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PREFACE

"As an architect you are a builder. You are of course more than a builder. You need to be a militant, you have to be a poet, you have to be a visionary, you have to be an artist. But certainly, you have to be a builder. Everything starts from there."

- Renzo Piano

VISION STATEMENT

1255 Living promotes the quality of life for the community and users by providing an equitable urban living and working environment that embraces Atlanta's rich culture through pioneering and sustainable design timber strategies.



01 competition

1255 Living is a final study proposal, in response to, The Association of Collegiate Schools of Architecture (ACSA) TIMBER IN THE CITY 4: Urban Habitats Competition. The competition has a set of recommended design intentions that focuses on the interrelationships between housing, urban transit infrastructure, equitable living, and climate change. The competition challenges designers to embrace new sustainable and innovative design approaches and solutions by utilizing traditional wooden materials to design a unique living and working development. 01

Location Details

SITE - ARTS CENTER MARTA STATION

ADDRESS - 1255 WEST PEACHTREE ST. ATLANTA, GA.



Atlanta, Georgia



Midtown, Atlanta



Arts Center MARTA Station

The site is located in Atlanta, Georgia and sits directly on top and replaces the single use of the Arts Center Marta Station. The site offers both unique and challenging opportunities based on location, surroundings, and typography. A primary intention is to design an urban habitats proposal that can transform and reimagine the Arts Center Marta Station for the city of Atlanta. There are multiple interesting buildings that surround the site that strengthen walkability strategies that are to be taken into consideration, for examples: the high-density midtown Atlanta, High Museum of Art, Renzo Piano Arts Center, and The Savannah College of Art and Design. 01



The competition proposes a set of building programs that are collective in categories of an urban marketplace. short stay housing, and community use that total of 74,400 gross square feet. The programs proposed are intended to challenge the designers creatively to effectively propose affordable construction, a sustainable environment, and innovative solutions that promote long-term vitality and development for the city of Atlanta. The competition limits the mid-rise dense urban community to be consisted between 12-20 stories. 01

Urban Marketplace

Food, Wares, with Loading Areas and Access

The Urban Marketplace can serve as a fresh produce pick-up location, make commercial kitchen equipment available to small-scale producers, host nutrition classes and serve as an anchor for the local community. The following program elements and corresponding areas are recommended:

Market Subtotal		+/- 16,000 sq. ft.
Office	2 @ 100 sq. ft.	200 sq. ft.
Service	1 @ 100 sq. ft.	100 sq. ft.
Restroom	2 @ 200 sq. ft.	400 sq. ft.
Retail	6 @ 1000 sq. ft.	6000 sq. ft.
Storage	4 @ 200 sq. ft.	800 sq. ft.
Restaurant / Food Retail	4 Units @ 1400 sq. ft.	5600 sq. ft.
Commercial Kitchen	2 @ 1500 sq. ft.	3000 sq. ft.

Short Stay Housing

SRO, MicroHotel, Airbnb

The need for short stay housing and affordable urban housing is on the rise. Architects are in a unique place to envision innovative solutions to this short term housing market.

Short Stay Housing Spac 2 bedroom units 1 bedroom units Studio units	e Allocation 15 @ 1,000 sq. ft. 15 @ 600 sq. ft. 10 @ 500 sq. ft.	15,000 sq. ft. 9,000 sq. ft. 5,000 sq. ft.
Housing Support Spaces Lobby Office Exercise Room Storage Loading Dock/Waste	5	1,500 sq. ft. 500 sq. ft. 1,000 sq. ft. 1,000 sq. ft. 700 sq. ft.
Short Stay Subtotal		+/- 33,000 sq. ft

Community Use

Public, Accessible, Rentable, etc.

The community spaces should be multifunctional large-span spaces for events, sports markets, and other events that are envisioned to be able to serve community- wide events. The community spaces will serve local residents and workers from nearby neighborhoods as well as metro riders from all around Atlanta.

Community Space Subtotal		+/- 13,000 sq. ft.
Classrooms	2 @ 500 sq. ft	1,000 sq. ft
Gym	1 @ 2,000 sq. ft.	2,000 sq. ft.
Pool	1 @ 3,000 sq. ft.	3,000 sq. ft.
Locker Rooms	2 @ 500 sq. ft.	1,000 sq. ft.
Staff and administration	1 @ 500 sq. ft.	500 sq. ft.
Entry/lobby	1 @ 500 sq. ft.	500 sq. ft.
Large open indoor space	1 @ 5,000 sq. ft.	5,000 sq. ft

Subtotal Net Areas	62,000 NSF
Grossing Areas (Walls, Circulation, & Services) 20%	12,400 sq. ft.

74,400 GSF

"Wood is universally beautiful to man. It is the most humanly intimate of all materials."

- Frank Lloyd Wright





Soft City, David Sim



The Death and Life of Great American Cities, Jane Jacobs



Urbanized, Gary Hustwit

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The research process of this final study resulted into two parts with readings and precedent studies. The readings focused in depth to understand urban living, with relationship to, living vertically and how to generate a new life for a community while taking into consideration a city's function and surroundings. The precedent studies focused on both conceptual and built projects to understand a buildings form, space, innovative material use, and circulation patterns. Important design intentions that respond to the initial development of this final study proposal are from the readings: Soft City by David Sim, Death and Life of Great American Cities by Jane Jacobs, and Urbanized by Gary Hustwit. These readings offer a knowledge of understanding for designing in a city and how as a designer there needs to be a focus in urban planning to help promote a better way of living within cities. In Urbanized, Gary Hustwit writes, "urban design is the language of the city." This is a valuable design intention that is necessary when understanding that a design can affect everyday users. Jane Jacobs repeats the words, "city diversity", throughout her readings which is important to recognize the cultural heritage and economic mechanisms within the city. 02

These design solutions will capture the big ideas for sustainable techniques, a low carbon building footprint, advanced and affordable building methods, and creative approaches to promote diversity. Through research, investigations into precedents, and use of productive resources the final study proposal will further identify and embrace innovative design solutions to transform and re-imagine the Arts Center Marta Station for the City of Atlanta.





There are four main precedent studies that helped provide a sense of direction for this final study proposal. Each precedent study was analyzed to capture design concepts and solutions; which responded to the design intentions taken from the readings. The precedent studies researched are: Reinventer Paris by Michael Green Architecture, UN17 Village by Lendager Group, Culture Cashah by Lundgaard & Tranberg, and The Podium by MVRDV. The analysis of these projects showcases design concepts and solutions for wooden building materials, vibrant plazas, living in small urban spaces without losing a sense of community, modular form, solid to void relationships, flexible spaces, design elegance, private to public spaces, culture and social understanding, circulation flow, and mixed-use functions. 02













Réinventer Paris	Project Name
– MGA Michael Green Architecture	Architect
Réinventer Paris	Location
Conceptual	Design
Michael Green Architecture	Overview

Michael Green Architecture designs a project using timber with eleganance. The project has a flow of public circulation allowing a walkable advantage. Courtyards and greens spaces are created between pathways to bring nature into the heart of the circulation. Reinventer Paris establishes a unique character and builidng identity through its timber usage and design strategies. 04







	A A A A A A A A A A A A A A A A A A A	

Project Name	The Podium
Architect	MVRDV
Location	Rotterdam, Netherlands
Design	Built
Overview	MVRDV designs a very unique and interesting project in the heart of Rotterdam. This rooftop event space not only captures scenic views but showcases the strength of color to reflect and portray the diverse city. A pink appearance is highligted on the public vertical circulation, railings, and event space floor. 05









UN17 Village
Lendager Group
Copenhagen, Denmark
Built

Overview

UN17 Village explores a creative design approach of using a post and beam timber system in a modular form in response to a strucutral grid. The building is terraced to allow for daylighting opportunities, provide green spaces for users, create elevated courtyards and capture scenic views. UN17 uses the material timber in unique ways to give a sense of softness, safe awareness, and contemporay aesthetics. 06









Building Density

Walkability





Surrounding Uses

Landscape



Wind Direction

Solar Path



Interface Headquarters

Understanding the relationship between all-site conditions: typography, green spaces, accessible circulation points, street frontage, and surrounding buildings has generated the development and experience for 1255 Living. The design targets a direct response to all site conditions to propose an open and walkable living and working environment.



Woodruff Arts Center



Adjacent Green Space





Woodruff Arts Center Plaza



Arts Center MARTA Station



Typography Contour Lines



Arts Center MARTA Station Bridge

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"As an architect, you design for the present with an awareness of the past for a future which is essentially unknown."

- Norman Foster



1255 Living is an inventive design that explores creative design solutions to blend architecture, art, landscape, and technology by unique user experiences and function. There are multiple typology integrations surrounding the site that help create a unique design opportunity and approach that can focus on the interactions between residential living, urban market, and community use.



TIMBER INNOVATIVE

DESIGN

TYPE IV – MASS TIMBER CONSTCUCTION I 20+ FLOORS

URBAN VERTICAL LIVING

COMMUNITY to NEIGHBORHOOD to HOME

CAR FREE LIVING

LIVE I WORK I EAT I SOCIALIZE

VERTICAL GREEN

FLEXIBLE PLANTING DEFINED BY USER I SUSTAINBLE I REPLANTING







 I
 II
 II
 IV
 V

 SITE
 TERRAIN SLICE & GRADE REMOVAL
 MASSING
 URBAN MARKET & COMMUNITY USE
 TOWER



The design development of 1255 Living was influenced by the current natural typography and grade of the site. The proposal takes advantage of the current Arts Center Way NE street adjacent to the site to remain as a multipurpose ramp. As well, in response to wanting an established direct ground connection to the MARTA Station; the proposal excavates the site where a 12'-15' terrain slope occurs. This allows for the Urban Market to take place on the same elevation as the bus transit then as the ramp travels upwards, the Community Use begins.



Structure

Post-Beam-Panel

Prefabrication Methods Standardized Sizing Structural Strength + Stability Cost Efficiency Reduced Construction Time Deflection Service Integration Material Optimization Vibration Acoustic Performance Exposed Mechanical (2) HR Fire Rating Type IV - Heavy Timber Construction



Foundation

Pile Cap

High Load Capacity Lateral Spreading Seismic Soil Liquefaction



Mechanical

Variable Air Volume System

Individual Thermostats Low Maintenance Noise Reduction Flexibility Controllable Sprinkler Systems Equipped

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1255 Living is designed using a post, beam, and panel structural system, in response to, a 25 ft x 25 ft grid system. With two centered concrete cores, the primary timber construction methods use glulam beams and columns with 9 ply cross laminated timber floor plates.









The social stairs, railings, and public floors are highlighted in a crimson red to capture a sense of elegance within the project and to emphasize an important design intention being vertical circulation and user experience. Red is proposed ideally for all public circulation areas and is presented heavily on the exterior floors at the lower, mid, and top portions of the design to establish unique user experiences at each portion. Lower being a connection to ground perspective, the mid being a connection to building perspective, and the top being a connection to urban perspective. As well, red can be identified as prosperity, providing a sense of well-being into the project that promotes positive daily impacts on all users.



Floor Plan - Level 1



1 plaza 2 retail 3 mechanical 4 loading zone 5 service 6 restrooms 7 lobby 8 kitchen







Residential Urban Marketplace **Community Use** Proposed Proposed Proposed Market Subtotal +/- 16,000 sq. ft Short Stay Subtotal +/- 33,000 sq. ft. Community Space Subtotal +/- 13,000 sq. ft. Actual Actual Actual Short Stay Subtotal (w/48 units) Subtotal (w/40 units) +/- 39,000 sq. ft. +/- 34,000 sq. ft. +/- 14,500 sq. ft. Community Space Subtotal Market Subtotal +/- 14,500 sq. ft. Subtotal Net Areas 62,000 NSF Grossing Areas (Walls, Circulation, & Services) 12,400 sq. ft. 20% **Proposed Total** 74,400 GSF Subtotal Net Areas 68,000 NSF Grossing Areas (Walls, Circulation, & Services) 12% 8,000 sq. ft. 30% (Underground Bridge +12000 sq. ft) Actual Total 76, 000 GSF Residential Breakdown Proposed 2 Bed Unit 1 Bed Unit Studio 1000 sq. ft. 600 sq. ft. 500 sq. ft. **Outdoor Space** Non-Enclosed Actual **Roof Access** Front/Back Yard Garden Planting Social Space 1090 sq. ft. 625 sq. ft. 470 sq. ft.

2 Bed Unit *1 Bed Unit* Studio

625 sq. ft. 470 sq. ft. 470 sq. ft.

Subtotal 12,680 sq. ft Subtotal 14,000 sq. ft Mech Yard Subtotal 4,0000 sq. ft

Subtotal 4,0000 sq. ft

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1255 Living offers an equitable urban residential lifestyle that is unique to mid-town Atlanta. The housing aspect is focused at the 16-floor mid-rise tower where residents are exposed to contemporary, sustainable, and urban living design approaches. The tower has a design strategy that proposes a unique and innovative urban living condition for residents to experience and envision as if they were in a house. The tower is separated into two portions to create a total of four communities, eight neighborhoods, and forty homes. A community is collective of four neighborhoods and 20 homes. A neighborhood consists of two floors creating 5 homes.



NEIGHBORHOOD SECTION



NEIGHBORHOOD COLLECTIVE OF 6 UNITS 4 PRIVATE BACKYARDS 2 SOCIAL SPACES



KELLELLE

COMMUNITY COLLECTIVE OF 12 UNITS 8 PRIVATE BACKYARDS 4 SOCIAL SPACES



UNIT SECTION A SCALE : 1/2" - 1'-0"

UNIT SECTION B SCALE : 1/2" - 1'-0"

> The residential tower is structured with the living accommodations focused on the east and west sides with all home entrances towards the center. This design approach allows for a large open space to be generated at the core's entry/exit points on each floor; which acts as the intersection between both living sectors. The large open space offers an area for social interaction between residents creating a courtyard and front yard semi-public space for that floor. This semi-public space is proposed as an exterior space to minimize energy performance, allows natural ventilation through the tower, and connects each courtyard directly to the north and south site conditions. A design strategy that strengthens and joins each floors courtyard is the function and use of a vertical social circulation. These exterior social stairs are grouped by two floors to establish a direct neighborhood connection then alternates to either the north and south sides of the tower to provide a walkable approach as the vertical circulation climbs the tower.





1255 Living is designed to target the Living Building Challenge. The Living Building Challenge is a focus of design on seven principles called petals: "site: restoring a healthy interrelationship with nature, materials: safe for all species through time, energy: net positive energy use, equity: supporting a just and equitable world, health: optimize well-being, water: net positive water use, and beauty: uplifting the human spirit." Each of these petals have established and proposed unique and innovative design solutions to the project. 1255 Living targets the petals in these directions: "site: car free living and walkability, materials: embodied carbon footprint and use of recycled materials from local lumber mills, energy: use of natural ventilation airflow, passive cooling, and shading devices, equity: vertical green replanting and regrowth, health: cross ventilation for fresh air into units, water: rain water harvesting system is utilized for filter and reuse, and beauty: exposed timber to provide a sense to nature and feeling of safety to help lower stress levels."



TRANSVERSE SECTION SCALE : 1/8" - 1'-0"



SOUTH ELEVATION SCALE : 1/8" - 1'-0"



LONGITUDINAL SECTION SCALE : 1/8" - 1'-0"



There are two developed walkable connections to the Marta Transit Station: an underground pedestrian tunnel that connects from the heart of both bus and railroad transits to the center of 1255 Living where people are greeted at the main lobby, as well, a ground connection that joins the bus transit drop off and loading areas to a vibrant open plaza. 1255 Livings ground plaza acts as the center hub for the community; which promotes social interaction and provides a safe atmosphere for everyday users. The plaza helps directly engage the public to activities and programs happening at the urban market and recreational center. In addition, this vibrant space is surrounded by exposed timber to foster a sense of comfort, safe, and welcoming experience.



PLAZA

MULTI-FUNCTION RAMP

An important function happening at the ground condition that strengthens the walkable approach is a multi-purpose accessible ramp. The ramp utilizes the natural grade of the site's typography to create a 1:20 sloped usable space to walk, run, bike, and drive. The multi-purpose ramp runs parallel to Woodruffs Arts Center District and amplifies multiple circulation entrances connecting the Art Centers plazas and programs to 1255 Living. The design intention for the ramp is to have an interrelationship between sidewalks and the street to be functional as one safe and usable circulation space.







Staircase Entry from MARTA Station

Level 4 Public Space



Learning Stair Entry to Community Use





In conclusion, 1255 Living proposes an emphasis on the interrelationships between housing, urban transit infrastructure, equitable living, and climate change recognized from the competitions initial statement. The project achieves a sense of design excellence through: encouraging diverse users and services, preserving the cultural history of Atlanta, proposing innovative timber design and techniques, focusing on long-term vitality and economic solutions, considering the needs of the community and environments; while prioritizing a safe and vibrant space for the community, and providing the opportunity to give back to the city. The contemporary and elegance of the design performance optimally can serve as the driving force for socially, culturally diverse, innovative models for sustainable urban living and working in Midtown Atlanta. 1255 Living is inspired by the thriving Arts Center Marta Station and how urbanized living can integrate itself to the flow of circulation and function. 02

ENDNOTES

The Association of Collegiate Schools of Architecture (ACSA) is pleased to announce TIMBER IN THE CITY 4: Urban Habitats Competition for the 2021-2022 academic year. The competition is a partnership between the Softwood Lumber Board (SLB), ACSA and the Kendeda Building for Innovative Sustainable Design at the Georgia Institute of Technology. The program is intended to engage students, working individually or in teams, to imagine the transformation of our existing cities through sustainable buildings from renewable resources, offering expedient affordable construction, innovating with new and traditional wooden materials, and designing healthy living and working environments. This is the fourth competition in this TIMBER IN THE CITY series, and focuses this year on the interrelationship between housing, urban transit infrastructure, equitable living, and climate change.

With the continuous development of social economy, people are more demanding for architecture. Some advanced design concepts are gradually applied to the design of buildings. Under the concept of sustainable development, building integration design has also been widely used to promote the rapid development of architectural design. Integrated design concepts and sustainable development concepts play an important role to meet people's requirements.

The results of developing sustainable architecture are founded on the symbiosis of ecologists and architects. It began with these two professional groups proposing a change in the function of the building, i.e., a transition from a linear approach to a closed circulation plan. Therefore, from an ecological point of view, the plan of the building function has become a paradigm. In a linear pattern, the building is treated as a "place of processing natural resources into waste". For example, energy is "converted" into heat losses, clean water into sewage, fresh air is converted into used air, materials and consumer goods into classical waste. In a closed circulation plan, a building may change from a voracious consumer of energy and all other resources, into a more self-sufficient unit. It will be possible to use much less energy for heating in winter, and cooling and ventilation in the summer. Part of the water can not only be saved, but also re-used. Generally, a large amount of waste can be avoided altogether, or used again. The transition from one plan to another is evolutionarily.

- **()** Our proposal to transform Rosengard into a revitalized, dynamic, urban neighborhood is rooted in the desire to activate the district's social potential through the concentration and integration of new building forms, urban rooms, and landscapes into the existing monolithic urban structure. The variegated and rich layers of historic city centers provide the inspiration for a gradual concentration of the spatial, social, and functional lavers necessary for an attractive and dynamic urban quarter.
- 04 As part of the city's innovative Réinventer Paris 07 The LIVING BUILDING CHALLENGE is competition, our team (DVVD and REI France) proposed an inventive urban project called Baobab that would feature the world's tallest wood building at 35-storeys and would see Paris define the next era of city building. The project's innovations are multi-dimensional and extend beyond wood building materials and height. A new model of housing explores ways in which the next generation can live in small urban spaces without losing their sense of community. Combining an innovative mix of market and social housing, a student hotel, urban agriculture, a bus station, e-car hub and amenities, the Baobab project would foster the City's vision for a connected, vibrant metropolis. Spanning the eight-lane Peripherique and reaching new heights in sustainable wood building, the proposal would transform the Pershing Site into a gateway to the city and a model for future projects around the world.
- 05 The Podium will offer visitors a new perspective on the city, providing them with panoramic views of the skykline, the Museumpark, the Het Nieuwe Instituut and the Depot Boijmans Van Beuningen, also designed by MVRDV. Its striking design is inspired by the building on which it sits, originally designed by Jo Coenen. The structure is a testament to MVRDV's "ambition to make better use of the city's rooftops, an important approach to the densification of the city that will allow it to develop sustainably by avoiding urban sprawl while creating opportunities to add vegetation, water management and much-needed building functions."

- 06 The design team was selected ahead of bigname studios including BIG and Henning Larsen, in a competition run by property developer NREP. The proposal comprises five housing blocks built from recycled concrete and wood, as well as upcycled windows. The structures will rely solely on sustainable energy. Each will be topped with a rooftop garden, to encourage biodiversity, and will also feature rainwater collection facilities capable of recycling 1.5 million litres of water every year.
- an ever-evolving program shaped by the incredible experiences of our project teams as they continually break new ground. Over time, feedback from a diverse array of stakeholders actively using the challenge helps us understand how to refine and improve the program to have the greatest impacts.

BIBLIOGRAPHY

Culture Casbah. (n.d.). Nosegregation.tilda.ws. Retrieved March 25, 2022, from http://nosegregation.tilda.ws/culturecasbah Living Building Challenge | Living-Future.org. (2019, May 2). International Living Future Institute. https://living-future.org/lbc/ Réinventer Paris | Tag | ArchDaily. (2016, February 18). Archdaily.com. https://www.archdaily.com/tag/reinventer-paris Soft City, By David Sim (n.d.). UBC Press. The Death & Life of Great American Cities, By Jane Jacobs (n.d.). UBC Press. The Podium | MVRDV. (2022, March 19). ArchiDiaries. https://www.archidiaries.com/the-podium-mvrdv/ Un17 Village | Tag | ArchDaily. (2018, December 4). Archdaily.com. https://www.archdaily.com/tag/un17-village Urbanized, By Gary Hustwit (n.d.). UBC Press.

IMAGES

https://www.skylinescenes.com/products/midtown-atlanta-skyline-at-dusk https://www.nature.org/en-us/about-us/where-we-work/united-states/virginia/stories-in-virginia/va-how-we-work-longleaf-pine/ https://sustainability.uq.edu.au/projects/campus-grounds-and-buildings/better-buildings-designing-solutions-sustainable-architecture https://www.skyscrapercity.com/threads/roseng%C3%85rd-t%C3%B6rnrosen-tower-80m-26fl.845782/ https://www.interface.com/US/en-US/about/locations/Global-Headquarters-en_US https://www.itsmarta.com/Arts-Center.aspx

https://structurecraft.com/materials/mass-timber/cross-laminated-timber

https://www.designingbuildings.co.uk/wiki/Pile_cap

AUTHOR BIOGRAPHY

A little background about myself is I grew up living on a farm in a small town; where I developed a handson framework for understanding construction, materiality, and building assembly. This exposure while being young influenced and developed a mindset to appreciate the practicality of how architecture, engineering, and construction practices come together. This lifestyle and how I was raised guided my direction of academic studies and career path to target architectural design because to me architecture offers the opportunity to relate with my past experiences and knowledge; while moving forward with a purpose and vision as a pursuing architect. With this final study being directed towards a competition and to perform an academic architectural practice at a competitive level has achieved personal learning opportunites and through overcoming challenges have prepared me for the real-world experience. This final study has established an effective integration between the academy and professional practice. I have created a passion for architecture during my education studies with the intention and focus to design for others and the greater good through the skills and knowledge I can offer.


THANK YOU

