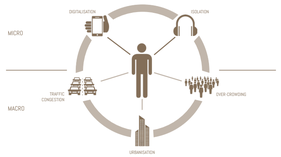
THE SENSE-SCRAPER

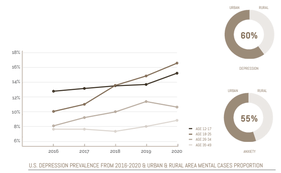
How can we sustain urban development meanwhile maintaining a healthy urban environment and lifestyle?

The project explores the issue of urban mental stress, and how biophilia can help to restore and rejuvenate our busy lives in the city. The proposal sees the site as an urban sanctuary, an escape from the concrete jungle.

Features such as indoor gardens, a multi-story waterfall, a bath house, nesting spaces for local birds, and a library sit alongside more traditional co-working and living spaces. Biophilic design is at the core of the project, followed by principles of multi-sensory experience and biomorphic forms and pattern, in order to enhance our physiological, cognitive and psychological connections to the natural world.

BACKGROUND





U.S. DEPRESSION PREVALENCE FROM 2016-2020 BI URBAN & RURAL AREA MENTAL CASES PROPORTION

MODERN LIFESTYLE - SENSORY DISRUPTION

The rapid pace of city life, the constant noise and lights, and the lack of green spaces contribute to sensory overload and have a significant impact on our mental and physical well-being. The hectic pace of city life leave people feeling overwhelmed, while the lack of open spaces and green areas can make it difficult to find a sense of calm and peace. These changes to our sensory experience can lead to increased stress levels, decreased mental clarity, and a sense of disconnection from our environment.

URBAN MENTAL HEALTH CRISIS

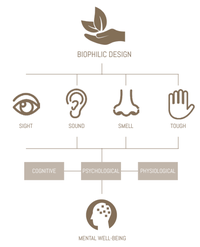
There are studies showing mental health has become a growing concern in the United States, as rates of mental illness and related disorders have risen dramatically in recent years especially for young adults and adolescents. According to the National Institute of Mental Health (NIMH), nearly 1 in 5 adults in the U.S. experiences mental illness, with conditions such as anxiety and depression being among the most common. Among, the cases proportion between urban and rural, the scale leans to the urban side, suggesting the neagtive effects of urbanisation on mental health.

LOCATION

As one of the largest city in U.S., New Yorkers are facing the overwhelming environment by rapid urbanisation in a daily basis. The proposed tower is located at one of the most prime area of the city - The Financial District in Manhattan., which are known for having limited green spaces compared to other neighborhoods, and the fast-paced and high-pressure area also contributes certain extent of stress and anxiety for local residents.

The selected site locates near South Street Seaport, which has a mix of residential and commercial buildings, surrounded by tall buildings. The proposed mix-use tower offers the third space for local dwellers that seek and foster sense of sanctuary in the urban.

CONCEPT



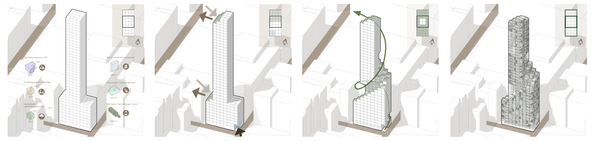
BIOPHILIC DESIGN

By using biophilic design as the core, followed by principles of providing multi-sensory experience in sight, sound, smell and touch, in order to enhance our physiological, cognitive and psychological connections to the natural world. Through this human-nature relationship, it aims to create a more healthy built environment by positive effect on well-being, and act as an retreat space in the urban density.

3 STAGES OF BIOPHILIC EXPERIENCE

Three stages - refuge, explore and prospect - provide a procession of spatial experiences that celebrate the biophilic journey. Materiality, texture, tone and light combine to create different sensory experiences. As stated in Roger Ulrich's article "Aesthetic and affective response to natural environments", biophilic experience and features reduces negative emotions and disliking, providing a restorative experience. Therefore, nature based features are the major component of the biophilic framework.

MASSING DEVELOPMENT



PROGRAMS PIXELATION

Programs are calculated for 150 dwellers, including apartment, co-working space and all biophilic journey's facilities.

SENSE OF ARRIVAL & NATURAL LIGHTING

Entrance is being pushed back in the corner to provide a sense of arrival. Podium and rooftop are sloped to increase receival of natural lighting.

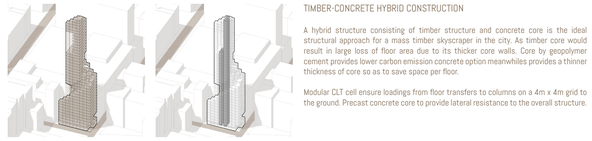
BIOPHILIC LANDSCAPE

Biophilic journey is indicated as a looping route circulate along the building as a regular celebration of nature.

FACADE DESIGN & PROGRAM REFINEMENT

Pixel façade system presents a modular biomimic cell appearance meanwhile enabling the tenant to create biophilic rich getaway spaces in an outdoor environment.

STRUCTURE



CLT FLOOR SLAB & COLUMNS

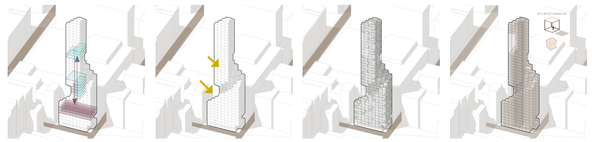
GEOPOLYMER CEMENT CONCRETE CORE

TIMBER-CONCRETE HYBRID CONSTRUCTION

A hybrid structure consisting of timber structure and concrete core is the ideal structural approach for a mass timber skyscraper in the city. As timber core would result in large loss of floor area due to its thicker core walls. Core by geopolymer cement provides lower carbon emission concrete option meanwhiles provides a thinner thickness of core so as to save space per floor.

Modular CLT cell ensure loadings from floor transfers to columns on a 4m x 4m grid to the ground. Precast concrete core to provide lateral resistance to the overall structure.

SUSTAINABILITY



HEAT PUMP - AIR EXCHANGE

Heat and cool air exchange for bath house to other space, e.g. co-working, living, atrium.

ORIENTATION - NATURAL LIGHTING

Landscaping towards north side to max out natural lighting receival.

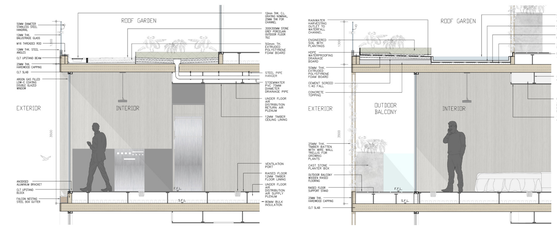
GREEN ROOF & FACADE - THERMAL CONTROL

Green roof and facade to increase thermal resistance. Outdoor green balcony create a further thermal insulation layer.

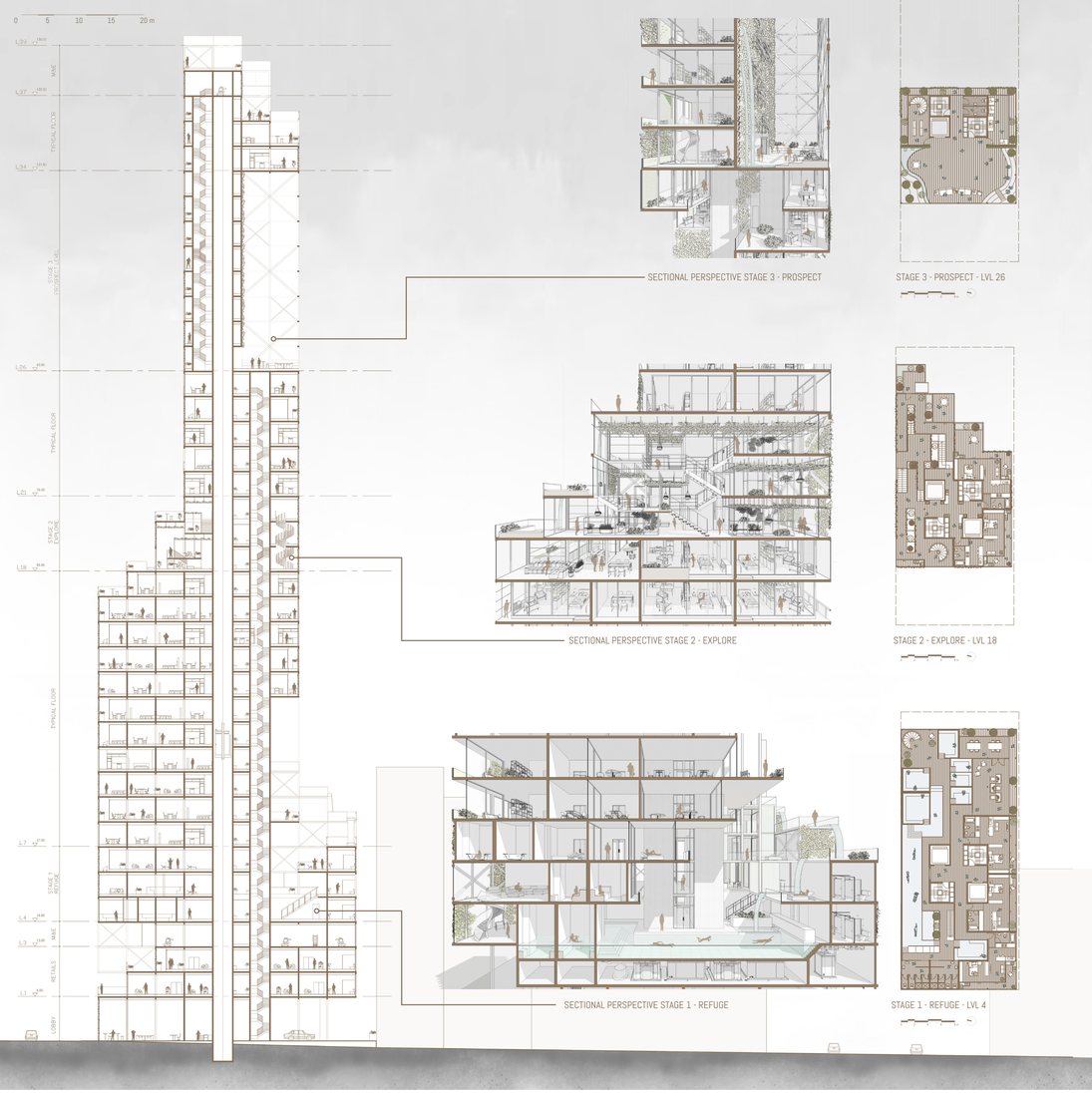
MODULAR CELL & PRECAST CORE

Modular cell and precasr core reduce construction waste and time, which lower the overall carbon footprint.

CONSTRUCTION DETAIL



PROGRAM SECTION 1:200



STAGE 3 - PROSPECT - LVL 26

STAGE 2 - EXPLORE - LVL 18

STAGE 1 - REFUGE - LVL 4

SENSORY FEATURES

STAGE 1 - REFUGE - BATH HOUSE

The first stage, refuge, provides a sense of protection and security for the inhabitant. This stage is featured by enclosed spa and pool that offer privacy and a sense of comfort. It is designed to be intimate and sheltered, featuring natural materials and textures, such as wood, stone and water to provide a calming effect . This stage allows the inhabitant to escape from the stress and stimulation of the outside world, and to feel safe and secure.

STAGE 2 - EXPLORE - INDOOR GARDEN

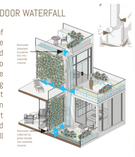
Explore: The second stage, explore, encourages the inhabitant to venture out and engage in a mysterious flow of circulation. This stage is characterized by level ambiguity and half-open, filtered light and shadow filled space in an indoor garden. The labyrinth design is intended to stimulate the senses and create a sense of wonder and discovery, as the inhabitant explores and interacts with the natural environment.

STAGE 3 - PROSPECT - ATRIUM

Prospect: The third stage, prospect, provides a sense of openness and perspective. This stage is characterized by spaces that offer a broad, expansive view with natural features at the back. The space features curtain wall glazing and high head room for a breath of freedom and transparency. The open floor plan atrium with waterfall and green wall is intended to offer natural visual and sound experience.

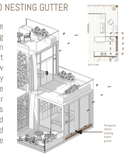
SENSORY FEATURE - OUTDOOR WATERFALL

The sound and sight of flowing water can evoke a sense of peace and tranquility, and can also serve as a source of white noise to create a calming atmosphere. Additionally, it acts as a n water collection channel from green wall that help conserving water and reduce the building's overall water usage.



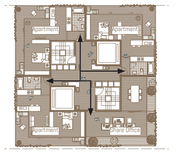
SENSORY FEATURE - BIRD NESTING GUTTER

Bird nesting gutter along the building facade offer a living space for birds like American Robin, House Sparrow, that common bird species in New York that can potentially benefit from it. The chirping, singing, and other vocalizations of these birds can provide a natural and calming background sound in the building, enhancing the overall biophilic experience.



THE THIRD SPACE

By combining residential and office spaces within the same building, the third space design promote a more efficient use of resources, such as energy, water, and materials. This help to reduce the environmental impact of the building and support more sustainable practices by reduce the carbon footprint in dwellers commuting. It also fostering a sense of community, and providing increased opportunities for interaction and collaboration, that could also be a remedy for mental problem.



TYPICAL FLOOR PLAN