



VOLUMES OF LIGHT. A SCHOOL OF THE PERFORMING AND VISUAL ARTS IN BROOKLYN

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Master's Project. Instructor: Susan Conger-Austin

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A **HIGH SCHOOL** in Brooklyn that offers a specialized curriculum in visual and performing arts including film, music, dance, drama and fine arts.

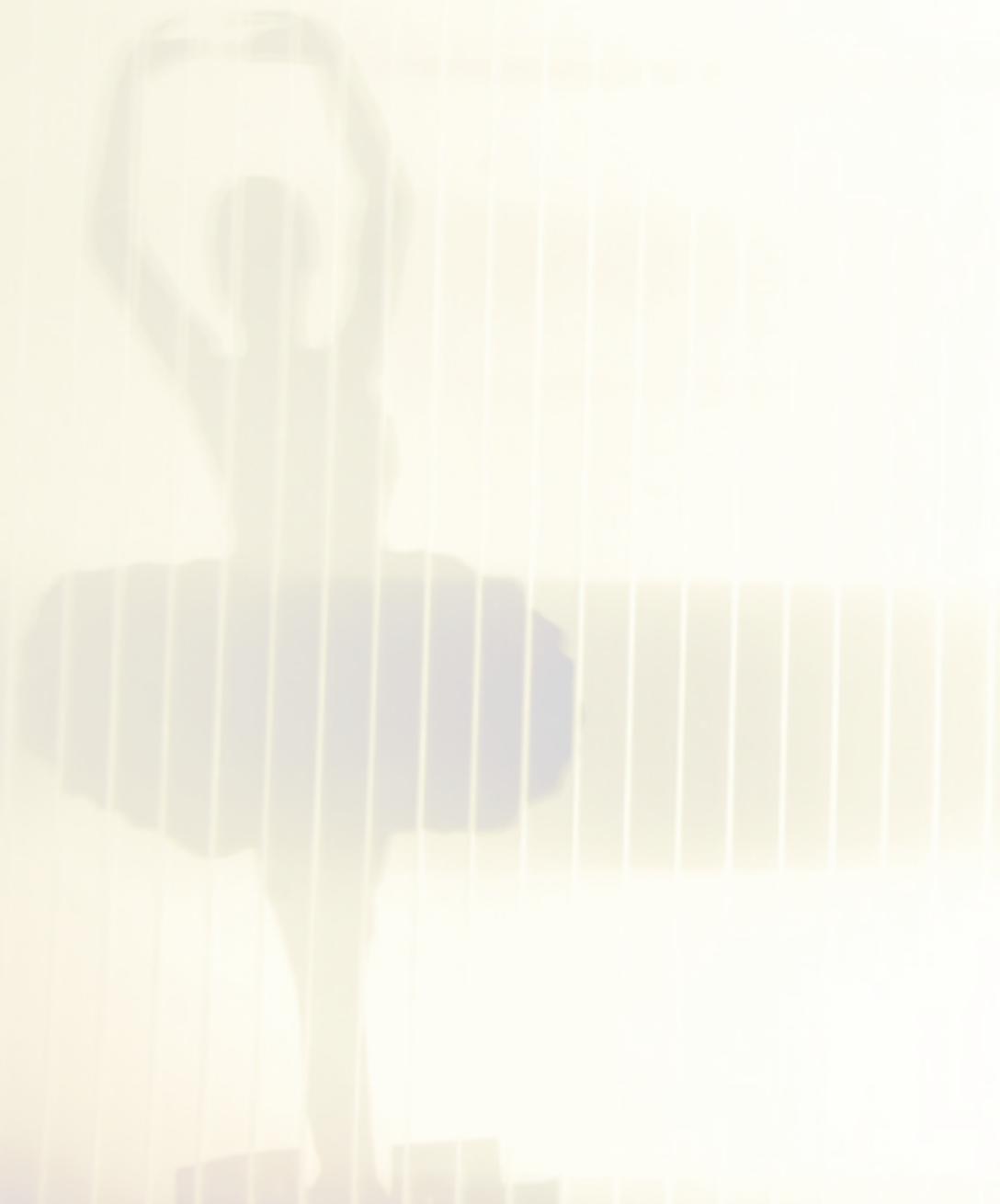
The school is a proposal for high-level academic performance in the form of an **ART CONDENSER** that will also be used after hours to house community art events. Thus, it will act as a **CATALYST** for future college students and serve as a **MAGNET** for neighborhood residents.

#### WHY?

Proposing high education in public schools is an optimistic approach to the improvement of the impact of the generations to come. As a measure to be taken in response to the recession, education is the best long-term investment for any culture. That is, investment in human capital.

#### FOR WHOM?

400 Students from 9th to 12th grade residents of New York City as well as the Artists, Organizations and Attendants involved in after hours exhibitions and activities.



*“ He who would learn to fly one day must first learn to stand and walk and run and climb and dance; one cannot fly into flying. ”*

Friedrich Nietzsche

As part of the current generation leaving school to meet the real world in the middle of a global economic crisis, I would like to do “my own bit of saving” by proposing high performance education in public schools as an optimistic approach to the improvement of the impact of the generations to come. As a measure to be taken in response to the recession, education is the best long term investment for any culture. That investment is human capital.

A school of the arts goes one step further. By offering a major in art, the students are being imprinted a special sensitivity, as well as being given the possibility of choosing one form of art to be intensively specialized in which can potentially be a bridge to college.

In addition to its functionality as a school, its artistic character will be kept after hours holding community activities such as adult classes of the same art disciplines offered for the school students as well as performances and exhibitions from outside artists/ musicians/filmmakers/dancers, which will actively connect the school with the city’s artistic movements.

The design intent will be to organize the programmatic elements around the different art forms the schools offers. Just like the sensitivity from the art that is meant to be part of the students daily routine at the school, the beauty of the architecture that houses it should be inspiring in the same way.





### EDUCATION

To provide an appropriate learning environment for the teenagers, and promote their highest level of performance.

### SPECIALIZATION

To offer a major in the arts so the students develop a specialized curriculum.

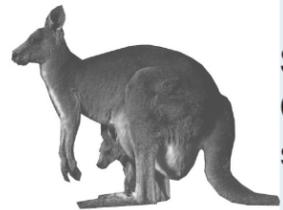


### BEAUTY

To be influential for the education and sensitivity of the students.

### COMMUNITY

Engagement with the neighborhood through art to encourage the involvement of its residents with the project.



### SAFETY

Creation of a second home with a high concern for safety but at the same time being open to its surroundings.

### ACCESS

Interaction between outdoor and indoor activity.



Key goals my solution will satisfy include:

- ★ To provide a program that allows for the intensive involvement of each student in the art discipline chosen.
- ★ To engage the community with the school through the arts by attending and/or performing after school hours.B
- ★ To preserve the artistic spirit of Brooklyn avoiding the migration of artists to other parts of the city.

**DIRECT USERS:**

**(400)Students** from 9th to 12th grades residents of New York City

**INDIRECT USERS:**

**Family** of the students enrolled

**Staff:**

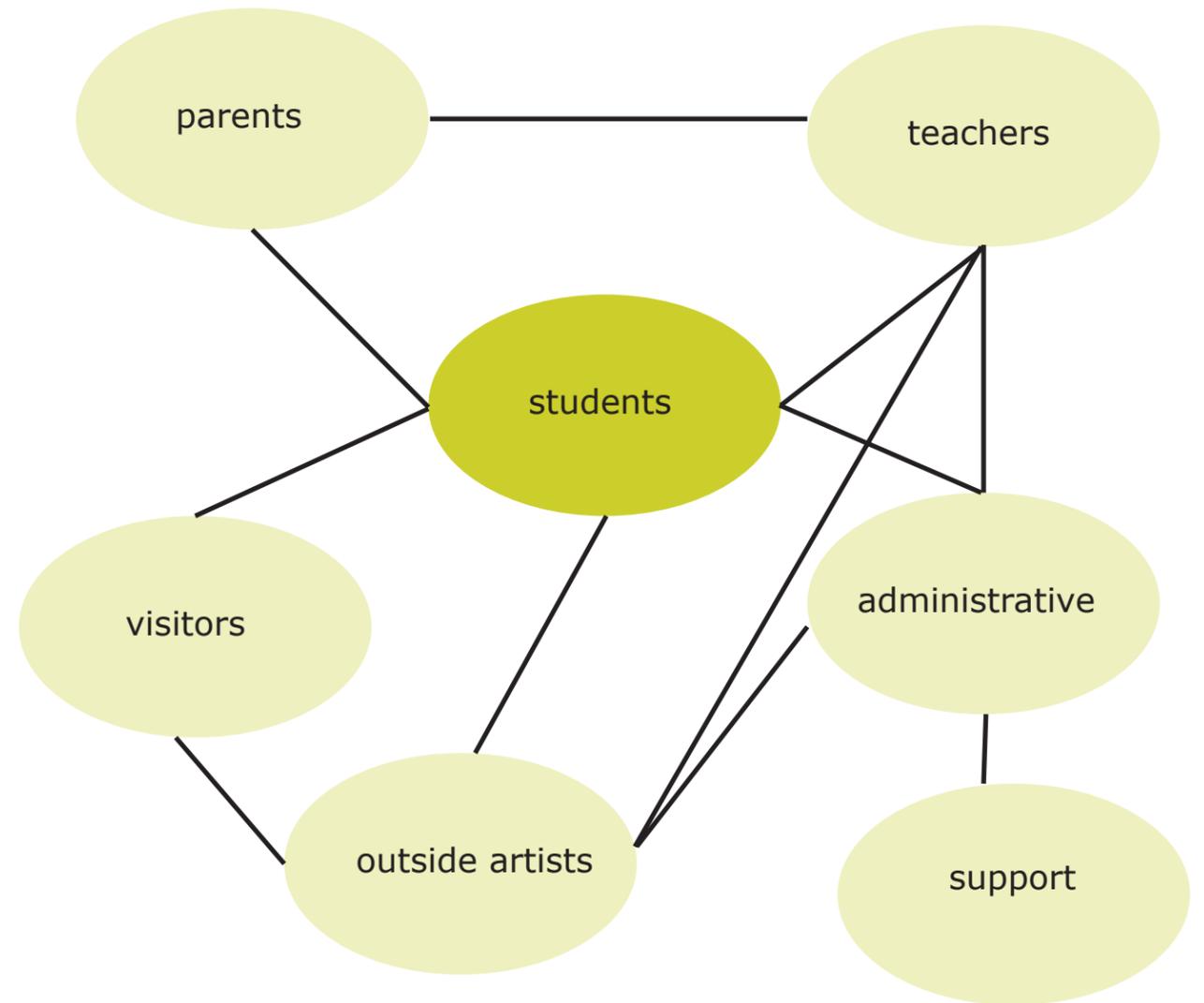
- Teachers
- Support
- Administration

**Artists** and Organizations involved in after hours exhibitions.

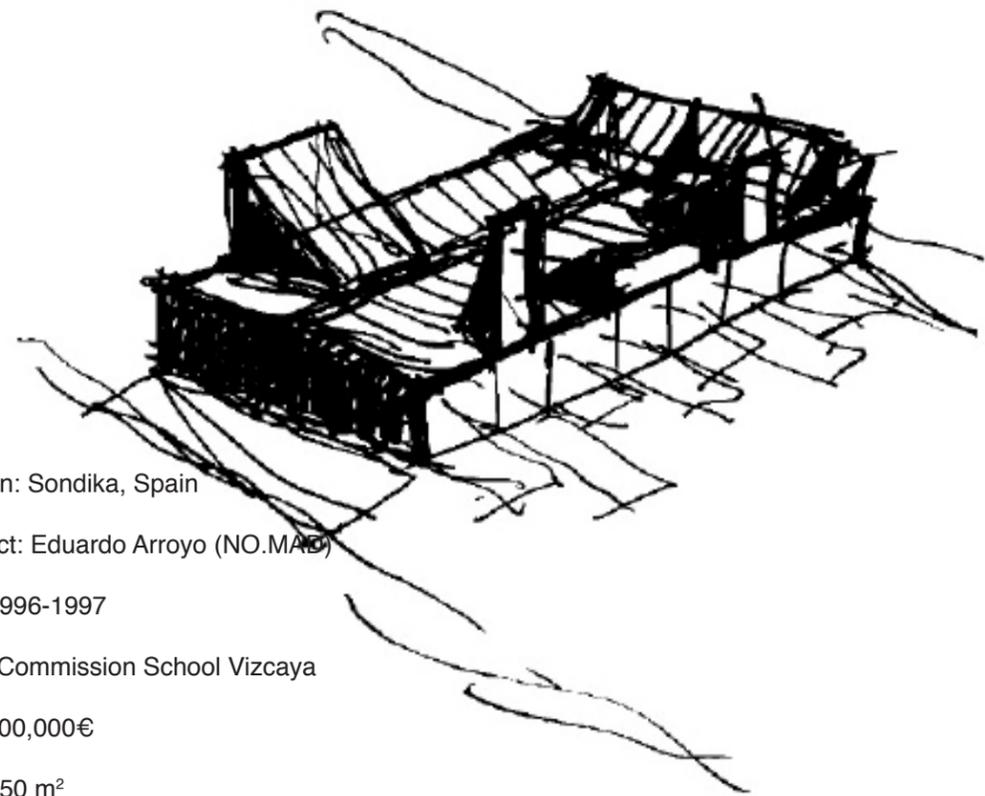
**Attendants** to after hours activities

**OWNER:**

NYC Public school

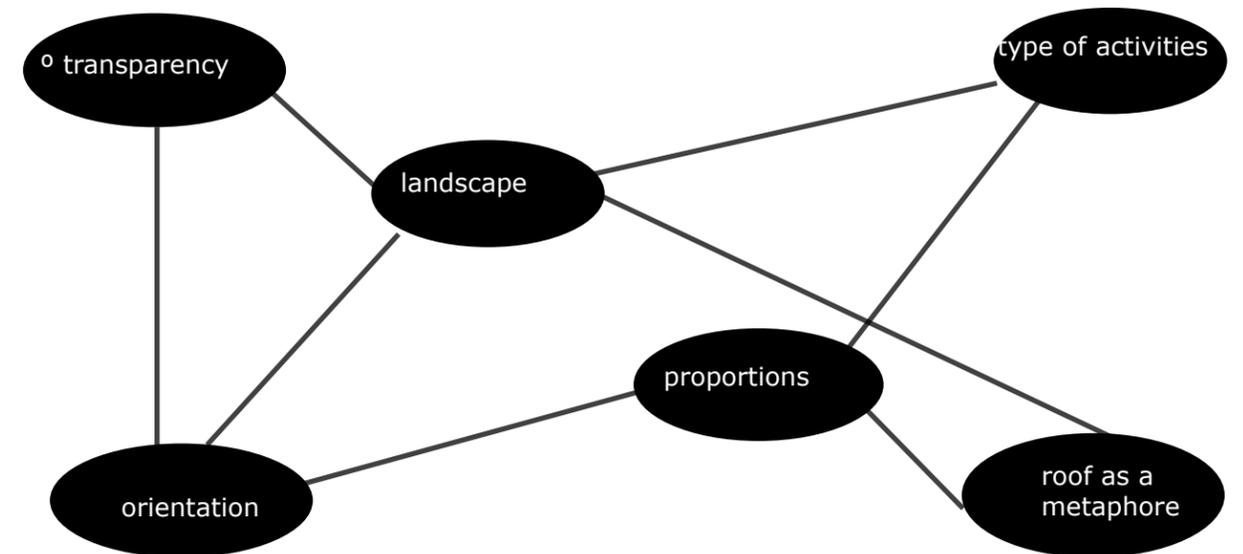


# PRECEDENT STUDY : Sondika Nursery School



Location: Sondika, Spain  
 Architect: Eduardo Arroyo (NO.MAD)  
 Date: 1996-1997  
 Client: Commission School Vizcaya  
 Cost: 300,000€  
 Area: 450 m<sup>2</sup>

## MARSUPIAL BAG



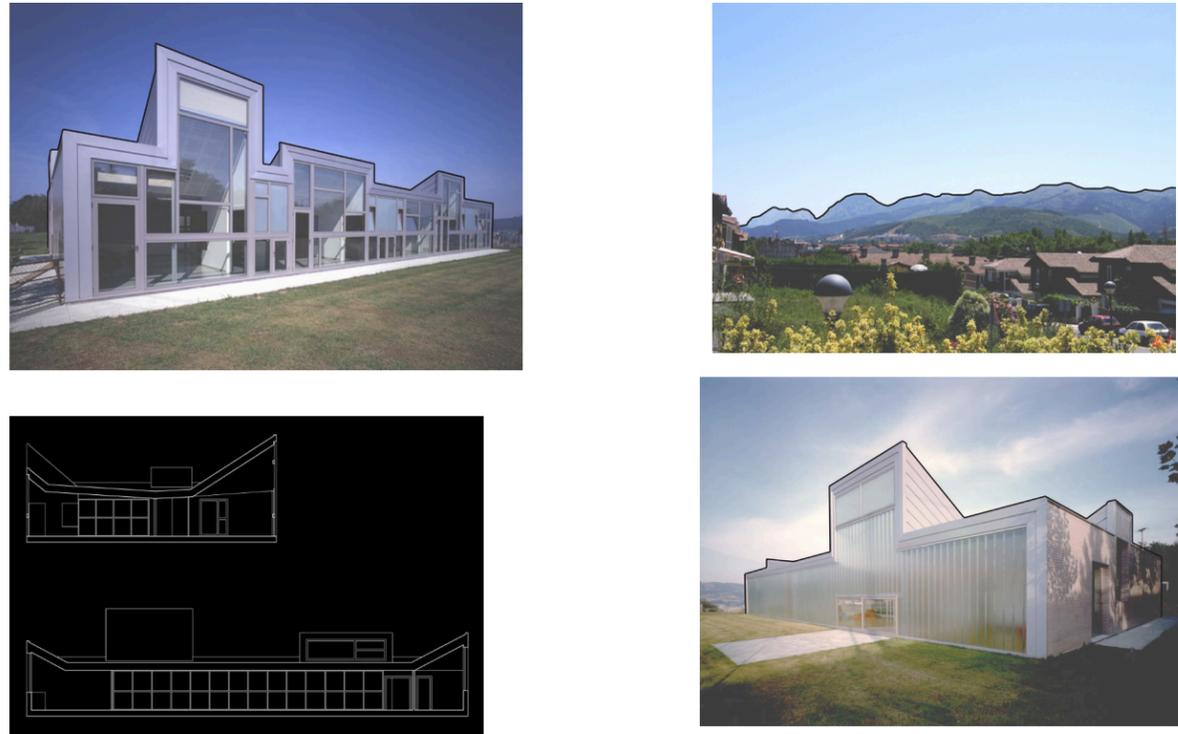
By creating a world for the "small ones" that would be a transition from the protection of their parents to the real world

## SCALE. Proportions for the "small ones"



1.15 cm

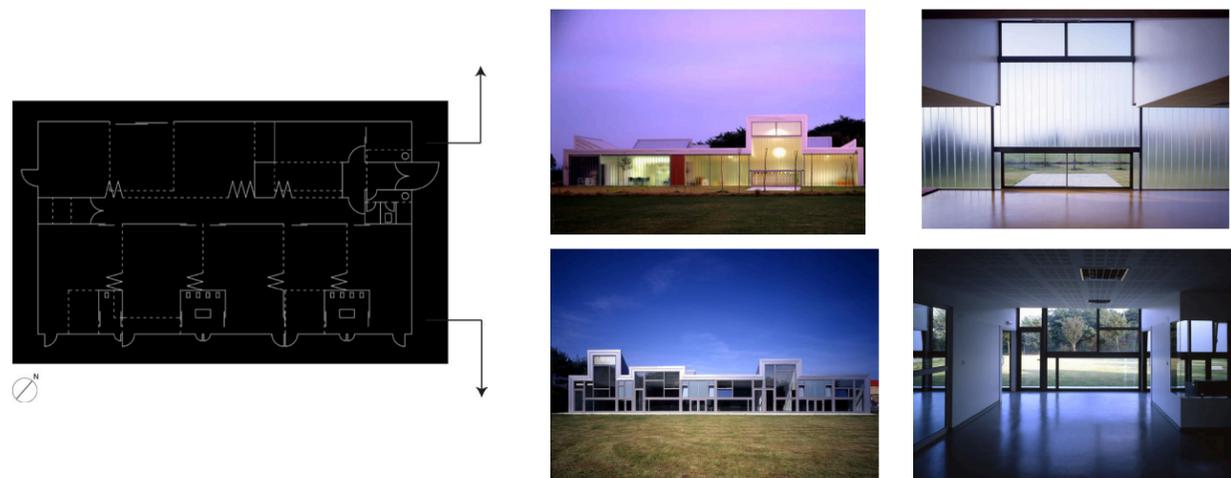
## ROOF as a metaphor of the surrounding LANDSCAPE



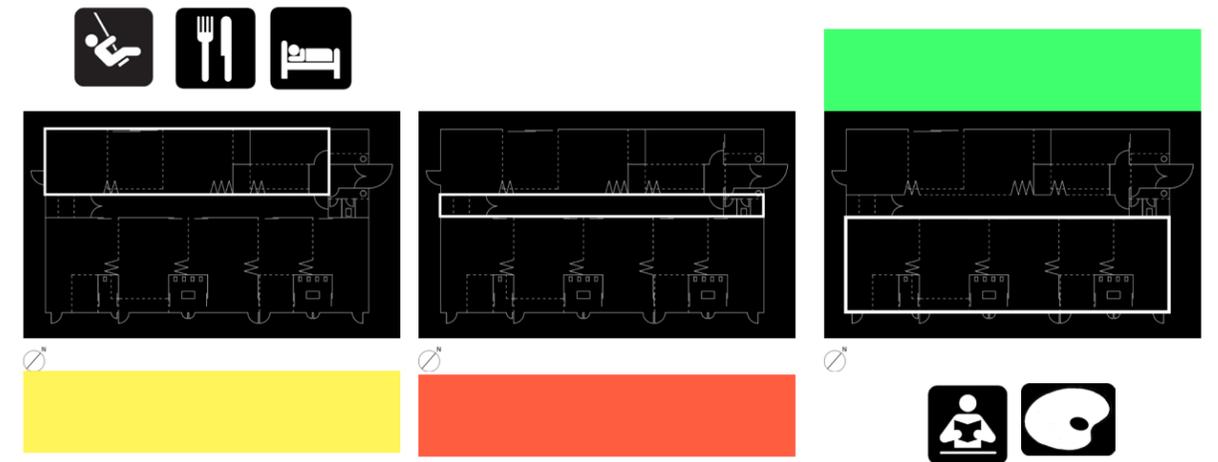
## TRANSPARENT VS TRANSLUCENT and ORIENTATION

West side is **translucent**. Thus it Lets the light come as well as the reflections of the sun as it goes down; but isolates the space from the views to create an atmosphere for eating and sleeping, which are the programmed afternoon activities.

East side is **transparent** for the children to interact with the landscape during the morning activities.



## Spaces for TYPES of ACTIVITIES and their relationship with ORIENTATION and TRANSPARENCY

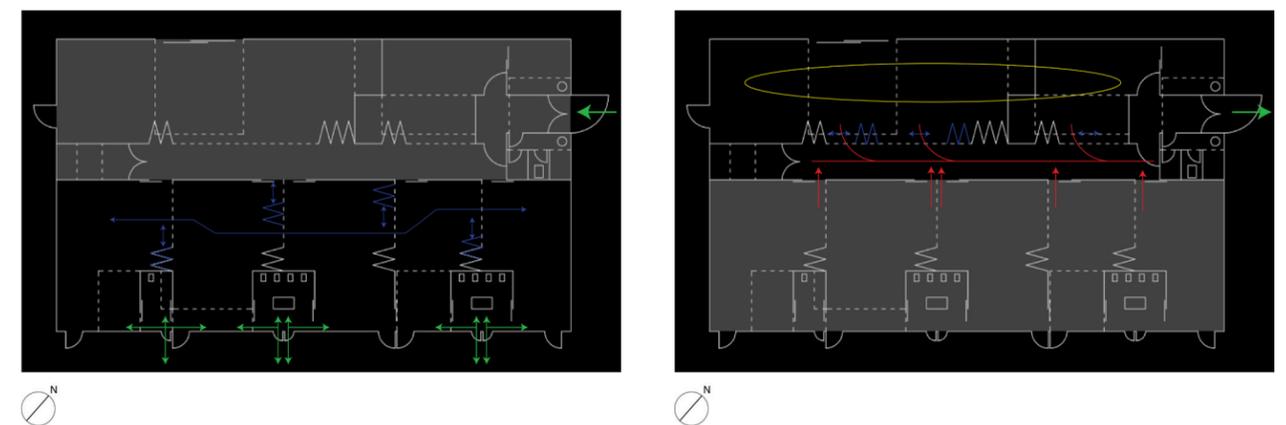


Color-themed spaces: yellow for the multiple zone, red for the central corridor and green for the classrooms.

All the learning activities happen in the classrooms located at the East side. The transparency of the structural glass wall lets the children interact with the landscape and enjoy the morning sun.

The psychomotor activities as well as eating and napping are programmed for the open space at the West side.

## CIRCULATION

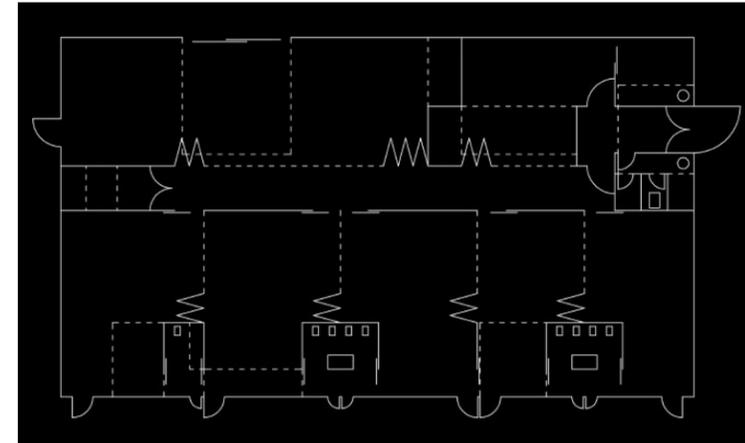


# PROGRAM

## Program of spaces for Precedent study



Program of Spaces for Precedent Case Study:  
Nursery School. Location: Sondika, Spain Architect: Eduardo Arroyo (NO.MAD)



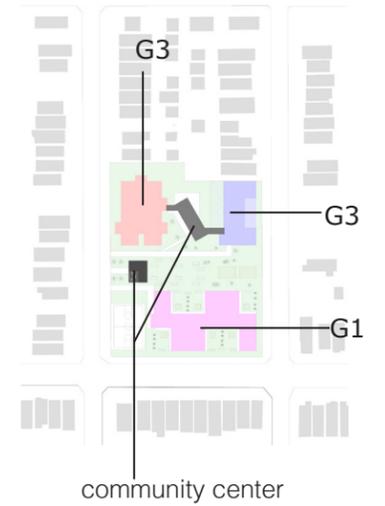
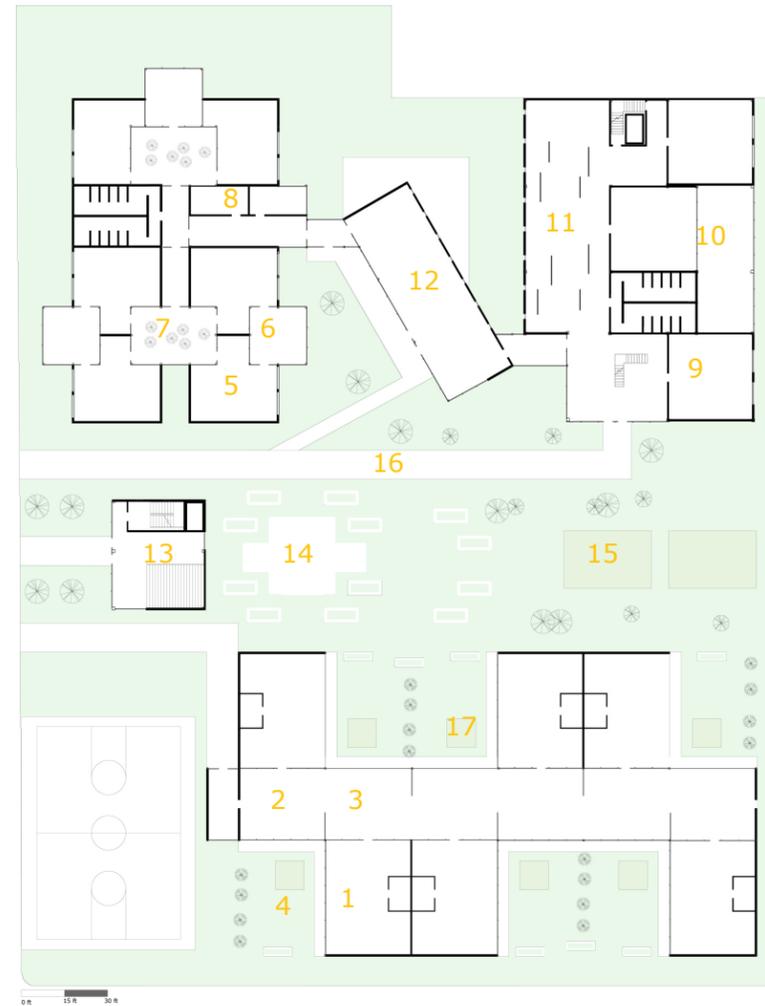
Types and number of spaces:	Area for each :
1= classroom type1	46.8 m <sup>2</sup> / 503.7 ft <sup>2</sup>
2= classroom type2	37.5 m <sup>2</sup> / 403.6 ft <sup>2</sup>
3= multipurpose classroom	87.5 m <sup>2</sup> / 941.8 ft <sup>2</sup>
4= bathroom type1	14 m <sup>2</sup> / 150.6 ft <sup>2</sup>
5= bathroom type2	12.5 m <sup>2</sup> / 134.5 ft <sup>2</sup>
6= bathroom type3	7 m <sup>2</sup> / 75.3 ft <sup>2</sup>
7= corridor/circulation	44.5 m <sup>2</sup> / 478.9 ft <sup>2</sup>
8= professors room	31.25 m <sup>2</sup> / 336.3 ft <sup>2</sup>
9=entrance/lobby	18.75 m <sup>2</sup> / 201.8 ft <sup>2</sup>

Total Area: 450 m<sup>2</sup> / 4843.7 ft<sup>2</sup>

## PRECEDENT STUDY Montessori School of ENGLEWOOD



I consider my proposal for the Montessori school of Englewood as a precedent study of educational architecture. The focus in this case was the classroom and how all the different types of learning activities happen within it as the Montessori method requires.



- 1 Learning room G1
  - 2 Shared Motor space G1
  - 3 Shared Sensorial space G1
  - 4 Open space designated for classroom G1
  - 5 Learning room G2
  - 6 Shared Motor space G2
  - 7 Shared interior garden G2
  - 8 Administrative office
  - 9 Classroom G3
  - 10 Motor room G3
  - 11 Gallery and lounge area G3/ green rooftop
  - 12 Cafeteria and multipurpose space
  - 13 Reception/ library
  - 14 Hard plaza/ auditorium
  - 15 Playground area
  - 16 Paved area
  - 17 Sand pit
- G1=ages 5-6; G2= 7-9; G3= 10-12

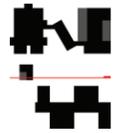
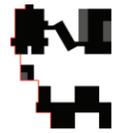
### BLOSSOM as a CATALYST

Just like catalysis accelerates a chemical reaction, the blossom starts an unstoppable butterfly effect.

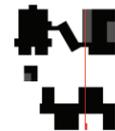
It causes the emergence of reacting elements, and then the joining of those becomes necessary to avoid the chaos that emergence can lead to. The juxtaposing, overlapping and superposing of the simple pieces will define the interaction between the elements that create the whole.

Each one of those simple elements has a unique scale related to the level of perspective of their occupants. For the Montessori school the blossom is the classroom that is conceived differently for each age group. The number and dimensions of the shared spaces for each group changes which is resolved with three different buildings following the theory that "everything happens in the classroom" so it becomes a reading room, a lab, an art and music performance space and a gym.

# Montessori School of ENGLEWOOD



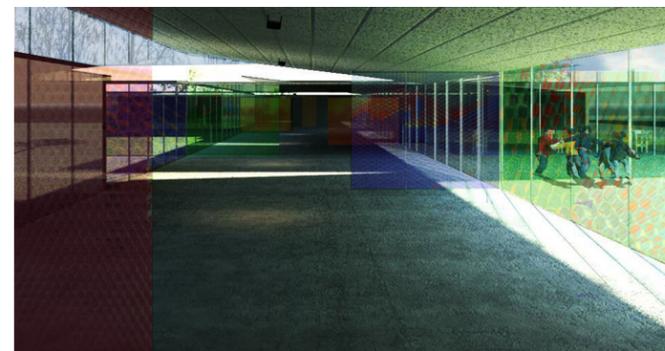
0m 15m 30m



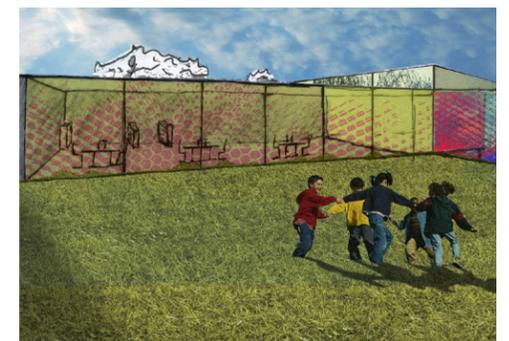
Gallery G3



Classroom G2



Classroom G1



## OTHER PRECEDENTS



**Seattle Central Library**

Architect: Rem Koolhaas OMA.  
Location: Seattle, Washington.  
USA  
Year: 1999-2004  
38,300 m<sup>2</sup>



**Sinatra School of the Arts**

Architect: Ennead Architects  
Location: Queens, NYC. USA  
Year: 2009  
147,000 sf



**The Children's School**

Architect: Maryann Thompson  
Location: Stamford, CT. USA.  
Year: 2007.  
15,000 sf



**School of Arts at Saint Herblain**

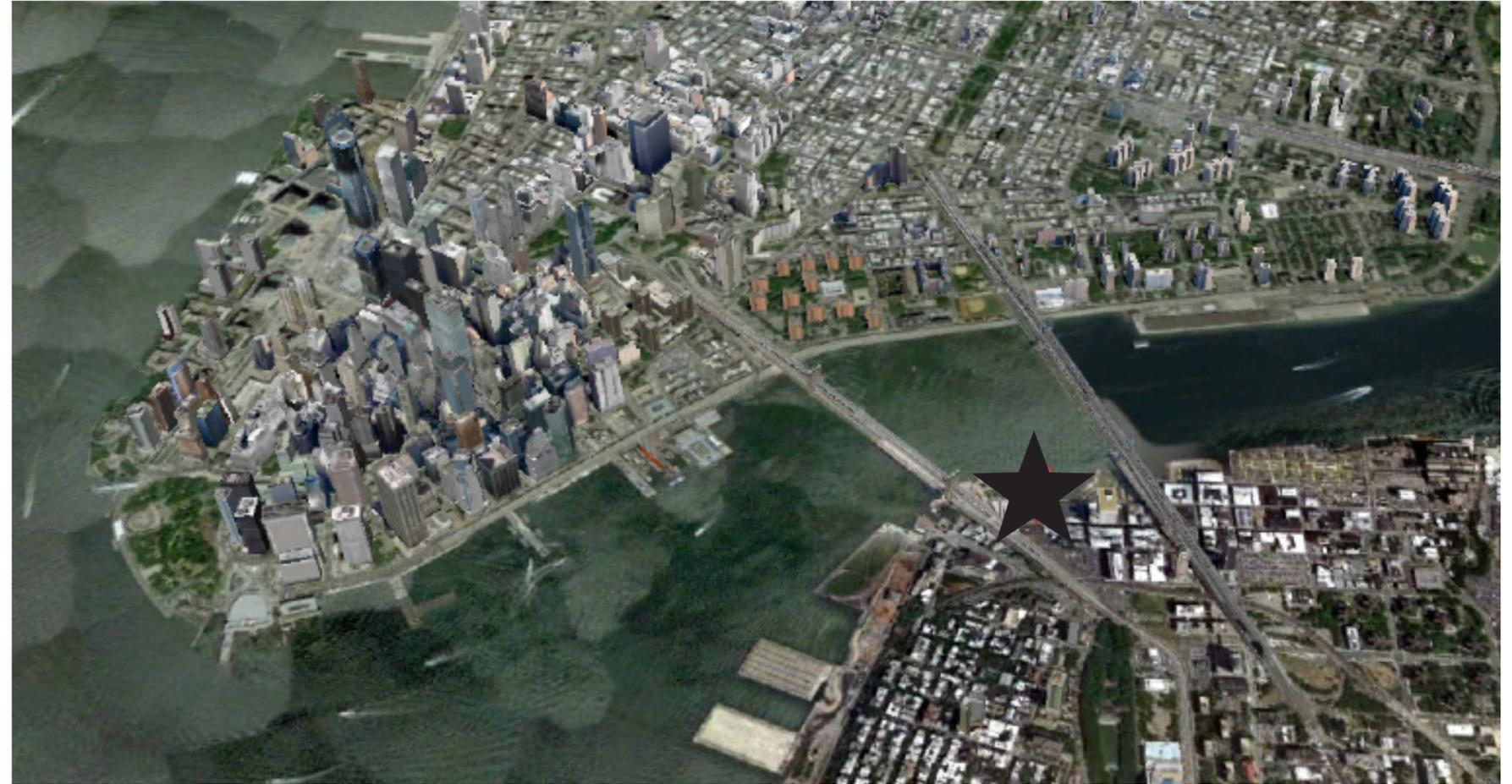
Architect: Tétrarc Architects  
Location: Saint Herblain, France.  
Year: 2010  
4,457 m<sup>2</sup>

## SITE SELECTION. Criteria.



When deciding the location the key criteria were: it should have a profile of residents and visitors that would be engaged with art, it has to be urban and it should be a site with a big cultural offer and demand. That led me to Dumbo (Brooklyn) that not only satisfies those requirements but it's also a key point that connects Manhattan with the rest of Brooklyn almost as a metaphor of the high school students crossing the bridge that leads to college.

The site is adjacent to the Old Tobacco Factory that will be considered as connected to the project being outside area but also to house the after hours activities in collaboration with the school.



Dock St. and Water St.  
Dumbo  
Brooklyn, NYC

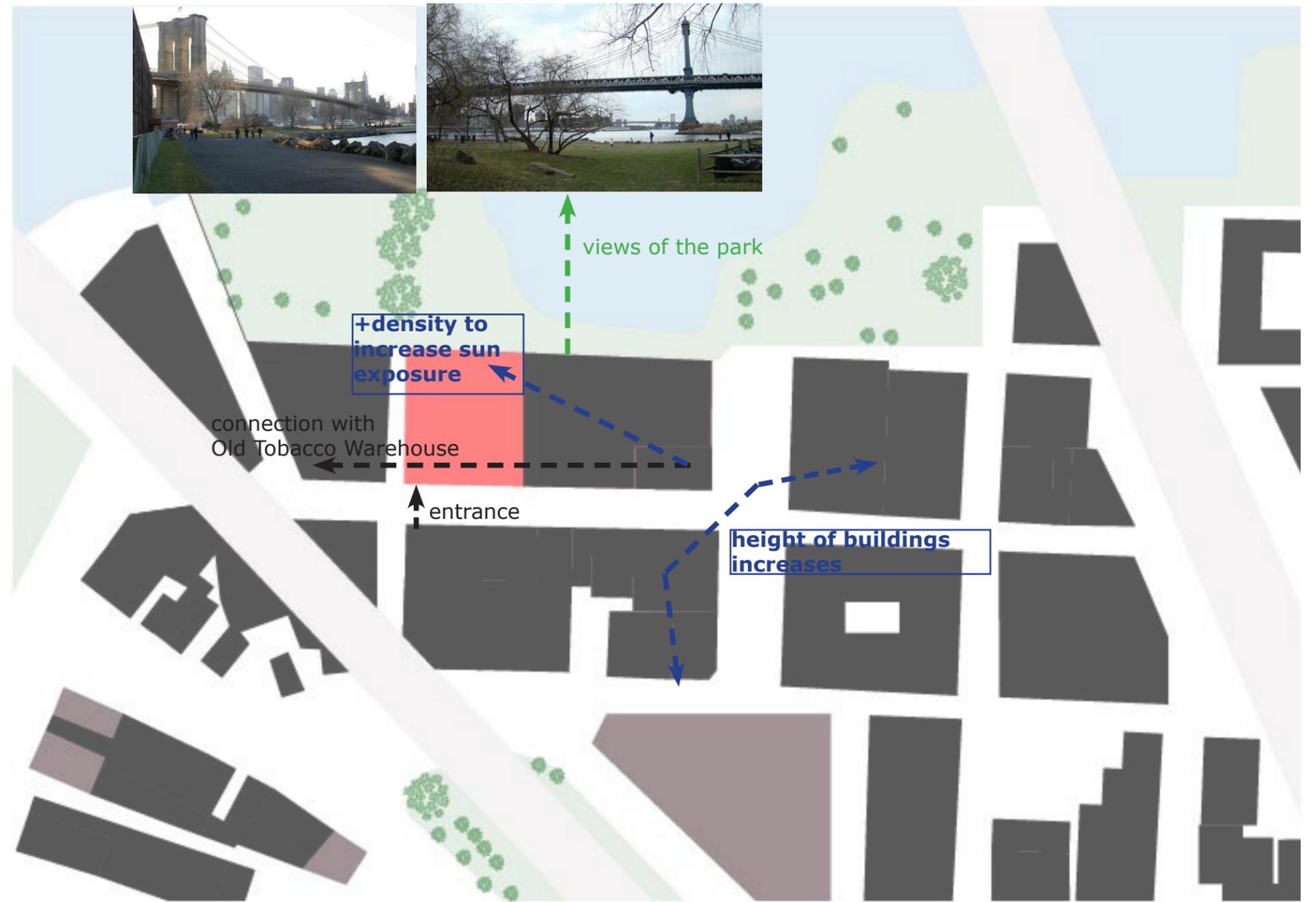
## SITE ANALYSIS. History



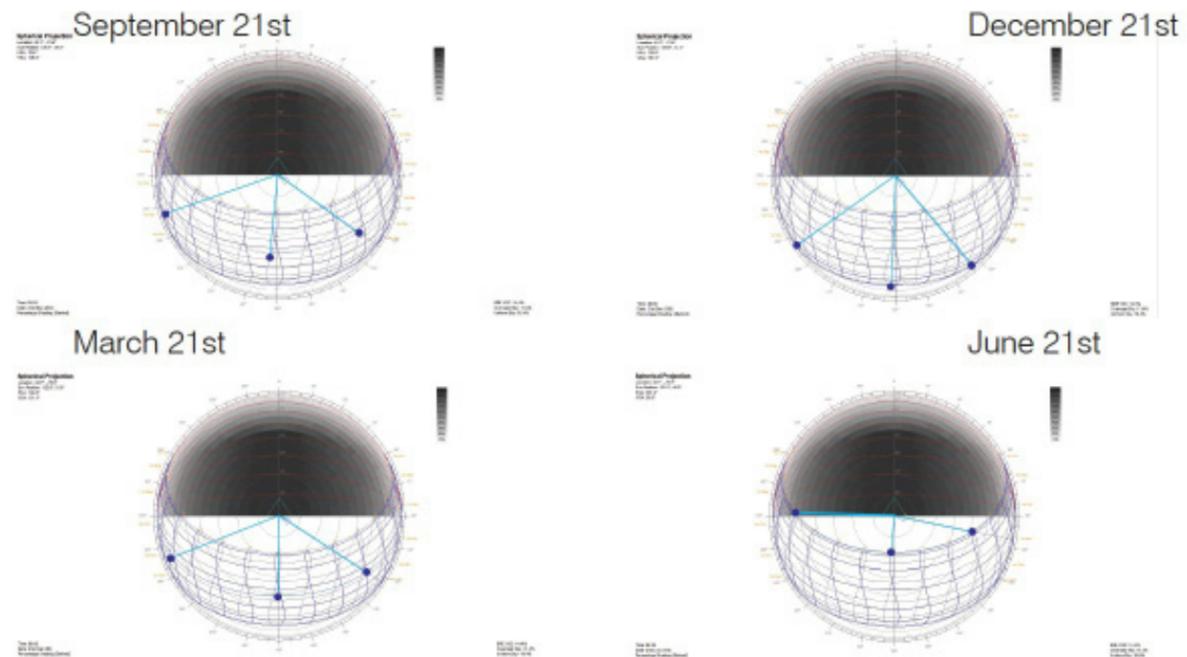
*"The Tobacco Warehouse, originally built by the Lorillard family, sits on the upland of Empire-Fulton Ferry Park, just north of the Brooklyn Bridge, and just south of the Empire Stores. Together, these landmark 19th century warehouses are vivid reminders of the shipping activity that once defined the downtown Brooklyn waterfront.*

*Constructed in the 1870s as a tobacco customs inspection center, and saved from demolition in 1998, the roofless rooms of the Tobacco Warehouse provide one of the most compelling public spaces in Brooklyn Bridge Park. The New York State Office of Parks, Recreation & Historic Preservation repaired and stabilized the Warehouse in 2002."*

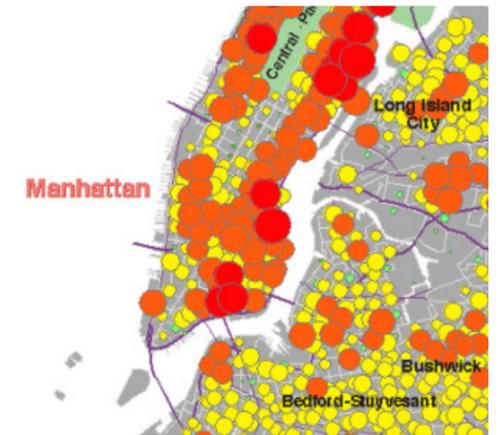
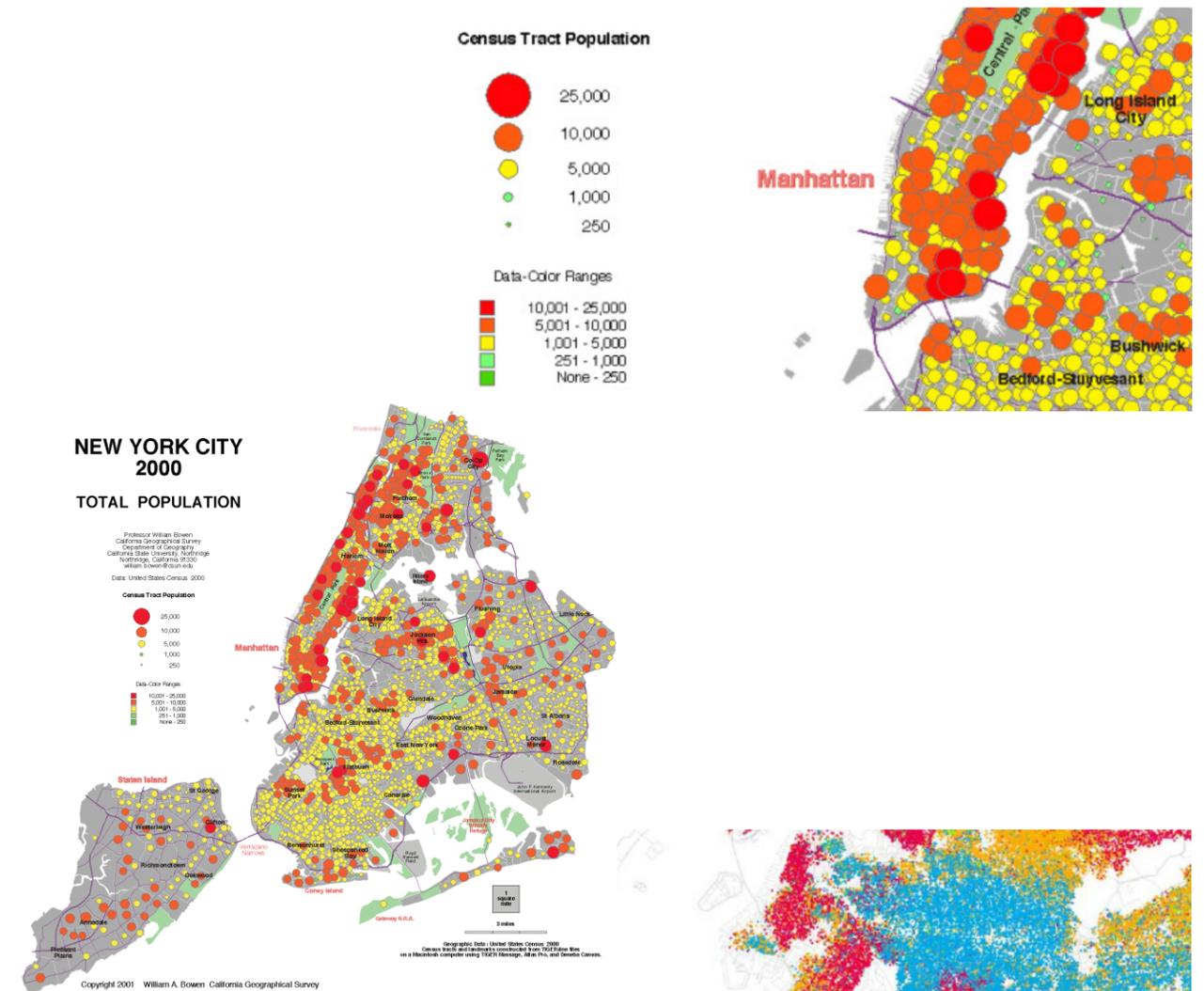
## SITE ANALYSIS. Views



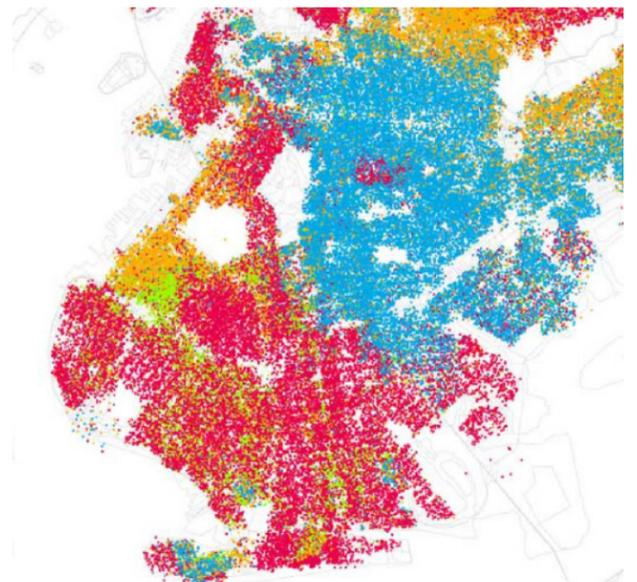
## SITE ANALYSIS. Solar



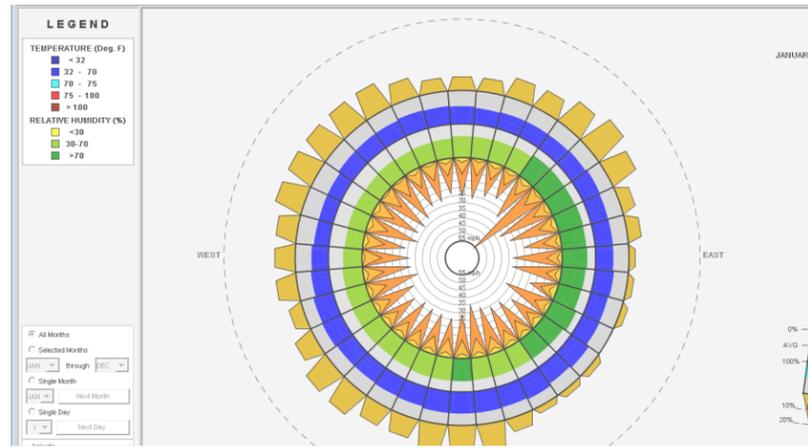
## SITE ANALYSIS. Demographics Population 2010. Ethnic divides



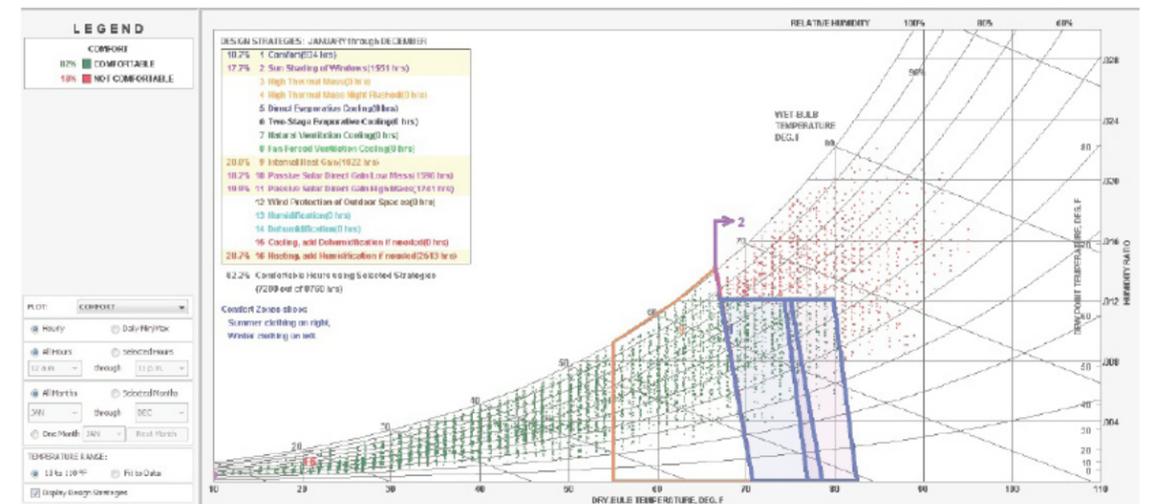
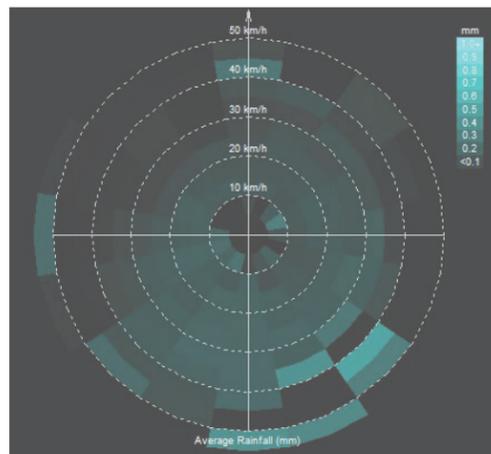
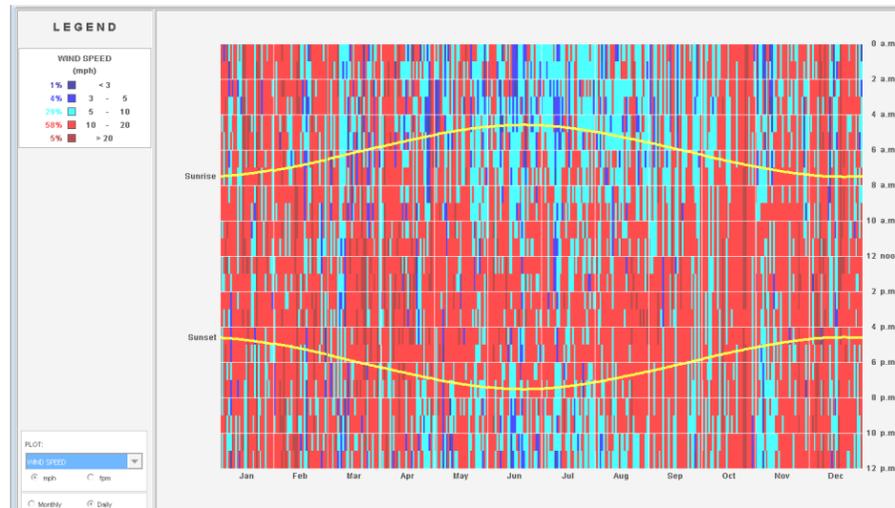
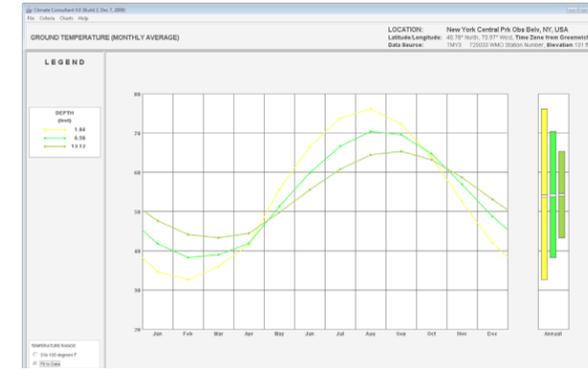
Each dot stands for 25 people, and Red is for White, Blue is Black, Green is Asian, and Orange is Hispanic.



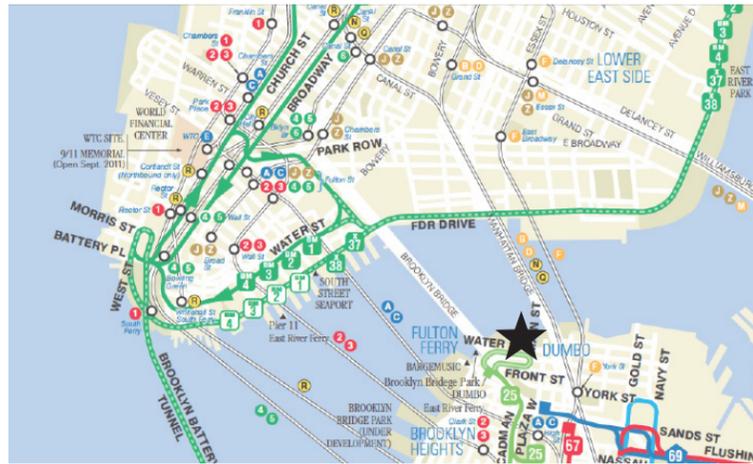
# SITE ANALYSIS. Climate prevailing winds. precipitation



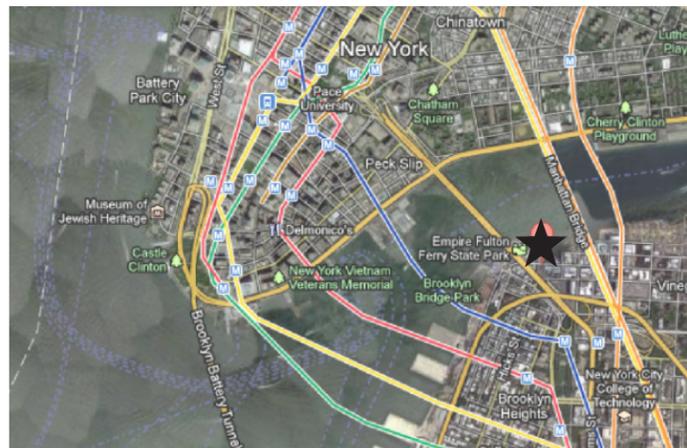
# SITE ANALYSIS. Climate temperature. relative humidity. comfort zone.



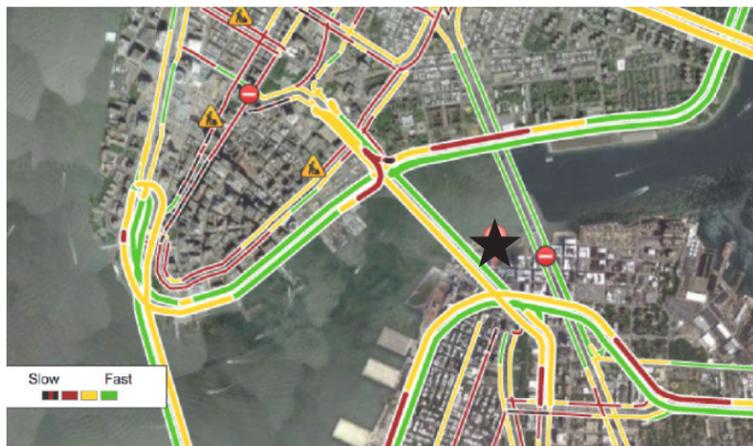
## SITE ANALYSIS. Access



bus



metro



traffic

## SITE ANALYSIS. Access

Distance from different parts of the city



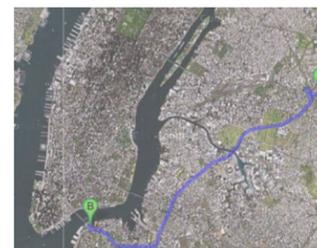
To/From Union square



To/From Prospect Park



To/From Harlem  
(Amsterdam and 116th)



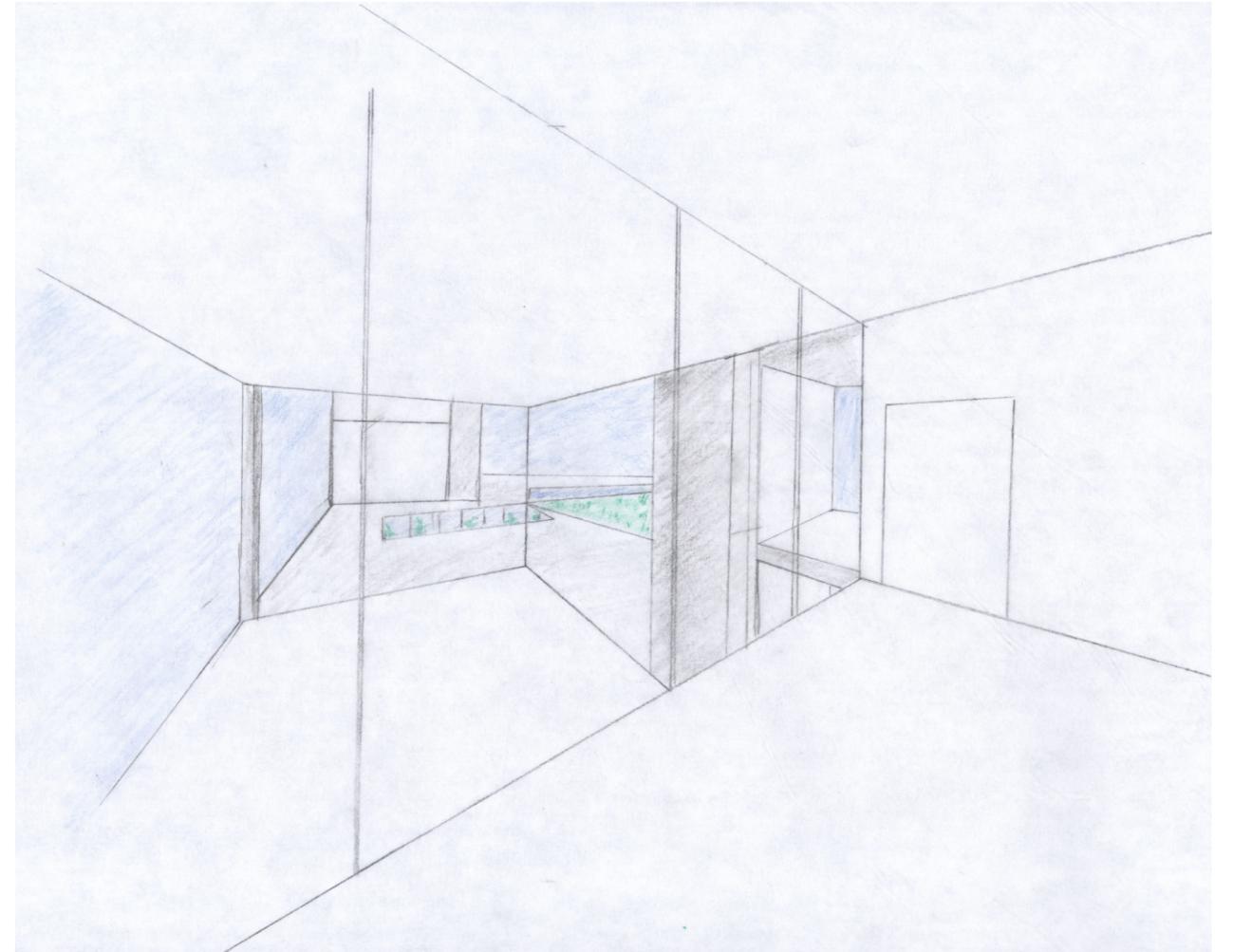
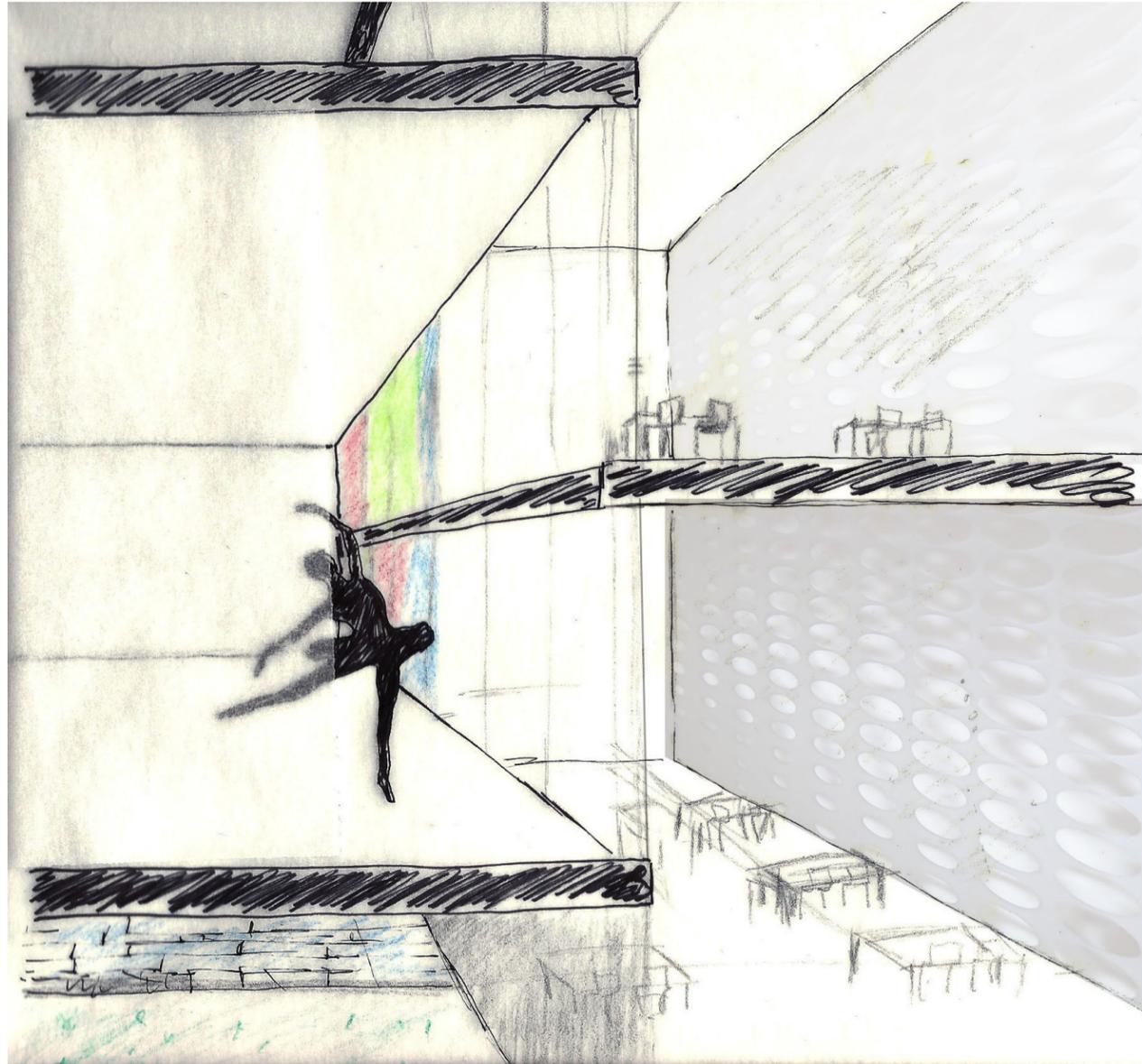
To/From Queens  
(Roosevelt Ave and 74th)

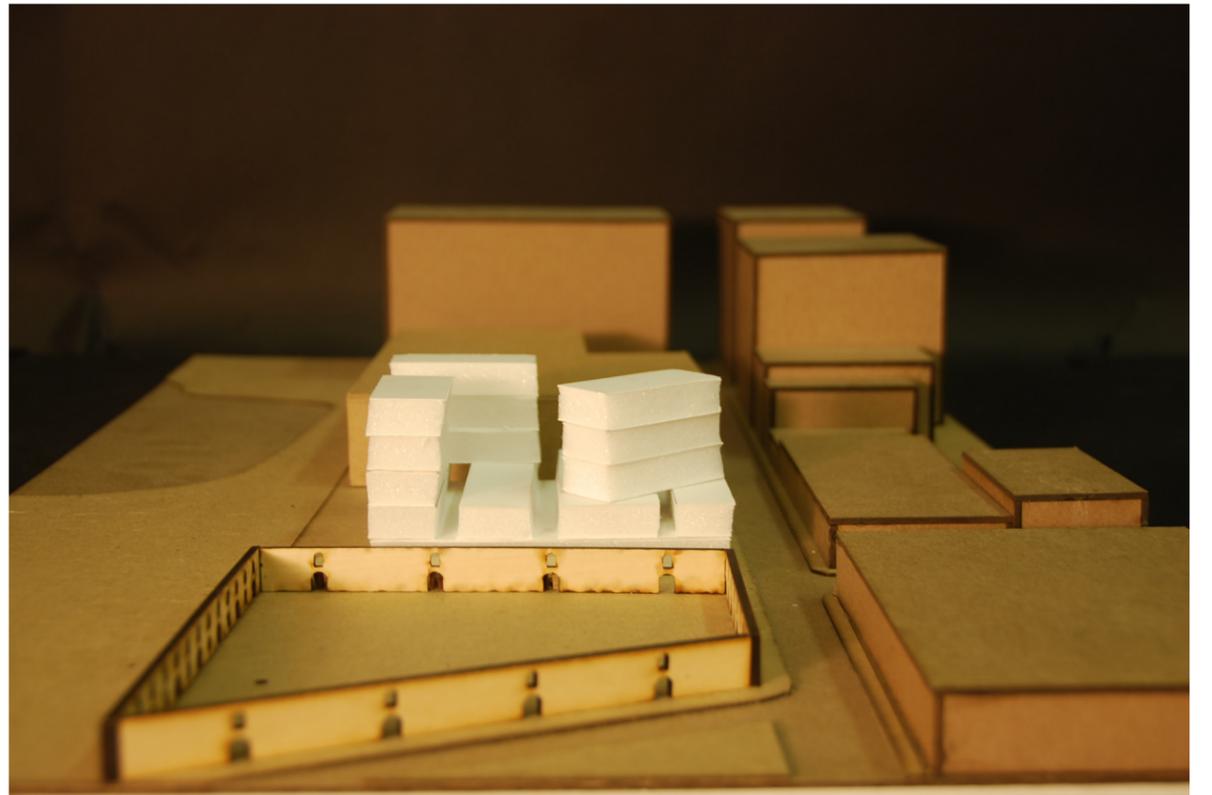
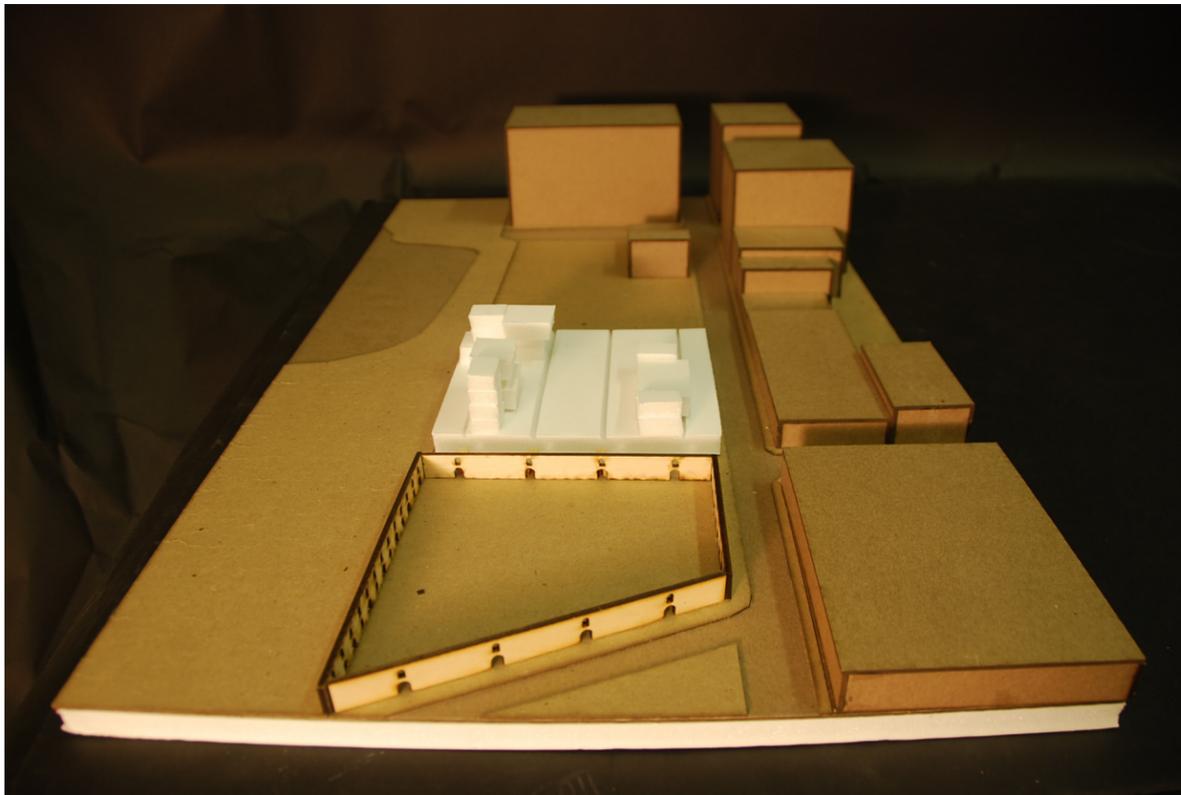
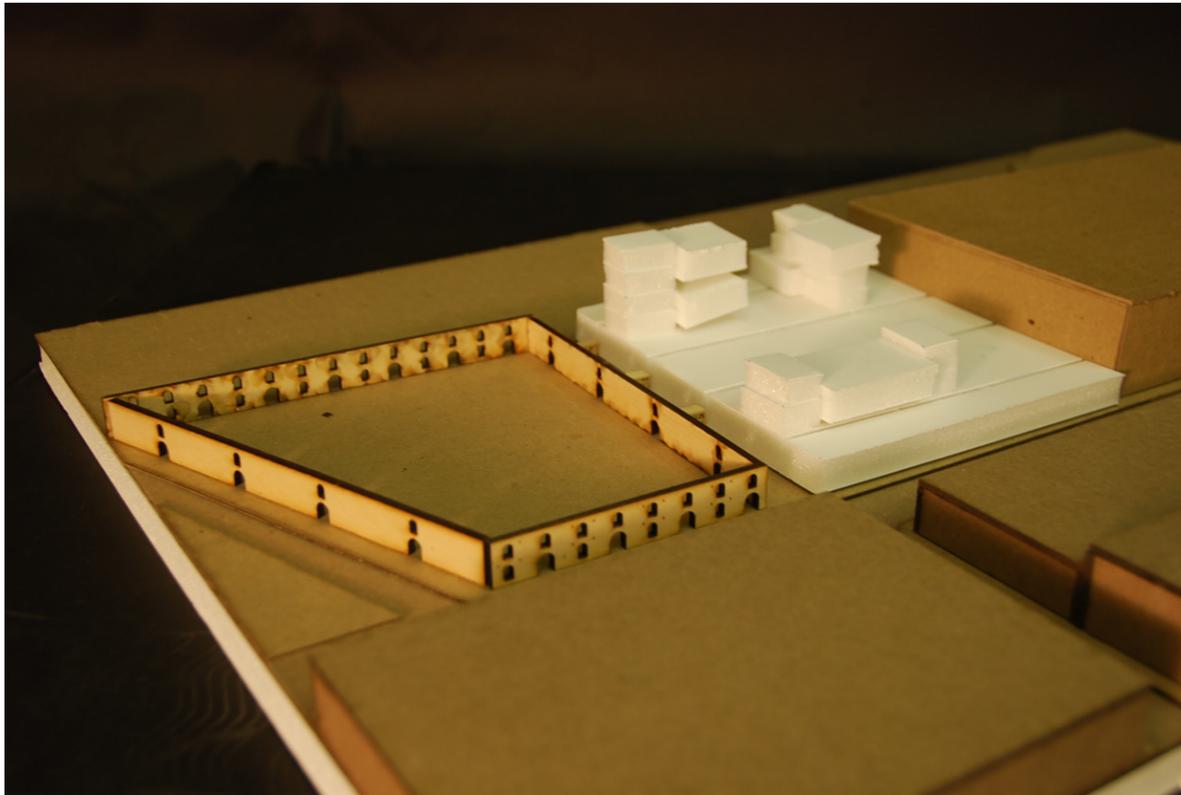


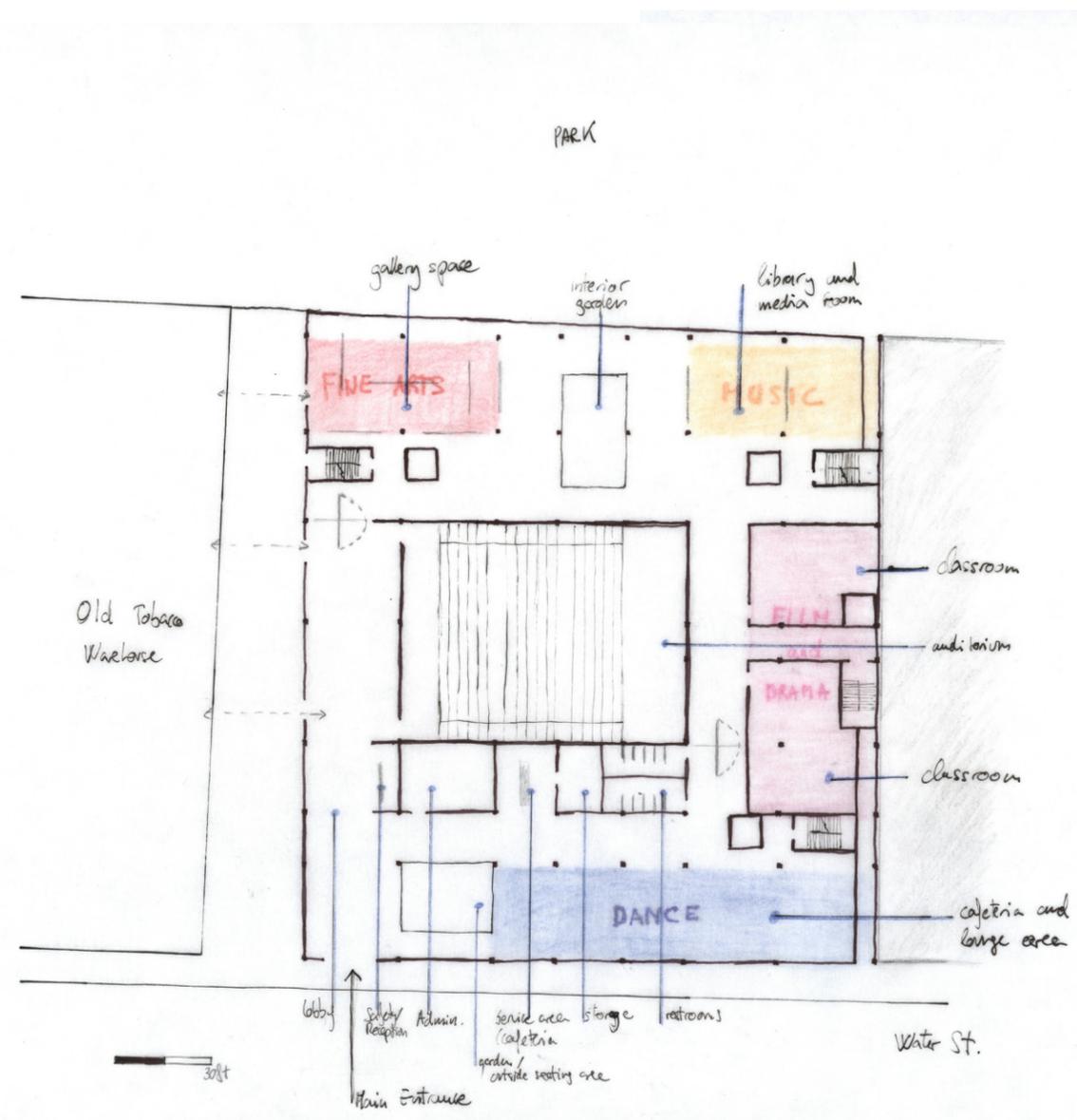
## BIBLIOGRAPHY for graphic argument

- Machado, Rodolfo. The Favela-Bairro Project: Jorge Mario Jáuregui Architects. Cambridge, MA: Harvard University Graduate School of Design, 2003. Print.
- "FAVELA-BAIRRO PROJECT, BRAZIL." MIT - Massachusetts Institute of Technology. Web. 17 Sept. 2011. <<http://web.mit.edu/urbanupgrading/upgrading/case-examples/ce-BL-fav.html>>.
- Marshall, John Douglas. Place of Learning, Place of Dreams : a History of the Seattle Public Library. Seattle: University of Washington in Association Withthe Seattle Public Library Foundation, 2004. Print.
- "Rem Koolhaas OMA - Seattle Public Library :: Arcspace.com." Architecture Online - Arcspace Is an Architecture and Design Magazine That Features Today's Most Creative Projects as Well as the Most Influential of the Past. Web. 17 Sept. 2011. <<http://www.arcspace.com/architects/koolhaas/Seattle/>>.
- Selected, Libraries. "Seattle Central Library / OMA LMN | ArchDaily." ArchDaily | Broadcasting Architecture Worldwide. Web. 17 Sept. 2011. <<http://www.archdaily.com/11651/seattle-central-library-oma-lmn/>>.
- No.mad. Web. 17 Sept. 2011. <<http://www.nomad.as/html/sondika1.html>>.
- "Eduardo Arroyo: Nursery School, Sondika, Spain 1997-1998." A&U N.12 (1999 Dec): 88-95. Print.
- "School of Arts / Tetrarc Architects | ArchDaily." ArchDaily | Broadcasting Architecture Worldwide. Web. 18 Sept. 2011. <<http://www.archdaily.com/87065/school-of-arts-tetrarc-architects/>>.
- "The Children's School - Stamford, CT." Maryann Thompson Architects. Web. 17 Sept. 2011. <<http://www.maryannthompson.com/projects/proj4.html>>.
- New York City Department of Education. Web. <<http://schools.nyc.gov>>.
- Nietzsche, Friedrich Wilhelm, Caro Adrian Del, and Robert B. Pippin. Thus Spoke Zarathustra: a Book for All and None. Cambridge: Cambridge UP, 2006. Print.
- "Sinatra School of the Arts." Ennead Architects. Web.<<http://ennead.com/>>.
- "Education in the United States." Wikipedia, the Free Encyclopedia. Web <[http://en.wikipedia.org/wiki/Education\\_in\\_the\\_United\\_States](http://en.wikipedia.org/wiki/Education_in_the_United_States)>.
- "NYC's state of the arts: in the midst of the recession, the city is supporting a wave of cultural building projects designed by New York architects and destined to bring new vitality to their neighborhoods." By: Delgado, Lisa. Oculus, 2010 Fall, v.72, n.3, p.24-25. (journal article)
- Amidon, Jane. Radical Landscapes: Reinventing Outdoor Space. London: Thames & Hudson, 2004. Print.
- "Brooklyn Bridge Park Tobacco Warehouse." Brooklyn Bridge Park. Web. 07 Dec. 2011. <<http://brooklynbridgepark.org/go/the-park/the-park-today/tobacco-warehouse>>.
- "Dumbo NYC, Brooklyn » Archive » Tobacco Warehouse (DumboNYC.com)." Dumbo NYC, Brooklyn (DumboNYC.com). Web. 07 Dec. 2011. <<http://dumbonyc.com/2009/04/17/tobacco-warehouse/>>.
- "New York Maps" Newyorkcitymetro.com. Web.<<http://www.newyorkcitymetro.com/nymaps.htm>>.
- Gothamist: New York City News, Food, Arts & Events. Web.<[http://gothamist.com/2010/09/20/map\\_shows\\_manhattan\\_is\\_full\\_of\\_whit.php?gallery0Pic=1](http://gothamist.com/2010/09/20/map_shows_manhattan_is_full_of_whit.php?gallery0Pic=1)>.
- Energy Design Tools (Climate Consultant). Web.<<http://www.energy-design-tools.aud.ucla.edu/>>.
- "Mta.info | MTA New York City Transit." Mta.info | Home Page. Web. 07 Dec. 2011. <<http://www.mta.info/nyct/>>.
- Moe, Kiel. Integrated Design in Contemporary Architecture. New York: Princeton Architectural, 2008. Print.
- Márquez, Cecilia Fernando., and Richard C. Levene. Steven Holl Architects Selected Works 2004/2008. Madrid: El Cróquis, 2008. Print.
- Flickr - Photo Sharing. Web. 07 Dec. 2011. <<http://www.flickr.com/>>.
- Google Maps. Web. <<http://maps.google.com/>>.

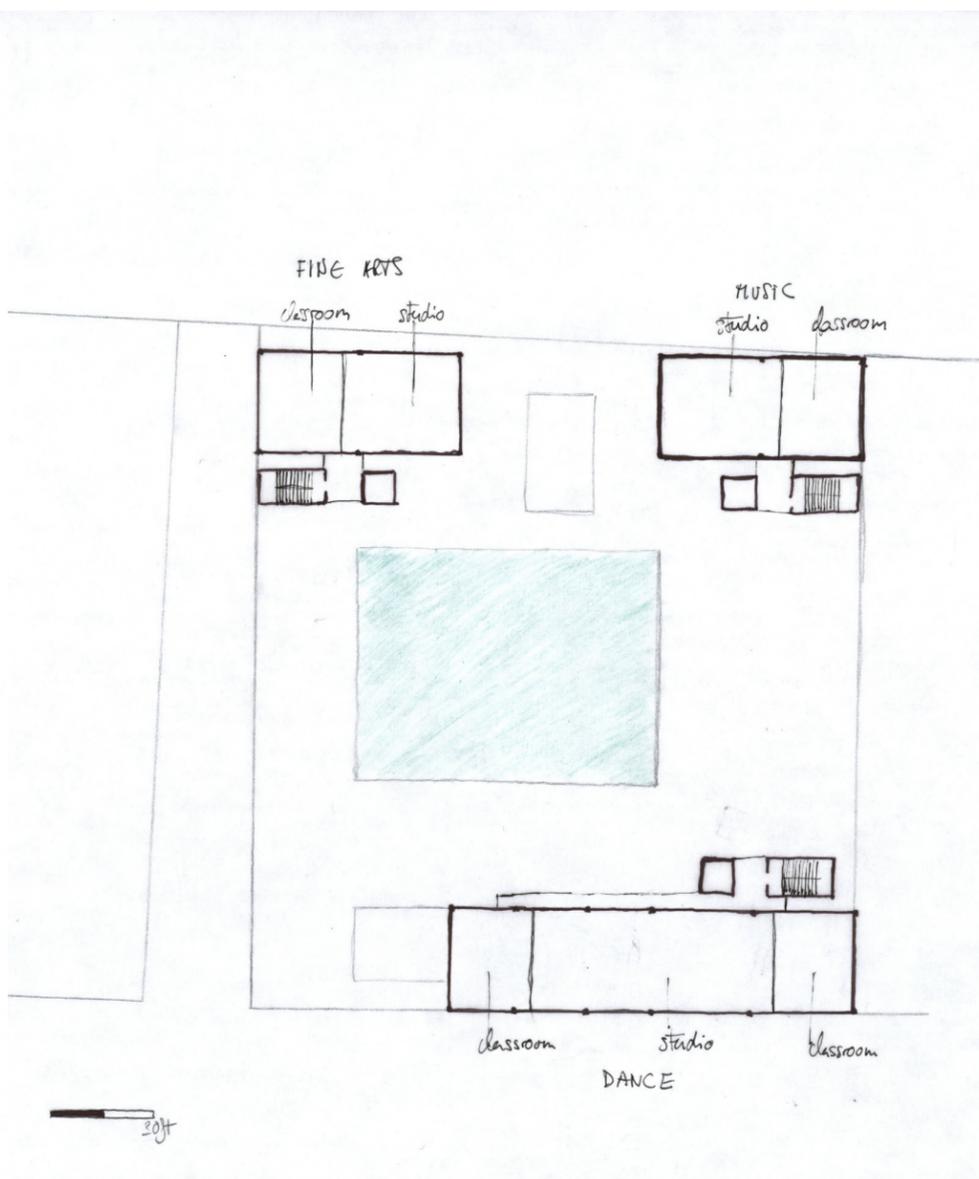




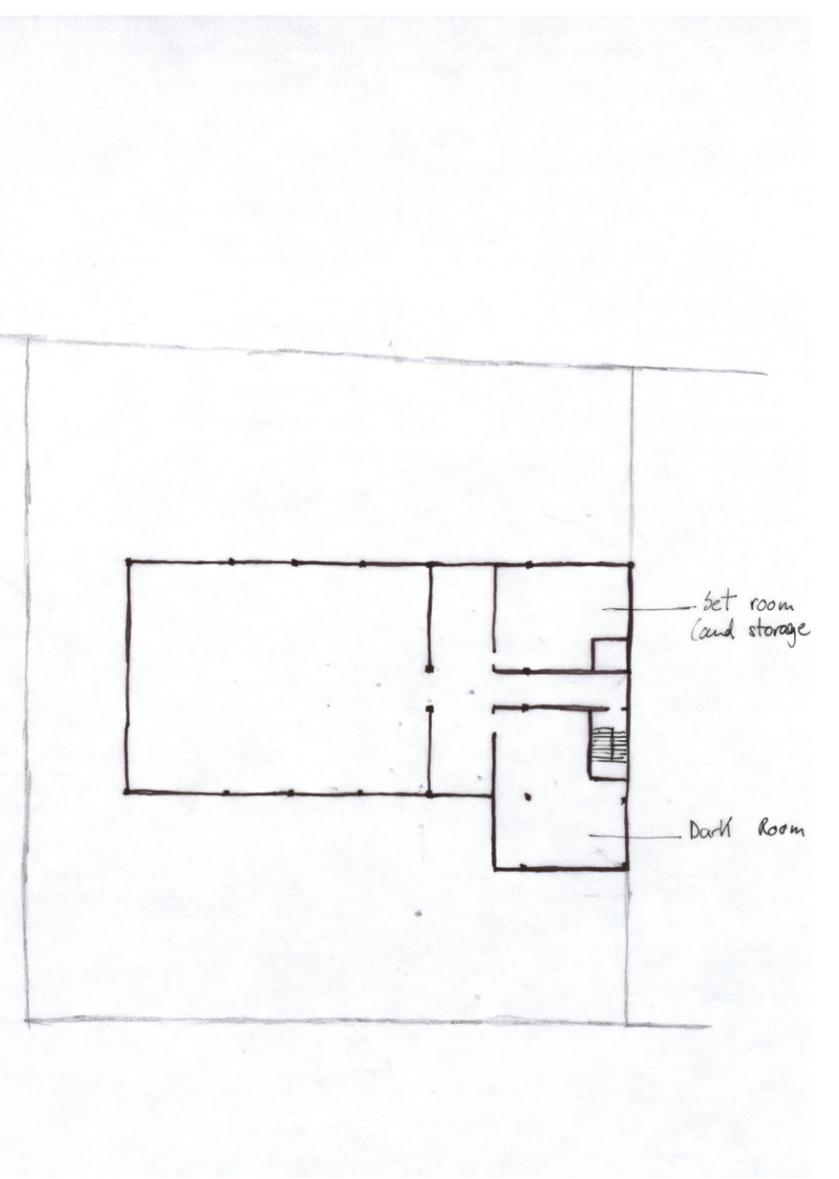




GROUND FLOOR

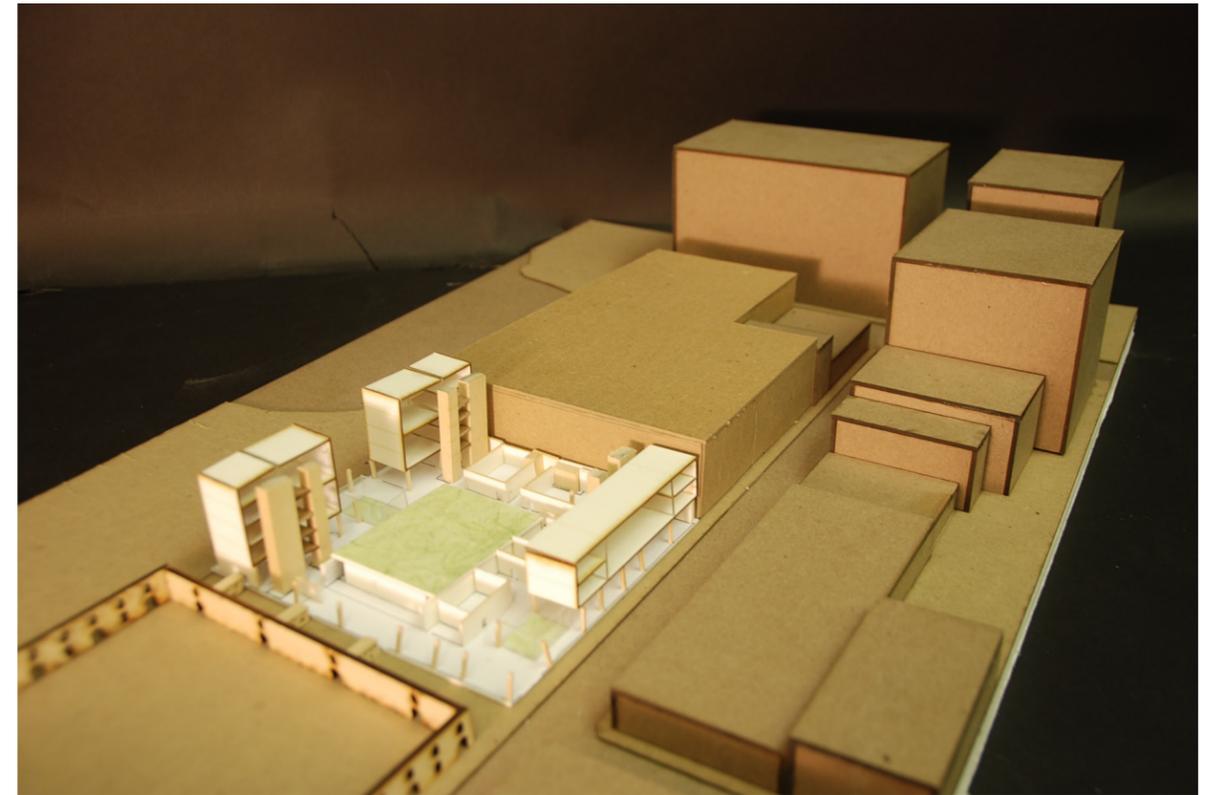
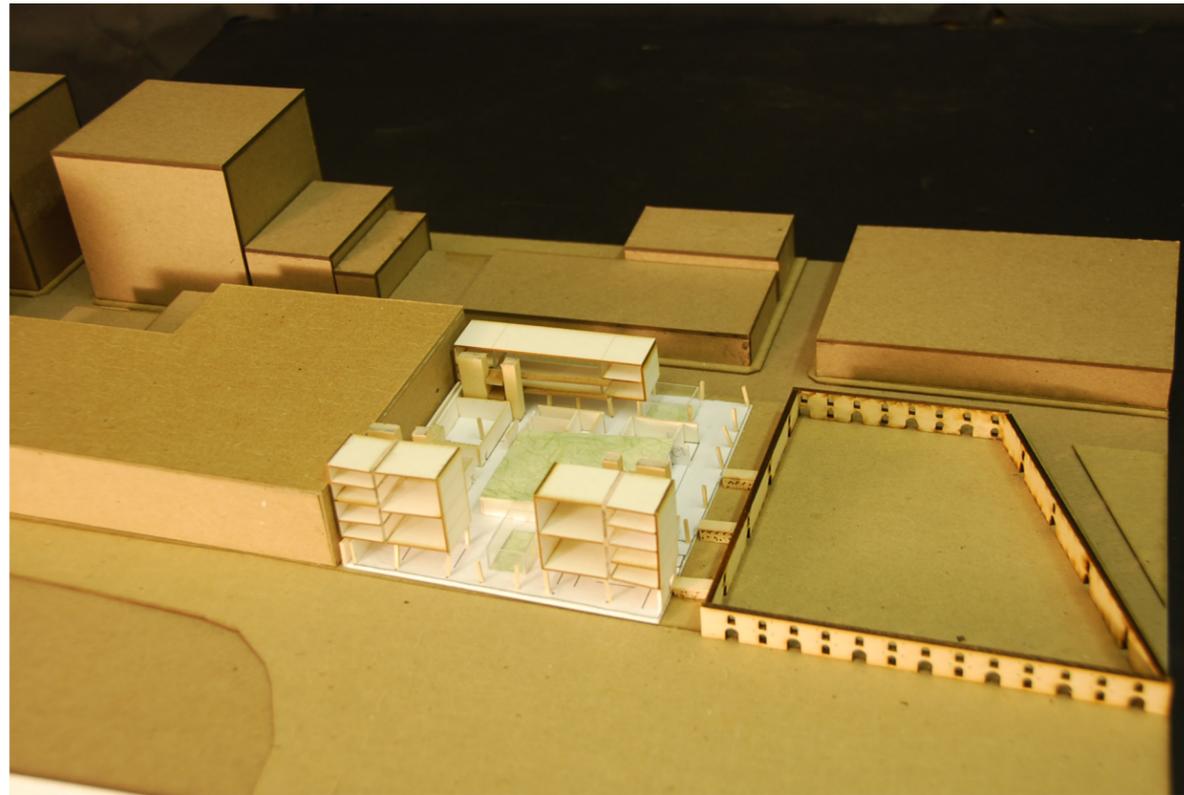


FLOOR 1

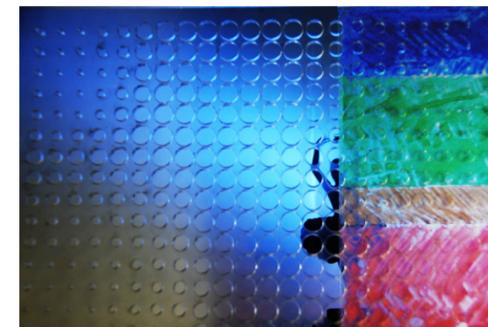
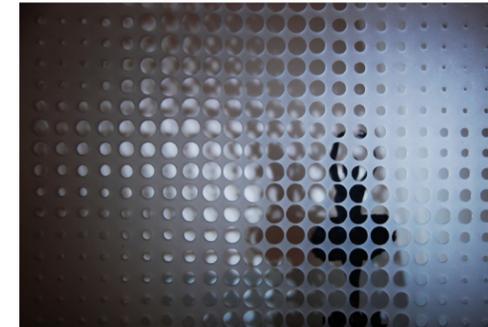
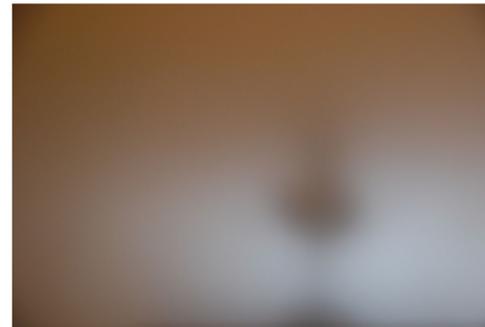
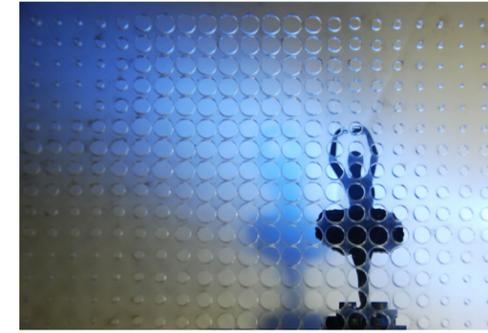


FLOOR -1









The inspiration for the design concept started with the alteration of a material by applying different techniques such as perforating, edging, sanding, and coloring it in different ways. Then, different the qualities of lights (modifying light, temperature, direction, source and intensity) were captured through a series of photographs to visualize the results.

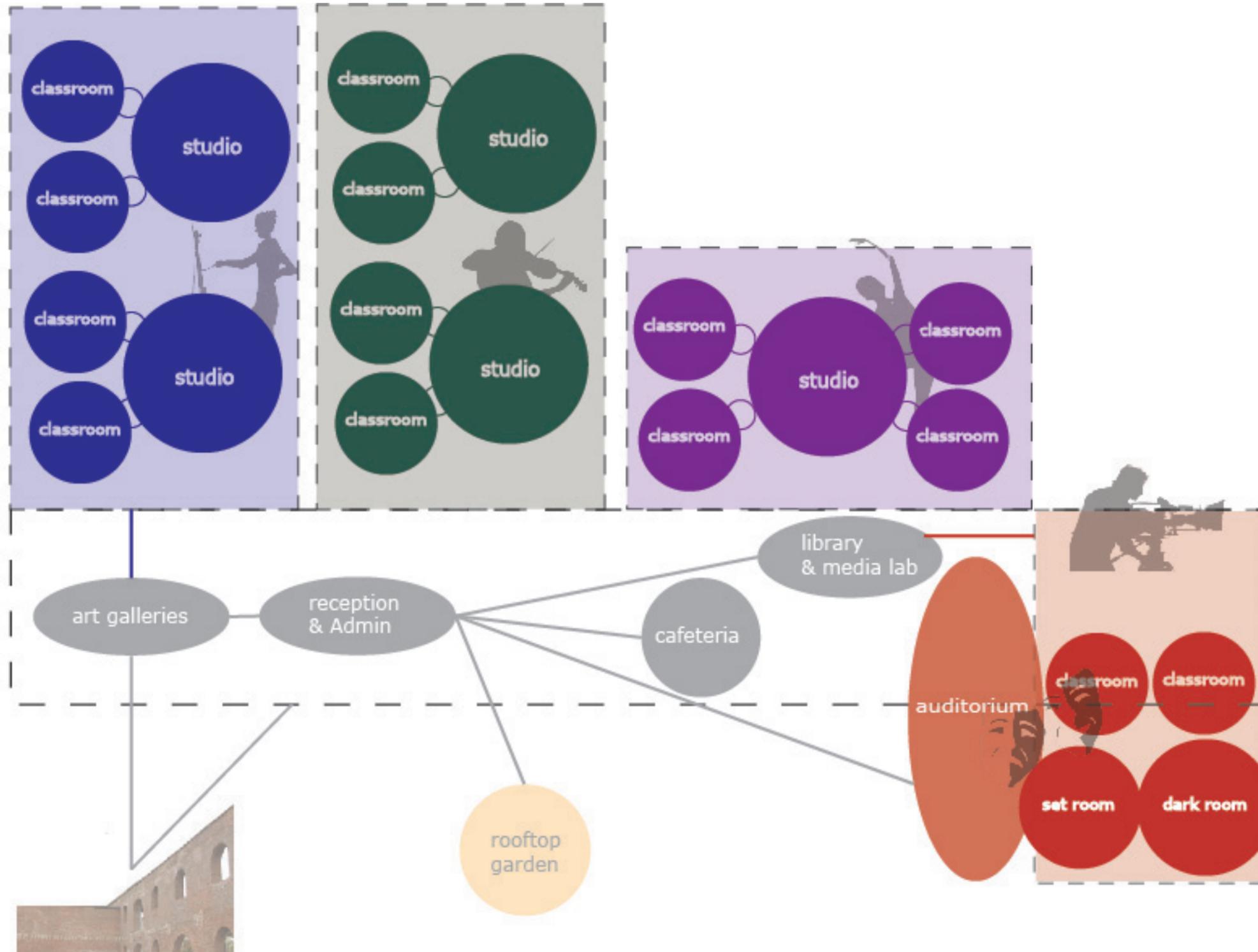


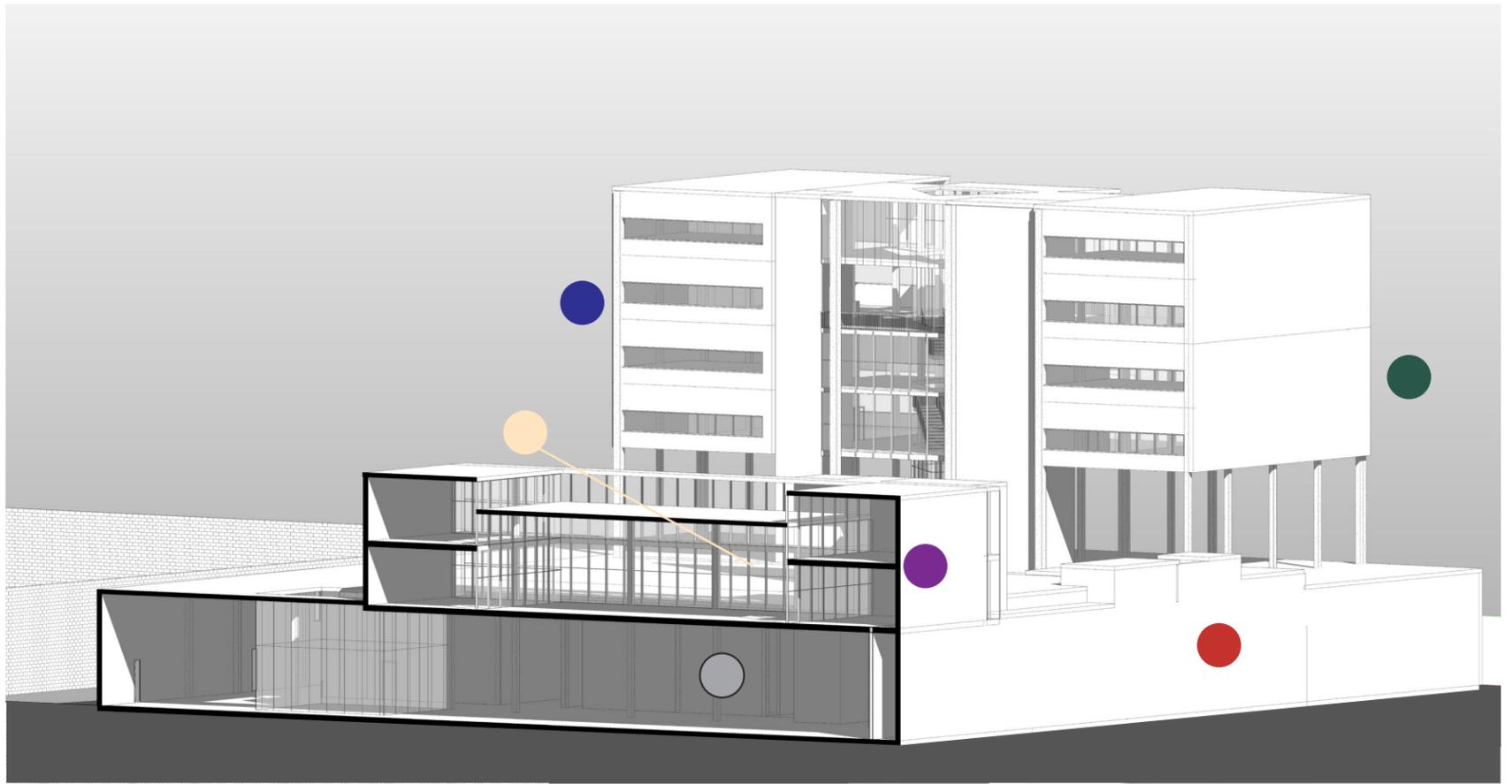
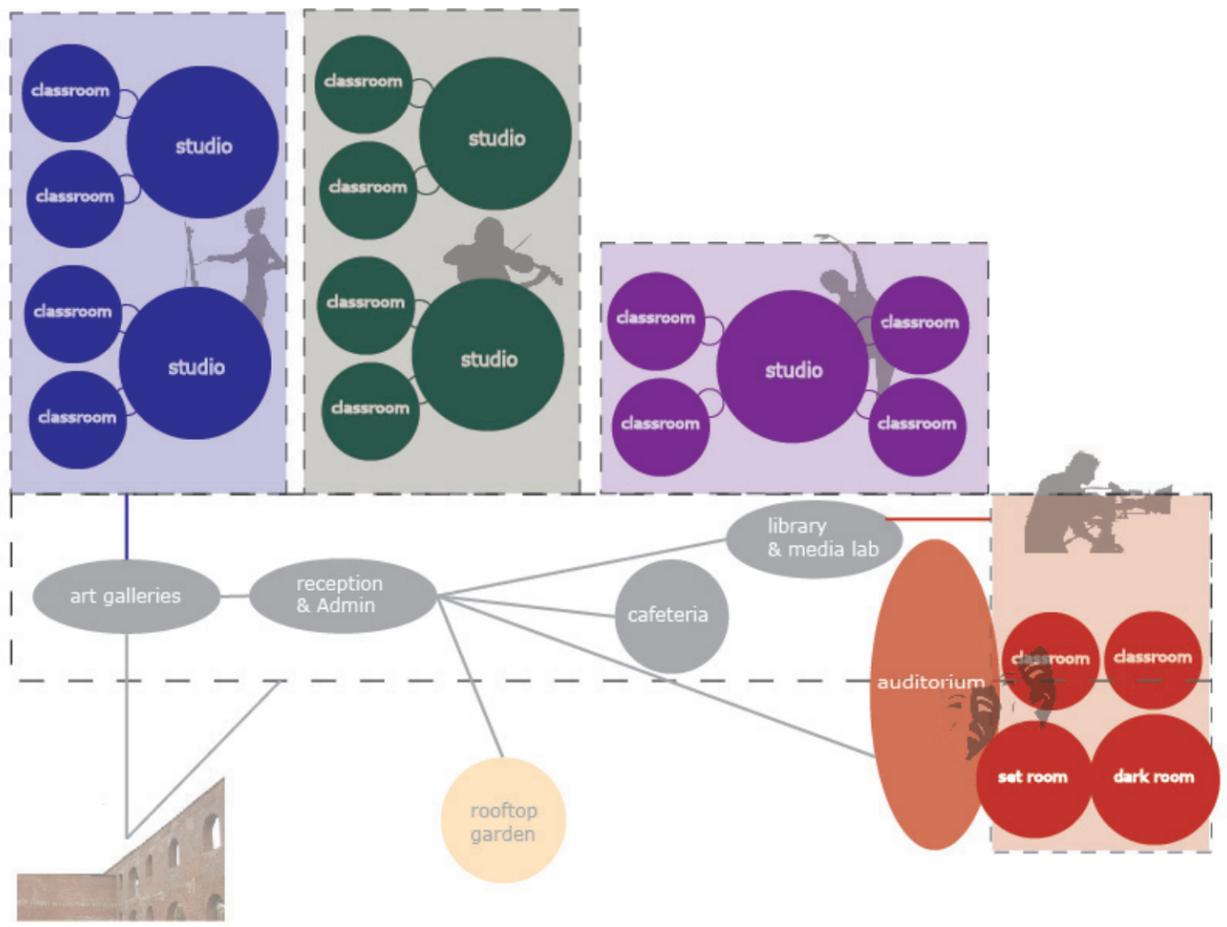
As the art disciplines require, the classroom and their respective studio are integrated and considered as the basic unit that define different volumes for each art form.

My proposal for the project is to express the sensitivity for each one of those through a different form of light. In order to achieve that, the program is driven by the arts offered by the school as block units that interconnect with the rest of the required curriculum.

The massing, orientation, void, color and materiality bring a unique quality of light to those “volumes of light”.

PROGRAMMATIC RELATIONSHIPS  
Organizational parameters





LOCATION OF EACH VOLUME IN THE PROGRAM



50ft



- 1. Studio Space Fine Arts
- 2. Classroom Space Fine Arts
- 3. Common Area Fine Arts and Music
- 4. Studio Space Music
- 5. Classroom Space Music

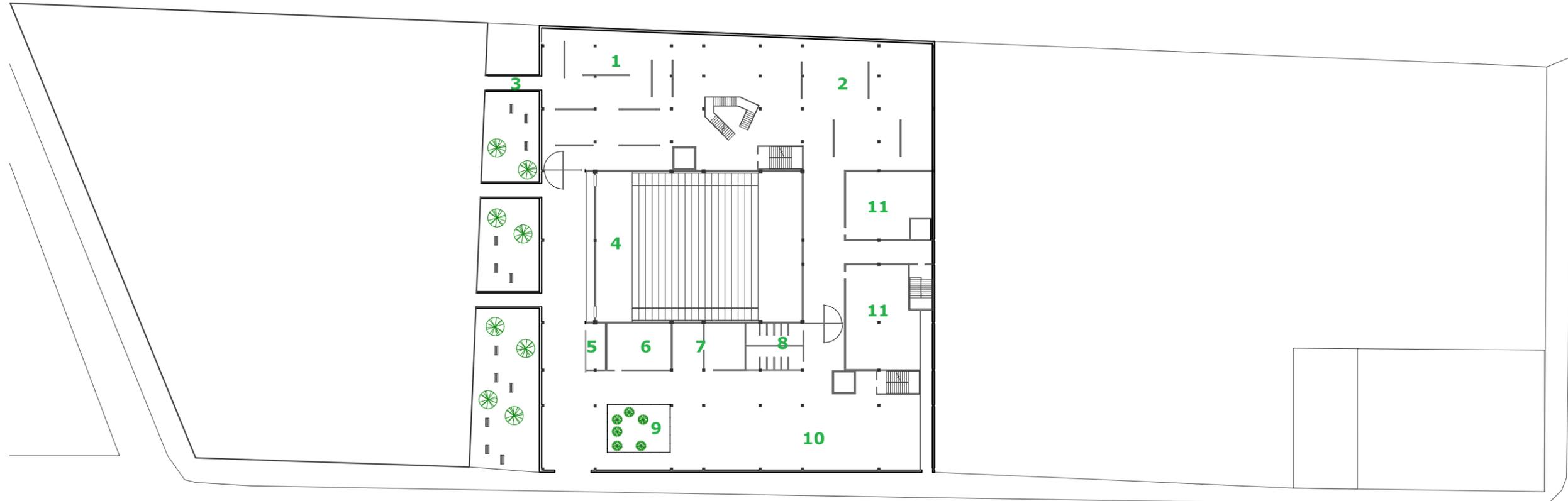
30ft



- 1. Green Sloping Roof
- 2. Classroom Space Dance
- 3. Studio Space Dance

30ft

⌚ Floor 1



- 1. Gallery Space
- 2. Library and Media Room
- 3. Connectors with the Old Tobacco Warehouse
- 4. Auditorium
- 5. Safety Desk
- 6. Administration
- 7. Kitchen and buffet area
- 8. Restrooms
- 9. Patio
- 10. Cafeteria
- 11. Classrooms Film and Drama

30ft



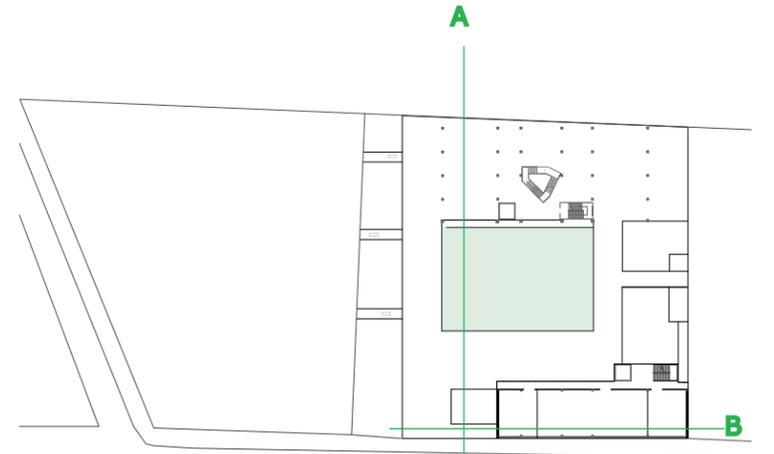
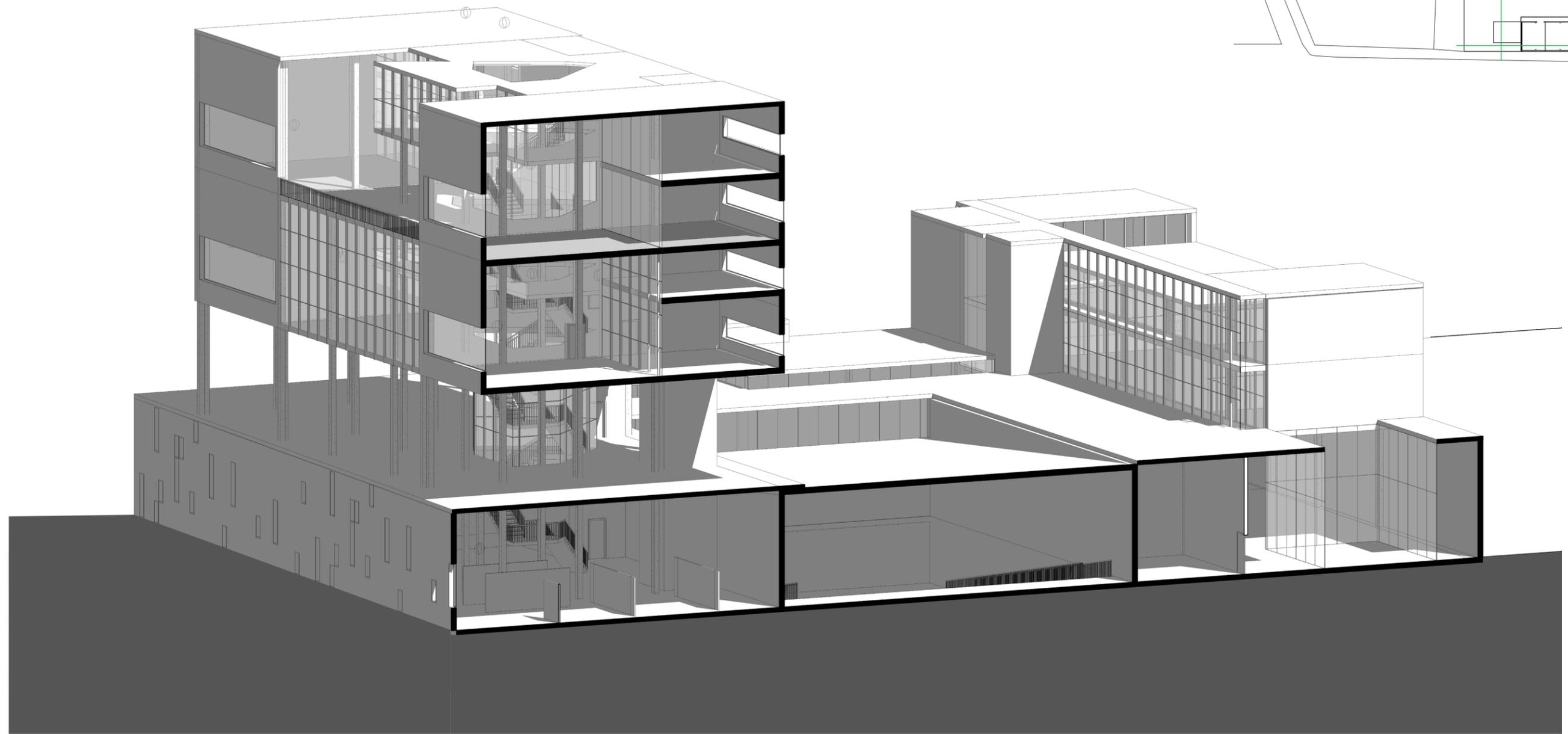
**GROUND FLOOR**



- 1. Auditorium
- 2. Set Room
- 3. Dark Room

30ft

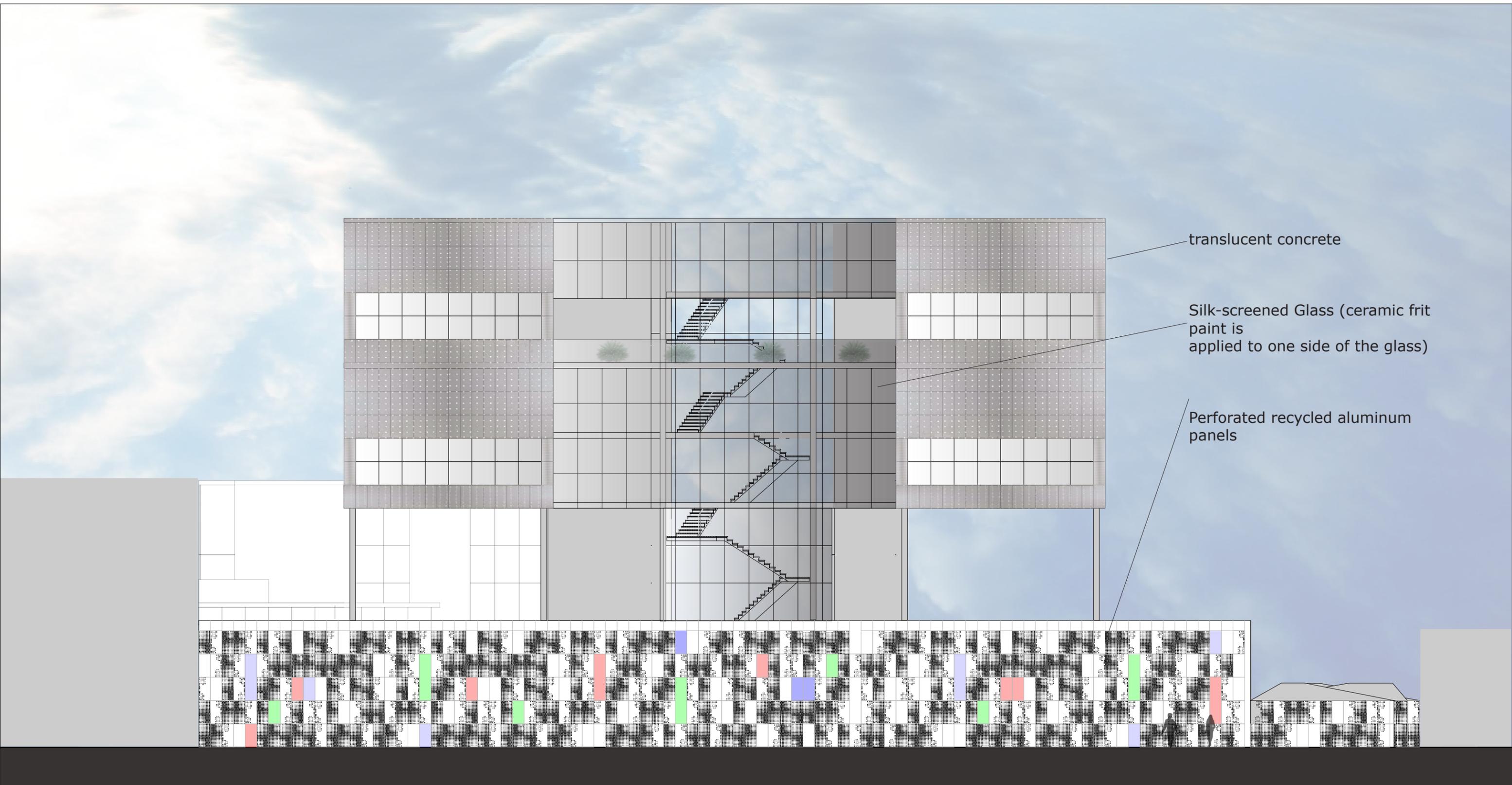
Floor -1



SECTION A



SECTION B



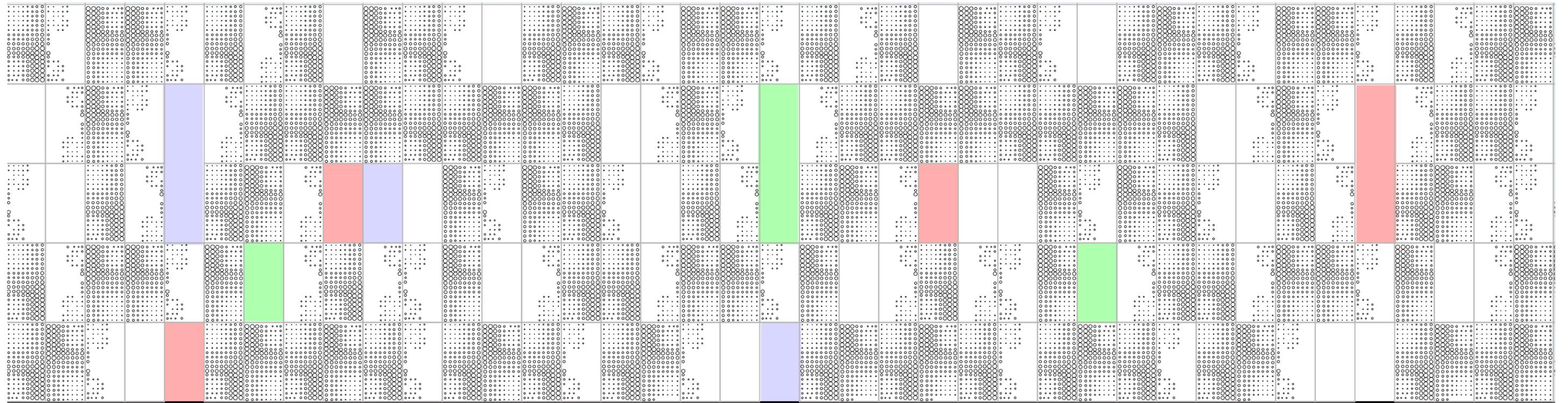
translucent concrete

Silk-screened Glass (ceramic frit paint is applied to one side of the glass)

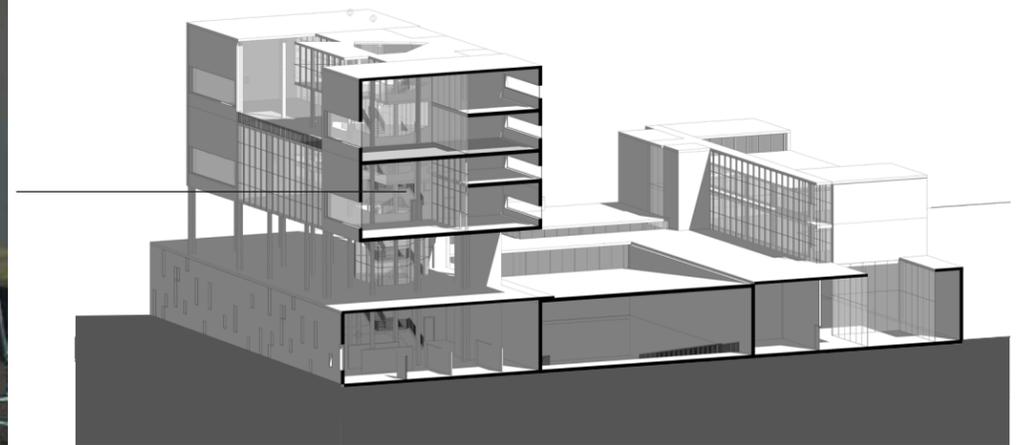
Perforated recycled aluminum panels

30ft

NORTH ELEVATION



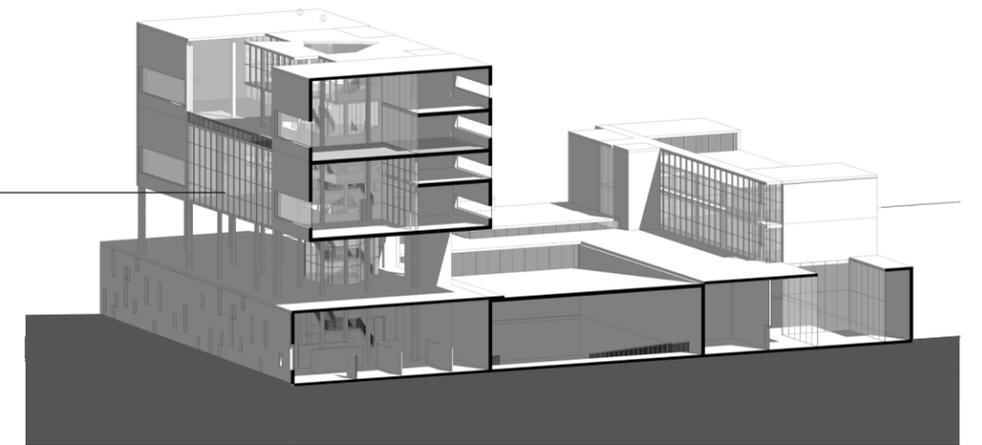
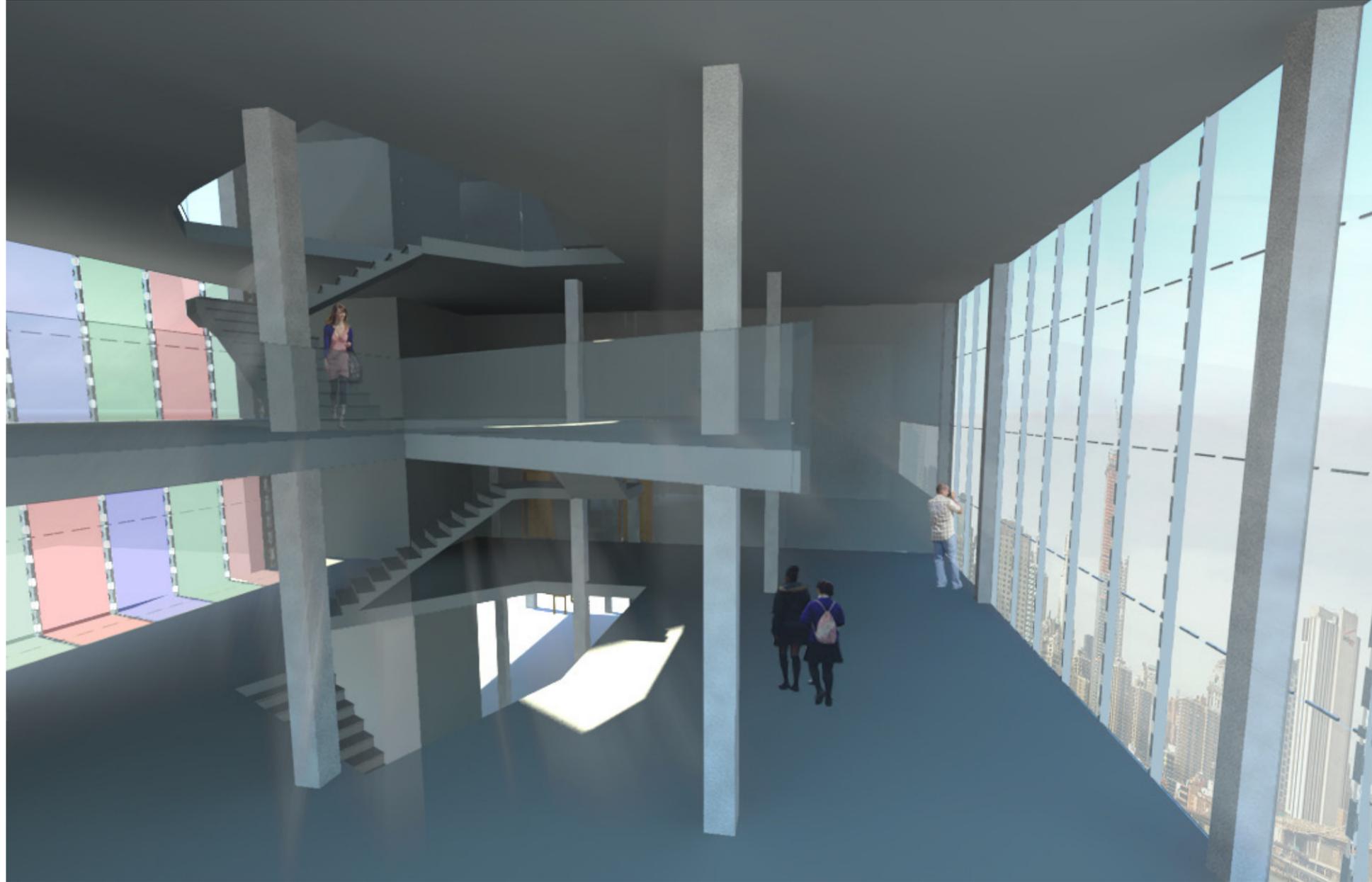
PATTERNS FOR THE PERFORATED ALUMINUM PANELS



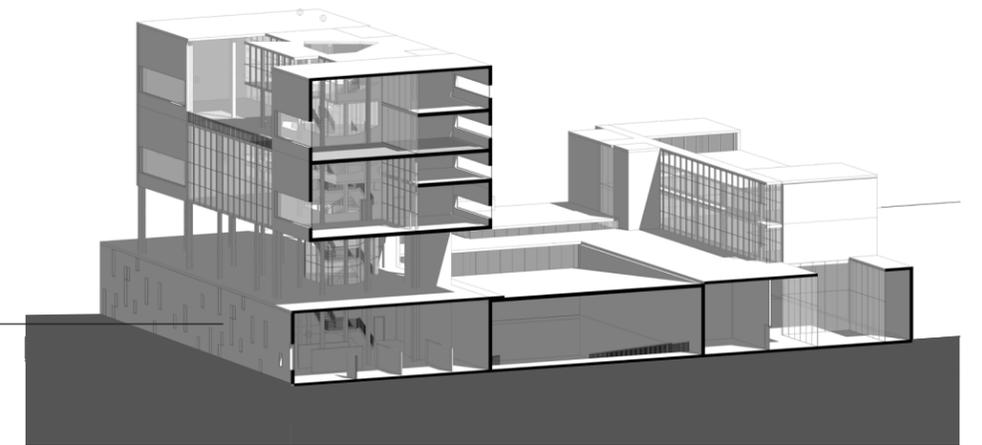
**FINE ARTS STUDIO AND CLASSROOM INTEGRATION. INTERIOR VIEW**



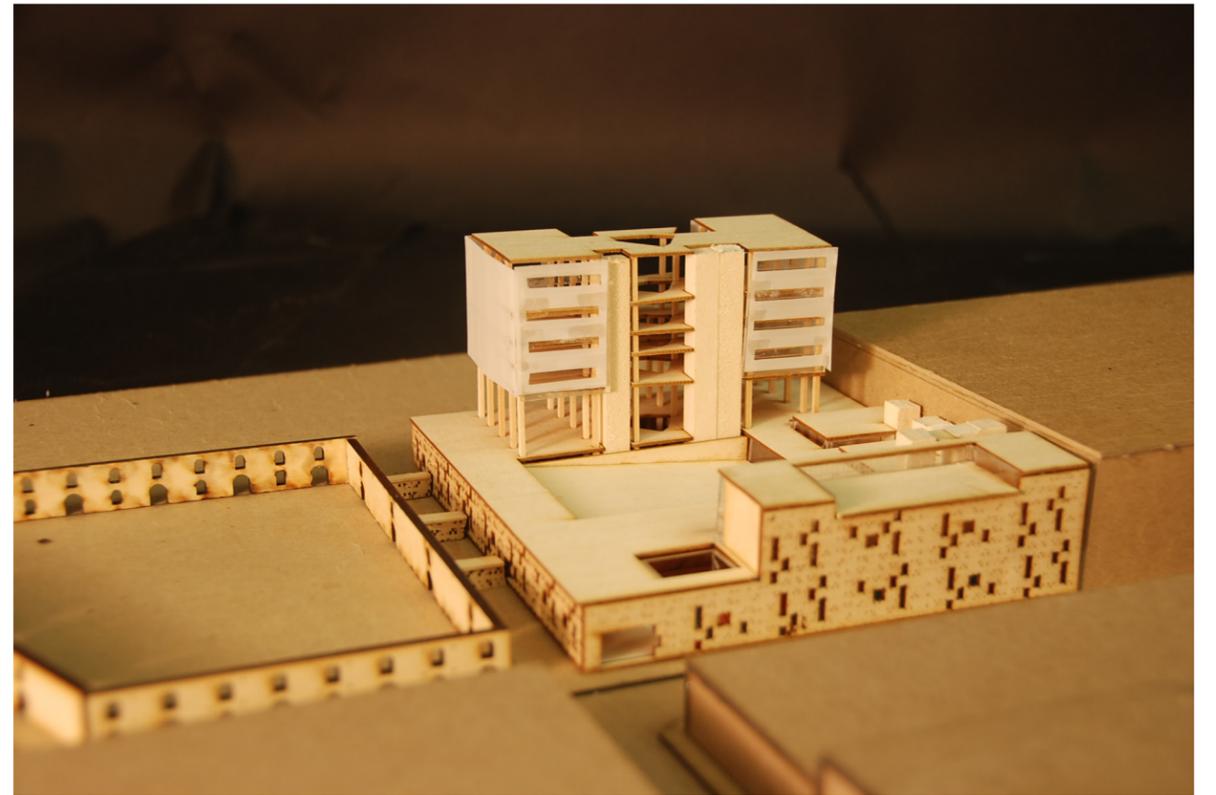
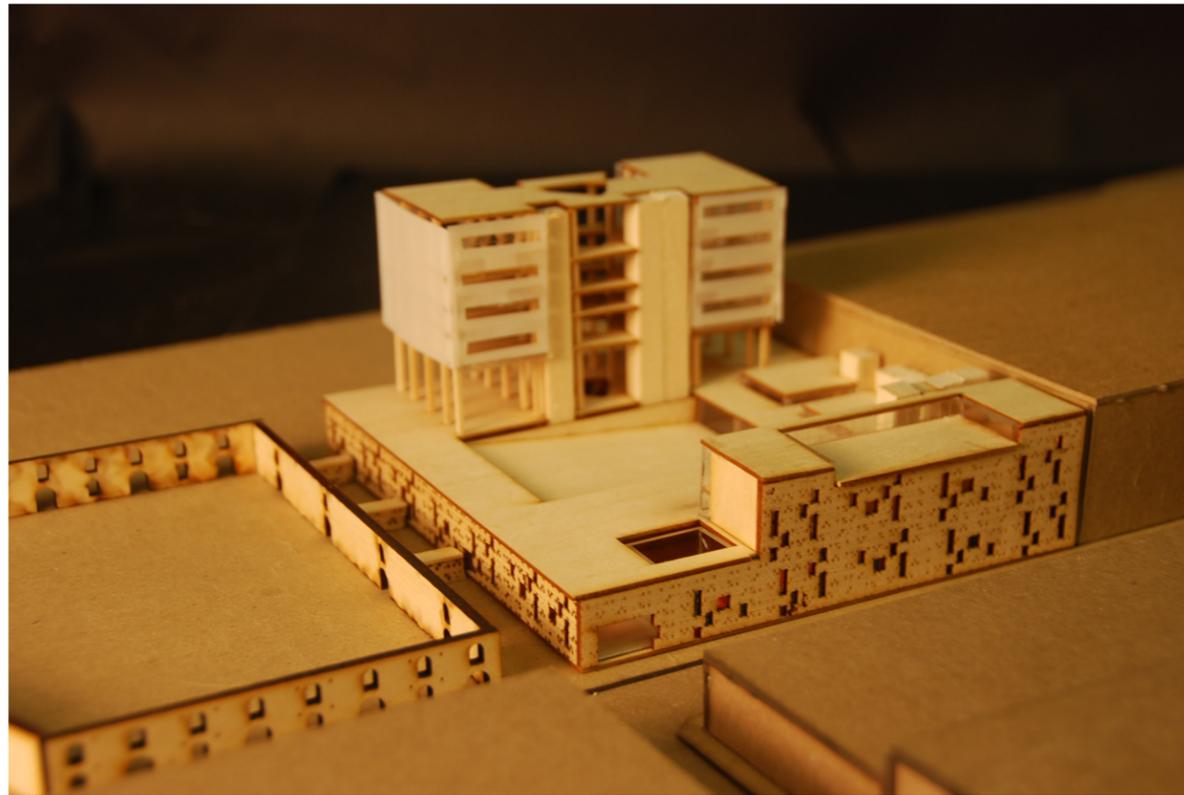
**DANCE STUDIO AND CLASSROOM INTEGRATION. INTERIOR VIEW**

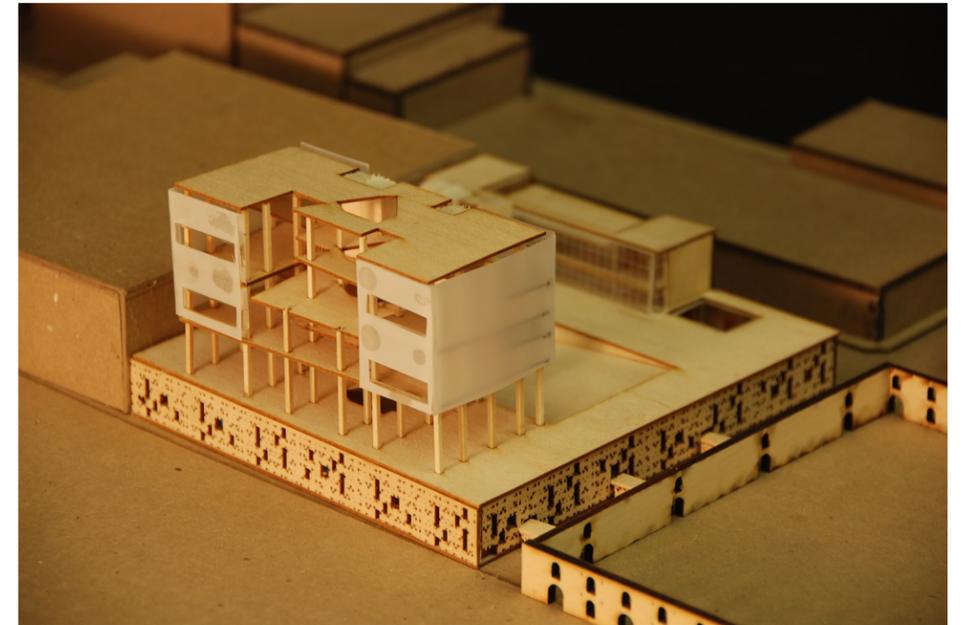
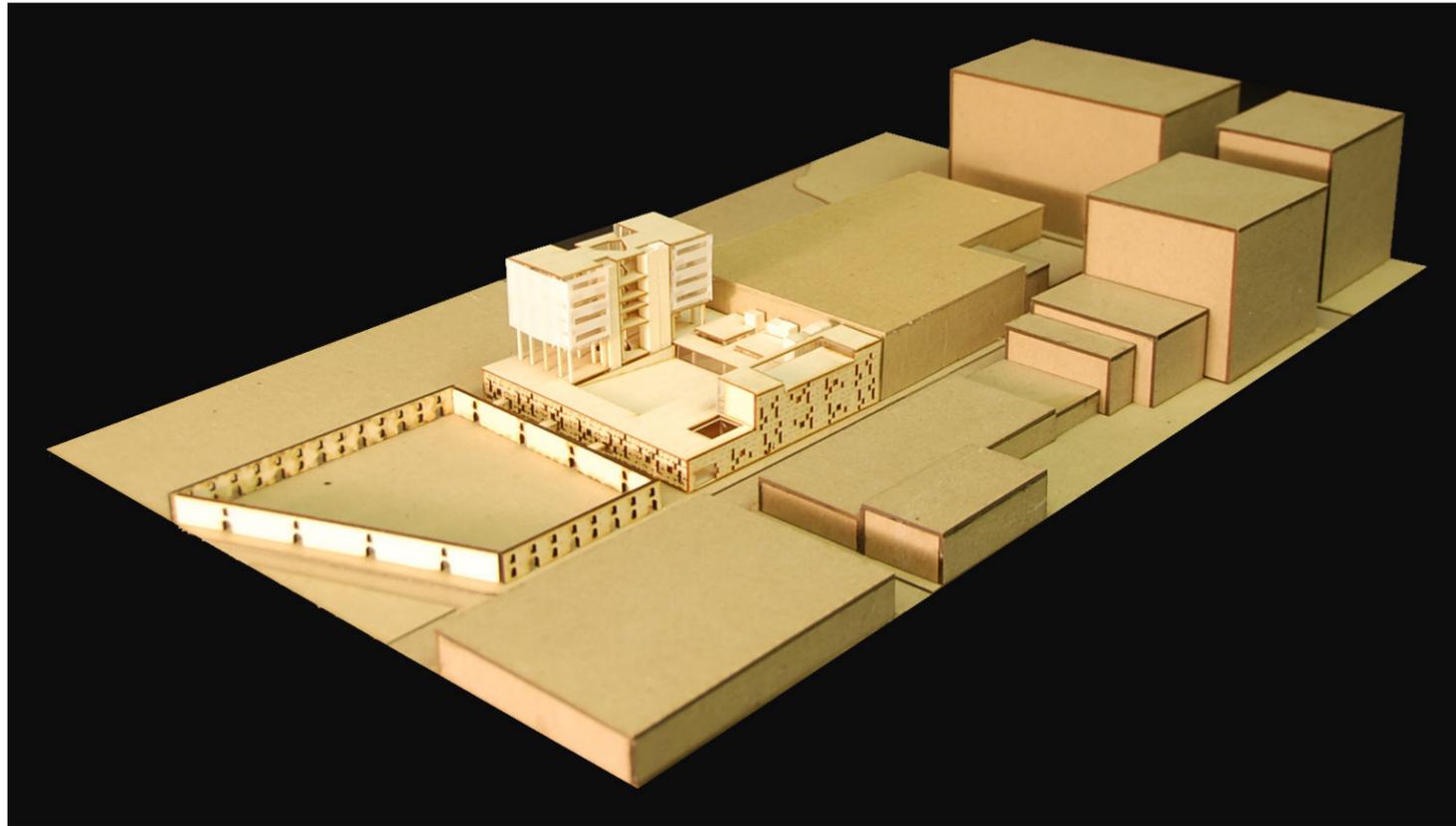


COMMON AREA MUSIC AND FINE ARTS. INTERIOR VIEW



COMMON AREA MUSIC AND FINE ARTS. INTERIOR VIEW









**VOLUMES OF LIGHT. A SCHOOL OF THE PERFORMING AND VISUAL ARTS**

**Sara Cabal González**