Regenerating Industry:
An Urban Campus for the Arts Reclaimed from Lost City Fabric.

Colin Drumwright
Regenerating Industry: An Urban Campus for the Arts
Reclaimed from Lost City Fabric

Thesis submitted to the faculty of the Virginia Polytechnic Institute and State University in partial fulfillment of the requirements for the degree of Master of Architecture in Architecture

Marcia Feuerstein, Chair
Susan Piedmont-Palladino
Paul Kelsch

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Cities form from layers of different elements and uses to create an urban fabric. These elements include the location, geography, demography, culture, transportation, and building type. Buildings can be thought of in a similar way. Today, successful urban and building design engages in the idea of mixed-use, not only in the program, but in the diversity of spaces created and users of the space.

One lost layer to Alexandria is at the northern edge of Old Town. This area is bookended by the Potomac Electric Power Company’s abandoned power plant. The site sits along the Alexandria waterfront and Mount Vernon Trail with views toward Washington, DC. The power plant closed its doors in 2012, and there are no plans yet to redevelop the site.

To regenerate new life to this neighborhood, a new satellite campus for Virginia Tech’s Schools of Visual and Performing Arts will replace the abandoned plant. This campus aims to integrate a long lost piece of Alexandria’s waterfront to the city and community. The signature building of this campus is a two-stage theatre that weaves together the new student body with the existing Alexandrian community.
Cities form from layers of different elements and uses to create an urban fabric. These elements include the location, geography, demography, culture, transportation, and building type. One lost layer to Alexandria is at the northern edge of Old Town. This area is bookended by the Potomac Electric Power Company’s abandoned power plant which closed its doors in 2012. There are no plans yet to redevelop the site. To regenerate new life to this neighborhood, a new satellite campus for Virginia Tech’s Schools of Visual and Performing Arts will replace the abandoned plant. This campus aims to integrate a long lost piece of Alexandria’s waterfront to the city and community. The signature building of this campus is a two-stage theatre that weaves together the new student body with the existing Alexandrian community.
To my family, friends, and committee, Thank you.
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In 1949, the Potomac Electric Power Company [Pepco] opened the Potomac River Generating Station [PRGS] at the northern edge of historic Old Town Alexandria (Montanari). In the years after, the power station became an eyesore and environmental concern to residents of the DC metropolitan area. In October of 2012, the coal power plant closed its doors permanently after a long battle with nearby residents and the local government (Sullivan). The site currently has no plans for redevelopment although there have been discussions and a preliminary plan for a new mixed-use community. The 25-acre site is abandoned except for a substation that is still in use today.

The site is an important location for Alexandria due to its capability of becoming a link to the greater metropolitan area. It is one of the first sites along the George Washington Parkway in Old Town Alexandria, easily seen on the metro, and exceedingly visible by plane or boat along the Potomac River. Mostly residential buildings surround the site with many of the residences being multifamily apartments and condominiums. The largest residence is the 15-story Marina Towers directly north of the site. This North Alexandrian community helped press the power plant to close because of resident health concerns and physical damage caused by pollutants generated from the plant.

Unlike most of Old Town’s waterfront that is mainly parks, residential, and commercial areas, the northern waterfront transitions into an office park. Offices dominate the built structure of the northern waterfront and control the last quarter mile of land leading up to the site. This type of use creates a quiet part of the waterfront that is underutilized at most times of day. Directly to the north of the site is Daingerfield Island. Daingerfield Island is a park highlighted by its marina. The park is situated between the power plant and Ronald Reagan National Airport isolating its usage from the community.

The last nearby development is Potomac Yard. At the time of the power plant’s construction, Potomac Yard was one of the busiest rail yards in the United States, but it is presently a large outdoor shopping center (North Potomac Yard). Currently, the land is being redeveloped into a new mixed-use community as part of a 30-year plan. The first townhouses began construction at the southern edge in 2011. Additionally, a new metro stop at Potomac Yard is to be introduced by 2016, and will be within a mile of the PRGS site. The city’s ambitious plan will completely alter the neighborhood as it is known today.
The Potomac River Generating Station was originally located just outside of Alexandria’s city limits, and the site always had an industrial past. During the 1930s, the site was the location of a Clayworks and Chlorophyll Plant. In 1942, Braddock Light & Power bought the land with the intention of building a new modern power plant, but a lack of materials during World War II, delayed the construction. After the war ended, Braddock Light & Power merged with Pepco who was in need of more power for Washington, DC (Montanari).

At its opening, Pepco installed one 80,000 kilowatt generator with the plans of increasing the amount of generators quickly. This state of the art generator was the largest of its kind south of Philadelphia at this time (Montanari). The boiler was 11 stories tall, used 33 tons of coal per day, and needed 75,000 gallons of water per minute to keep cool (Lyons). The water was collected under the current wired bridge on the Mount Vernon Trail. After the water was heated for steam to power the generator, it was returned to the Potomac River slightly south of the building. The Potomac River Generating Station had five operating generators by 1957, and the plant was slated to last 40 years (“New 103,00 KW Unit Put in Pepco Service”).

In the 1970’s, the government began to learn about power plant pollutants such as sulfur dioxide. Therefore, clean air measures were created for PRGS starting in 1975 decreasing the pollution of the plant. These changes resulted in new hot gas precipitators for each generator to capture the ash before being released. The precipitators caught 300 tons of ash a day that would in turn be taken to landfills (McCombs). The precipitators hide much of the building’s original architecture, and give PRGS its riverfront appearance known today.

In 1983, PRGS operated at maximum productivity with all five generators creating enough power for 170,000 people. The plant also consumed 35 railroad cars of coal a day brought in through Robinson Terminal and 300,000 gallons of water per minute from the Potomac River (Burgess). At this time, the plant was 34 years old and an important decision was to be made: to keep the plant and make modifications to it or to build a new plant for the area. The result was to keep the plant open, as it was cheaper to refurbish it in hopes of it lasting another 35 to 40 years (“Pepco To Extend Power Plant Life With Overhaul”).
Citizens, local government, and environmental groups began the push to close the plant in the mid 2000s. By the end of its tenure, PRGS operated at less than 20% capacity and supplied fewer than 2% of the overall energy to the region due to new clean air laws (Hibbard et al., 6-7). Even operating at reduced capacity, the plant was often fined for civic penalties and exceeding pollution limits. Additionally, research provided by the American Clean Skies Foundation determined the plant could be retired without affecting DC’s power supply and help the local community through the reduction of air pollution and greenhouse gases (Potomac River Green). Ultimately, the fines and research, increased costs for a cleaner operation, and increased pressure from nearby residents closed the plant on September 30, 2012. The building is now abandoned; however, GenOn, the current owner of the property, still holds the original 88-year lease on the land and Pepco operates a substation on the 25-acre site (Sullivan).

The site will require environmental remediation to redevelop the brownfield due to its industrial past. Contaminants include polychlorinated biphenyl [PCB], fly ash deposits, fuel oil residues, and asbestos. Asbestos insulation originally encased the turbine and boiler rooms. The northern facade of the building remained constructed by asbestos sheeting through the 1950s so new equipment could easily be moved into the boiler room (Lyons). Soil contamination at the coal storage pile area and ground water contamination at two underground petroleum tanks continues to pollute the site today (Sullivan). The existing contaminates along with the voice of the community has led to the decision to re-envision the site with a new design solution while maintaining materials and elements from the existing building to retain its history.

1975-New precipitators are installed giving PRGS its current appearance.

1980

1985

1990

1995

2000

2005

2010

2013-The site contains an operable substation, but environmental issues loom such as asbestos, PCB, and soil/groundwater contamination.

September 31, 2012-PRGS permanently closes its doors after only producing at 20% capacity due to clean air laws.

1983-Moderate renovations expand PRGS’s original 40 year lifespan.

2000s-Citizens, local government, and environmental groups begin the push to close PRGS as ownership changes to Mirant and lastly GenOn.
The main entrance to the site is on North Royal Street. This location is still monitored due to the operating substation and offers the most unobstructed view of the property. All of the equipment to move and treat the coal remains abandoned near this entrance.

Along the rest of the property line is an eight-foot security fence with planted trees. The fence and plantings obstruct the views of the power plant to function as a visual buffer.

The Mount Vernon Trail sits tiered slightly lower than the PRGS site. The bike route offers views towards Washington, DC and cantilevers over the water’s edge at the generating station’s water intake location. At this location bikers get the closest look at the environmental additions to the power plant; however, the original brick structure remains barely visible.
Old town Alexandria is a largely residential community with two dominant axes of retail, public space along the Potomac River, and offices and mixed use communities along the metro line and northern Old Town. The site is adjacent to mainly multifamily residential apartments, condos, and townhouses; however, there are offices along the waterfront and George Washington Parkway, interspersed commercial buildings, a local theatre, and a hotel in the surrounding neighborhood. The site is also bookended by two public parks. The diversity of uses in the neighborhood leads to a variety of possible options for the future of PRGS.

The power station itself blocks all potential views toward DC from this neighborhood. There are currently five entrances into PRGS: three street entrances and two entrances along Mount Vernon Trail. Most of the site’s edge has a steep slope because the land was leveled for the power plant. Consequently, there is a 45’ drop from the George Washington Parkway to the water’s edge, 20’ at the parkway and 25’ past the site’s property line toward the water. The towering chimneystacks are 193’ tall making them one of the tallest structures in Alexandria.
The Kennedy Center is one of the busiest and largest performing arts centers in the United States. The building is a staple to the Washington D.C. waterfront, yet the center did not address the waterfront until 2015 when a new expansion project was announced.

At the confluence of the Potomac and Anacostia rivers is another recently closed power plant. The building is to be adapted and DC United selected the neighboring site for its new stadium location.

One of the three airports in the region, Reagan National Airport is the only airport to be located within the metropolitan area. The airport takes up 1.5 miles of the Potomac River coast and provides passengers great aerial views of D.C. and the PRGS site.

The location of the project’s site. The power plant closed in 2012. As it stands, the building blocks views and disconnects Alexandria from Washington D.C.

The Torpedo Factory opened at the end of World War I and operated until the end of World War II. However, for the past 30 years the Torpedo Factory has functioned as an art studio and gallery. Its surrounding public space is the busiest area of Alexandria and the waterfront.

National Harbor is a development that opened in 2008. It is the newest addition to the Potomac River waterfront. The new city contains a variety of hotels, shops, and offices and is well used despite lacking an identity due to its artificial atmosphere and short life.
HISTORY OF THE ALEXANDRIA WATERFRONT

The Alexandria waterfront always functioned as the heart of the city. While the city has been deeply rooted to the Potomac River since its inception, the fabric of the waterfront has changed drastically over time. Originally, Alexandria and its surroundings were known settlements of the Tauxenent and Nacotchtank Native American tribes. Native American life along the Potomac River can be dated back to 13,000 B.C. and continued until the mid 17th century with the arrival of Europeans (A Brief History of Alexandria).

When Europeans arrived in the mid-17th century, they began settling the land for tobacco farming and a port, but the founding of Alexandria did not occur for nearly 100 years. In 1749, John West, with the help of a young George Washington, laid out 7 parallel and 3 perpendicular streets along the Potomac River to create the port city of Alexandria. Part of the river was later filled in to complete the city grid and create a deep port location. Through the 1850s, Alexandria thrived in exporting various goods due to being the northernmost port along the Potomac River. Eventually, Baltimore took much of Alexandria’s port activity away, but Alexandria had established its dependence to industry.

Hardship left by the Civil War resulted in the next major change for Alexandria. With the rise of industry, Alexandria’s waterfront became a primary location for factories and warehouses in the DC area. Additionally, Potomac Yard became one of the largest rail yards in the United States. During this era, the PRGS site was purchased and the building was constructed. Therefore, at the time of completion, the power plant conformed to the rest of the waterfront.

The 1960s marked the start of Alexandria’s mission to make the city as it is today. Alexandria was one of the first cities in the United States to establish a historic district (A Brief History of Alexandria). From this urban renewal, Alexandria returned life to the waterfront through a series of public spaces to be utilized by Alexandrians and tourists. Most of the improvements occurred in the core of Alexandria near King Street and the waterfront south of PRGS. Alexandria’s Department of Zoning and Planning’s goal is to create “… continuous access and accessibility along the river. The plan calls for continued investment in our existing parks, inspired by art, history, and the environment, and adding small scale recreation in many locations along the waterfront.” (Alexandria Waterfront, ix). The diagram on the left states the goals for each key site of the Alexandria waterfront leading up to the PRGS; however, no decisions have been made for this site.
This analysis focuses on the various users of the Alexandria waterfront as well as the intensity of use for these areas. The color emphasizes who is using the space, and the deeper colors mean more people utilize that region. The most underused parks along the Alexandria waterfront are just south of PRGS where office buildings control the water’s edge [1]. Therefore, the PRGS site creates an opportunity to revitalize the northern Alexandria waterfront through a new public domain.
Public transportation is an important aspect of how to link the PRGS site back to Alexandria and the Washington, DC metropolitan area. The focus area of this study is a one-mile radius around the site. The study includes multiple modes of transportation to and from the site.

**METRO**

The metro is one of the most integral aspects of public transportation in the DC area. Currently, Braddock Road metro station is the only station within one mile of the site. However, there are plans to construct another metro station at Potomac Yard by 2016. This station will be within a mile of the PRGS site as well, and both stations are along the blue and yellow lines.

To incorporate the metro system into Alexandria and the new PRGS site, a light rail system will be introduced. The light rail will utilize existing unused rail lines that connect Robinson Terminal North to the Braddock Road station. This will help connect all metropolitan residents to the PRGS site and northern Old Town to King Street.

**BUS**

Two bus companies service Alexandria, the Metrobus run by WMATA and the DASH Bus run by the Alexandria Transit Company. The Metrobus’s 11Y express bus currently runs directly by the site, and it could help employees travel to the site or get residents to DC. With minor rerouting, the 29K and 9A/E buses could easily connect the PRGS site to Fairfax and the Pentagon. The DASH AT2 and AT4 directly go by the site as well. These buses connect the site to Lincolnia and the Pentagon.

In addition to the buses, DASH runs a free trolley service. Two trollies currently run on King Street from King Street metro station to the waterfront every 15 minutes throughout the day. To connect all of Alexandria better, a third trolley will be introduced to extend four blocks to Robinson Terminal North and the newly proposed light rail station. The new trolley line helps produce a loop of circulation to surround northern Old Town.

**BIKING**

On either side of the site, the Mount Vernon Trail connects commuter and social bikers from Mount Vernon to Theodore Roosevelt Island in Arlington. Currently, this section of trail is worsened by the domineering presence of the power plant. Improvements to the site will create a destination for bikers to appreciate the views toward Washington.

Throughout the streets of Alexandria, bike lanes are beginning to be implemented. However, there are no dedicated bike lanes near PRGS. There is a recommended bike route along Pitt Street that runs perpendicular to the site. This bike route could become better established and run through the site connecting it to the Mount Vernon Trail.

To support this new transportation system, a new transit station will be built to hold a bus terminal, light rail stop, bike racks, and bike rentals. The PRGS transit station will function as an entrance to the site to support public transportation. Additionally, a ferry terminal will help connect this new waterfront district to the Georgetown, Alexandria, and National Harbor waterfronts.
Several urban planning concepts were also used to begin thinking about how the site could be utilized. These urban planning concepts include the grid, garden city, and city beautiful.

The grid plan has existed throughout history and is the way Alexandria was laid-out in the 1700s. Incorporating the grid to the PRGS site extends the current vernacular of Alexandria’s city planning. The solution is simple and creates possible layers of development that are similar to the south of the site.

The garden city movement is a utopian idea introduced by Ebenezer Howard in 1898. Through this concept Howard introduced a radial plan of a self-sufficient community that could be linked via railroad to other garden cities. These cities are surrounded by farmland with industry encircling the city. Moving from industry inward is housing, schools, parks, and lastly civic buildings at the center (Howard, 22). The sketch implements these ideas as the site is centered around the waterfront leading to Washington, DC. There is a transit station to connect the site and offices near the existing rail line to represent new industry. Further central is the housing ring with a central public green space followed by civic buildings and public gardens at the center. The axis from the transit center to garden city center is a pedestrian boulevard similar to Howard’s main boulevards.

The city beautiful movement is best summarized by the 1893 Columbian Exposition in Chicago. This movement was to create a “harmonious development of the civic landscape… uniting public buildings with one another and with the landscape.” (Bluestone, 245) The city beautiful scheme implemented on the PRGS site focuses on a formalized axis towards Washington, DC. A new waterway creates a pool for people to gather around along with various civic structures. The new transit station is prominently located at the end of the axis and gardens are on either side of the main civic buildings.

Three potential schemes were developed to begin a conversation and understanding of the site. All three schemes utilized the concept of improving the connection of the site via transportation by incorporating a transit station and ferry dock.

The first scheme creates a cultural node with a theatre to coordinate with the neighboring theatre company, a marketplace for art shows and markets, artist resident housing, a hotel, and an office building. The new neighborhood would extend the public realm of the Alexandria waterfront and create a new destination for the Washington, DC area.

The second scheme proposes a community addition to Old Town by developing a recreation center, a mixed-use building near the water, and townhouses near George Washington Parkway. Additionally, a wooded walking trail would create a new type of park space along the Alexandria waterfront. The scheme fits in comfortably to the existing fabric of Alexandria, but provides new uses for the city and surrounding neighborhood.

The last scheme attempts to extend Old Town. This scheme is the most similar to the adjacent neighborhood. As opposed to keeping the traditional grid, the streets curve to close the city grid and bring emphasis to the waterfront. The site contains a waterfront hotel in the commercial area and a central road holds mixed-use offices and apartments followed by townhouses bordering Slater’s Lane. This is a more conservative plan that coordinates with many of Alexandria’s waterfront goals.

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To gain a better understanding of the possible program for the site, this graphic compares the PRGS site to regional locations. The site is the same size as eight Alexandrian blocks and could contain a new waterfront area like the Torpedo factory with an adjacent park. The nearby Marymount University campus in Arlington, Virginia could comfortably fit into the site. Marymount University has a total enrollment of 3,600 students spread over the main campus [shown] and two regional satellite centers. While a building like the Kennedy Center could fit into the PRGS site, a program as large as the Kennedy Center would be out of scale within Alexandria’s urban fabric.

From the program study and previous studies of Alexandria, I decided to pursue the concept of creating a campus for the Virginia Tech Schools of Visual and Performing Arts. Virginia Tech does not have a center for the arts in the DC region or elsewhere in the United States. The schools could benefit from programs in a city to expose their students to the diverse cultures and experiences that are found in the Capital Region. The program will encourage undergraduate semester length and full-graduate studies. The headline theatre building will hold exhibits and performances to connect the lost site back to the urban environment. Strong connections with Metro Stage, the Kennedy Center, and Torpedo Factory could give students a unique experience during their schooling that is not available in Blacksburg, Virginia. The campus additionally creates diversity for the area and becomes a new destination along the Potomac River waterfront. This diversity will attract new people to Alexandria and expand the tourism area of Old Town that currently ends at Founder’s Park. This campus will become the connection to link Washington, DC to Alexandria.
The campus will support a student body of 2,000 with 750 semester-term students living on campus. Student housing on campus is important to maintain a constant presence in the new district. This will spur activity and development neighboring the site, at Daingerfield Island, and the new Potomac Yard. The growth will help blend the detached current regions together to create a better sense of community in Northern Old Town. Other buildings include various educational buildings, student life centers, public retail space, and a multi-stage theatre complex.
These four categories of buildings create layers to the campus. Each layer of the site has a different edge and node similar to a city. Various path environments connect and separate the university districts while the existing chimneystacks are the campus’s landmark. The concept of layering through these elements is influenced by Kevin A. Lynch’s *The Image of The City* where Lynch simplified the city into five elements: districts, paths, edges, nodes, and landmarks (46-90).

**Districts**

There are four districts that identify and create the university: theatre, educational, recreational, and residential. Each district creates a different atmosphere based on the location, program, landscaping, and open space.

At the southernmost point is the theatre district. This is in the most visible section of the site with direct views toward Washington, DC and direct access to Alexandria and the Mount Vernon Trail. The spaces within this area are oriented to the Potomac River or the theatre, and it functions as the entry to the site by all modes of transportation. Within this public zone are the student studios, galleries, and theatres. The ground floors in this district contain shops, galleries, and a small cafe. This blends the educational aspects of the site while still being open to the public.

The next most prominent district is the educational district. The educational district holds the other academic buildings on the site and connects to East Abington Drive and the George Washington Parkway. The buildings here are closed to the public but visually open. Public space in this district is scattered with small gathering places for students during and after school hours.

The recreational area holds the student union, recreation center, and sport fields for the student body. This area is set back from the prominent entry into the site and is visually disconnected from the public. The recreational district is characterized by the open space provided for various school events and activities.

The last district is the residential district. This area covers the footprint of the original power plant and creates its own court for everyday student activity. Within the court are views toward the Potomac River. The area is private and acts as the heart of the campus for the students.
Edges

Distinct edges border each side of the original PRGS site. A rail line and row of trees separate the site on the southern edge consequently creating a space between the residential areas to the south and the power plant. This border needed to be softened for the transition to a university. To do this, each perpendicular road now penetrates the edge of the site. This brings people into the school and connects the campus to Old Town Alexandria’s grid. The unused rail track will now be used as a light rail to connect the campus to a metro station and historic Old Town.

To the west of the site is the George Washington Parkway. The parkway will resume its current use but will now have an entrance into the site on Abington Drive, the road running parallel to the parkway. The existing perimeter fence and some of the shrubs that bordered this edge will be removed. While a pronounced edge will still exist to the west because of the change in elevation and limited access, the edge will be softened. Slater’s Lane currently borders the northern edge of the site. This road serves the Marina Towers and four office buildings. These buildings and the road gives the site a distinguished unchanging northern border. The new campus will have a garage entrance on Slater’s Lane but no building entrance will face the road. The eastern border is the most distinguished edge of the site. Here, the Potomac River and Mount Vernon Trail create a hard edge. Moreover an increase in the topographical slope near the residential area will help separate student life from the public trail.

Within the campus are several soft edges. The most prominent edge is the pedestrian path that separates the residential and theatre districts from the educational and recreational districts. Additionally, a service road and change of elevation at the theatre’s north facade helps define the public realm from the private student area. Similarly on the western side of campus, a line of recreational programmed space creates a soft edge to divide the educational quad from the student life space.

Paths

Paths within the university are important to connect the site to Alexandria and the Mount Vernon Trail as well as to guide students to and from their classes. The existing PRGS site had no public pathways within it and the secured entrances were limited to five locations. However, adjacent to the site is the Mount Vernon Trail. This prominent trail became a crucial way to integrate the university into its larger context because of its heavy usage. The current path of the trail is kept to retain privacy for the university, but the recommended bike path on Pit Street now carries through the site to create a pedestrian promenade. This wide promenade is only accessible to utility vehicles or for special events. The street will become the core of the university as students progress through their daily lives. At the north end of the promenade, the path bends towards the water to disconnect the university from Marina Towers and connect the path to Mount Vernon Trail.

Paths within each district also vary based on the program. Near the theater, all the paths are directed toward the atrium to invite people into the space. The educational district has direct paths between the buildings while the recreational and residential districts are open to promote leisure activities and diversity of use.
Nodes

Nodes are an important aspect of the campus to diversify the public space and create a specific atmosphere for each district. The theatre district has large nodes in which people can gather before and after a show. The first node is at the entrance of the site from the transit center to the theatre. This formalized entry is lined with benches, trees, and fountains create interactions and various spaces that people can gather. Within the theatre building, the lobby functions as a place for people to converge at all times of day. The lobby contains various spaces that are accessible to students and guests during off hours including a café, an impromptu performing space, and lobby seating. The amphitheater at the southern tip of the site will be used for free performances hosted by the university and an outdoor gathering space to study and relax while looking toward Washington, DC. Along the Mount Vernon Trail, two seating levels are built into the topography. This area will serve people using the trail as a spot to take a break. Additionally, the ferry dock serves to connect both residents and students from Georgetown to Mount Vernon. The last node in the theatre district is the studio courtyard gallery. This courtyard will blend activity inside the building to the outside through gallery spaces and café seating.

The educational quad has a different type of outdoor node. Here, small gathering spaces and courtyards will promote small interactions with fellow students before and after classes. During class the spaces could serve as a quiet place to study. These courts blend into the space at the entrance to the recreation center as students wait for others to go inside or to class. The recreational district’s nodes are a multipurpose field for intramural sports and an outdoor eating area attached to the student union. Lastly the residential area consists of two nodes. To the south is a tree-lined space. This space is aligned to the cafeteria to function as a place to eat lunch and work at picnic tables. The other node is around the pre-existing chimneystacks. This is a place of leisure for students to throw a frisbee, sunbathe, or hold student events.

Landmarks

The landmark, or point of reference, of the site will remain, as it is today, the chimneystacks. However, the goal is to transform the way people think of these five chimneys. Currently, the chimneys are thought of as an eyesore and a representation of the pollution of the site. With the university, the chimneystacks will represent a movement to the arts and a creative way to repurpose lost elements of our built environment with new life.
Copenhagen Opera House – Henning Larsen
Copenhagen, Denmark

Another project I visited during my study abroad, the Copenhagen Opera House, creates a visual connection to the rest of the city across the harbor. The auditorium inside the building is its own element, and the opera house is on axis with other important buildings in the city. Views throughout the building link its visitors back to Copenhagen connecting a once lost industrial part of the city.

Norwegian National Opera and Ballet – Snøhetta
Oslo, Norway

I first learned about this project from a lecture by Craig Dykers, a founder of Snøhetta, and I visited the project on my study abroad in 2011. The building inspired me to think about how a theatre could be engaged by the public throughout the day. The opera house’s accessible roof and public lobby socially activate the space. The project also created a new cultural destination in Oslo’s industrial harbor.
Antoni Gaudí’s work influenced me greatly during my semester in Barcelona. Specifically the columns on the southwest facade of the Sagrada Familia and the arcade at Parc Güell influenced how I interpret columns. Throughout Gaudí’s work is the use of geometric and organic forms to create a rigorous yet beautiful structure. The angled and branching columns and hyperbolic arcades influenced the structure within the ribbon of the PRGS theatre.
Bing Concert Hall – Ennead Architects
Stanford, California

This concert hall located at Stanford University creates a variety of gathering places. Public circulation encompasses the concert hall and allows for interaction throughout the building and connections to the outdoor spaces.

Frank Sinatra School of the Arts – Ennead Architects
Queens, New York

This high school combines but separates academic functions with the program of an operating theatre. Additionally, the building connects to the community by creating a transparent main facade to reveal "rehearsal and studio spaces within, enlivening the street and conveying openness and accessibility."

(Frank Sinatra School of the Arts)
The initial concept was to make the theatre, front of house, and back of house equal. Therefore, a vertical relationship of the three major spaces evoked the concept of equality in each aspect of theatre: the creation of the show, the activity of going to the show, and the performance itself. Instead of creating a layered building that went from public to private, the back of house would be visually connected to the public, but not physically. These spaces would generate a liveliness that could be experienced by guests and students throughout the day. From this concept, the idea expanded to encircle the front of house and theatre with the back of house space. The active studios, workshops, and circulation would front the public sides of the building while classrooms and offices would be located away from the public edges.
This diagram represents the development of the ribbon around the building. The ribbon began as part of the visual front along the Potomac River. Through its development, the ribbon turned to wrap across the entry of the theatre lobby to create a front entryway and continued as a method of circulation to encircle the entire building.
The ribbon holds all of the studios and workshops and functions as the students’ primary circulation path. The main column’s principal form represents a dance lift and the space functions as a stage to the city. The exterior steel column leans inward to invite people into the building and splits upon the activity in the raised ribbon. At the roof, the two arms of the column meet horizontal steel beams that support the roof and lead back to the structural concrete core. Two concrete columns support the ribbon. The core is left open on the first floor to create a passage to the theatre, but the columns grow as they continue up to become the floor of the ribbon. On the ground level, the columns create an arcade for circulation and gathering. Above, the columns create rooms for various academic uses to be on display of public eyes.
An exterior skin covers the ribbon and interacts with the sun and the building’s users. This sun-shading system is attached to the curtain wall along the sun-exposed elevations. The diamond metal mesh design can completely screen the ribbon or fold in to allow for maximum visibility and light. This layer to the space creates openness at night while providing a barrier through the day. Additionally as the sun circles the building, the shadows within will be in motion creating a performance in itself.
The focus of the campus and the design narrowed into the theatre and its surrounding area. As with the site, the theatre and its grounds include levels and layers that enhances the experience of the building. Each area outside creates its own experience. The amphitheater is partially below grade to maintain views of Washington, DC from Fairfax Street. The amphitheater’s curve continues with the landscape to create a tree-lined sitting area that doubles as additional amphitheater seating and encloses the space. Along the Fairfax Street approach is the primary car drop-off point for the theatre. Here, several paths intersect through the planted area to create multiple levels of people coming towards the theatre. Additionally, cars can continue to the underground parking entry beside the transit station for a smooth traffic pattern. To exit, the cars will leave from the other side of the promenade to access George Washington Parkway or head south to Alexandria directly.

North of the amphitheater is the reflecting pool. The reflecting pool brings the Potomac closer to the theatre. The pool’s size and shape covers the existing water run-off pool for the 30-day coal pile that stood at the theatre ground’s location. This helps layer in the existing boundaries of the power plant into the new landscape creating a physical history of the site. Furthermore, the hill that once was a barrier between the Mount Vernon Trail and the site will now incorporate terraced seating to connect students and trail users. Beyond the bike trail is the ferry dock. At the entry of the ferry dock is where the water from the power plant would exit. Now, this location functions as a gateway to show the new utility of entertainment and culture to the once industrial site.

The main axis of the theatre grounds is to the left of the car access point. At this location, the transit station is opposite to the theatre lobby. The station links the Alexandrian community by encircling the northern half of Old Town Alexandria with accessible public transportation. Guests will be able to gather with their parties along the tree-lined promenade upon arriving to the station. The rows of trees are an extension of the building’s columned arcade to lead guests into the building. The columned arcade surrounds the public edges of the theatre to become a public pathway for people to get a glimpse of the theatre’s activity.
The building itself has three primary spaces: the 750-seat proscenium theatre, the 150-seat black box theatre, and studios and classrooms. The idea of an equal relationship was implemented to these programs. The building has three fronts: a public main entrance for guests, a visual front facing the Potomac River that showcases the values and activities within the theatre, and a back entrance for students to access the building. To show respect to each of these primary elevations, the main theatre is on axis with the city grid, the circulation and black box theatre are rotated to relate to the river, and the student entry is at the end of the primary ribbon behind the theatres.

As people enter the building, the columns double to support the ribbon, but also to create gathering places for guests. Near the main entry is the ticket and information desk. The desk is situated under the grand stair and acts as a dividing point to guide visitors. There are four entrances on the ground floor to the main proscenium theatre. In front of the rear theatre entry is the main waiting area where guests can gather on the double height stairs. The stairs also function as an impromptu performance and lecture space. The wooden slats of the theatre create a visual and acoustical layer between the walls of the theatre and the lobby space. The black box theatre can host performances at the same time as the proscenium. This theatre has multiple seating layouts to support various types of performances. Layouts include thrust, end stage, and promenade seating (Strong, 10). The black box theatre walls are a combination of new concrete bricks and existing bricks from the power plant. More than 2,250,000 bricks were used to build the original power station with more used to complete the building thereafter (Lyons). The salvaged bricks will also be used at the rear façade and throughout the campus’s landscaping. Along the water’s edge the interior transitions from the public promenade to the scene workshops. The building above rises to create a double height space for students to assemble the scenes before bringing them into the theatre. Behind the proscenium theatre contains all of the dressing rooms and storage needed to support its productions.

The second and third floors predominately consist of the ribbon. The ribbon is layered to change from public to private as it wraps from southwest to northeast. On the south façade, the ribbon holds the performance studios. The studios create a visual welcoming to the city of Alexandria. Along the Potomac River, the ribbon changes to a tiered gallery and lounge space. The gallery displays student arts that are not involved with theatre. The lounge is a space for students to gather as well as show a highly active part of the building to people passing along the river. North of the lounge are the private classrooms and workrooms. The ribbon splits vertically into two and becomes costume shops below and computer labs above. The seminar and lecture classrooms surround an outdoor courtyard space. This space is shielded from the public to create a better learning environment.
Cities are ever-changing organisms. Neighborhoods, streets, and buildings change quickly over time, and the need to re-purpose or vitalize lost infrastructure is a necessity in urban planning. The Potomac River Generating Station once fit perfectly into the industrial part of Alexandria, Virginia just south of Potomac Yard; however, the city grew north and evolved from an industrial city to a cultural and residential haven of Northern Virginia. Now, the last pieces of Alexandria’s industrial past are being transformed to fit modern day needs.

The creation of the Virginia Tech Schools of the Visual and Performing Arts near Washington, DC helps transition the closed power plant site into the present and future. The project will not only help diversify the city’s current population and amenities, but will also connect northern Alexandria to the greater metropolitan area through its industrial past, culture, and transportation. The theatre will bridge together the students with the city as it lets people get a glimpse into the many hidden layers of theatre production. Within the building is a vibrant atmosphere as students utilize the unique spaces daily and visitors come for events and performances. The layering of elements from the past with activities and visions of the future allows the Potomac River Generating Station to generate once again.
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