIONS

The ideas of creating generative architecture come from development and processes derived from certain constraints. Because of this, specific precedents outside of building types can be important in terms of “concept” and “generation” of ideas. Concepts of “sound” and “nature” could be interesting generators to start the process. Does function always come first with design? Can form overcome the rigors of designing in one dimension? How does one interpret spatial conditions without 3 or 4 dimensions (time)? These questions provide constraints in which new experiential architecture can be performed in order to provoke new ideas and experiences.
With the uprising of digital tools, there has been a direct correlation to manufacturing processes and design. The need for architects to obtain these skills in their profession is very important in the interaction and interpretation of construction documents and techniques. Utilizing new machines, the ability to interact with robots creates “repetition of differentiation”. These machines do not care what they are cutting or putting together. The interfaces enable architects to create variation in design with the ability to construct with increasing ease. Presenting these techniques is very interesting in the overall development of the project.

The building will interact with the surroundings to draw audiences in. The land/hardscapes are integral in the overall texture and layering of the design. The spaces will be generated to provide different visual and aural experiences that take people out of their “norm” and ground them in the building. The entire building will be a series of experiences that break people of acceptance and help notice the new interactions that should be taking place in today’s world.

technology

Musical robot composes, performs and teaches

October 3, 2006
By Matthew Abshire
CNN

ATLANTA, Georgia (CNN) -- A professor of musical technology at Georgia Tech, Gil Weinberg, enlisted the support of graduate student Scott Driscoll to create Haile -- the first truly robotic musician. In this way, he became a sort of Geppetto creating his musical Pinocchio."Computers have been playing music for 50 years," Driscoll said. "But we wanted to create something that didn't just play back what it heard, but play off it, too."
Think of Haile (pronounced Hi-lee) as a robotic partner in the percussion form of dueling banjos. Although it has numerous musical algorithms programmed into it, Haile's basic function is to "listen" to what musicians are playing and play along with them. (Watch as Haile keeps the beat -- 5:11) If the musicians change the beat or rhythm, Haile is right there with them."With Haile there are two levels of musical knowledge .... The basic level is to teach it to learn to identify music, to imitate," Weinberg said."The higher level is stability of rhythm, to be able to distinguish between similar rhythms. In essence, Haile has the ability to recognize if a rhythm is more chaotic or stable, and can adjust its playing accordingly."This isn't Weinberg's first foray into music technology. At the Massachusetts Institute of Technology, he developed electronic software that allowed anyone to manipulate musical forms quickly and easily.Haile is the next, complicated step in Weinberg's path."I ultimately wanted to explore acoustics," he said as he explained why he felt constrained by his earlier creations. "None of my previous work had the physical or visual cues of the acoustic world. This led me towards the creation of Haile."There have been technological creations of various instruments, including Web sites lemurbots.org and ensemblerobot.org that boast several robotic creations that play programmed pieces.However, attempts to develop a machine that could produce music independent of programmable pieces hadn't been realized. Either the machine was too predictable, or its sound was too electronic. Weinberg believes Haile is the solution to these problems.

The robotic drummer is not only programmed with specific pieces but also with an understanding of countless pitches, rhythms and patterns, which are used during performances. Like a concert drum solo, Haile never quite plays the same thing twice, but plays off the creations of those performing around it."We created Haile as a sort of perceptual accompaniment for a player," Weinberg said.Heather Elliott-Famularo, who helped organize SIGGRAPH 2006, where Haile performed in front of a Boston, Massachusetts, audience, marvels at the experience Haile brings to the musical world."Knowing that Haile is 'hearing' the music and responding to the tone, pitch and amplitude of the beat when creating its own drum response is quite moving," she said.But before audiences notice Haile's talents, they'll first see its sleek design. At first glance, people may assume the creature from the film "Alien" turned into wood and found a rhythm. But this design is not by accident. Weinberg and Driscoll coordinated with various computer and architectural departments to engineer a memorable robot.

"One of the things that is wonderful about the piece is that Haile, the robot, is visually beautiful, made from layered, polished hardwood," Elliott-Famularo said. "It doesn't have the metallic robot feel."

Robotic Percussionist_Georgia Tech

Robotic Marimba Player Grooves Autonomously with Jazz Pianist

We've seen an orchestra's worth of robotic musicians, but we've yet to see one that integrates this perfectly into a piece without any human intervention. Shimon -- a robotic marimba player created by Georgia Tech's Guy Hoffman (formerly of MIT), Gil Weinberg (the director of the Georgia Tech Center for Music Technology) and Roberto Aimi of Alium Labs -- recently made its stage debut by sensing the music from a piano and reacting accordingly in order to provide complementary percussion. Unlike many alternatives, there's absolutely no delay here. Instead, it analyzes the classification of chords, estimates the human's tempo and attempts to extract features from the human's melodic phrases and styles. What you're left with a robot musician that goes beyond call-and-response and actually meshes with the Earthling's playing throughout. The full performance is posted after the break, and make sure to leave a donation as you exit through the doors on the left.

Mobile Music Touch

The loss of functionality of the hands can severely interrupt a person's life, and hand rehabilitation can be a long, arduous process. Many patients find certain traditional therapy exercises, monotonous and un-motivating. The Mobile Music Touch (MMT) system is designed to provide an engaging, pervasive hand rehabilitation aid. MMT consists of a wireless tactile glove, with a vibration motor for each finger, and a lightweight computing device such as a laptop, an MP3 player or a smart phone. When instrumental music is played the tactile glove vibrates to indicate which fingers play which notes. Thus with MMT, users can hear a song and feel it playing on their hands. The MMT system can augment the stimulation of the sensory nerves, motivate patients to use their hands in an engaging manner, and teach them the enjoyable and relaxing skill of playing an instrument, which may further motivate long term hand use. MMT can also be used to assist in musical instrument practice by offering passive stimulus-based training for busy learners who cannot spend much time with the instrument itself. A pilot study have shown that learners who received song driven vibration stimuli, were able to learn new songs faster and more accurately.

Handheld musical tools_IRCAM_Georgia Tech

Reactable Objects

When you place one side of an object onto the reactable's surface, it's like pressing a button on a synthesizer and letting a noise or a beat loop over and over again. But just putting down one block would miss the point of the reactable -- there are several types of blocks, with different shapes and sides, and where you place one in relation to another affects the outcome of the music.
The position of each object on the reactable's tabletop surface affects the outcome of the music, giving players a seemingly endless amount of choices.
Music Technology Group/Pompeu Fabra University
The position of each object on the reactable's tabletop surface affects the outcome of the music, giving players a seemingly endless amount of choices.

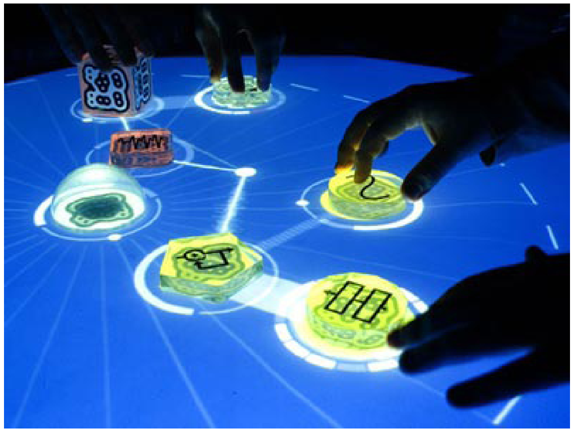
There are six different blocks, each with a unique shape and function. Square objects are sound generators -- rotating a generator changes the frequency, and dragging your finger around an animated circle can increase or decrease its amplitude (how loud or soft the sound is), much like controlling the volume on an old television set. A sound can also be cut by making a "cutting" gesture to the line that connects the object with the center of the table, and you can turn it back on by touching the animated circle again.

Squares with rounded edges are sound filters, which process sounds by adding different effects. They perform the same thing a guitar pedal might, adding flange, fuzz or feedback-like resonance to the sounds the instrument would normally produce. If you had a sound generator giving off a steady, even tone, adding a sound filter next to it would distort the sound to make it more interesting.

Circular objects are controllers, sending control data to the objects closest to it. This will change the frequency of the sound wave -- for instance, you could either have a steady, flowing sound that goes on cleanly and uninterrupted, or you could vary the frequency and give it more of a wah-wah shape.

Control filters (octagonal, or eight-sided) and audio mixers (pentagonal, or five-sided) are more geometrically complex, and their jobs are in fact a bit more complex. The two types act as samplers and mixers, allowing musicians to create intricate melody loops and lines that harmonize and change shape and key.

Global objects, which are hemispheric, are unique in that they have their own field, which is also in the shape of a circle, that affects every object that falls within that field. They typically provide a metronome, or keep time, for any object they affect or act as a tonalizer, correcting notes created by the sound generators and filters.



Tech composes the music of fish

By GAYLE WHITE
The Atlanta Journal-Constitution
Sunday, February 22, 2009

Imagine that the tail of every fish in the Georgia Aquarium played an invisible musical instrument. Whale sharks might sound like bassoons. Angel fish, more like piccolos. Notes would come fast and furious as fish chased each other. When swimming slowed to a legato, the tune would follow. Near the surface, a higher pitch; near the floor, lower. The Accessible Aquarium Project is just one of the innovative musical efforts under way at Georgia Tech, which last fall launched a new Center for Music Technology.Researchers recently demonstrated a small electronic version of the aquarium project with a fish tank outside the Georgia Aquarium's gift shop. The idea is for visually impaired visitors to access the experience through sound. But the program adds an auditory dimension even for those with perfect vision. Listeners can tell when a new fish enters the range, what kind of fish he is and in what direction he's moving. Eventually participants will be able to choose their favorite type of music. Bluegrass anyone? Jazz? Classic rock? The Accessible Aquarium project is an example of collaboration among several disciplines at Georgia Tech. Bruce Walker, an associate professor in the School of Psychology and the School of Interactive Computing, is heading the aquarium team. His research focuses on ways to use sound to convey information, an interest he developed while working for the National Aeronautics and Space Administration. Astronauts can't always sit in front of a control panel, he said, so engineers had to find ways to transmit numbers and data to people who aren't watching a computer screen. The answer? Transforming visual information into sound.

Controlling images and lighting as well as sound "really makes you think differently," Clark said. Sounding a bit like a paraphrase of the rock opera "Tommy," he added: "You can see. You can hear. You can feel what's in your head and heart, and share that with other people."

ROBOTS_greg lynn

With the growth of digital design medium there has been an expectation that new materials and new methods of construction must be invented to realize the visions of the designers. Steel, glass, aluminum, and stone have not been cut by people on site for ages. Instead, these materials are, cut, shaped, and even constructed by CNC machines. Where once there was a stone saw being operated by a person, now there is a stone saw on a gantry arm controlled by a computer- a robotic cutting machine. Indeed, it is more likely that instead of a saw these is now a computer-controlled gantry with a jet of water doing the cutting that can move freely in five to seven axes with great precision. In short, the construction industry is decades ahead of the design industry.

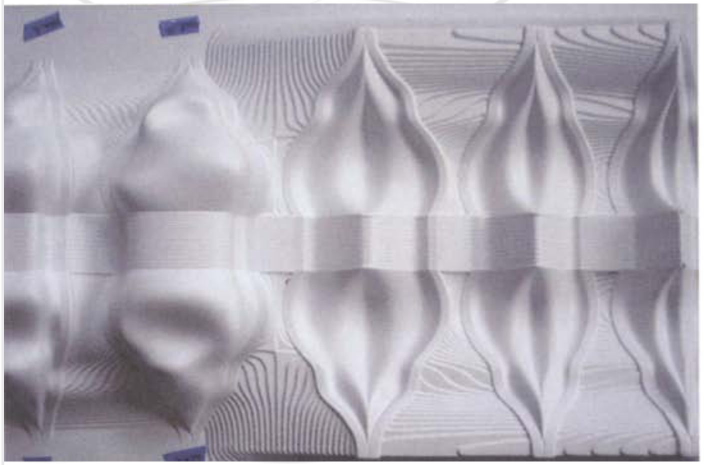
Only recently have designers begun to learn how to talk to machines.

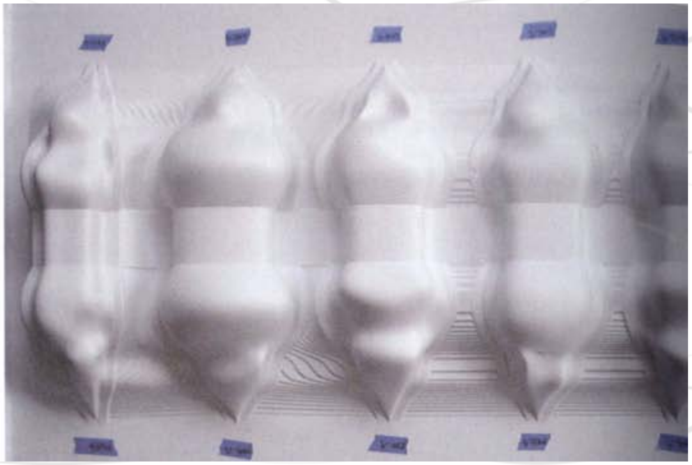
CNC formwork-workers molding fiberglass onto formwork for bloom house_Greg Lynn Form

CNC machine milling formwork for the bloom house_Greg Lynn Form

Finished fiberglass panels for bloom house_Greg Lynn Form

CNC mill making formwork for Intricate Surfaces exhibition display case_Greg Lynn Form



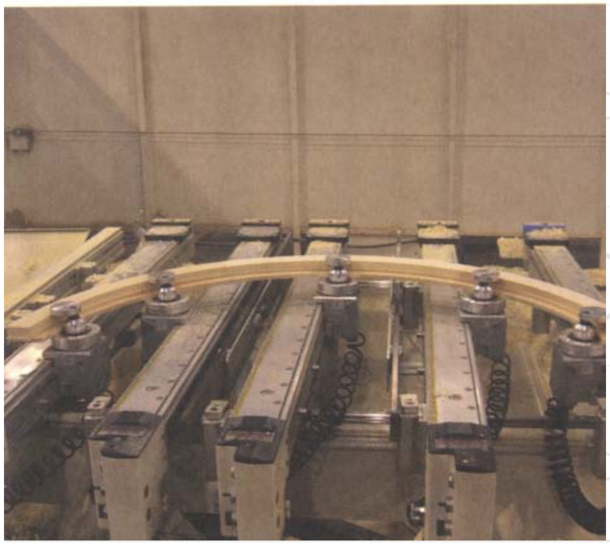


vacuum-formed polystyrene molds for alessi tea set_Greg Lynn Form

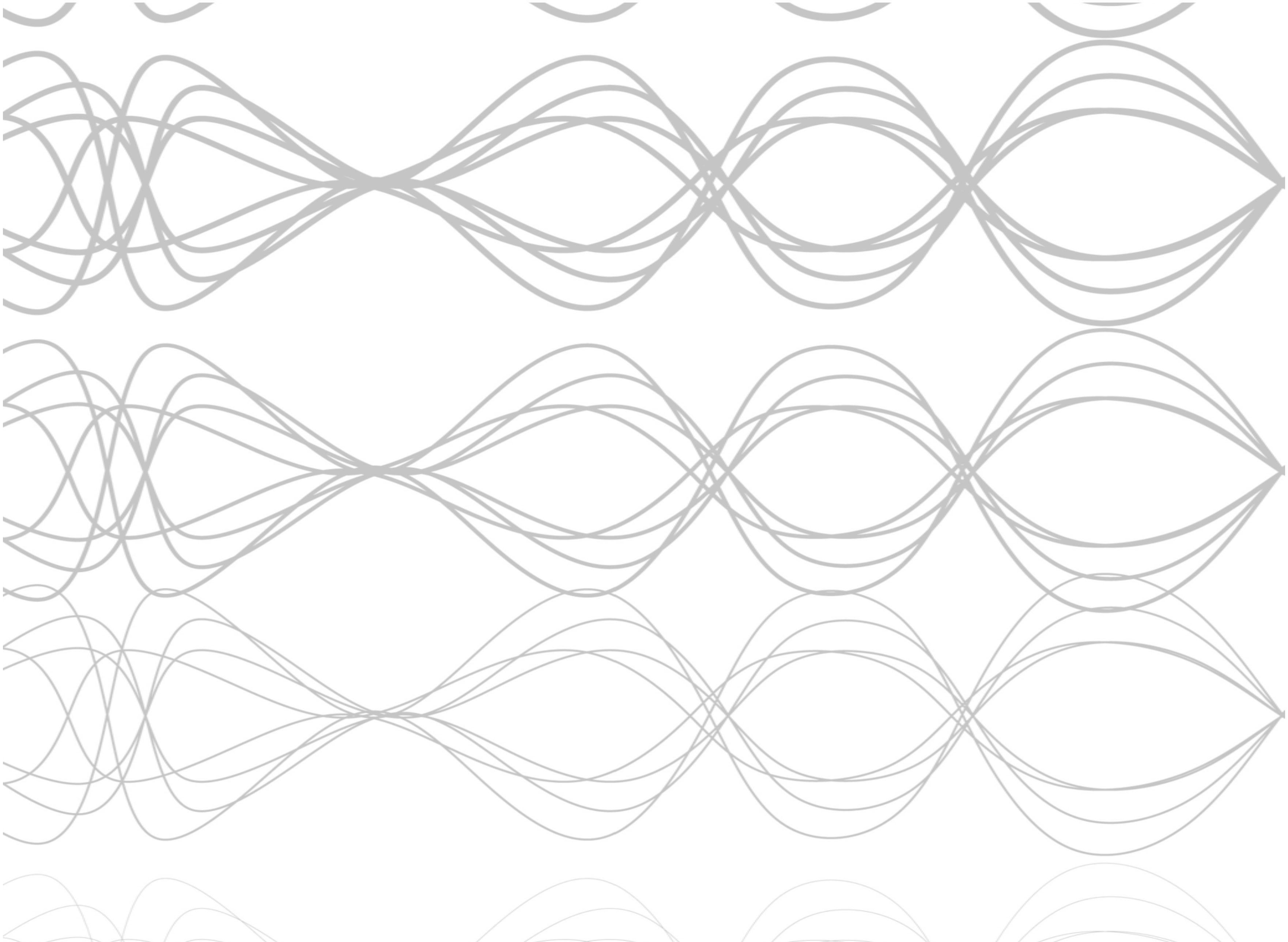
Mammoth Stereolithography rapid prototyping machine

(SLA) builds large SLA parts up to two meters in length. A digital three-dimensional object is sliced into layers then buit up thin layers of liquid polymer which hardens when it is struck by a laser beam.

CNC stone-cutting gantry saw at Pacific Westline, Inc.



Window Machining for the bloom house_Greg Lynn Form



aural architecteture

Daniel Libeskind: The links between music and architecture

From the BBC Proms lecture given by the architect and musician

What is music? Music has to do with an enormous discipline. To play an instrument, to read music, to perform music, requires a discipline. This is one of the connecting links between music and architecture, because both are extremely rigorous engagements. You cannot play music approximately, unless you're just playing around; if you really want to play a melody, you have to hit every note correctly, and every tempo and every harmony has to be there in order to be audible.

What is music? Music has to do with an enormous discipline. To play an instrument, to read music, to perform music, requires a discipline. This is one of the connecting links between music and architecture, because both are extremely rigorous engagements. You cannot play music approximately, unless you're just playing around; if you really want to play a melody, you have to hit every note correctly, and every tempo and every harmony has to be there in order to be audible.

And I think that is true of architecture: you cannot really do architecture approximately, you have to do it exactly. And what ties them together in my own experience is the element of time and the element of mathematics. Both of them really are very exact disciplines, they are very precise, they are both drawn in a certain way, and the drawings, whether they are scores in music or architectural drawings, connect the music.

I've always thought that it would be very difficult to do in architecture what some contemporary composers have suggested in music, to have rotating players, to have players interpret, and yet I think what architecture can do is involve the audience in it.

The audience has somehow to complete the building. Even though architecture is very precise, because you can't have people decide how much steel you need to support a roof, I believe a building's spatiality, its materiality, has to be open so the public can form its own architectural operation on the building. I have always thought that my buildings would be nothing if they were not for people to construct their meanings.

Alan Cohen Architecture and Music

Music is an interesting entity. It makes you feel happy, sad, relaxed, tense and so on. It recalls memories. For example, a specific song reminds you of a loved one, or a special moment in your life. It can also be boring. Elevator music is often bland.

Music is also cultural. Every country has its unique instruments and its unique rhythms and harmonies.

Sound and music are related. Music is organized or improvised sound played over a period of time. Everyday sounds may be considered music.

The jingle of trains, trucks, and the random tempo of car horns provide a modern percussion soundtrack. The hum of a fan or an air conditioner can be a relaxing drone. The sounds of an old boiler or a radiator can act as an asymmetrical counterpoint to the everyday sounds of the people in that building.

Many, many years ago when I was a senior in high school I borrowed a record from the library. The record contained recordings of musical sculptures. Many of these sculptures produced music using a wind chime analogy. They produced music when various parts of the sculpture moved and interacted with each other. The music was interesting and I found this concept was fascinating.

The idea behind these sculptures was simple. Random interactions, a breeze, people walking by and touching the sculptures, etc. produced random music. Random interactions with random sculptures produced a random symphony.I think music sculptures or musical architecture is an interesting concept. When houses and buildings are designed, space and lighting are considered. Why not sound? Why not create homes and buildings that take advantage of the surrounding sonic environment? Use architecture to enhance appealing sounds and use architecture to block unwanted sounds.

Music plays an integral part of our lives. MP3s are everywhere. Many people have fancy stereo systems in their cars because they live a good portion of their lives in their cars. Music relieves the stress and tedium of the day-to-day commute.

We also live a good portion of our lives in our homes. Why not use music or sound to make this portion of our lives more relaxing and comfortable.When it is hot outside play a recording of a snowstorm. Some psychologists believe that this may make you feel cooler. If it is cold, play a recording of a fireplace. Studies have shown that people find the sound of water to be more relaxing than any other sound. Play a recording of a gentle rainstorm, a country brook, or the sound of the surf when you are tense.

Chimes are an easy musical sculpture to incorporate into your living space. The randomness of this instrument may contribute to a relaxing environment.

Architecture defines our living and working space. Light and space are important. I believe acoustic considerations are also an important architectural contemplation.

site(Boston, Massachusetts)

SITE PROPOSAL

Berklee College of Music Master Plan

The center will be an extension of the Berklee College of Music. Creating this center in an urban city (Boston) will enhance the diversity that makes a city great. Ideally, the building will be close to the existing facilities making accessibility efficient.

The project intends to take the needs of the college and expand upon them to unify the surrounding area and create an exciting place for students and the public. The institution has developed a master plan for their growth. They have intentions of developing their music technology cirricullum and renovating older buildings to accommodate this growth.

Some of their main objectives within the master plan are:

Creating a vision for Berklee's campus that inspires the college community, its neighbors, and the City. Envision a home worthy of a world-class educational institution- a superbly designed urban environment that enhances its settings and honors its neighbors.

Identify strategies for acquiring and developing additional facilities and creating a demonstrable match between program and facilities. Move the college from a position of reactionary real estate acquisition to strategic campus planning and development.

SITE ANALYSIS (CONTEXT)

Location:

Fenway and Back Bay

Main corner of Bolyston and Massachusetts Ave.

source: Goody Clancy

SITE ANALYSIS (CONTEXT)

Ideas for Surrounding Area:

The major arteries of Bolyston and Mass Ave. will provide great opportunity for the community to unify with increased public and educational program in the area.

Source: Goody Clancy

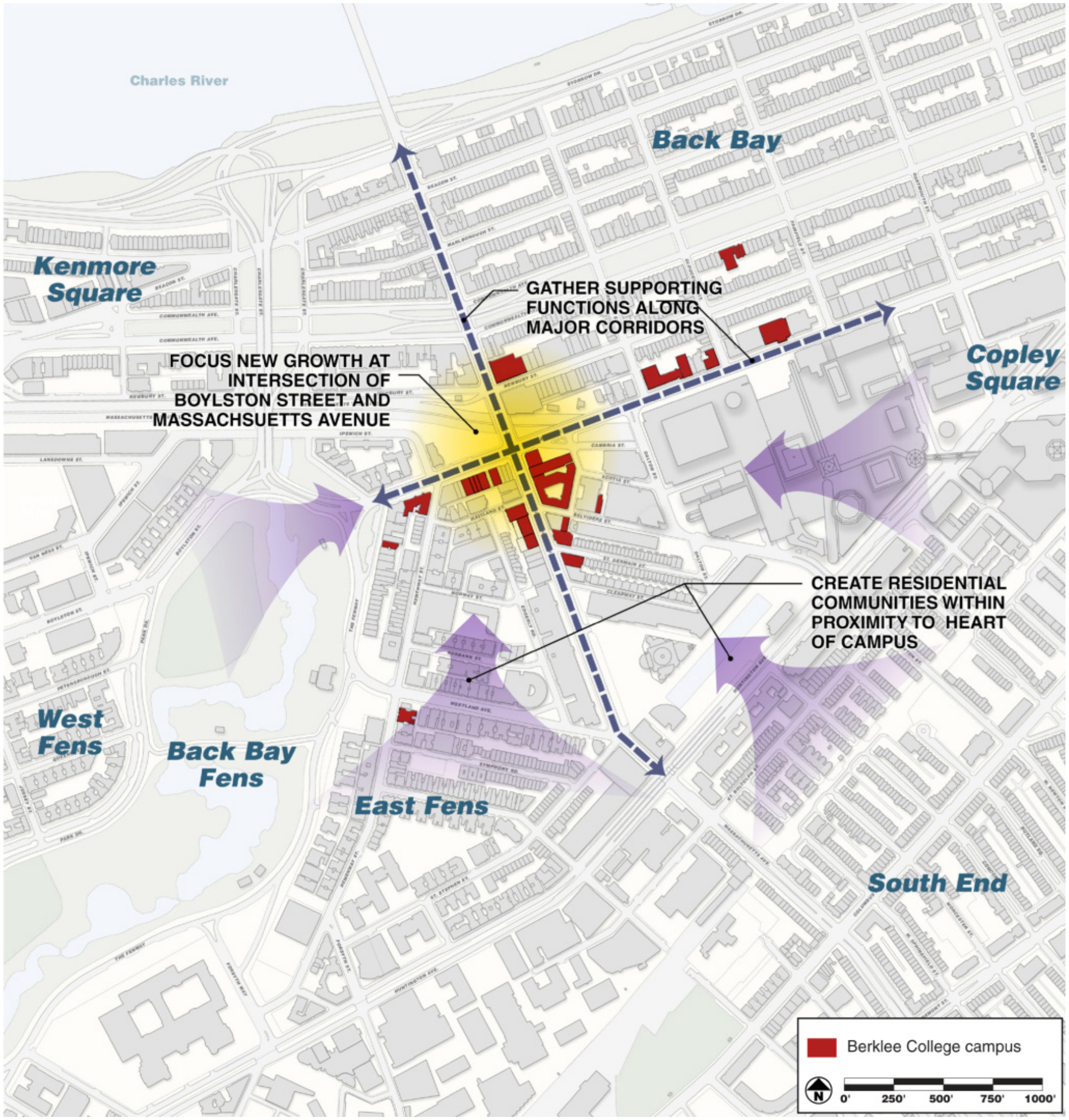
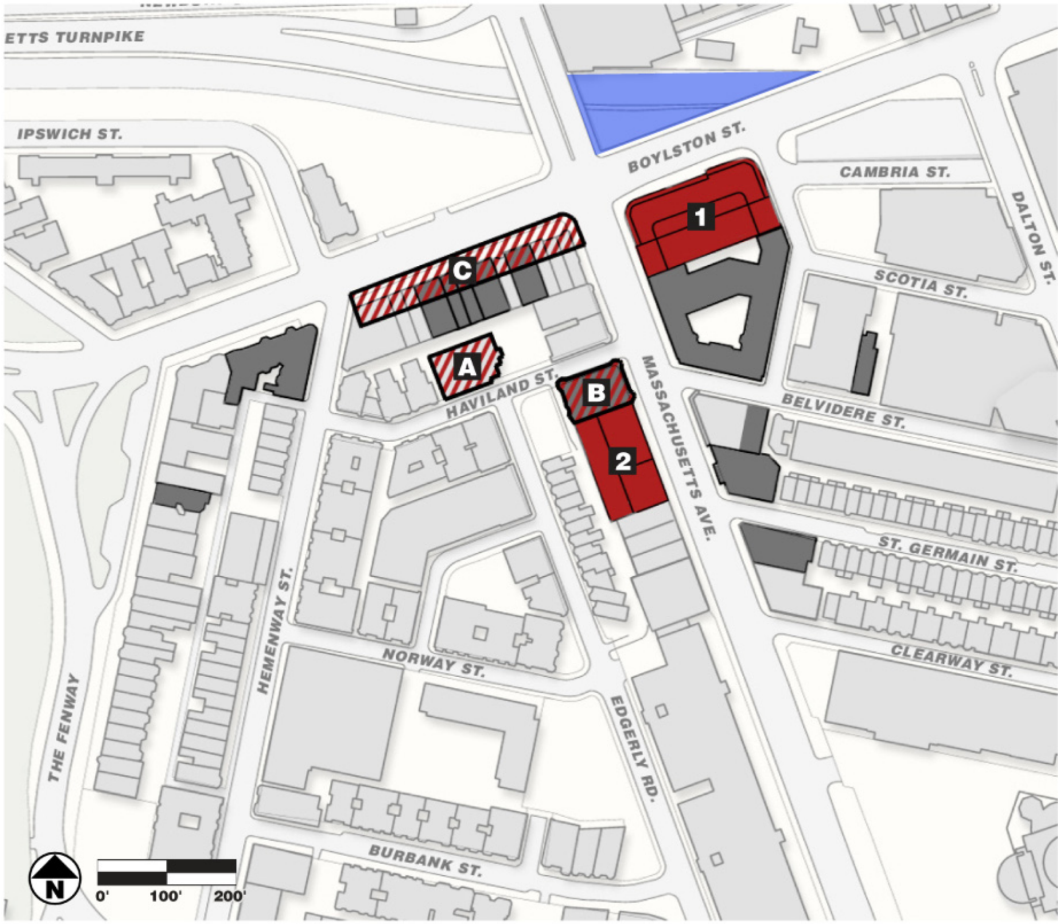


Figure 6-1
On-Going Campus Development Projects & Proposed IMP Projects



ON-GOING CAMPUS DEVELOPMENT PROJECTS

A **7 Haviland Street**
ACADEMIC

B **155 Massachusetts Avenue**
ACADEMIC

C **Boylston Street neighborhood retail**

PROPOSED IMP PROJECTS

1 **The Berklee Crossroads**
NEW BERKLEE PERFORMANCE CENTER, RESIDENCE HALL, STUDENT LIFE

2 **161–171 Massachusetts Avenue**
ACADEMIC

Ongoing Projects in Area:

There are many projects that are being constructed as well as planned to create a dense educational zone mixed with residential and commercial spaces.

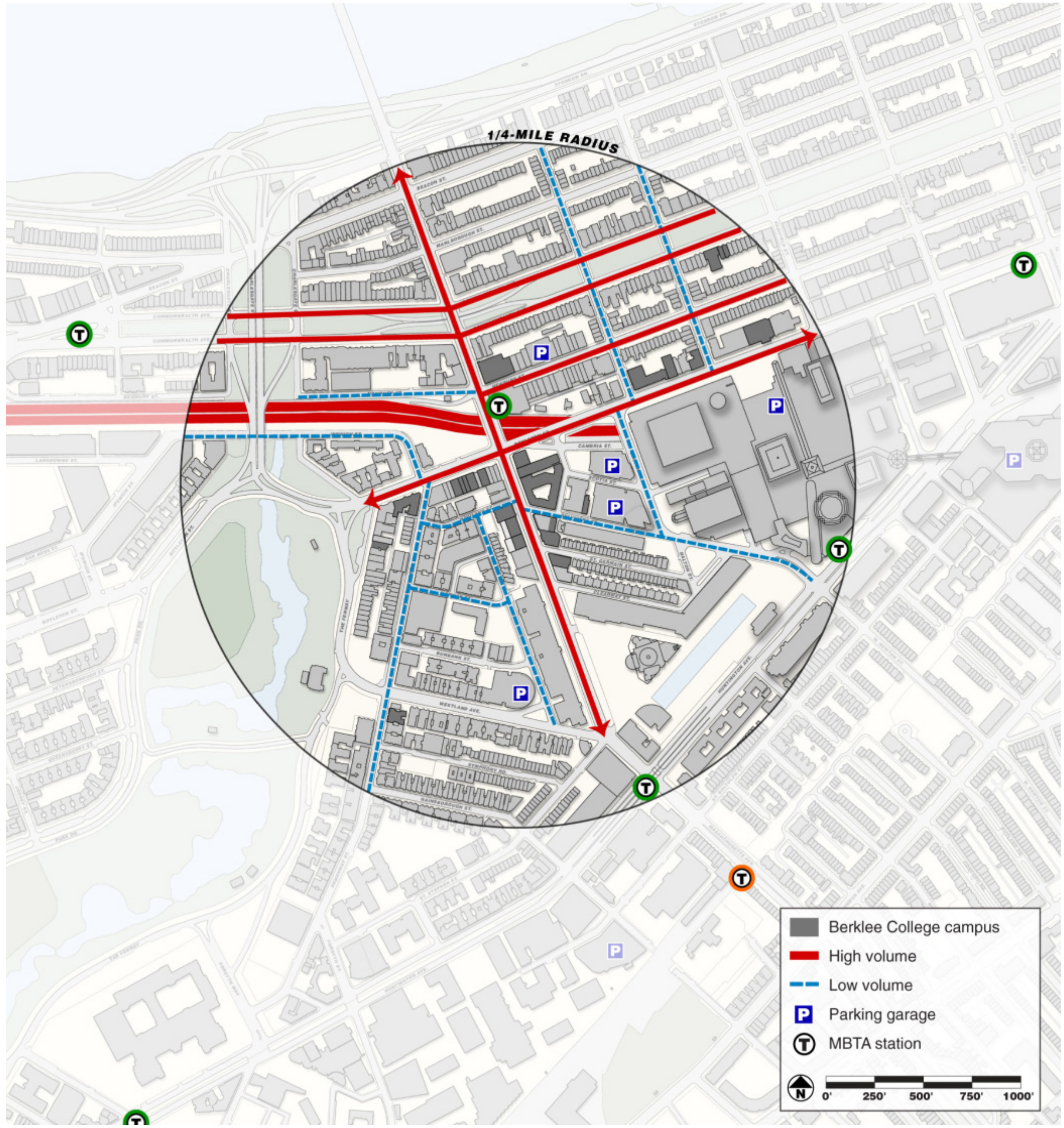
The need to create an inviting urban streetscape and building that displays Berklee's goals and the goals of this proposal will be the major problem to analyze and solve.

Source: Goody Clancy

Vehicular and Pedestrian Circulation

The streets of Bolyston and Mass Ave. provide amenities that are easy to get to by car or foot. The area includes many areas for bike parking provides different ways of travel.

Source: Goody Clancy



Public Transportation:

The two radii show walking times to the center of the site. 5 minute and 10 minute walking distances show that there are many different zones surrounding the Berklee area. The close proximity can also be reached by the T transportation system. There is a T stop located Northeast of the Bolyston, Mass Ave. intersection. The availability of public transportation and close proximity to areas decreases the dependence of cars which hurts the environment.

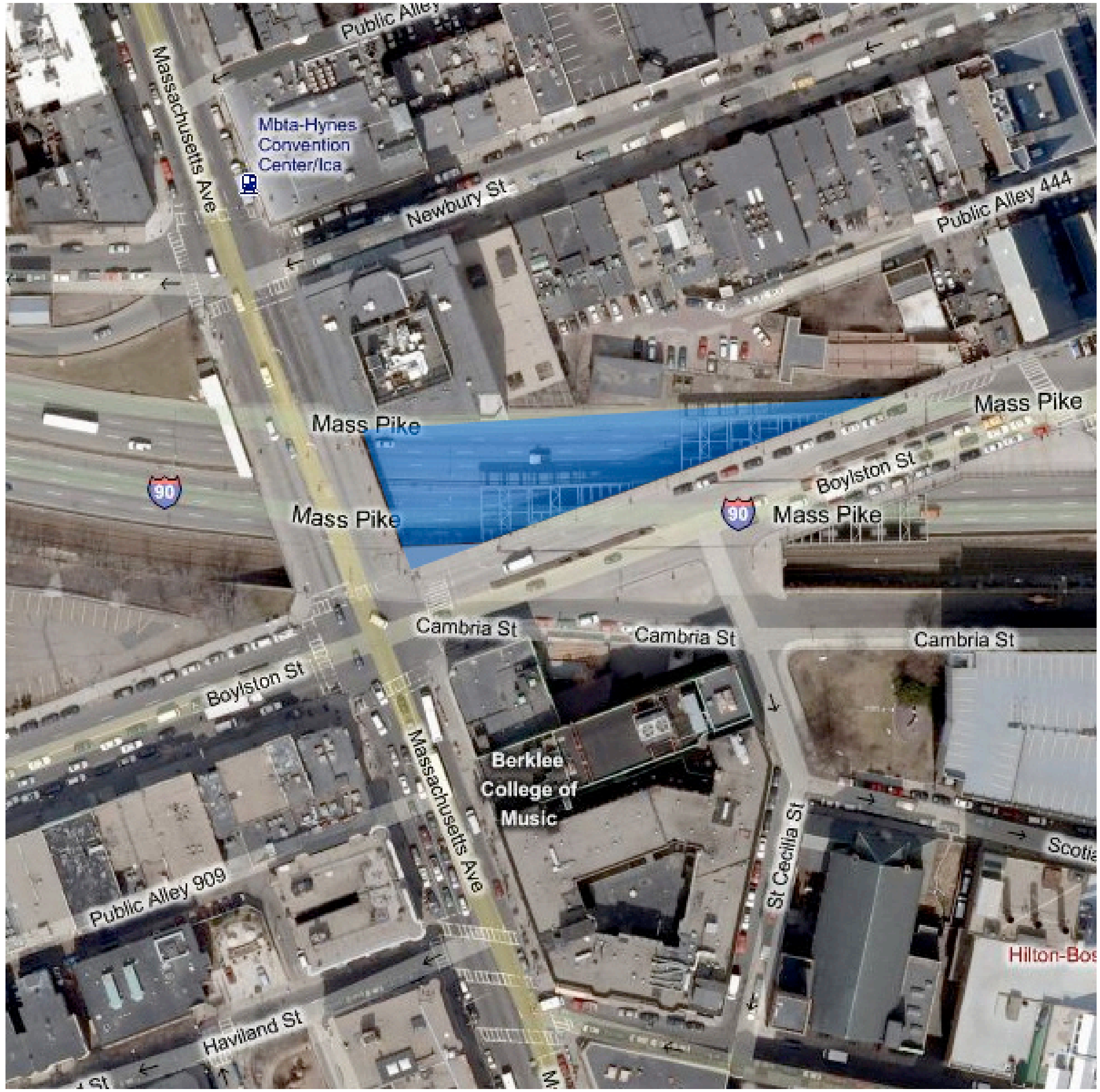
Source: Goody Clancy

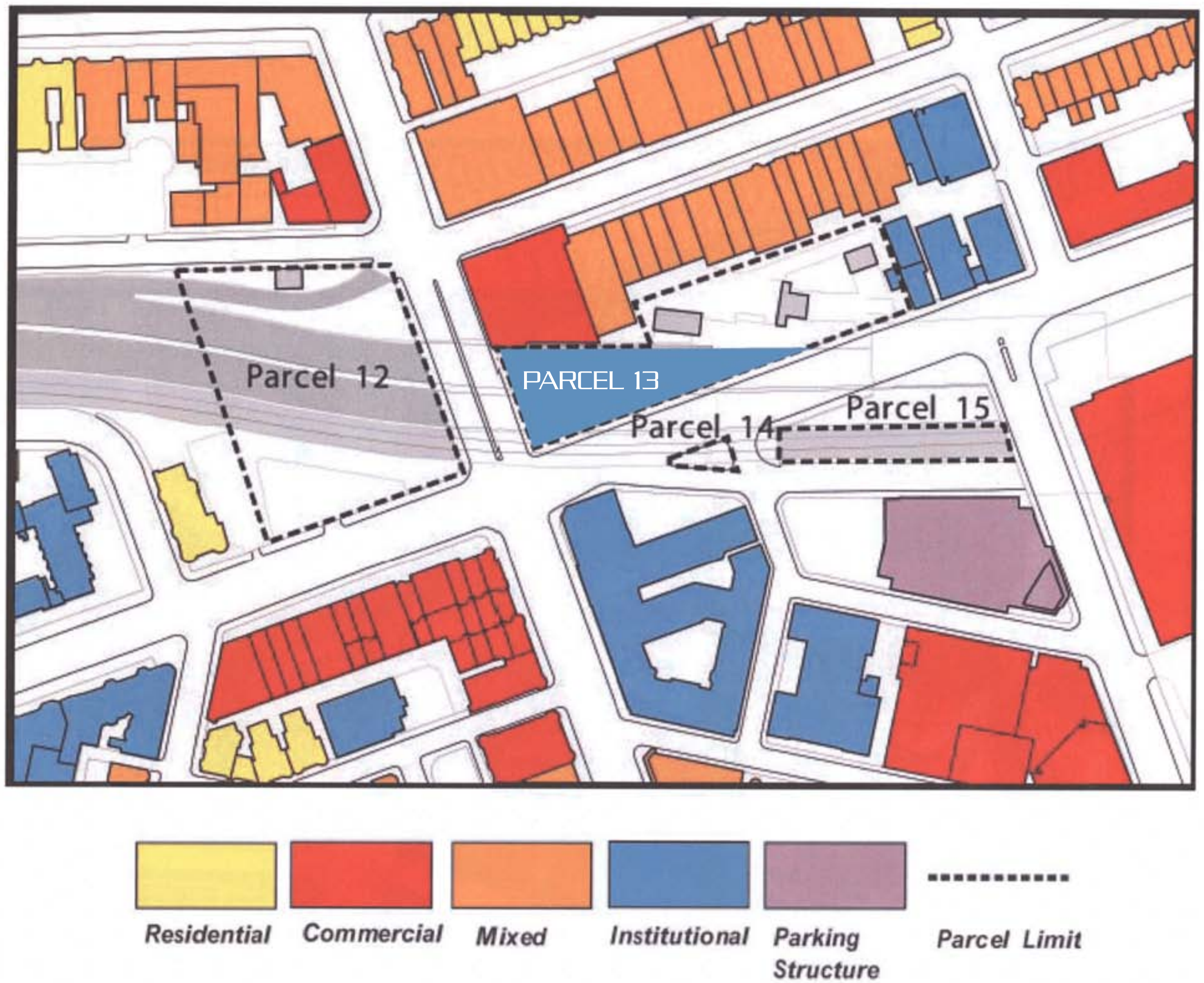
SITE ANALYSIS
(building scale)

MTA_RFP

The Massachusetts Turnpike Authority has laid out air rights to different parcels over Interstate 90. The ability to build over the turnpike enables an inviting program to address the busy corner and rest of the site.

Source: MassTurnpikeAuthority





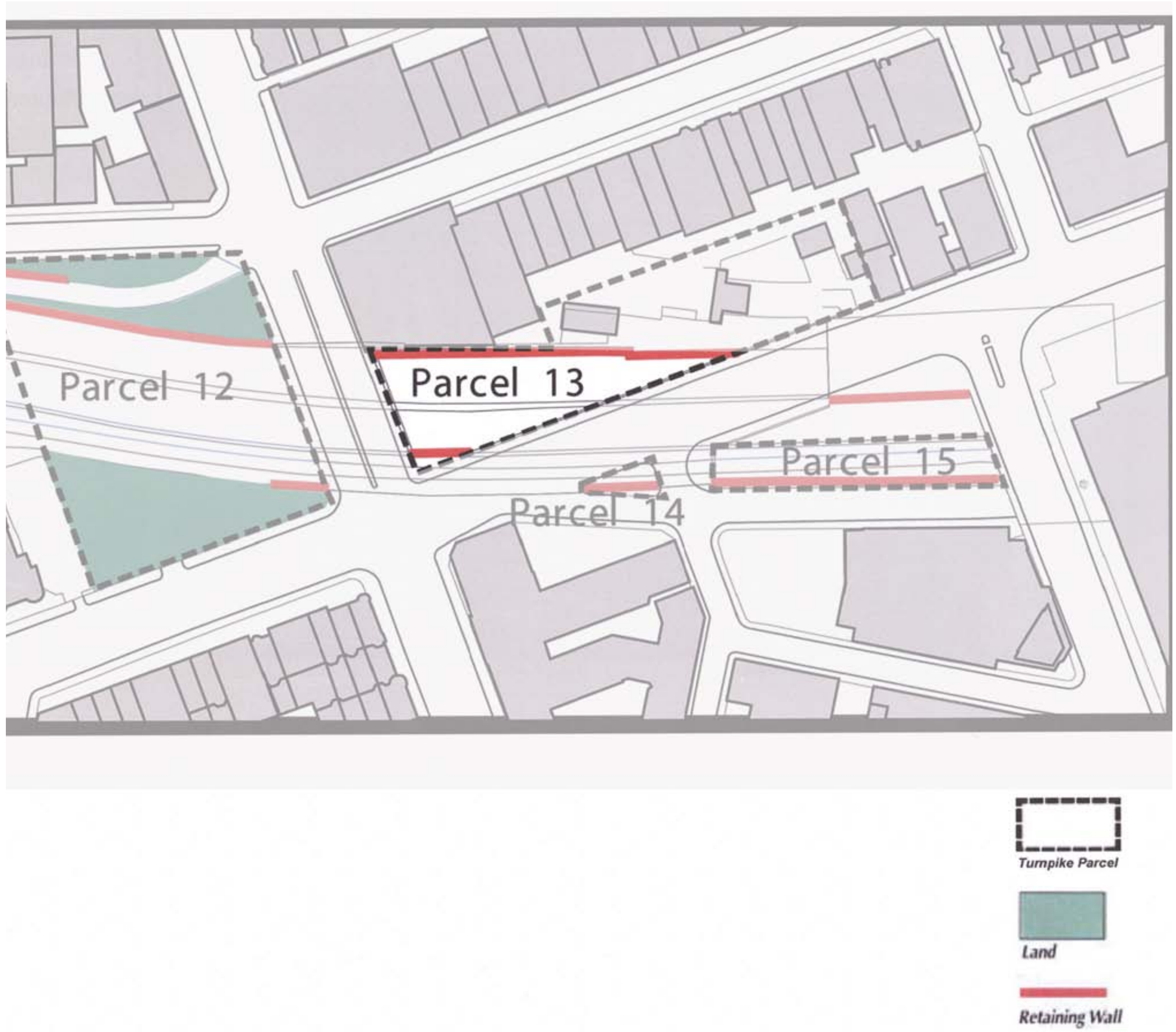
Zoning_Use Diagram

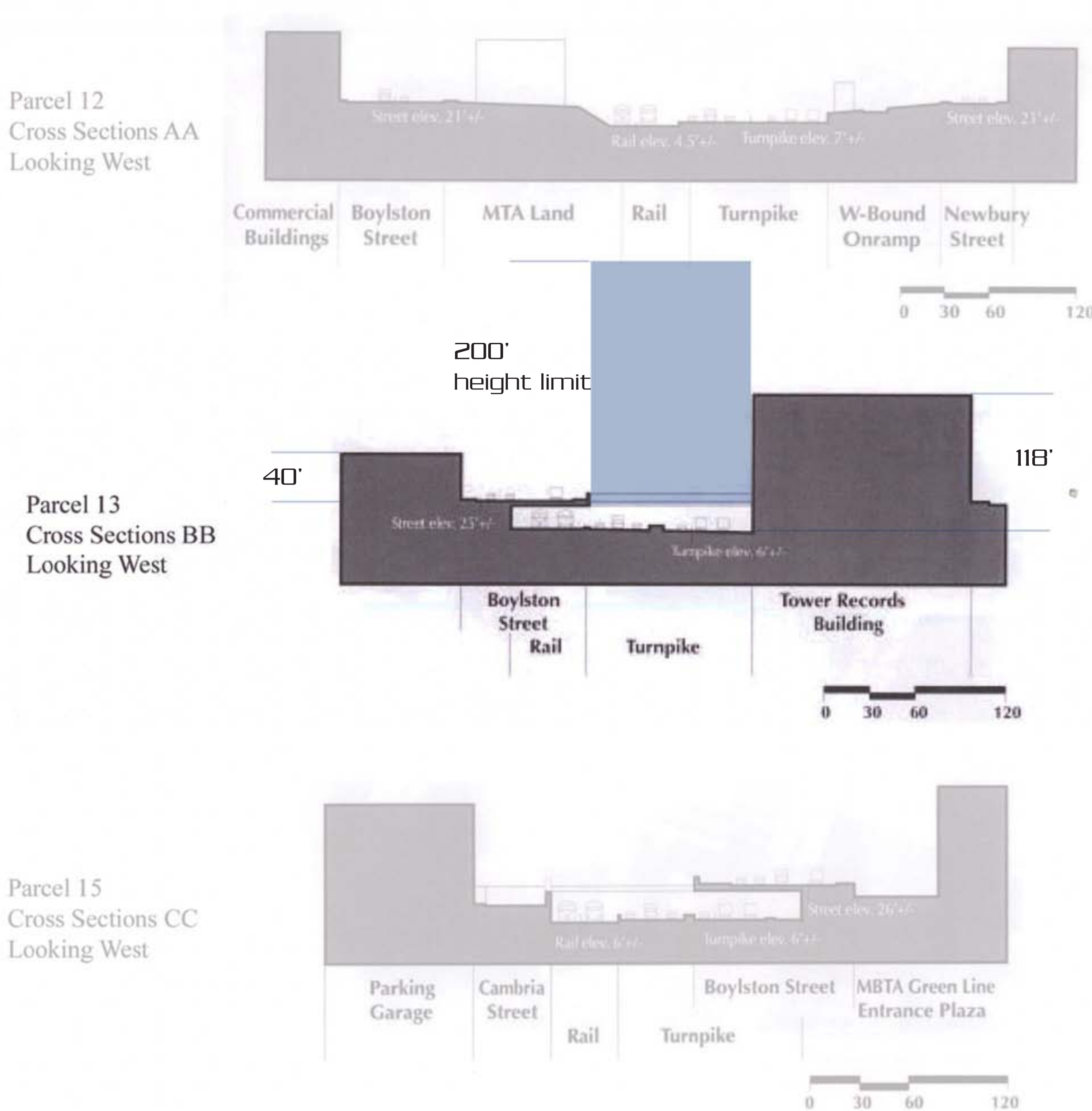
Parcel 13 is located at the intersection of Bolyston St. and Mass Ave. The development of an institutional program will unify the corner with the existing program along these streets.

Source: MassTurnpikeAuthority

SITE ANALYSIS
(building scale)

Retaining Walls:
retaining walls line the turnpike creating a structural opportunity to span across the road. This will enable opportunities for study on how to address the street level at Mass. Ave. and Bolyston St.





Cross Section:

The building will sit on top of the turnpike, filling in the void between Tower Records and Bolyston St. The implications will be in filling the corner to complete its edge.

Source: MassTurnpikeAuthority

SITE ANALYSIS_ A Civic Vision_BRA

Parcel 13 should foster a lively pedestrian-friendly public realm along Massachusetts Ave. and Bolyston St.
Street Level:
Shops and similar active uses that enliven public realm are highly desirable along Mass Ave and Bolyston. There should be a mix of diverse independent businesses rather than large chain stores.

A new public entry and lobby space for the Green Line stations should face Mass. Ave.

A portion of this street frontage could be used for a public performance space or other cultural uses.

No blank walls or parking levels should face onto public sidewalks along Mass Ave and Bolyston.

New development should provide for enhanced pedestrian crossings, including bulb-outs and curb extensions at these intersections.

Public sidewalks should be wide (a minimum of 24 feet) and animated with outdoor activities.

Buildings along Mass. Ave. and both sides of Bolyston St. should form street walls that line sidewalks in a manner similar to the existing street walls along these streets.

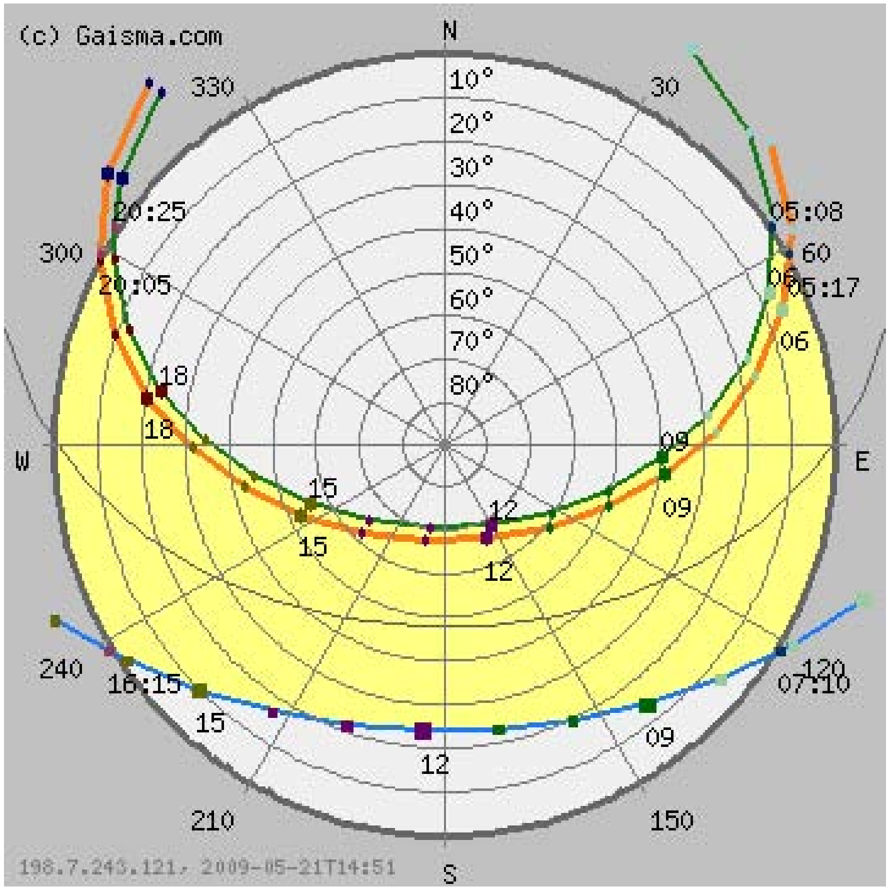
Buildings on these parcels should occupy as much of the street frontage as possible.

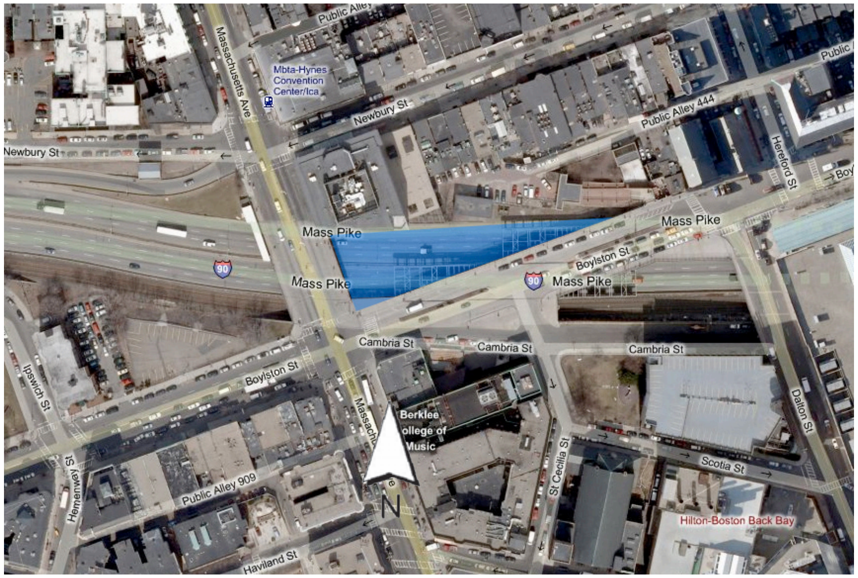
Buildings facing directly onto Mass. Ave. and Bolyston St. should reinforce the existing visual vitality and diversity of these streets. Appropriate street wall heights in these areas generally range between four and six stories (approximately 50 to 75 feet).To encourage variety, portions of these street walls could reflect height and massing comparable to the Tower Records building which is eight stories and 118 feet tall.

The Tower Records building offers a mix of exciting design elements that represent a desirable precedent for buildings on the air rights parcels. These new buildings should incorporate the qualities and spirit exemplified by the building.

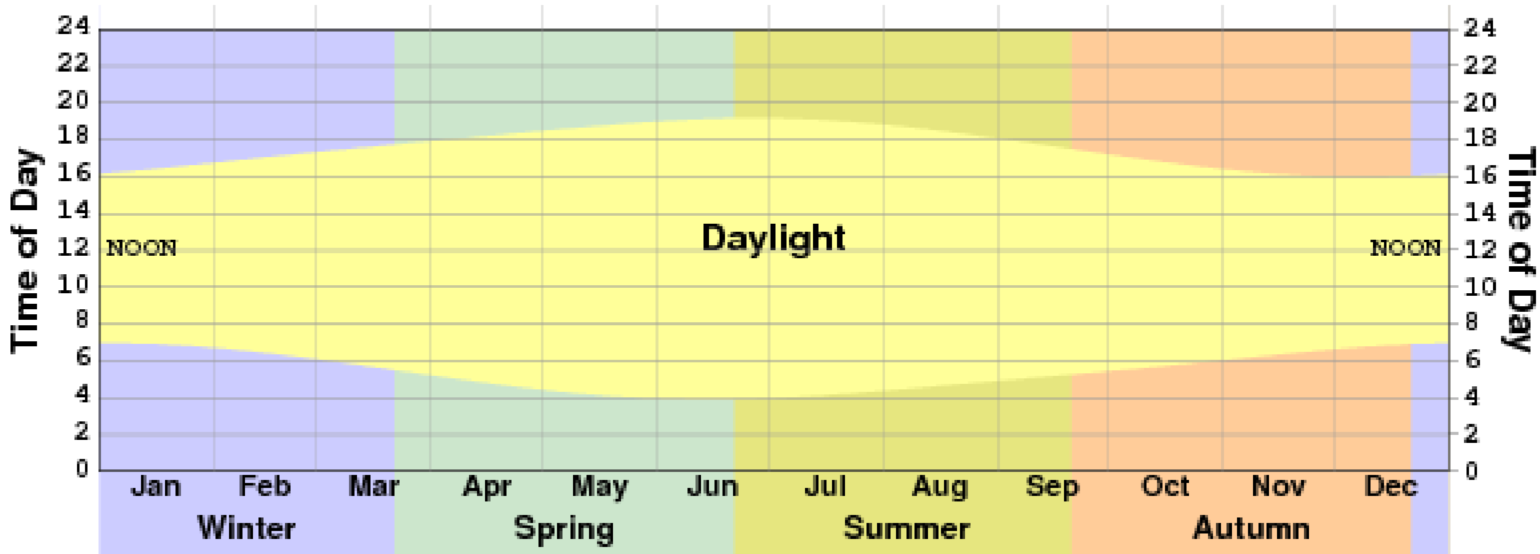
The design at street level facing Mass. Ave. and Bolyston St. should enliven the pedestrian experience by including creative signage and lighting, handsome store fronts (at least half of the street frontage should be transparent), awnings, and/or other pedestrian friendly elements.

SITE ANALYSIS
(climate)





Source:
gaisma.com



Statistic	Units	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Average
Temperature														
Mean Value	F	28.6	30.4	38.7	48	58.3	67.6	73.6	72	64.8	54.9	45.3	33.6	51.3
High Temperature														
Mean Value	F	35.8	37.6	45.9	55.9	66.6	76.3	81.9	79.9	72.9	62.8	52.2	40.5	59
Low Temperature														
Mean Value	F	21.6	23	31.3	40.3	49.8	59.2	65.1	64	56.8	46.9	38.3	26.8	43.6
Precipitation														
Mean Monthly Value	In	3.7	3.8	3.8	3.7	3.4	3.2	3	3.4	3.2	3.4	4.4	4.2	3.6
Snowfall														
Mean Monthly Value	In	12.6	13	7.3	1.2	0	0	0	0	0	0	1.4	8.6	3.7
0101 Temperature														
Mean Value	C	-1.9	-.9	3.7	8.9	14.6	19.8	23.1	22.2	18.2	12.7	7.4	.9	10.73
High Temperature														
Mean Value	C	2.1	3.1	7.7	13.3	19.2	24.6	27.7	26.6	22.7	17.1	11.2	4.7	15.00
Low Temperature														
Mean Value	C	-5.8	-5.0	-.4	4.6	9.9	15.1	18.4	17.8	13.8	8.3	3.5	-2.9	6.44
Precipitation														
Mean Monthly Value	mm	91.2	91.9	93.7	91.4	82.6	78.5	72.1	82.3	77.7	83.8	107.2	101.9	87.86
Snowfall														
Mean Monthly Value	cm	30.2	31.2	17.5	2.8	0	.0	.0	.0	.0	0	3.3	20.6	8.80

precedents

Themes/Concepts/Precedents

CHALLENGING CONTEXT_Cardiff Bay Opera House_Greg Lynn

URBAN PLANNING(building scale)_JVC Entertainment Center_Coop Himmelb(l)au

PROGRAMMING_Ball State University_Berklee College of Music Master Plan

PROGRAM INTERACTION_Museum of Knowledge_Coop Himmelb(l)au

PERFORMANCE SPACE_Fisher Center for the Performing Arts_Frank Gehry

GENERATIVE PROCESSES_Pavillion Seroussi_Xefirotarch

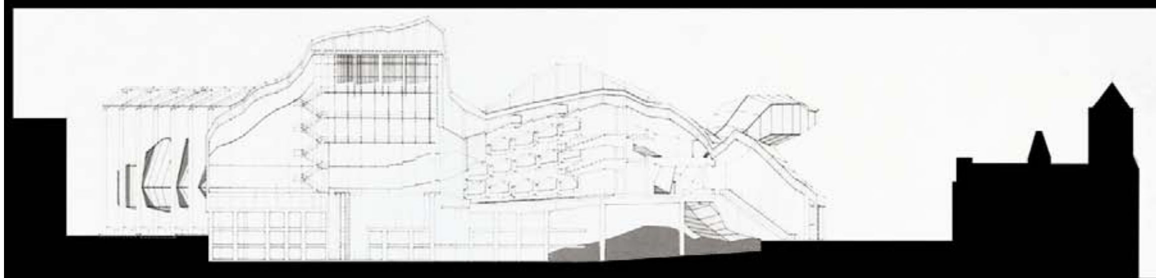
DIGITAL TOOLS_Experience Music Project_Frank Gehry

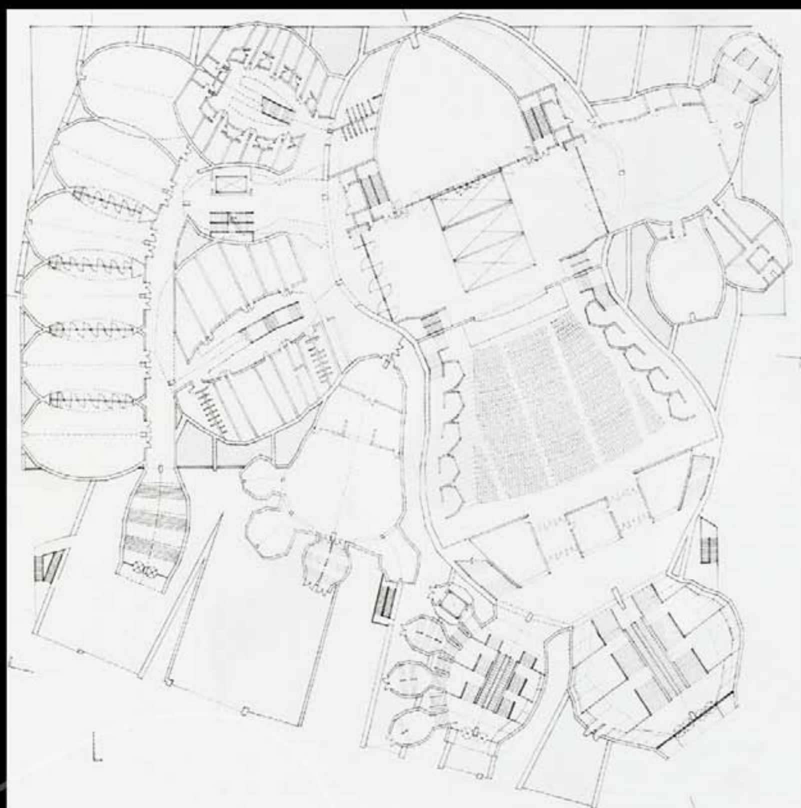
BUILDING STUDY_New Music Building_ Saucier+Perrote

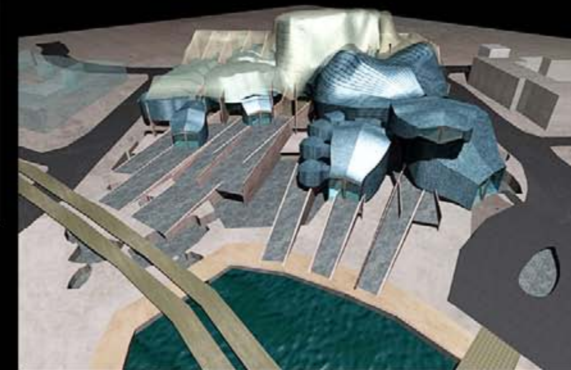
"Design a building which is simultaneously contextually sensitive while at the same time being radically alien."

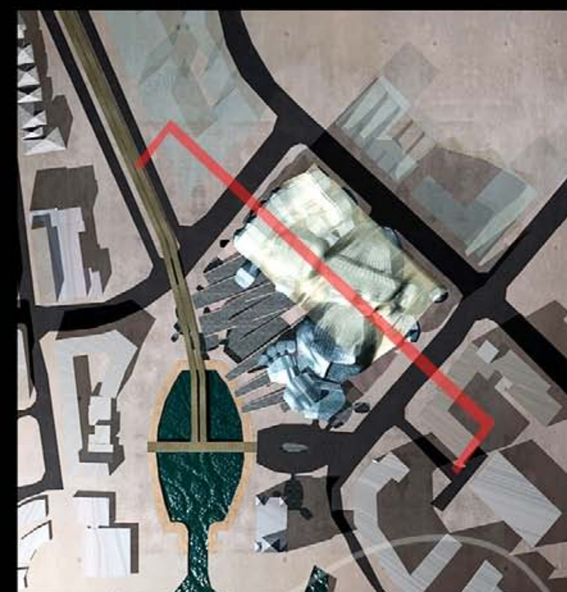
The design proposes a civic institution thats is not monolithic but permeated with public space and programs

Cardiff Bay Opera House Competition
Cardiff, Whales, United Kingdom
Greg Lynn FORM







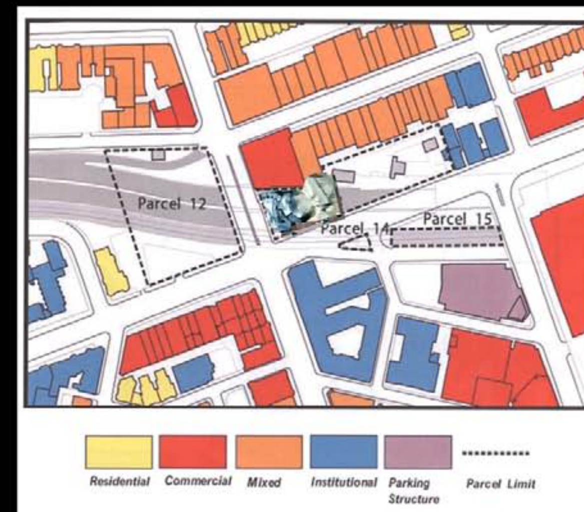


precedents

challenging context

Parcel 13 is located on the corner of Mass Ave. and Bolyston St. There are a number of building types around this area that need to be analyzed in order for the Center for Music Technology to be respectful, but iconic at the same time.

Surrounding Context
Mass Ave. and Bolyston St.



courtesy:MTA

Berklee buidings across the street from the site

Best Buy and residential tower north of parcel 13

series of retail and commercial buildings on Bolyston St.

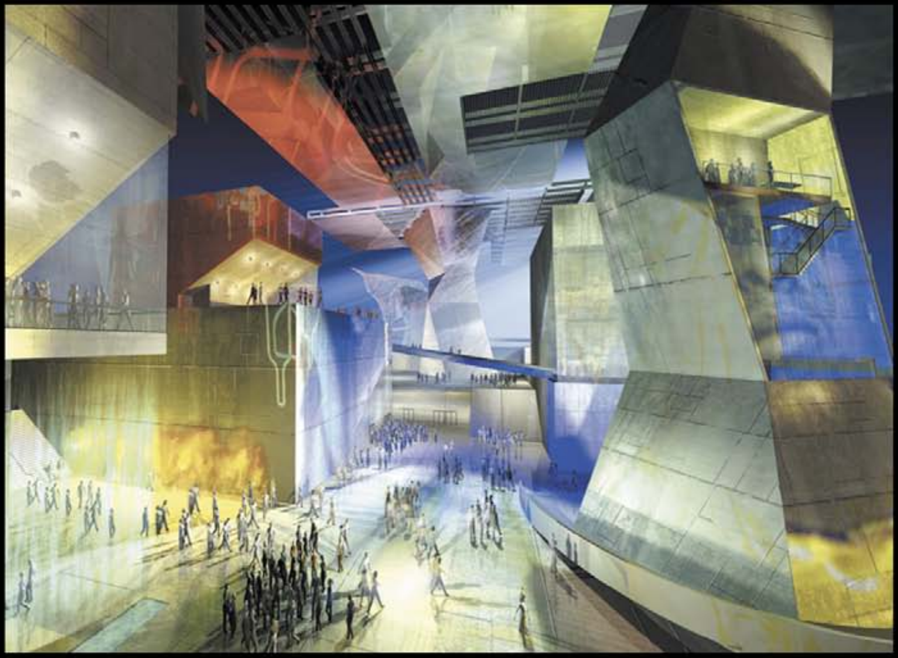
precedents

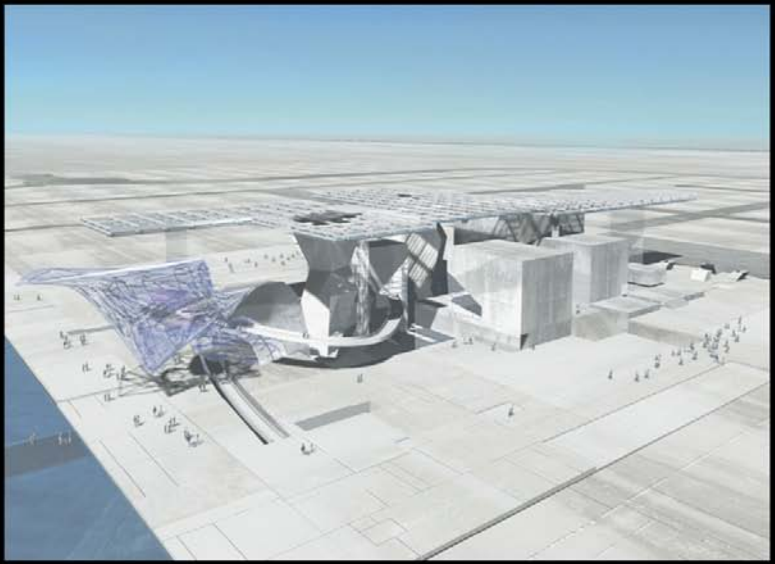
challenging context

The building should be understood as an urban landscape.

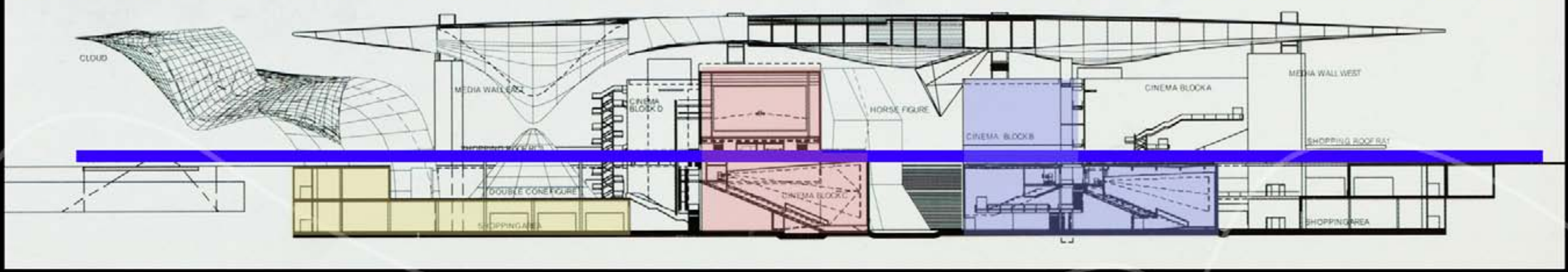
JVC New Urban Entertainment Center
963,582 SF
Guadalajara, Mexico
Coop Himmelb(l)au

Dividing the mass of the building into small blocks creates a spatial sequence that dissolves the conventions of traditional perspective,enabling multiple views of different horizons through the building.





public interaction at street level continues throughout the building creating a covered "street" with public program



precedents

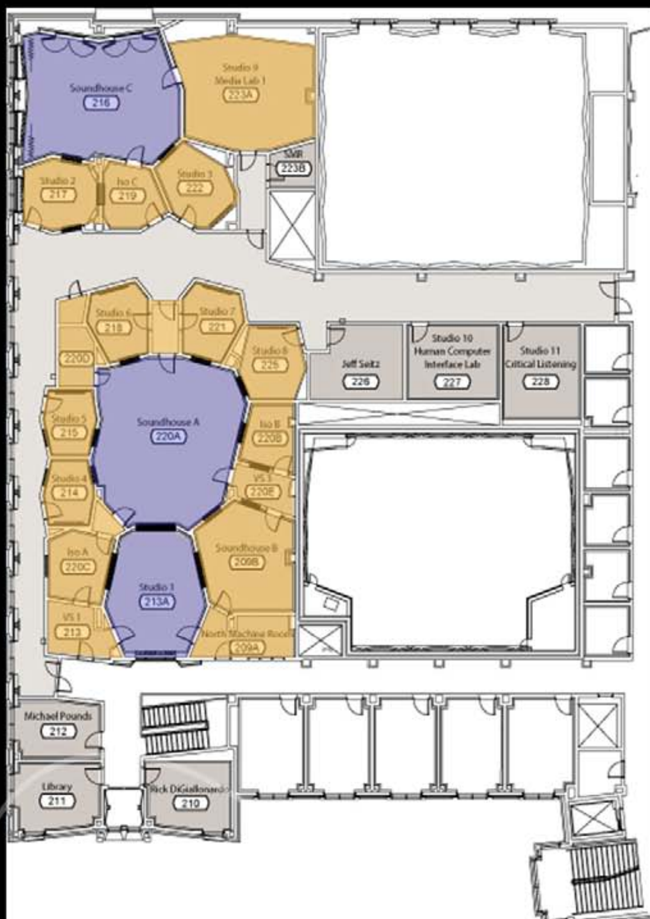
Urban planning(building scale)

Ball State University
Music Technology
Music Instruction Building
Muncie, IN 47306

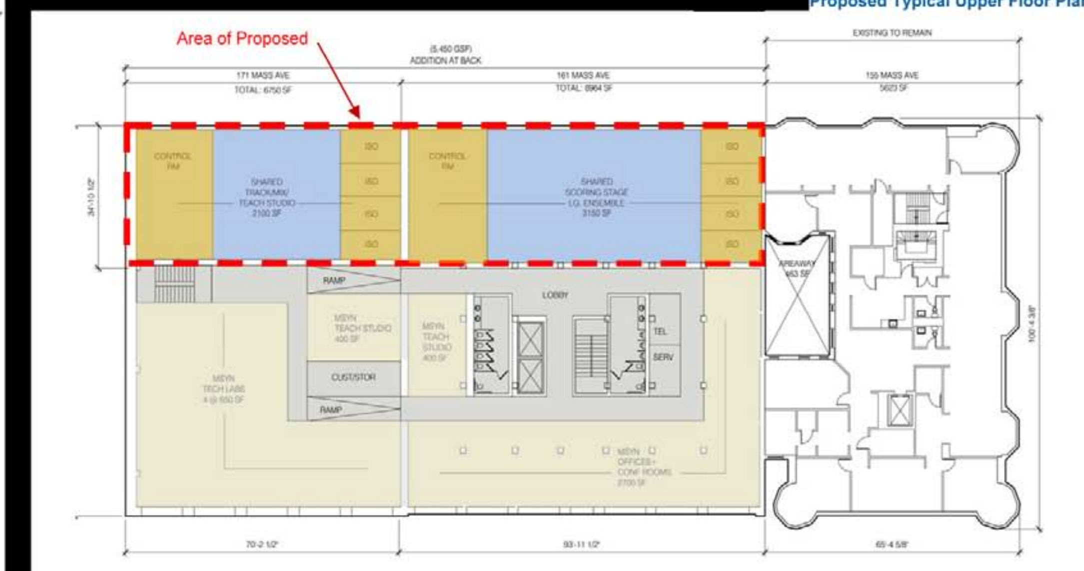
Berklee College of Music
Boston, MA 02215 USA
Proposal for Expansion

There are eleven studios dedicated to computer music, composition and recording technology. These studios encompass nearly 9,800 square feet of the second floor.

Clusters are formed around each recording studio for support and individual editing. The arrangement increases productivity for the entire user group



Proposed Typical Upper Floor Plan



The proposed music technology facility will consist of approximately 80,000 SF and will serve a range of the college's technology needs expanding and centralizing its various studios

precedents

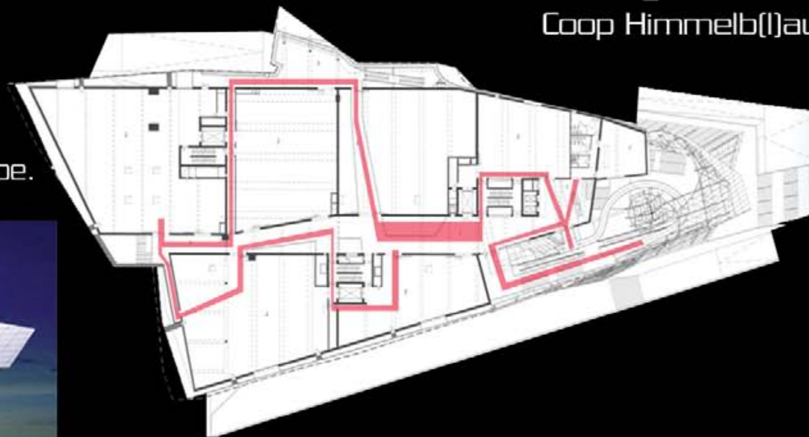
programming

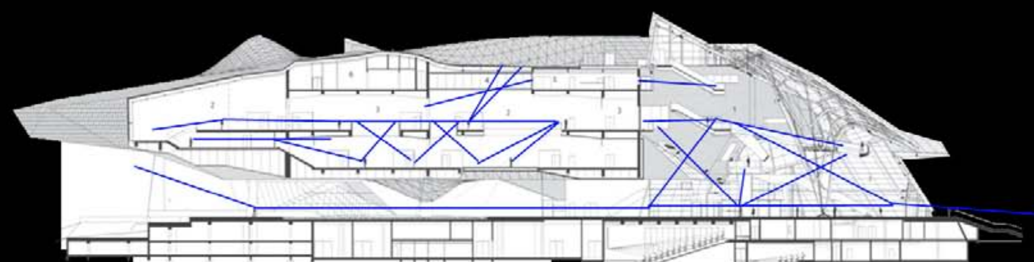
Innovations develop within interspaces, within indistinctness, within the overlapping and hybridising.

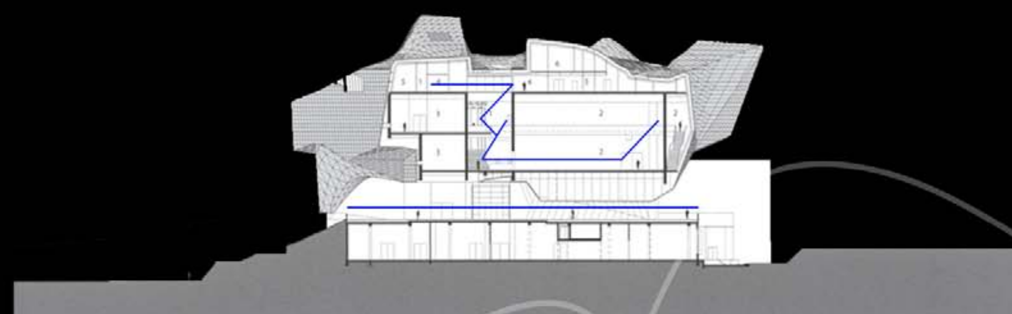
Mutations of form, penetrations, deformations, simultaneities, breakdowns and variabilities have an effect on architecture.

The resulting architecture is characterized by the interactions, the fusion and mutation of different entities constituting a new shape.

Museum of Knowledge
87,598 SF
Lyon, France
Coop Himmelb(l)au







precedents

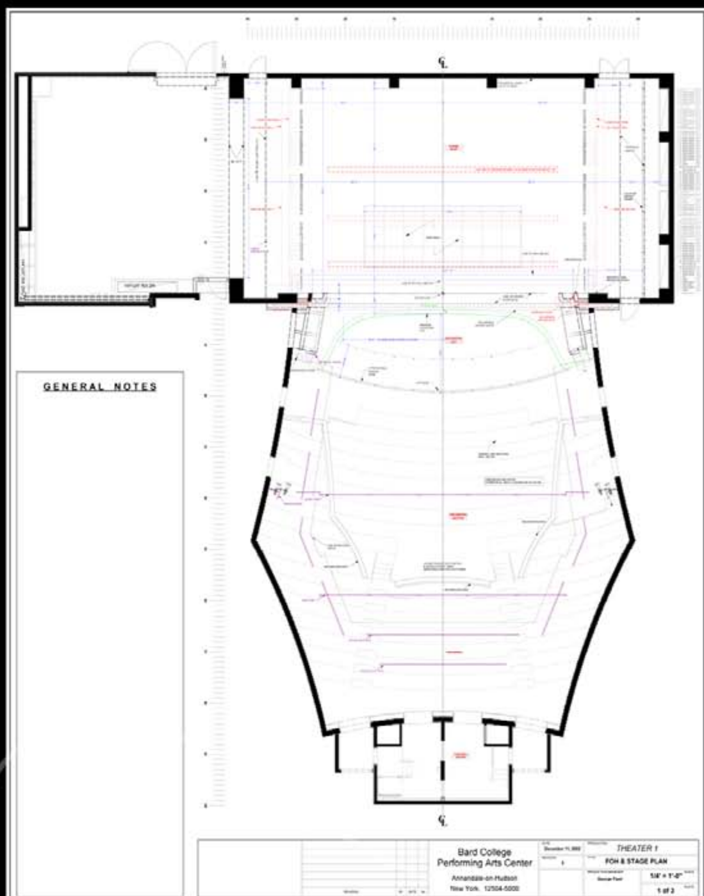
program interaciton

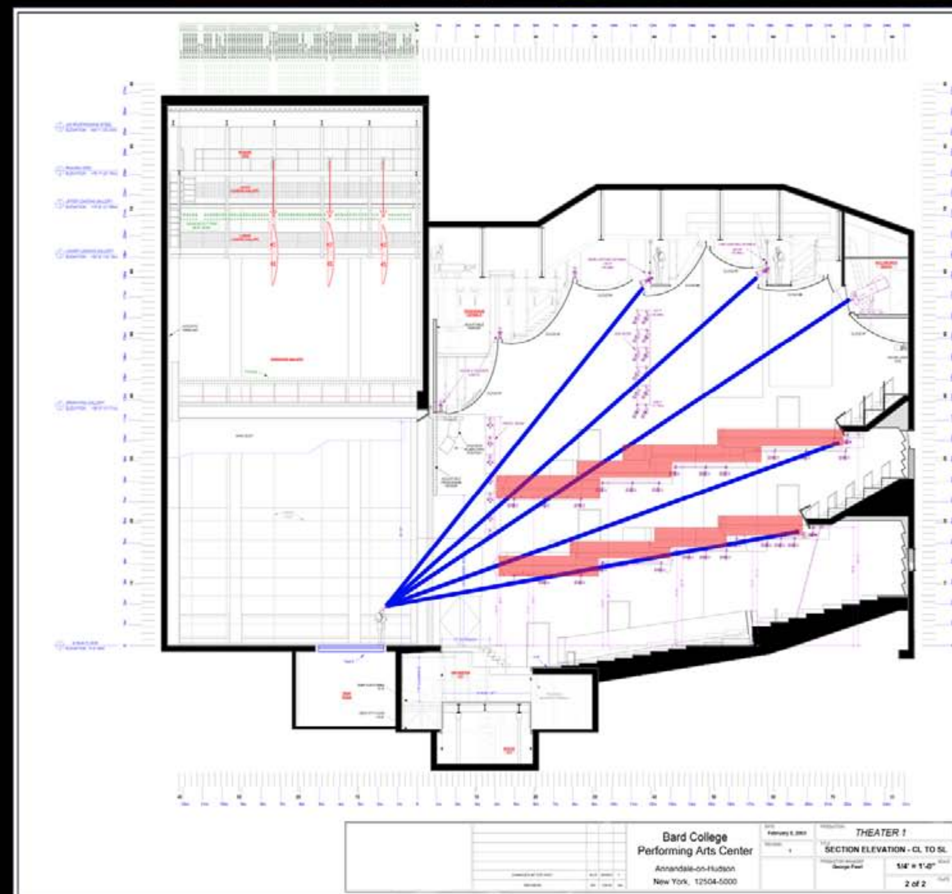
The Richard B. Fisher Center for the Performing Arts at Bard College offers an architecturally bold and dynamic environment for innovative artistic presentation in the Hudson Valley.

The theater is an ideal teaching and performance facility, with adjustable bleacher-type seating and a semi fly tower complete with catwalk and rigging to serve a variety of scenic arrangements.

900-seat theater with an orchestra, parterre and two balcony sections

Richard B. Fisher Center for the Performing Arts at Bard College
Frank Gehry





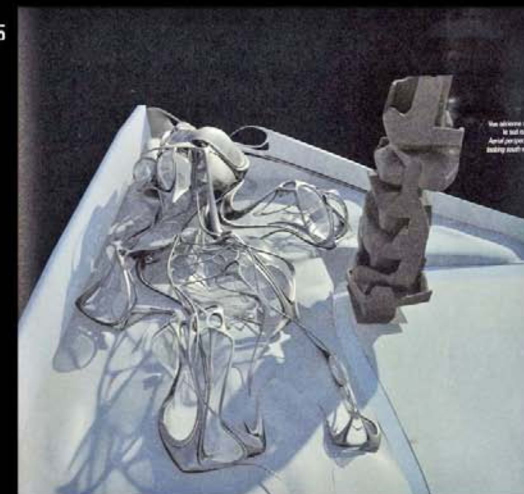
precedents

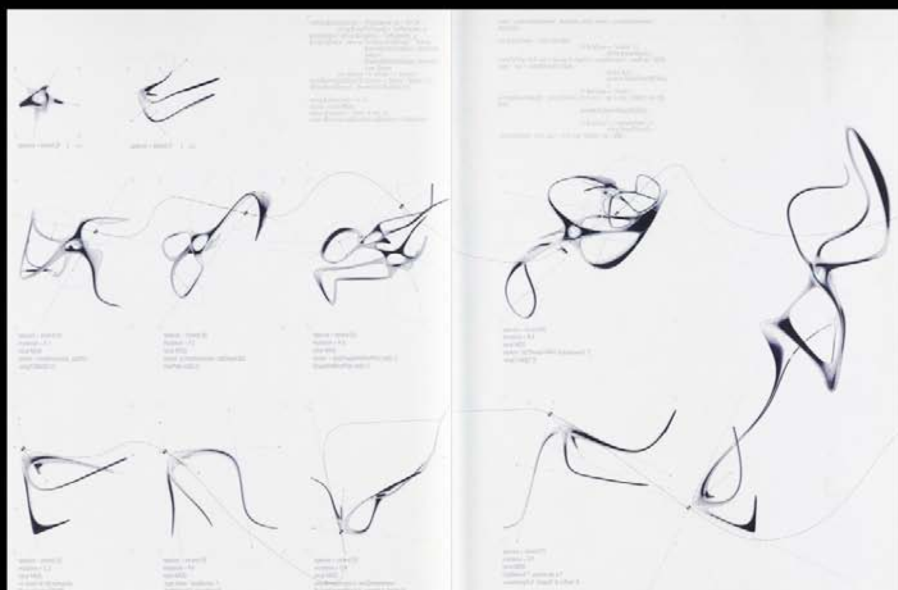
Performance space

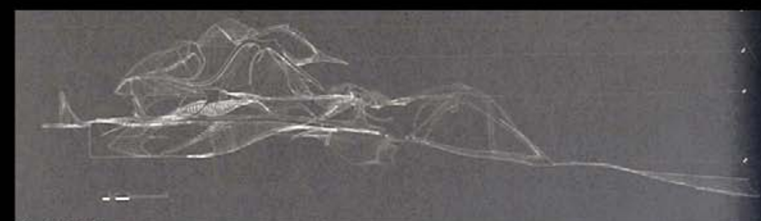
Pavillion Seroussi
Xefirotarch

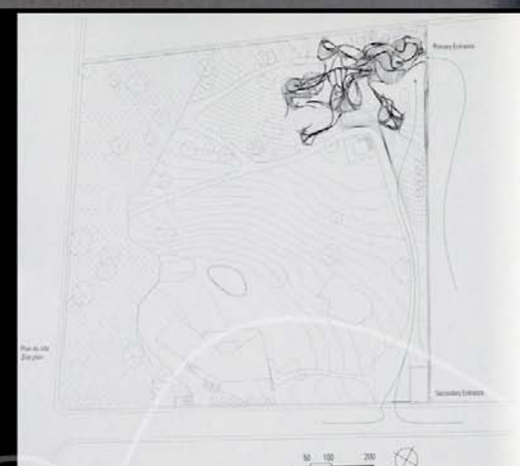
With a base of rules and algorithms, the digital field allows its calculating power to engender an extensive array of formal manipulations.

What digital design has brought to the fore is a model of form in continous change, a mindset of variatoin where we no longer think of a unique 'idea' but rather particular strategies for design- strategies that in fact evolve and transform, that define mechanisms and operations, instead of facts and results.
It defines a shift towards and architecture that can convey a new sense of space, where forms are fluid and unrestrained. -Xefirotarch









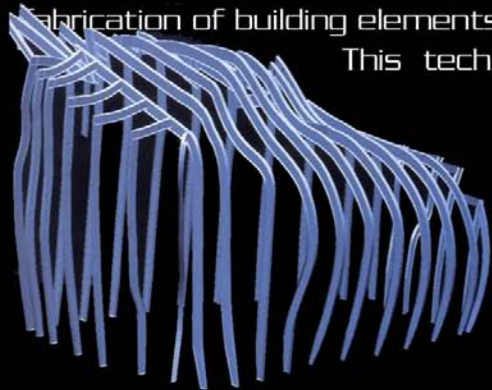
precedents

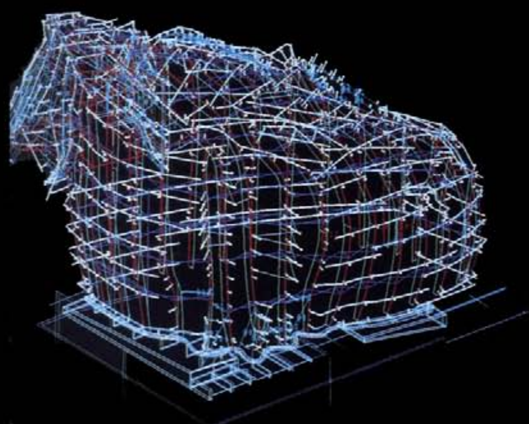
generative processes

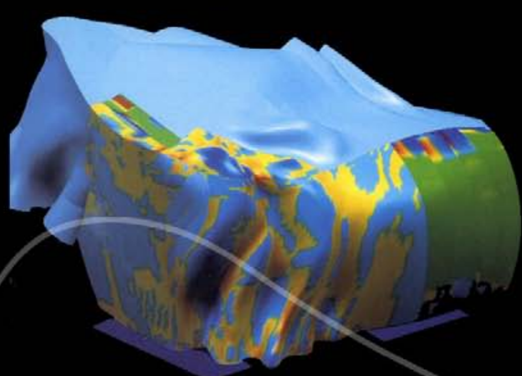
CATIA allows a sculptural form to be digitized into a 3-D electronic model that can be used for the engineering of building systems and the fabrication of building elements.

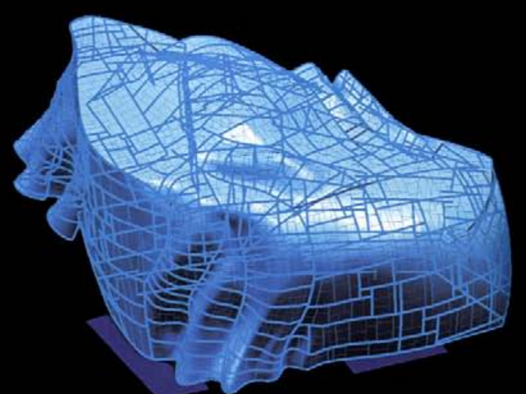
Experience Music Project
Seattle, Washington
Frank Gehry

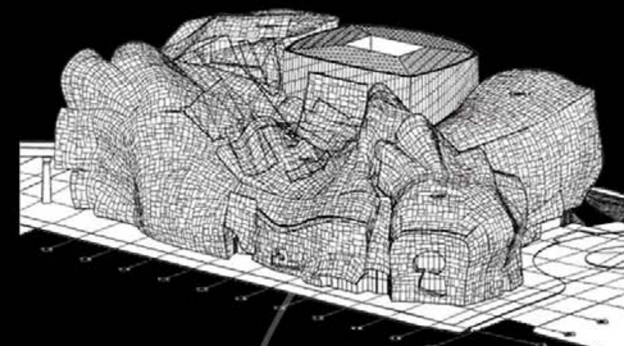
This technology has delivered new exploration and expression in the field of architecture.









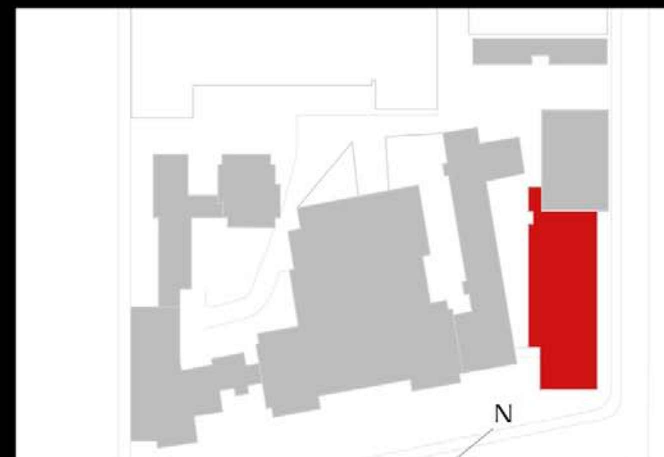


precedents

digital tools

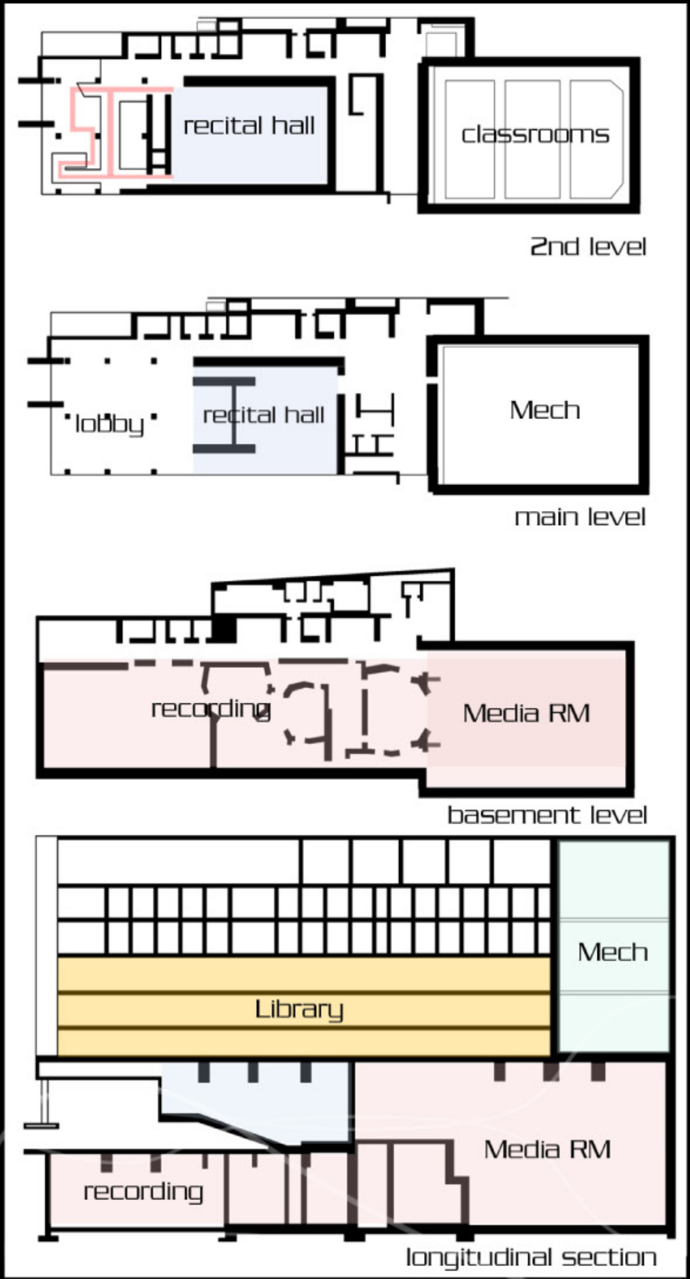
NEW MUSIC BUILDING McGILL UNIVERSITY MONTREAL SAUCIER + PERROTE

The New Music Building is located at an intersection along Sherbrooke, a busy commercial strip in downtown Montreal, with the rush of automotive traffic and underground rumble of the subway lines.
It borders the main music building and connects with the old building programmatically and spatially.



precedents

building study



Recital hall located adjacent to lobby and entrance for maximum use for public

Mechanical systems are located in a 6 story box above the mixed media room in order to deliver services directly with little noise interruption.

Creating a double layered concrete shell separated by isolation pads and burying the program that needs quiet space dramatically reduces sound disturbance for these areas.

REGULATORY ENVIRONMENT REPORT

Massachusetts Turnpike Authority Parcel Air Rights information

Zoning_ Parcel #13

PARCEL 13 is located at the intersection of Mass Ave. and Bolyston St., east of
Mass. Ave. and contains approximately 54,500 SF consisting of (i) air
rights over the Turnpike (ii) air rights over rail and (iii) air rights over the MBTA Green Line
Massachusetts Turnpike Authority_ Zoning and Sustainable Design
Zoning: air rights development is governed by Massachusetts general Laws, Chapter 81 A, Section 15 and by the Memorandum of Understanding. Respondents should have a thorough knowledge of the Boston Zoning Code as well as the development process in the City of Boston. It is anticipated that the BRA will require the Selected Developer(s) to voluntarily submit the project to zoning review and approval.

Sustainable Design: As recommended by the Mayor's Green Building Task Force, the City will be revising Article 80 to require that all large projects undergoing Article 80 review be planned, designed, and built to meet the level of "certificate" according to the US Green Building Council's Leadership in Energy and
Environmental Design Green Building Rating System.

Transit-Orientated Development: Proposers should maximize the opportunities arising from proximity to Green Line stations and easy transfer to shuttles and buses.
Access: access to development on the parcels is assumed to be primarily from Bolyston Street and Massachusetts Ave. and secondarily from Newbury Street Dalton Street and Cambria Street.

Parking: there are on-street parking spaces in the area. Public off-street parking spaces exist within the Prudential Center garage and other public parking garages.Traffic congestion is an important issue in this area and should be considered carefully with any proposed development.

Pedestrian: pedestrian activity is concentrated along Massachusetts Ave. and Bolyston Street in the Back Bay area and Fenway.

Public Transit: the Hynes Convention Center MBTA Green Line Station is located near or within part of Parcel 13, with a direct exit from the MBTA Green Line to Bolyston Street.

Parking: there are on-street parking spaces in the area. Public off-street parking spaces exist within the Prudential Center garage and other public parking garages.Traffic congestion is an important issue in this area and should be considered carefully with any proposed development.

SECTION 3-1a_This area is within the Restricted Parking (overlay) District:
Off-street parking facilities, including parking lots, parking garages, and parking accessory
Or ancillary to any use other than Use items shall be conditional uses which may be granted only in conformance with provisions of Section 6-3A...
In a limited parking district, Parking lot and parking garage shall be forbidden uses.

SECTION 6-3A. Additional Conditions Required for Approval of Parking Facilities in a Restricted Parking District. In a restricted parking district, the Board of Appeal shall grant a conditional use for an off-street parking facility, whether a parking lot, a public garage, or parking which is accessory or ancillary to any use other than Use Items numbered 1 through 15, only if the Board of Appeal finds that said facility meets one or more of the following conditions:
a. It will serve a traffic demand not adequately provided for by public transportation; or
b. It will replace existing off-street parking spaces in one or more nearby parking facilities, or it will replace legal on-street parking spaces that have been physically eliminated through permanent modification or demolition; or
c. It is accessory or ancillary to a use which by its nature does not contribute significantly to traffic flows during peak traffic periods; or
d. The facility constitutes a temporary parking lot use of land and that serious intent to reuse the land for an allowed use within a specified period of time has been demonstrated to the satisfaction of the Board of Appeal.

SECTION 6-4. Other Conditions Necessary as Protection. In approving a conditional use, the Board of Appeal may attach such conditions and safeguards as it deems necessary to assure harmony with the general purposes and intent of this code, such as, but not limited to, the following:
(a) requirement of front, side, and rear yards greater than the minimum required by this code;
(b) requirement of screening of parking areas and other parts of the lot from adjoining lots or from the street, by walls, fences, planting, or other devices;
(c) modification of the exterior features or appearance of the structure;
(d) limitation of size, number of occupants, method and time of operation, and extent of facilities;
(e) regulation of number, design, and location of access drives and other traffic features; and
(f) requirement of off-street parking and other special features beyond the minimum required by this or other applicable codes or regulations.

SECTION 13-4. Dimensional Requirements_Dwellings in Nonresidential Districts. Any dwelling in an L, B, M, I, MER or W district shall conform to the lot area, lot width, usable open space, and yard requirements for the nearest S, R or H district, or in the case of any dwelling in a B-8 or B-10 district, to the lot area, lot width, usable open space and yard requirements for the least restricted residence district; provided however, that if the nearest S, R, or H district, or the least restricted residence district does not specify a minimum lot width, any such dwelling shall have a minimum street frontage of not less than 50 feet.

SECTION 16-9_Building Height District B-8-120c:
The height of a building may exceed 120 feet provided that:

1_such height does not exceed 200 feet, excluding mechanical

2_the gross floor area of the building does not exceed the maximum floor area of 8

SECTION 18-3_Traffic Visibility Across Corner:
Whenever the lot is a corner lot, nr structure interfering with traffic visibility across the corner or higher, in any event, than two and one-half feet above the curb of the abutting street shall be maintained within that part of the required front yard...

SECTION 21-2. Setback Requirements Exceptions.
:(a) No setback is required in any event below whichever of the following is the lower: (1) the combined height of the first and any second story above the grade from which the height of the building is measured, or (2) twenty-five feet.
[:As amended on September 23, 1987]
:(b) Subject to the provisions of Section 19-6, no setback from side lot lines or from side street lines of corner lots is required:
Where Maximum Floor
Below a Area Ratio Specified in
Height of Table B is:
40 ft. 1.0
60 ft. 2.0
70 ft. 3.0
80 ft. 4.0
90 ft. 5.0
90 ft. + 6.0
110 ft. + 8.0
120 ft. 10.0

Except that in B-6-90a, B-6-90b, B-8-120a, and B-8-120c districts, no set back from a side lot line is required.
(d) In certain blocks in the Back Bay, there are exceptional setback requirements as follows:
South side of Boylston Street
Arlington Street to A minimum of fifteen feet
Berkeley Street from the front building line, except applicable only above a height of ninety feet.
Block bounded by Blagden As required in this Article
Street, Exeter Street, and Table B of Section 13-1,
and Huntington Avenue except applicable only above a height of ninety feet.
Both sides of Boylston Street
Copley Square, between A minimum of fifteen feet
Clarendon Street and from the front building line,
Exeter Street except applicable only above a height of sixty-five feet.
North side of Boylston Street

SECTION 24-1. Off-Street Loading Bay Requirements. No structure or land shall be used for any use unless off-street loading facilities are provided on the lot as follows:
Number of Loading Bays Required
Gross Floor Area Group I Group II Group III

[in square feet] Uses* Uses** Uses***
Under 15,000..0 0 0
15,000 to 50,000 ....0 1 1
50,000 to 100,000 ....0 1 2
100,000 to 150,000 ....0 2 3
150,000 to 300,000..................................0 3 4
300,000 and over.....................................0 ; #

SECTION 24-2. Design. All off-street loading facilities provided to comply with Section 24-1 shall meet the following specifications:
[a] Such facilities shall have bays, maneuvering areas, and appropriate means of vehicular access to a street, and shall be so designed as not to constitute a nuisance or a hazard or unreasonable impediment to traffic; and all lighting shall be so arranged as to shine away from streets and residences.
[b] Such facilities, including all bays, maneuvering areas and access drives, shall be so graded, surfaced, drained and maintained as to prevent water and dust therefrom going upon any street or another lot.
[c] Each loading bay shall be located entirely on the lot and shall be no less than ten feet in width, twenty-five feet in length, and fourteen feet in height, exclusive of maneuvering areas and access drives. Each loading bay within fifty feet of a residential district shall be enclosed in a structure if the use regularly involves night operations.
SECTION 24-3. Maintenance. All off-street loading facilities provided to comply with Section 24-1 shall be maintained exclusively for loading and unloading purposes so long as a use requiring them exists. Such facilities shall be used in such a manner as at no time to constitute a nuisance or a hazard or unreasonable impediment to traffic.

780 CMR 409.0 MOTION PICTURE PROJECTION ROOMS

409.1 General. The provisions of 780 CMR 409.0 shall apply to rooms in which ribbon-type cellulose acetate or other safety film is utilized in conjunction with electric arc, xenon or other light-source projection equipment that develops hazardous gases, dust or radiation. Where cellulose nitrate film is utilized or stored, such rooms shall comply with NFPA 40.

409.1.1 Projection Room Required. Every motion picture machine projecting film as mentioned within the scope of 780 CMR 409.0 shall be enclosed in a projection room. Appurtenant electrical equipment, such as rheostats, transformers and generators, shall be within the projection room or in an adjacent room of equivalent construction.

409.2 Construction of Projection Rooms. Every projection room shall be of permanent construction consistent with the construction requirements for the type of building in which the projection room is located. Openings are not required to be protected. The room shall have a floor area of not less than 80 square feet (7.44 m2) for a single machine and at least 40 square feet (3.7 m2) for each additional machine. Each motion picture projector, floodlight, spotlight or similar piece of equipment shall have a clear working space of not less than 30 inches by 30 inches (762 mm by 762 mm) on each side and at the rear thereof, but only one such space shall be required between two adjacent projectors. The projection room and the rooms appurtenant thereto shall have a ceiling height of not less than seven feet six inches (2286 mm).

409.3 Projection Room and Equipment Ventilation. Ventilation shall be provided in accordance with the International Mechanical Code.

409.3.1 Projection Room.

409.3.1.1 Supply Air. Each projection room shall be provided with adequate air supply inlets so arranged as to provide well-distributed air throughout the room. Air inlet ducts shall provide an amount of air equivalent to the amount of air being exhausted by projection equipment. Air is permitted to be taken from the outside; from adjacent spaces within the building, provided the volume and infiltration rate is sufficient; or from the building airconditioning system, provided it is so arranged as to provide sufficient air when other systems are not in operation.

409.3.1.2 Exhaust Air. Projection rooms are permitted to be exhausted through the lamp exhaust system. The lamp exhaust system shall be positively interconnected with the lamp so that the lamp will not operate unless there is the required airflow. Exhaust air ducts shall terminate at the exterior of the building in such a location that the exhaust air cannot be readily recirculated into any air supply system. The projection room ventilation system is permitted to also serve appurtenant rooms, such as the generator and rewind rooms.

Each projection machine shall be provided with an exhaust duct that will draw air from each lamp and exhaust it directly to the outside of the building. The lamp exhaust is permitted to serve to exhaust air from the projection room to provide room air circulation. Such ducts shall be of rigid materials, except for a flexible connector approved for the purpose.

409.4 Lighting Control. Provisions shall be made for control of the auditorium lighting and the means of egress lighting systems of theaters from inside the projection room and from at least one other convenient point in the building.
409.5 Miscellaneous Equipment. Each projection room shall be provided with rewind and film storage facilities.
780 CMR 410.0 STAGES AND PLATFORMS
410.1 Applicability. The provisions of 780 CMR 410.0 shall apply to all parts of buildings and structures that contain stages or platforms and similar appurtenances as defined im 780 CMR 410.2.
410.2 Definitions. The following words and terms shall, for the purposes of 780 CMR 410.0 and as used elsewhere in 780 CMR, have the meanings shown 780 CMR 410.2.
FLY GALLERY. A raised floor area above a stage from which the movement of scenery and operation of other stage effects are controlled.
GRIDIRON. The structural framing over a stage supporting equipment for hanging or flying scenery and other stage effects.
PINRAIL. A rail on or above a stage through which belaying pins are inserted and to which lines are fastened

PLATFORM. A raised area within a building used for worship, the presentation of music, plays or other entertainment; the head table for special guests; the raised area for lecturers and speakers; boxing and wrestling rings; theater-in-the-round stages; and similar purposes wherein there are no overhead hanging curtains, drops, scenery or stage effects other than lighting and sound. A temporary platform is one installed for not more than 30 days.
PROSCENIUM WALL. The wall that separates the stage from the auditorium or assembly seating area.

STAGE. A space within a building utilized for entertainment or presentations, which includes overhead hanging curtains, drops, scenery or stage effects other than lighting and sound. Stage area shall be measured to include the entire performance area and adjacent backstage and support areas not separated from the performance area by fireresistance-rated construction. Stage height shall be measured from the lowest point on the stage floor to the highest point of the roof or floor deck above the stage.

410.3 Stages. Stage construction shall comply with 780 CMR 410.3.1 through 410.3.7.
410.3.1 Stage Construction. Stages shall be constructed of materials as required for floors for the type of construction of the building in which such stages are located.
Exceptions:
1. Stages of Type IIB or IV construction with a nominal two-inch (51 mm) wood deck, provided that the stage is separated from other areas in accordance with 780 CMR 410.3.5.
2. In buildings of Type IIA, IIIA and VA construction, a fire-resistance-rated floor is not required, provided the space below the stage is equipped with an automatic fire-extinguishing system in accordance with 780 CMR 903.0 or 904.0.
3. In all types of construction, the finished floor shall be constructed of wood or approved noncombustible materials. Openings through stage floors shall be equipped with tight-fitting, solid wood trap doors with approved safety locks.
410.3.1.1 Stage Height and Area. Stage areas shall be measured to include the entire performance area and adjacent backstage and support areas not separated from the performance area by fire-resistance-rated construction.

780 CMR 501.0 GENERAL
501.1 Scope. The provisions of 780 CMR 5.00 control the height and area of structures hereafter erected and additions to existing structures.
780 CMR 503.0 GENERAL HEIGHT AND AREA LIMITATIONS
503.1 General. The height and area for buildings of different construction types shall be governed by the intended use of the building and shall not exceed the limits in Table 503 except as modified hereafter. Each part of a building included within the exterior walls or the exterior walls and fire walls where provided shall be permitted to be a separate building.
503.1.1 Basements. Basements need not be included in the total allowable area provided they do not exceed the area permitted for a one-story building.
503.1.2 Special Industrial Occupancies. Buildings and structures designed to house low-hazard industrial pro cesses that require large areas and unusual heights to accommodate crane ways or special machinery and equipment including, among others, rolling mills; structural metal fabrication shops and foundries; or the production and distribution of electric, gas or steam power, shall be exempt from the height and area limitations of Table 503.
503.1.3 Buildings on Same Lot. Two or more buildings on the same lot shall be regulated as separate buildings or shall be considered as portions of one building if the height of each building and the aggregate area of buildings are within the limitations of Table 503 as modified by 780 CMR 504 and 506. The provisions of this code applicable to the aggregate building shall be applicable to each building.
503.1.4 Type I Construction. Buildings of Type I construction permitted to be of unlimited tabular heights and areas are not subject to the special requirements that allow unlimited area buildings in 780 CMR 507.0 or unlimited height in 780 CMR 503.1.2 and 504.3 or increased height and areas for other types of construction.
780 CMR 505.0 MEZZANINES
505.1 General. A mezzanine or mezzanines in compliance with 780 CMR 505.0 shall be considered a portion of the floor below. Such mezzanines shall not contribute to either the building area or number of stories as regulated by 780 CMR 503.1. The area of the mezzanine shall be included in determining the fire area defined in 780 CMR 702.0. The clear height above and below the mezzanine floor construction shall not be less than seven feet (2134 mm).
Group A, B, M or R Above. A basement and/or the first story above grade plane of a building shall be considered as a separate and distinct building for the purpose of determining area limitations, continuity of fire walls, limitation of number of stories and type of construction, when all of the following conditions are met:
1. The basement and/or the first story above grade plane is of Type IA construction and is separated from the building above with a horizontal assembly having a minimum three-hour fire-resistance rating.
2. Shaft, stairway, ramp or escalator enclosures through the horizontal assembly shall have not less than a two-hour fire-resistance rating with opening protectives in accordance with Table 715.3.5.

780 CMR 602.0 CONSTRUCTION CLASSIFICATION

602.1 General. Buildings and structures erected or to be erected, altered or extended in height or area shall be classified in one of the five construction types defined in 780 CMR 602.2 through 602.5. The building elements shall have a fire-resistance rating not less than that specified in Table 601 and exterior walls shall have a fire-resistance rating not less than that specified in Table 602.

602.1.1 Minimum Requirements. A building or portion thereof shall not be required to conform to the details of a type of construction higher than that type which meets the minimum requirements based on occupancy, even though certain features of such a building actually conform to a higher type of construction.

602.2 Types I and II. Type I and II construction are those types of construction in which the building elements listed in Table 601 are of noncombustible materials.

602.3 Type III. Type III construction is that type of construction in which the exterior walls are of noncombustible materials and the interior building elements are of any material permitted by 780 CMR. Fire-retardant-treated wood framing complying with 780 CMR 2303.10 shall be permitted within exterior wall assemblies of a two-hour rating or less.

602.4 Type IV. Type IV construction (Heavy Timber, HT) is that type of construction in which the exterior walls are of noncombustible materials and the interior building elements are of solid or laminated wood without concealed spaces. The details of Type IV construction shall comply with the provisions of 780 CMR 602.0. Fire-retardant-treated wood framing complying with 780 CMR 2303.10 shall be permitted within exterior wall assemblies with a two-hour rating or less.

780 CMR 1001.0 ADMINISTRATION

1001.1 General. Buildings or portions thereof shall be provided with a means of egress system as required by 780 CMR 10.00. The provisions of 780 CMR 10.00 shall control the design, construction and arrangement of means of egress components required to provide an approved means of egress from structures and portions thereof. Note: also refer to 521 CMR (Architectural Access Rules and Regulations) which will/may have impact on ingress/egress design and construction.

1001.2 Minimum Requirements. It shall be unlawful to alter a building or structure in a manner that will reduce the number of exits or the capacity of the means of egress to less than required by 780 CMR.

780 CMR 1004.0 OCCUPANT LOAD

1004.1 Design Occupant Load. In determining means of egress requirements, the number of occupants for whom means of egress facilities shall be provided shall be established by the largest number computed in accordance with 780 CMR 1004.1.1 through 1004.1.3.

Exception. For A-2nc uses also note the prescriptive egress requirements of 780 CMR 1024.0 and 780 CMR 3403.0.

1004.1.1 Actual Number. The actual number of occupants for whom each occupied space, floor or building is designed.

1004.1.2 Number by Table 1004.1.2. The number of occupants computed at the rate of one occupant per unit of area as prescribed in Table 1004.1.2.

780 CMR 1005.0 EGRESS WIDTH
1005.1 Minimum Required Egress Width. The means of egress width shall not be less than required by 780 CMR 1005.0. The total width of means of egress in inches (mm) shall not be less than the total occupant load served by the means of egress multiplied by the factors in Table 1005.1 and not less than specified elsewhere in 780 CMR. Multiple means of egress shall be sized such that the loss of any one means of egress shall not reduce the available capacity to less than 50% of the requiredcapacity. The maximum capacity required from any story of a building shall be maintained to the termination of the means of egress.

780 CMR 1007.0 ACCESSIBLE MEANS OF EGRESS
1007.1 Accessible Means of Egress Required. Accessible means of egress shall comply with 780 CMR 1007.0. Accessible spaces shall be provided with not less than one accessible means of egress. Where more than one means of egress is required by 780 CMR 1014.1 or 1018.1 from any accessible space, each accessible portion of the space shall be served by not less than two accessible means of egress.
Exceptions:
1. Accessible means of egress are not required in alterations to existing buildings.
2. One accessible means of egress is required from an accessible mezzanine level in accordance with 780 CMR 1007.3 or 1007.4. 3. In assembly spaces with sloped floors, one accessible means of egress is required from a space where the common path of travel of the accessible route for access to the wheelchair spaces meets the requirements in 780 CMR 1024.8.

780 CMR 3202.0 ENCROACHMENTS
3202.1 Encroachments below Grade. Encroachments below grade shall comply with 780 CMR 3202.1.1 through 3202.1.3.
3202.1.1 Structural Support. A part of a building erected below grade that is necessary for structural support of the building or structure shall not project beyond the lot lines, except that the footings of street walls or their supports which are located at least eight feet (2438 mm) below grade shall not project more than 12 inches (305 mm) beyond the street lot line.
3202.1.2 Vaults and Other Enclosed Spaces. The construction and utilization of vaults and other enclosed space below grade shall be subject to the terms and conditions of the authority or legislative body having jurisdiction.
3202.1.3 Areaways. Areaways shall be protected by grates, guards or other approved means.
3202.2 Encroachments above Grade and below Eight Feet in Height. Encroachments into the public right-of-way above grade and below eight feet (2438 mm) in height shall be prohibited except as provided for in 780 CMR 3202.2.1 through 3202.2.3. Doors and windows shall not open or project into the public right-of-way.
3202.2.1 Steps. Steps shall not project more than 12 inches (305 mm) and shall be guarded by approved devices not less than three feet (914 mm) high, or shall be located between columns or pilasters.
3202.2.2 Architectural Features. Columns or pilasters, including bases and moldings shall not project more than 12 inches (305 mm). Belt courses, lintels, sills, architraves, pediments and similar architectural features shall not project more than four inches (102 mm).

Bibliography

Abshire, Matthew. 2006. "*Musical Robot Composes, Performs and Teaches.*" CNN

Amelar, Sarah. "*New Music Building.*" Architectural Record; Jul2007, Vol. 195 Issue 7, p118-123

Ball State School of Music Technology_programming and layouts_ www.bsu.edu/musictech

Berklee Institutional Master Plan Notification Form, January 2009. Submitted by: Trustees of Berklee College of Music
Prepared with assistance of: Vanasse Hangen Brustlin, Inc. Good Clancy Goulston & Stoors

Boston Redevelopment Authority_ drawings and documents_ www.bostonredevelopmentauthority.org/

Cohen, Alan. 2004. "Architecture and Music." buzzle.com

CoopHimmelblau.com (images, text)

Friedman, Mildred. 2002. *Gehry Talks : Architecture + Process*. New York, Universe Publishing.

Georgia Tech Center for Music Technology_ http://gtcmt.coa.gatech.edu/

Greg Lynn FORM (firm). 2006. *Predator : Greg Lynn FORM, USA*. Seoul, Korea. DAMDI.

Guenoun, Elias. 2007. *Pavillon Seroussi : biothing, DORA (Design Office for Research and Architecture), EZCT Architecture & Design Research, Gramazio & Kohler, IJP - George L. Legendre, Xefirotarch* . Orléans, Éditions HYX.

Libeskind, Daniel: "The Links Between Music and Architecture."
From the BBC Proms lecture given by the architect and musician

L'Ircam (Institut de Recherche et Coordination Acoustique/Musique)_ www.ircam.fr/

Massachusetts Turnpike Authority, Request for Proposals,September 2008
(Air Rights Parcels 12,13,14,and 15 Massachusetts Avenue/ Bolyston Street Boston, Ma.)

Noever, Peter. 2007. *Beyond the Blue.* Munich, Prestel.

Rappolt, Mark. 2008. *Greg Lynn Form.* New York, Rizzoli International,

White, Gayle. 2009. "*Tech composes the music of fish.*" The Atlanta Journal-Constitution

Bienen School of Music, Northwestern University_program_curriculum_ www.music.northwestern.edu/programs/musictech.html

Preliminary Design

scheme a
scheme b
scheme c

schematic design

scheme a_linear bars
scheme b_sound towers

Mid-Term Design

scheme_sound towers

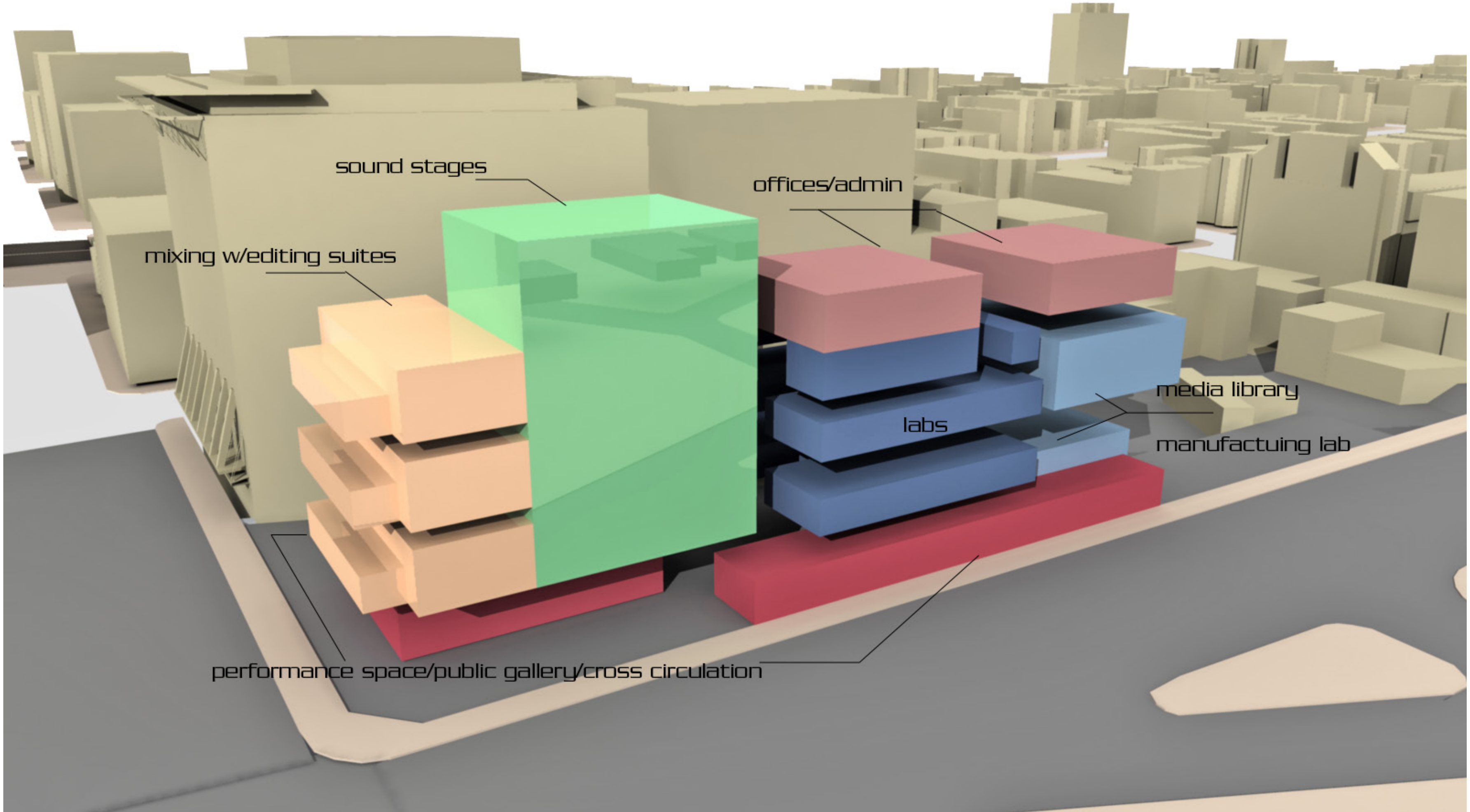
Gate Design

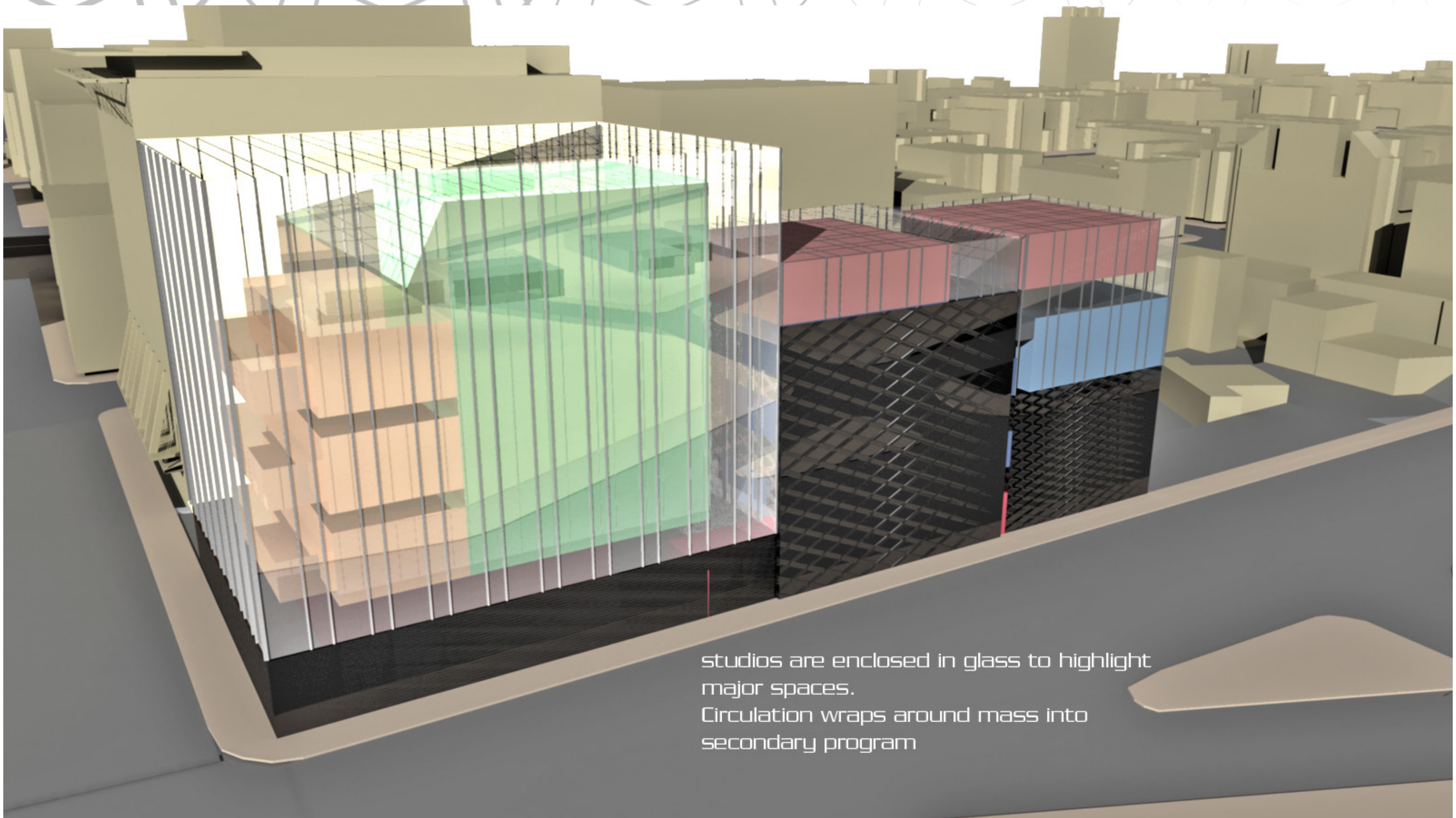
Final Design

process

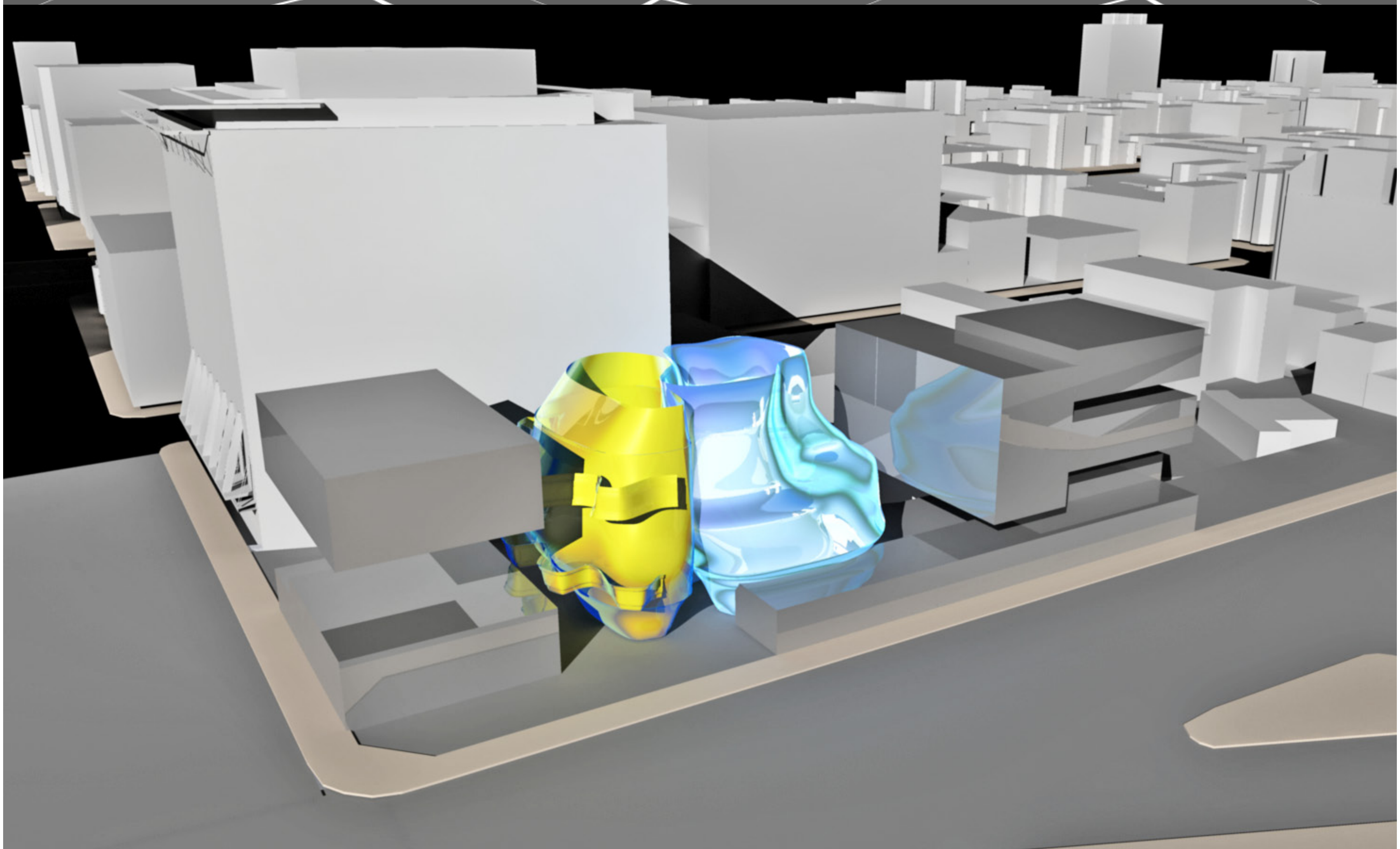
preliminary design

scheme a_program boxes

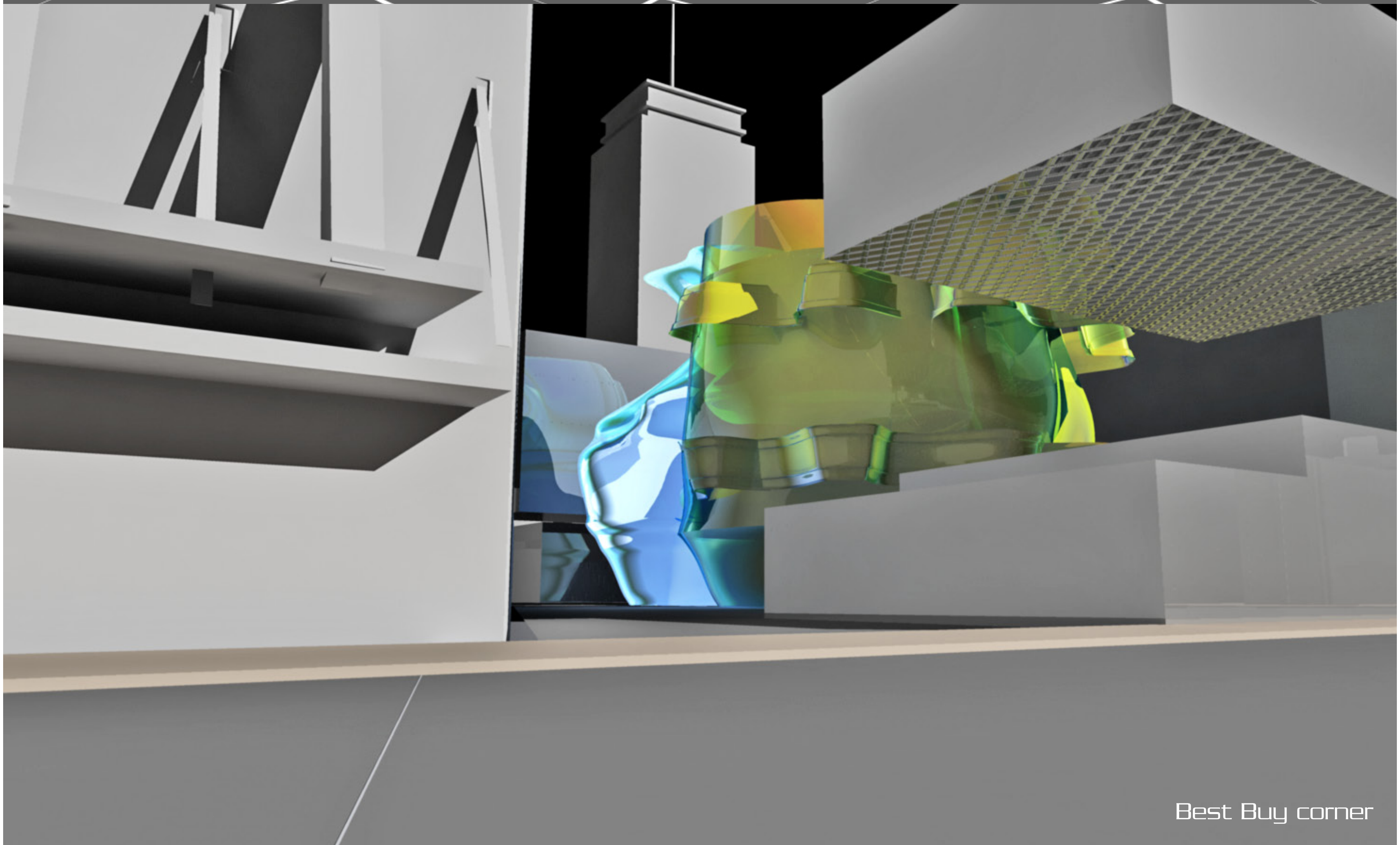



studios are enclosed in glass to highlight
major spaces.
Circulation wraps around mass into
secondary program

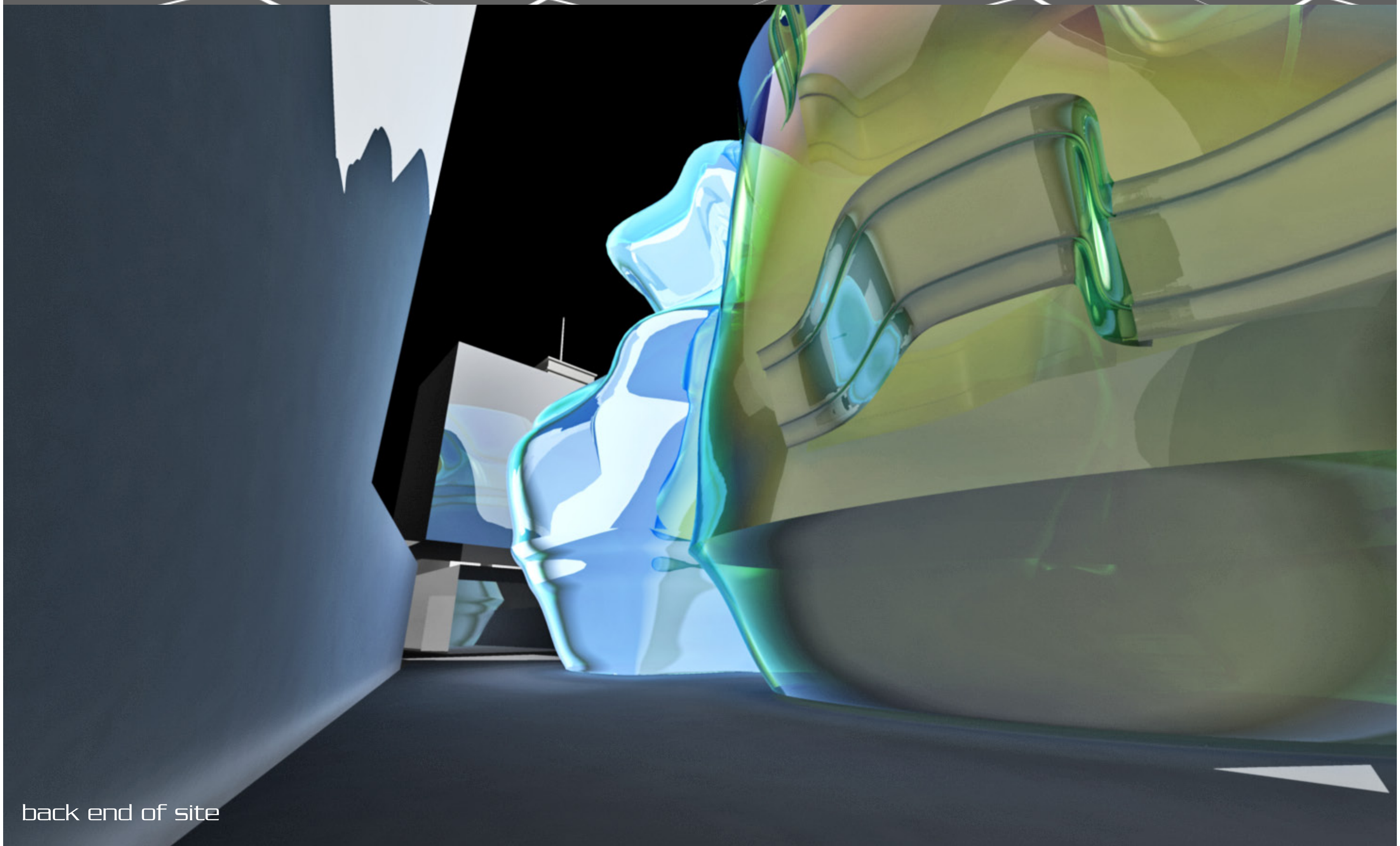
scheme b_amorphous sound studios



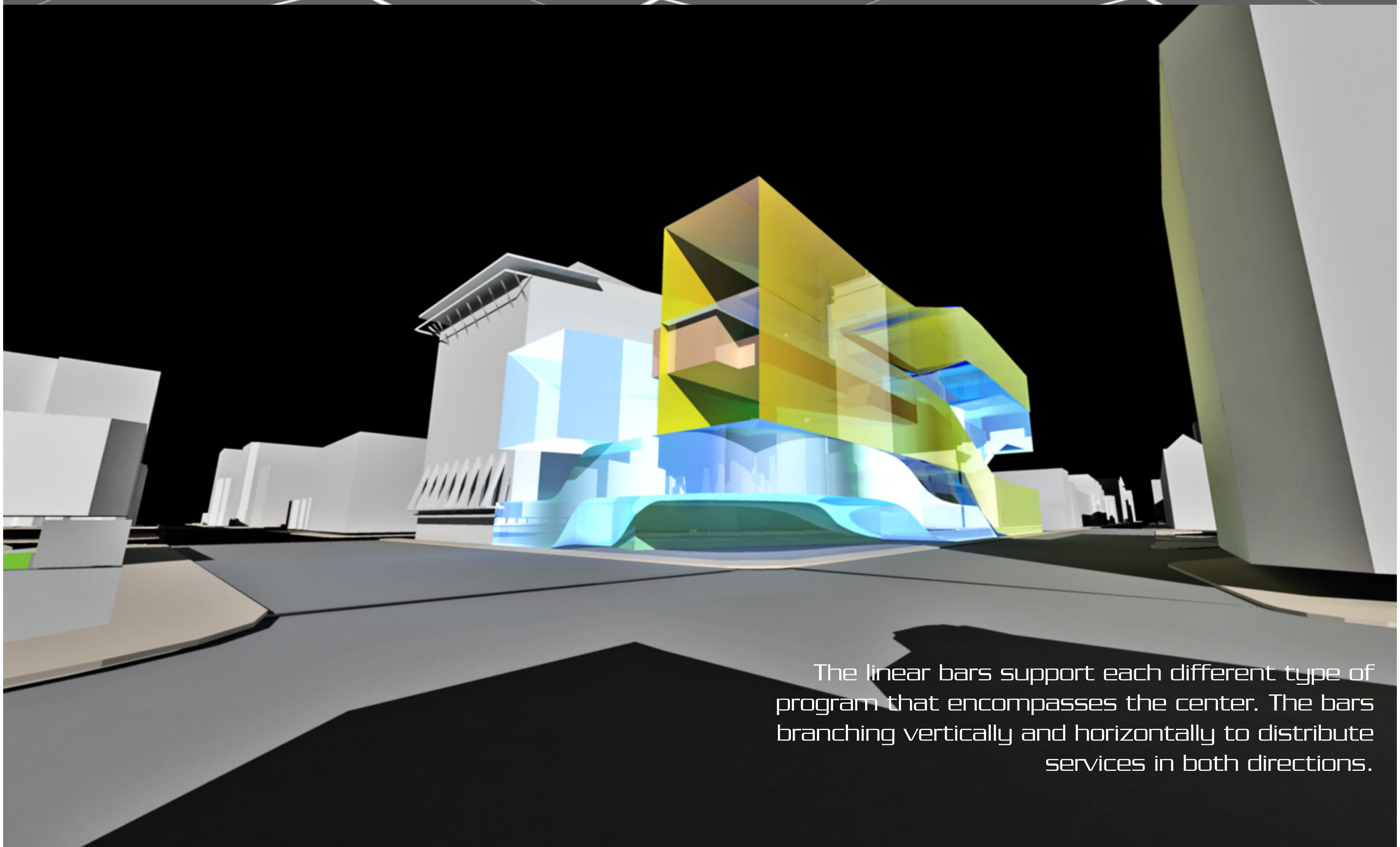
The amorphous sound stages and mixing studios are surrounded by support spaces on either side. The form highlights the process of creating and editing music by emphasizing the curvilinear design. Educational and Public spaces surround the corner and east end of the site.



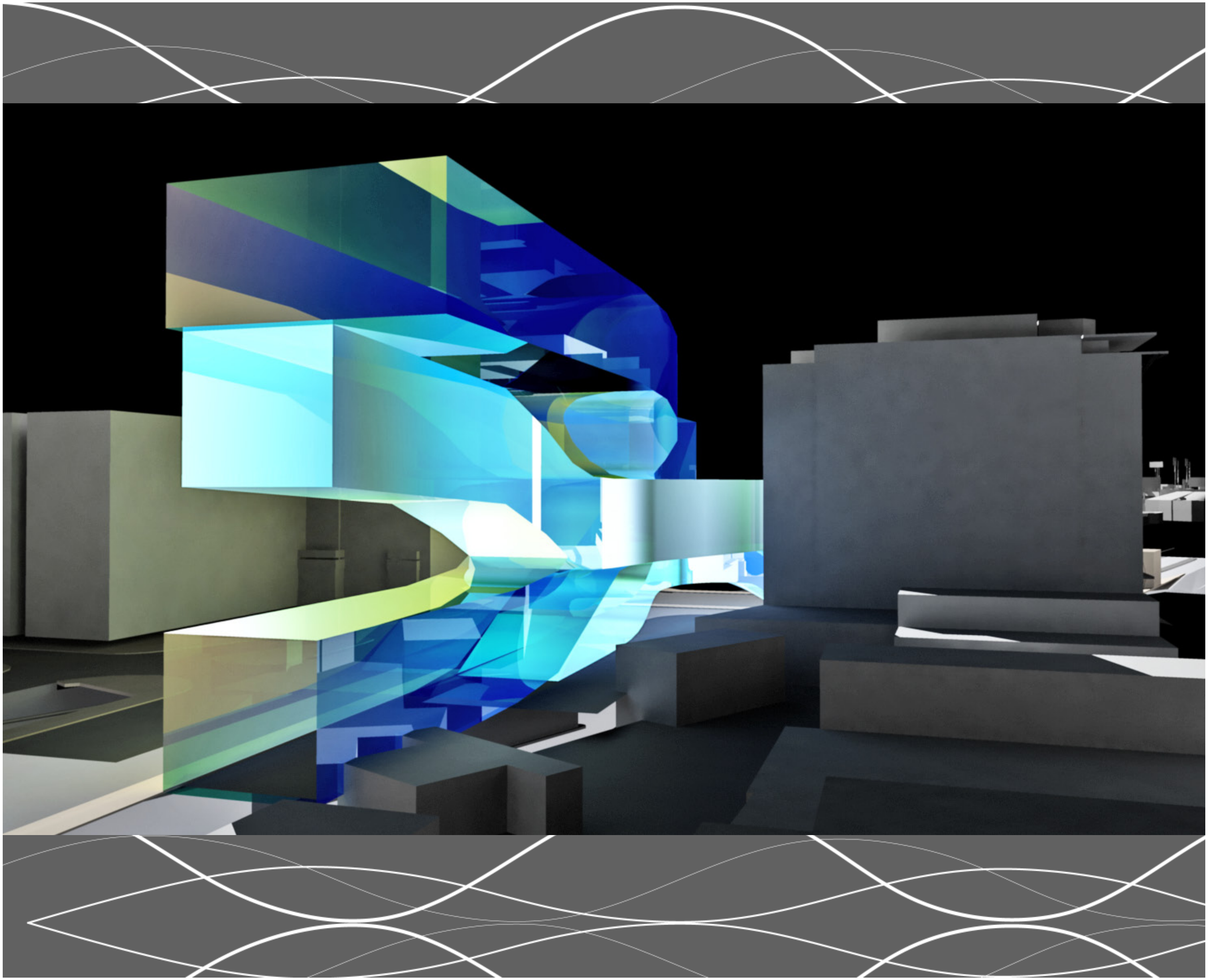
Best Buy corner

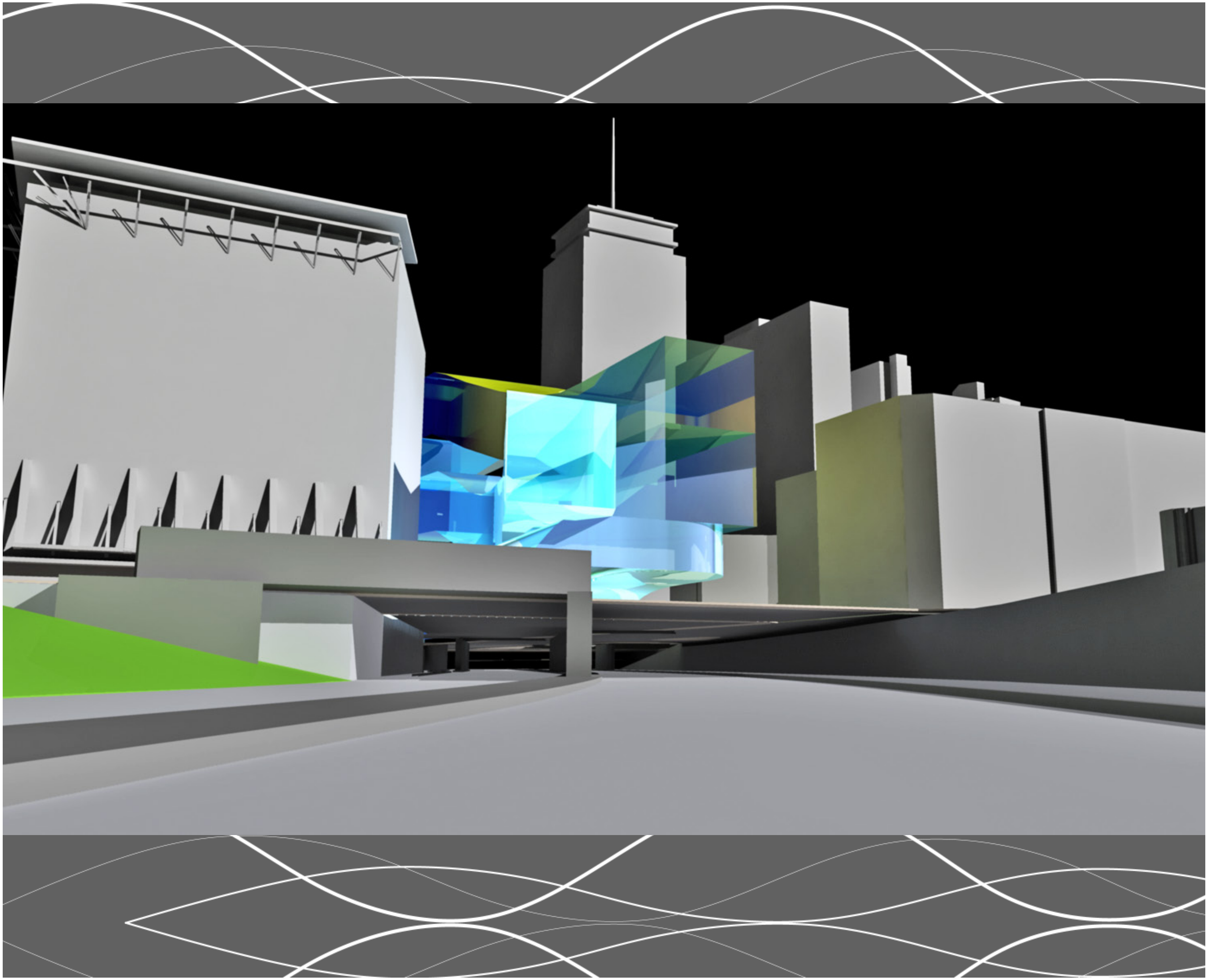

back end of site

scheme c_linear bars



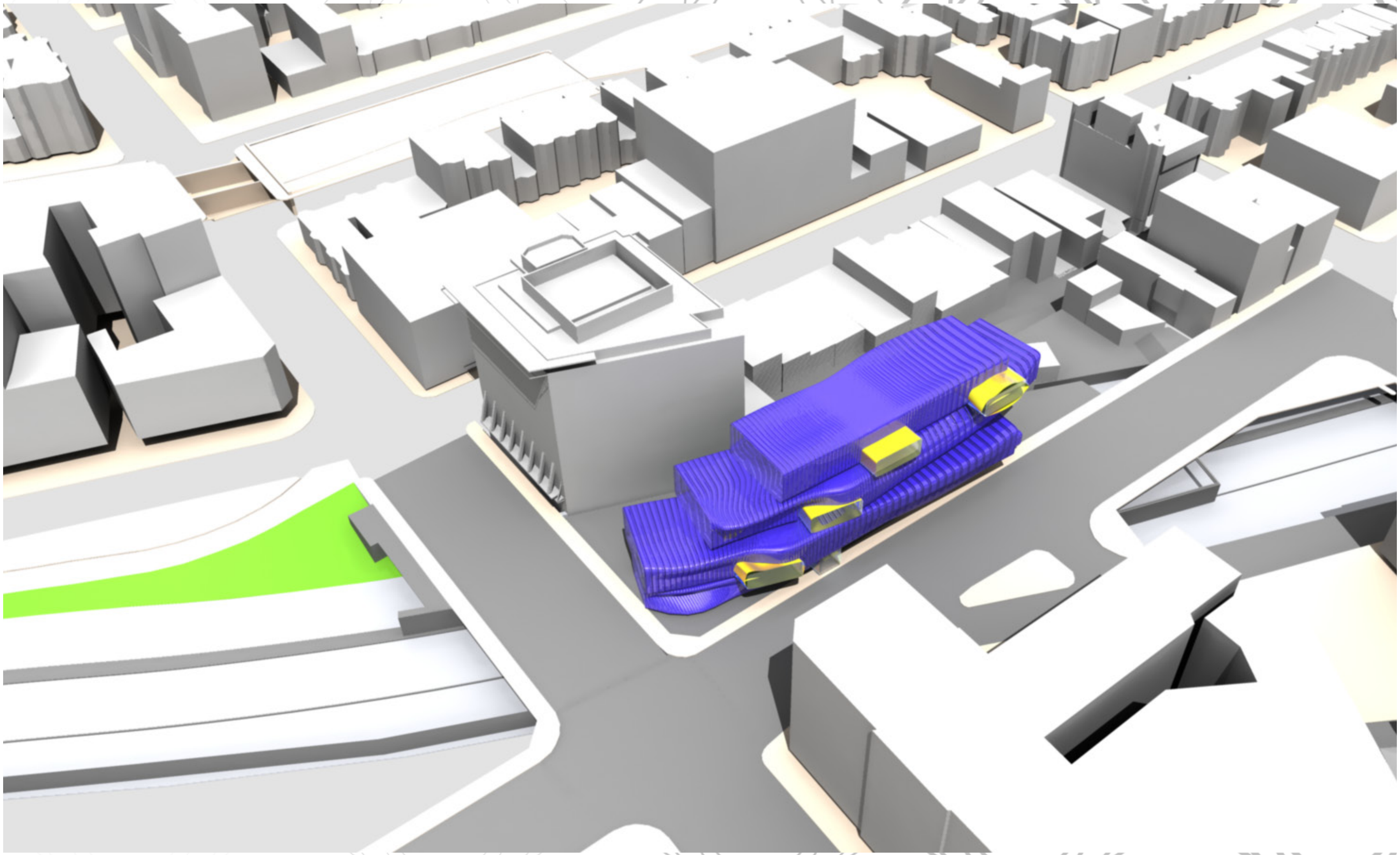
The linear bars support each different type of program that encompasses the center. The bars branching vertically and horizontally to distribute services in both directions.



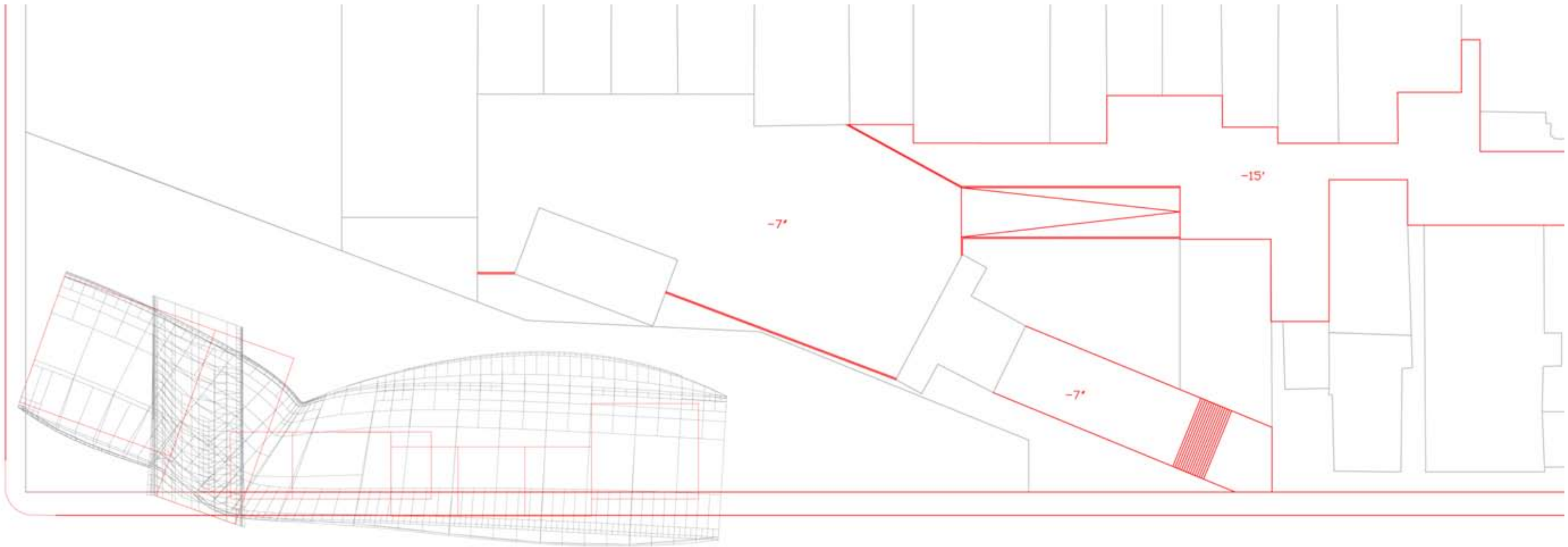


schematic design

scheme a_linear bars_process



This scheme is the next generation to preliminary scheme c. The mixing studios intersect the larger bars that encompass the site.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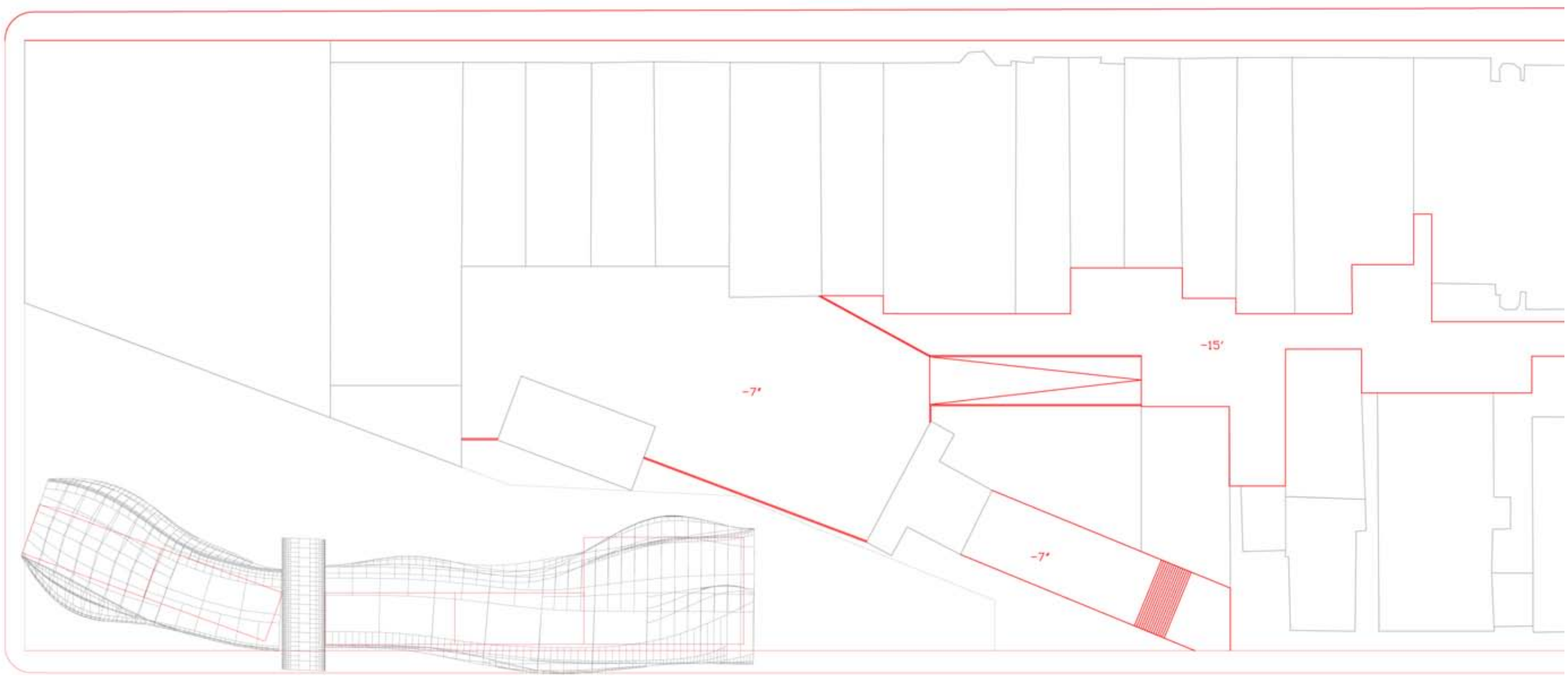
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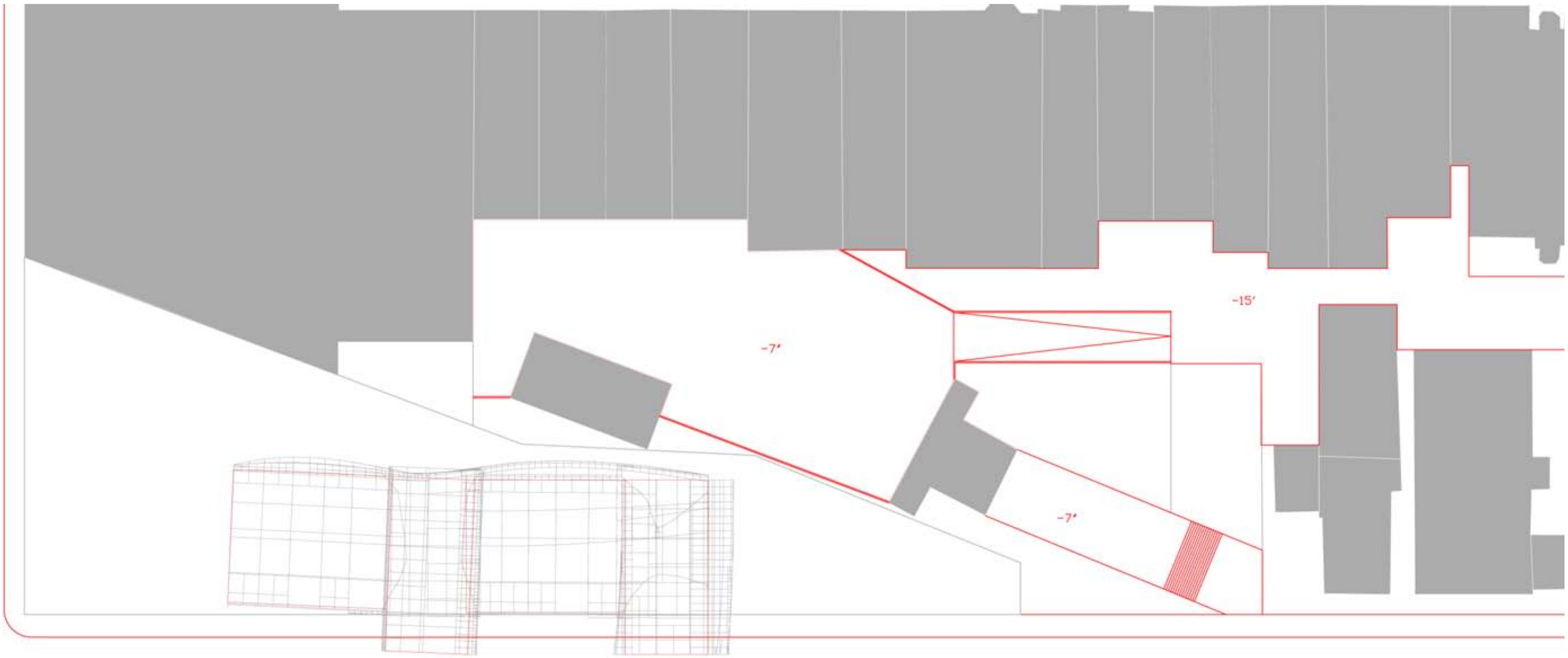
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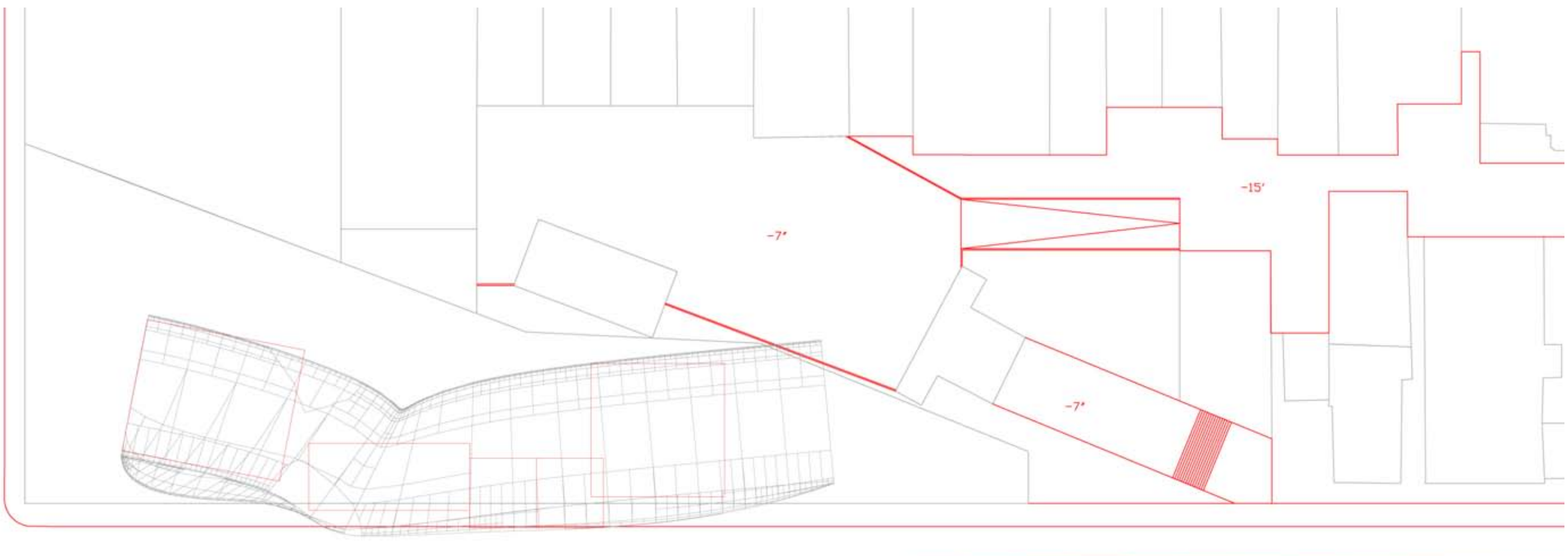
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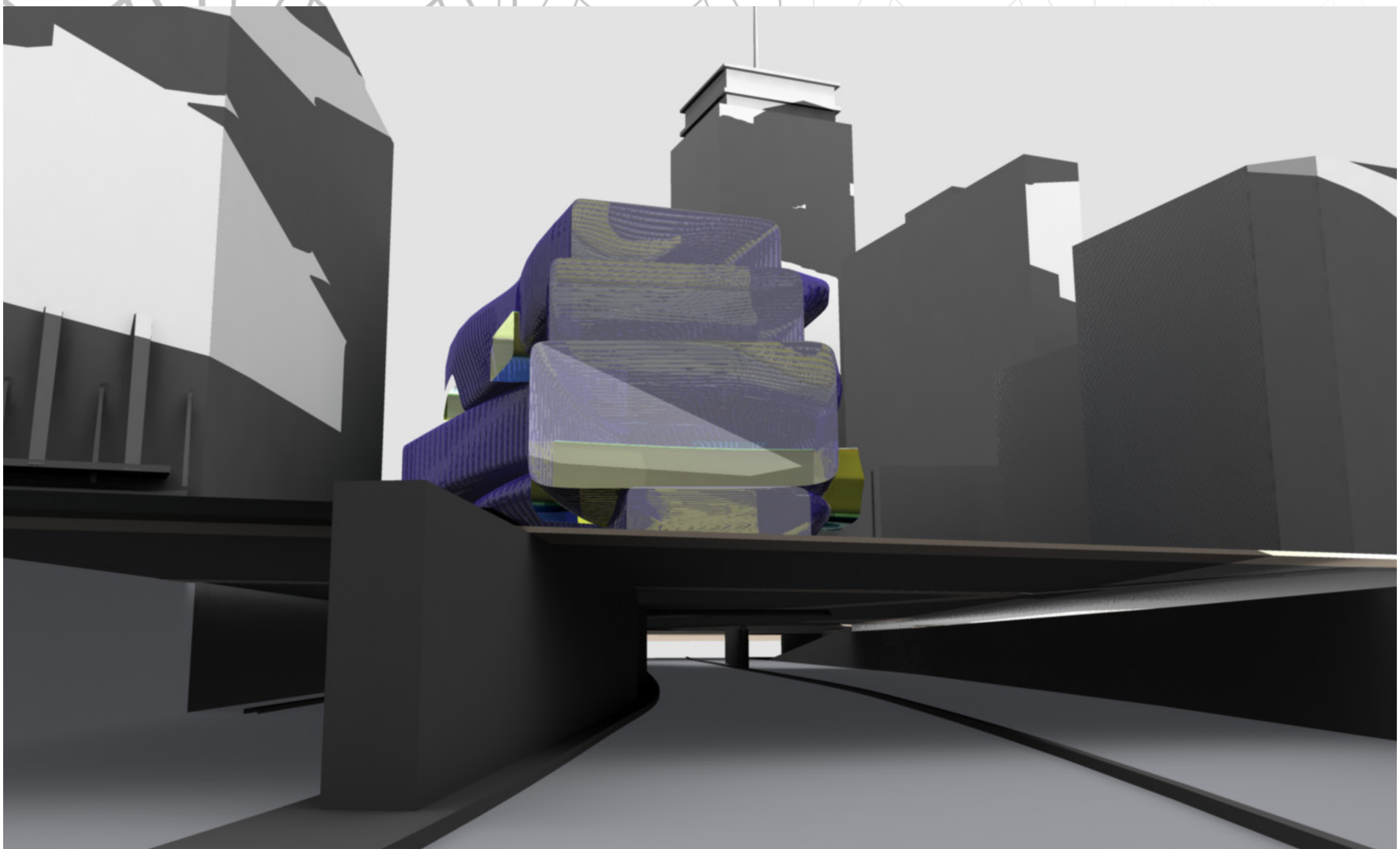
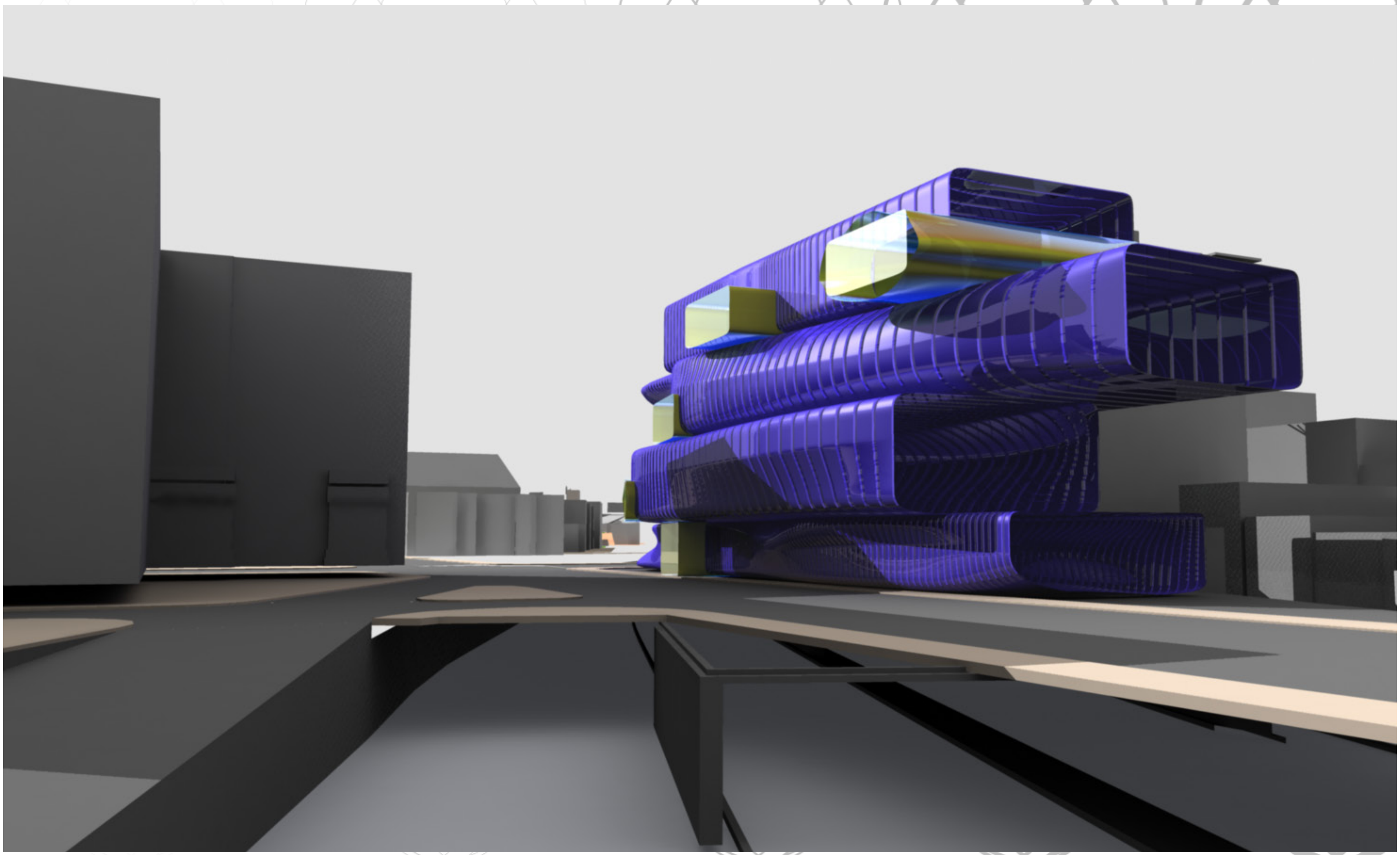
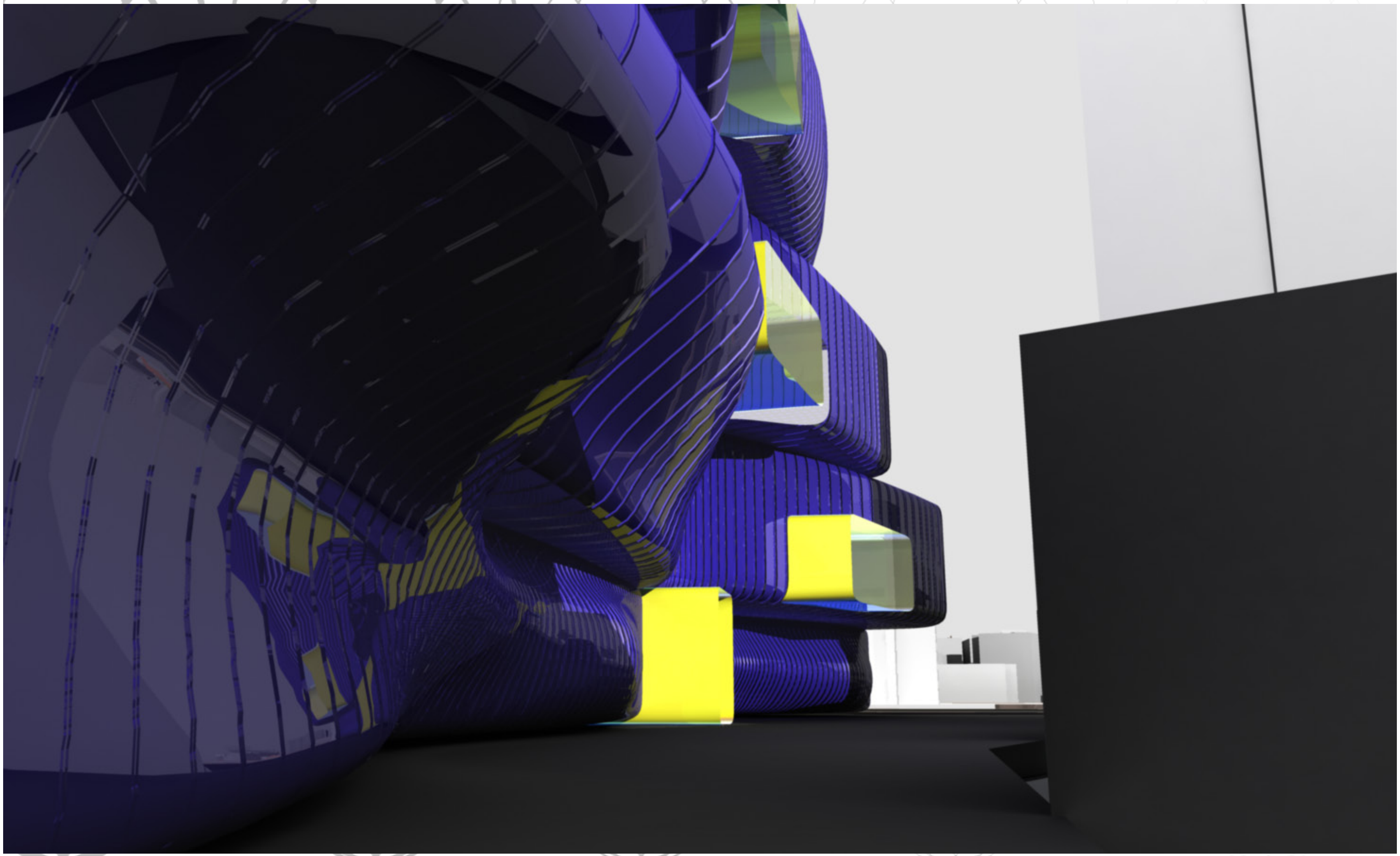
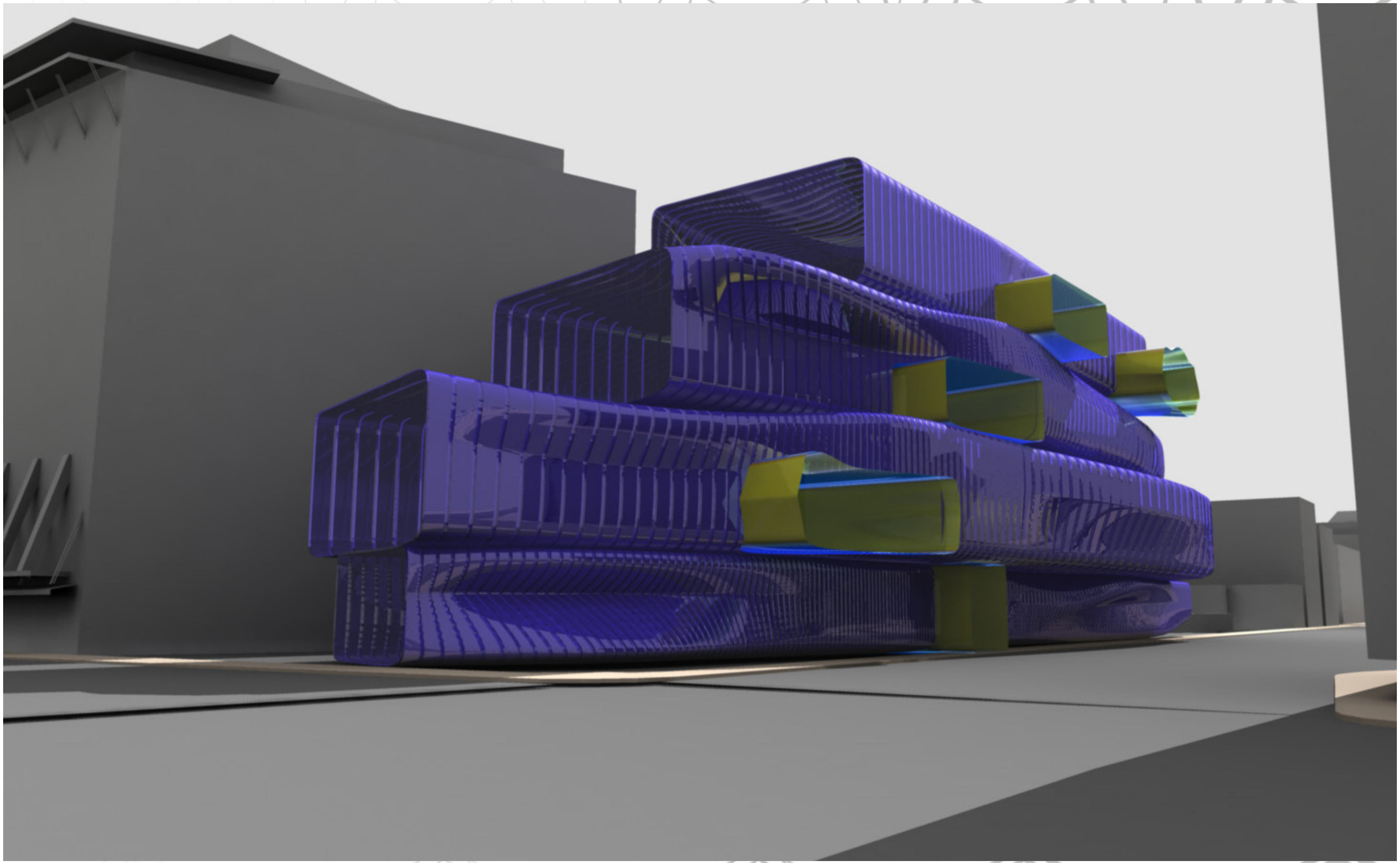


view from I-90

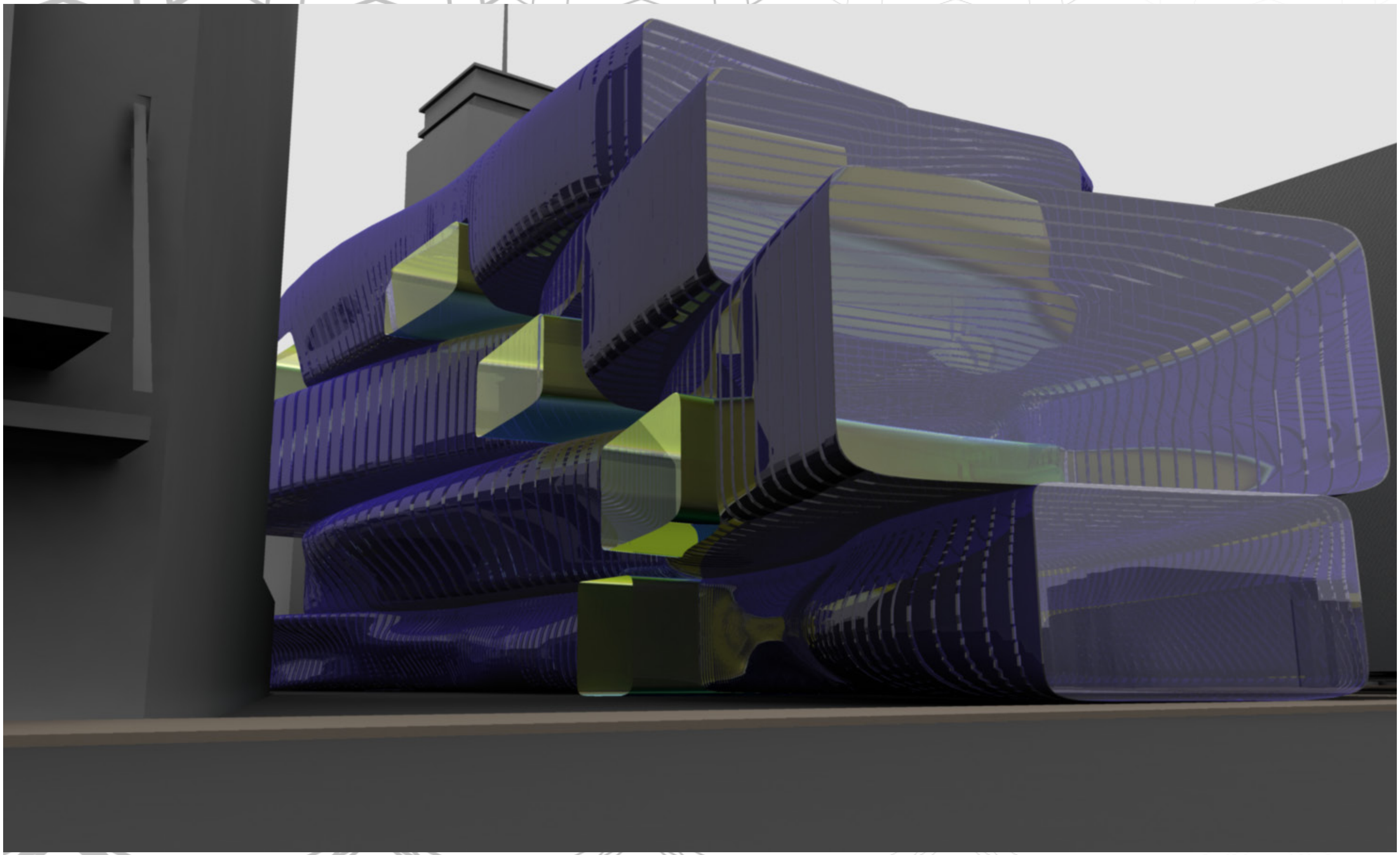

view from bolyston street



view from back of site

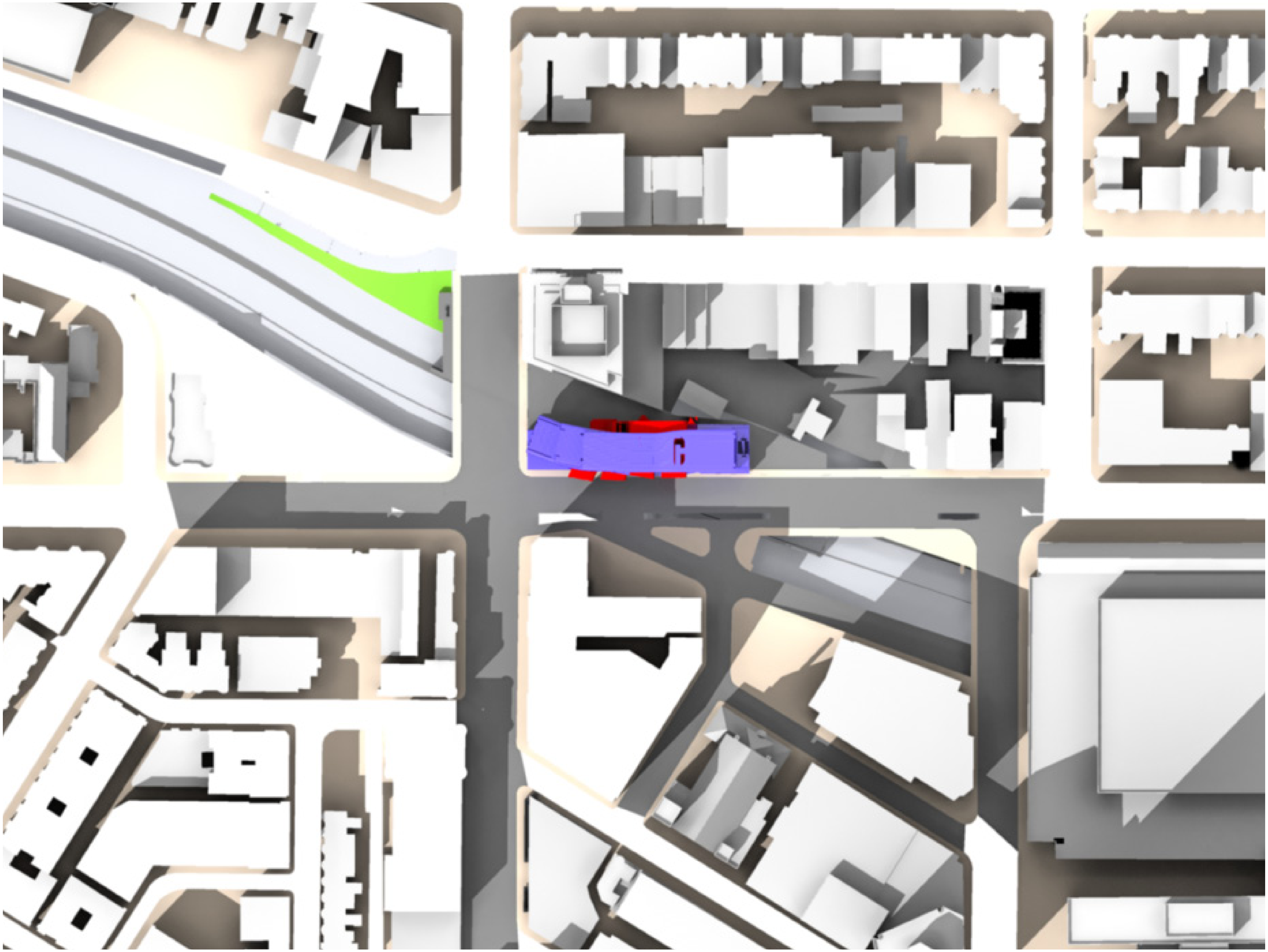


corner of Bolyston and Mass Ave

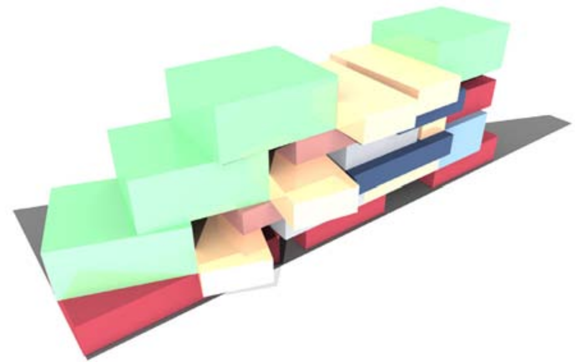


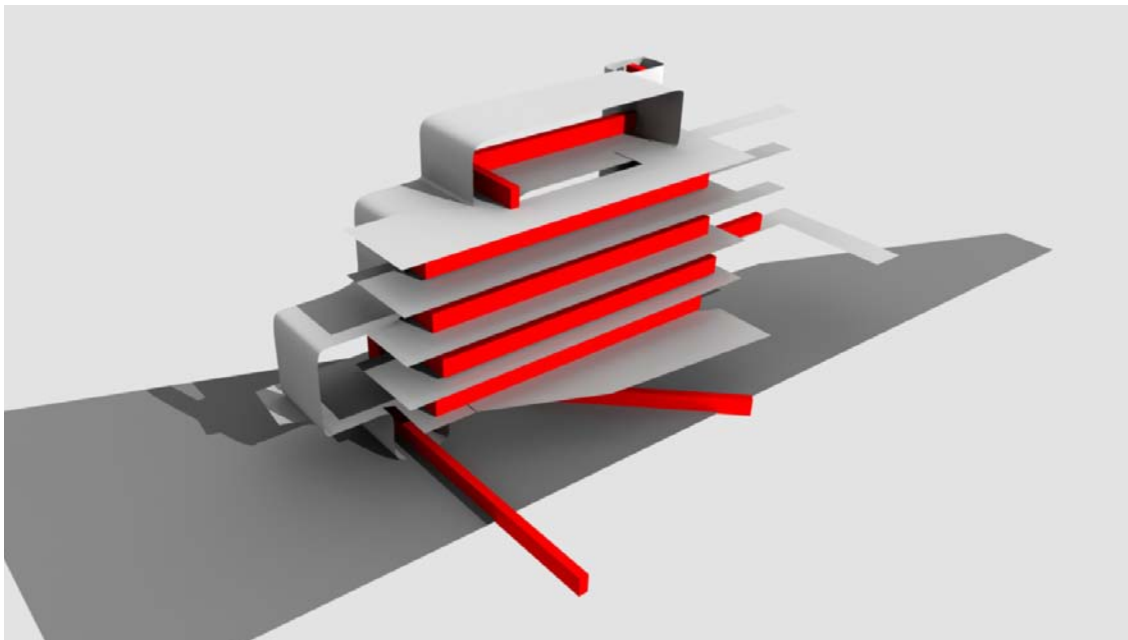
view from Best Buy

scheme a_linear bars_final

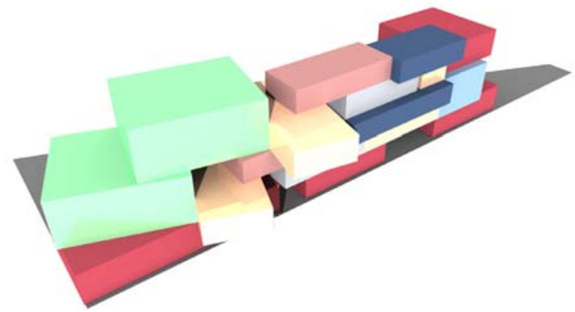


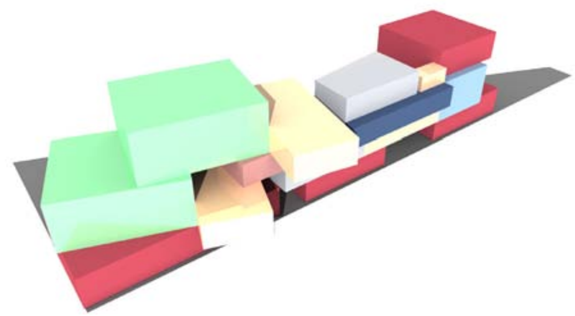
The linear bars rack and stack back from the corner of the site and conform to the registrations of the highway and Bolyston street. The sound stages (green program boxes) follow these registrations while the mixing studios intersect the major linear axis. Support spaces fill the rest of the site along Bolyston street.

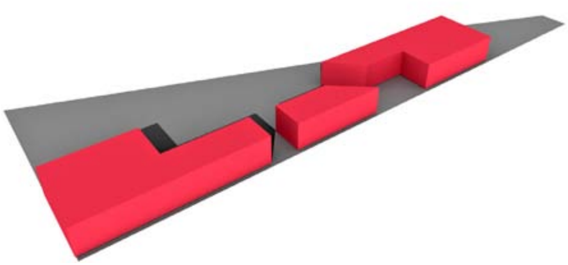


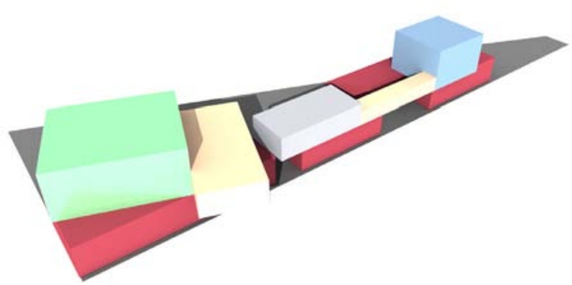


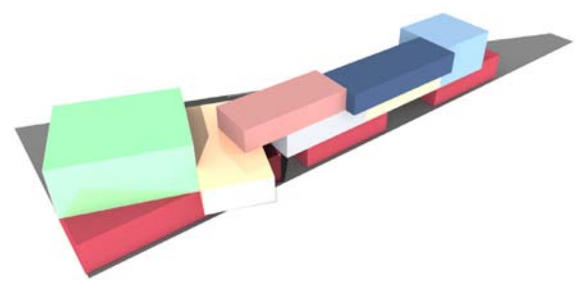
circulation and program



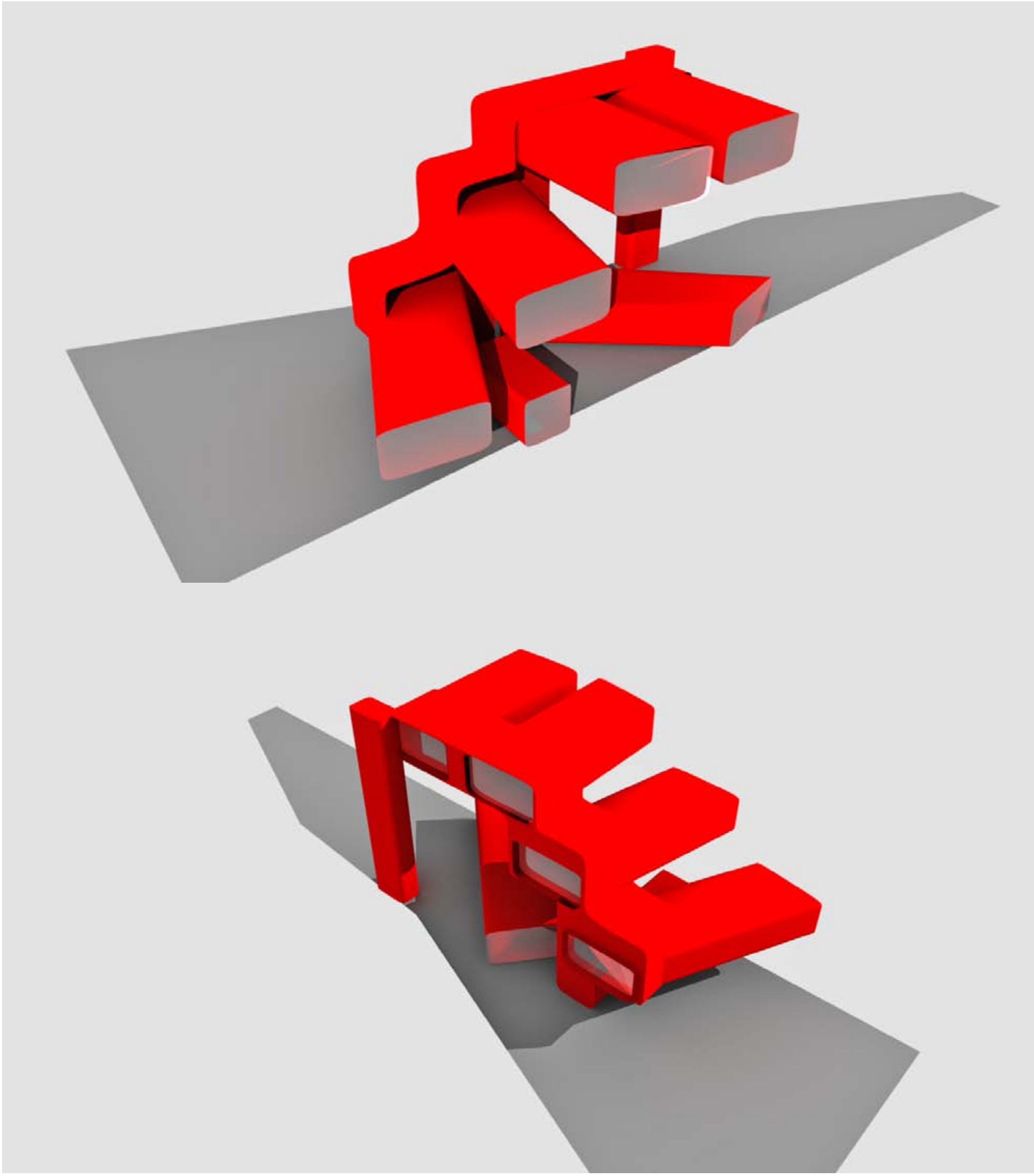




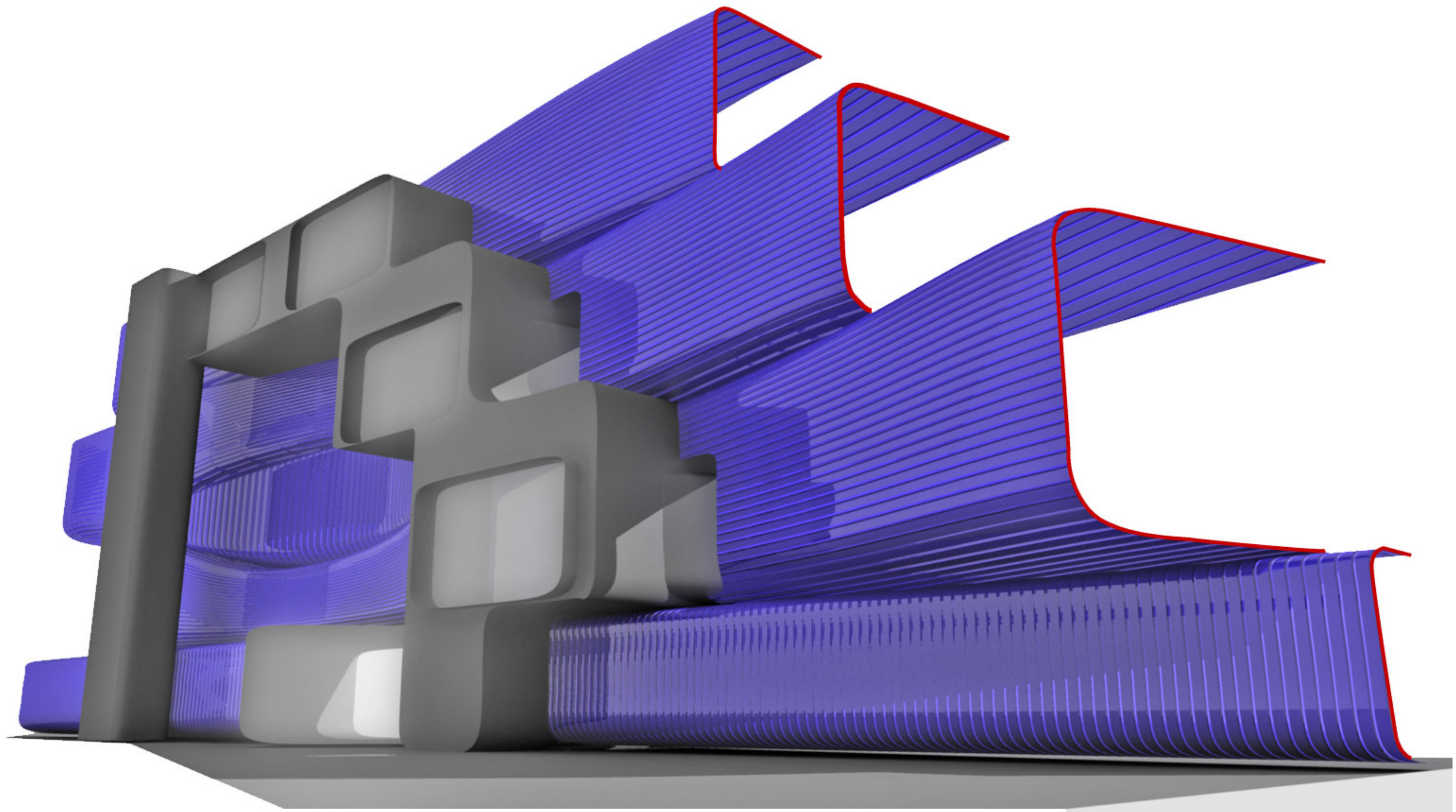




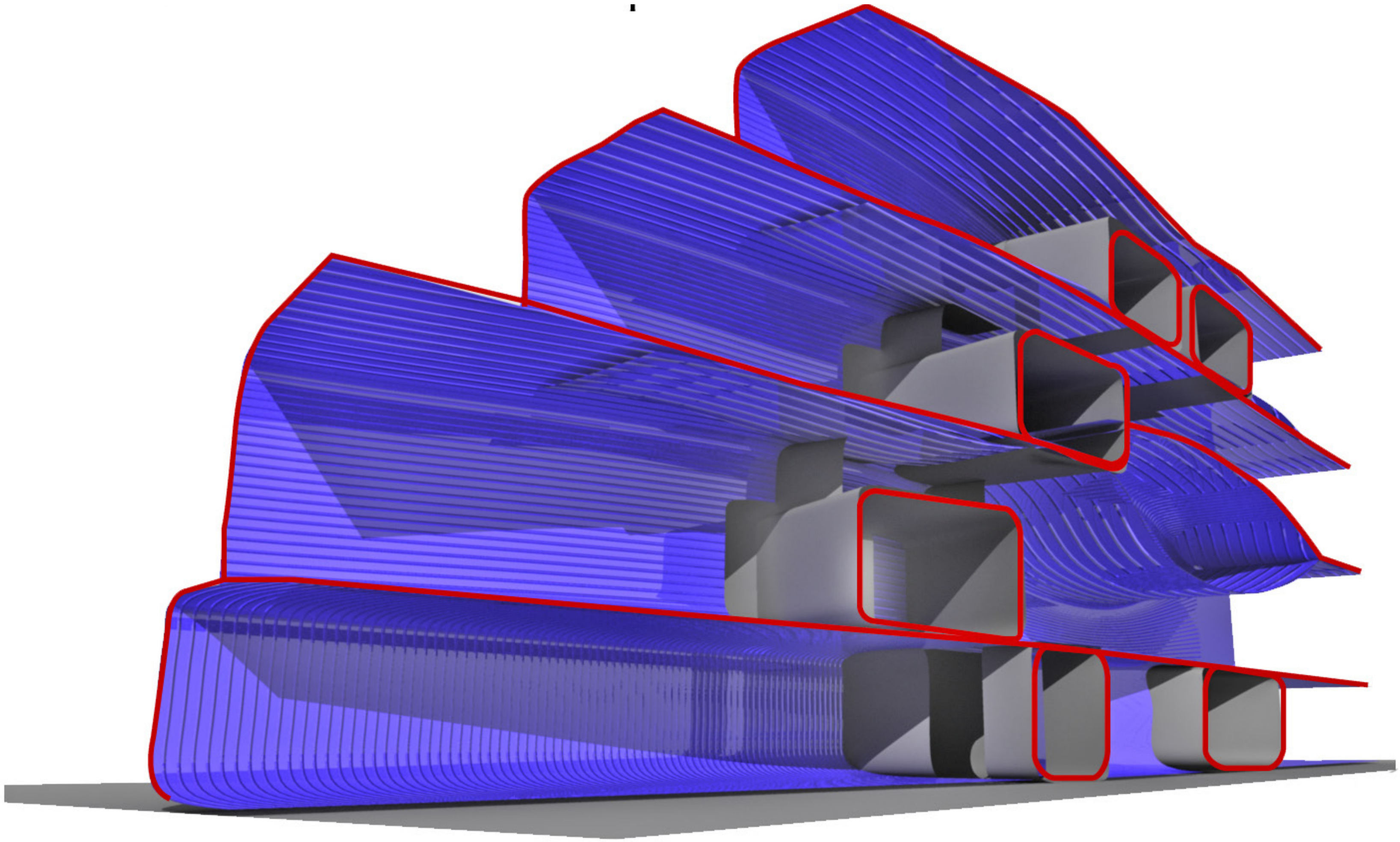
back elevation



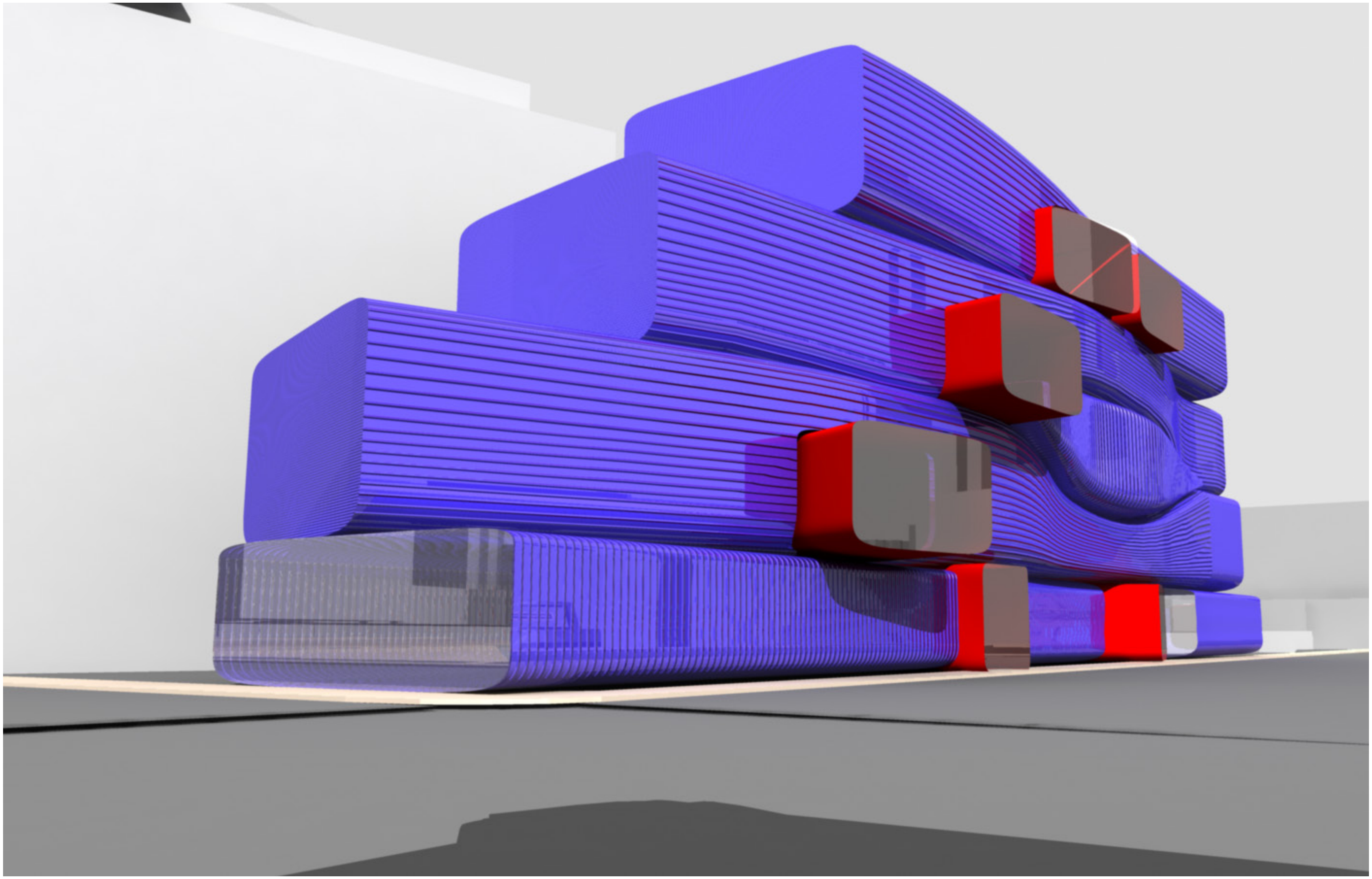
program intersection bars



back sectional perspective

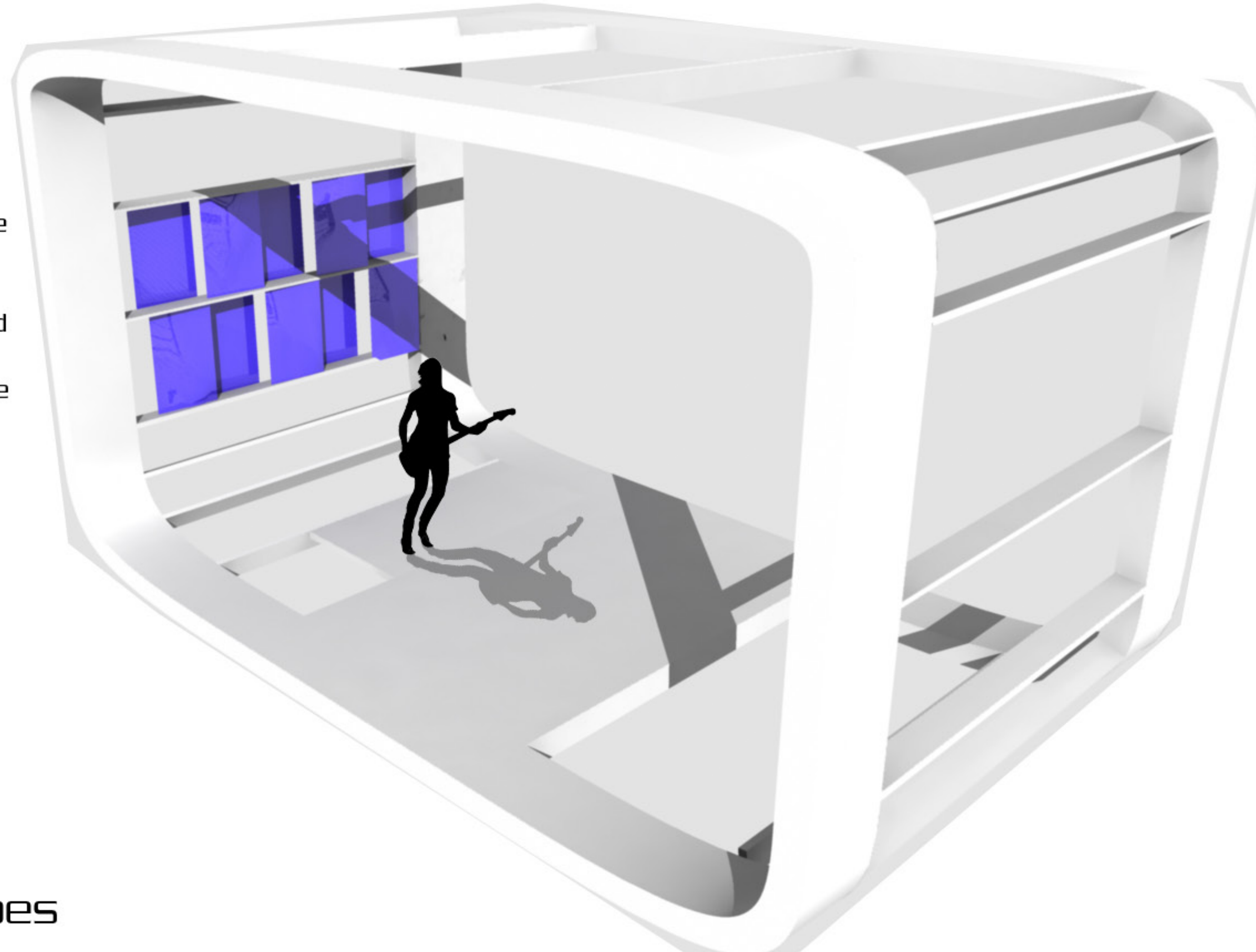


front sectional perspective



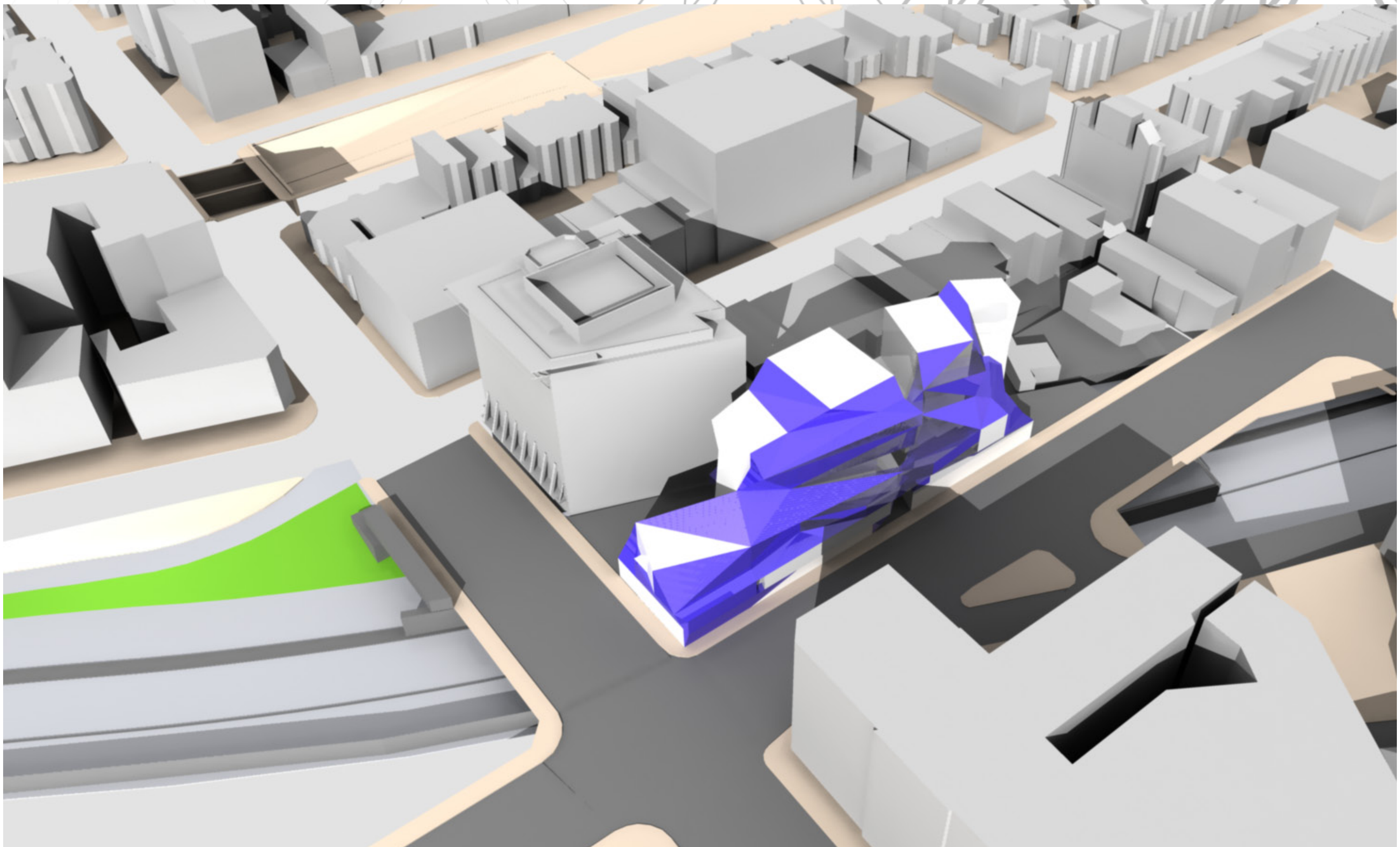
view from corner

Creating the shell for the linear tubes will be a major part of this scheme. The tubes need to interact with the crossing structure of the studio tubes. This creates an opportunity for modular design and variation.

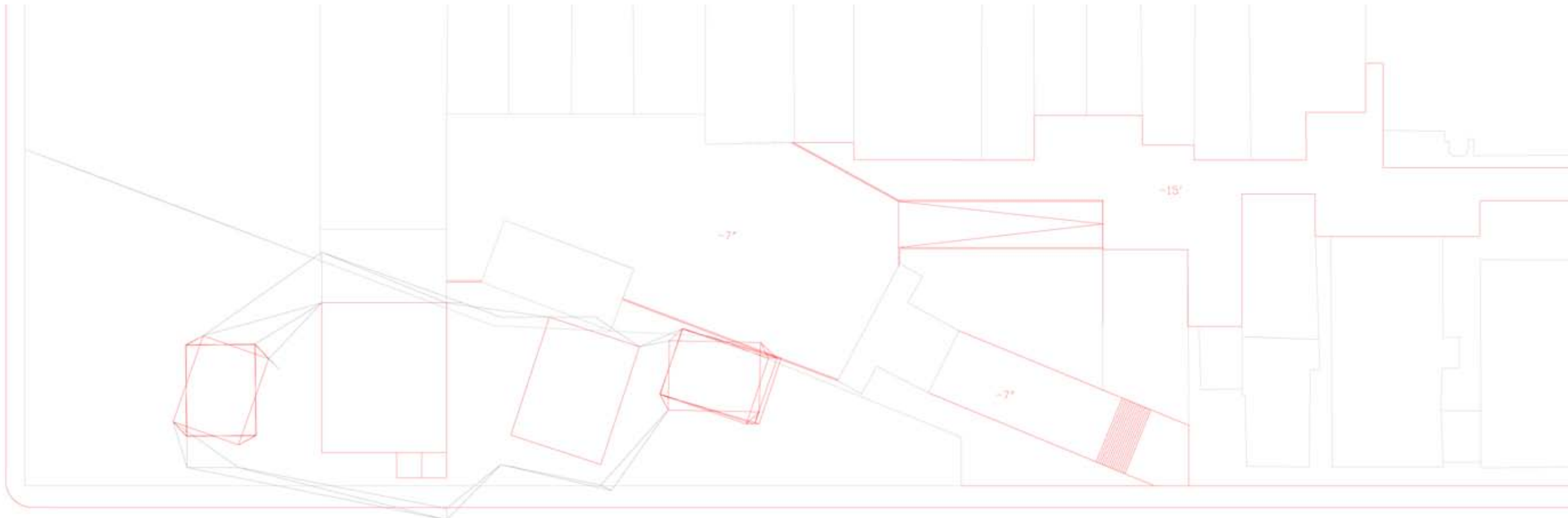


Detail
_structural tubes

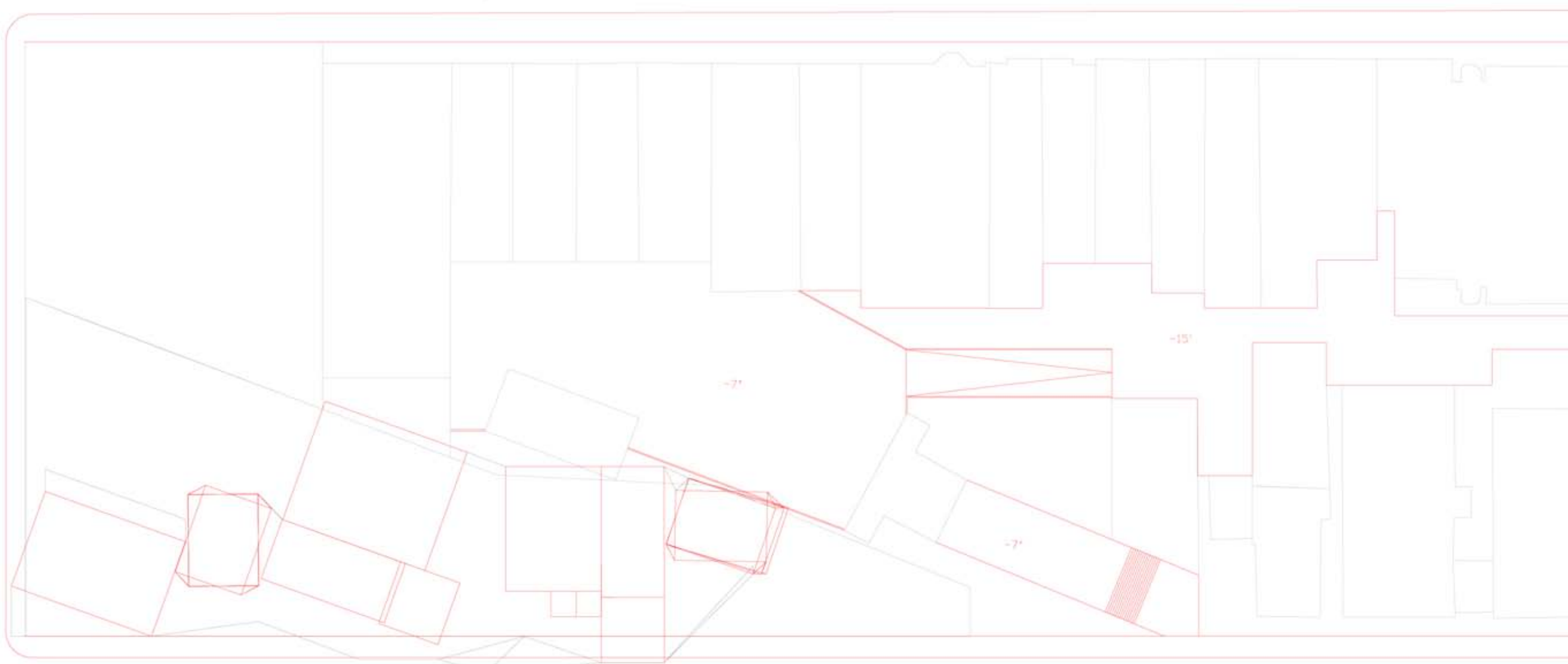
scheme b_sound towers_process



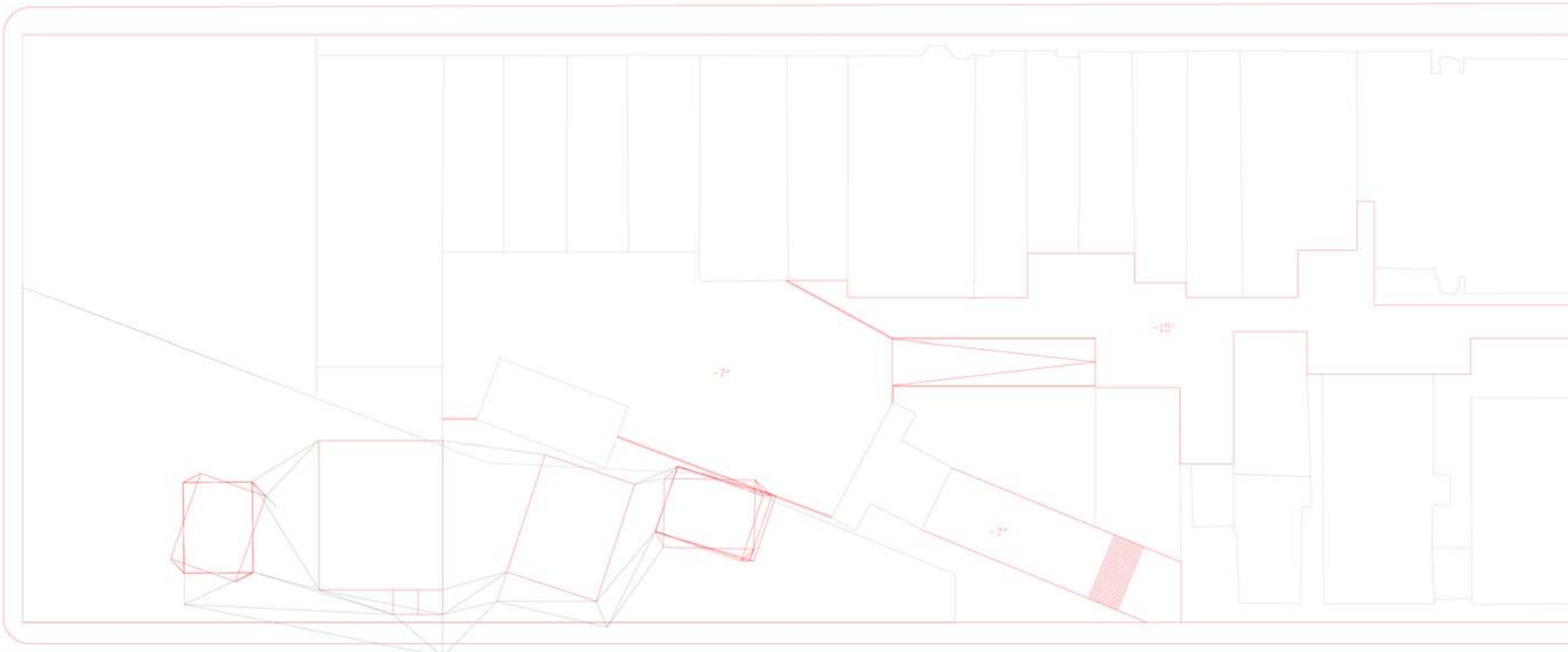
The sound tower scheme separates the sound stages and mixing studios in two twisting towers that create a main atrium space used for break out zones and chance encounters. The program is cladded in a mesh that shadows the towers and creates a new, different form.



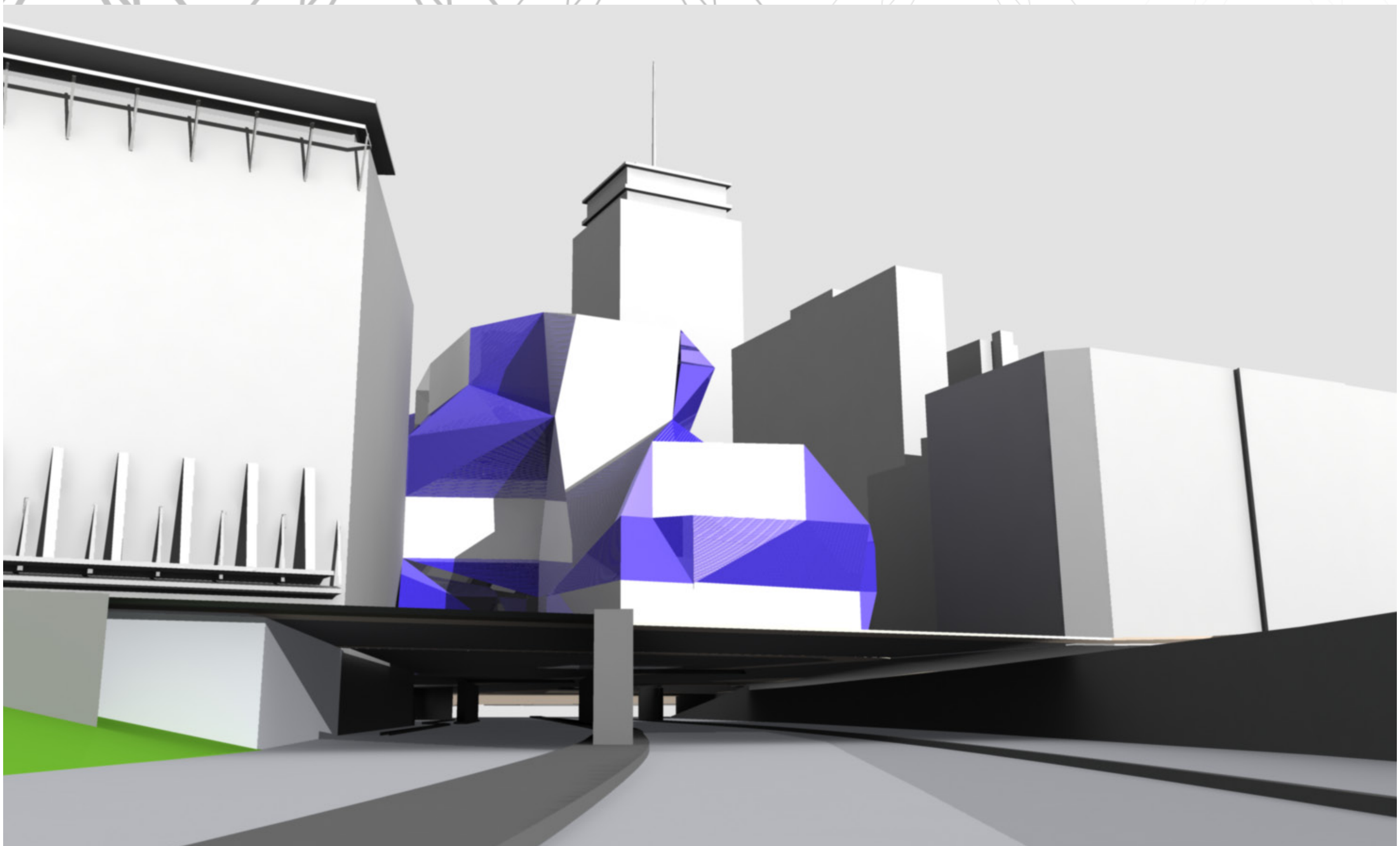
~15'
~7'
~7'



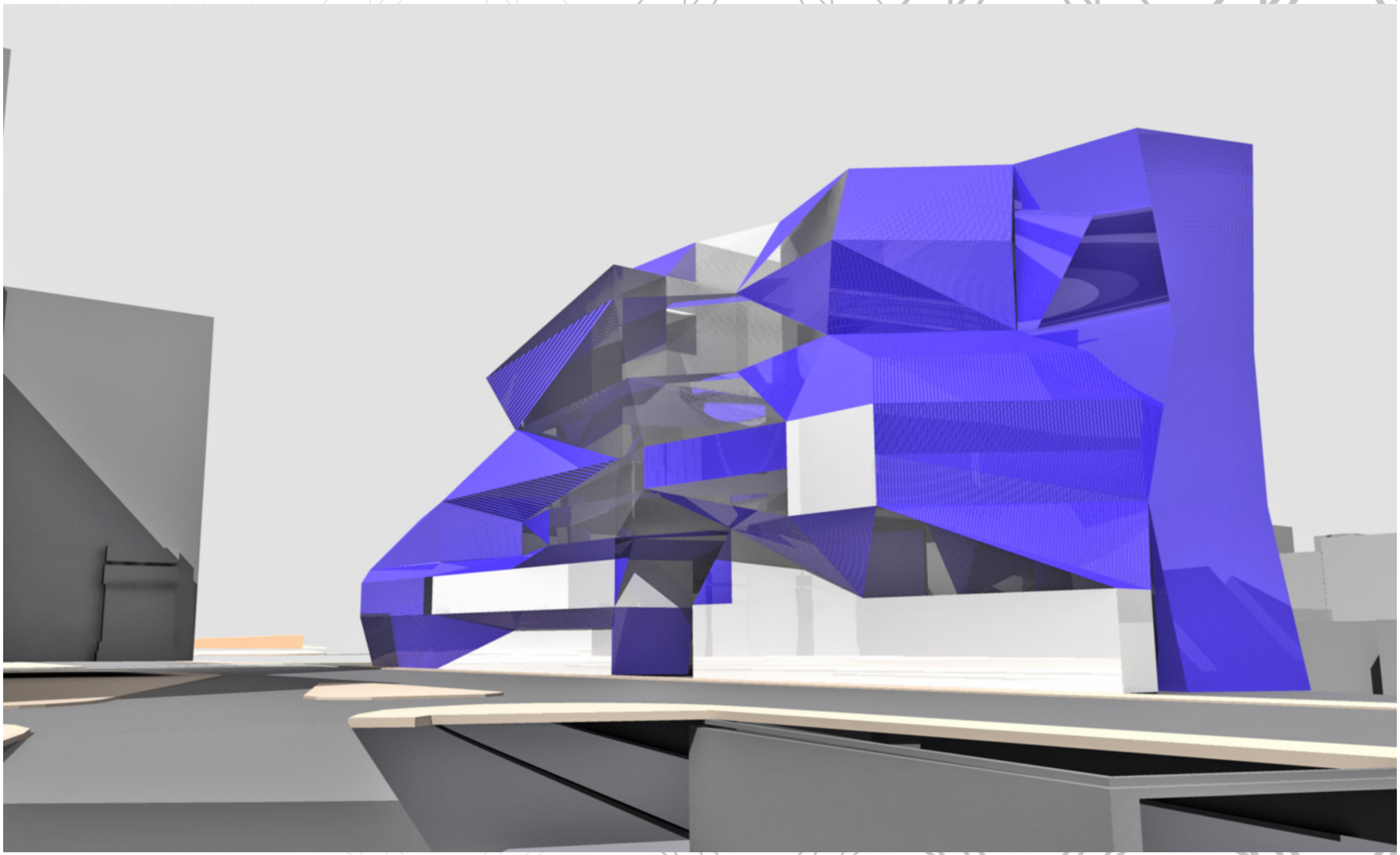
~15'
~7'
~7'


-15'
-7'
-7'

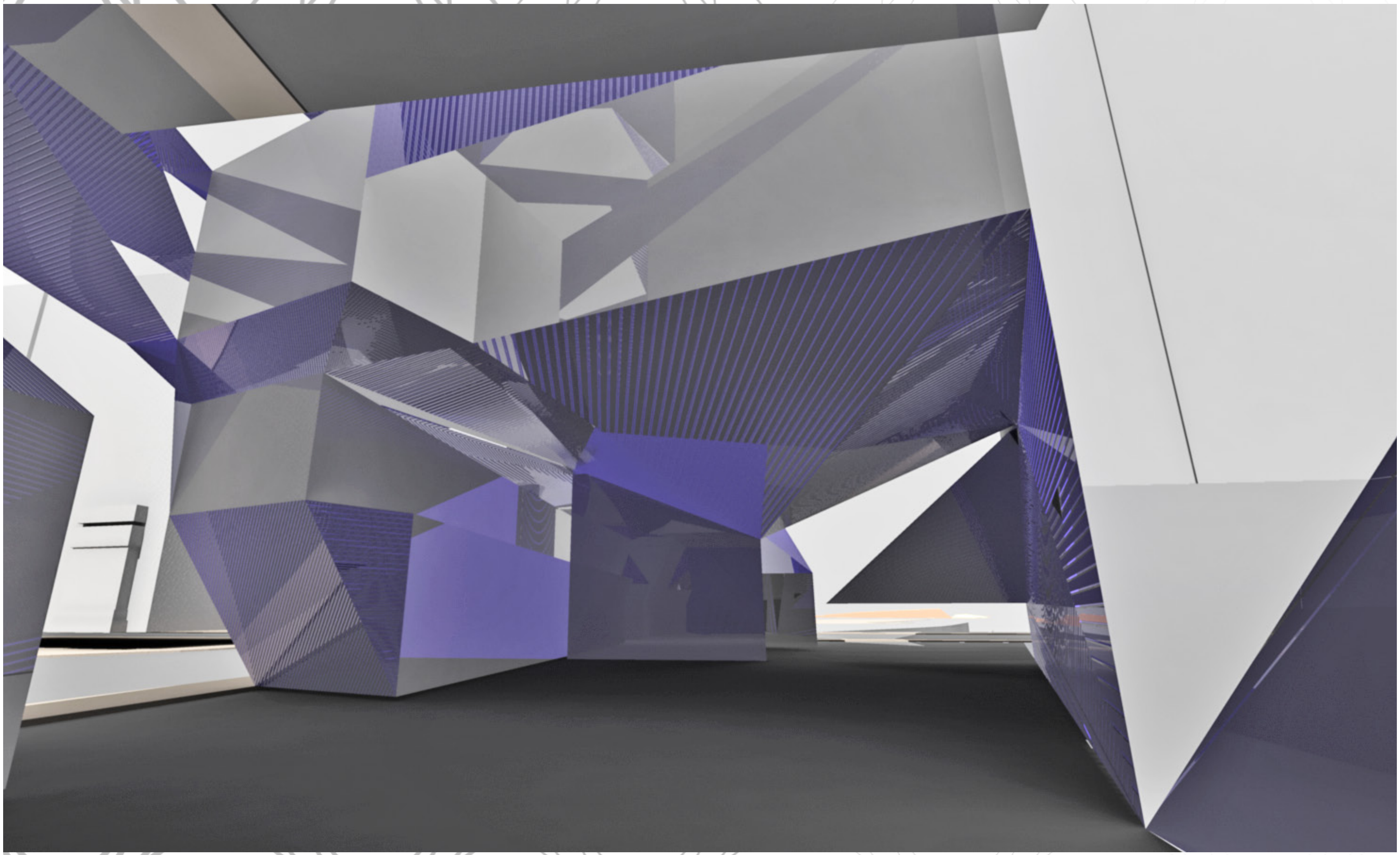

-15'
-7'
-7'



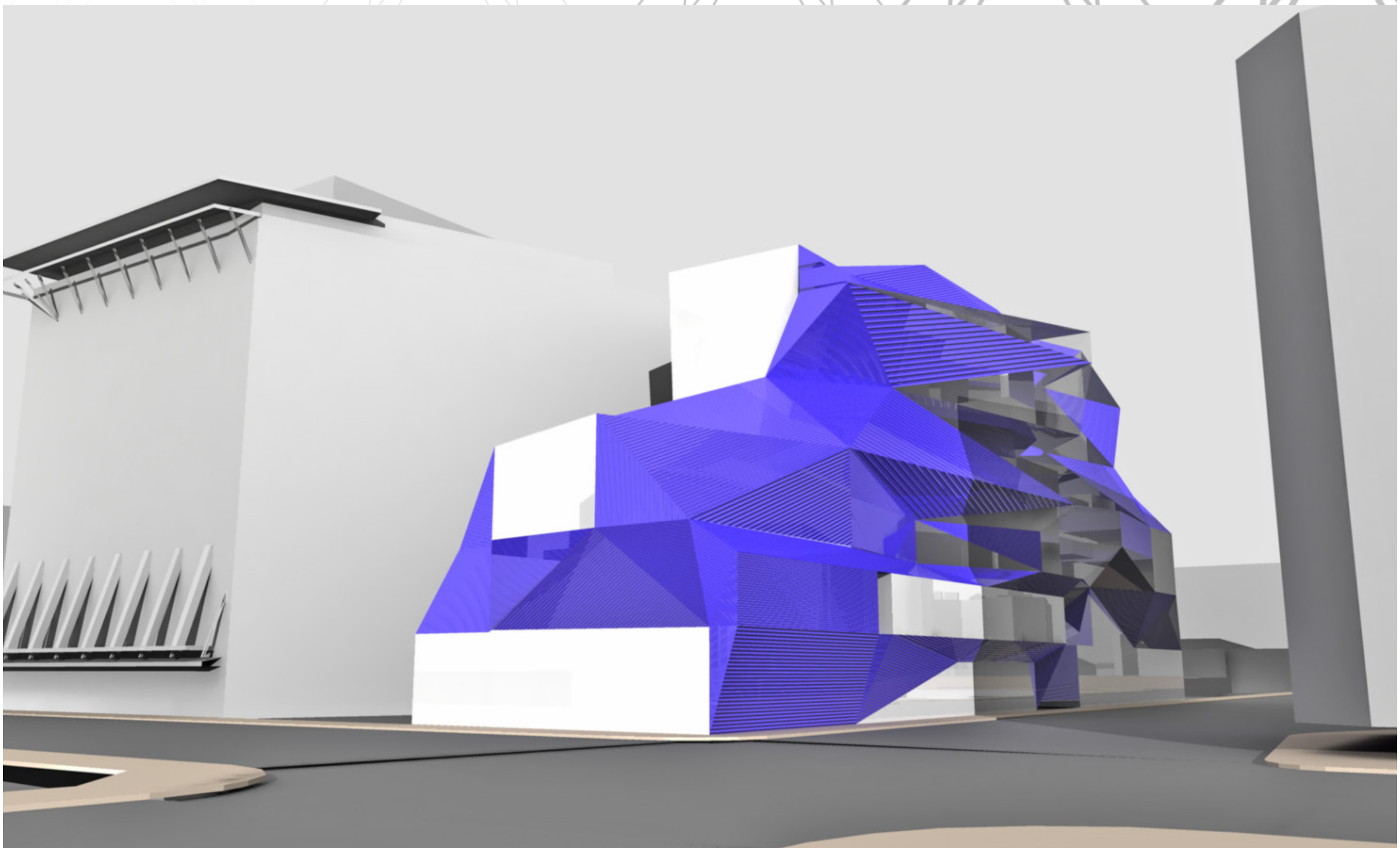
view from I-90



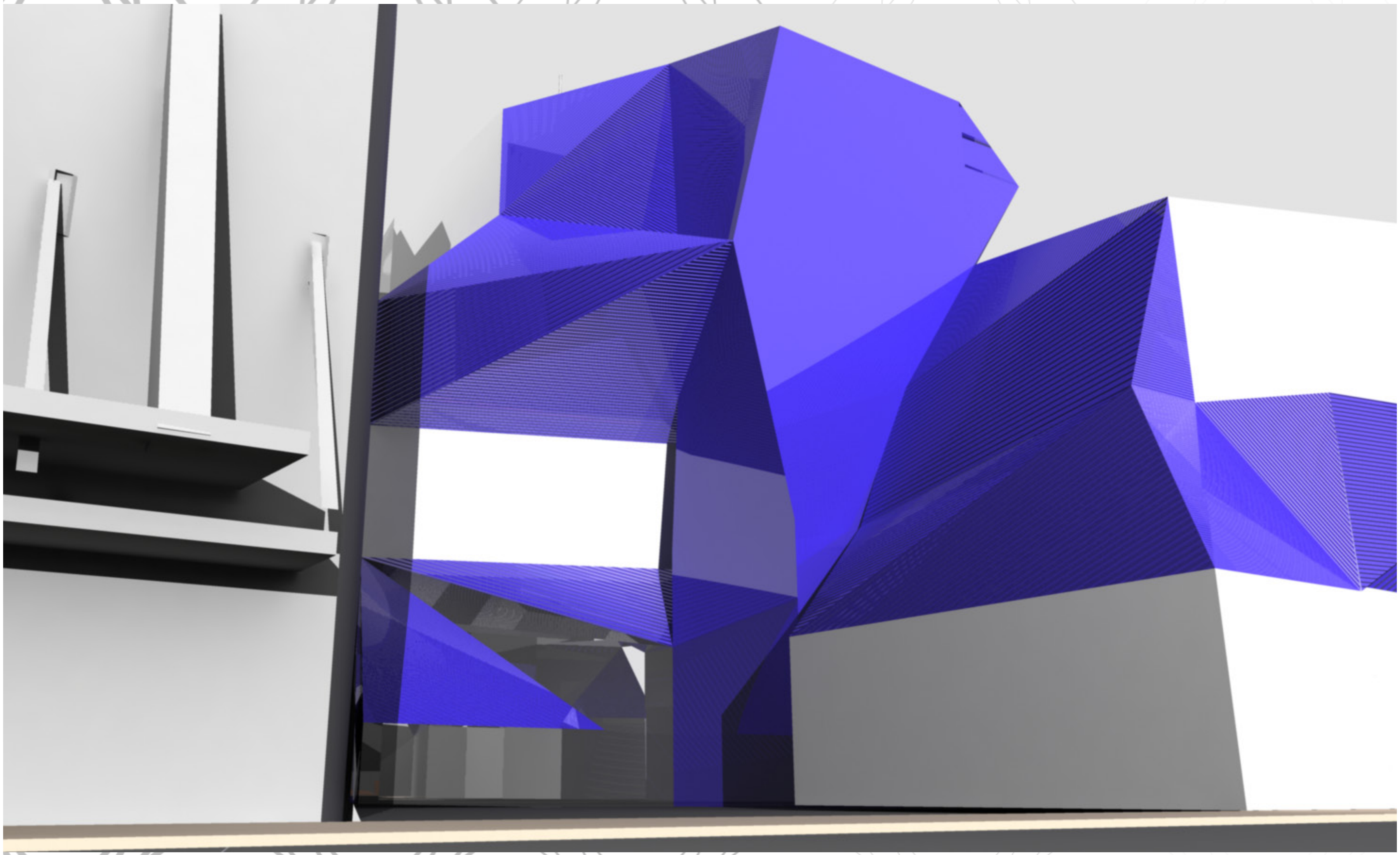
view from Bolyston Street



view from entry

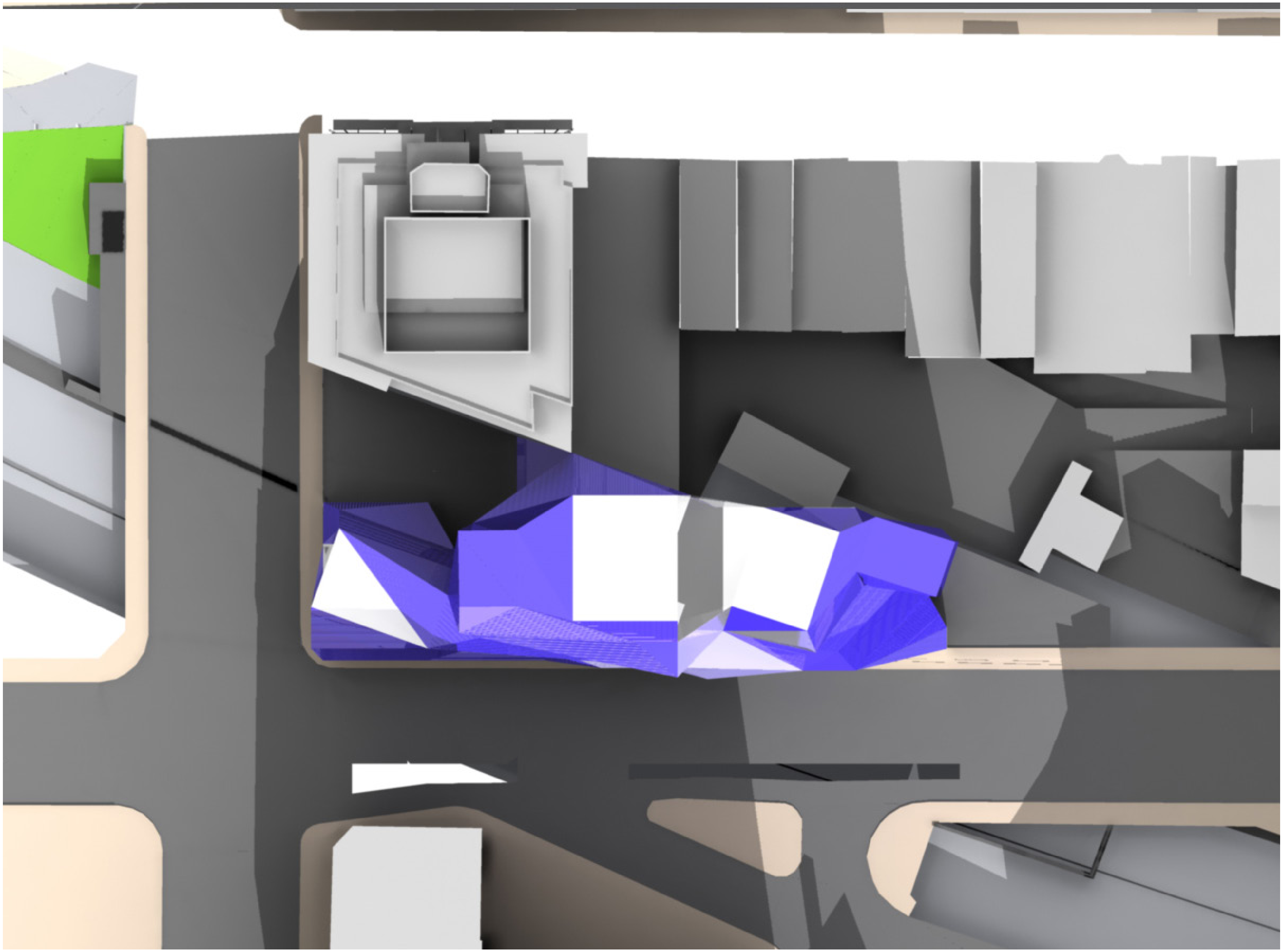


view from corner of site

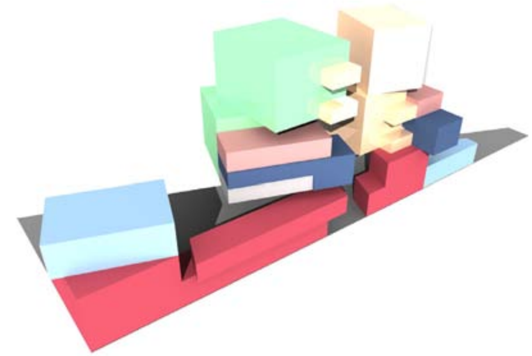


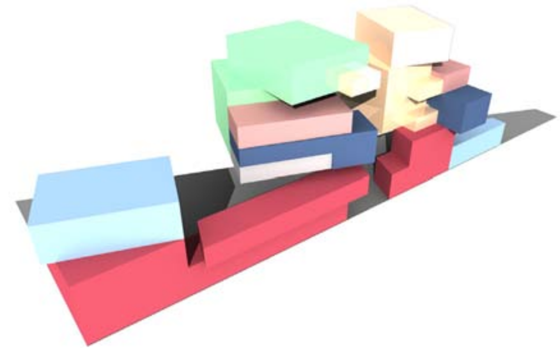
view from Best Buy

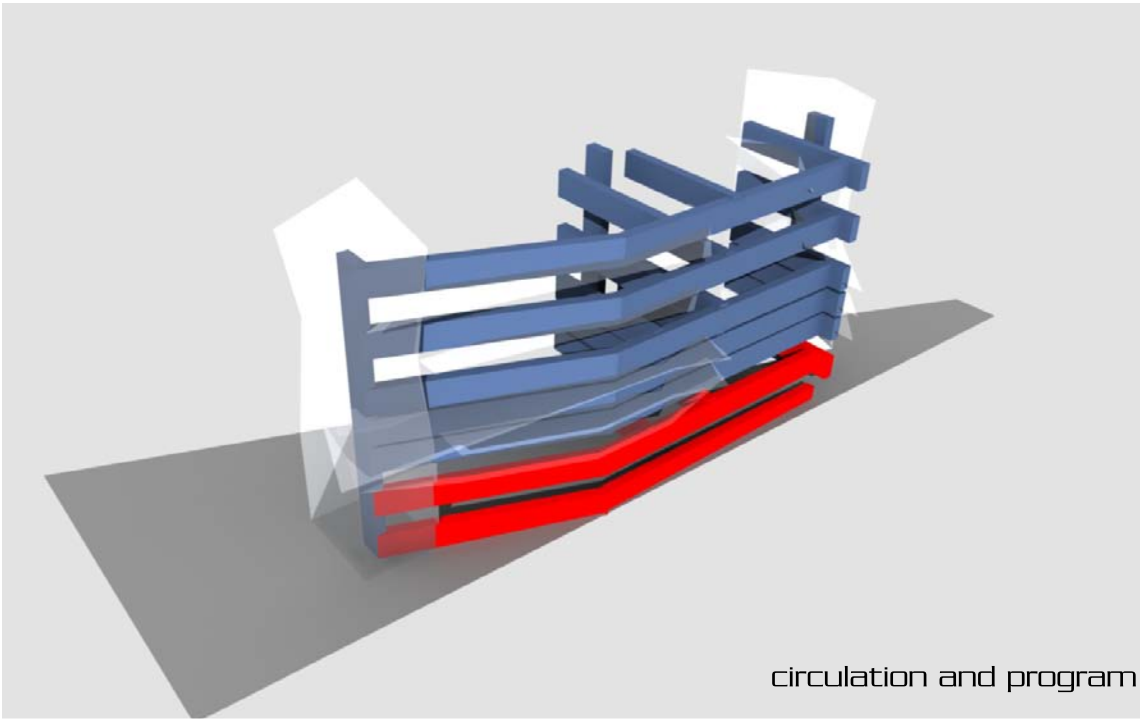
scheme b_sound towers_final



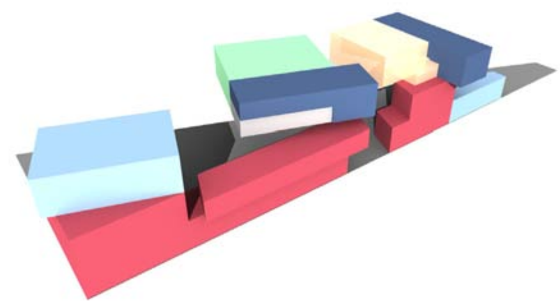
The major circulation comes from the edges of both towers into the atrium space. The public program, located on the first two levels is separated from the education towers to separate private and public. The towers shift from the two registrations of the highway and Bolyston Street.

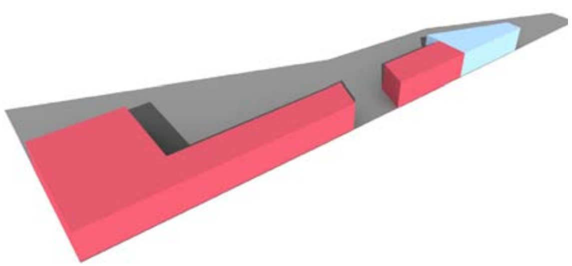


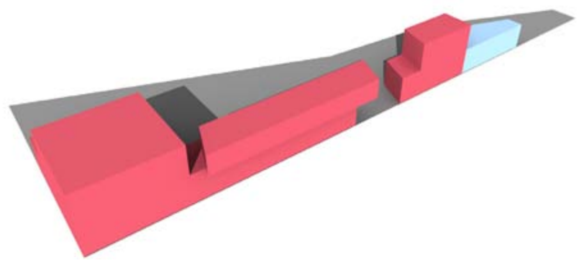


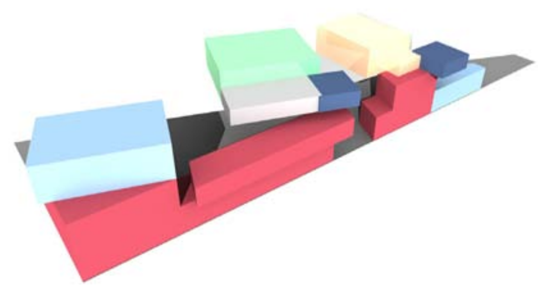


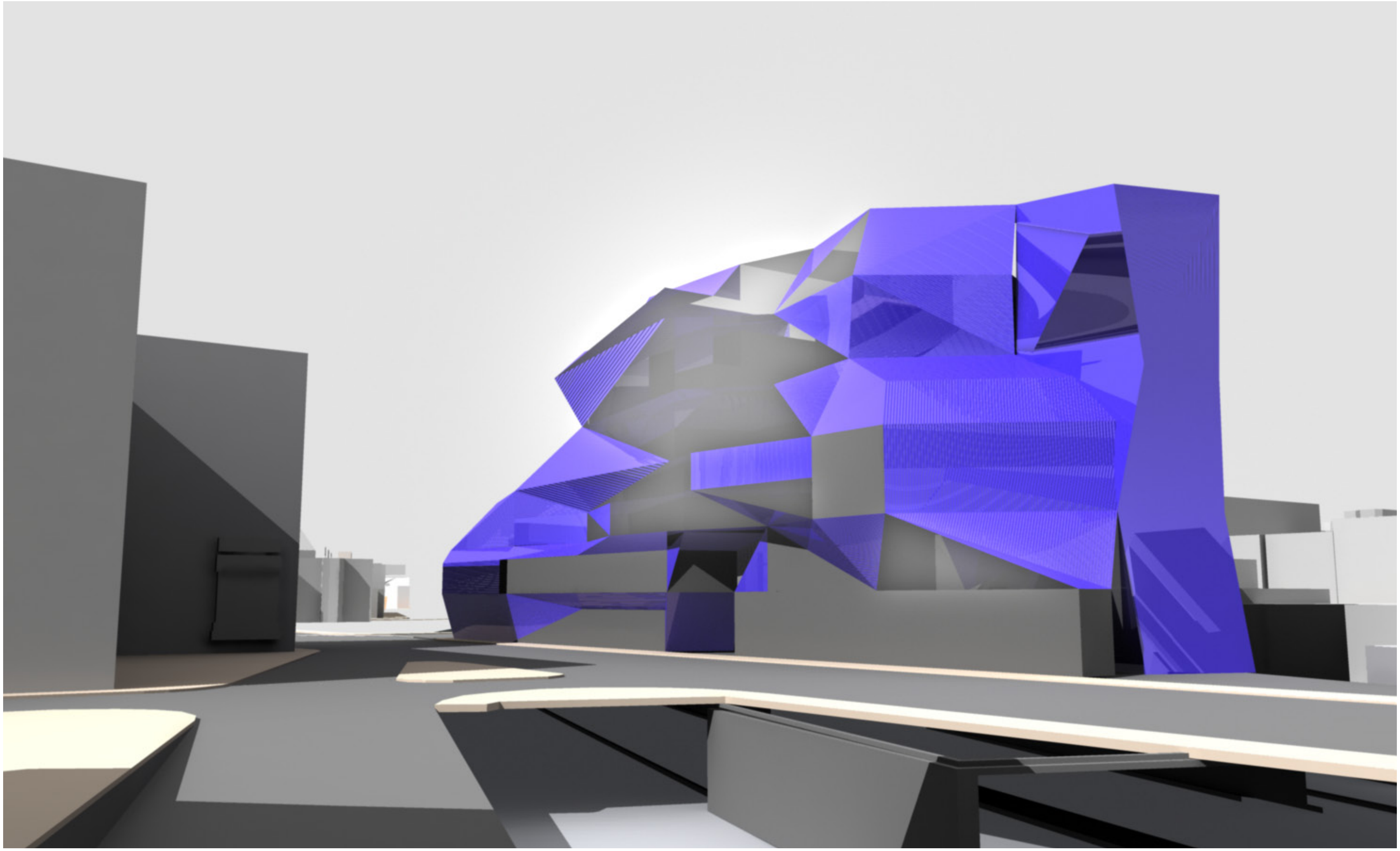
circulation and program

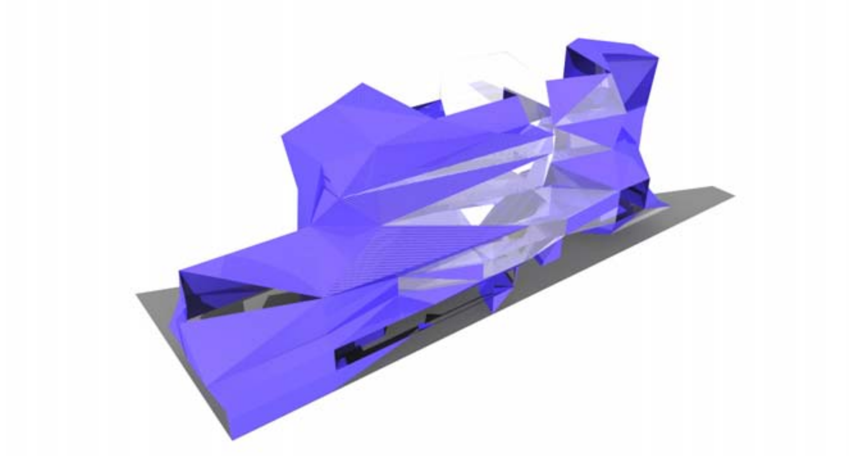






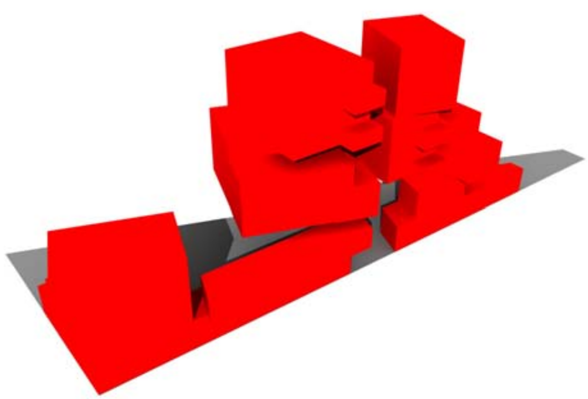


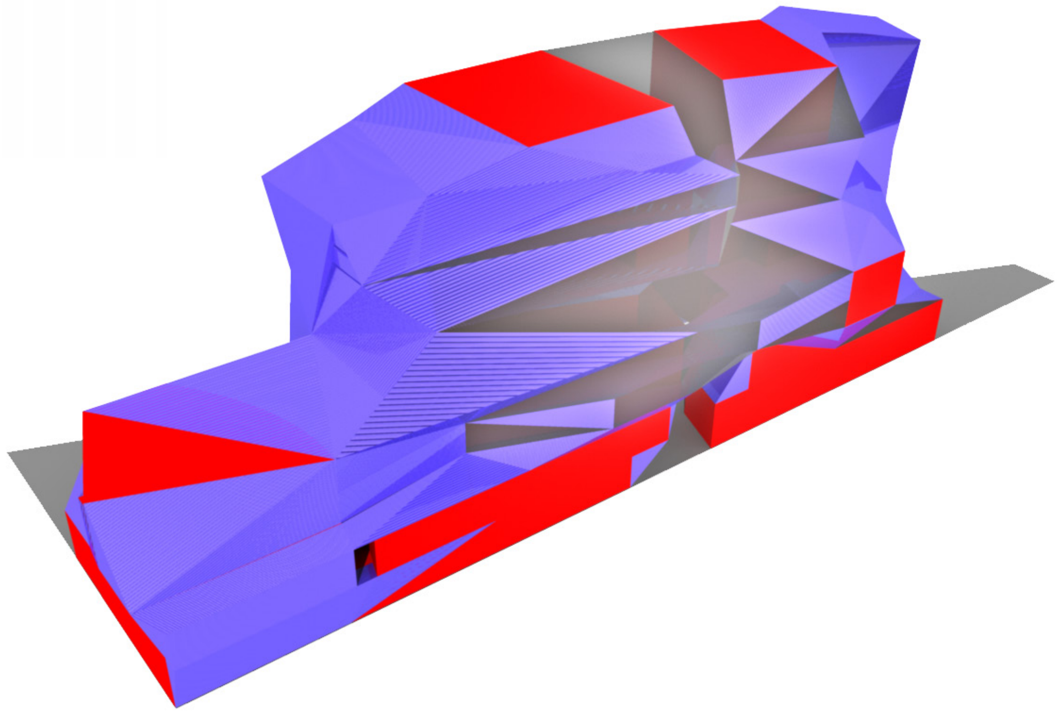




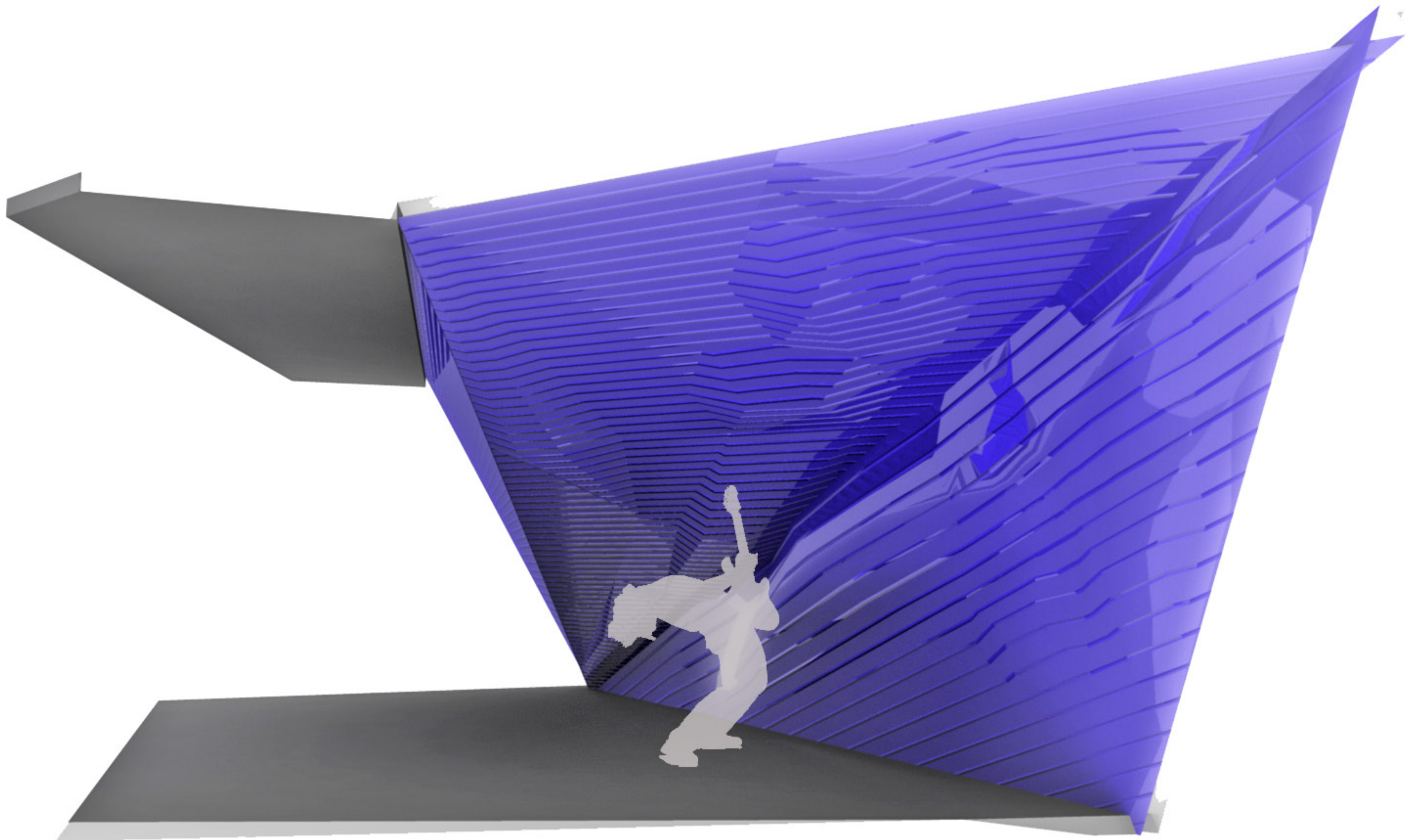
mesh skin

program towers

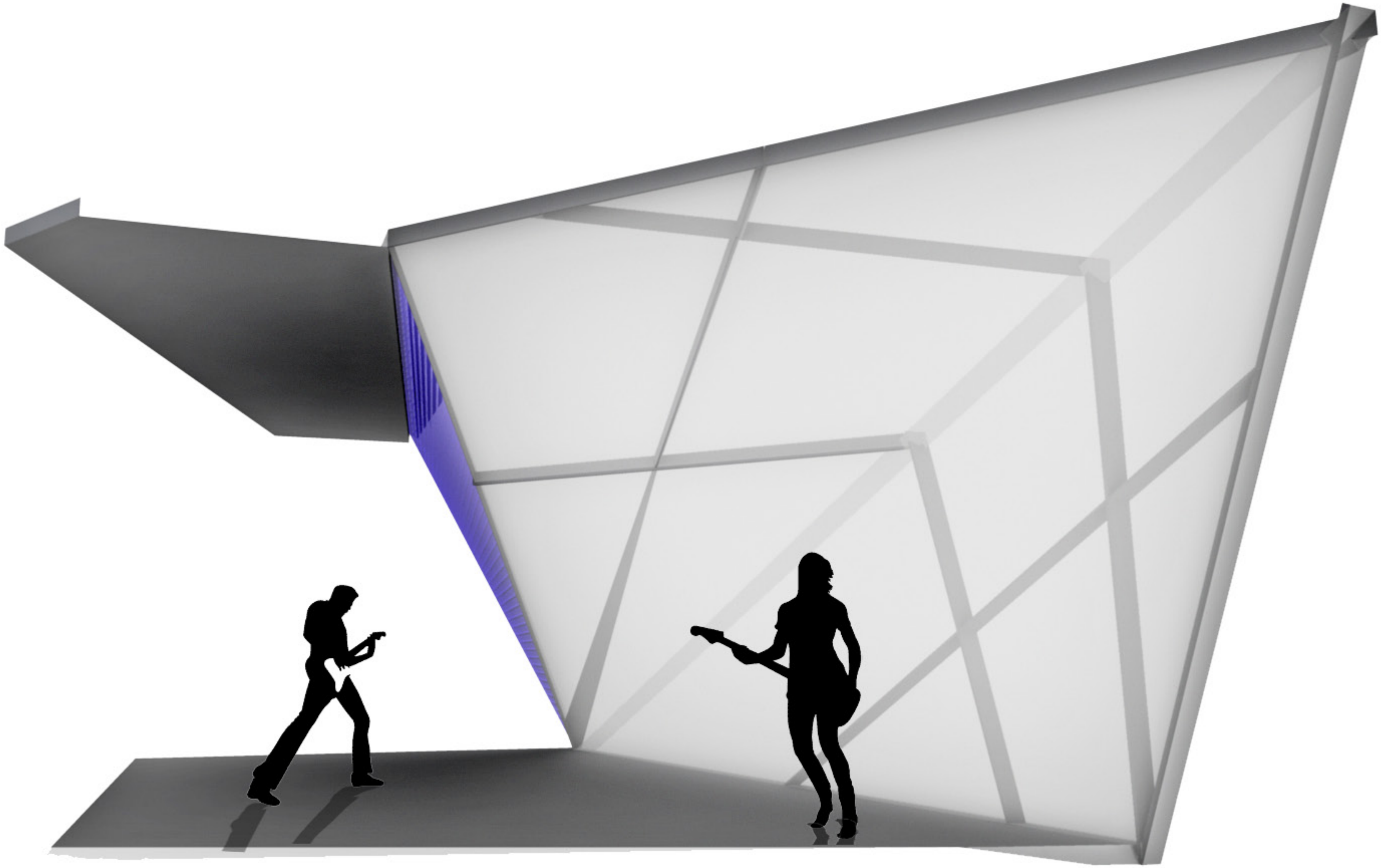




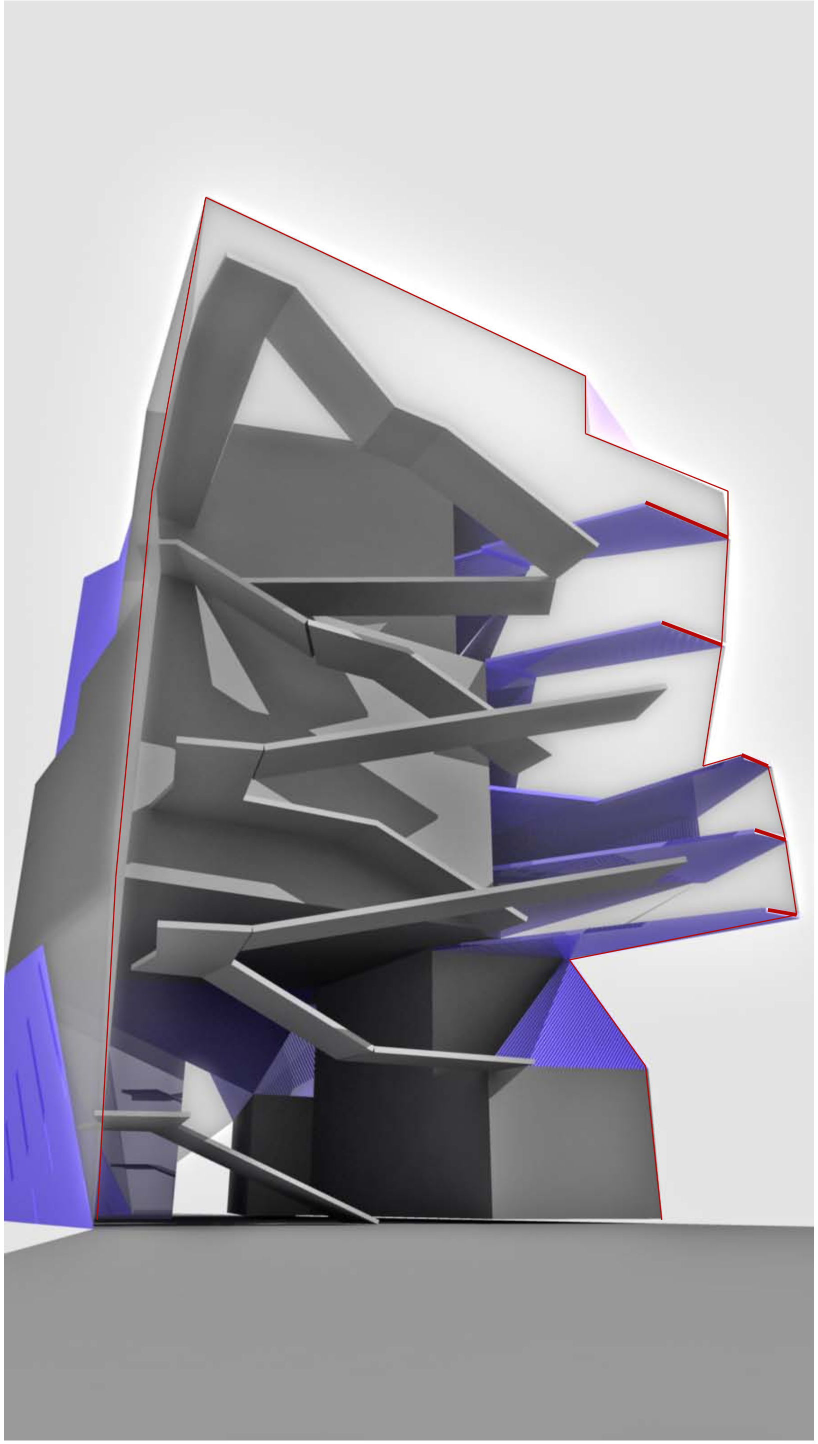
combined form

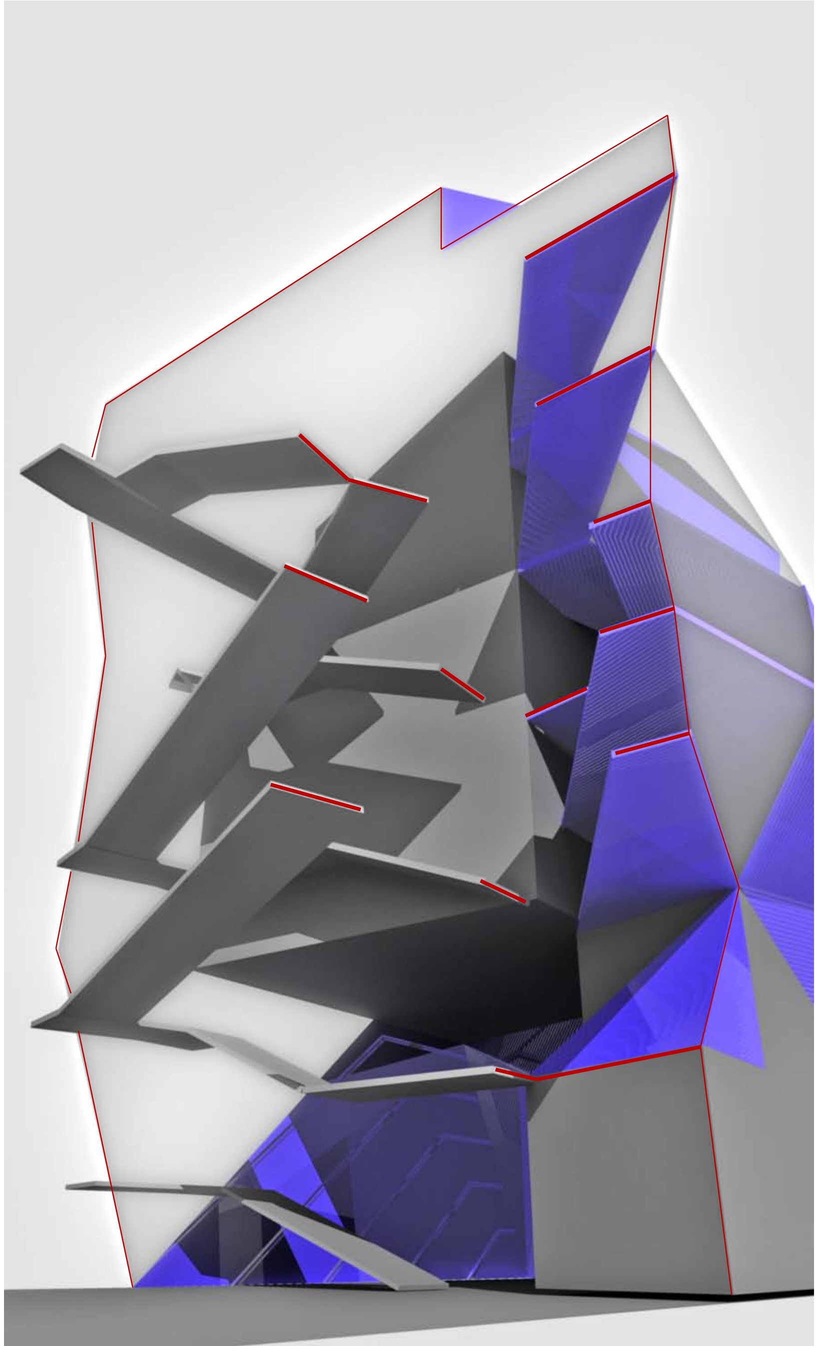


detail of mesh skin

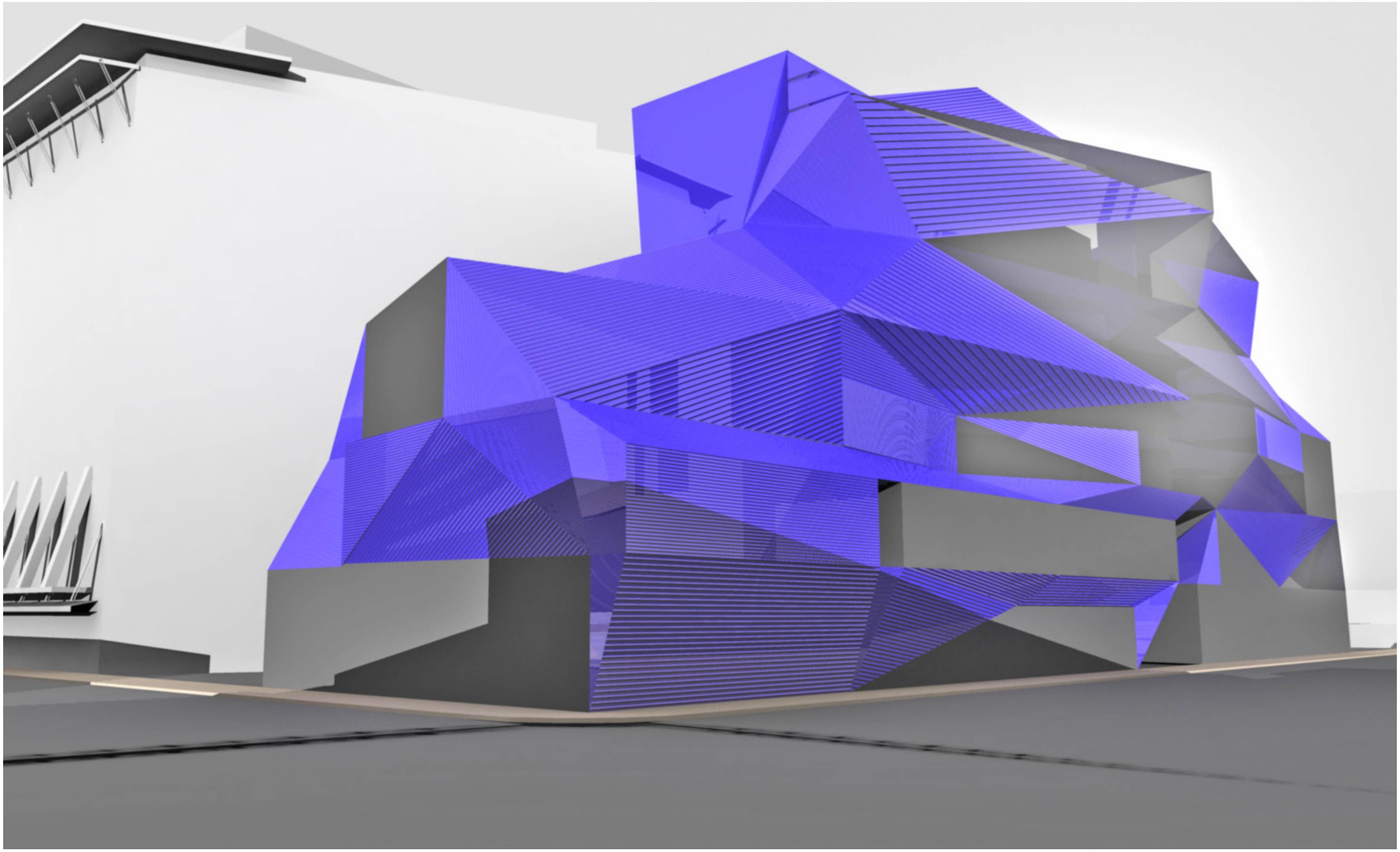


detail of glass facade

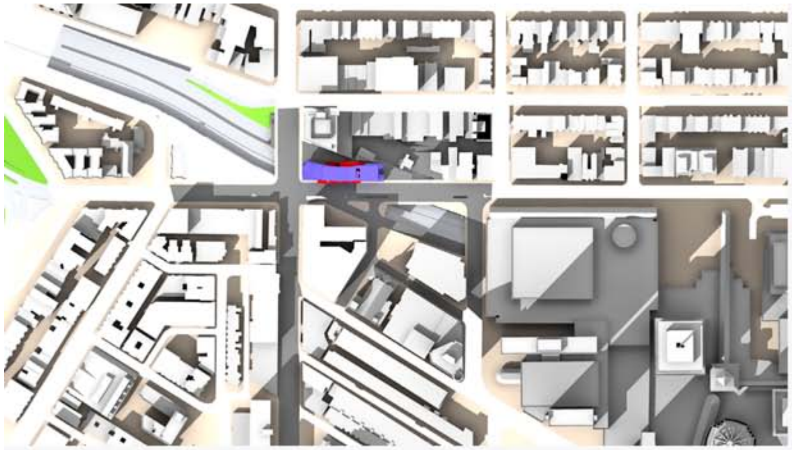


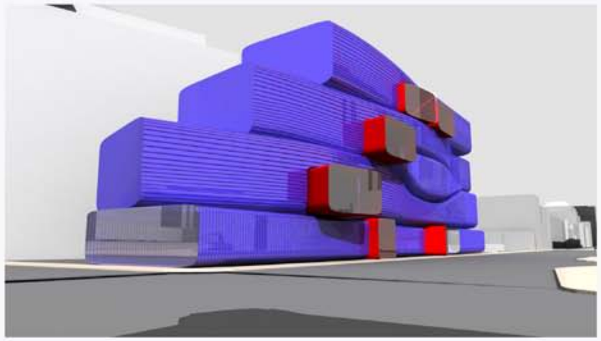


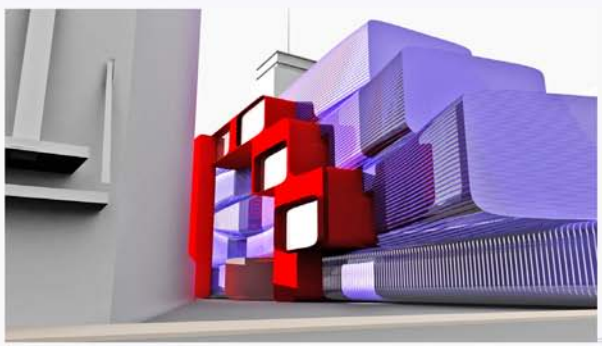
atrium sectional perspectives



view from corner of site

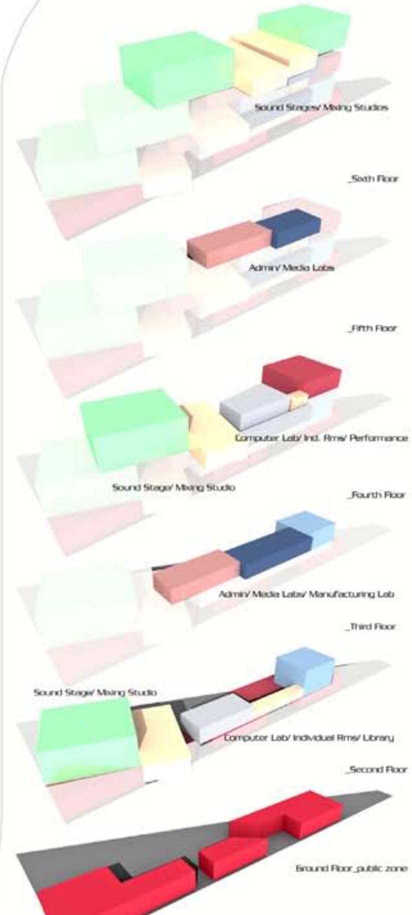




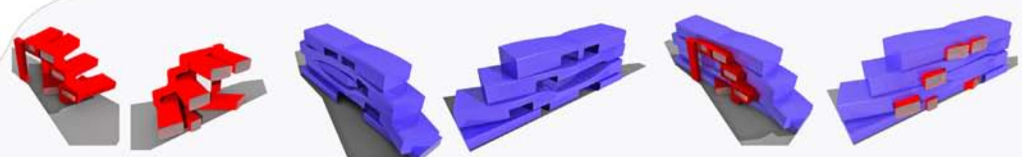


_concept

The mixing studios rack and stack through each program tube
creating circulation zones as well as spill out spaces to the north.
The spaces are wrapped together to the north and radiate out to the south.
These break up the continous tubes that flow along the registrations of I-90 and Bolyston Street.



_program

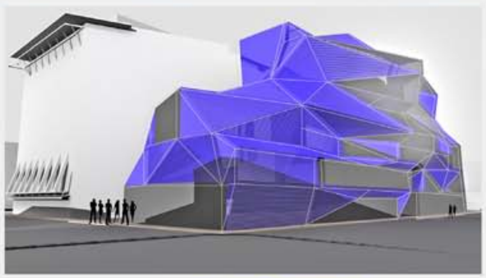


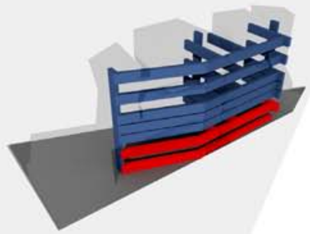
Forms are wrapped to the north and broken up towards the south

The program tubes crank from the axis of I-90 to Bolyston St.

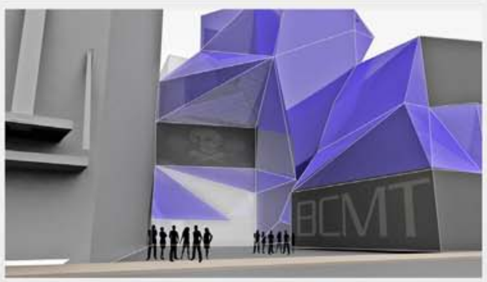
The combined effect of both forms interacting with each other

Berklee College of Music Technology_Boston, Massachusetts_ARCH 613_Nick Proto_Professor Cohen



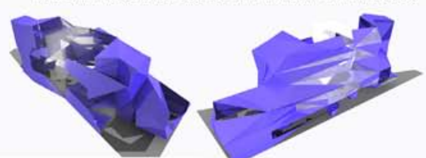


circulation is primary on the front facade and atrium

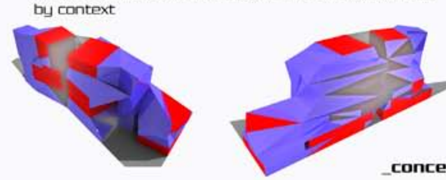


2 towers of program twist vertically

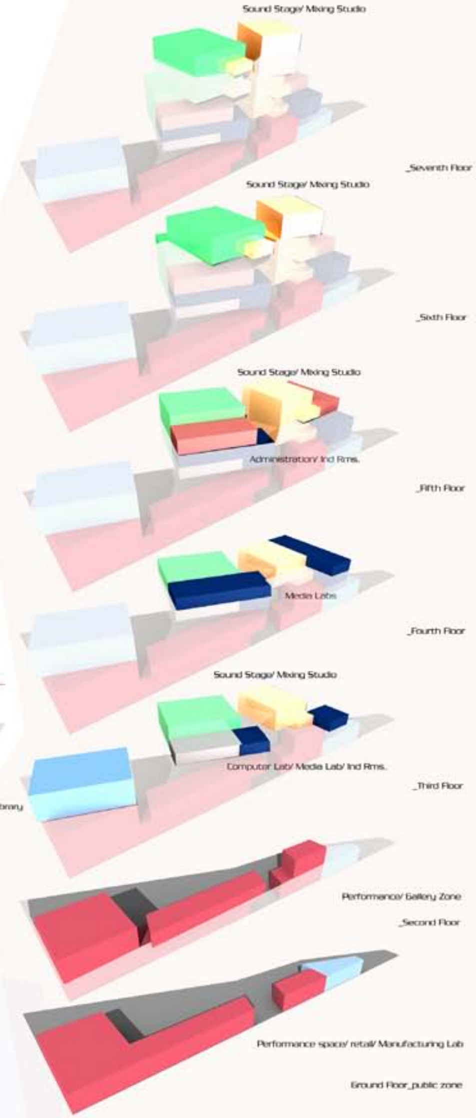
The skin covers the towers and creates a new look



A new building influenced by site but not constrained by context



_concept



The sound stages and mixing studios are stacked in two separate towers that express the verticality of the scheme. Each pair of program crank along the I-90 axis giving a twisting form to each tower. Secondary program is around each studio for easy access. The atrium is the crack between the two towers that holds vertical circulation at the back and horizontal circulation at the front. The skin disguises the towers verticality and creates a new, different look to the context of the site.

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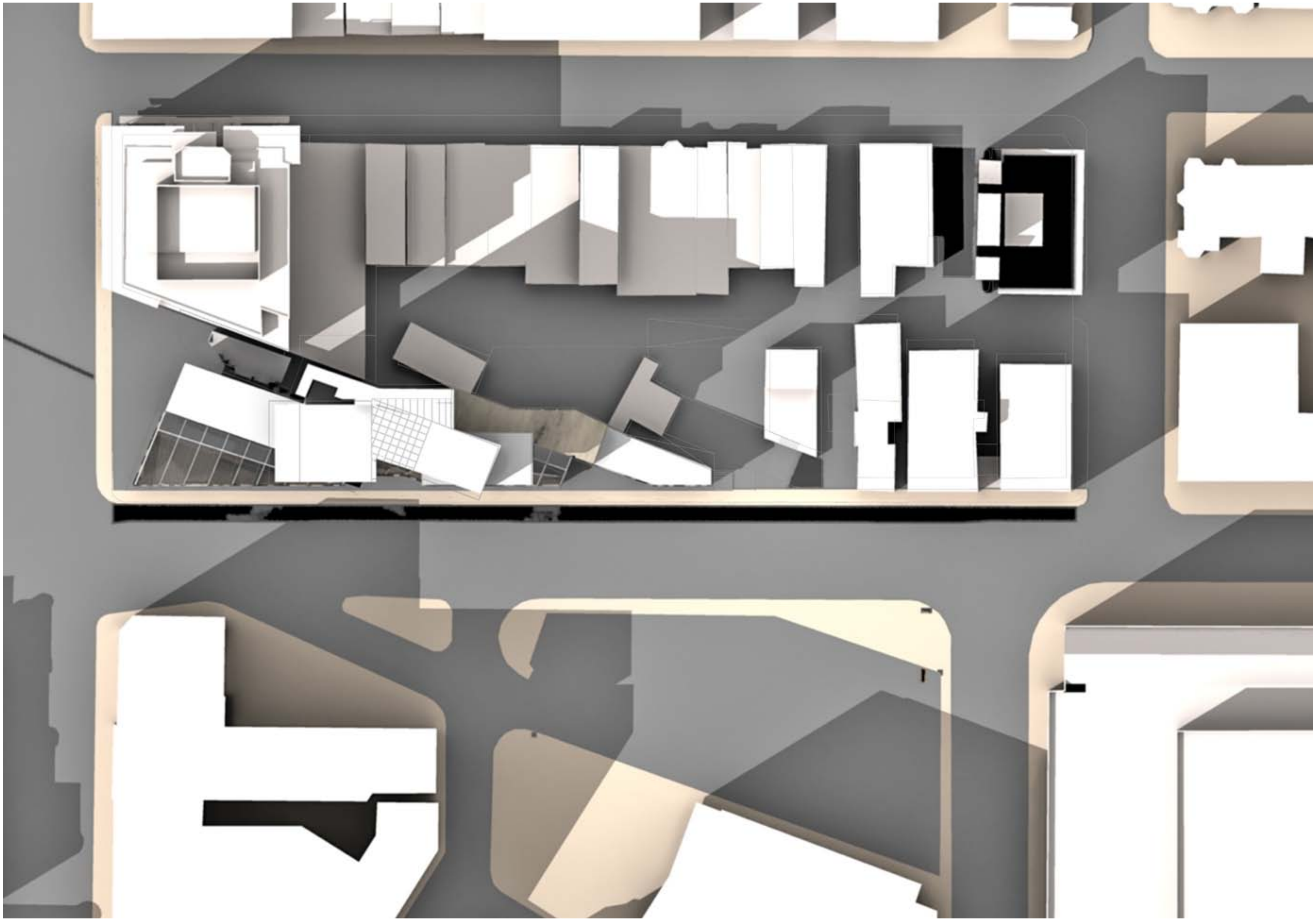
mid-term design



site

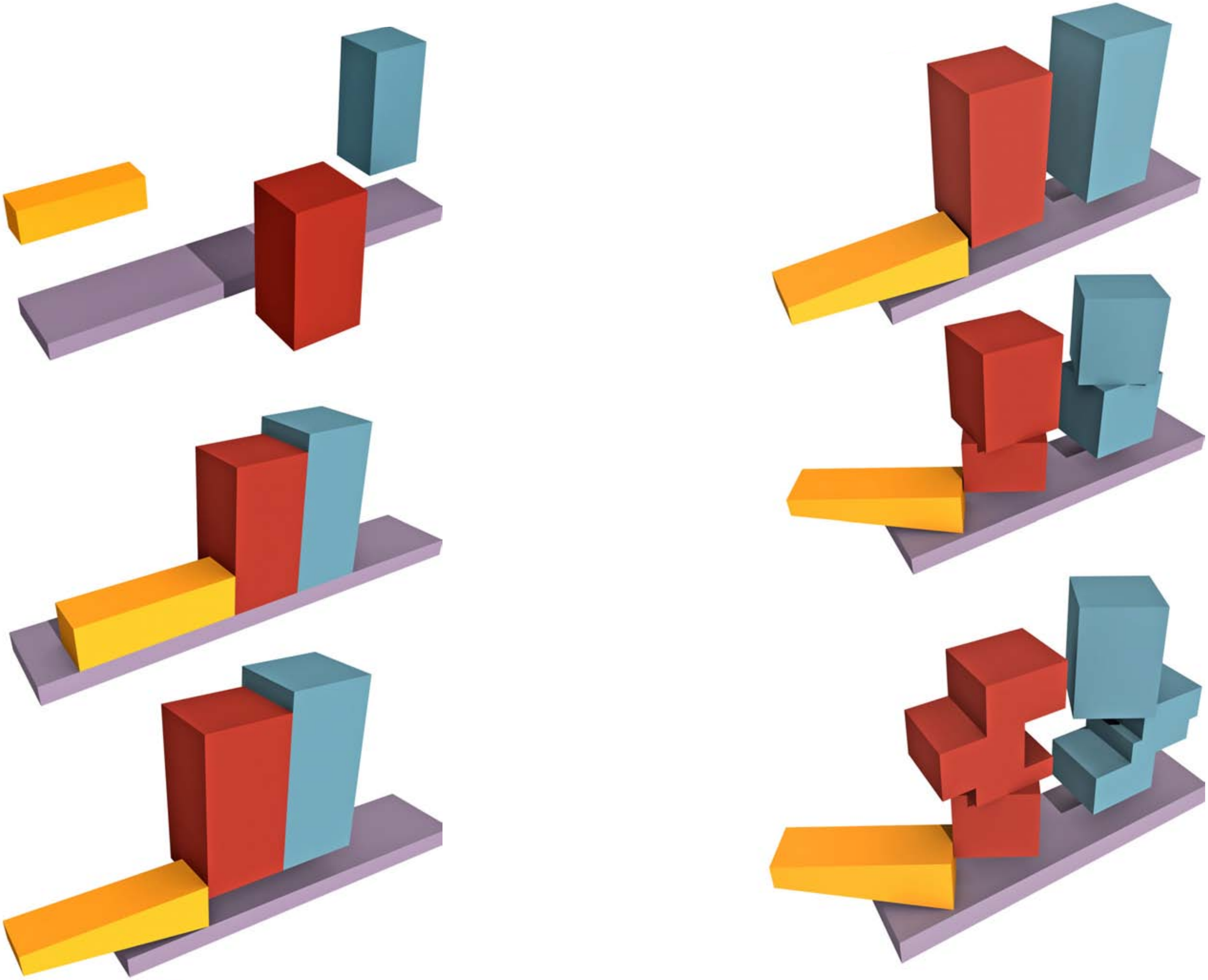
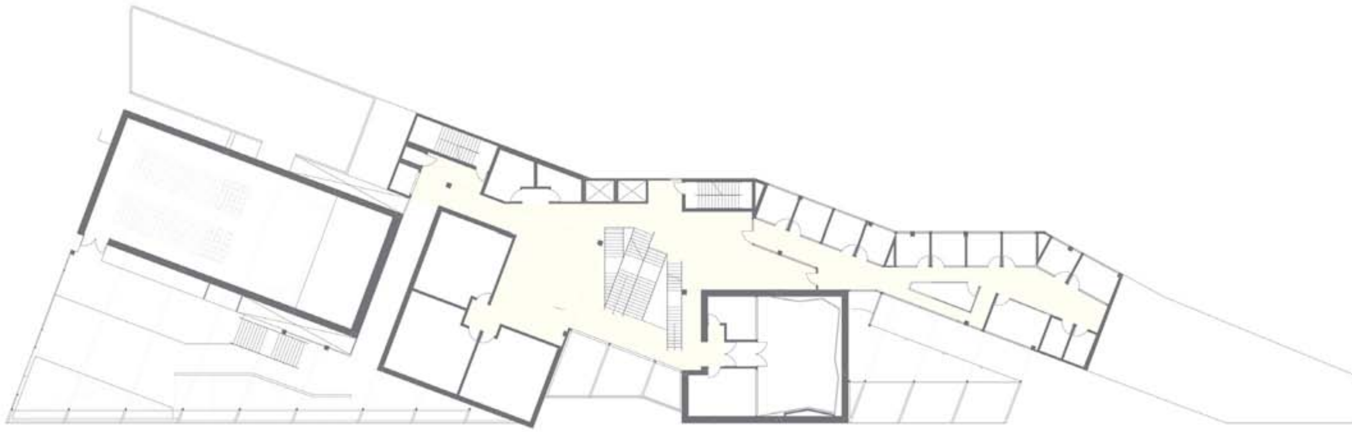
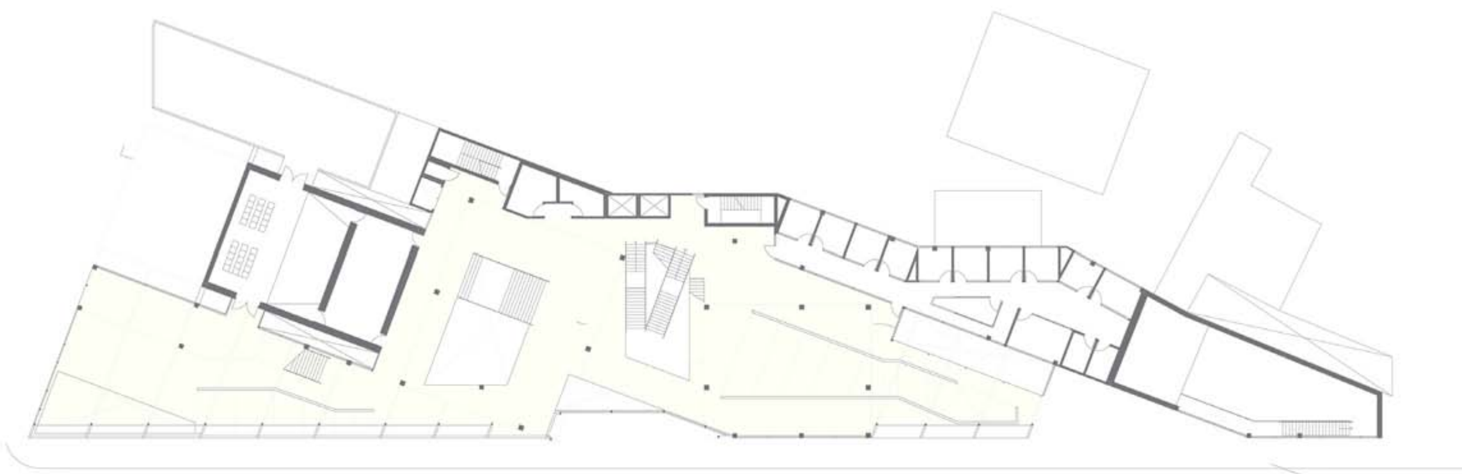
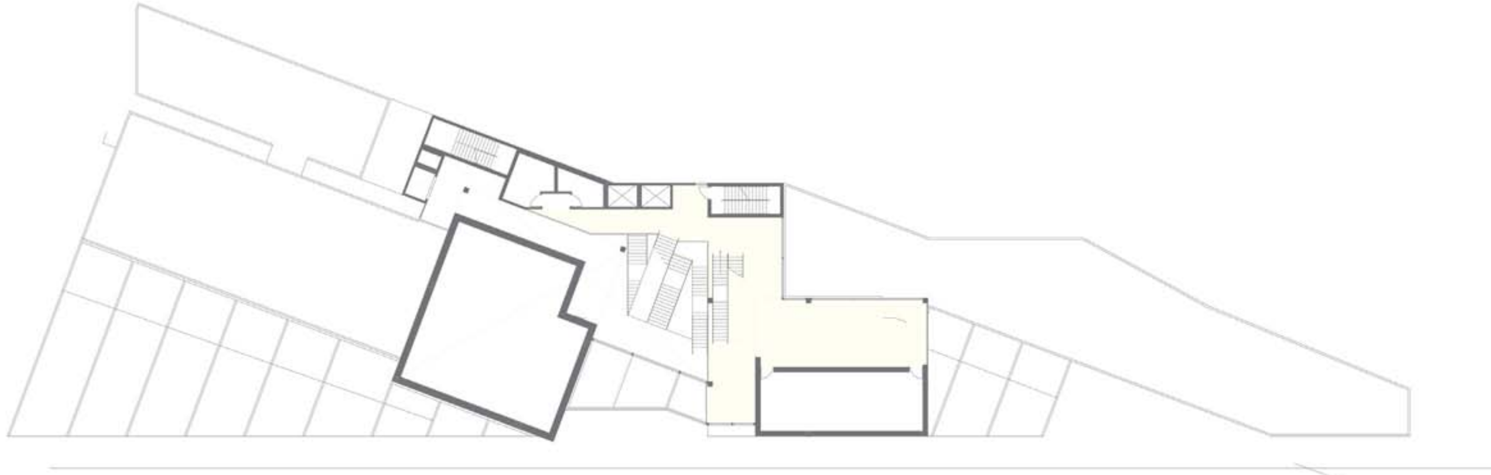


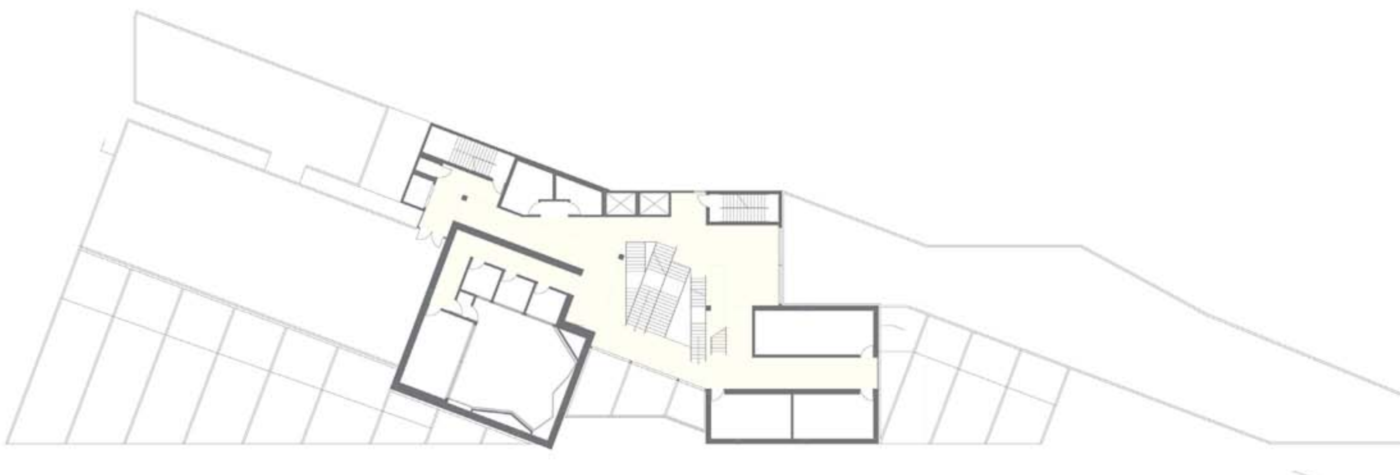
diagram showing manipulation of form

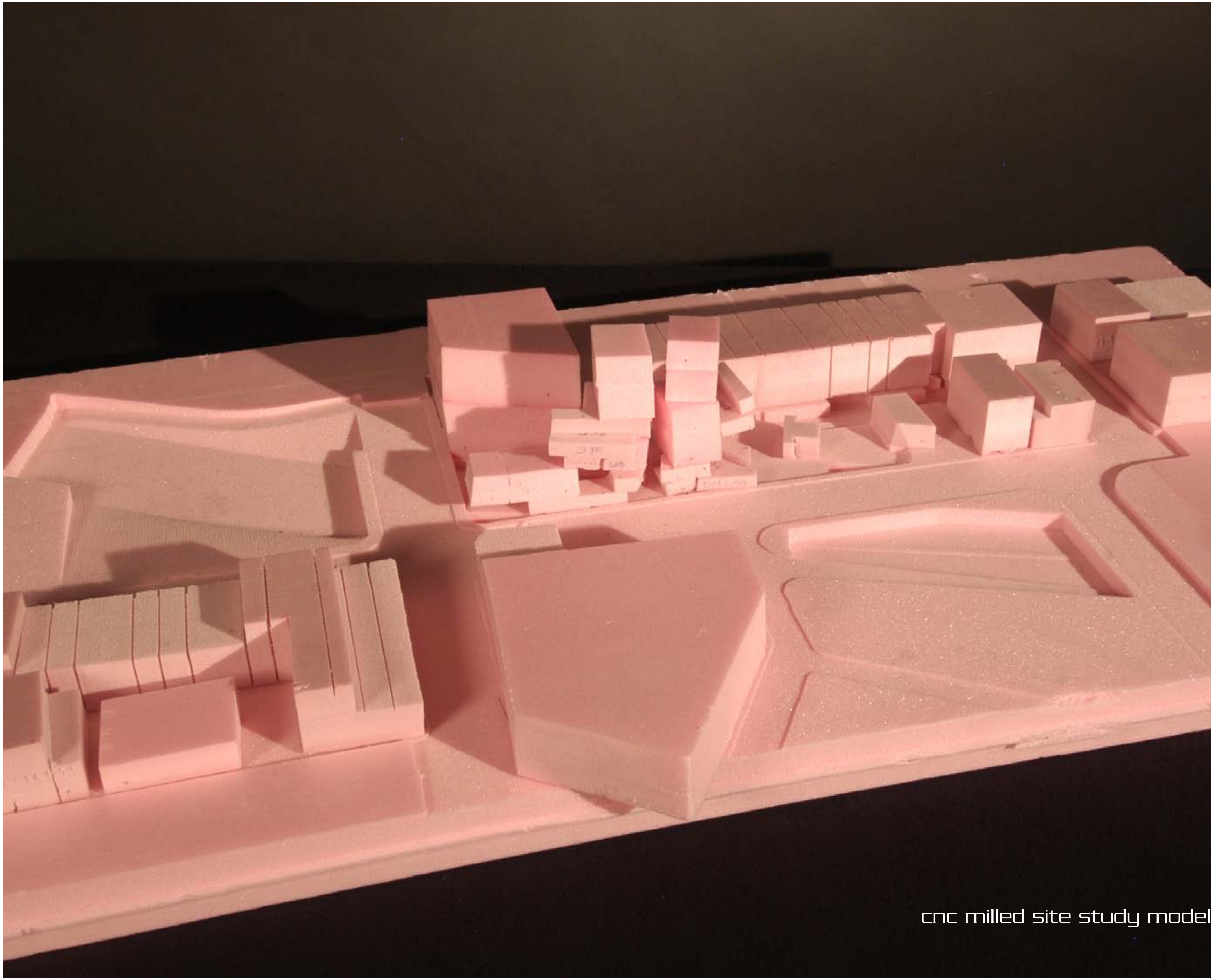
ground floor 1/16"=1'

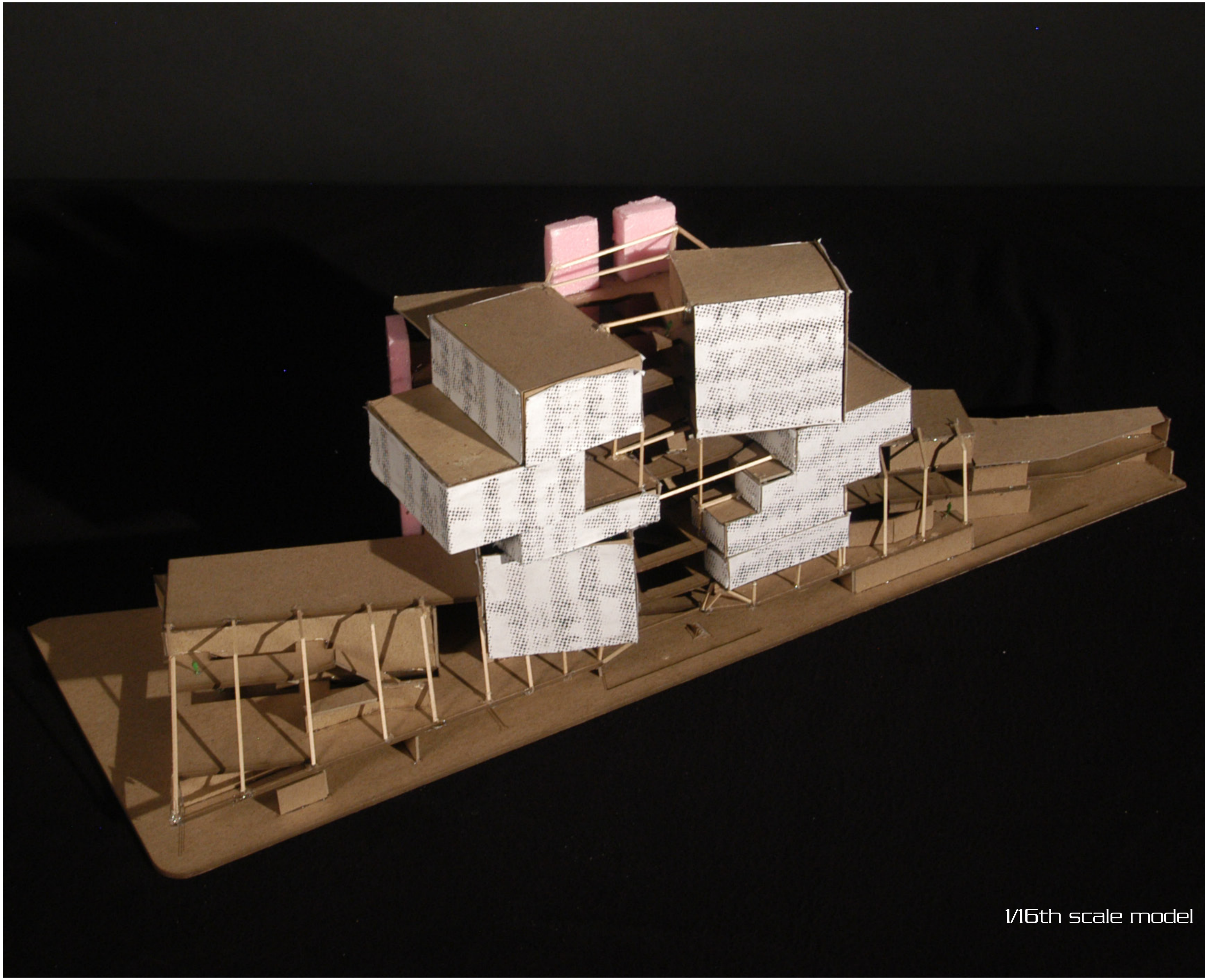


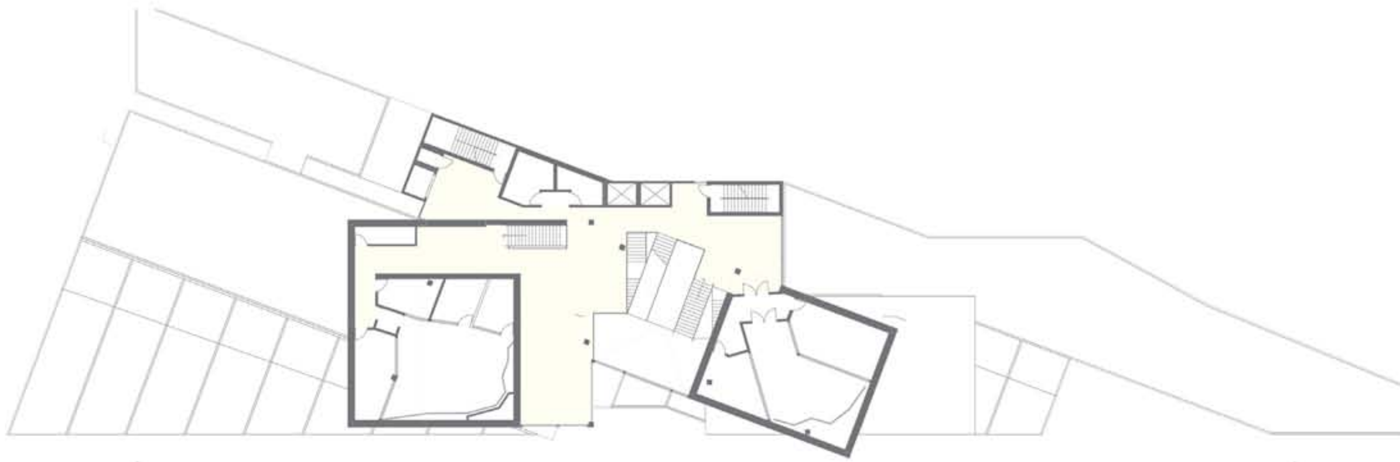


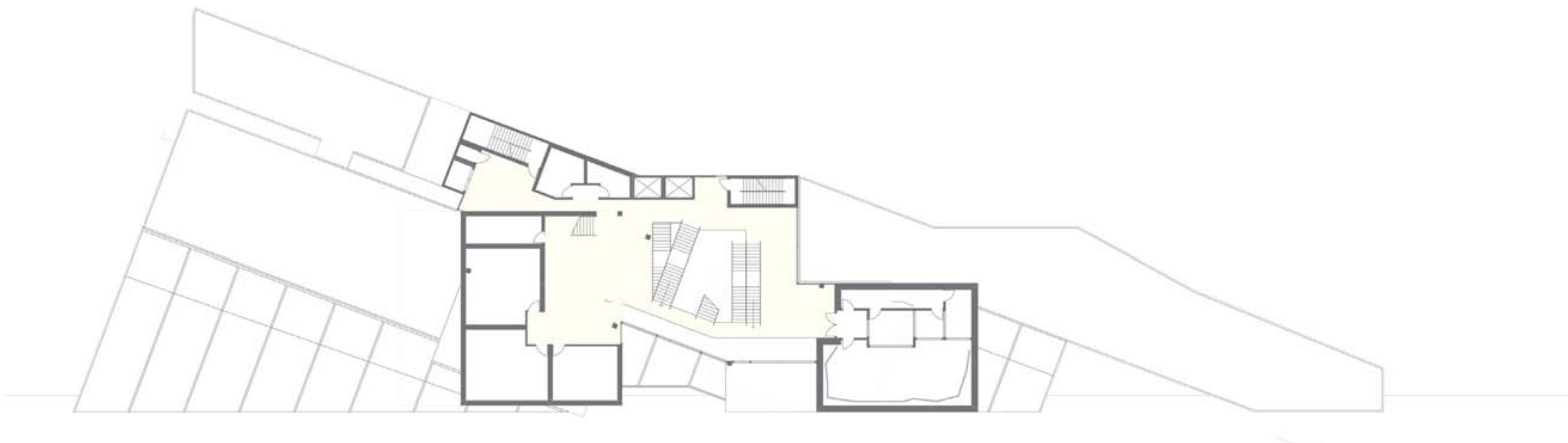


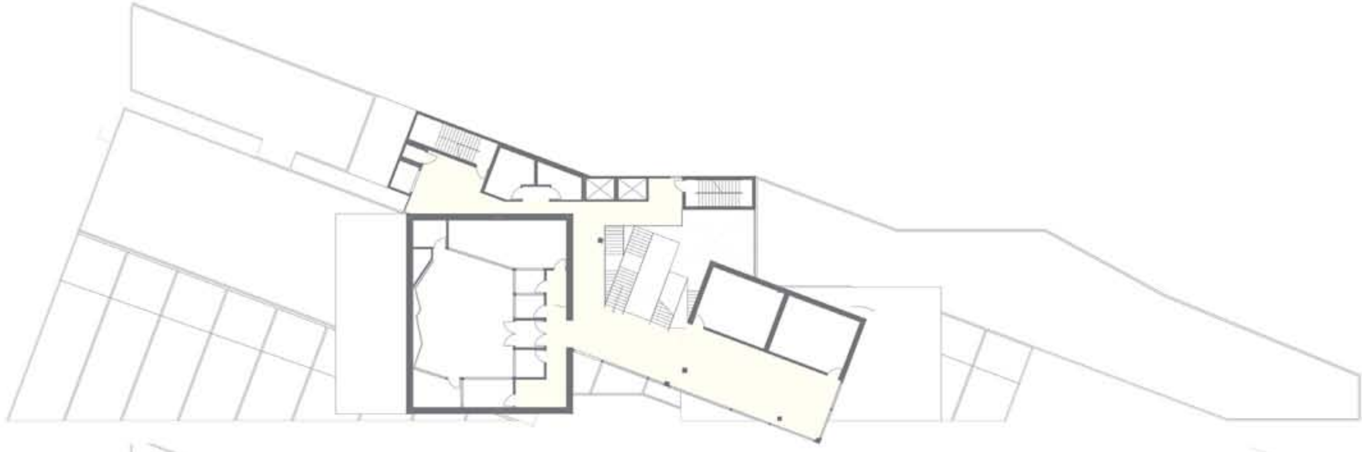


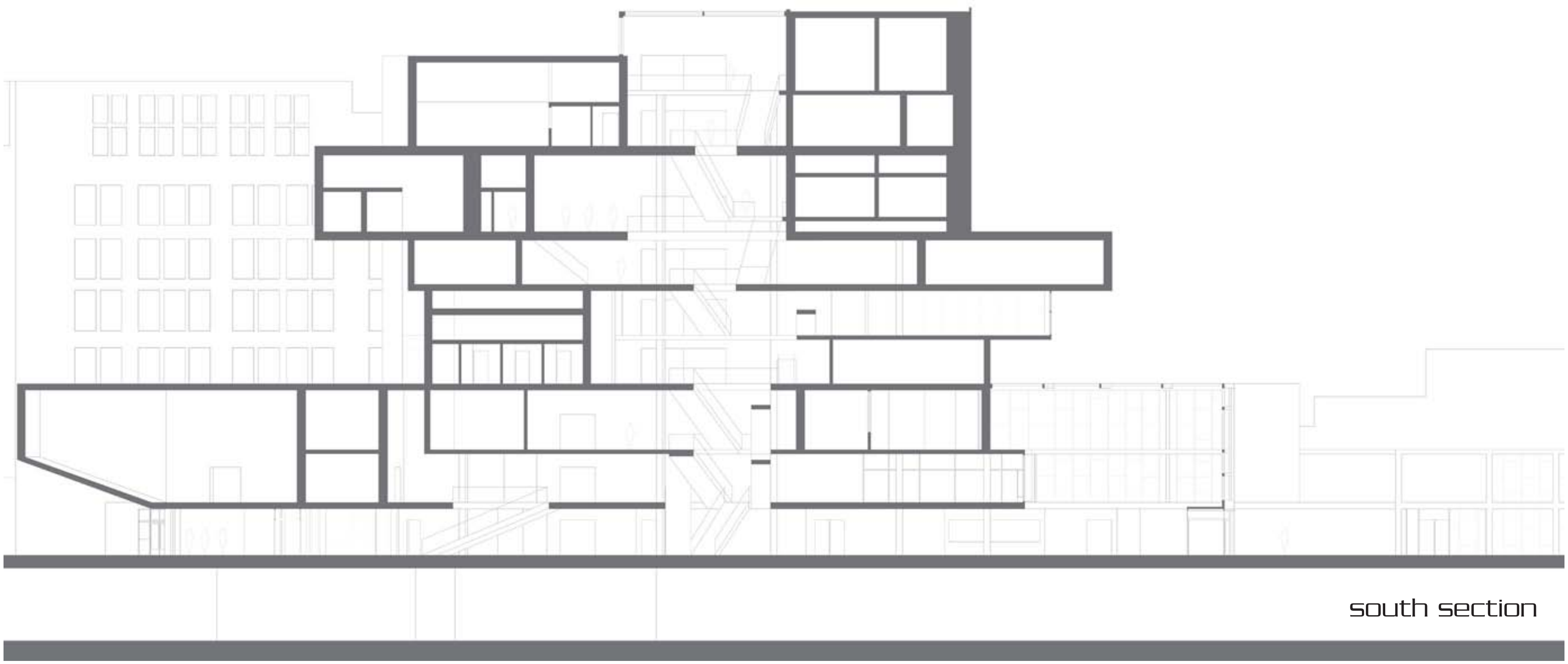

cnc milled site study model


1/16th scale model







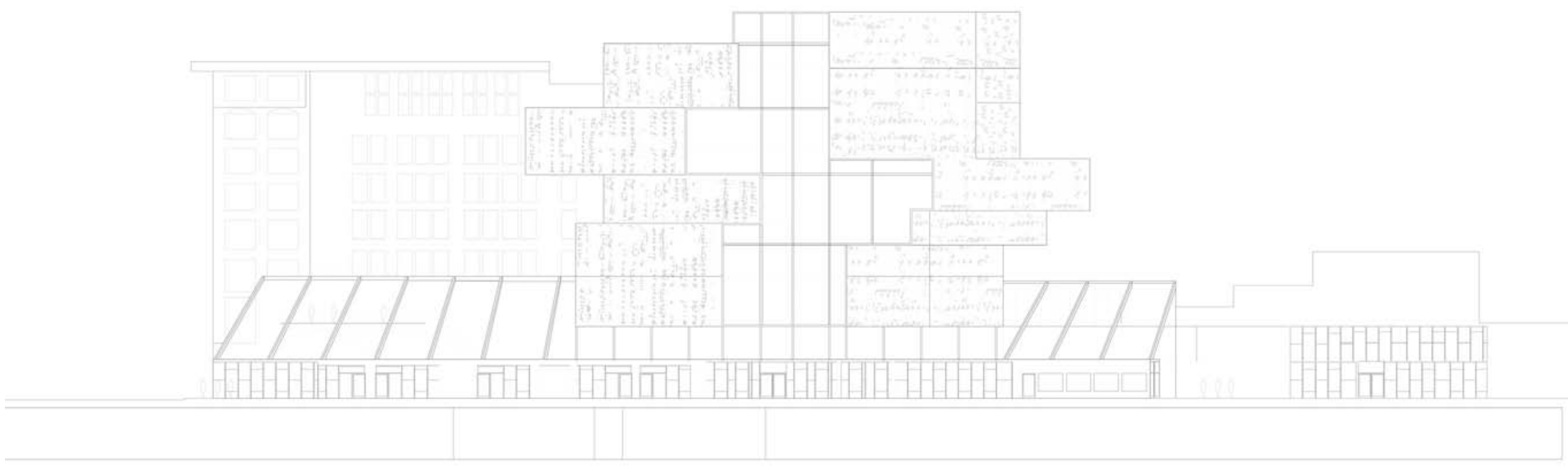


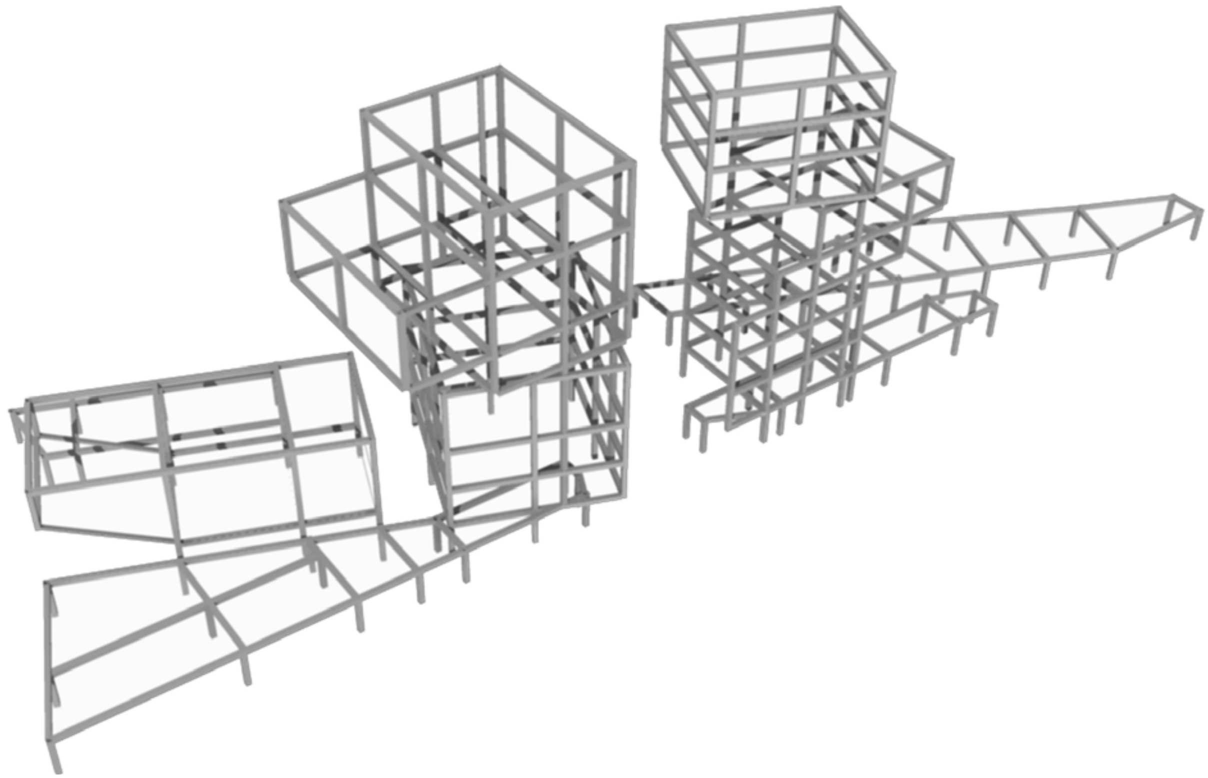
south section

view from I-90

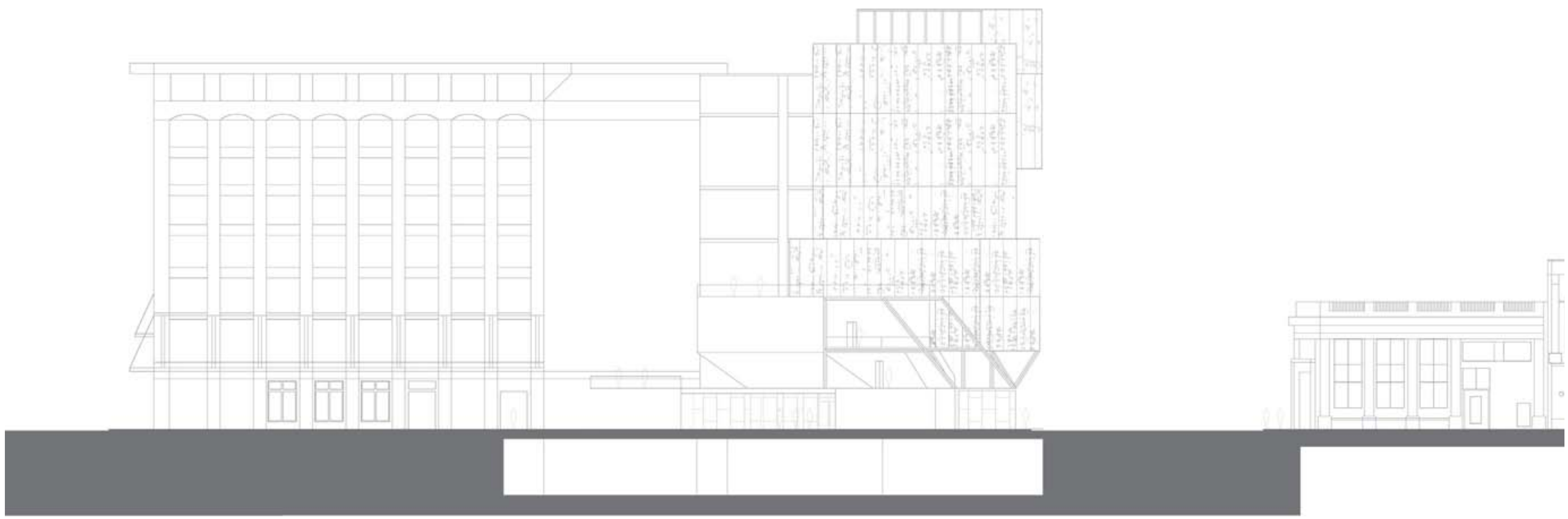
view from corner of site

Idea of using sheet music to abstract to create a new, exciting skin for the sound towers

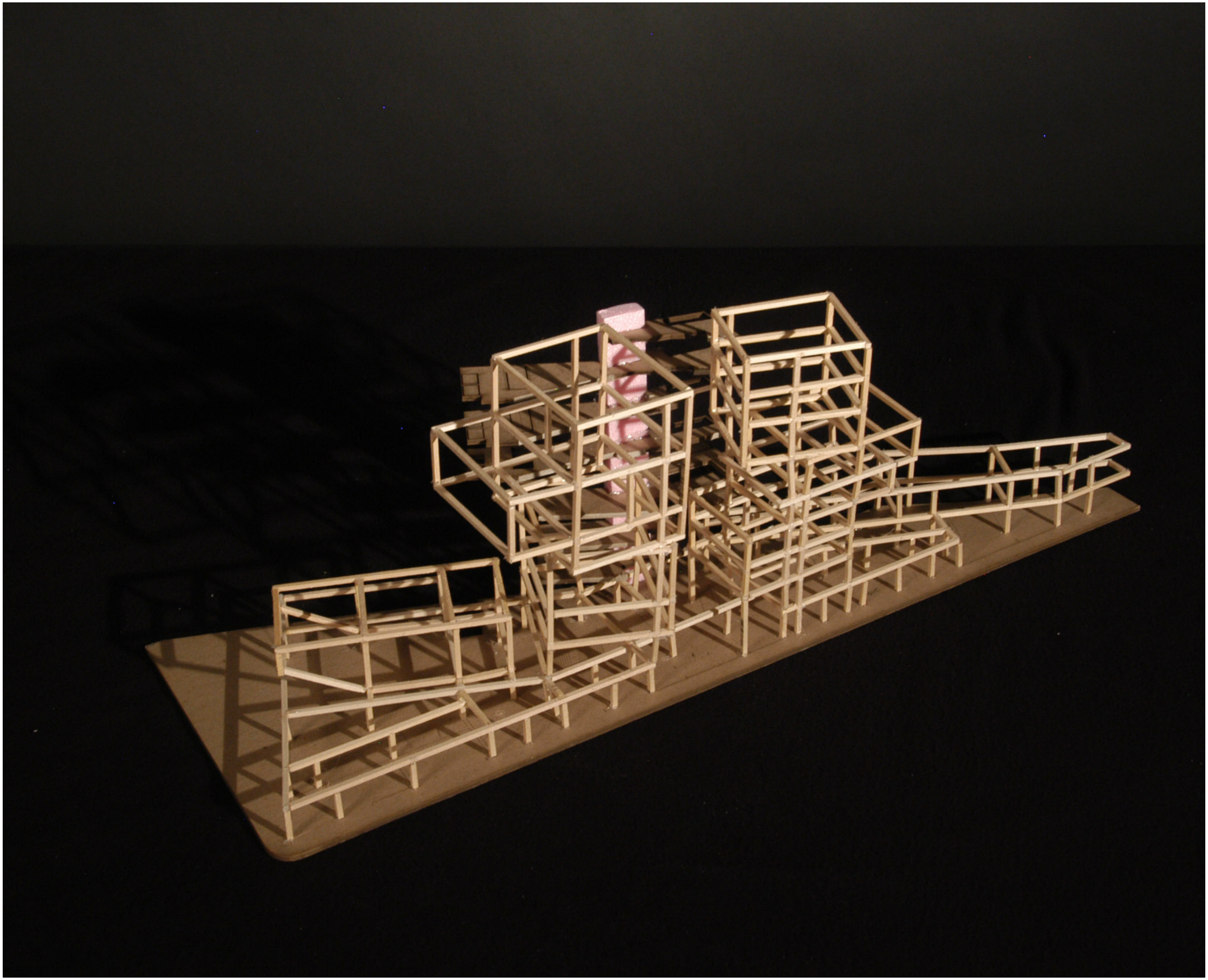


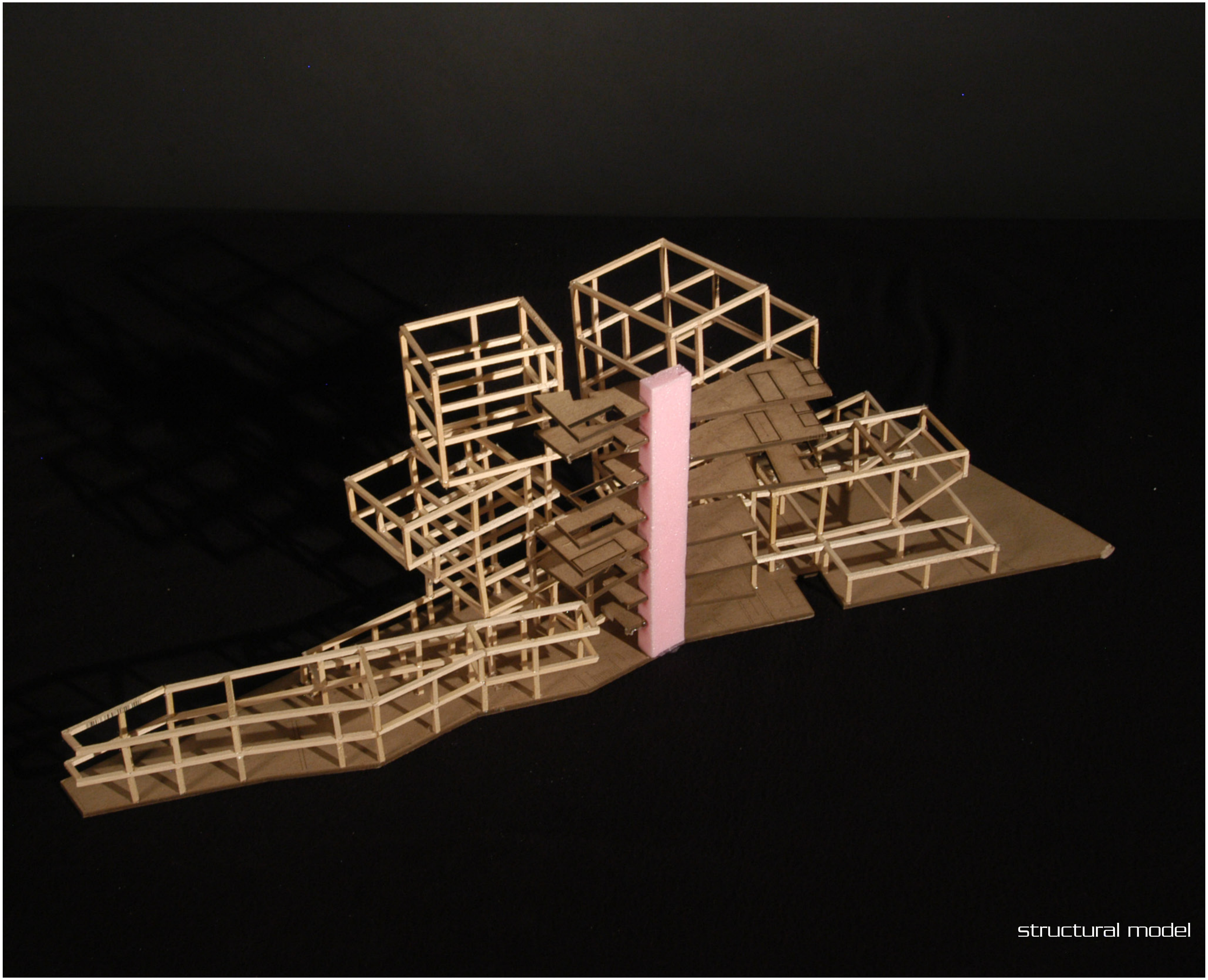


structure



west site section

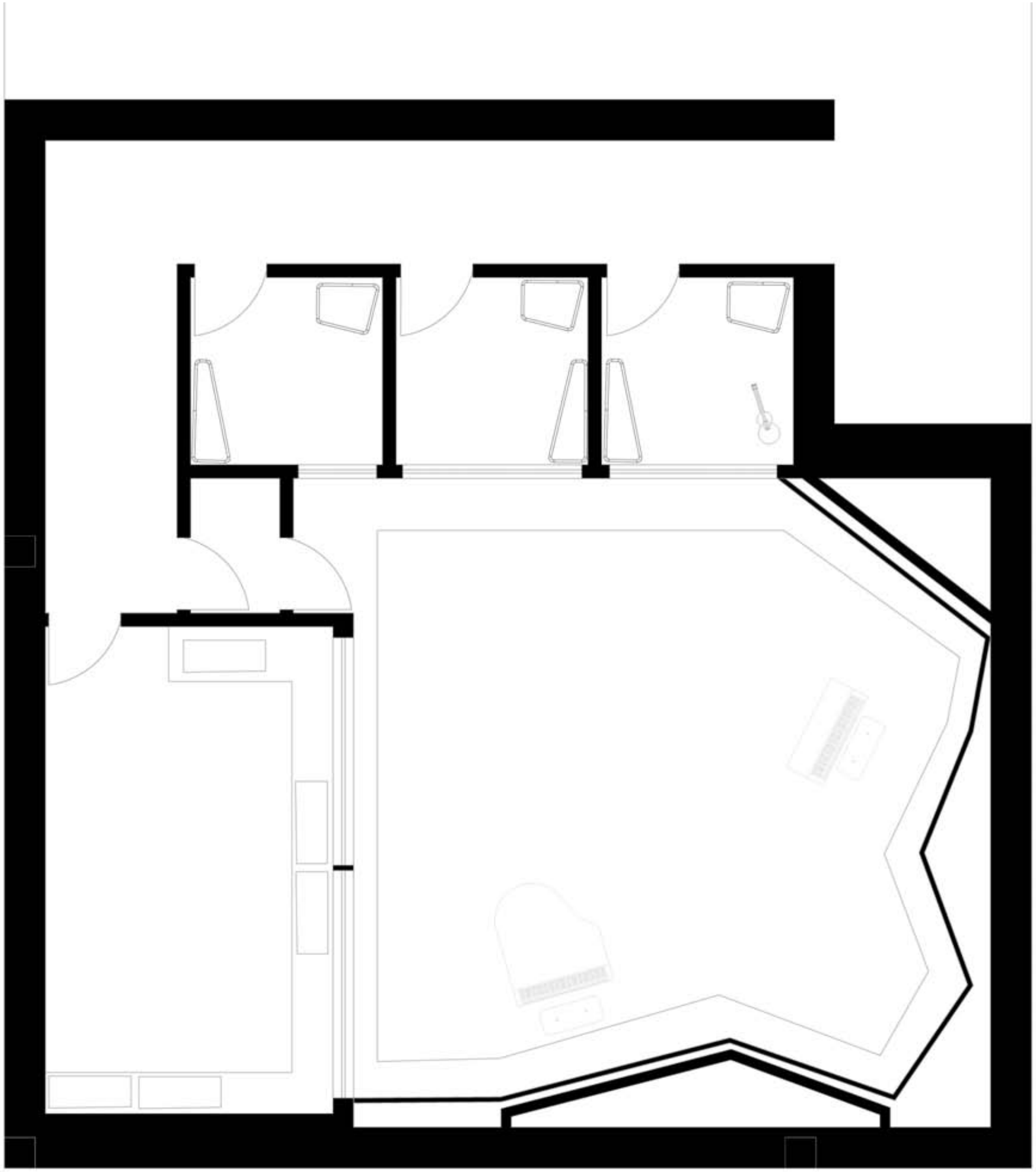




structural model

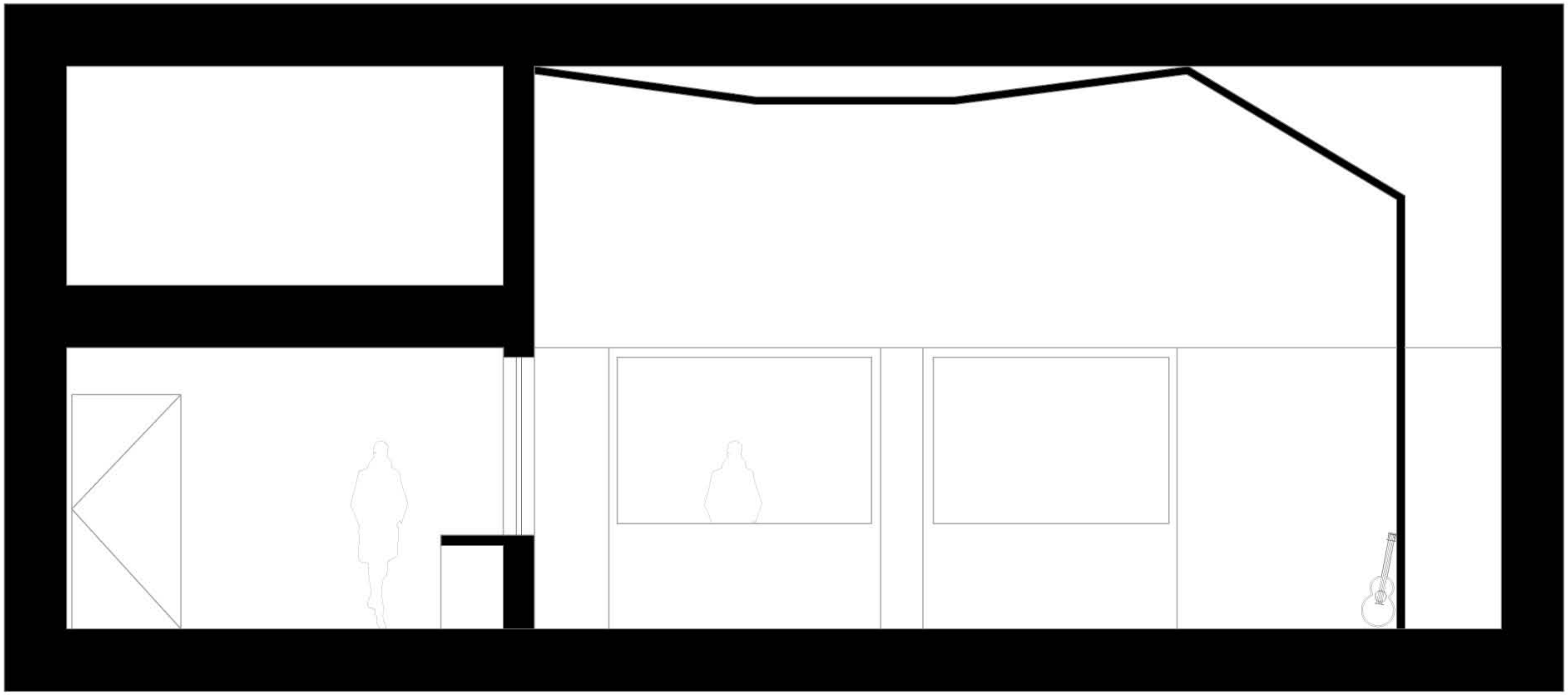
view from atrium space

view of theatre lobby



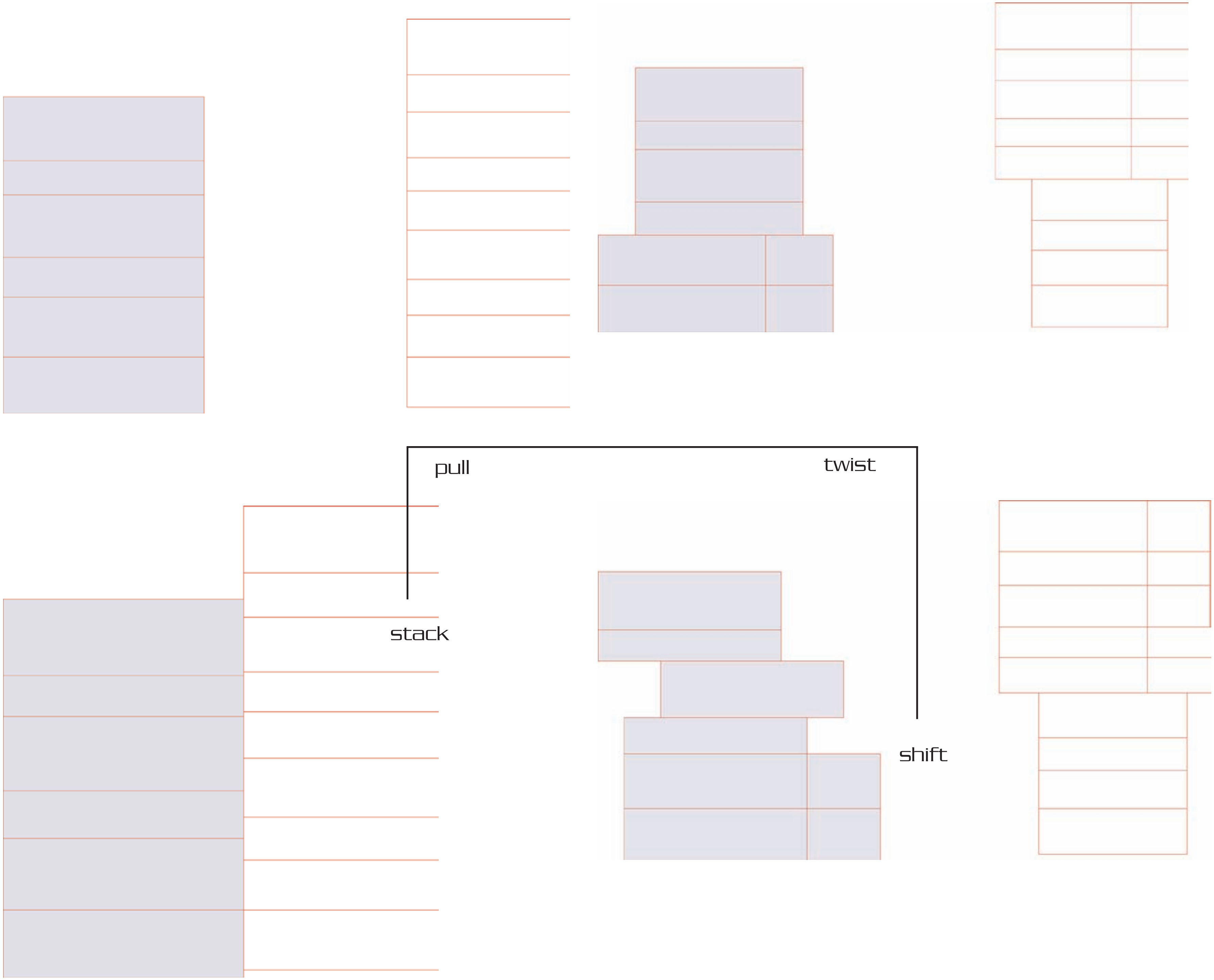
PLAN 1/4"=1'

SOUND STAGE LAYOUT

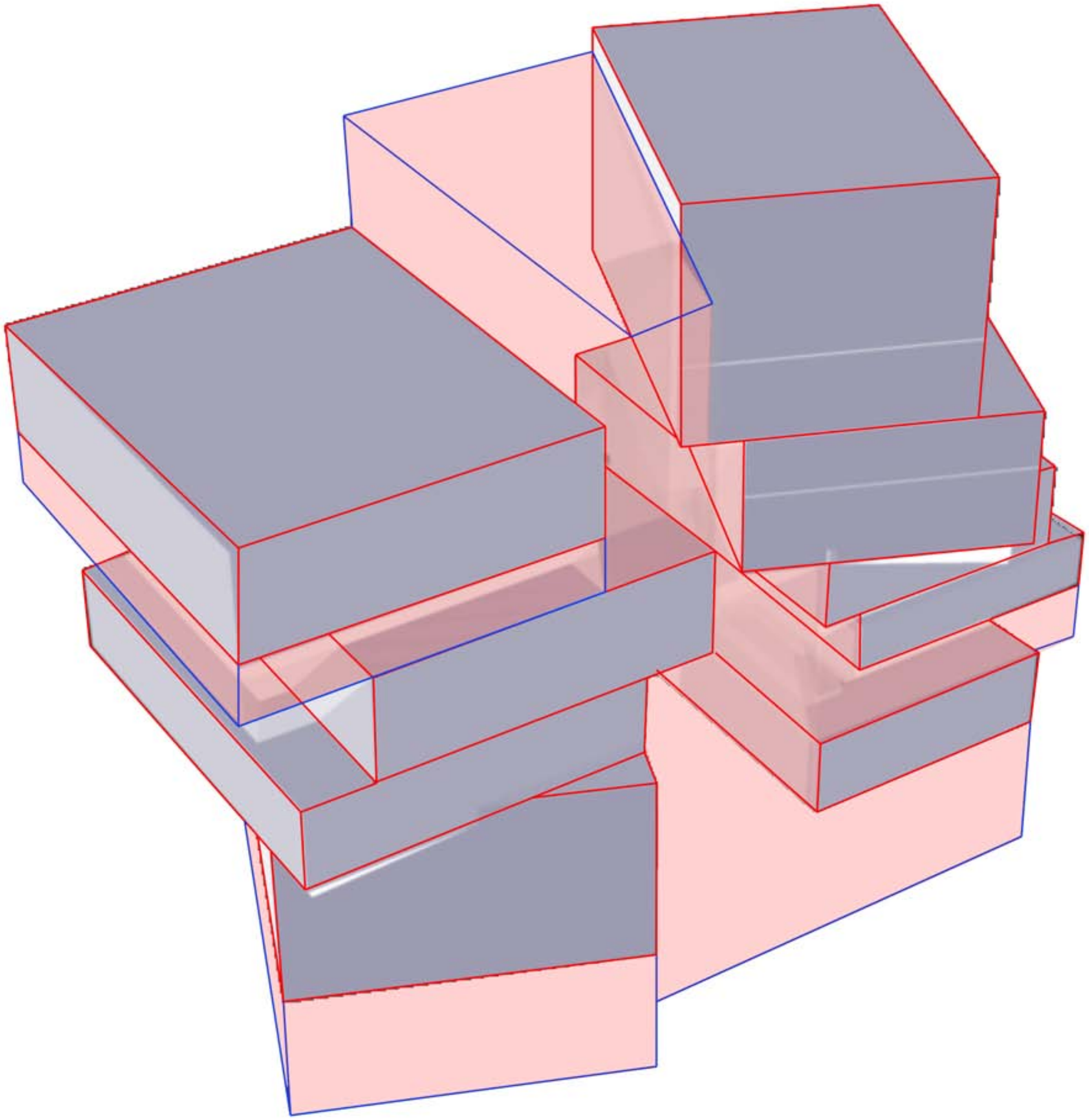


SECTION 1/4”=1’

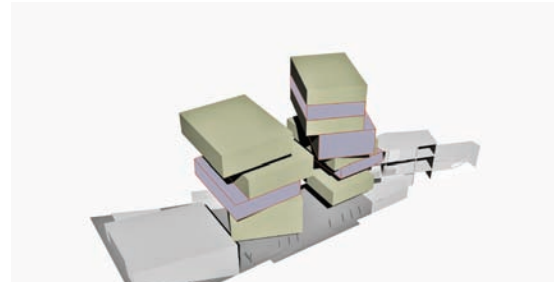
gate design


pull
twist
stack
shift

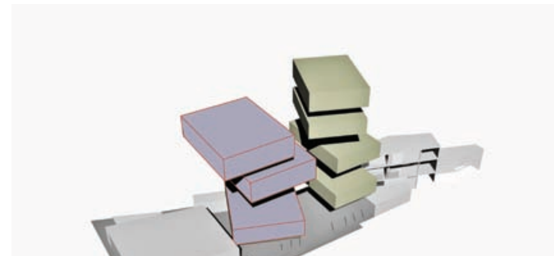
view from corner of site



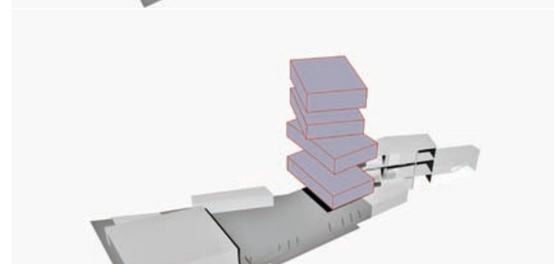
solid/ void



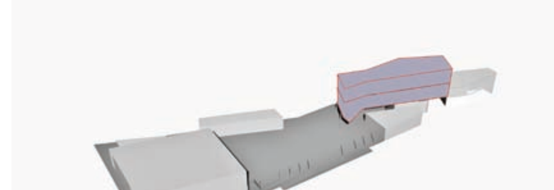
educational zone



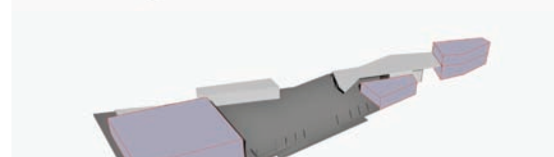
sound stage



mixing studios



administration

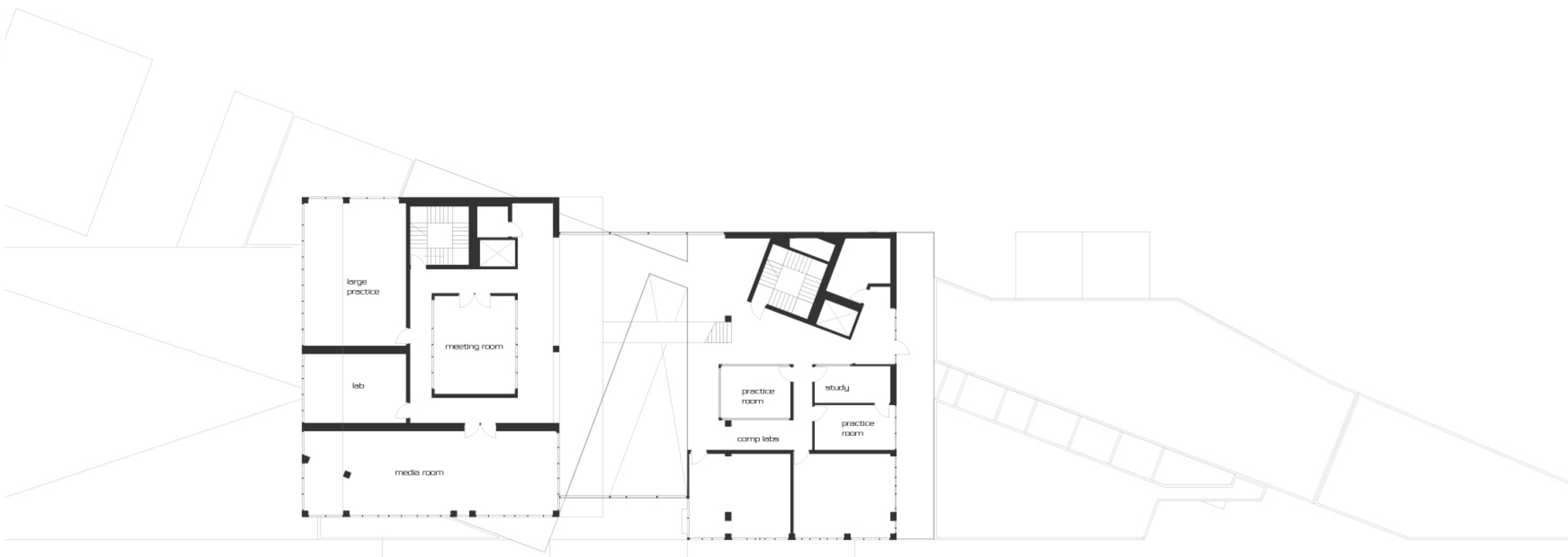


public

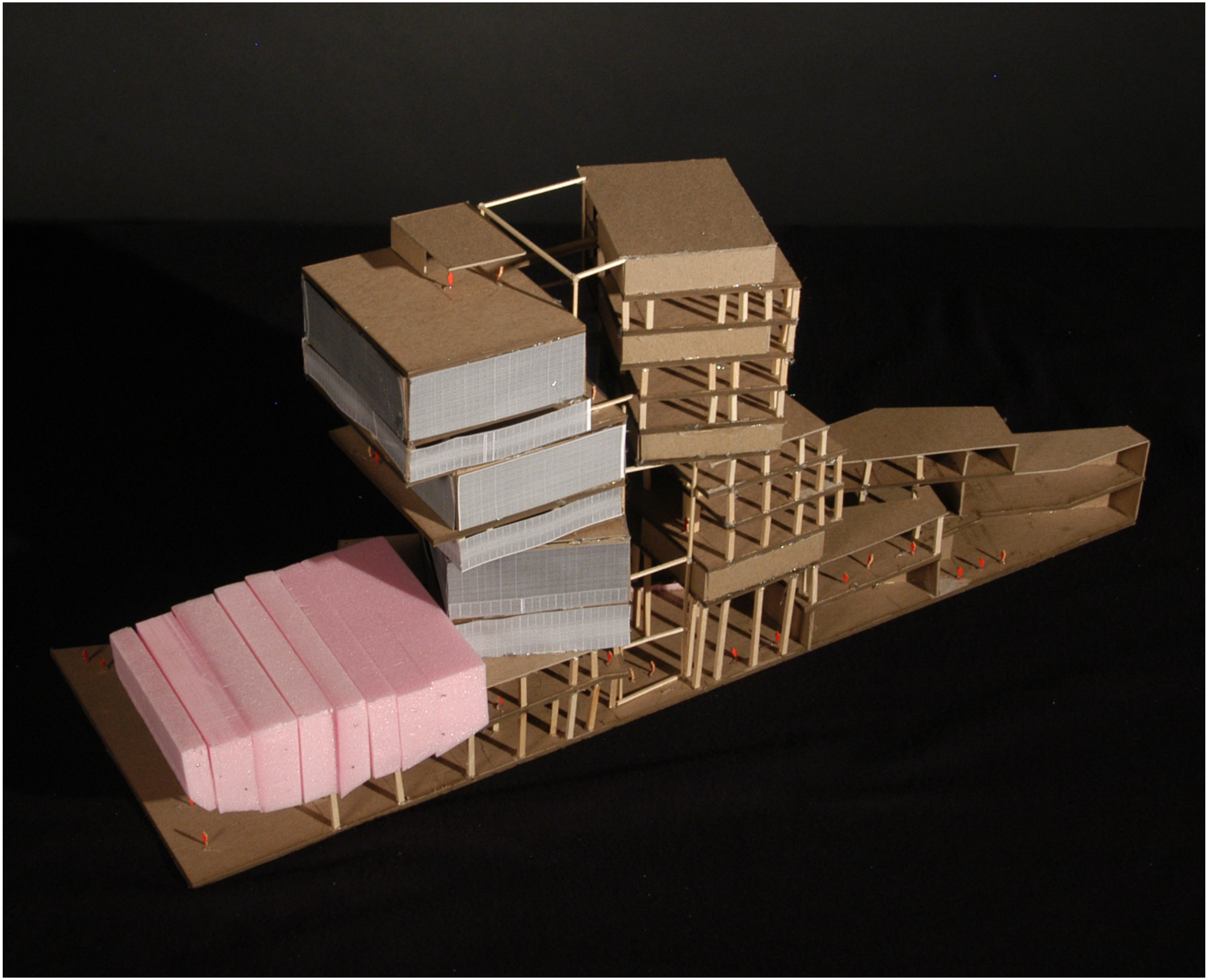
level 5

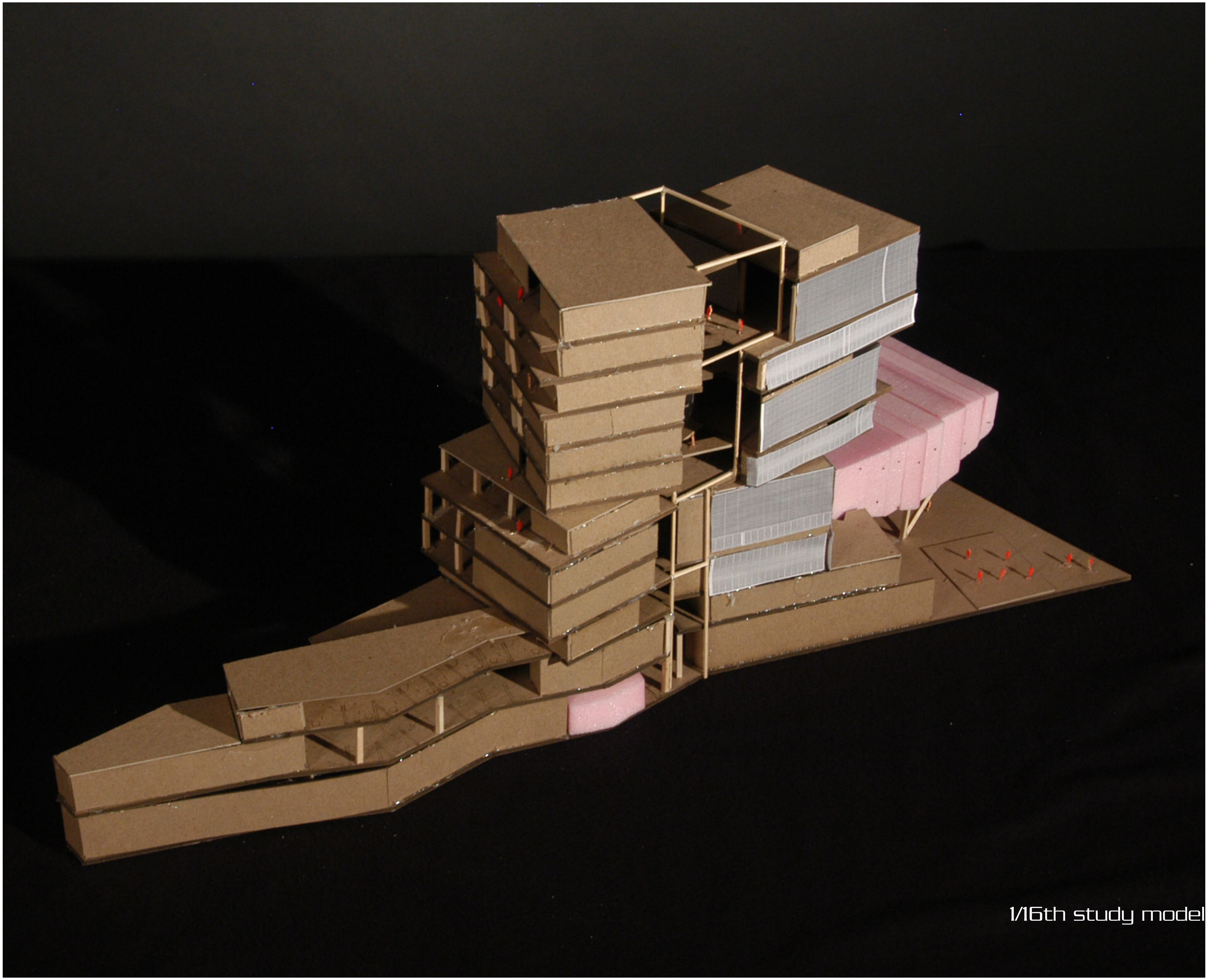
level 4
+44'

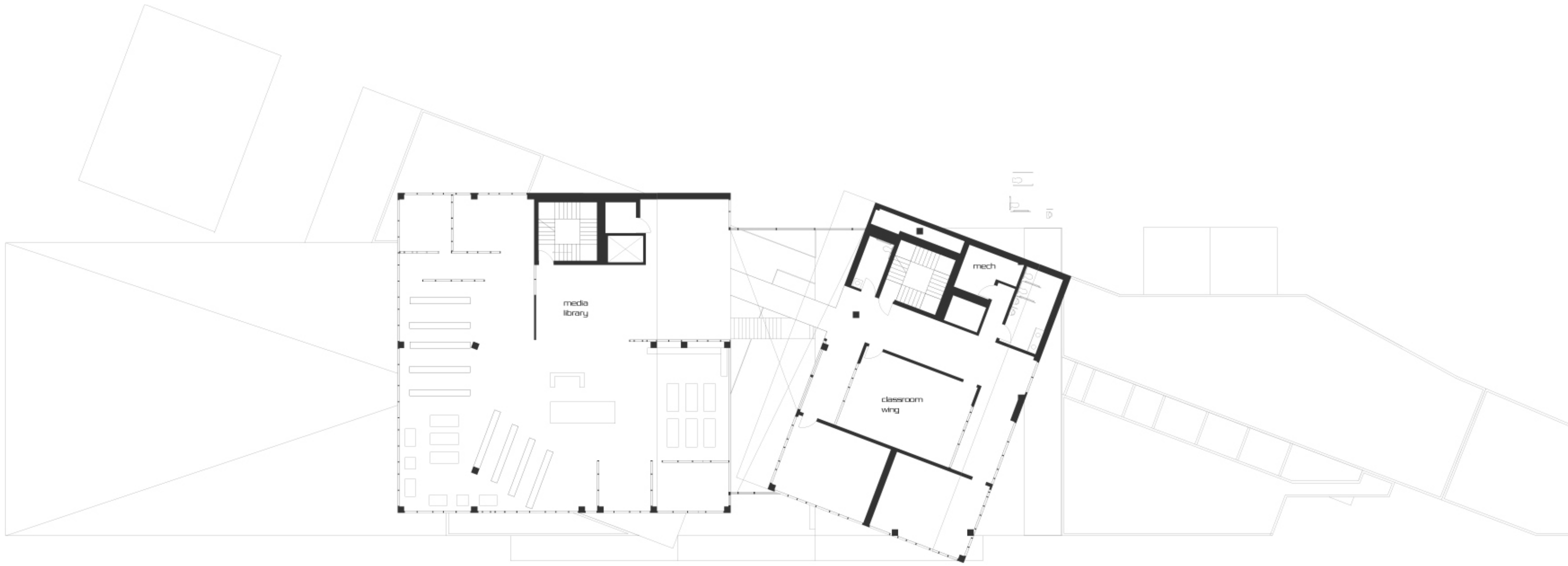
level 7
+81'



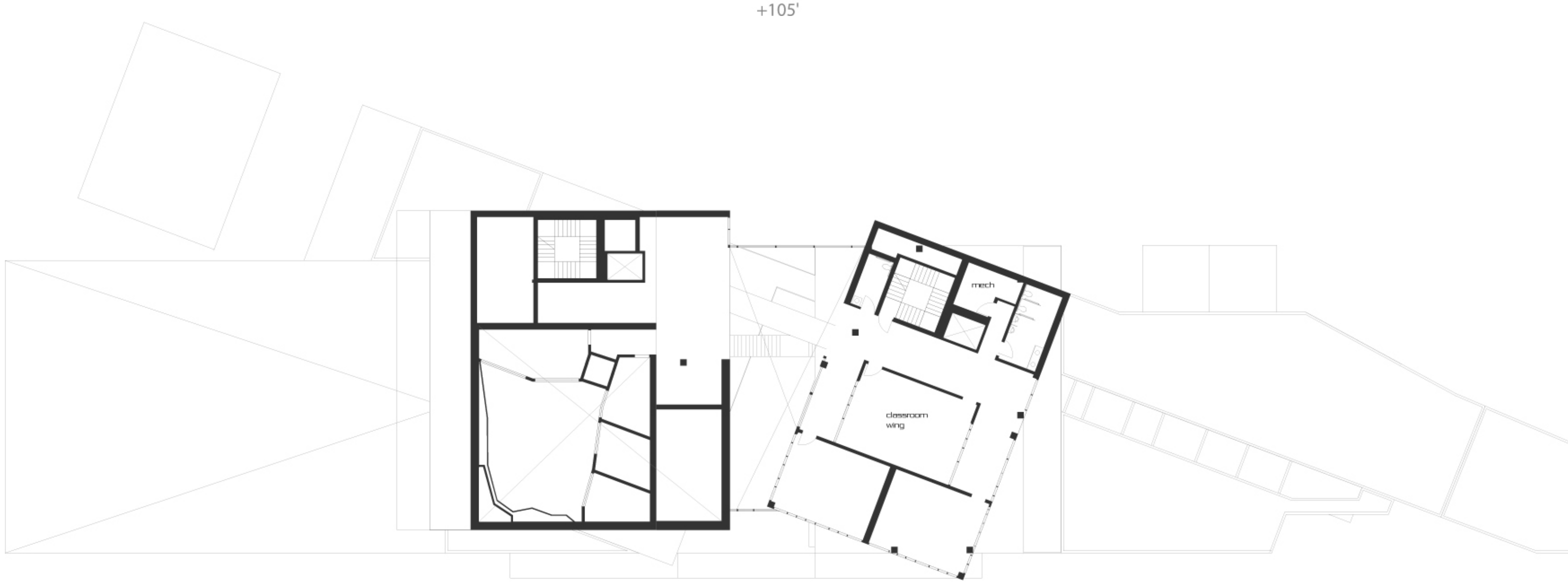
level 6
+66'

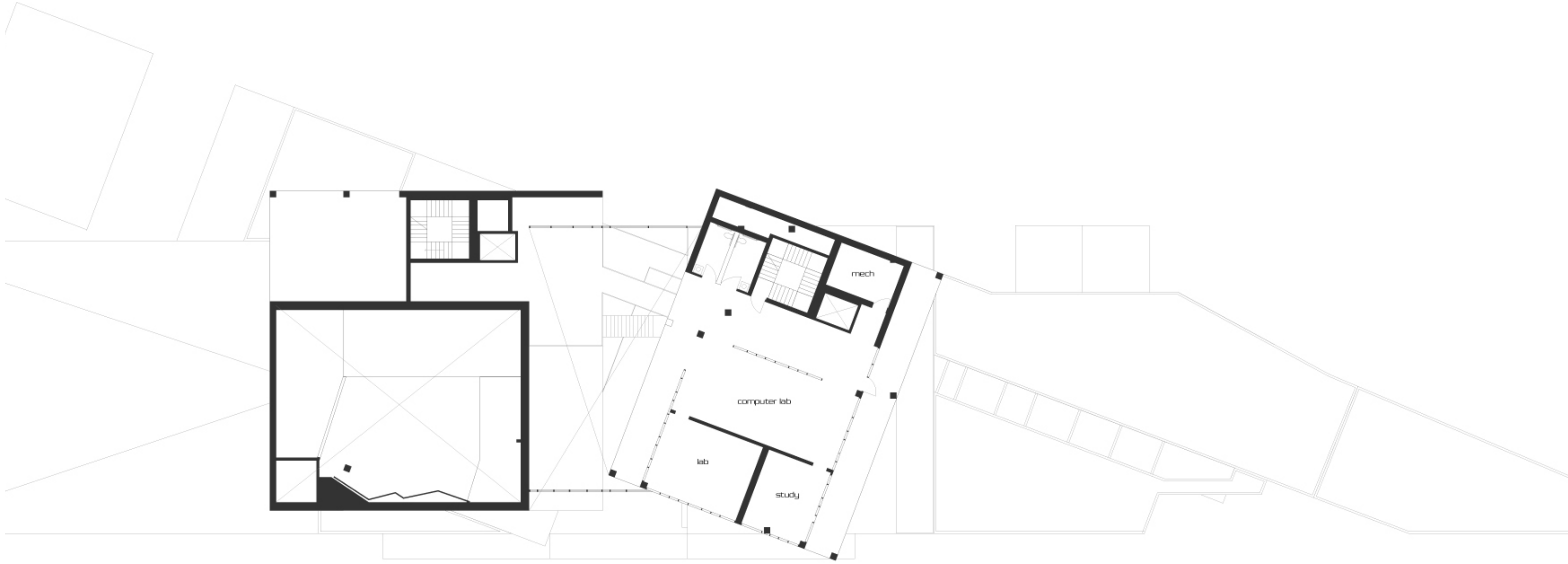



1/16th study model



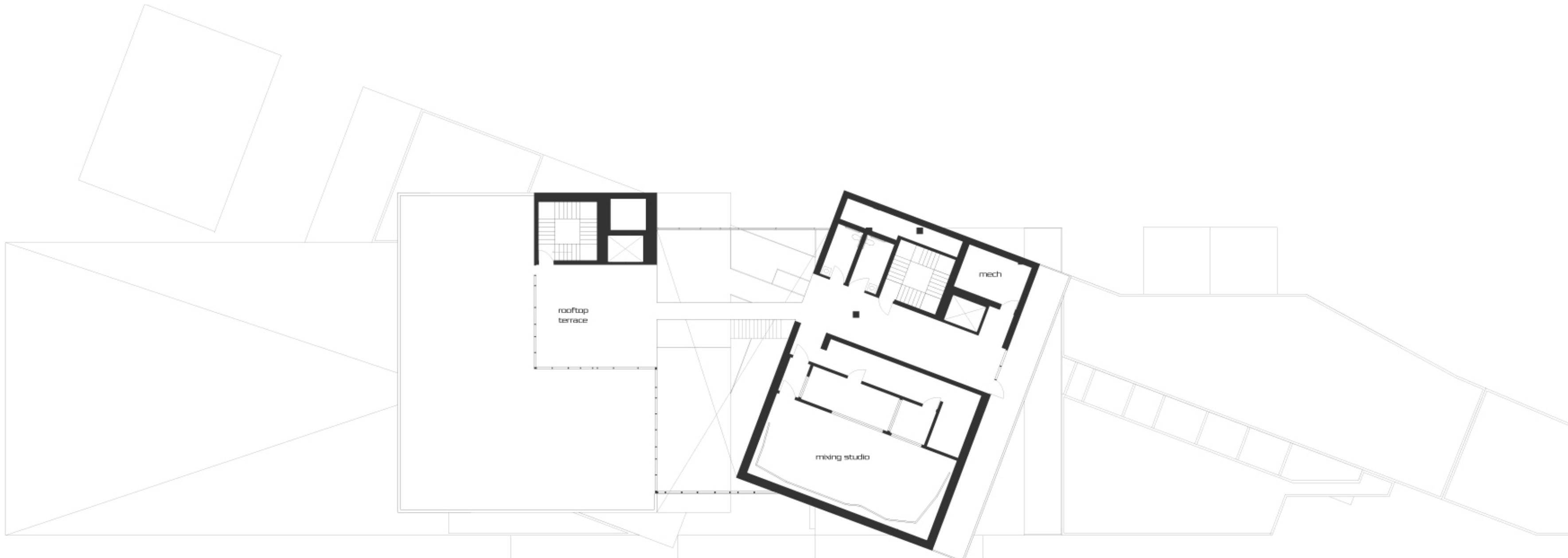
level 9
+105'



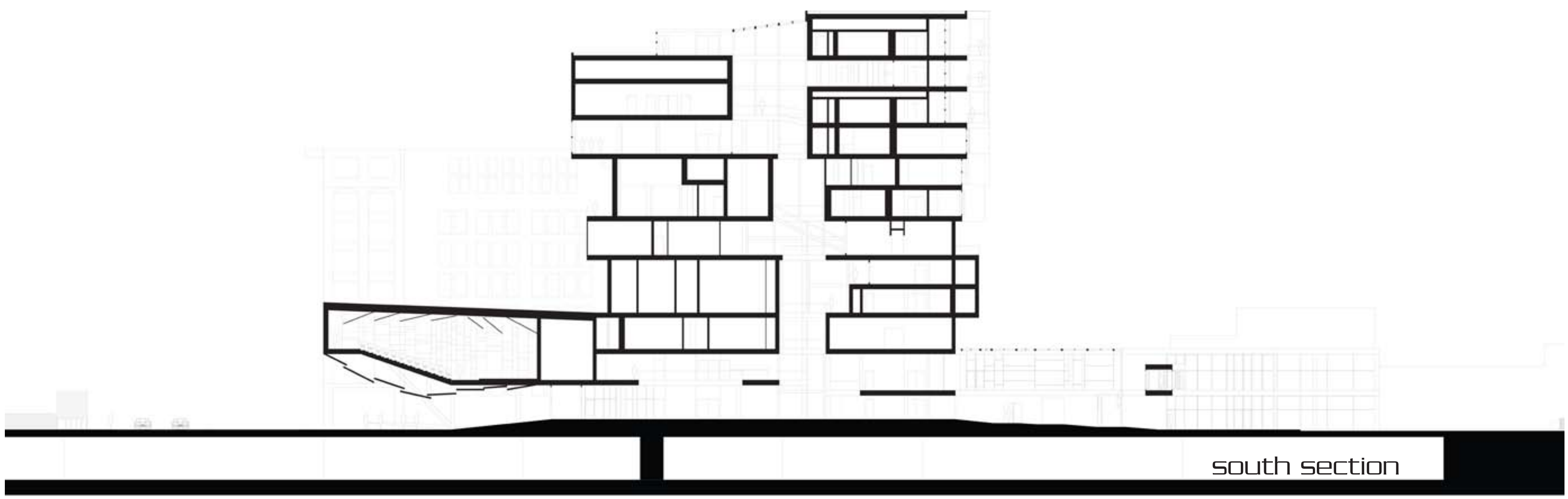


level 11
+131'

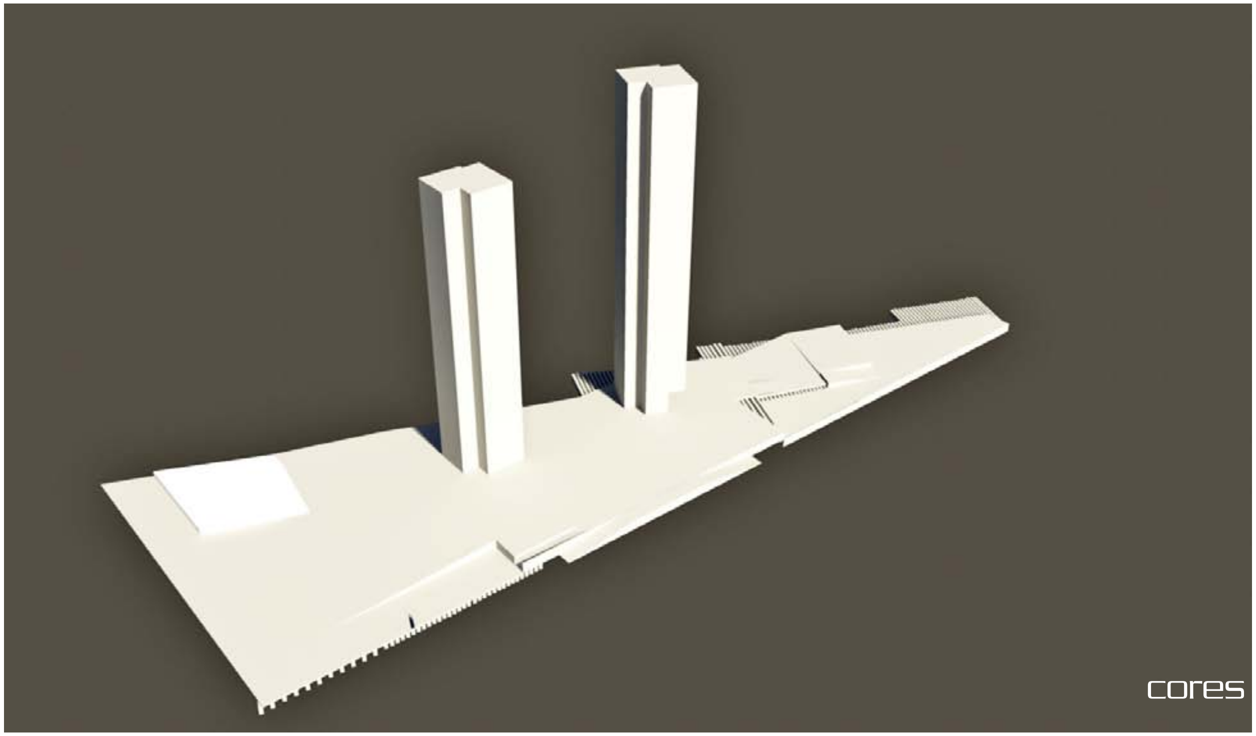
level
10

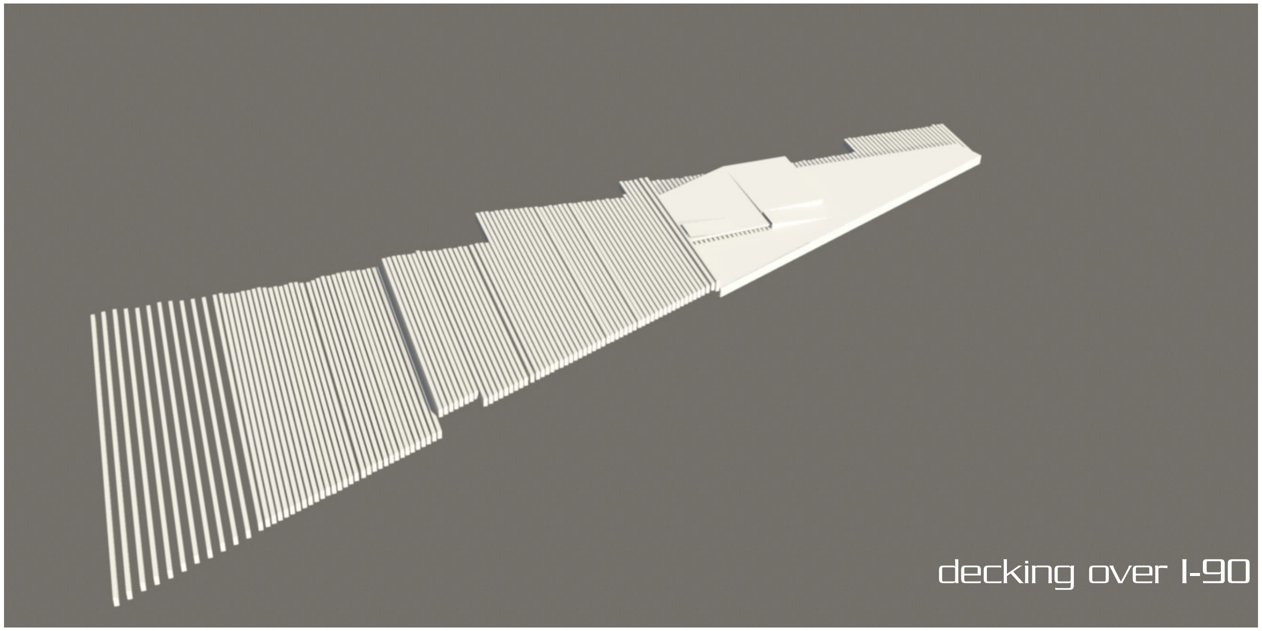


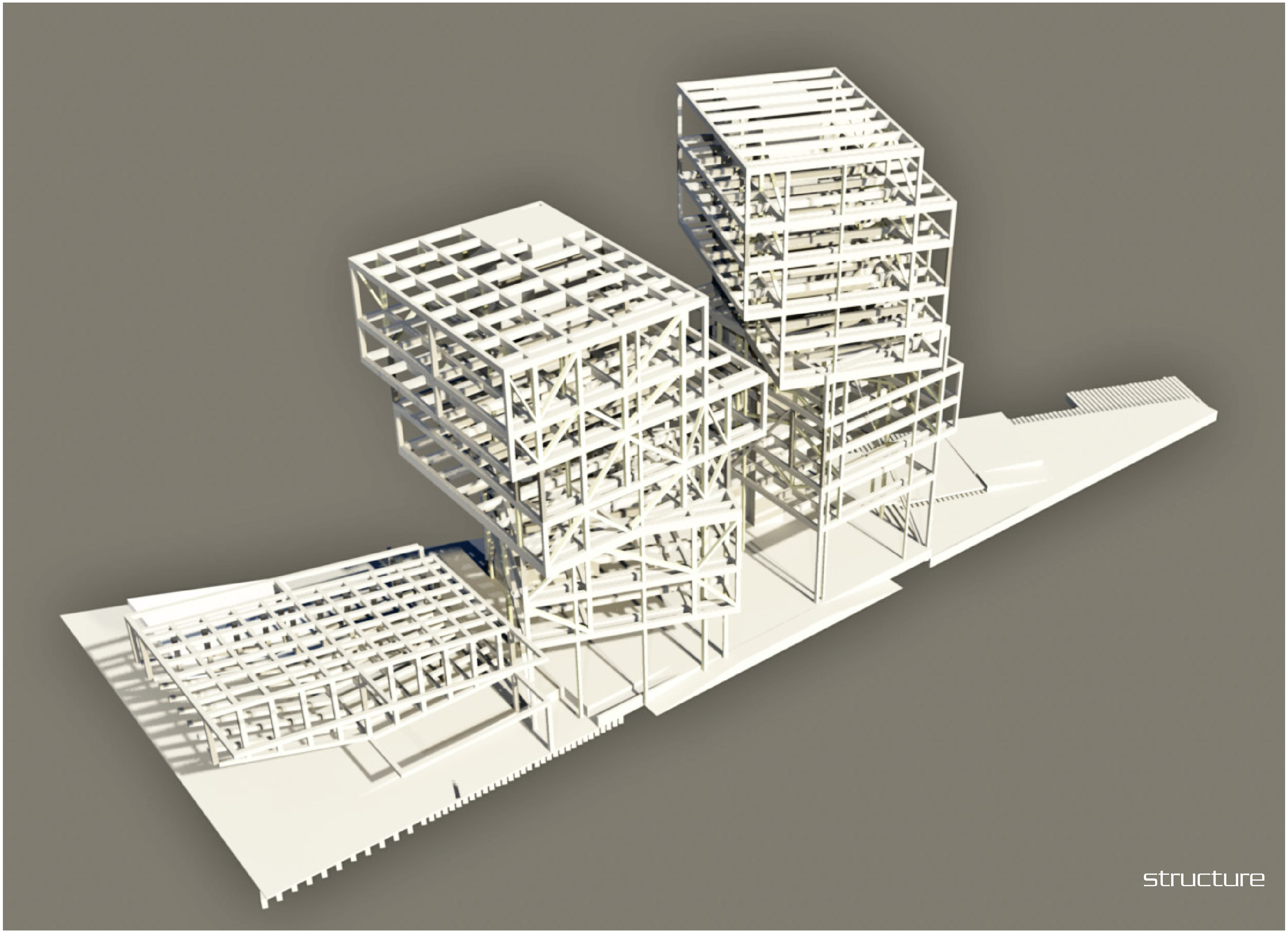
level
12
+143'

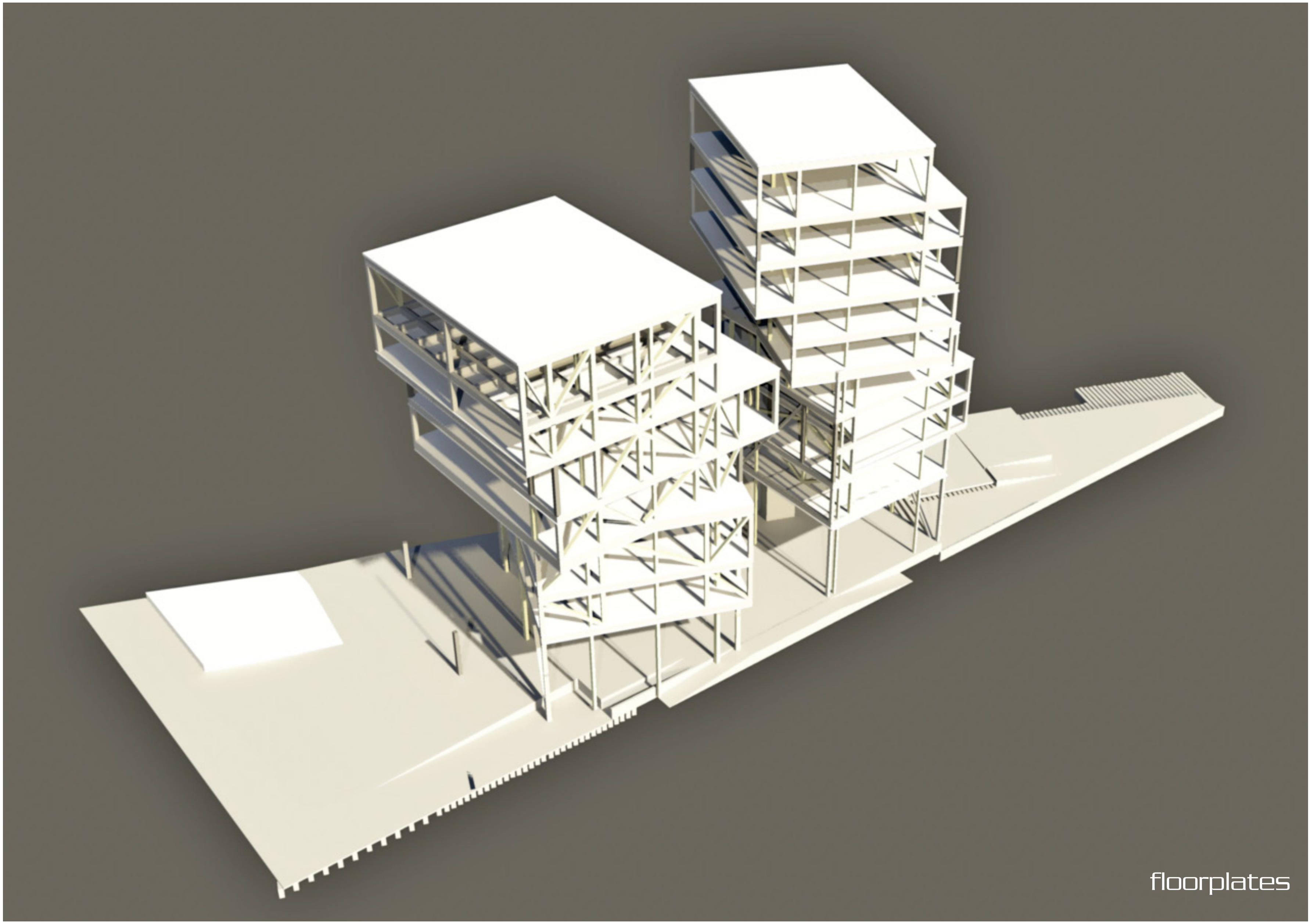


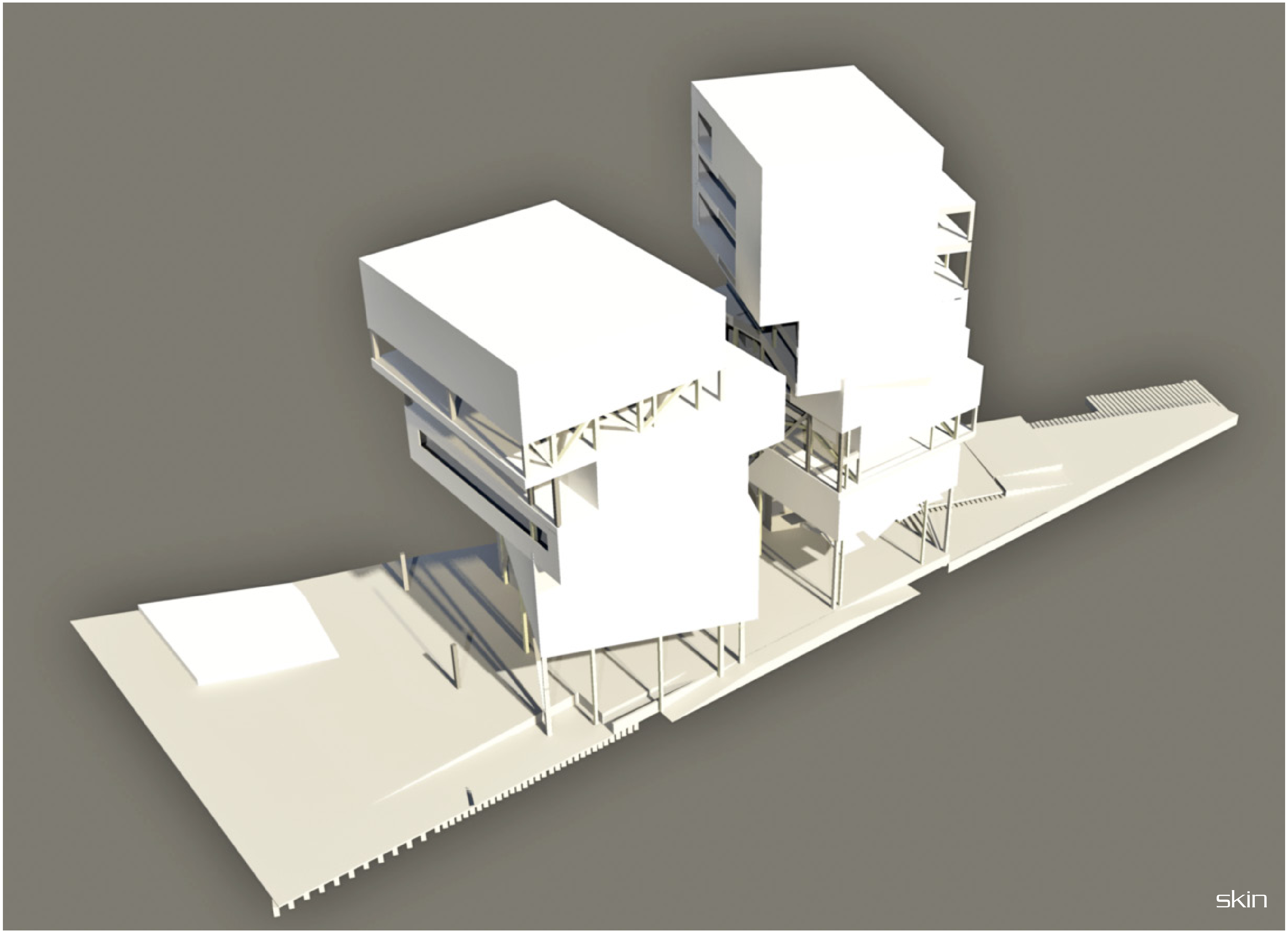
south section


cores

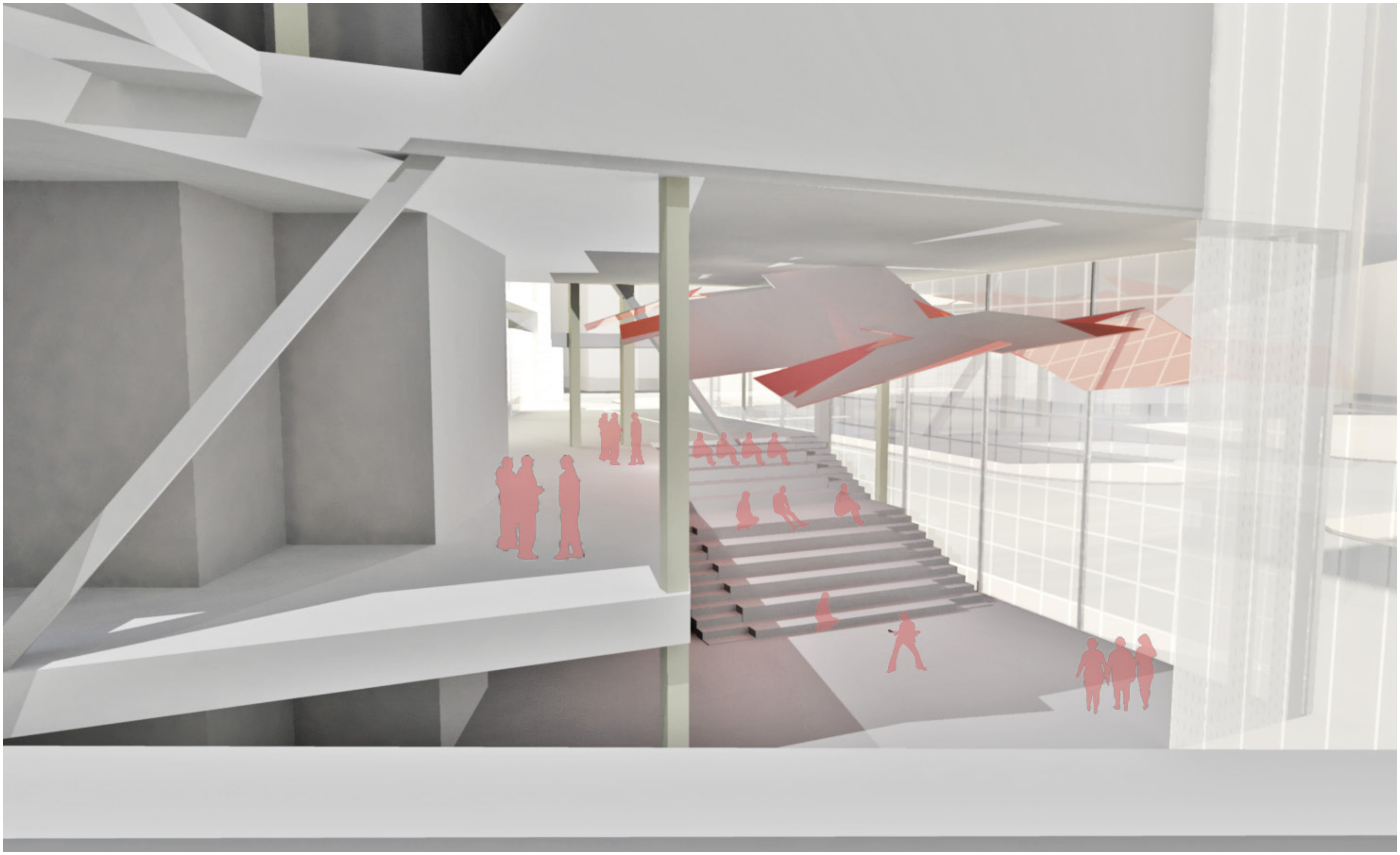

decking over I-90


structure

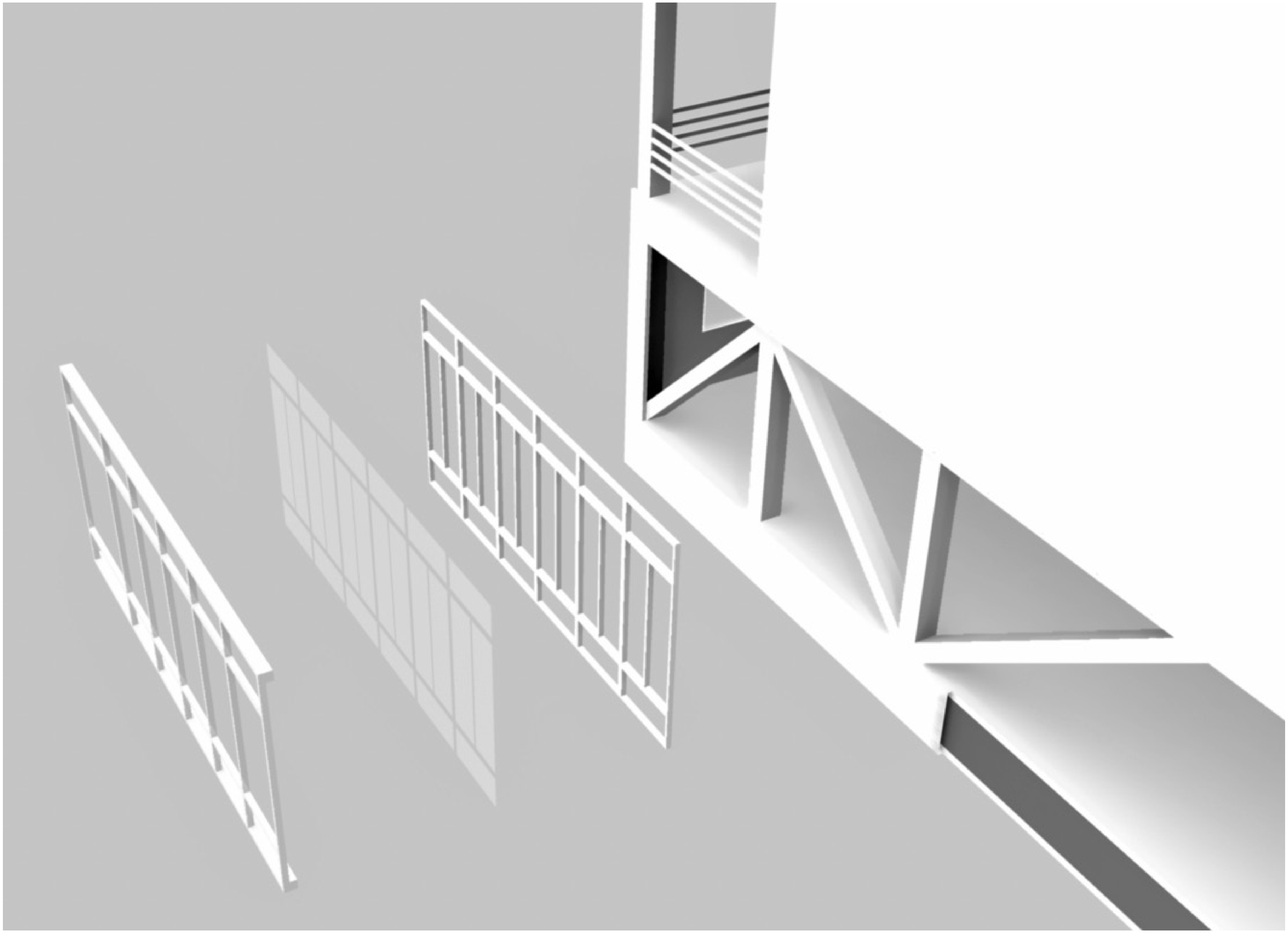

floorplates


skin

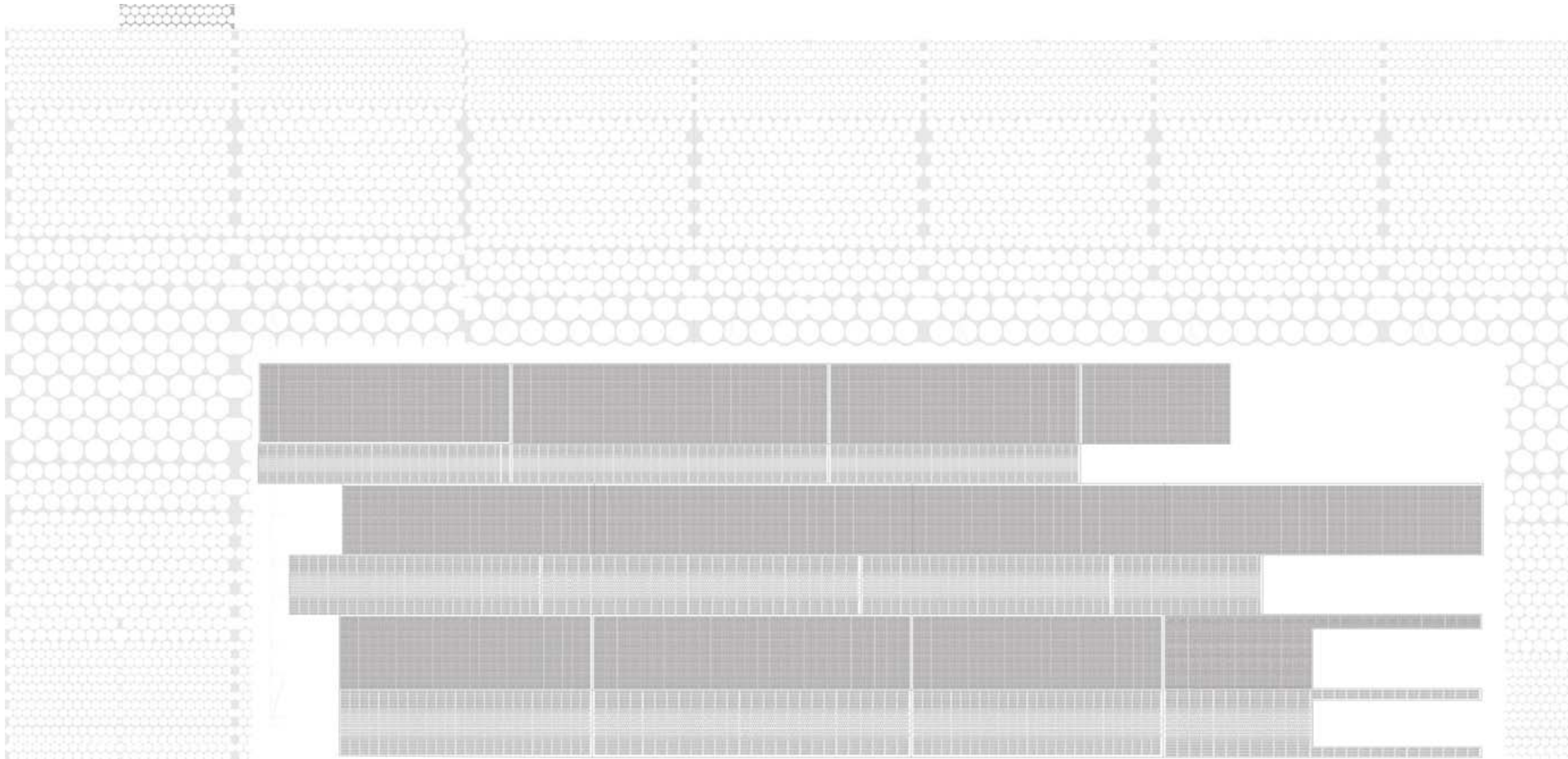
view from Bolyston Street



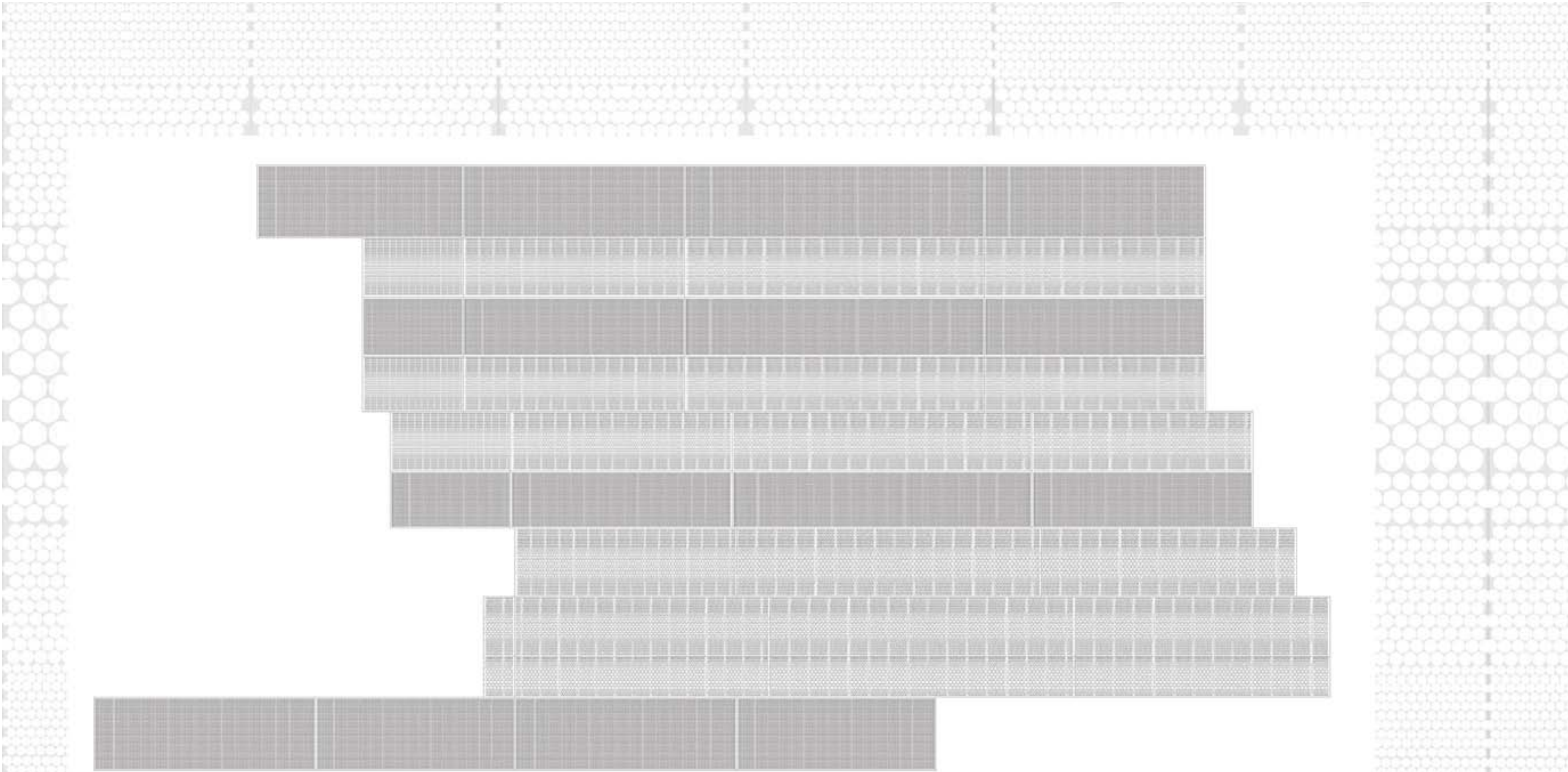
view from second level



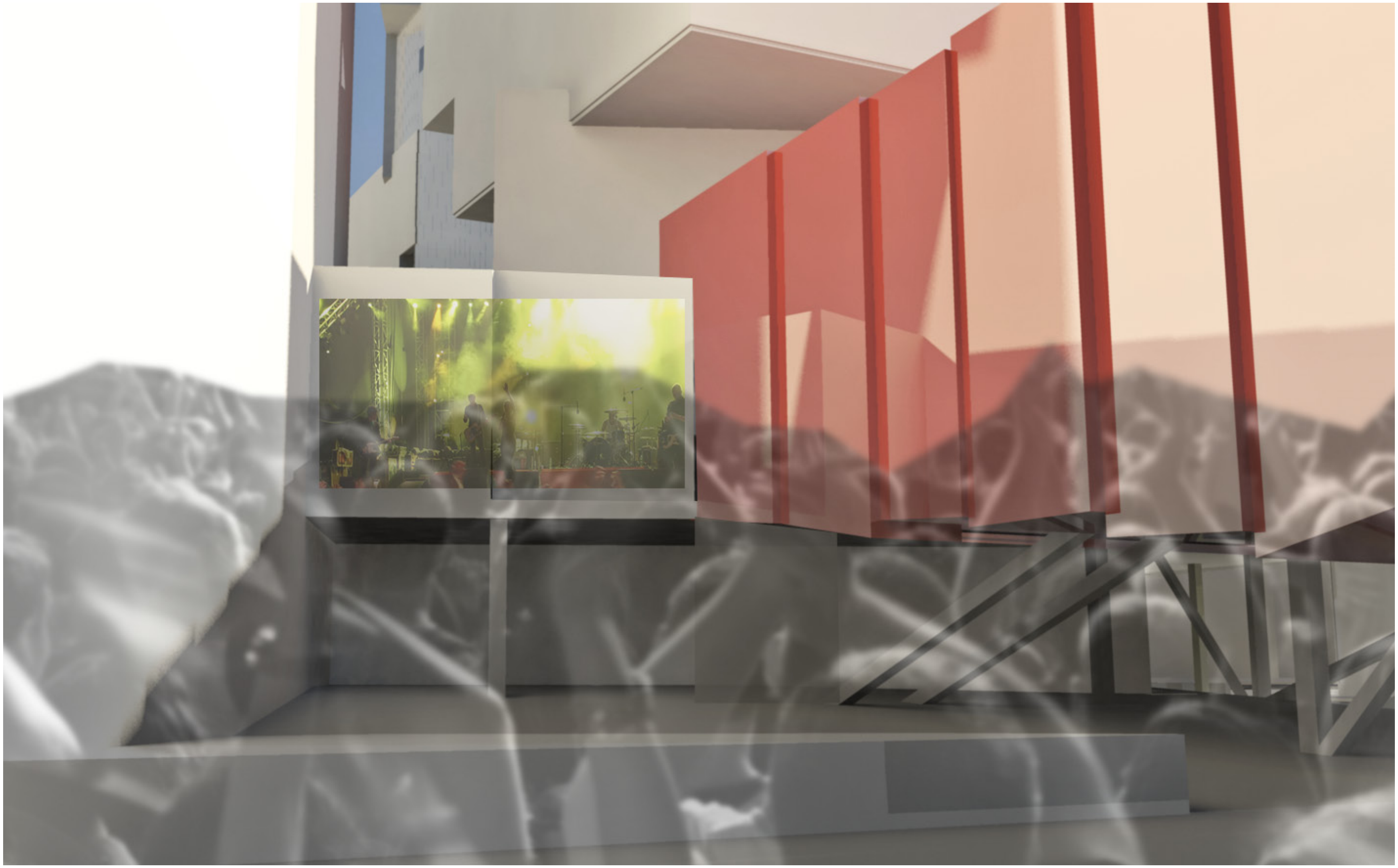
exploded view of facade



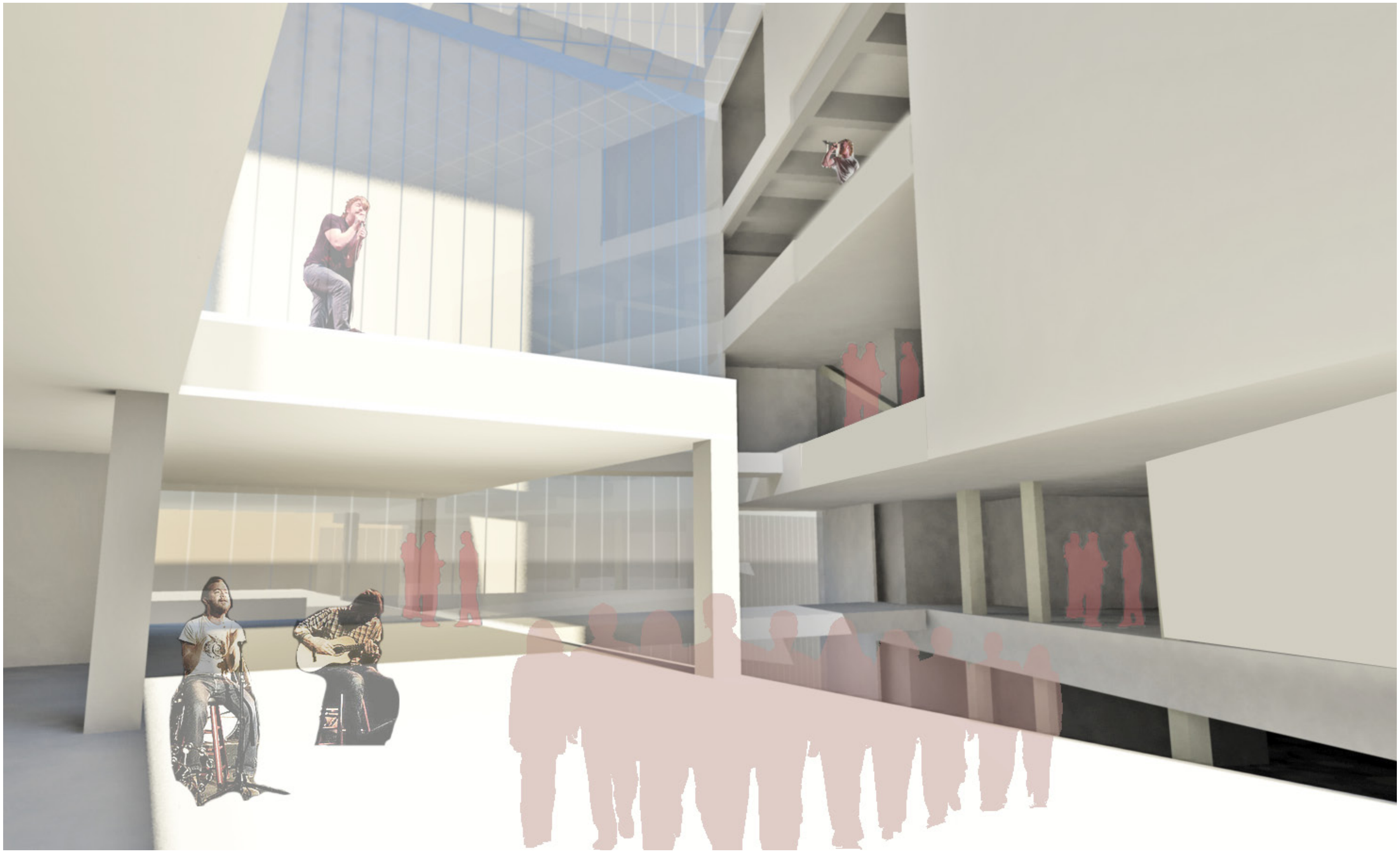
unfolded elevation of facade_tower 01



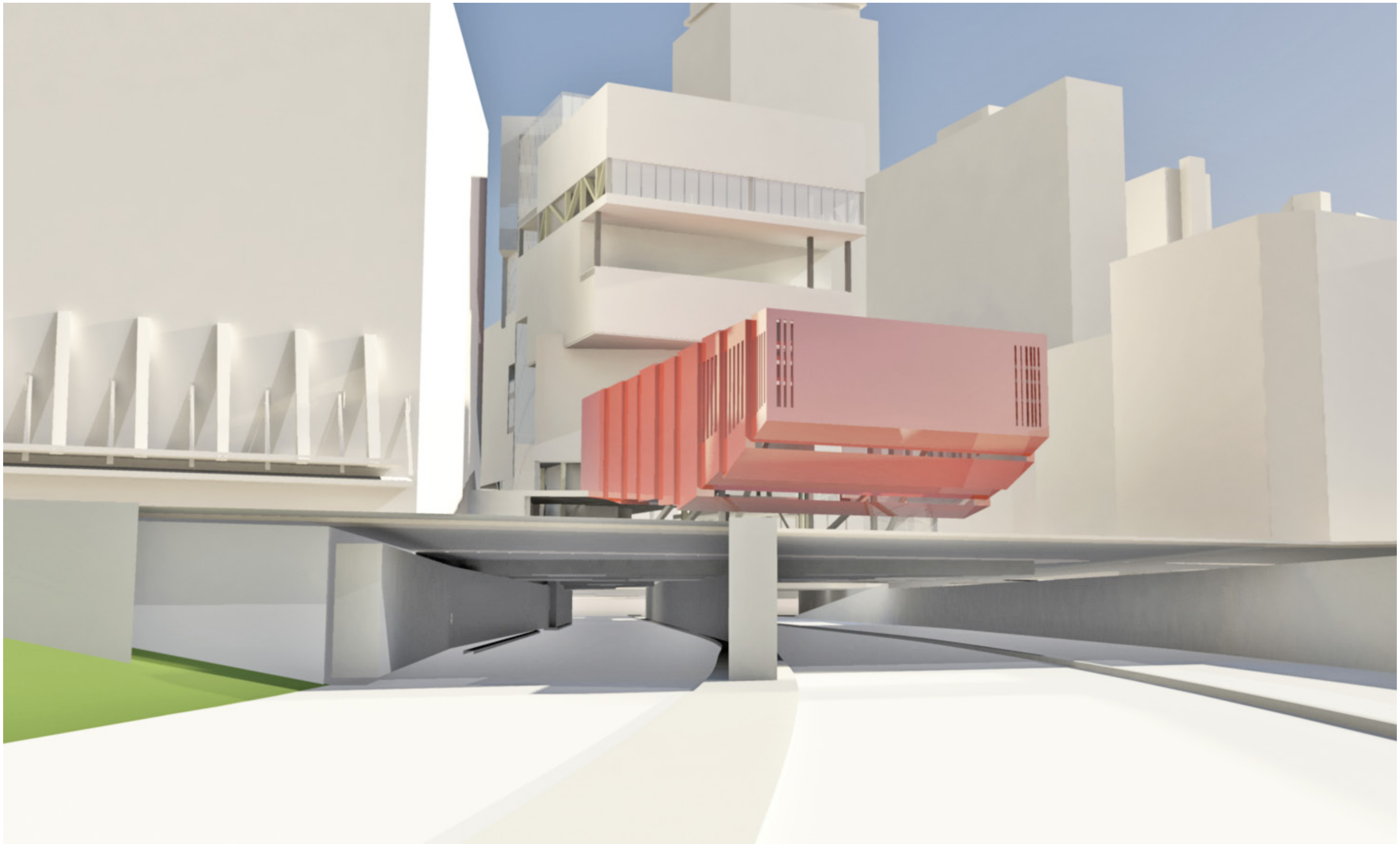
unfolded elevation of facade_tower 02



view of performance plaza



view at library level



view from I-90

view of service alley

final design

Society is so influenced by technology that the rhythm of daily life has changed. Inventions and gadgets of today have molded the aspects of interaction. The ability to be “somewhere else” while being with someone has created a disconnect with present day interactions and behaviors. This has enabled people to not “Be Here Now” because their physical presence is not important anymore. Technology has provided society with an option to be somewhere else all the time.
On the other hand, digital technologies and breakthroughs in the realm of architecture has provided designers the ability to create free-flowing, intensely complex buildings that are able to show their specific design intent. The need to use technologies to create places to bring people back into the “now” is a challenge. Emphasizing visual and aural experiences in design will break these split worlds we live in and will enhance different experiences.

The Center for Music Technology unifies a busy, broken corner in the Back Bay of Boston. The in fill project establishes a continuity to Bolyston Street, while addressing pedestrian circulation issues on Massachusetts Ave. The corner plaza offers chance interaction and performance areas for the community that generates an active hardscape. Public program on the first level such as retail and dining reinforce the Bolyston axis. The public rise to the second level where the 200 seat performance hall offers internal and external performances that enriches the experience.

The two education towers are lifted up from the public zone to provide privacy and focus for the production, editing, and practicing of music. The towers twist and shift to create interior and exterior break out spaces. This procedure of twisting and shifting breaks the towers and creates an atrium space for chance encounters and interactions.

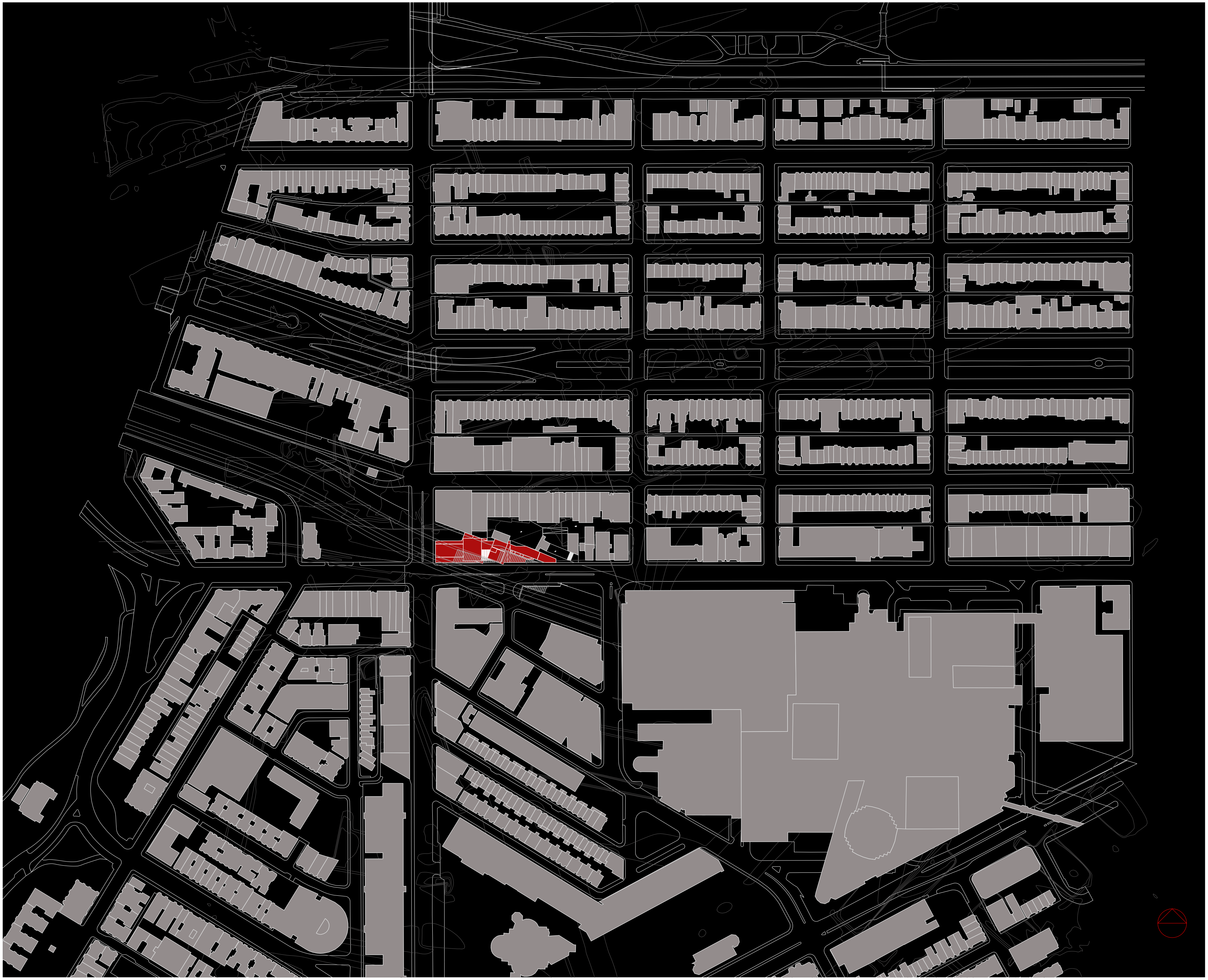
The program of the towers are enclosed in a series of trussed frame boxes. Column lines run the height of the towers while the cross bracing of the frames provide stability and strength. There are two cores that provide vertical circulation as well as services and mechanical. Each level is serviced separately according to the demands. The towers are cladded with a perforated metal mesh system that changes according to the use of each box. The solid sound stages and mixing studios have one panel system that differs from the more open panel at the education boxes. These panels have different perforations that enable the users to view out to the urban environment.

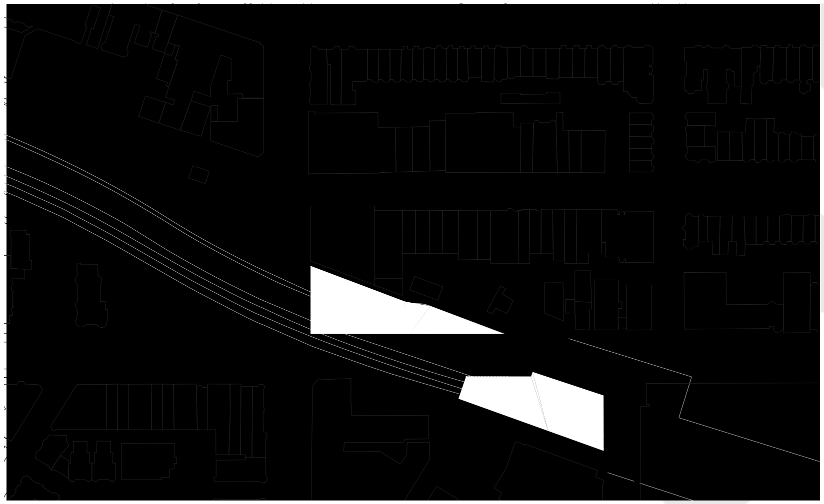
The center provides Berklee with much needed space while unifying two busy streets in Boston. The new design will create different experiences for the public and help ground them in their surroundings and make them aware of the urban environment around them.

Bolyston Street looking west mass pike I-90

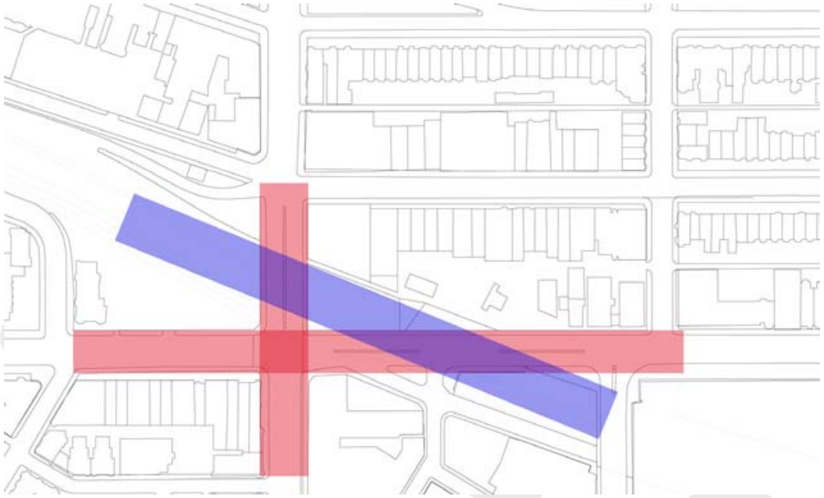
T station entry at east end of site

Berklee College of Music



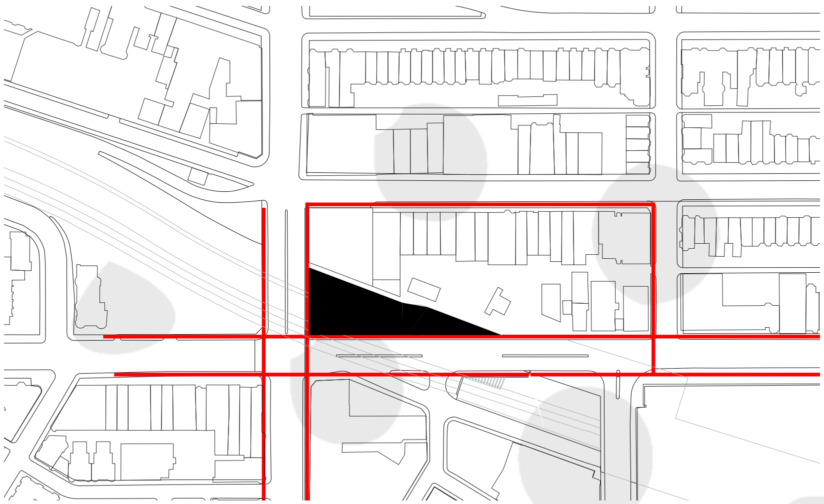


void

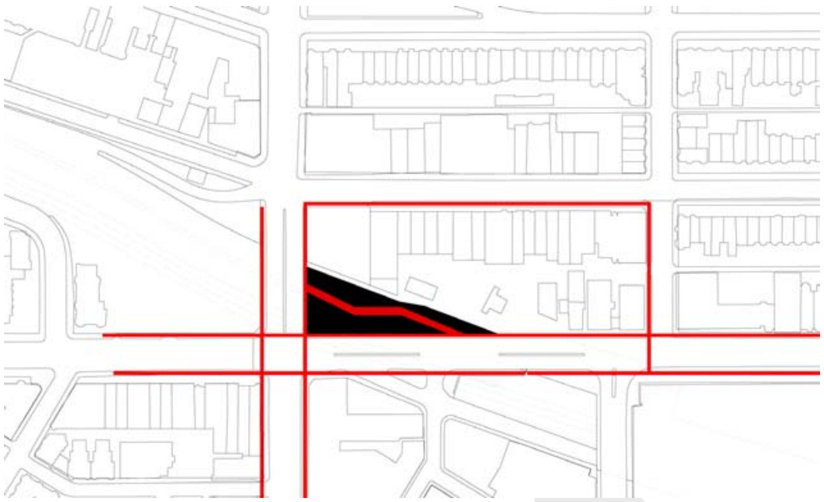


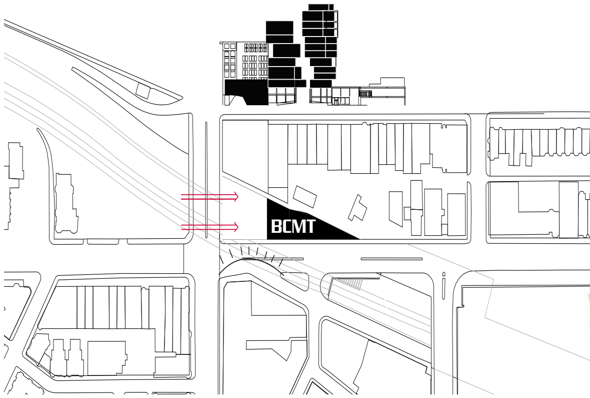
registrations

perpendicular

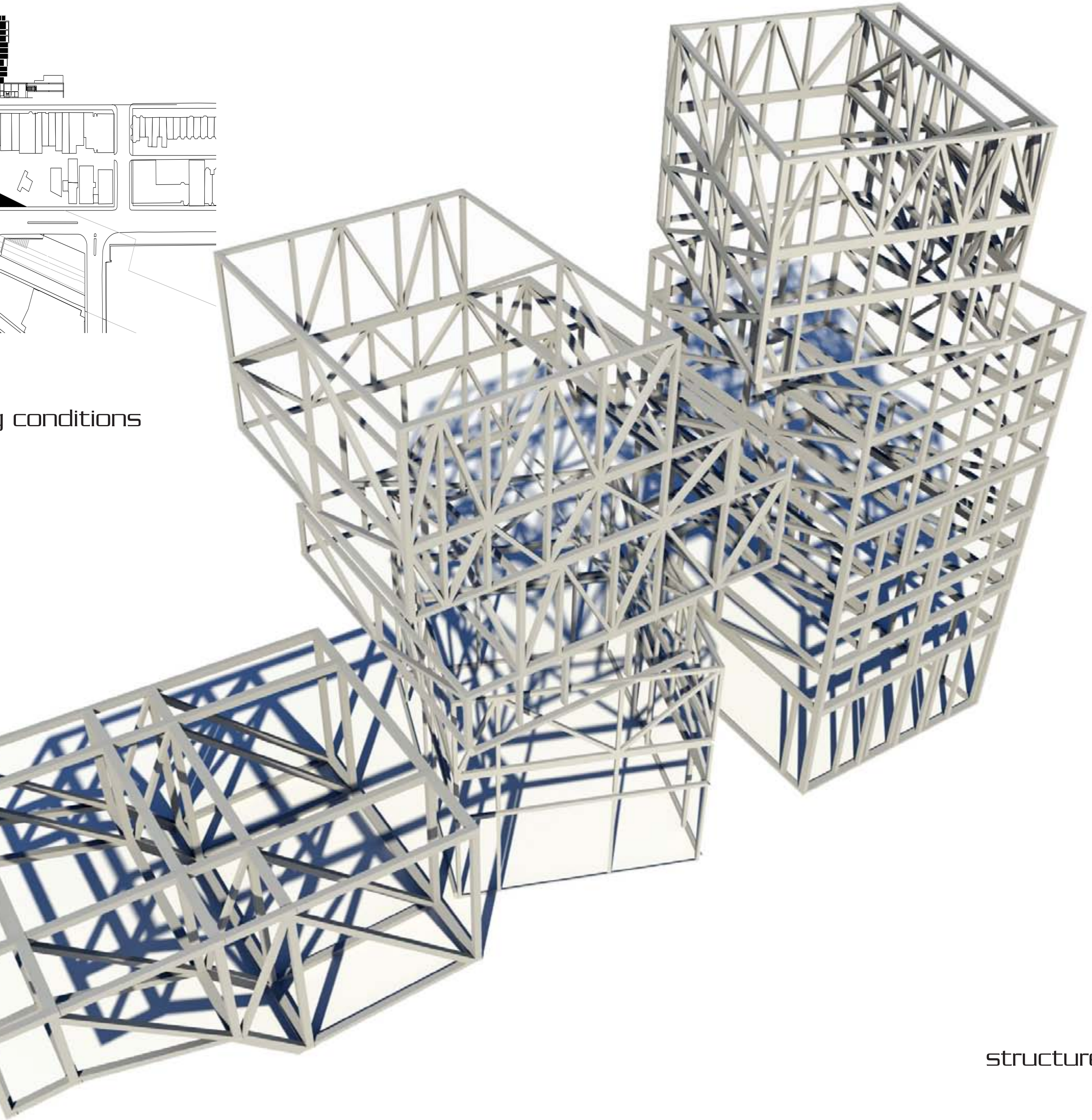


diagonal

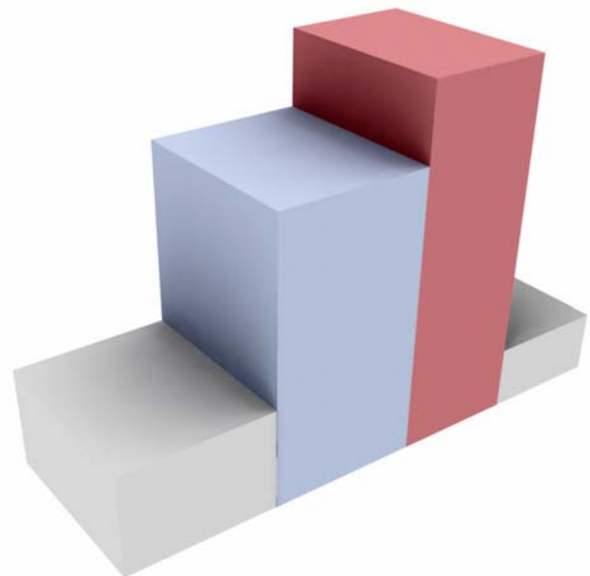




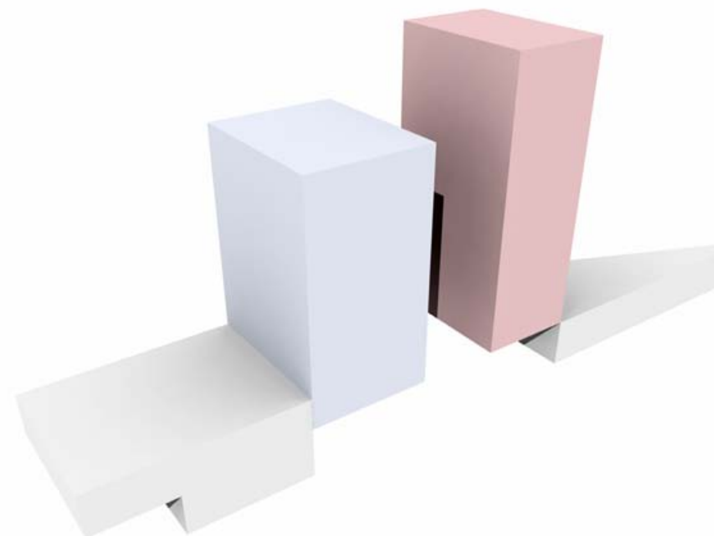
respecting exisiting conditions



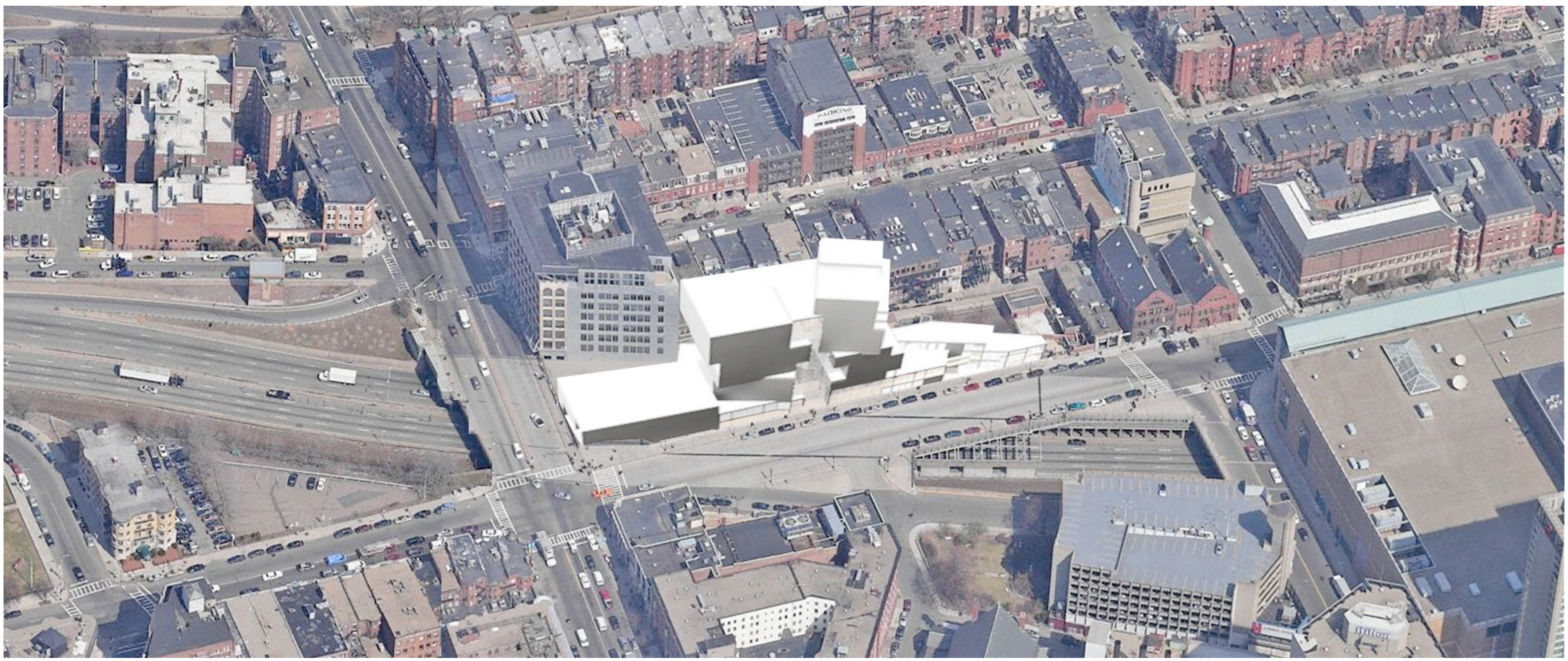
structure

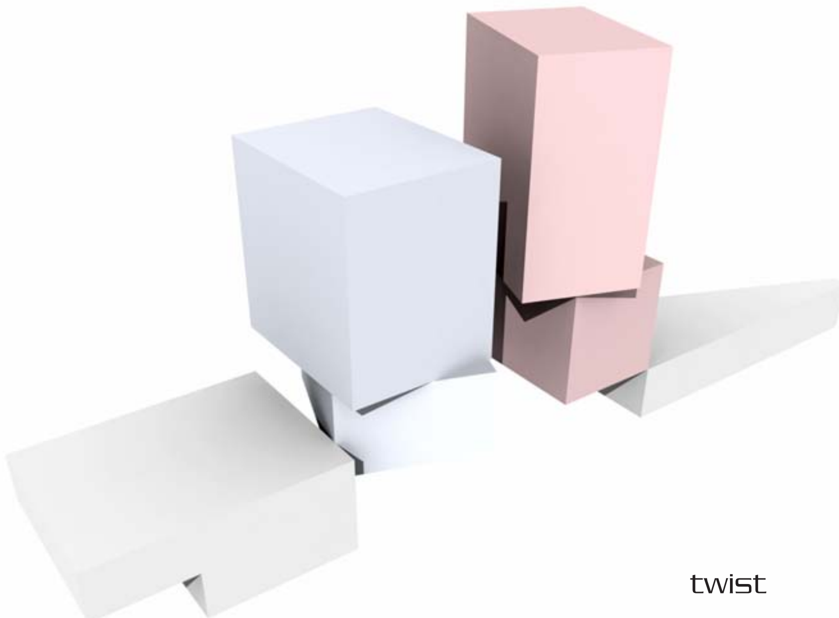


stack

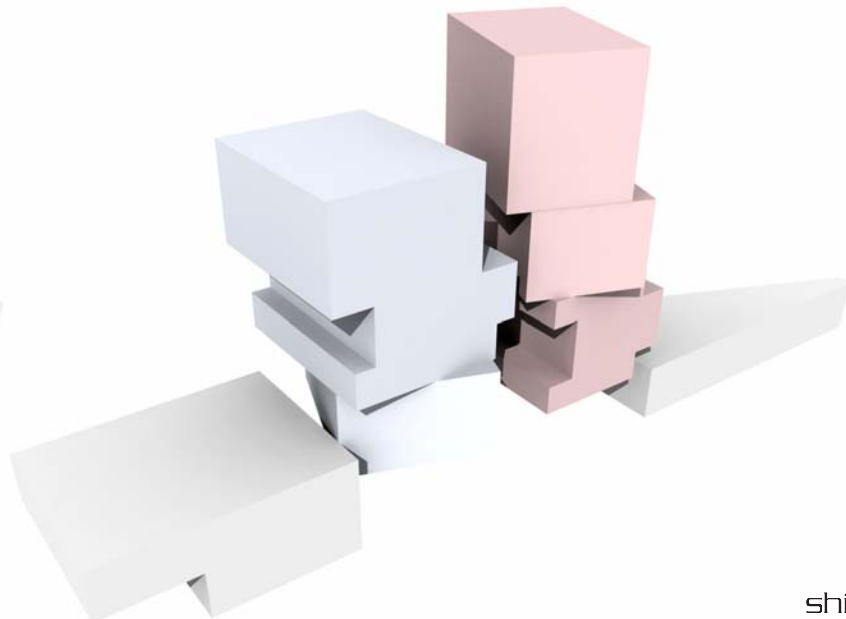


pull/lift



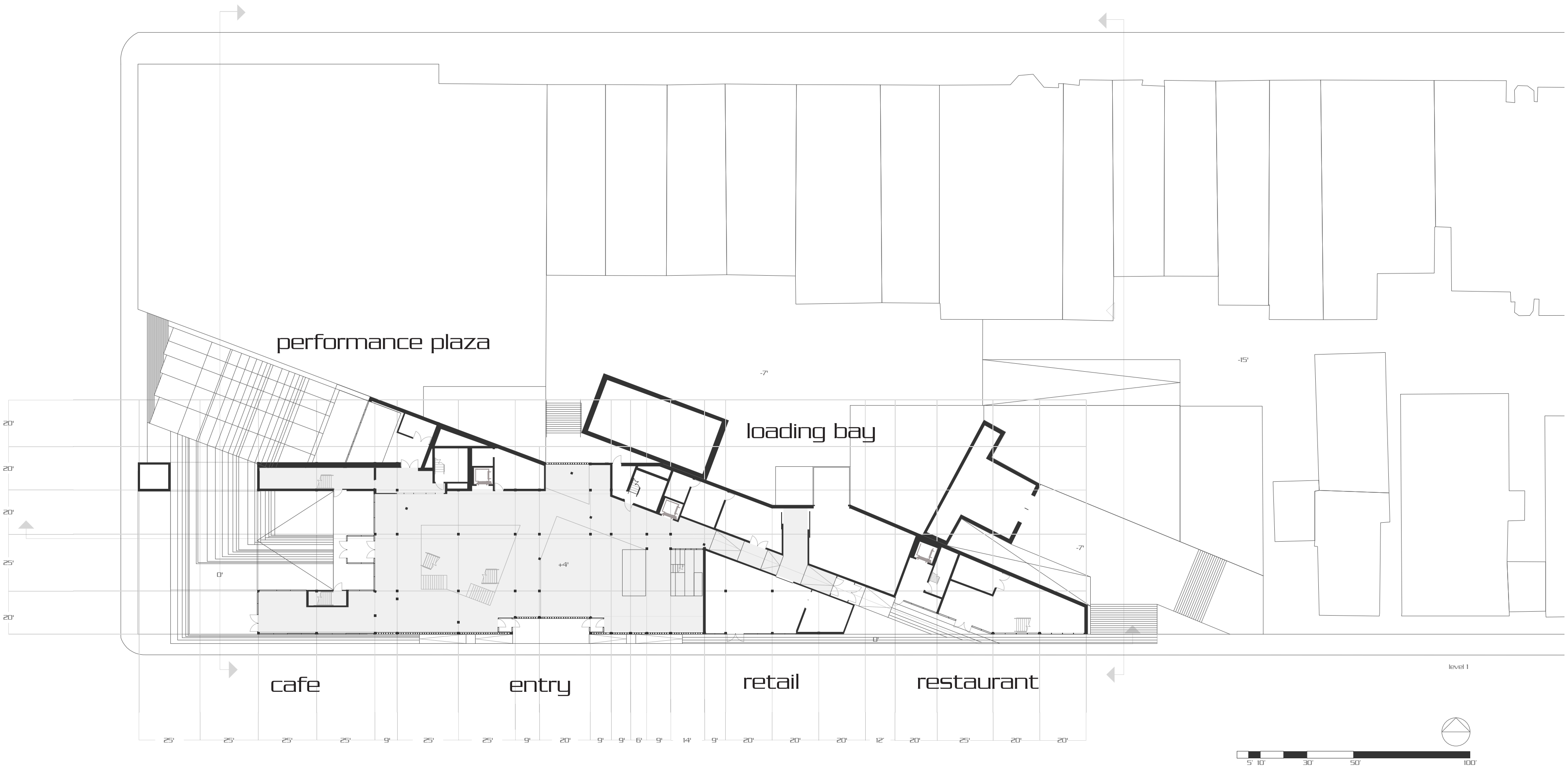


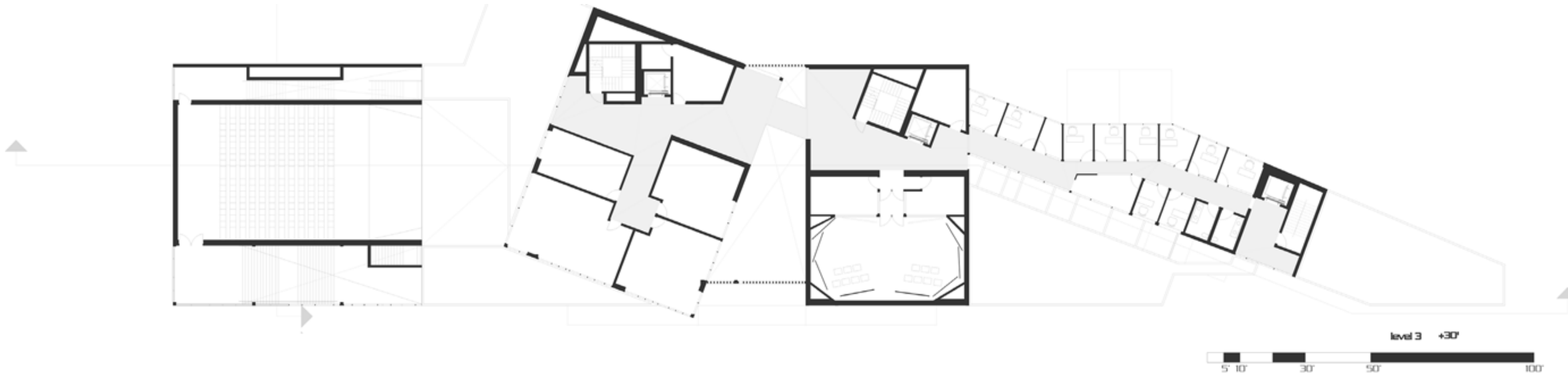
twist

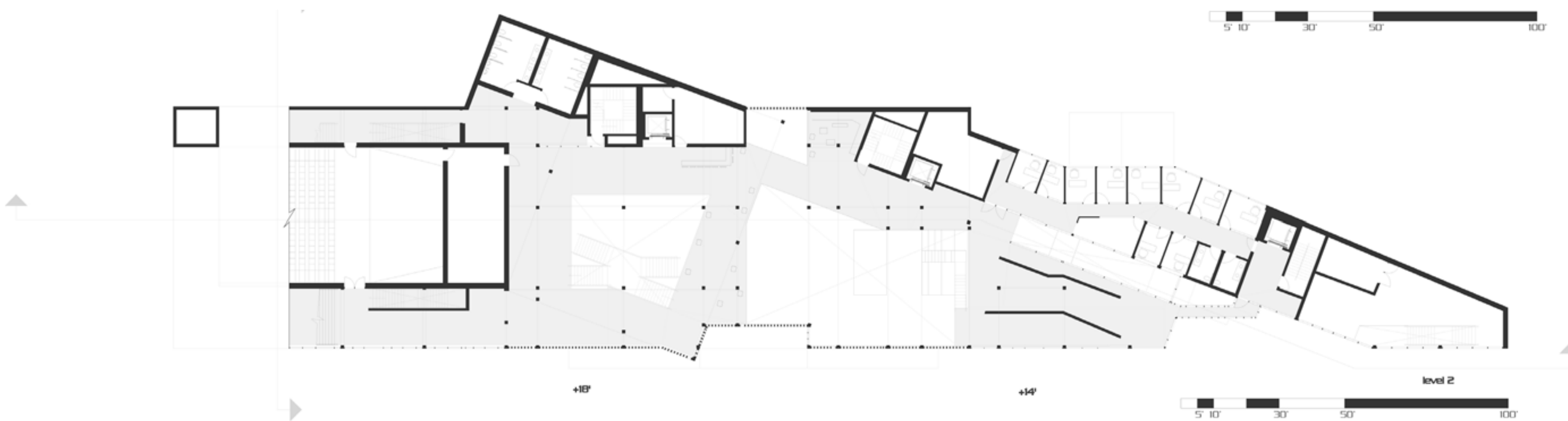


shift

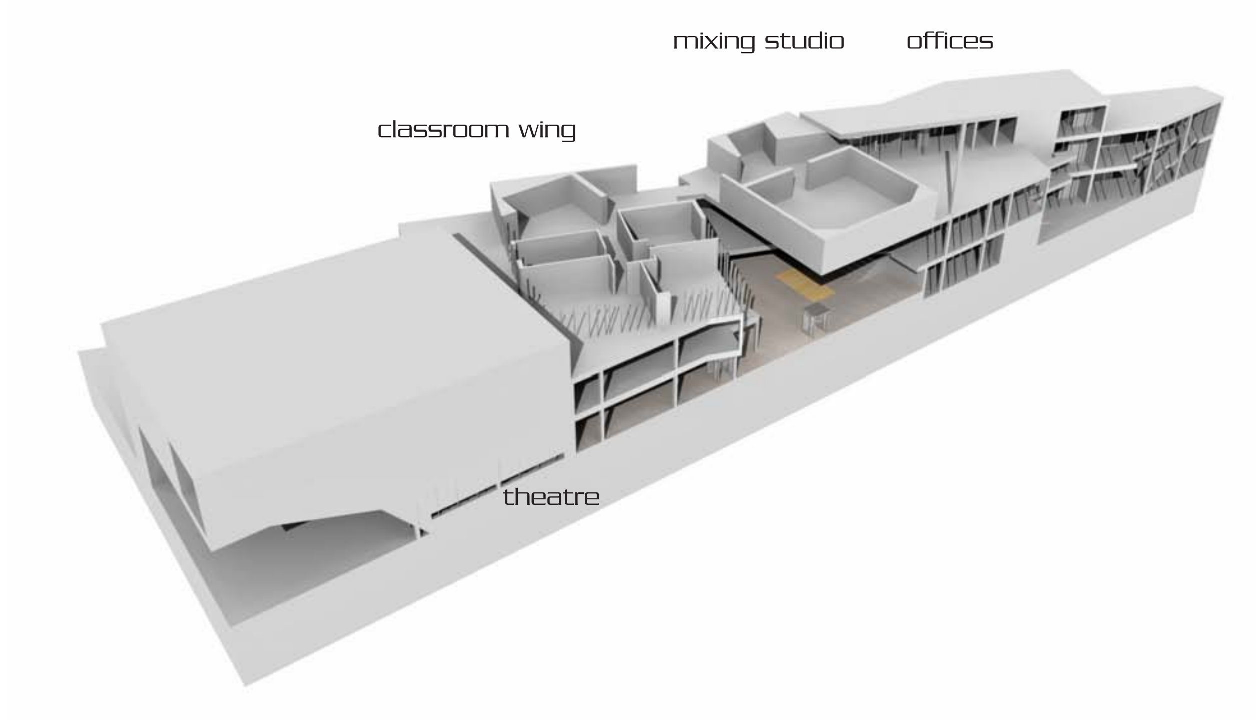
These basic operations come from program constraints and site considerations. The towers separate the public and student programs while they twist and shift from the registrations of the site. The theatre and performance plaza are placed on the busy corner of Massachusetts Ave. and Bolyston Street due to the existing building to the north as well as the busy circulation at the corner. This pushed the towers east away from the commercial/ residential building to respect its surroundings. While being considerably different in form and massing, the center is respectful and insightful to its site and constraints around.


performance plaza
loading bay
cafe
entry
retail
restaurant
level 1

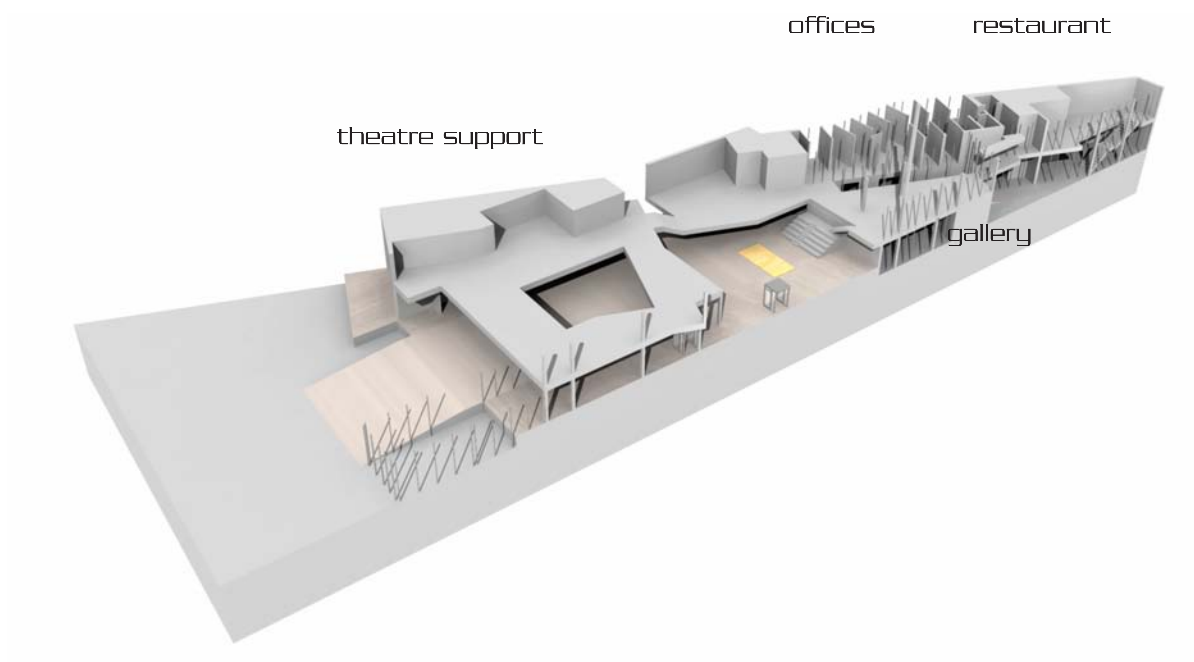

level 3 +30'
5' 10' 30' 50' 100'

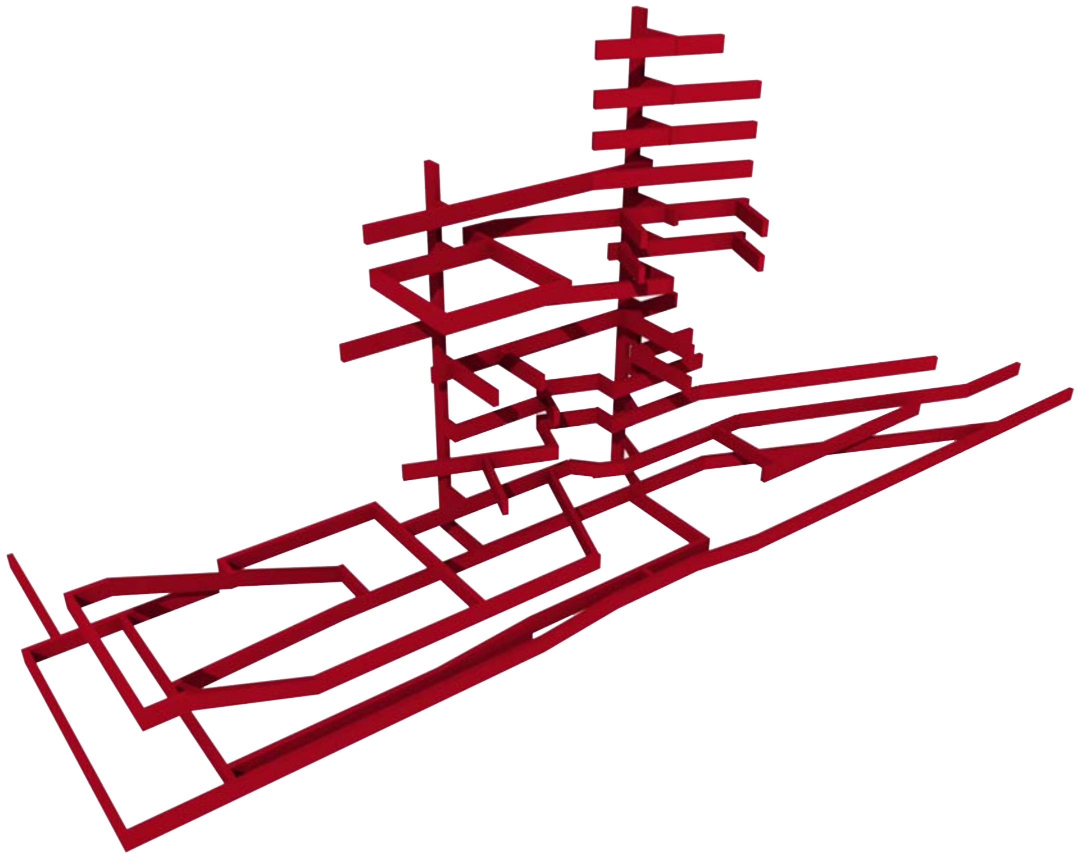

5' 10' 30' 50' 100'
+18'
+14'
level 2
5' 10' 30' 50' 100'

LEVEL 3



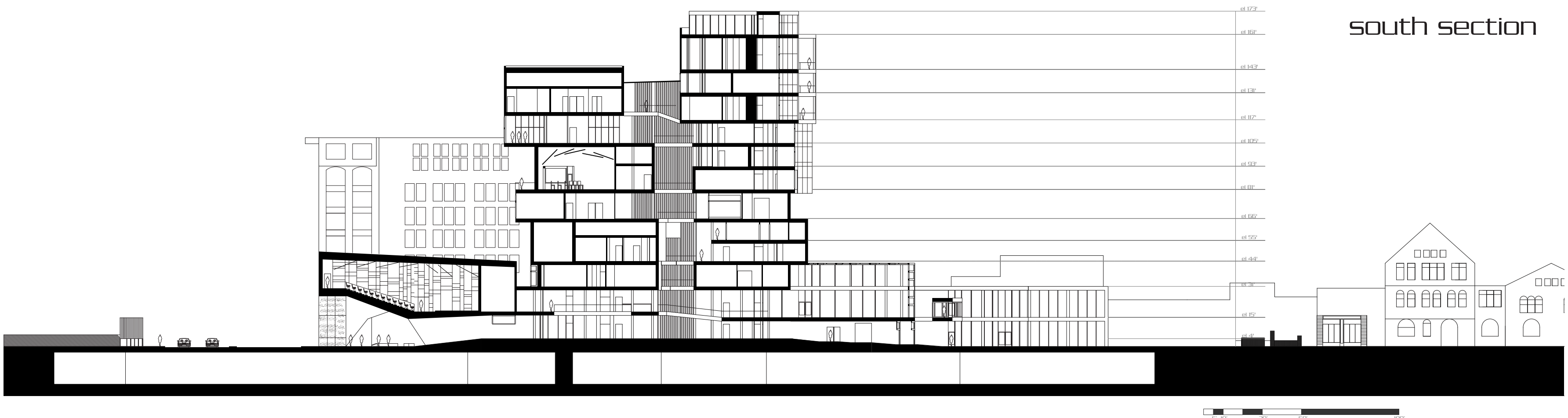
LEVEL 2

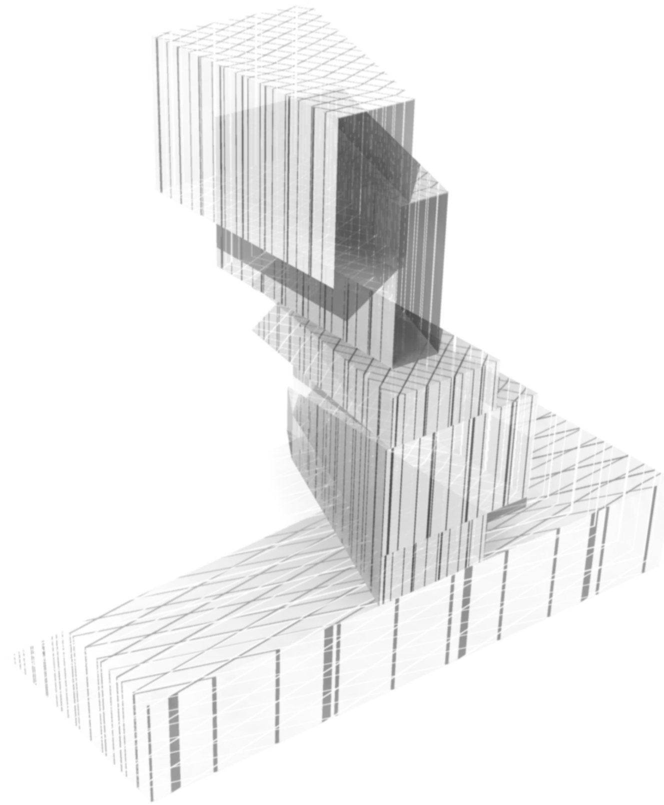




circulation

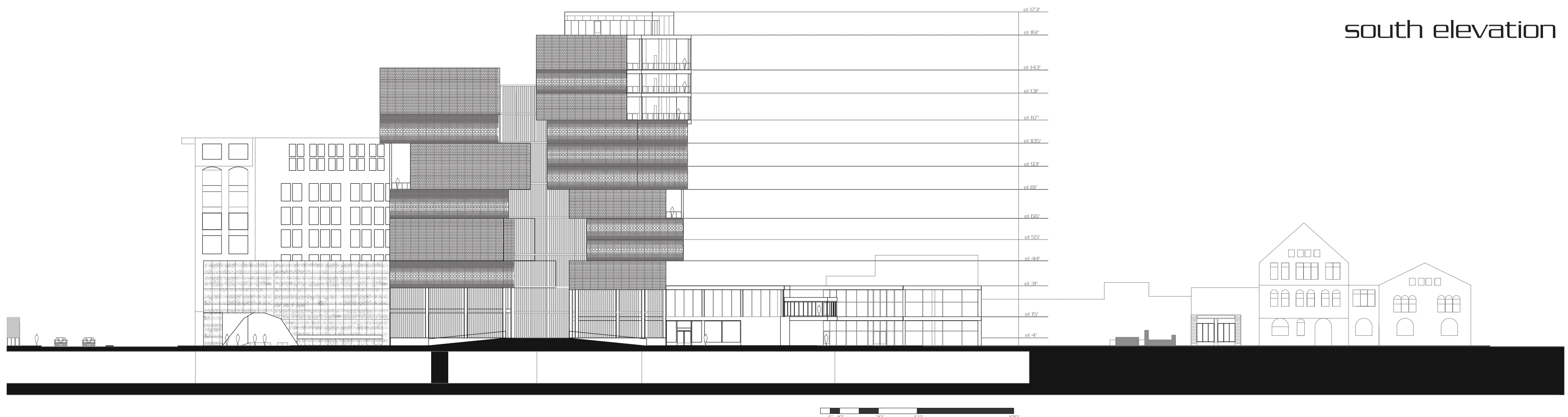
south section

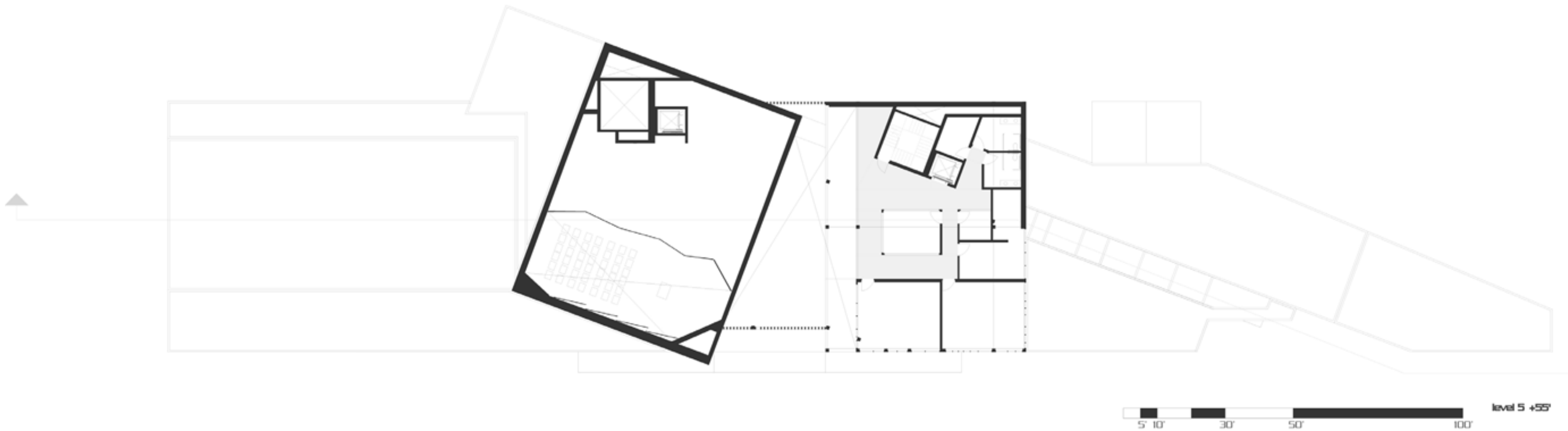




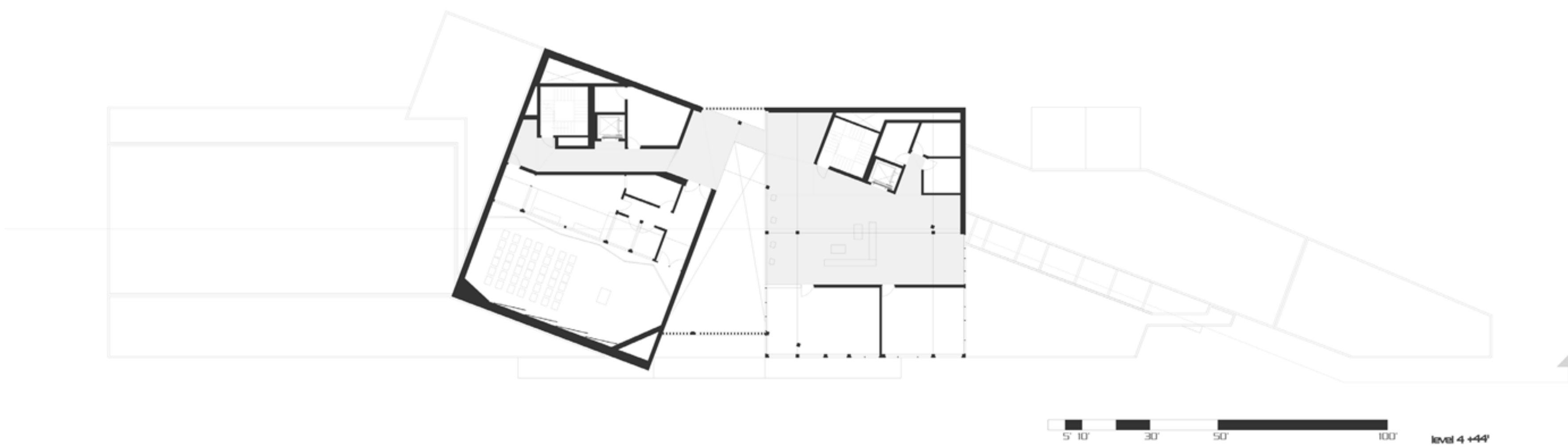
atrium void

south elevation

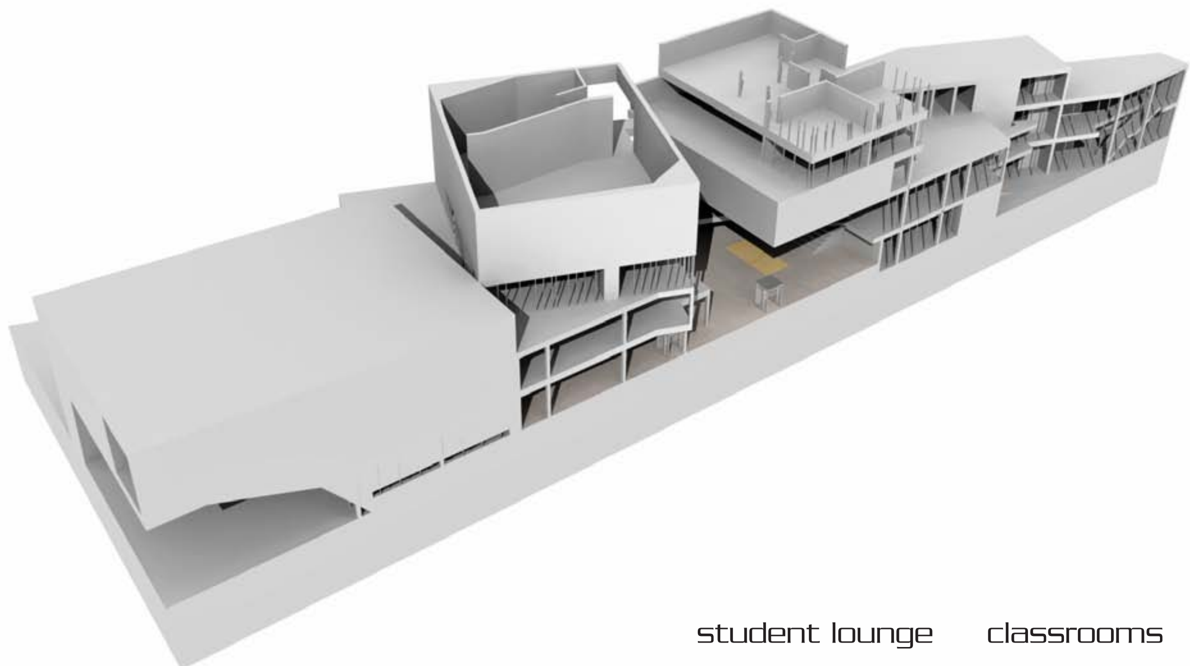




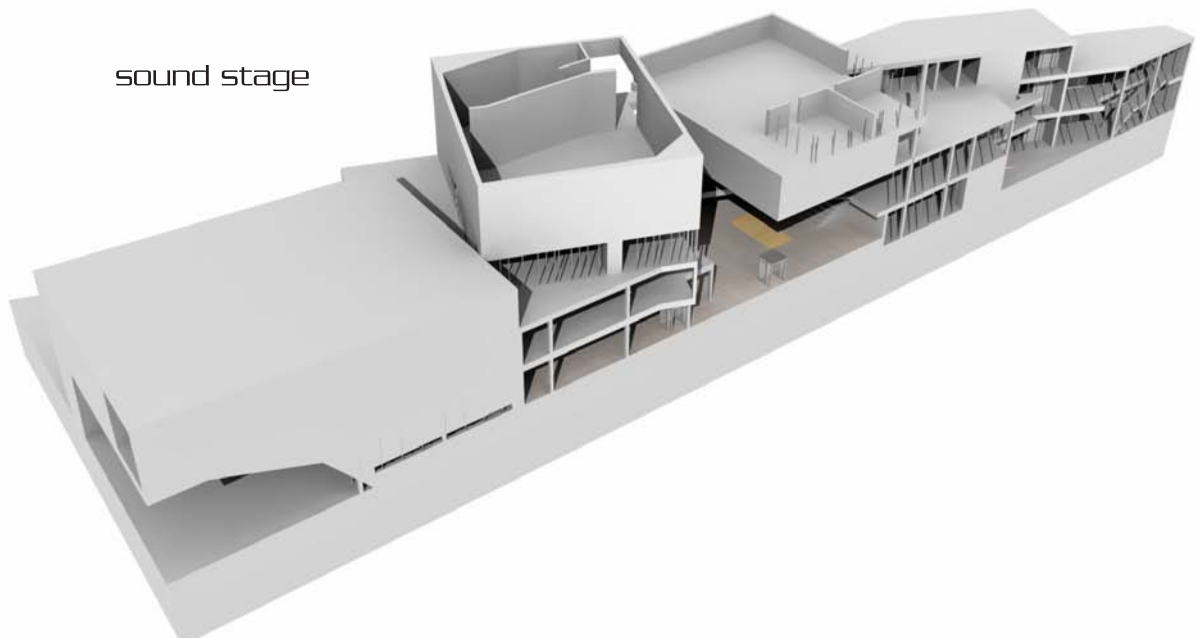
level 5 +55'



level 4 +44'

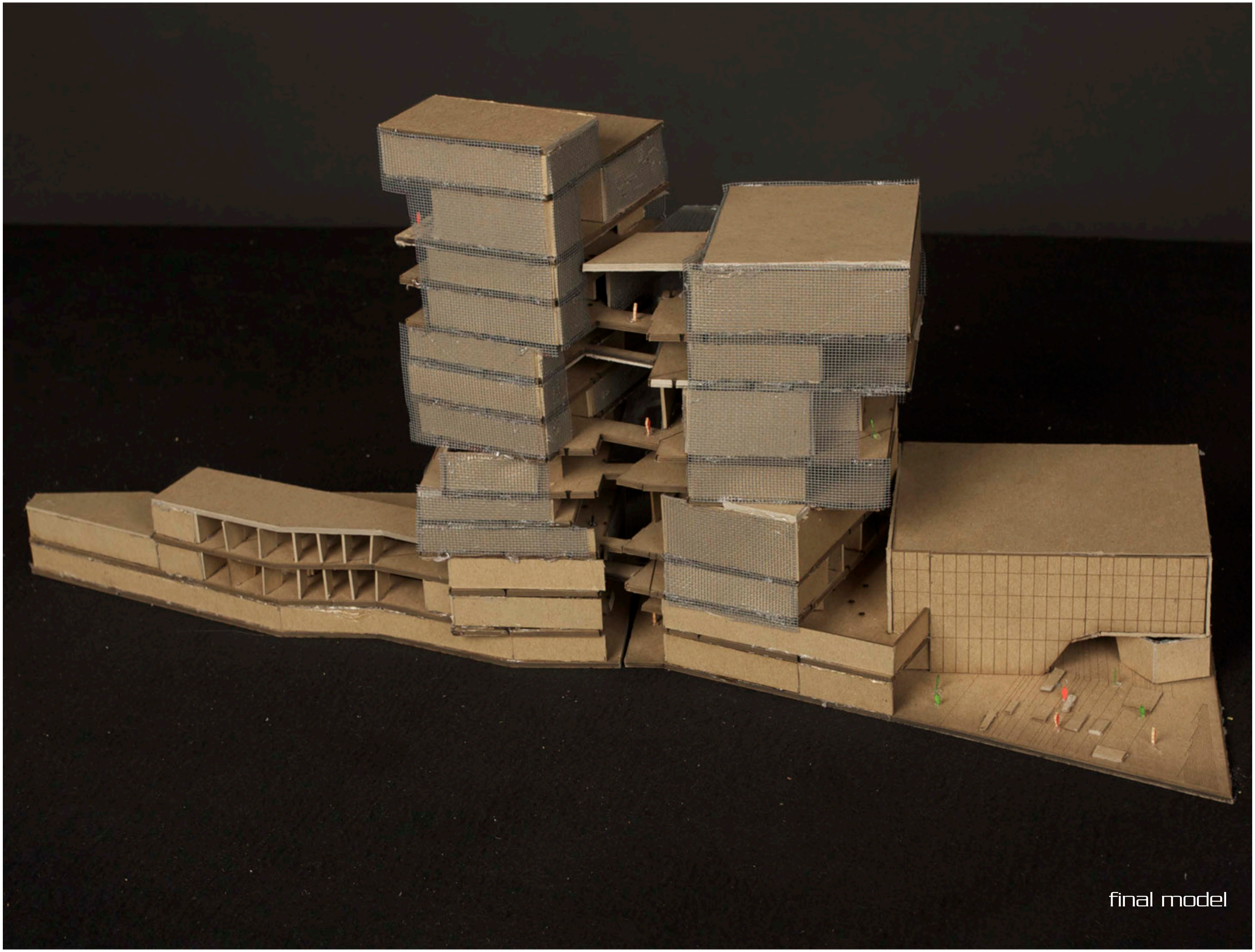


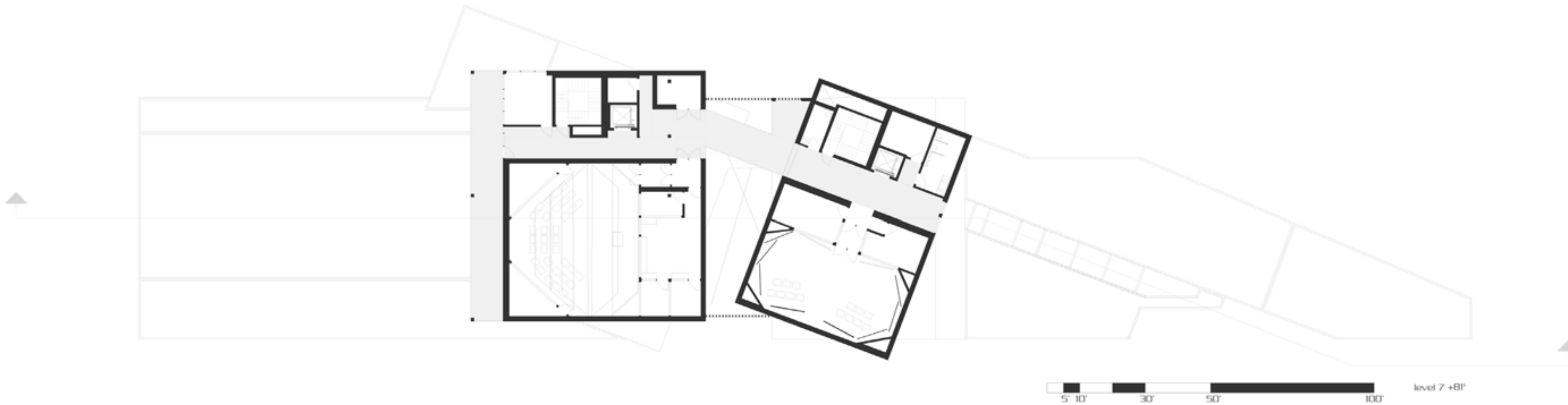
level 5

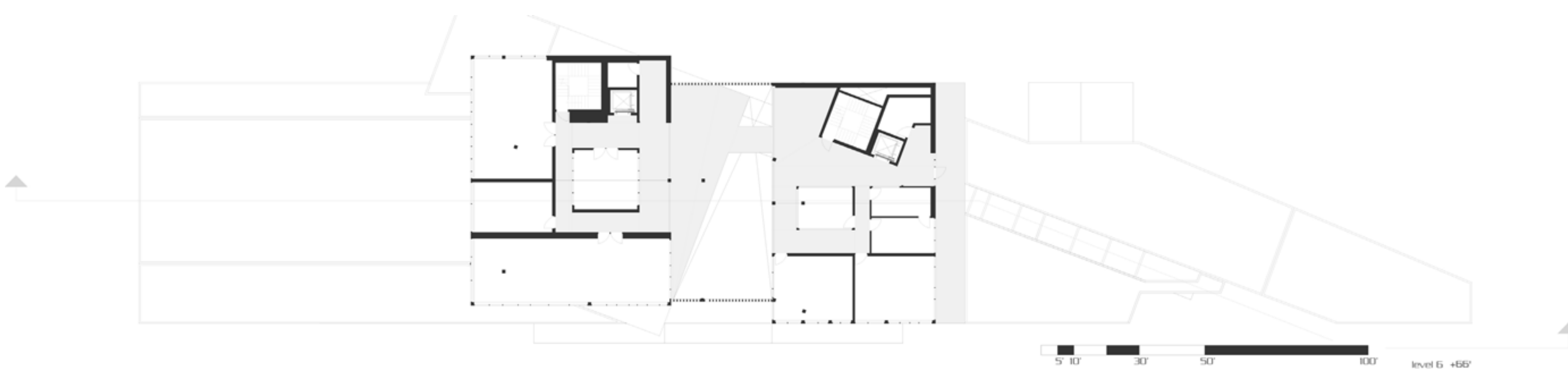


level 4

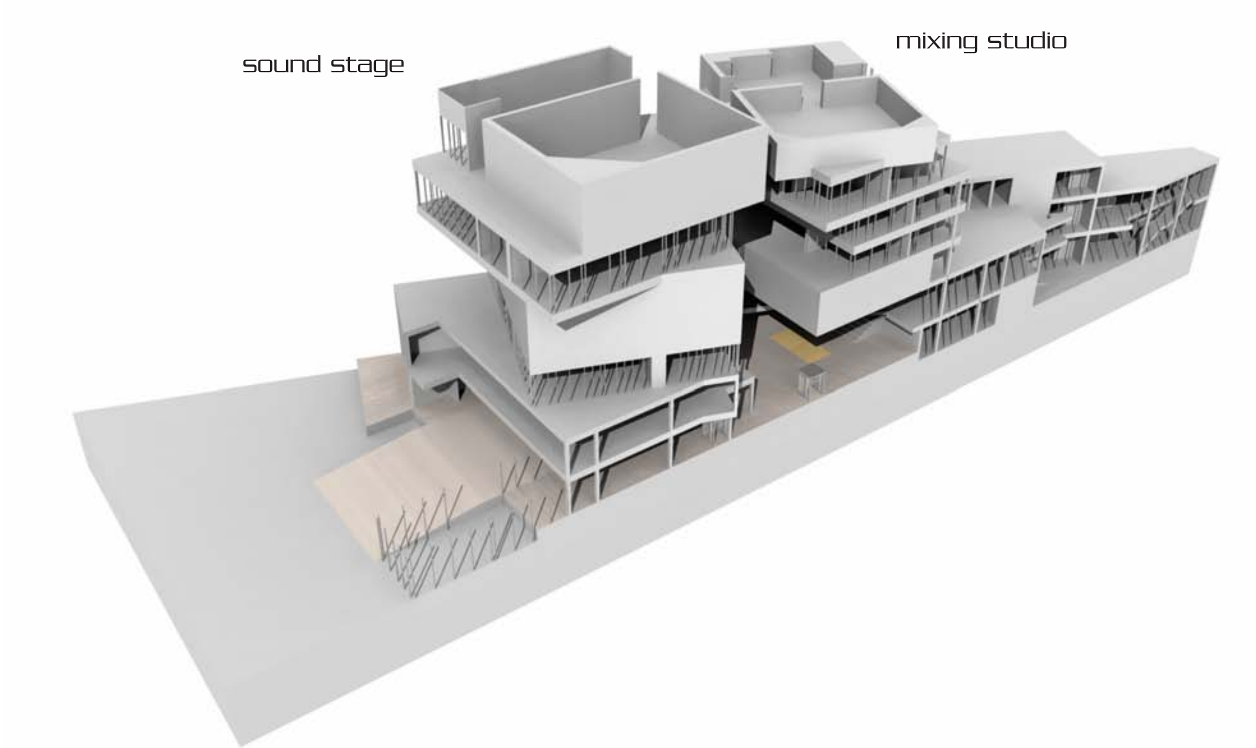

cnc site model with 3D massing model print


final model

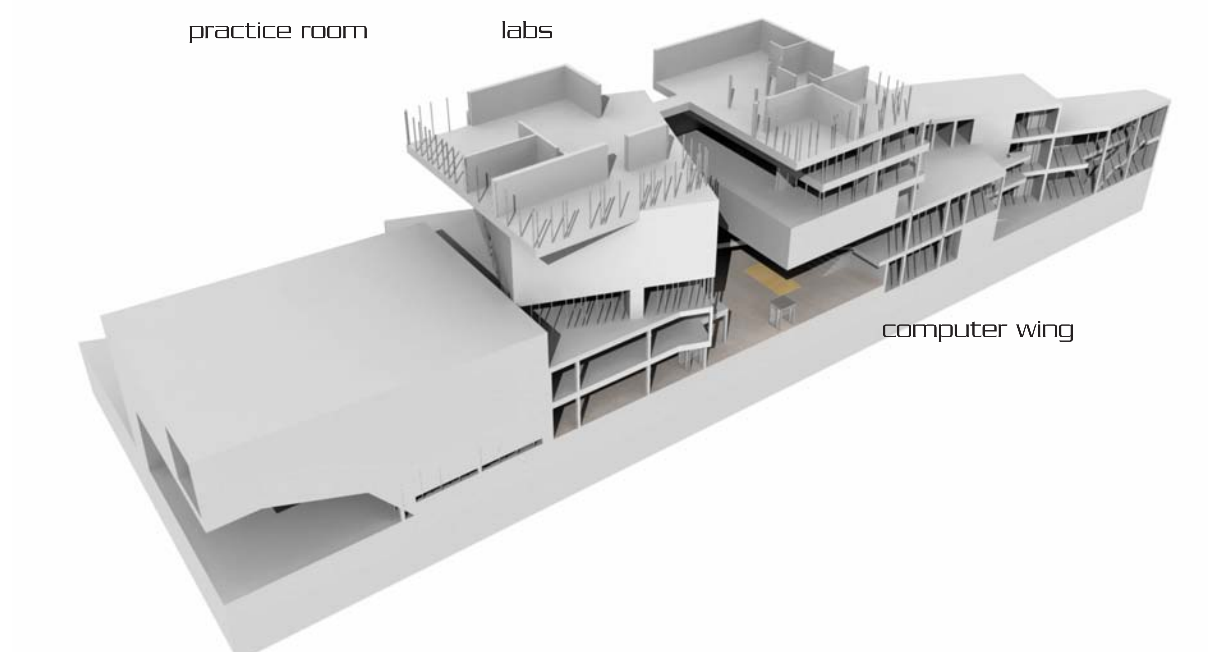

5' 10'
30'
50'
100'
level 7 +81'

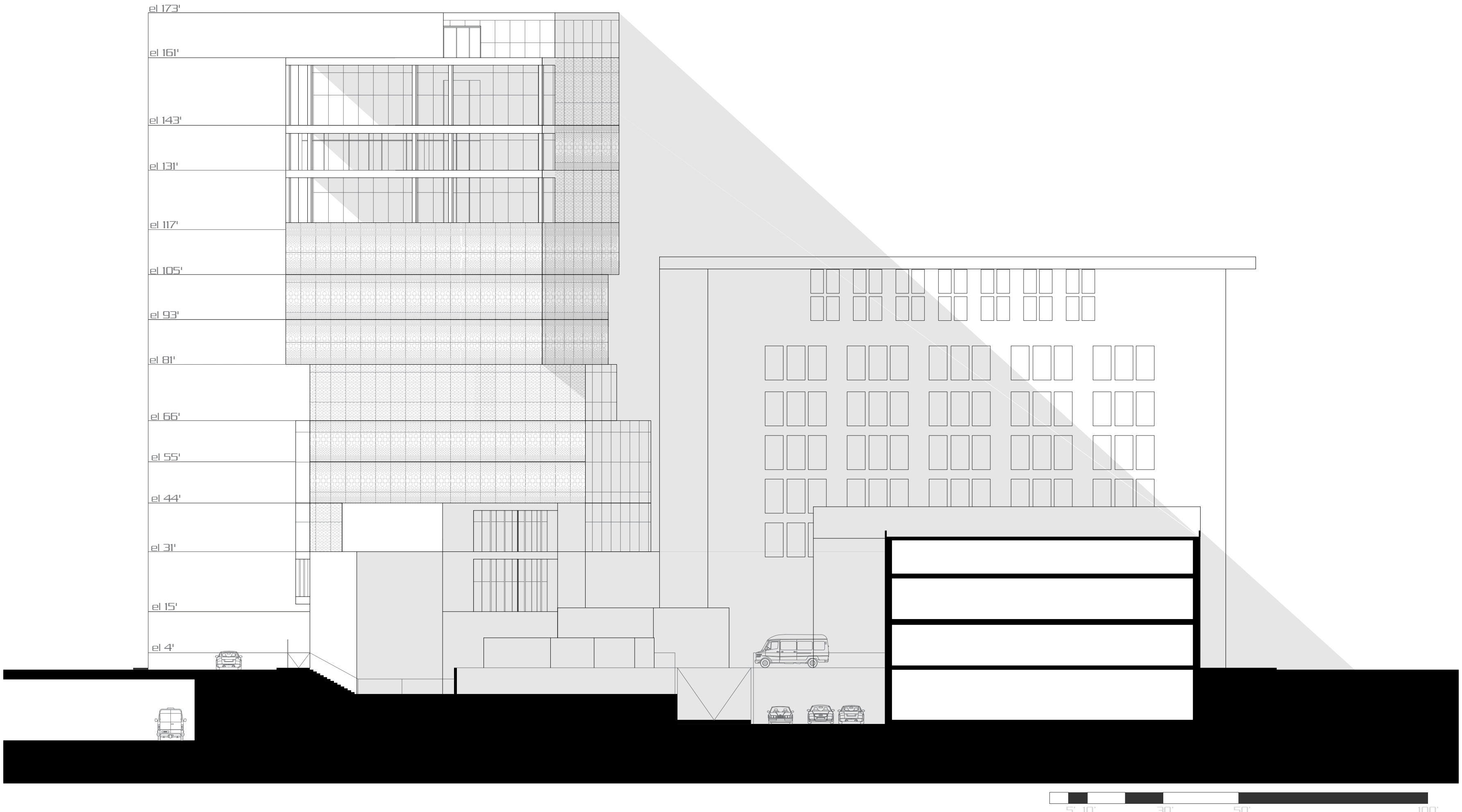

5' 10'
30'
50'
100'
level 6 +66'

level 7



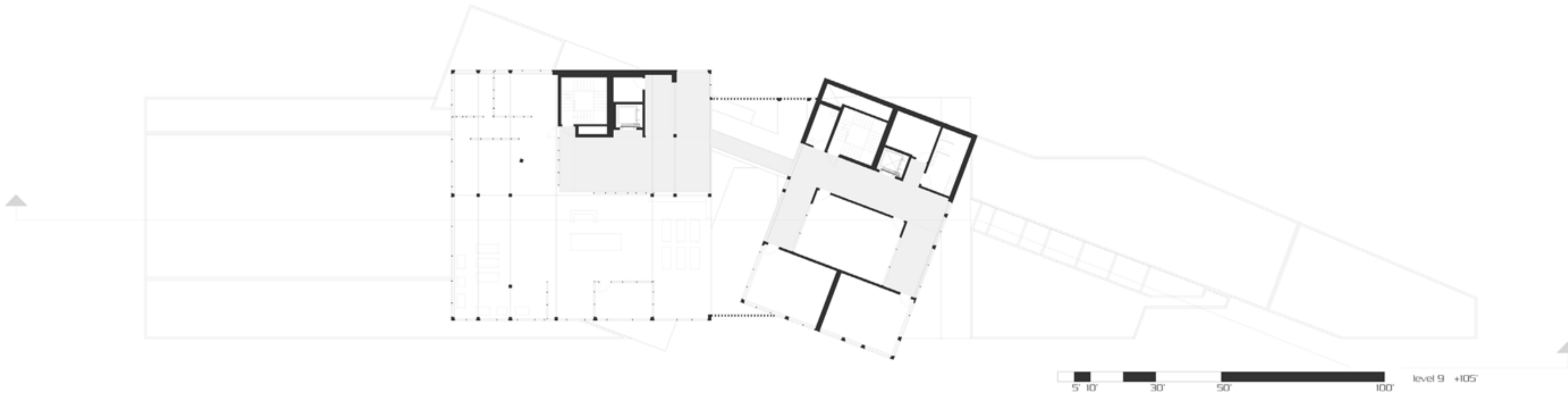
level 6

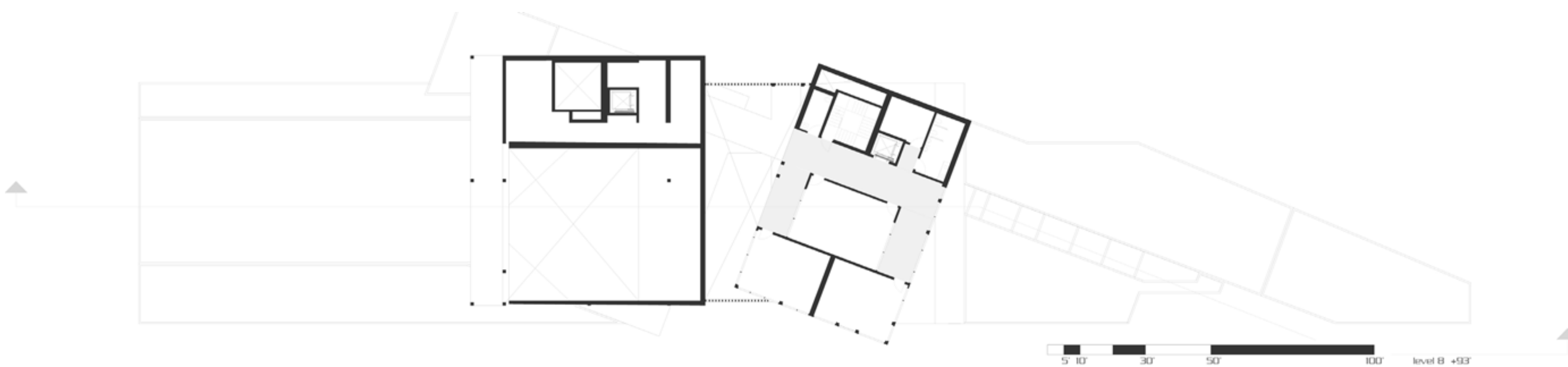


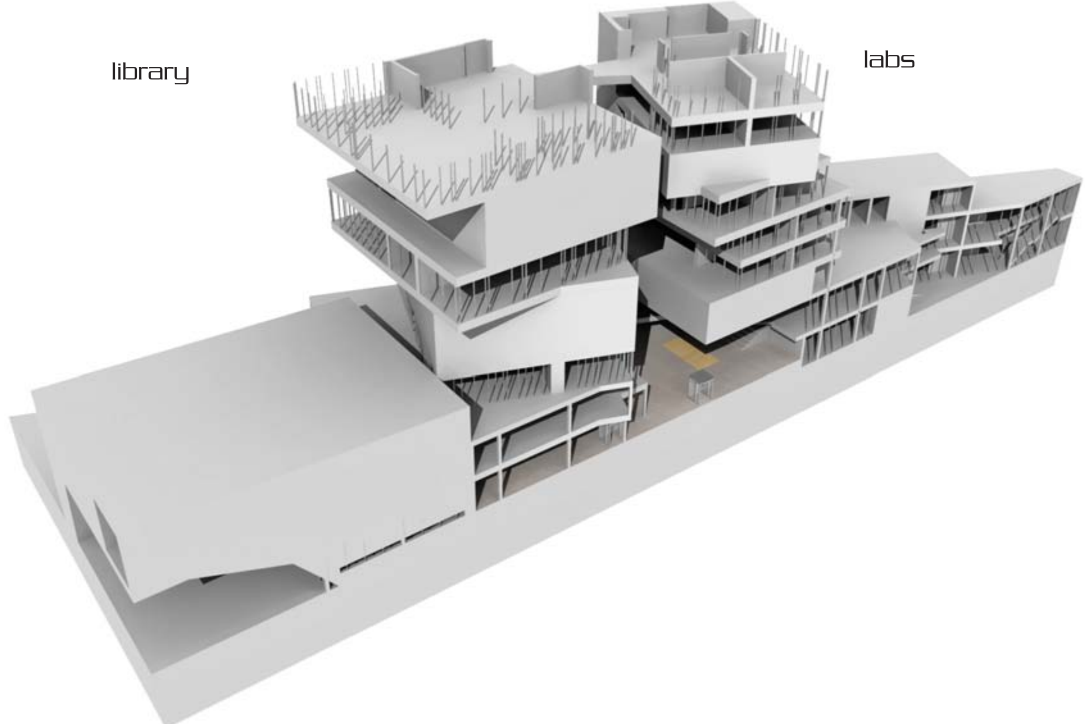


east site section

corner view


5' 10' 30' 50' 100'
level 9 +105'

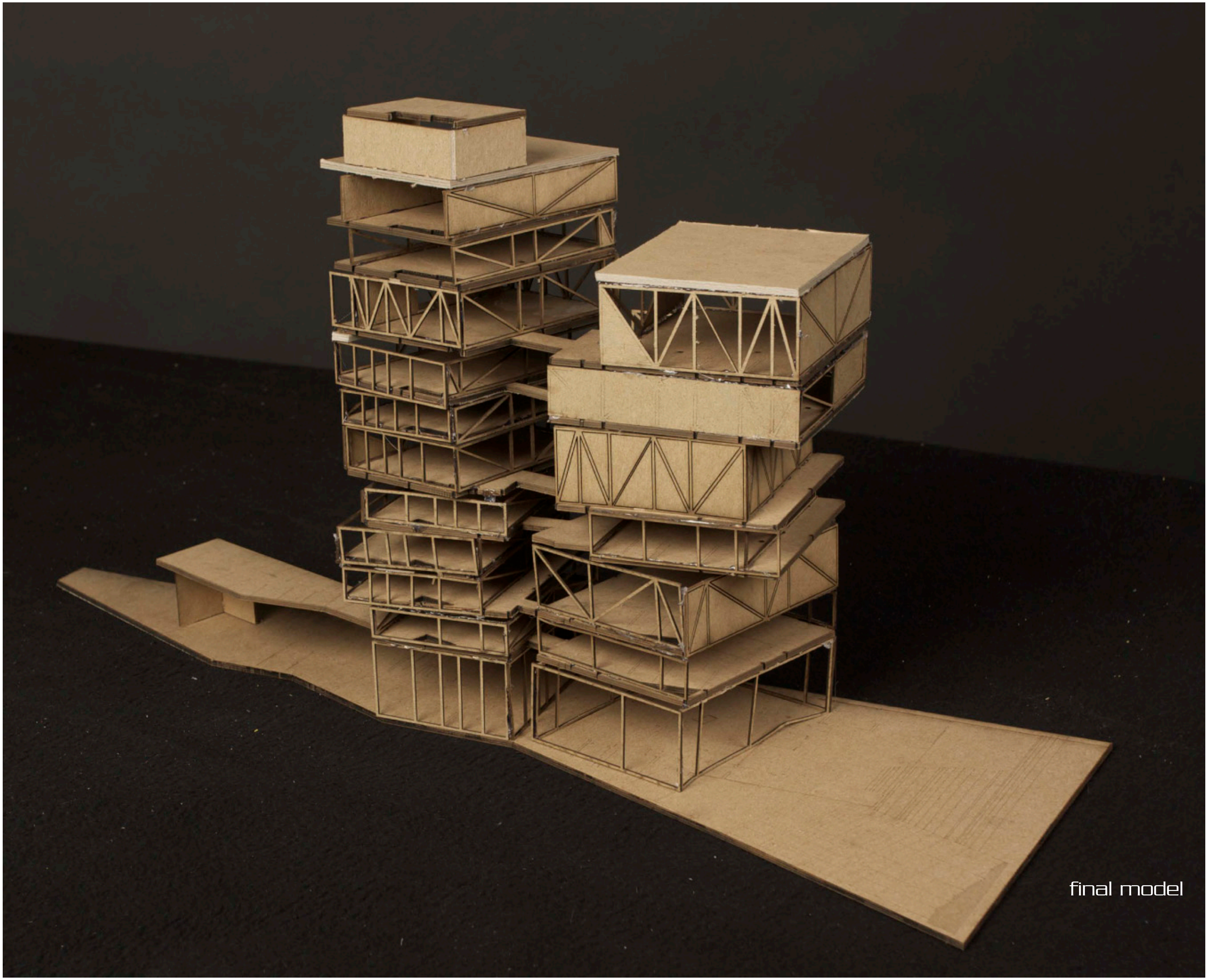

5' 10' 30' 50' 100'
level 8 +93'

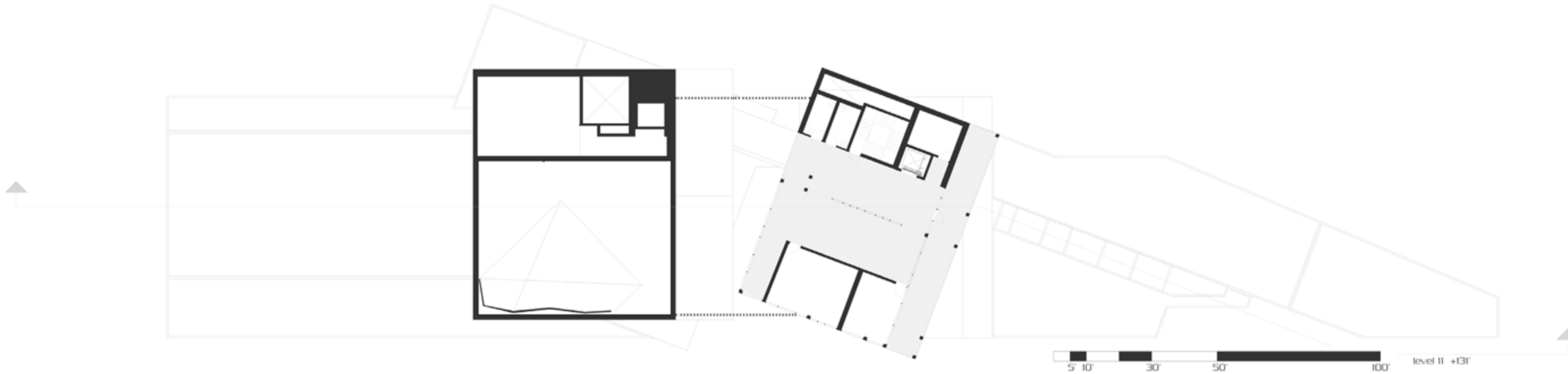


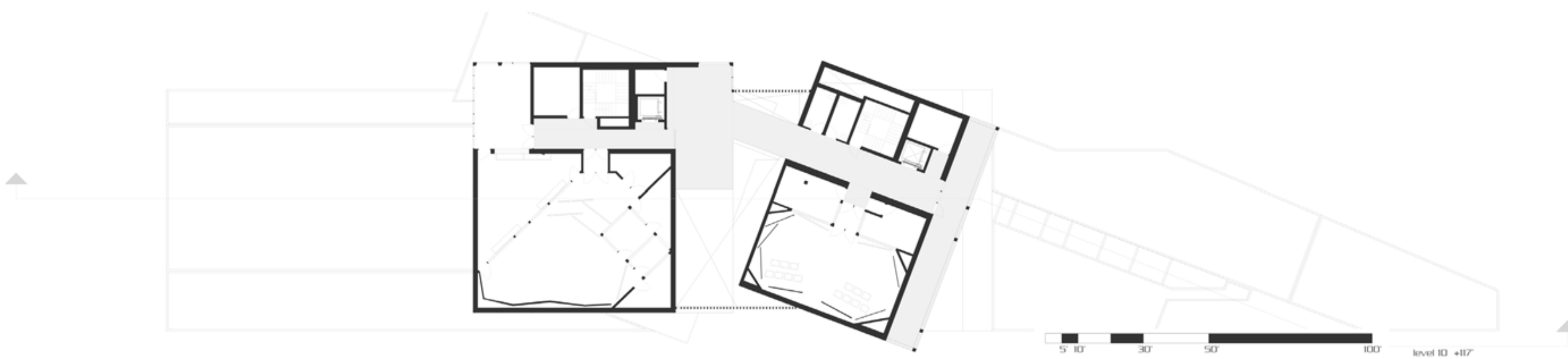
LEVEL 9

LEVEL 8

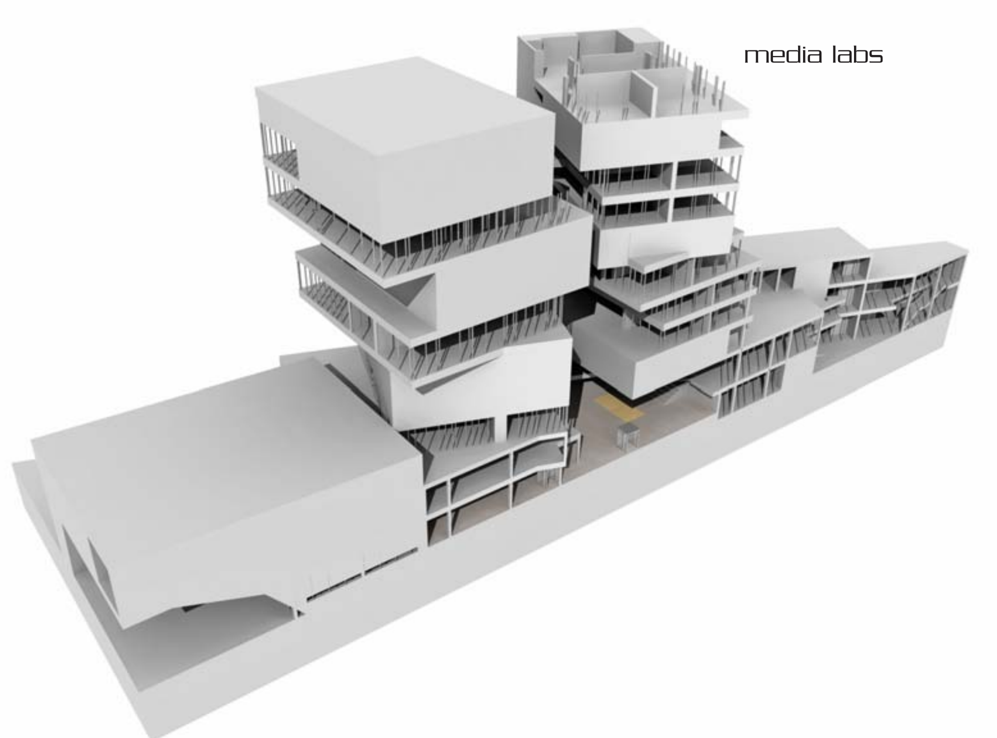

cnc site model with 3D massing model print


final model

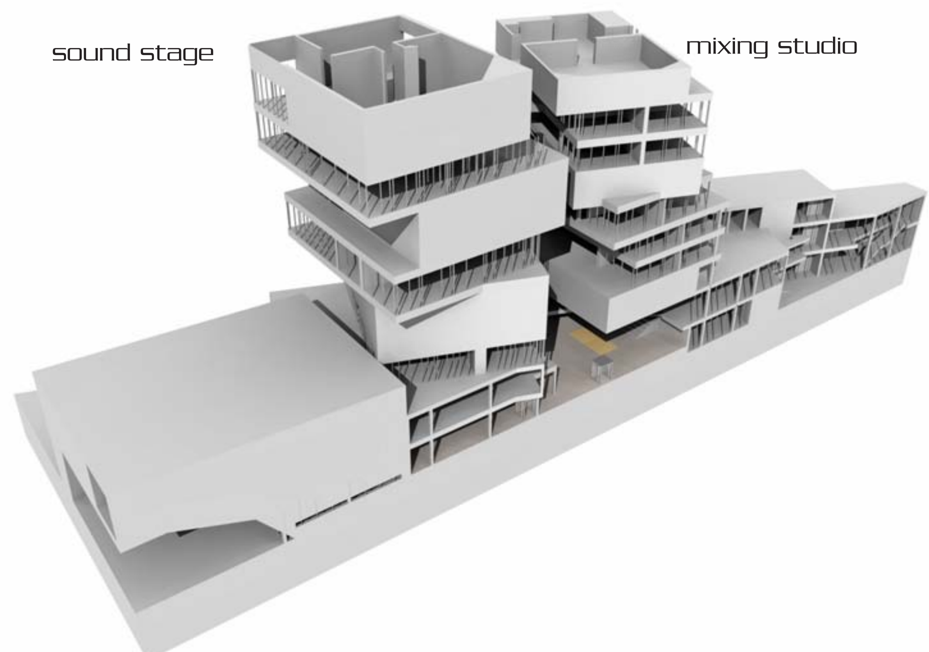

5' 10' 30' 50' 100'
level 11 +131'


5' 10' 30' 50' 100'
level 10 +117'

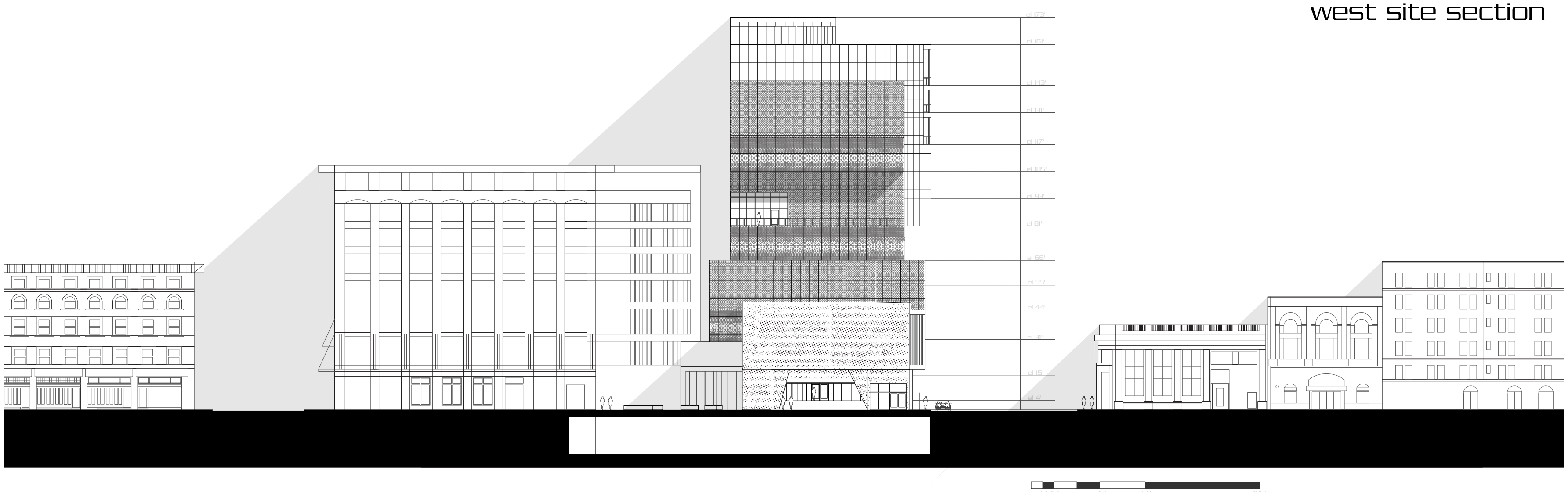
LEVEL 11



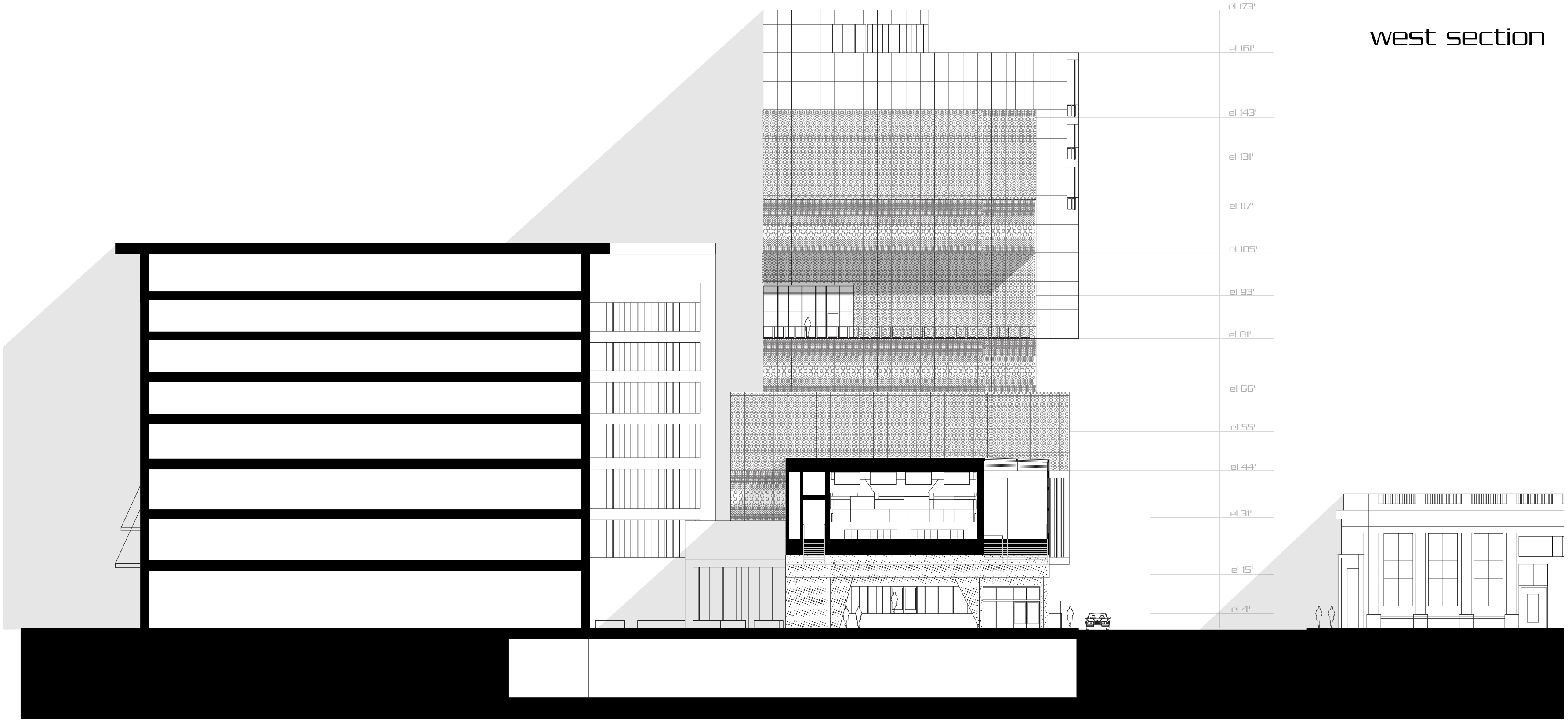
LEVEL 10



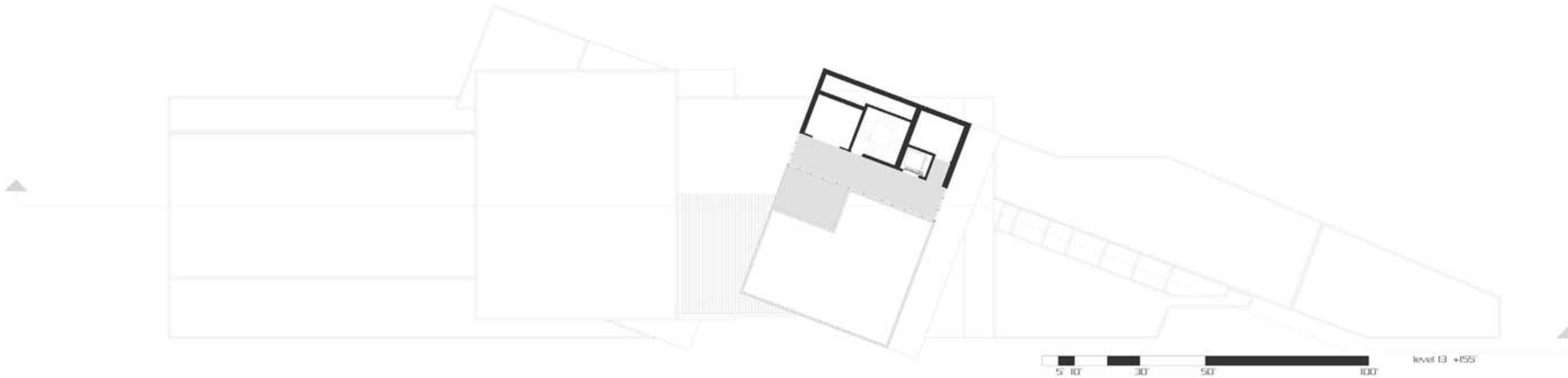
west site section



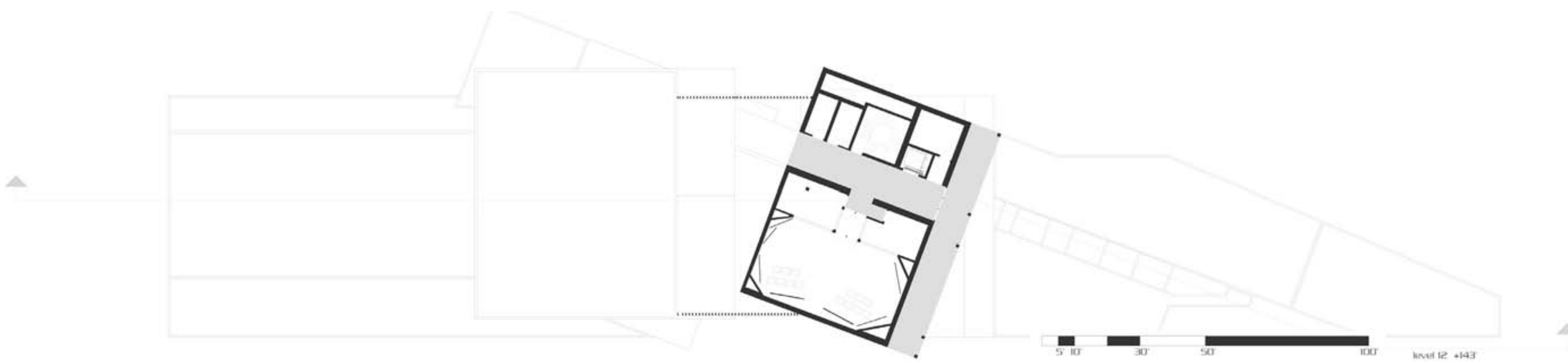
west section



performance plaza

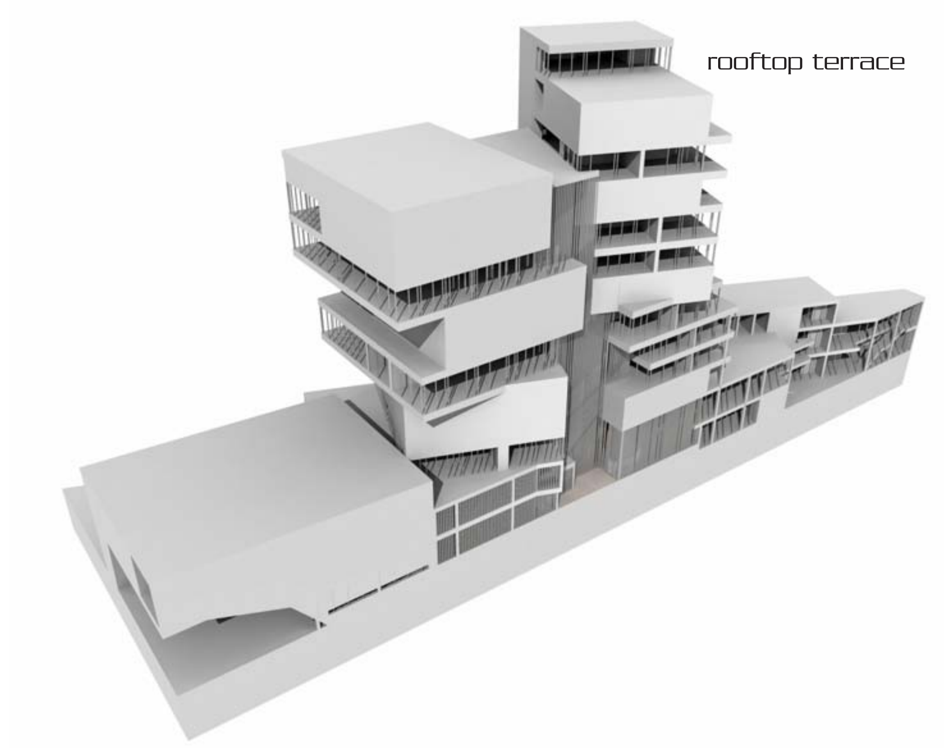


level 13 +155'

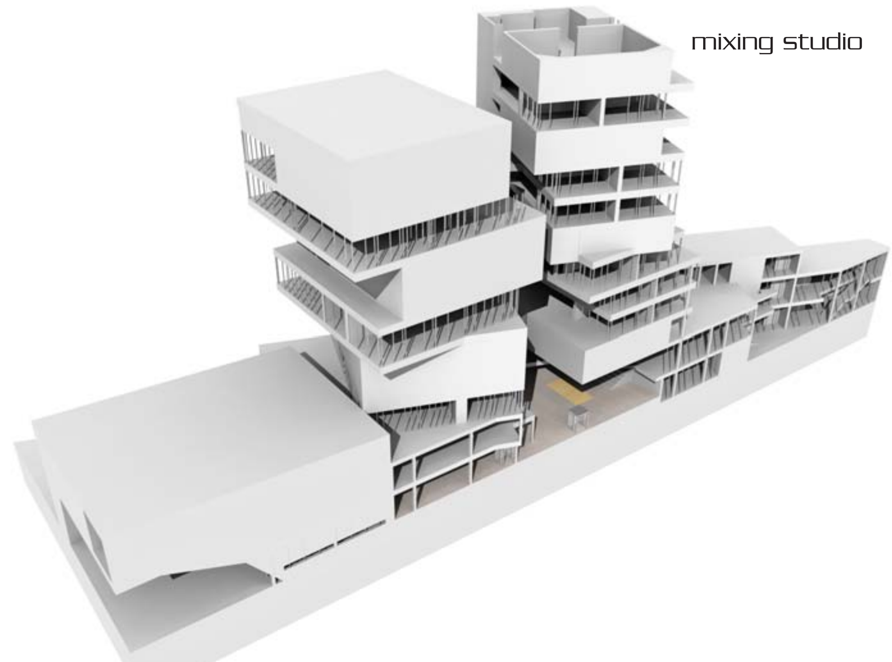


level 12 +143'

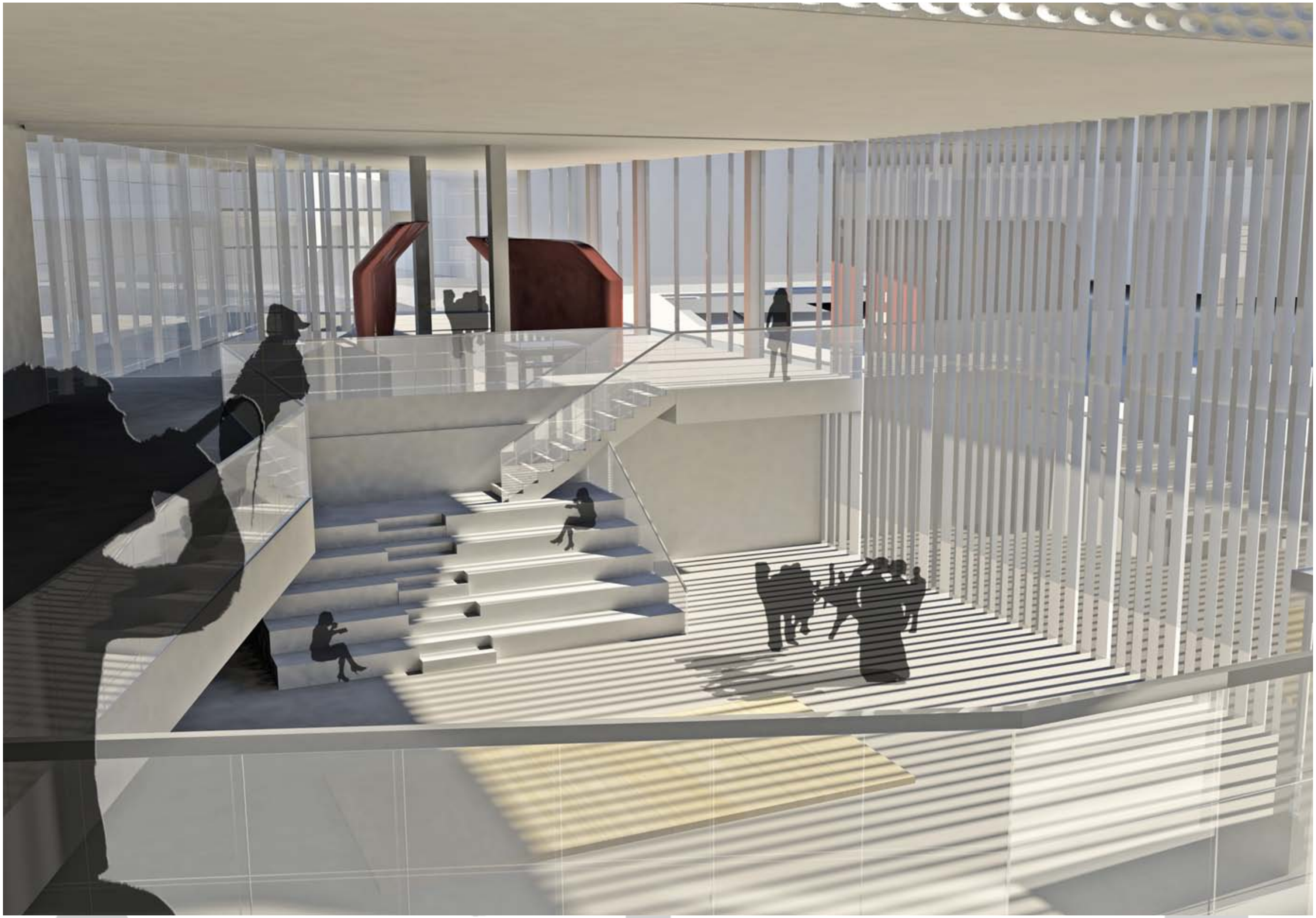
LEVEL 13



LEVEL 12

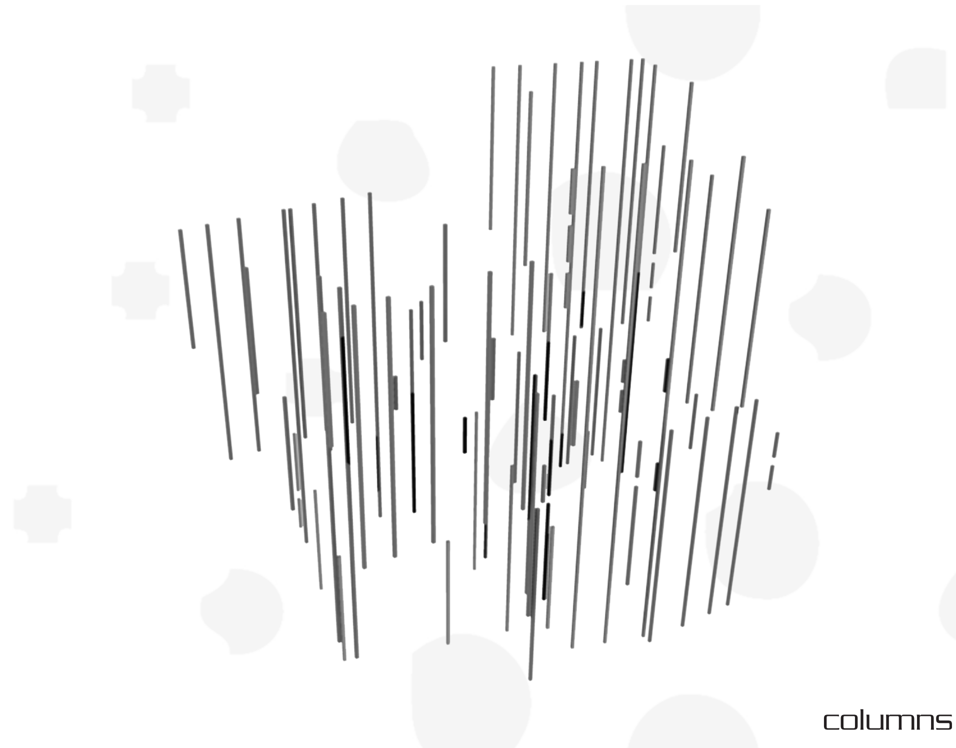



final model



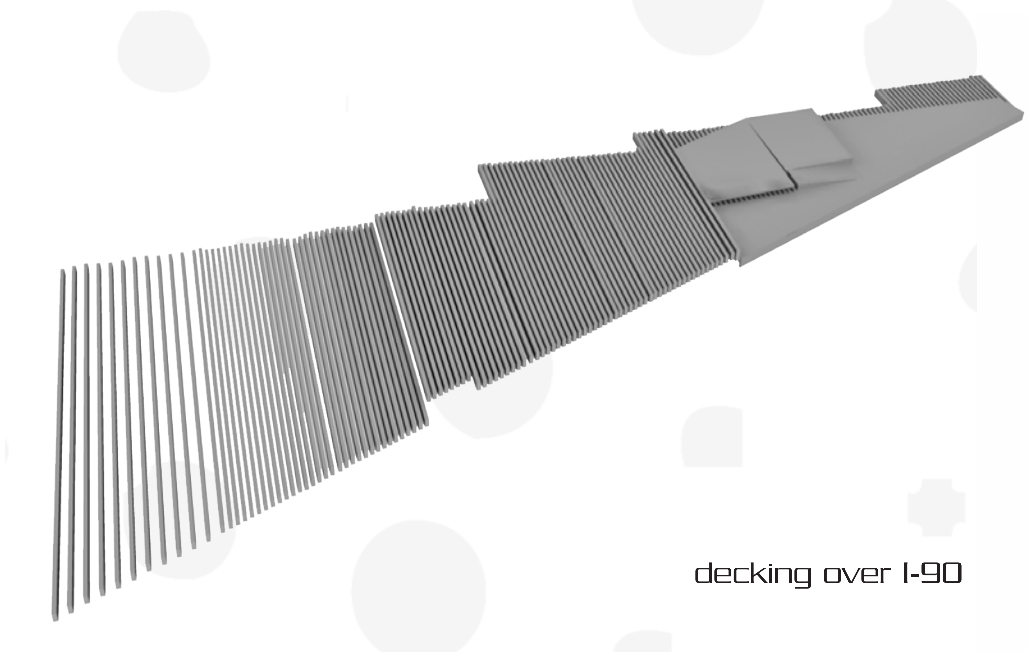
view from second level

view from library level



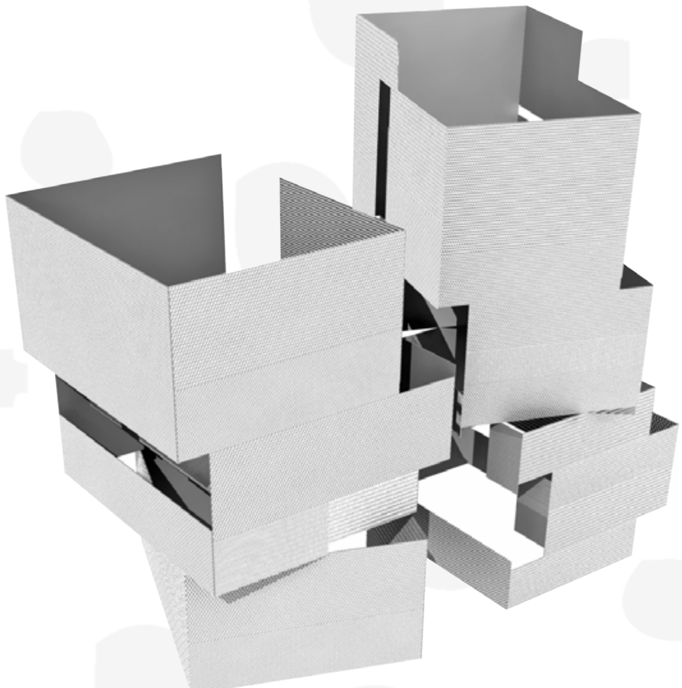
columns

mullions



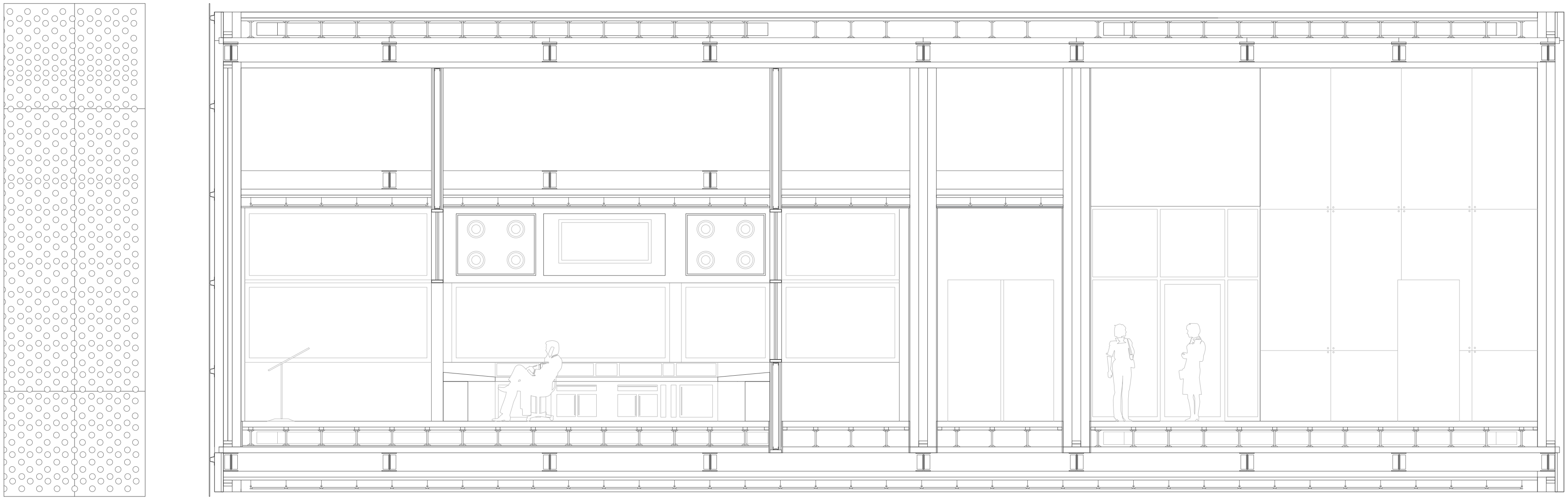
decking over I-90

cores

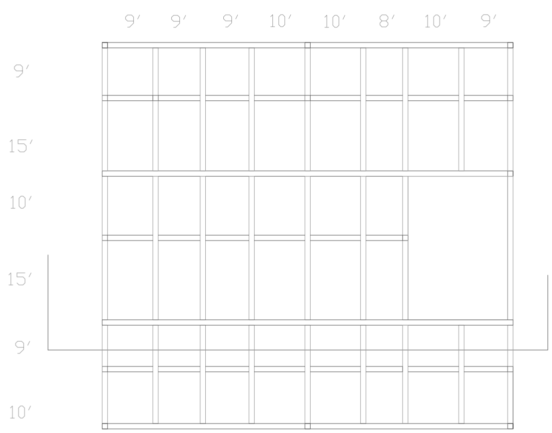


skin

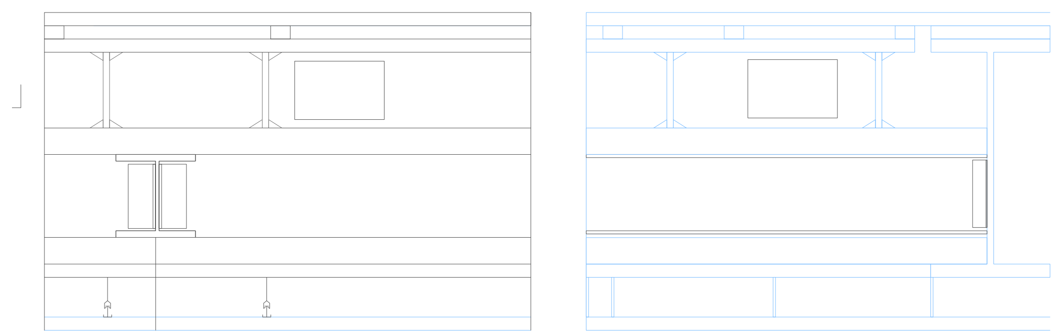
floorplates



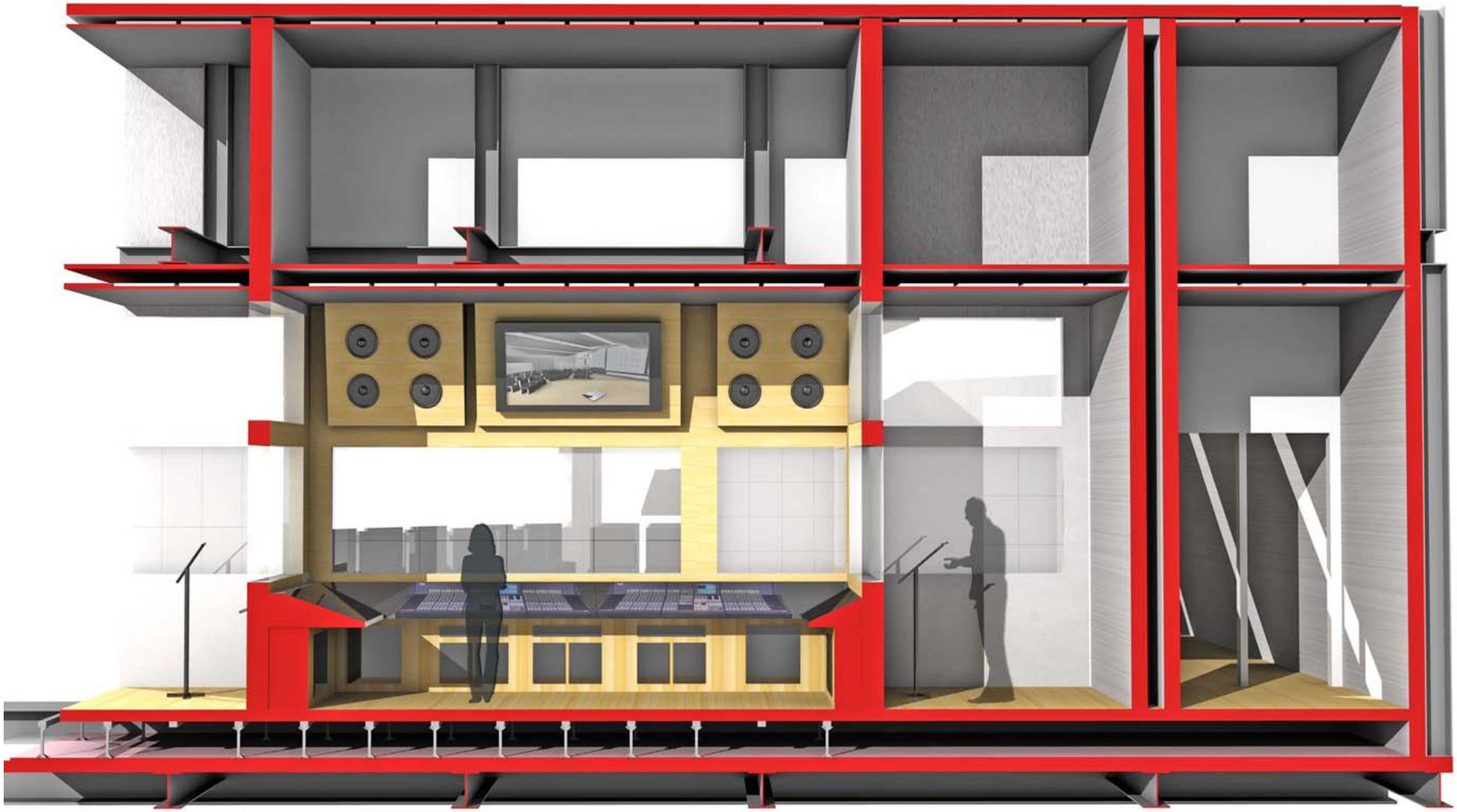
structural bay section_control room



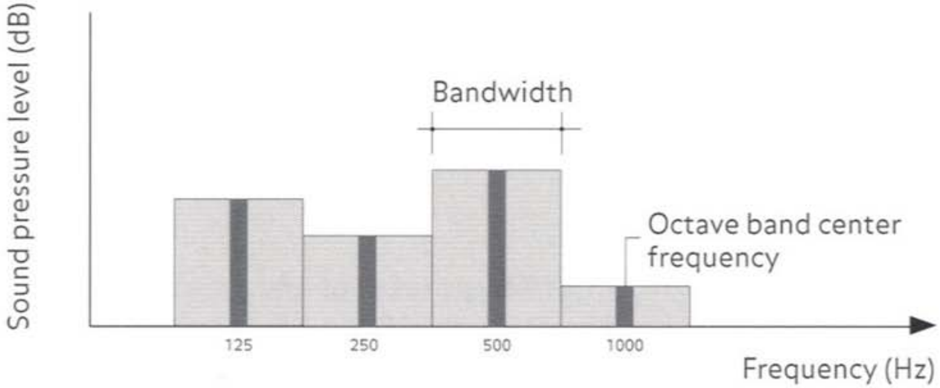
framing plan_sound stage



construction details

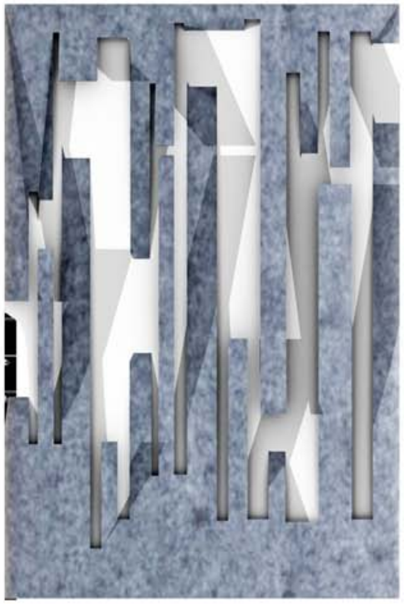


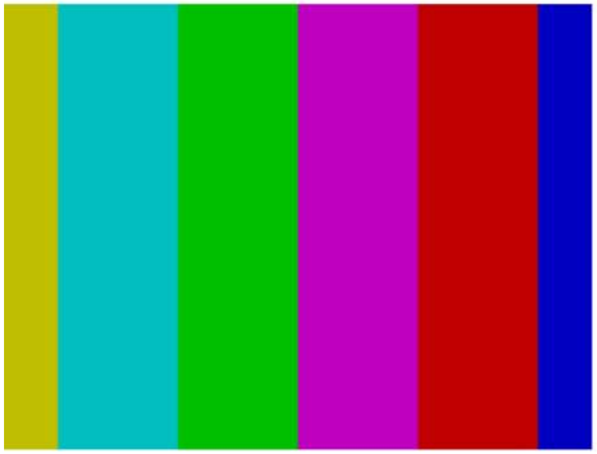
sectional perspective_ control room

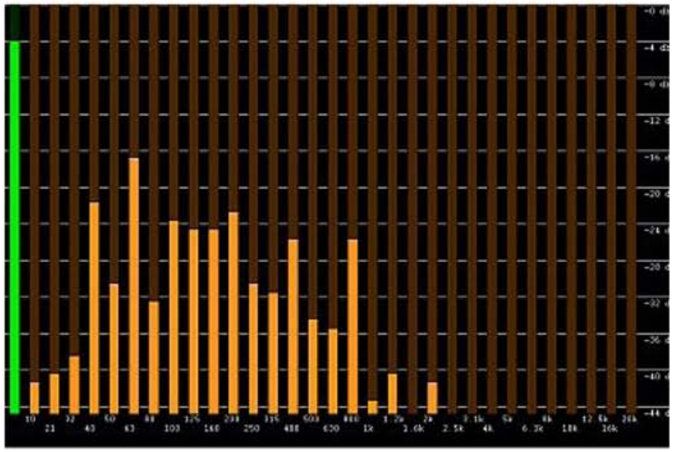


OCTAVE BANDS AND BANDWIDTHS [10]

Acoustic panels located in the sound stages and mixing studios are designed after the idea of bandwidth and sound bars. The vertical patterning is taking into effect to diffuse, absorb, and reflect sound. The pattern pushes in and out along the length of the wall to functionally play with sound as well as create an aesthetically pleasing wall.



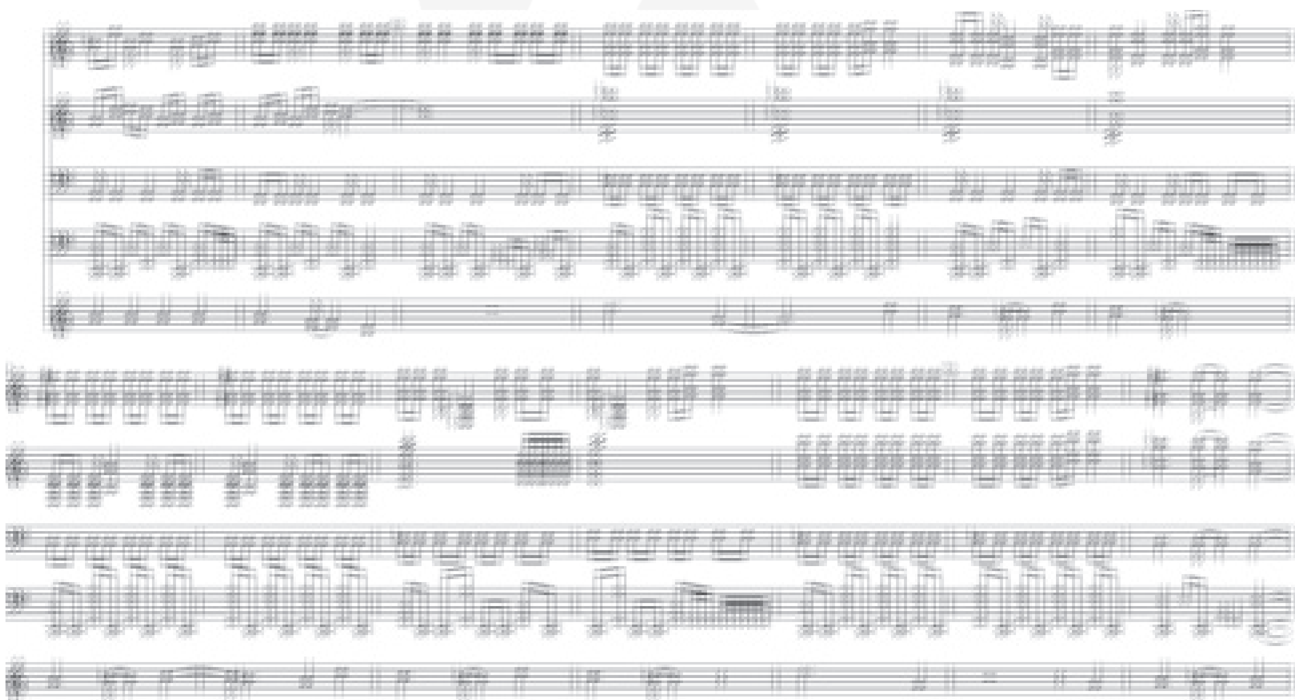




Architecture as a translation of music

The concept of utilizing music as a feature of architecture is used to skin the facade of the theatre. The workflow of abstracting a piece of sheet music creates this pattern and rhythm.

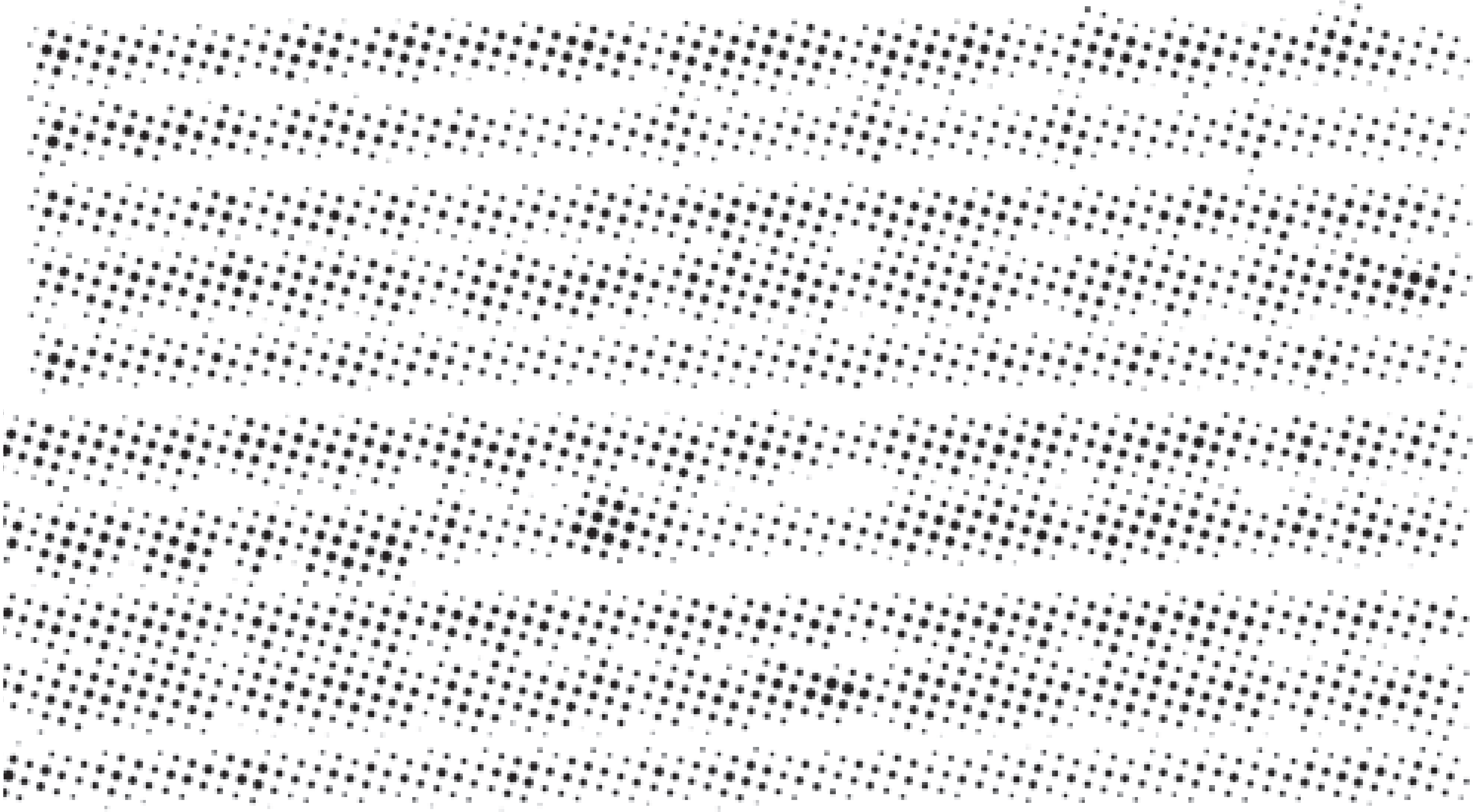
original piece of sheet music



fragmented pattern

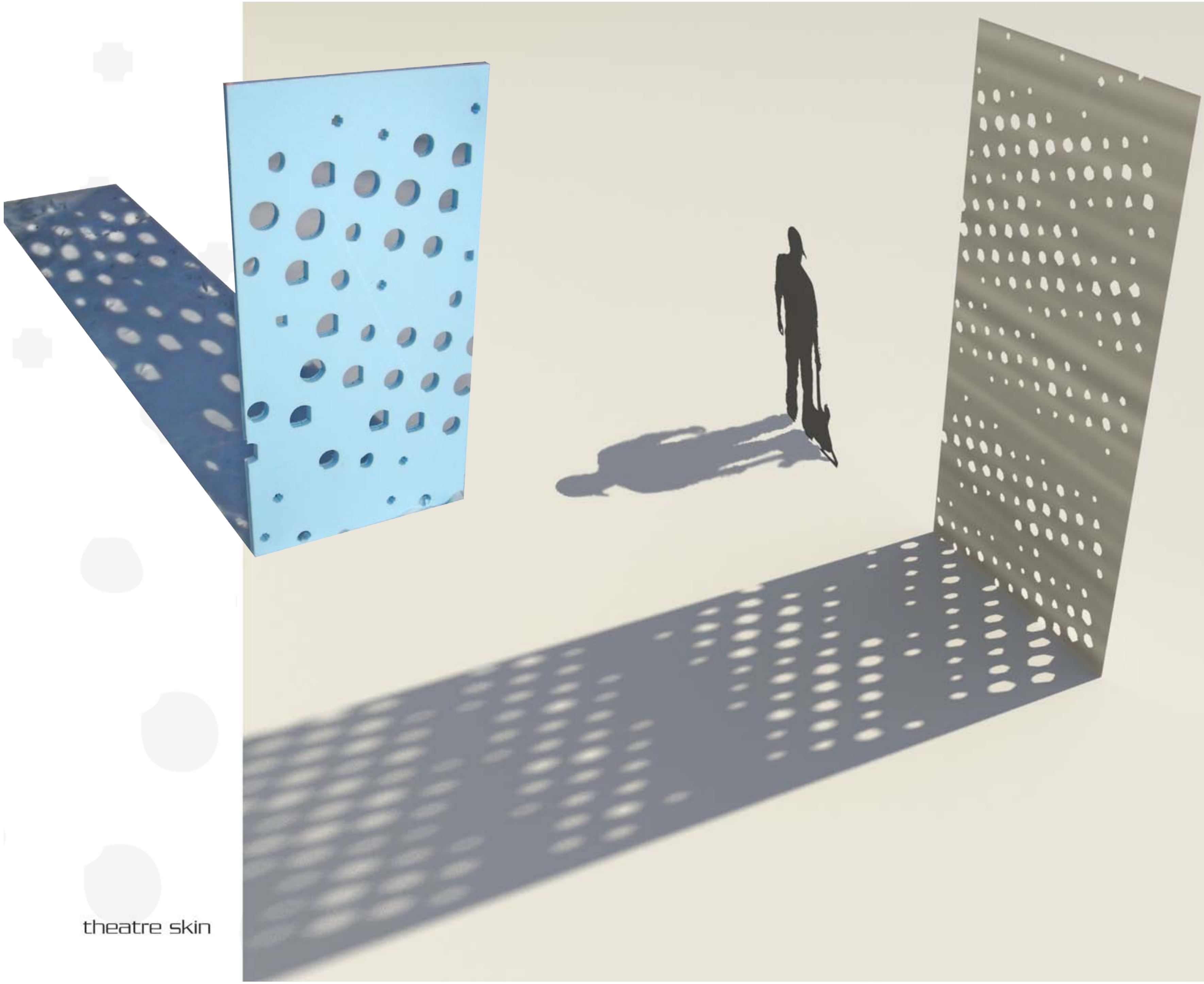
faceted pattern

mosaic pattern

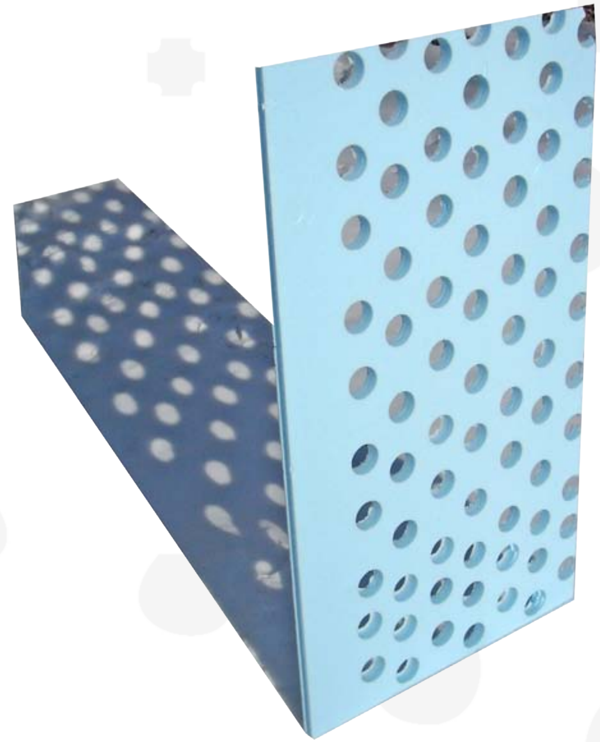


The chosen abstracted design_

This pattern is applied to the skin of the theatre to create a new, different skin.



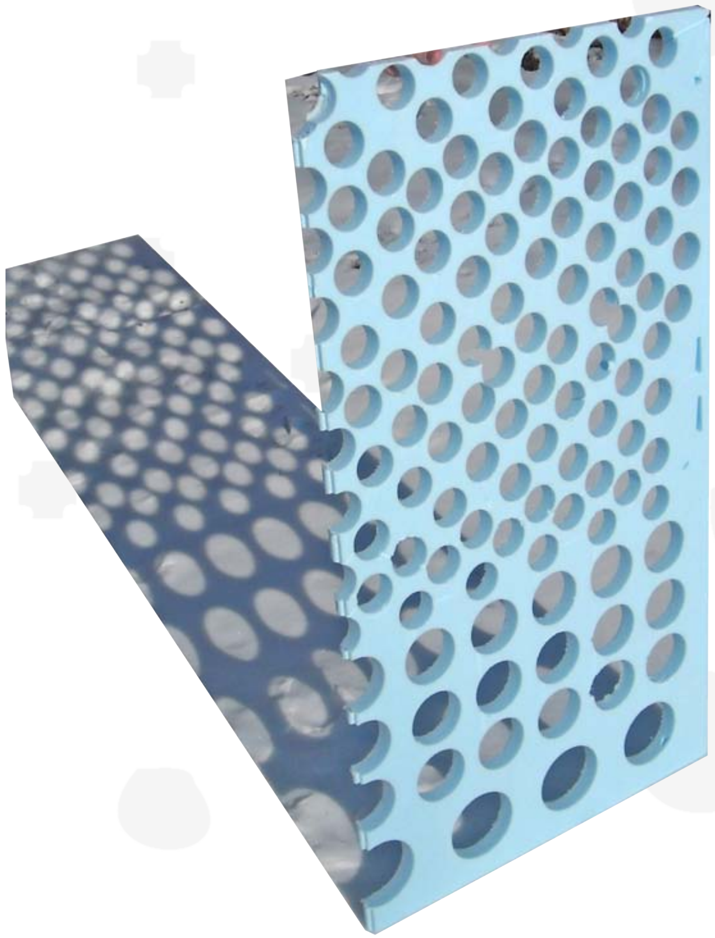
theatre skin



stage and studio skin

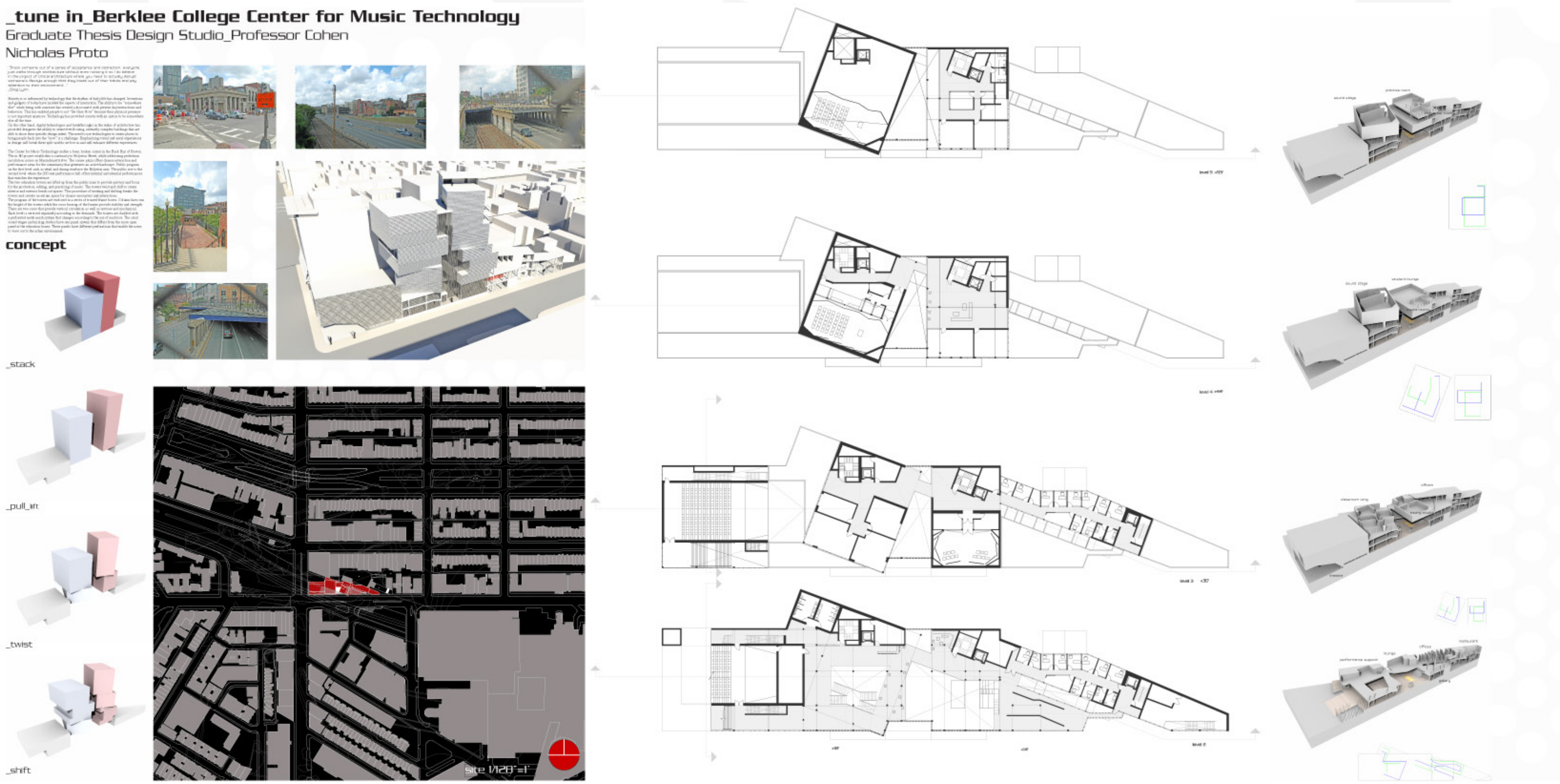
_facade skins

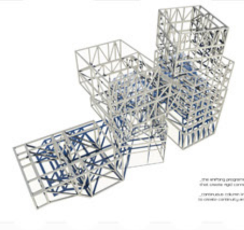
The three different types of skins designate each type of program zone. The sound stage and mixing studios have a regular rhythm and diameter due to the blank, acoustic walls behind. The educational spaces have larger openings to enable views out to the urban landscape. The theatre skin has the abstracted music sheet applied to it to establish a prominent form on the corner of the site.



educational skin

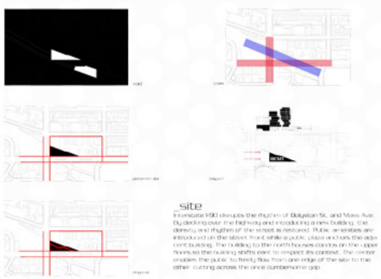
final plates





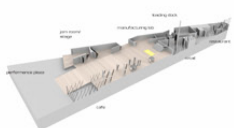
_the shifting programs are held by trussed frames that create rigid connections from one level to the next.
_continuous column lines reach the different levels to create continuity and help bring the loads to the decking below.

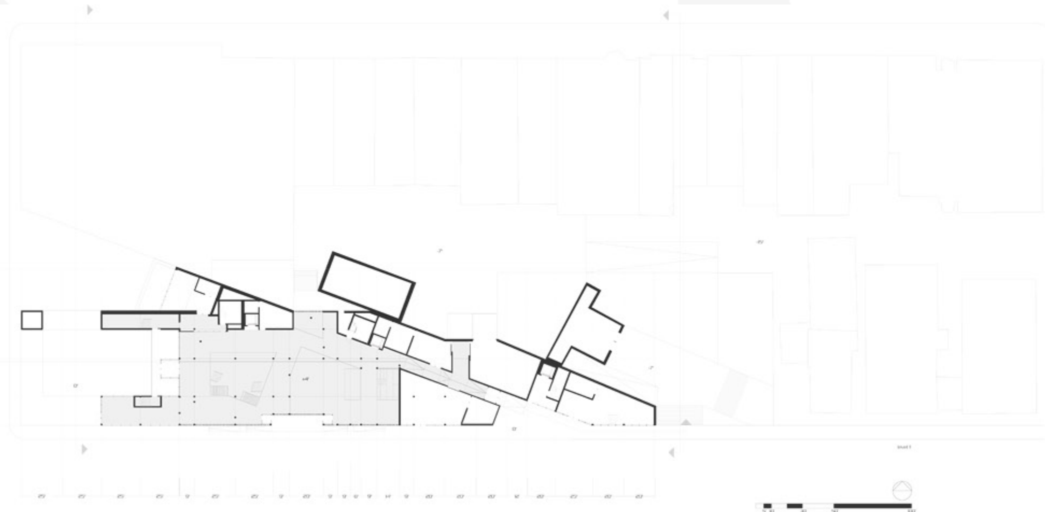
structure

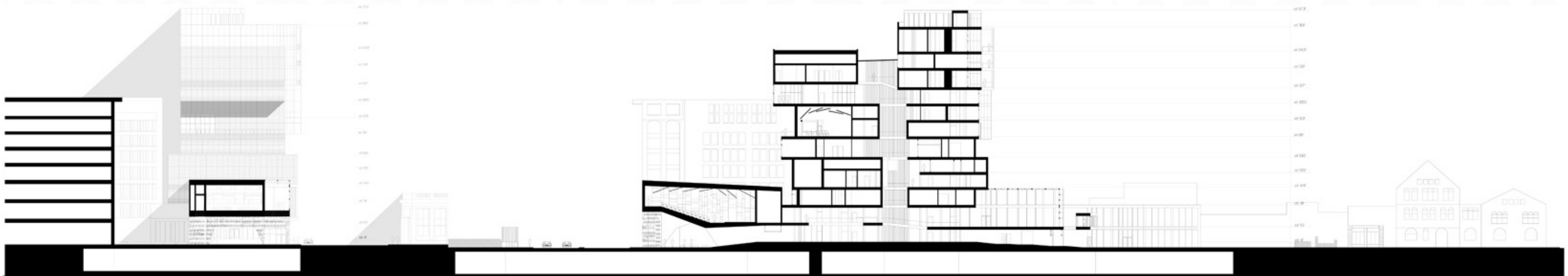


_site

Interstate I-90 disrupts the rhythm of Boylston St. and Mass Ave. By decking over the highway and introducing a new building, the density and rhythm of the street is restored. Public amenities are introduced on the street front while a public plaza anchors the adjacent building. The building to the north houses condos on the upper floors,so the building shifts east to respect its context. The center enables the public to freely flow from one edge of the site to the other, cutting across the once cumbersome gap.

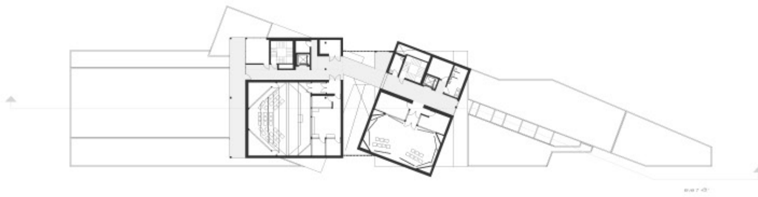


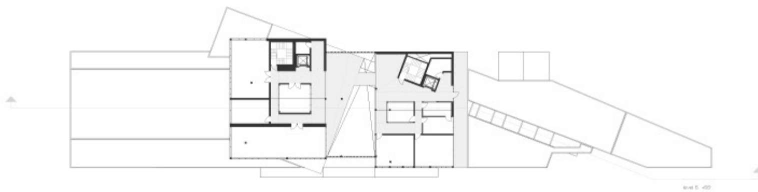


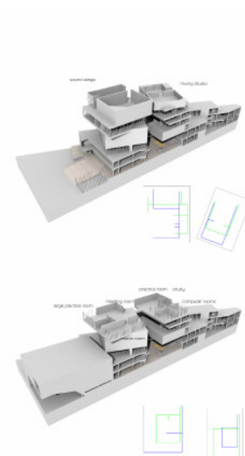


_section through theatre looking east 1/16"=1'

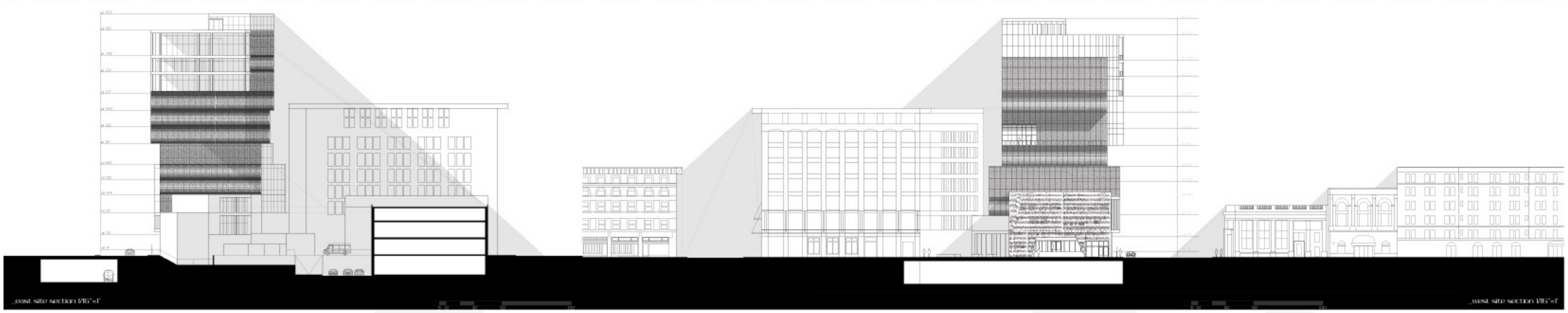
_longitudial section 1/16"=1'





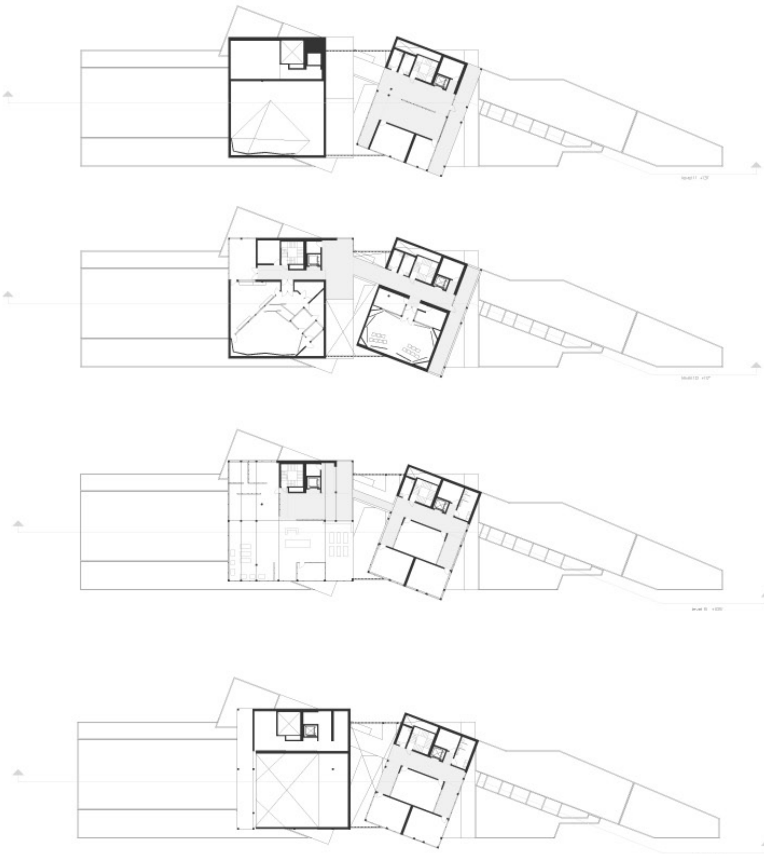


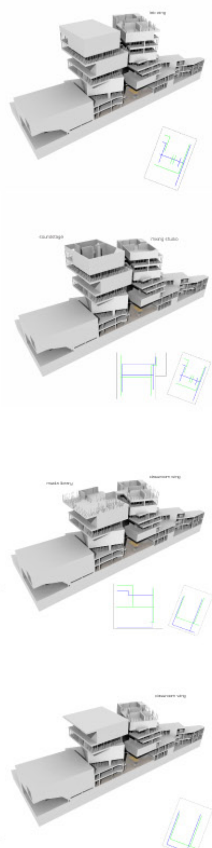
_atrium space at library level



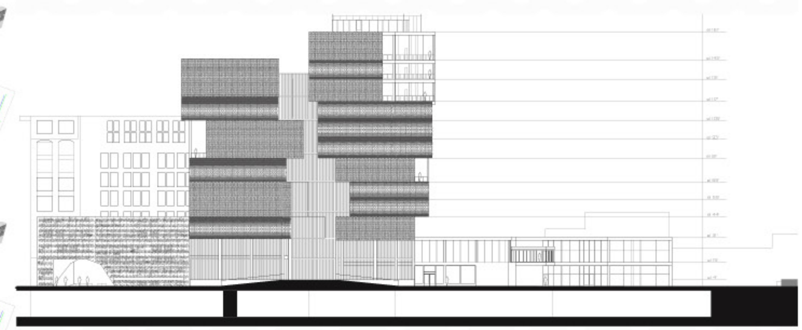
_east site section 1/16"=1'

_west site section 1/16"=1'

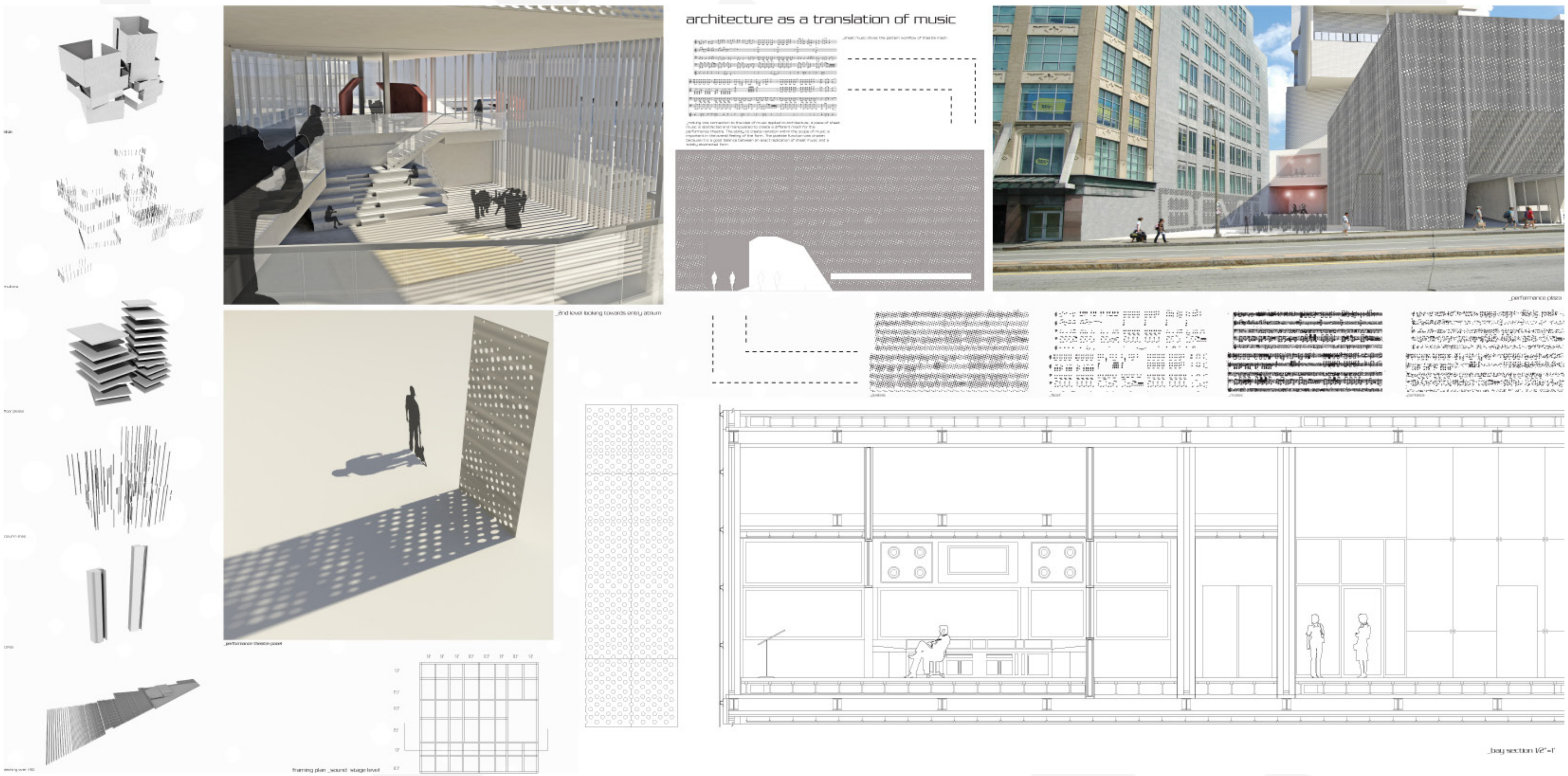


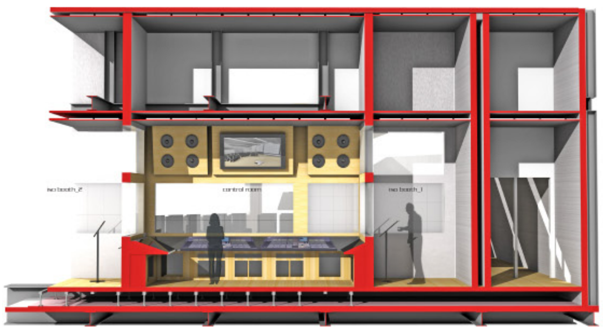


_Boylston St. and Mass Ave.

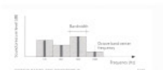


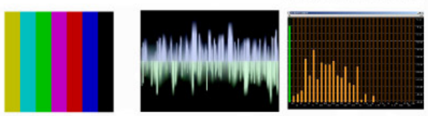
_south elevation 1/16=1'


architecture as a translation of music
_2nd level looking towards entry atrium
_performance plaza
_performance theatre panel
framing plan _sound stage level
_bay section 1/2"=1'



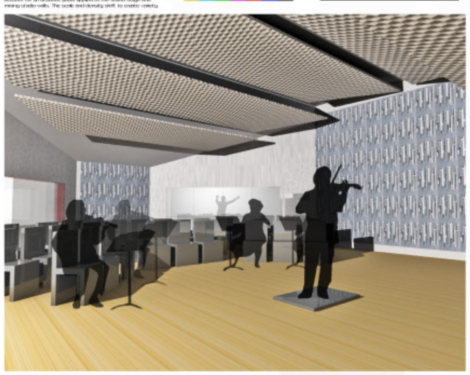
_sectional perspective through control room

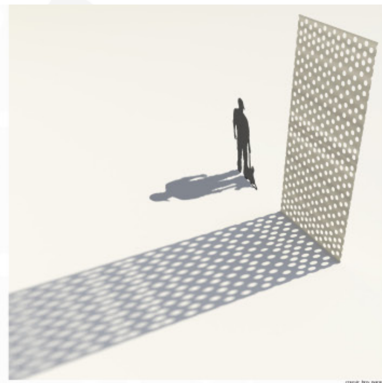




_acoustic panel design_imagery

the imagery of octave bands and sound bars are taken into account for an acoustic panel applied to the sound stage and mixing studio walls. The scale and density shift to create variety.





_music box panel

_mesh studies

the idea of the mesh is to distinguish between the music and the educational programs by creating different patterns.

The pattern on the music boxes stays the same because of the blank walls behind.

The pattern on the educational boxes changes diameter to give views out to the urban context. It filters and delivers natural light to each space giving a different feeling.

_educational box panel