Gabriela Campagnol  
Co-Chair

For Gabriela Campagnol,

Your contribution to Modular Regeneration began long before the project’s conception. Your History and Theory course ARCH691 provided me information that confirmed my interest to focus my design on sustainable urbanism. Further, the inspiration you provided me search high and low for an impactful topic I could not only use for the last project in arch691 but for my thesis as well. Cultural regeneration, the concept I am so intrigued with, no matter location this concept always results in a unique product that is a direct reflection of the area’s people.

James Haliburton  
Studio Professor

For James Haliburton,

You have been a stupendous professor and mentor for me over the past one and a half year. Your ARCH631 course laid a tenacious foundation of practicality and structural concepts in Architecture that contributed to my understanding of tectonics. Those skills increased my ability to interpret then create an aesthetic that reflects a strong understanding of tectonics. Your universality, facilitated, and reinforced my design process, producing an ideal learning environment, therefore I was able to producing my best Architectural work.

Andrea Roberts  
Out-of-Department

For Andrea Roberts,

Before I began research I wanted Modular Regeneration to serve, advance and most importantly resort an African American community. You focus on serving BIPOC communities therefore I knew you were the best candidate for my out-of-department member. Your expertise in Landscape Architecture Urban Planning resulting in robust critiques enabling me to create then apply impactful design solutions, that reinforce the project’s goals.

David De Lima Vaz Xavier  
Chair

For David Xavier,

Your ARCH661 course provided me the opportunity to experiment with the concept of cultural regeneration. Which was extremely beneficial because your course allowed me to get ahead by learning from the mistakes that do not coincide with the concept. Primarily, your ubiquity throughout Modular Regeneration’s conception to eventual outcome was paramount to the success of the project. Plus, you taught me good design skills; “Aaron, what is your strategy,” this phrase will be preeminent with me forever, because it reinforces success, design or just life.
Design Concept: Cultural Regeneration

Modular Regeneration is a communal hub that integrates the physical, social, and cultural environment rebuilding the identity and sense of place in Northwest Goldberg. Located in the Northwest Detroit area, considered deteriorated. Northwest Goldberg is regenerating due to the resident’s ambition to assimilate, modernize, and improve their neighborhood. Ambitions manifest as converting blighted lots into plazas, market spaces, rock, and community gardens. This project has five goals to temper these initiatives into formal regeneration.

PROJECT GOALS

1. Promote advanced manufacturing for Detroit
2. Promote Northwest Goldberg's Artistic Culture
3. Promote Recreation
4. Promote Learning
5. Promote Commerce in Northwest Goldberg
Detroit's history gives way to understanding how the city succumbed to ruin. From the late 19th century to the early 20th Detroit grew exponentially due to the great migration, a huge influx in manufacturing, aviation travel, and connection to Canada. Around 1940 the city began to implement housing segregation imposing systematic racism on African Americans. This forced them to live in desolate unmaintained areas far from the factories, but the job market was still strong, so the city continued to grow. During the 60’s the civil rights movement raged and at the same time Berry Gordy an African American artists wanted to contribute to the activism. Therefore, in 1960 Gordy created Motown Records. Unbeknownst to him at the record labels start, Motown Sound would break down racial barriers and connect humans through music's sovereignty, globally, for decades to come.

The 60’s also marked the start of urban sprawl, steadily moving residence away, un-identifying the city center (Greater Downtown Detroit) causing consistent sporadic decay. Further, technological advancements in manufacturing decreased jobs, removing more people from the city entirely. Finally, Detroit experienced the Oil Crisis of 1973, the auto-bailout of 2008, then bankruptcy in 2014. Resulting in the population to decrease almost as quickly as it rose in the early 1900's. Detroit may seem disintegrated and blighted, cold, and empty, but the city's historic significance holds strong today. Regardless of their hardships, the city continues to be a hub for advanced manufacturing. The artistic culture spills paint but has no canvas to be seen on. An analogy to understand the city's history is a phoenix; collapsed in its own rubble, ready to rise a new life of its predecessor.
SITE SUITABILITY

Communal Hub is sited in the only area of Detroit experiencing population increase, the city’s center. Greater Downtown Detroit. Greater downtown is growing due to a surge in jobs, proximity to other large cities, and new building development. Six thousand and sixty-five people have made Greater downtown Detroit their home since 2015 (per census). The population in 2015 was 35,037 people and in 2020 it grew to 41,102 people. Composed of 12 neighborhoods, two forms of public transportation (Metro bus and Q-Line Streetcar) (reference Context Map to the right).

Detroit’s geographical location gives it a competitive edge as a logistical hub, due to it being within a 500 miles radius of Americas most popular cities: Minneapolis, Milwaukee, Chicago, St. louis, Indianapolis, Louisville, Nashville, Toronto, Niagara Falls, Cleveland, Washington, D.C., Philadelphia, New York City, Boston, Montreal, and Quebec City (reference Accessibility Map to the right).

To the right [Skilled City Map] illustrates Detroit’s densification of the city center. Greater downtown has become an expansion of the current employment districts. Bridging the gap between the west and the east, solidifying the two into one. This occurs because the new jobs in greater downtown are related to the employment districts market sectors. Flex-N-Gate and Adient are automotive advanced manufactures, while Microsoft and Lear create innovative technological solutions for them. Companies not related to advanced manufacturing and technology companies are providing work and creating a well versed skill range in the city.

Greater downtown Detroit is experiencing a rise in new development. There have been approximately 400 new restaurants created in downtown and midtown (reference New Development and Attractions Map to the right). The city has built several green spaces in downtown, Campus Martius Park being the most famous because this area hosts many events ranging food stand and market space to Christmas related events. There are many existing developments that are attracting people to the area as well. A lot of these bring investment for the city and are professional sport teams.
The Detroit Lions (NFL), Detroit Redwings (NHL), Detroit Tigers (MLB), Detroit Pistons (NBA). The remaining are famous hotels and event spaces: MGM Grand, TCF Center, and Comerica Arena. As seen on the new development map these attractions are all located within the midtown or downtown area leaving the northern sector mainly undeveloped; therefore, to continue the spread a new development within greater downtown Detroit the most suitable place for the communal hub is Northwest Goldberg.

Currently there are eight centers in Detroit that offer amenities to the city but none located in Greater Downtown. (Reference Need for Center Map below and corresponding date to the right) one can see that the existing community centers are scatter throughout the city. Currently there are eight centers in Detroit that offer amenities to the city but none located in Greater Downtown. (Reference Need for Center Map) one can see that the existing community centers are scatter throughout the city.
Northwest Goldberg is steeped in artistic culture. Berry Gordy founded Motown Music in this very neighborhood. There are three different art organizations that produce and influence on a regional and local level: Make Art Work, York Project, and Art Block. Make Art Work is a non-profit organization that creates paintings and sculptures for the city. York Project is a Garment manufacturer; for every garment purchased they donate an essential kit to a person experiencing homelessness in the United States. Art Block is a part of the Henry Ford Health System is a no cost requestable space for community groups, nonprofit and others to hold small events and meetings. The outside is decorated in graffiti by local artists. Next, some essential services (reference map to the left.)

The Map of Northwest Goldberg to the left indicates the present services in the neighborhood today. A police training facility and national guard office located within create a heavy government appearance within the neighborhood. There are four baseball fields within Bishop Park. Adjacent is Detroit Collegiate Preparatory high school, both spaces are noted as open space and educational on the “Essential Services Map of Northwest Goldberg.” Several amenities and retail spaces are spread out with the neighborhood.
Cardinal Health, a medical supplier, is the only healthcare facility within the neighborhood. There are many churches scattered throughout and are usually a few blocks from one another. The takeaway from this analysis is to find the area with the highest concentration of essential services. Communal Hub’s selected site highlighted in the lightest red on the “Essential Services Map of Northwest Goldberg” will be able to impact this area positively promoting commerce for these businesses, and the artistic culture.

Further, this neighborhood’s residence assimilate and rebuilding their neighborhood which is a sign of regeneration (Jacobs 171). Northwest Goldberg Cares mission since 2017 has been to revitalize, stabilize, and rebuild their neighborhood to its original greatness. To date they have restored three lots Art Park, Holland Maze Literacy Park and Rest & Ride Park. These Parks are used for community and rock gardens, plazas, and market space. Where communal hub’s is designed, nine abandoned buildings sit, although those nine building’s have been demolished there legacy lives on through the repurposing of their exterior material to communal hub’s façade.

To the right, rest and ride park is utilized for artistic expression. Above is the Holland Maze and Literacy Park containing a community garden and gathering space.

Curtis & Jones Park to the right is an initiative that Northwest Goldberg Cares is in the process of creating. Art Park, below is utilized for gathering space and artistic expression.
These four building's exterior materials have been repurposed and reapplied to Communal Hubs façade. Brown Blocks's historic character lives on and now can continue to serve through Communal Hub.
The change the communal hub will bring one might call gentrification. The communal hub does not gentrify Northwest Goldberg because “Gentrification means wiping out the social history of an existing community or turning that history into a marketable cliché (Angotti 2).” Communal hub reinforces the social history of the existing community by providing space for the artistic culture and activities carried out by the residents to be seen and made accessible. Next, communal hub regenerate Northwest Goldberg by utilizing their unique characteristics of to promote commerce for them, provide better housing, and create recreational and learning space. This will prevent the displacement of the neighborhood residence because, “Cultural regeneration is restoring and improving the quality of urban life through the enhancement of the unique characteristics of a place and its people (Wansborough & Mageean 2).” The ability to host outside events in the assembly hall and art gallery will promote commerce in the neighborhood. Further, the rentable spaces on the second floor will do the same. The essential services that surround communal hub give purpose to the addition of housing. These businesses will be patronized by communal hub’s resident because they are within a walkable distance. Motown Record’s global influence and the art organizations in the neighborhood have information that can expand minds; therefore the art library will tell this story. Jane Jacobs also reinforces this notion as regeneration as “We need to discern, respect, and build upon the forces for regeneration that exist in slums themselves” (Jacobs 171).

One of Communal Hub’s goals is to promote advanced manufacturing in the city. Communal Hub’s form and materiality needs to celebrate this monumentally to create a strong visual and symbolic correlation between the city and itself. Communal Hub is built from glulam beams manufactured in the employment districts (reference Skilled City Map).

These modules are four glulam beams joined together via a box joint then secured with a wooden dowel. To get these modules to fit together in a rectilinear fashion four variations were created (reference S.2, Construction Module Diagram). The chamfers in each module allow just about any rectilinear shape to be created. Then they are bolted to the cross column every 16” O.C. (reference the first images Module Connection Diagram on pg. 17).
The chamfers in each module create flexibility when organizing and creating space. They are bolted to the cross column every 16" O.C. (reference first image at the top of this page Module Connection Diagram). This Module also incorporates a Sound resistant floor assembly to increase privacy and make each space more comfortable (reference Sound Resistant Floor Assembly Diagram above). This is an aesthetic that reflects the manufacturing conditions of the city.

The diagram above is a display of typical joint intersections. The modular system’s flexibility allows for individual rectilinear forms or a continuous array. This is system will allow additions to be created with ease. Unbolt then lift, drop then re-bolt the modules until the desired form is achieved. This method of construction will adapt to the future generations needs and wants. Increase Communal Hubs stability and longevity.

Next, to generate communal hub’s form, strict attention must be paid to the surrounding context. Each portion of the communal hub programmatically correlates to an existing activity in the neighborhood. This is the communal hub building upon what is already there and not forcing new things. First, the area that the communal hub will occupy was identified. Second, orange illustrates those areas’ function will be an extension of the art culture. The green is recreational space that will blend the gap between the two artistic spaces. Third, the existing infrastructure was utilized to zone the site. Using the road lines, this guided the design to be a vernacular fit within such an awkward shaped site. After extruding, then dividing the mass into four to connect the site back with the area on all sides. To create a cohesive aesthetic to the building the houses cap the top of the four separated masses. At the same time this increases the porosity of the building and adds interest visually and through the modality of movement throughout Communal Hub.
To dive deeper into the programmatic lay out and correlation to the rest of the neighborhood (reference image above Asset and Cultural Correlation) diagram illustrates the hub being built upon and enhancing the existing conditions. The Motown museum (existing) is being enhanced by the assembly hall and outdoor music venue. The next important area, Art block, Make Art Work, and York Project are all being enhanced by the art gallery and art library. Second, the occupants that live in communal hub are extremely important they will support all the elements highlighted in dark red. Most are essential businesses with the exclusion of the Marble Bar. The community garden on the northeast end of the communal hub is a larger extension of the ones that are already being initiated in the neighborhood by Northwest Goldberg Cares.

The vegetation diagram illustrates the different plants that I have designated on site and what functions those plants serve (reference image above Vegetation Diagram). For example, the coniferous plants highlighted in red are large Wintergreen Box Shrubs that are a buffer controlling circulation and separate two hard surface uses from another. The water feature will absorb a lot of the water runoff from the places.

This feature can also be used later in the future for water collection and redistribution to the communal hub to increase sustainability. Lastly, the most unique aspect of the water feature is that it will freeze in the winter allowing the neighborhood to utilize it as an ice-skating rink. This will bring money into the neighborhood, and due to its size, the water feature will be able to support many occupants from all around the city.
Snowfall - November to April (4.5 months), average liquid equivalent monthly snowfall 0.5 inches.
Rainfall - most falls June to July, average total accumulation 2.7 inches.
Temperature - May to September (warm season), average daily temperature 73 degrees F. November to March (cold season), average daily temperature 25 degrees F.

The hub utilizes a study of the climate to maximize sun penetration in the winter to passively heat the indoor spaces (reference image to the left). The wind analysis showed an opportunity for cross ventilation which resulted in a concept of porosity. This also allows for sun and water penetration into the deepest areas of the communal hub to connect the occupant with the elements when outdoors.

Some other design decisions that influenced the communal hub’s form are views the occupants will experience. (Reference image to the left) illustrates the 360-degree view residents have of the development and the city. This will act as an extra security measure and keep this area alive at night, therefore, after the businesses close, the development will still have activity.
Upon initial inspection, Holden Street was a major barrier impeding the connection of the communal hub to the rest of the neighborhood. Therefore, the communal hub utilized a new format for Holden Street to assist the mobility of occupants from one side to the other. (Reference image to the right: Use Diagram). This redesign drastically slows down vehicular traffic while increasing the accessibility for pedestrians. This was achieved through 6 modes of traffic calming strategies.

First, “narrow lanes reduce speeds and minimize crashes on city streets by way of reducing the right-of-way and making drivers wary of traffic and adjacent users. Use the additional space for pedestrian space, cycle facilities, or green infrastructure” – Global Designing Cities.

Second, building and trees, buildings at the right-of-way with articulated facades and windows indicate that a street is in an urban environment, not a highway” – Global Designing Cities.

Third, “speed tables are like speed bumps, making motorists more cautious and wary of oncoming traffic” – Global Designing Cities.

Sixth, by removing the physical distinctions between pedestrian, cycle, and vehicular spaces, shared street treatments force all users to share the street, increasing awareness and reducing motor vehicle speeds” – Global Designing Cities.

Fourth, “pavement appearance can be altered through unique treatments that add visual interest, such as colored or pattern-stamped asphalt, concrete, or concrete pavers, which can be used to make other traffic calming techniques more noticeable to drivers. Pedestrian crossings and intersections can be painted to highlight crossing areas” – Global Designing Cities.

Fifth, “two-way streets, especially those with narrower profiles, encourage motorists to be more cautious and wary of oncoming traffic” – Global Designing Cities.
Level one harmonizes all five of Communal Hub’s goals: utilization of the modular system, promoting the neighborhoods’ artistic culture, making it visible and accessible through the assembly hall and outdoor music venue, art library, art gallery, and art block. Promoting recreation with the open field, community garden, water feature, gym, playground & calisthenics park. Promoting learning through the art library then promoting commerce for the neighborhood with the assembly hall. Detroit Dough, music and art supply store, and Crockett’s grocery. Next, this portion of text will uncover the unique flexibility the assembly hall provides. The assembly hall’s large operable door can be used to connect the interior to the outdoor music venue which can be used for an outdoor concert. The operable door can be used to drop off large auditorium seating (orange) by eighteen-wheeler trucks that will be put together in the assembly hall. Both performance areas allow for multiple activities to be happening at once without relation.
Level two generates commerce for the neighborhood through the assembly hall seven rentable office spaces, the gym, art library and gallery, reinforcing the overall goals. The Grand Hall which is horizontal circulation on the second level of the communal hub moves occupants from the art library and gallery to the rentable office spaces then the gym. This is a redesign of a typical hallway (reference image at bottom of page 30). Typical hallways are unsustainable and unfriendly. Needing to be artificially lit 24/7 and are not able to support collaboration of any kind. This innovation must be implemented in communal hub to reinforce the project concept. The large green spaces between the rentable spaces are to bring a nature element into the conversation. One will not have to go to the ground floor to experience green space because it is directly connected to their workspace. Further, the large voids in the roof and facade are connecting the occupants to the element on purpose. Just because one is inside of a building does not mean they are to be disconnected from the outside. To support healthy interaction and sustainability, communal hub balances the two.
The Green Way provides a safe, fun, and explorative adventure through fragmented green spaces overlooking the neighborhood and city by utilizing a series of green roofs connected by bridges that the occupants will meander around and interact with. The Green Way Floor Plan. The Green Way is a public space for the whole city. It hosts 360-degree views of the development and city, while guiding you through some of the most interesting moments of the communal hub. These range from large voids that connect the private housing level visually with The Green Way, the plaza, community garden, athletic fields, and water feature. One may access this space from two outdoor staircases and four interior social/egress stair options that are equipped with elevators for ADA access.
Lastly, this text will explain the design strategies utilized to create the housing level. The fourth floor of the communal hub hosts twenty-one, three-bedroom houses. These houses are designed in the image of the neighborhood homes. This strategy links back to the theory of regeneration, communal hub is building upon what is already there and not forcing new ideas or things. Second, each house has a minimum of 400 square feet of green space. These green spaces are the front and back lawn of the houses. The houses in the neighborhood are all twenty-four hundred to twenty-six hundred square feet, therefore communal hub’s houses are twenty-four hundred square feet. Most of the homes are three-bedroom houses with two full baths, kitchen, and living spaces so communal hubs’ houses minor this condition. These houses that are existent in the neighborhood have space between them, so communal hub’s houses do not share walls and even further incorporate voids between the houses to increase privacy, sun penetration, cross ventilation, and water penetration to the lower levels. Communal hub celebrates exposed elements, therefore, it is vital that the utilities of these houses are organized and located in one spot per house. To achieve this, communal hub utilizes a module containing all the utilities that can come from one large pipe. (reference Utilities Module). This module houses two full sized bathrooms, a large kitchen, washer and dryer, and a combination boiler, all in a 400 square foot area (20’ x 20’) (Reference Figure 5.20. Utilities Module). This also increases flexibility, enabling ease of modification.
In conclusion modular regeneration is a communal hub that regenerates the physical, social, and cultural environment through enhancing the unique characteristic of Detroit, Northwest Goldberg, and its residence. By creating physical improvements that celebrate the historic and social context of the neighborhood, communal hub does not gentrify; it becomes a catalyst for social and cultural identity, which provides a tenacious sense of place for the residence of Northwest Goldberg. Lastly, the implementation of better housing attracts, increases density, and solidifies the formal regeneration of Northwest Goldberg.

Modular Regeneration was created by Aaron Grimes while pursing a Master of Architecture at Texas A&M University. With Grimes's Master Degree, he earned a certificate in Sustainable Urbanism. Born and raised in St. Louis, Missouri, Grimes migrated to Texas for education, and job opportunity.

To my family:

Due to your love, not one trial and or tribulation, have I had to navigated alone. Thank you, for sacrificing so much of you, to enable me to fly.


Berry Gordy & Dr. King

Detroit Redlining [Segregation] Map
https://detroitography.com/2014/12/10/detroit-redlining-map-1939/

Detroit Vacant Lot Map
https://detroitography.com/tag/vacant-lot/

Deteriorating and Dilapidated, Detroit 1960

Windsor Tunnel Construction

Windsor Tunnel Construction

First Ford Motor Company Factory, 1903

Northwest Goldberg Photos
https://www.nwgoldbergcares.com/

https://globaldesigningcities.org/publication/global-street-design-guide/designing-streets-people/designing-for-motorists/traffic-calming-strategies/

Berry Gordy Holding Record