Graduate Architecture Portfolio

Rush Majumder
The Brooklyn Army Terminal, located in Sunset Park Brooklyn, has a rich history of manufacturing and now as an art space. However, it remains to feel segregated from the rest of the population of Sunset Park, particularly working Hispanics and Chinese. This project aims to bridge the gap, and introduce ways of life familiar to the population surrounding the site, as well as enriching the Brooklyn Army Terminal.

With the lack of light, light columns were introduced to allow rooms that are not facing the border of windows to get natural daylight. These light columns being injected into the site creates unique spaces, as a gathering place for people.

The site being on the Hudson River allowed for the introduction of canals. These canals would cut through the building into the previous parking lot, creating an aquaponic farm. The farm serves an aquaponic cycle to clean the water for vegetation and fish, which allows for people working there to grow their own produce and food.
VERTICAL

ANGLED

SLOPED

LIGHT COLUMNS

ELEVATOR

ESCALATOR

ADA RAMP

LOCAL COLUMNS
LIGHT COLUMN + CANALS
BUILDING A SECTION
Attica Prison, A Prison for Re-Use
With declining incarceration rates and more progressive values being inputted in the judicial system, the decline of prison complexes is inevitable. In terms of re-use and re-adaptation, the prison typology can be made liveable. Attica Prison is surrounded by walls, with prisoners being circulated through the campus in lengthy, enclosed corridors. Many different buildings exist within, from mess halls, hospitals, and workshops as well as cell blocks.

This project aims to convert Attica Prison into a Prison for re-use. This project tackled two challenges throughout the semester. First, the scale of this complex proved to be too large to think of this as a simple re-adaptation project. Taking into account the site, the relationship to the town of Attica, and the buildings existing there already, molding this project into a urban design project provided much more positive results.

Second, people have an internal bias to living in a place with such a dreadful history. How can this typology then attract people to move here? Born from the urban design perspective, thinking about this typology as a new town square, and then a new town made it livelier. Taking inspiration from places such as Almere, Rotterdam, and Bruges, the project then asked the question of what would a rural city center look like?
Hierarchies of Control
The Indus Watershed consists of 6 rivers and extends through Pakistan, India, and the Tibetan Plateau. The 6 rivers are the Indus, Jhelum, Chenab, Ravi, Beas, and Sutlej. The goal for this project is a response to the devastating flooding in Pakistan in 2022, and to place the control of the watershed in the hands of the Pakistani people, rather than to globally tied infrastructure that populate the watershed. There are natural ways of water management that work with the watershed, instead of against it. Flooding, while dangerous, is needed for this watershed and Pakistan to grow.

Removal of dams on the watershed can be used to revitalize biodiversity and nature along the rivers. This removal takes place within a timeline, where Year 0 creates a buildup of sediment along the river, which has previously been accumulating behind the reservoir. In 2 weeks time, the sediment reaches the shores of the river and creates nutrition filled soil. In Year 1, the sediment falls back into the new movement of the river, which is now narrower and more abundant.

The expansion and retraction of the river post dam removal will serve as a riparian buffer, helping with over flooding. Beyond that would be a re-introduction of agriculture that traditionally grow in water in Pakistan would also begin to serve as a mitigation against over flooding. The final phase of this project is the moving of Mangrove Forests to the river’s edge. Mangroves naturally serve as a barrier against flooding, and by growing them on river banks will replenish and create biodiversity.
Timeline of the Tarbela Dam removal in Pakistan

1 Year

1.5 Weeks After Removal

Current

This diagram illustrates the changes over time in the Tarbela Dam and its surrounding area. The removal process is shown step-by-step, highlighting the water levels and the impact on the landscape. The visual representation provides a clear understanding of the environmental changes associated with dam removal.
Timeline of the Tarbela Dam removal in Pakistan
Although flooding occurs virtually in floods annually through monsoons and pluvial monsoon (in areas of 400–1,000 mm rainfall), the amount of water released is on a smaller scale compared to the total flood season. The main source of water for the river is from the monsoon season, which occurs from June to September. During this period, the river's flow increases significantly, leading to flooding in downstream areas.
Phase 3: Flood Buffers
The Seminar of Section elective asked us to develop a section of a building important to us, or one we were interested in. The HARPA Concert Hall is one such building. Built in 2011, and designed by Olafur Eliasson, the facade of this Hall was the most unique aspect of the building to me. While the use of a section shows the detailed interior of a building, I wanted to challenge myself to reverse the idea, that a section can show the beauty of an intricate and delicate facade system.
HARPA Concert Hall and Conference Centre
Reykjavik, Iceland
Studio City, Venice Style
The X-Info Modeling elective focused on using Grasshopper as a tool for analysis. Throughout the class, we learned different components, and how to apply it to a project proposal. The team’s project proposal was the introduction of canals and green lanes in Studio City, Los Angeles. Initially coming from research of canals lowering urban environment temperature by 1 to 2 degrees, the project then evolved into walkability metrics, sunlight analysis, and remaining area for commuters. While we do not want to create islands in Studio City, we wanted to find the perfect middle ground between all of these points.
**Inputs**

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<th>Canal Width</th>
<th>Canal Density Location</th>
<th>Canal Prominence</th>
<th>Amount of Trees</th>
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</table>

- What percentage of the street does canal take?
- Where are the canals located?
- What percentage of all the streets have canals?
- How many trees are there?
- Which streets have lanes for tree planting?
Mapping San Francisco’s Retrofitted Buildings by Household Income
San Francisco lies on the San Andreas fault that runs through the west coast of the United States. Having faced earthquakes in 1906, and more recently in 1989, the city has had to rebuild itself and introduce new legislation to build and renovate safer buildings.

San Francisco is a melting pot of different people from different backgrounds. While the city prides itself on its diverseness, neighborhoods have long been the tell for a person’s economic background. The difference between the Tenderloin and Pacific Heights, despite being less than 2 miles apart, cannot be more distant between income.

The Mandatory Seismic Retrofit Program of 2013 brought about laws requiring the retrofit of all wood framed soft story buildings in San Francisco.

This project aims to discover any correlation between the status of retrofitted buildings, and the neighborhoods they populate. For the purposes of this project, we will be analyzing three neighborhoods, the Tenderloin, Pacific Heights, and the North Beach.
North Beach
Pacific Heights

Parks
Neighborhood Borders
Census Tract Borders

Median Household Income
$0 - $50,000
$50,001 - $100,000
$100,001 - $150,000
$150,001 - $200,000
$200,001 - $250,000

Retrofit Status
- Retrofit Non-Compliant
- Retrofit Completed, No CFC Issued
- Retrofit Completed, CFC Issued
- New Construction

Projected Coordinate System: US National Atlas Equal Area
Projection: Lambert Azimuthal Equal Area
Geographic Coordinate System: Clarke 1866 Authalic Sphere

0 1 2 Miles
The focus on the Tenderloin neighborhood of San Francisco was made because it is a low income neighborhood in San Francisco with a large demographic of minorities. The hypothesis for this neighborhood was that the retrofitting process would be non-compliant.

However, according to the City and Country of San Francisco, there is only one soft story property, but it is still non-compliant.
Projected Coordinate System: US National Atlas Equal Area
Projection: Lambert Azimuthal Equal Area
Geographic Coordinate System: Clarke 1866 Authalic Sphere

N
0.25 .5 Miles

Parks
Census Tract Borders
Neighborhood Borders

Median Household Income
$0 - $50,000
$50,001 - $100,000
$100,001+-$140,000

Retrofit Non-Compliant (1)
Embarcadero

The Embarcadero was chosen as a mixture between low median household income, and high median household income. There is more variation in this neighborhood than the Tenderloin.

Less than a quarter of soft story properties in this neighborhood are non-compliant, but they mainly fall in the $100,000 and less median household income census tract zones.

Overall, the retrofit completion of soft story properties in this area is high.
Pacific Heights was chosen as one of the neighborhoods because of its high level of median household income being above $50,000. The hypothesis behind this decision was that the more well to do neighborhoods of San Francisco would have a bigger sense of urgency in retrofitting its soft story properties.

We can see a greater number of retrofit completions in this neighborhood, with minimum non-compliance properties.

There is also a surprising amount of non-compliant soft story properties within the over $200,000 median household income zones.
Conclusion

The initial question was to see if there was a connection between lack of retrofitted soft story properties and low income neighborhoods in San Francisco. Based on the scope of this project, there is no correlation between the retrofitted properties and median household income.

However, this project has limitations as mentioned before. We are only looking at 3 neighborhoods of San Francisco, which were chosen on personal biases. They were not chosen on finding the most variations, but rather what is locally known as poor and rich neighborhoods.