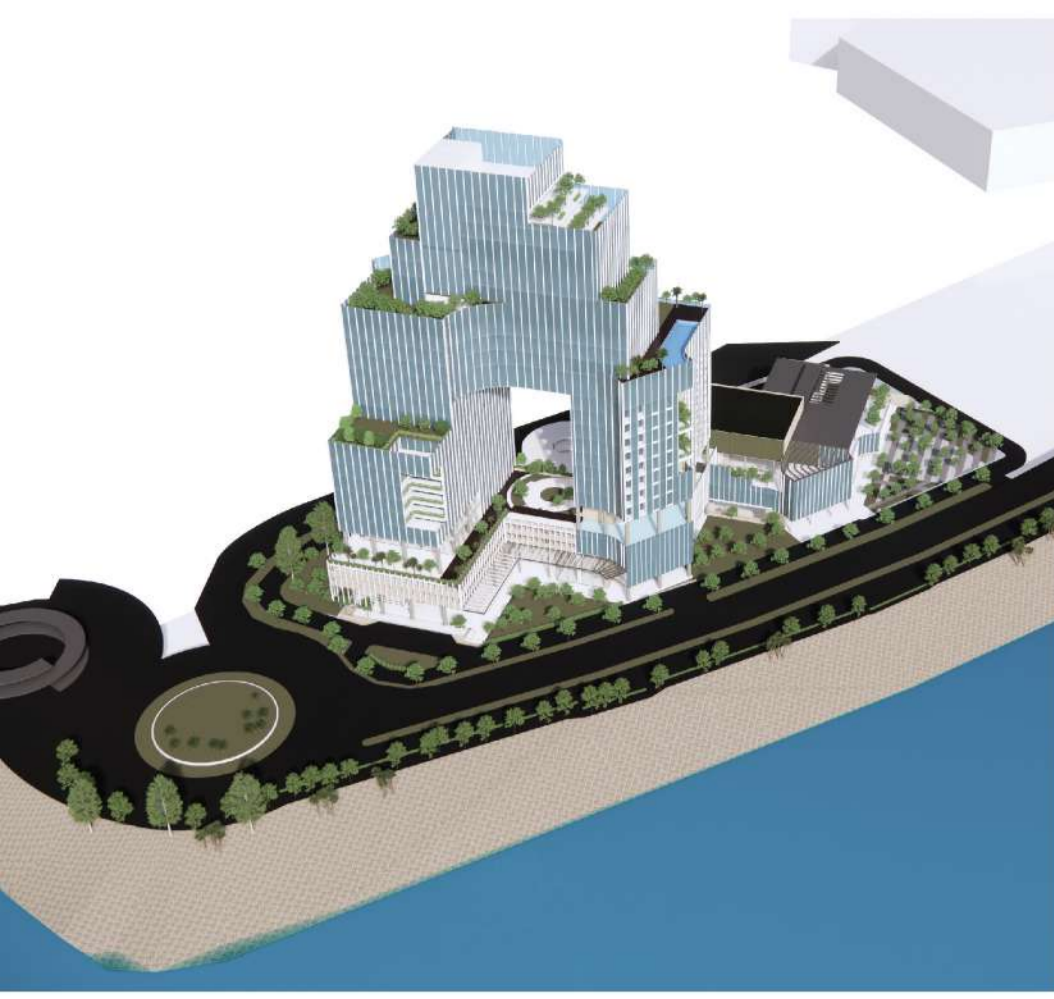


SUSTAINABLE DESIGN FEATURES

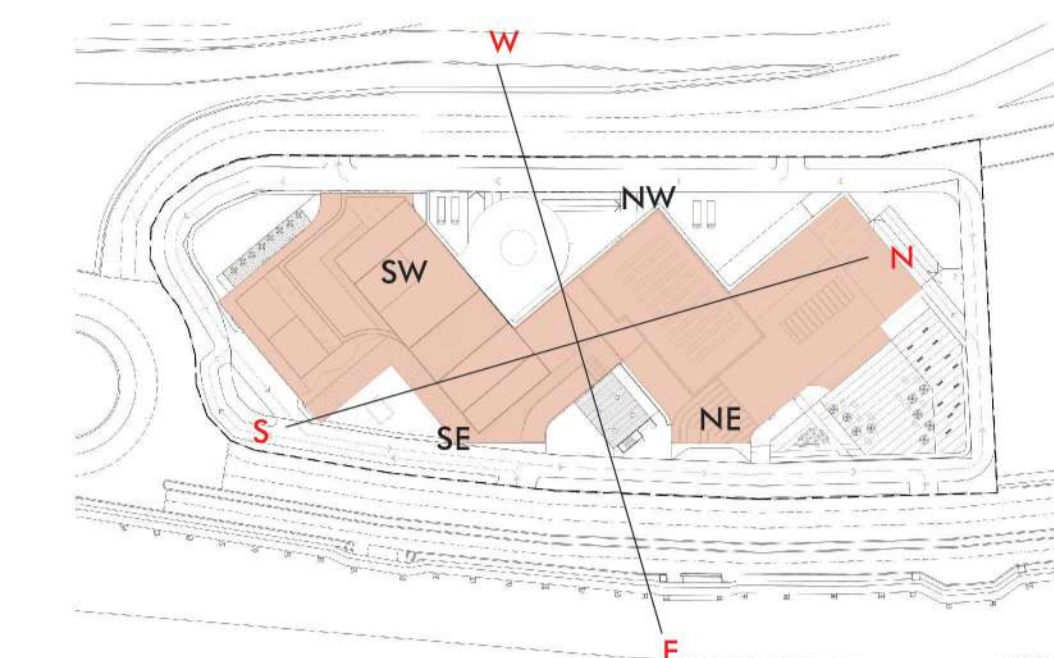
BUILDING FORM

The design breaks the building massing to form a zig-zag layout to optimize the views towards the seafont. Building volumes are stacked, rotated and stepped to create a series of subtropical outdoor spaces, therefore maximizing the green areas within the site.



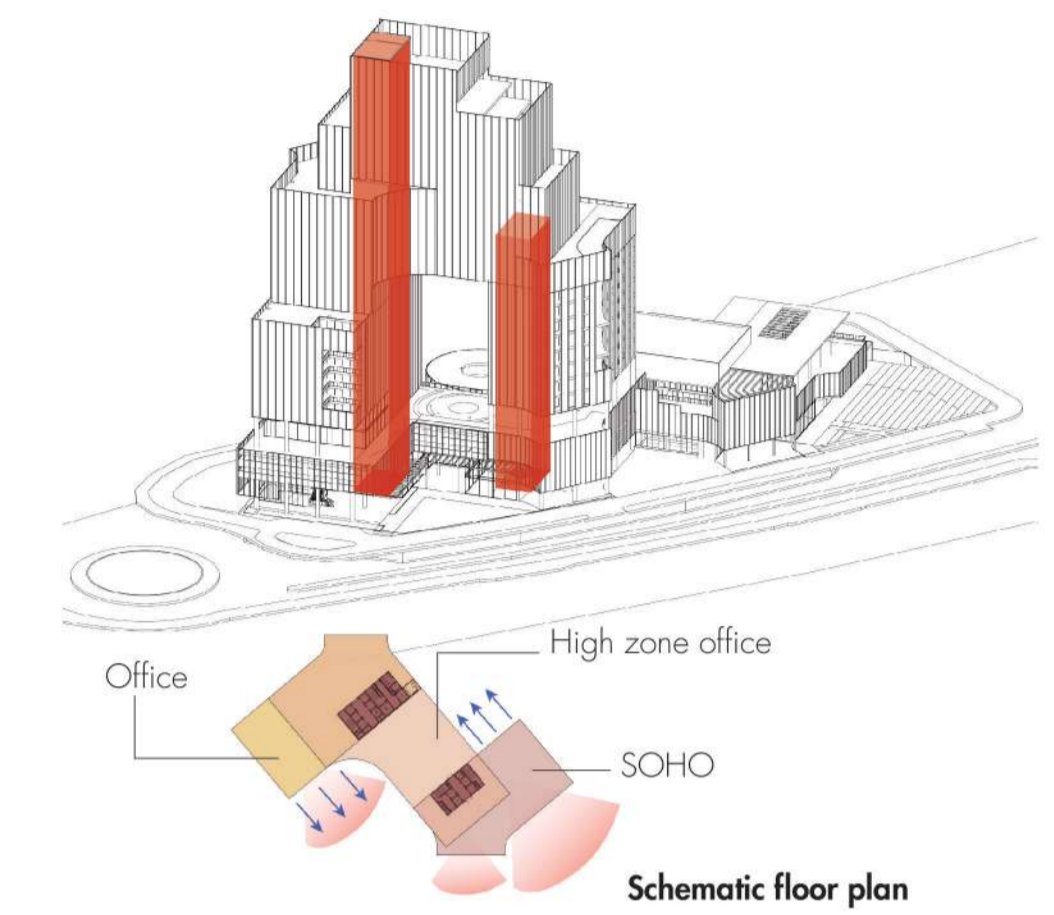
ORIENTATION

The building is tilted to create a longer perimeter thus multiplying the number of frontage facing the seafont. The approach also aims to minimise direct sun exposure from the East and West side.



CORE LOCATION

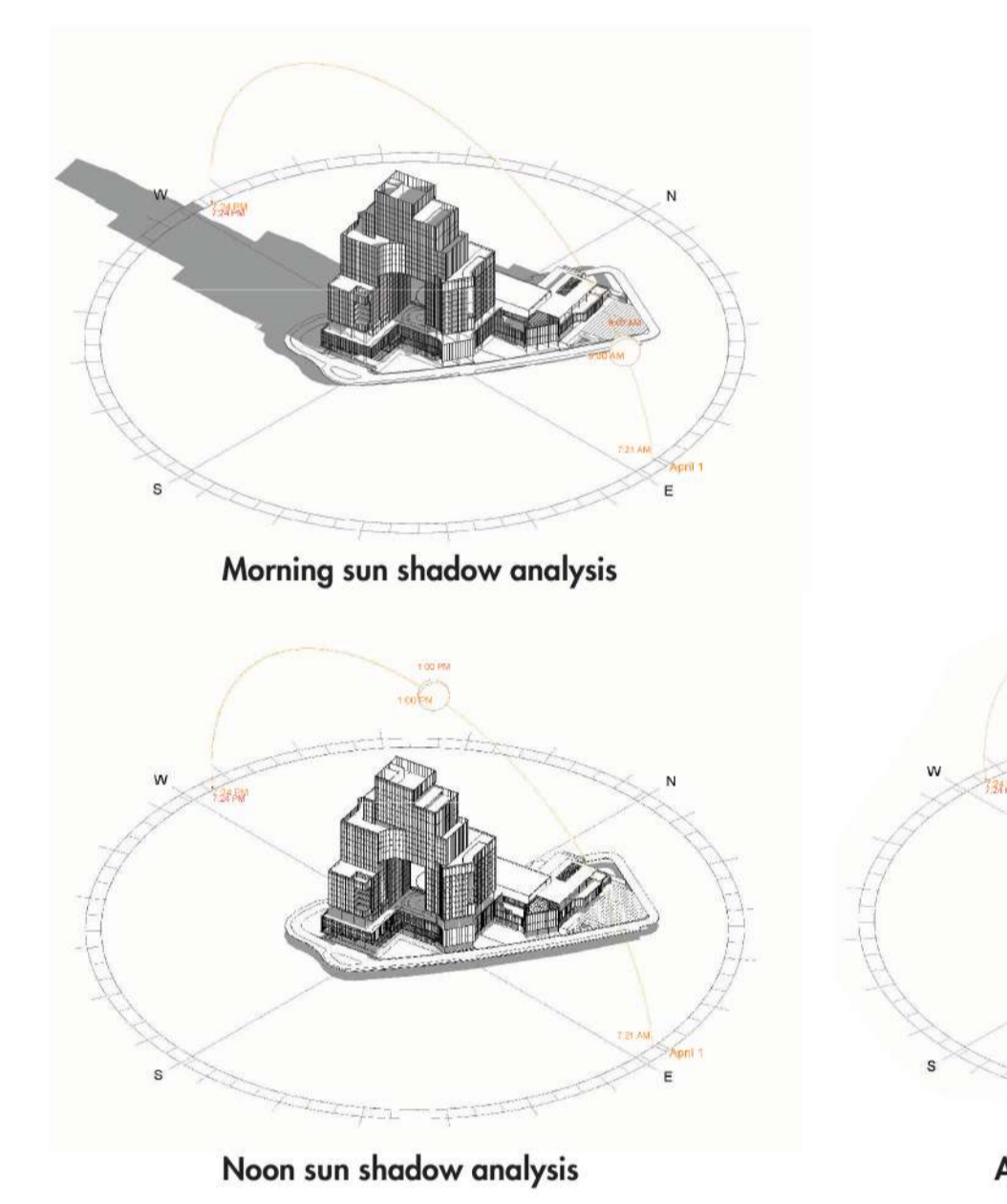
The cores are located at the intersection points between the building volumes, providing lateral stability for the building while preclude view blocking between the volumes and maximizes daylight intake and excellent views out at usable areas



SECTIONAL PERSPECTIVE

SHADOW ANALYSIS

Shadow analysis has shown that the building is able to provide shading for the urban open spaces below in the afternoon, thus enhancing the pedestrian walking experience



D. PODIUM ATRIUM DESIGN

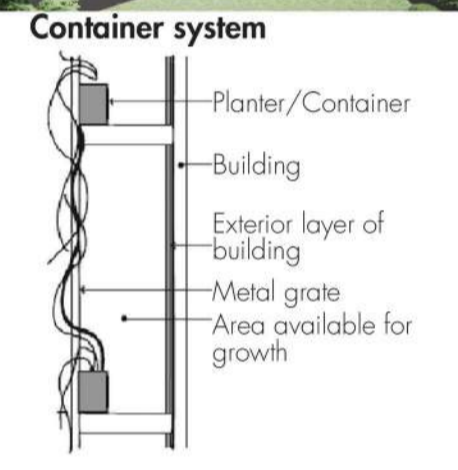


Double roof system is used to carry away the heat gain and allow cross natural ventilation to occur. The large room canopy shelters the light filled public spaces beneath from the extremes of tropical climate.

A. VERTICAL GREEN SYSTEM



Vertical green system is applied at the multi-storey car park, acting as a natural air filtration while improving the visual image in terms of aesthetics. Trellis / Container System is used in this proposal. Containers are used to grow plants and climb onto trellises irrigation is done by controlled drip-lines.

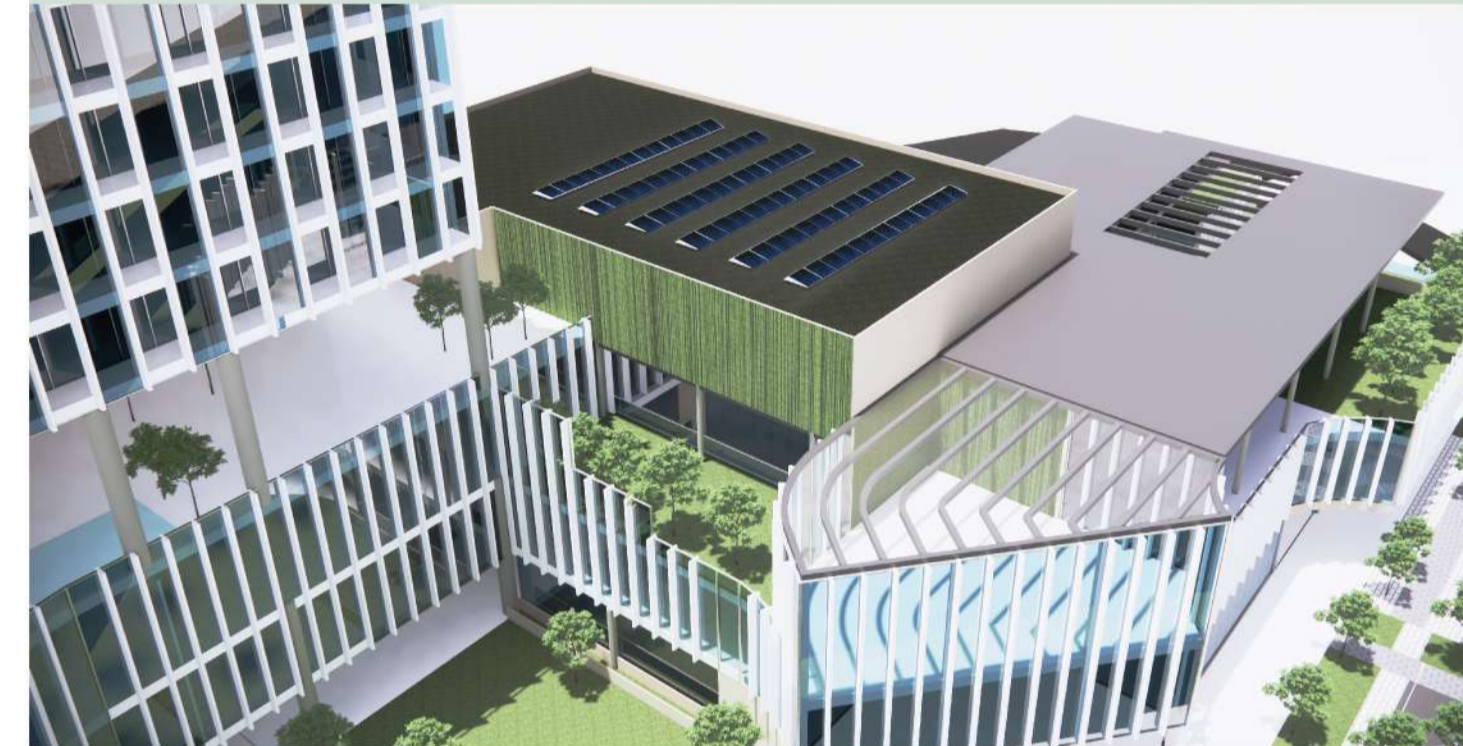


B. KINETIC PAVING



Kinetic paving is installed at areas where foot traffic is high, eg: the urban plaza and common walkway to lower lobbies. The energy generated is used to light up street lamps during night time.

C. PHOTOVOLTAIC PANEL



Photovoltaic panels are installed at the topmost floor of the tower and retail podium, providing power to the development. Photovoltaic-green roof system is used at the top of the event hall, providing cooling effect for the PV panels thus enhancing the PV energy performance.



E. STEPPED TERRACE



Stepped podium garden terraces are created as urban green verandahs overlooking the seafont. Pools of vegetation are created to store cool air and create retreat spaces.

F. FACADE SYSTEM



Cladding panels are used as vertical shading devices to provide protection against solar gain while reinforcing the verticality of the building volumes. The panels are built of recycled aluminium alloys, enhancing environmental sustainability while maintaining the level of finish quality.

G. RAINWATER HARVESTING



Outdoor green terraces are created by offsetting the tower, turning into usable green roofs to capture rainwater and reduces on site runoff. While the green roof captures rainwater, a system of vegetated tray retains rainwater, mitigating the heat island effect

PROPOSED GREEN BUILDING MATERIALS

CLEAN COLORBOND ULTRA STEEL	RECYCLED ALUMINIUM ALLOY	RECYCLED COMPOSITE TIMBER	GRASSCRETE	PRECAST CONCRETE	LOW VOC PAINT
Usage : Retail podium roof	Usage: Tower facade shading device	Usage: Decking for outdoor dining	Usage: Paving for urban park	Usage : Retail podium floor slab	Usage: SOHO interior wall paint

OTTV CALCULATION

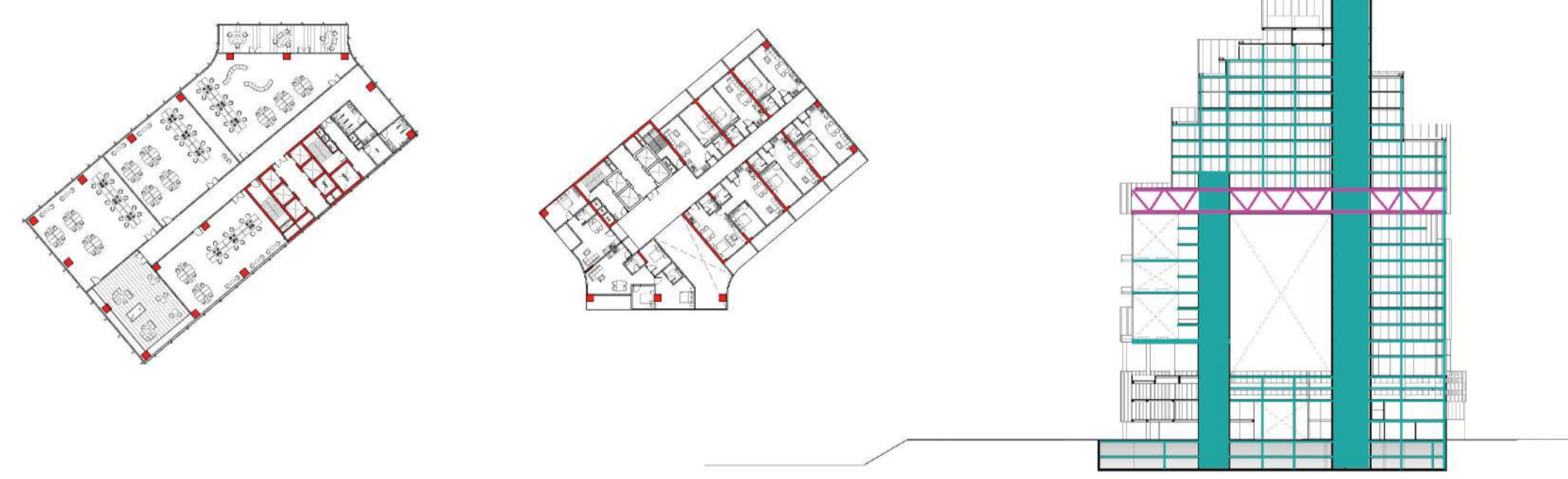
TYPE OF GLAZING USED: DOUBLE LOW-E GLASS
U-value : 1.66
Shading coefficient : 0.28

OTTV COMPONENT	WALL LOCATION	Wall Area, m ² (A)	Constant	Solar Absorption Factor (a)	Window to Wall Ratio (WWR)	(1-WWR)	Wall Construction U-Value (U _w)	Glass U-Value (U _g)	Orientation Factor (OF)	Shading Coefficient of Glass (SC1)	Shading Coefficient of External Shading Device (SC2)	Shading Coefficient of the Window (SC)	OTTV	% of OTTV		
															SC1 x SC1	
Heat Conduction through Walls	WALL 1- E	670	15	0.15	1	0	0	N/A	N/A	N/A	N/A	N/A	0	0		
	WALL 2- W	938	15	0.15	1	0	0	N/A	N/A	N/A	N/A	N/A	0	0		
	WALL 3- SW	3628	15	0.15	1	0	0	N/A	N/A	N/A	N/A	N/A	0	0		
	WALL 4- SE	3190	15	0.15	1	0	0	N/A	N/A	N/A	N/A	N/A	0	0		
	WALL 5- NE	4155	15	0.15	1	0	0	N/A	N/A	N/A	N/A	N/A	0	0		
	WALL 6- NW	3380	15	0.15	1	0	0	N/A	N/A	N/A	N/A	N/A	0	0		
	Σ Wall Area	15961	Equation for Heat Conduction through Walls = 15Σ (1-WWR) U _w												0	0
Heat Conduction through Windows	WINDOW 1- E	670	6	N/A	1	N/A	N/A	1.66	N/A	N/A	N/A	N/A	6673.20			
	WINDOW 2- W	938	6	N/A	1	N/A	N/A	1.66	N/A	N/A	N/A	N/A	9342.48			
	WINDOW 3- SW	3628	6	N/A	1	N/A	N/A	1.66	N/A	N/A	N/A	N/A	36134.88			
	WINDOW 4- SE	3190	6	N/A	1	N/A	N/A	1.66	N/A	N/A	N/A	N/A	68904.00			
	WINDOW 5- NE	4155	6	N/A	1	N/A	N/A	1.66	N/A	N/A	N/A	N/A	41383.80			
	WINDOW 6- NW	3380	6	N/A	1	N/A	N/A	1.66	N/A	N/A	N/A	N/A	33664.80			
			Equation for Heat Conduction through Windows = 6 (WWR) U _f												196103.16	24.8
Solar Heat Gain through Windows	WINDOW 1- E	670	194	N/A	1	N/A	N/A	N/A	1.23	0.28	0.87	0.2436	38945.65			
	WINDOW 2- W	938	194	N/A	1	N/A	N/A	N/A	0.94	0.28	0.86	0.2408	41189.73			
	WINDOW 3- SW	3628	194	N/A	1	N/A	N/A	N/A	0.9	0.28	0.84	0.2352	148987.16			
	WINDOW 4- SE	3190	194	N/A	1	N/A	N/A	N/A	1.13	0.28	0.83	0.2324	162520.06			
	WINDOW 5- NE	4155	194	N/A	1	N/A	N/A	N/A	1.09	0.28	0.83	0.2324	204190.43			
	WINDOW 6- NW	3380	194	N/A	1	N/A	N/A	N/A	0.9	0.28	0.84	0.2352	138802.81			
			Equation for Solar Heat Gain through Windows = 194 x OF x WWR x SC												595833.02	75.2
			Σ WALL OTTV												791936.182	
			Σ WALL AREA												15961	
			OTTV												49.62	

BUILDING STRUCTURAL AND SERVICES

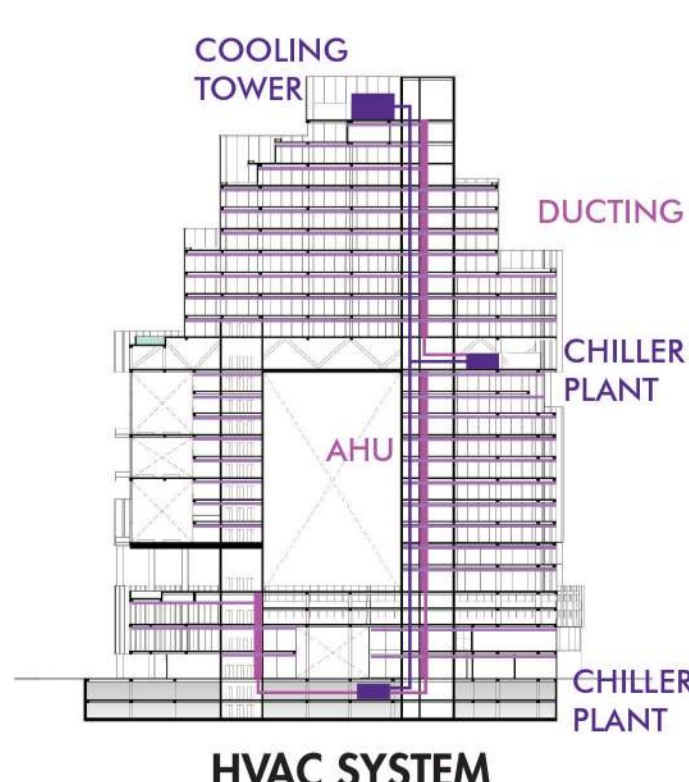
BUILDING STRUCTURAL SYSTEM

The office tower uses a composite structure which was a combination between a steel reinforced concrete core and steel tube columns along with an outrigger support system at the upper technical floor. The repetitive interior layout of the soho tower allows the usage of shear wall system which provide greater strength and stiffness and reduces the use of large columns.



ELECTRICAL INSTALLATION

Double chamber TNB substation is located at the ground floor, consisting transformer room, switch room and genset room.

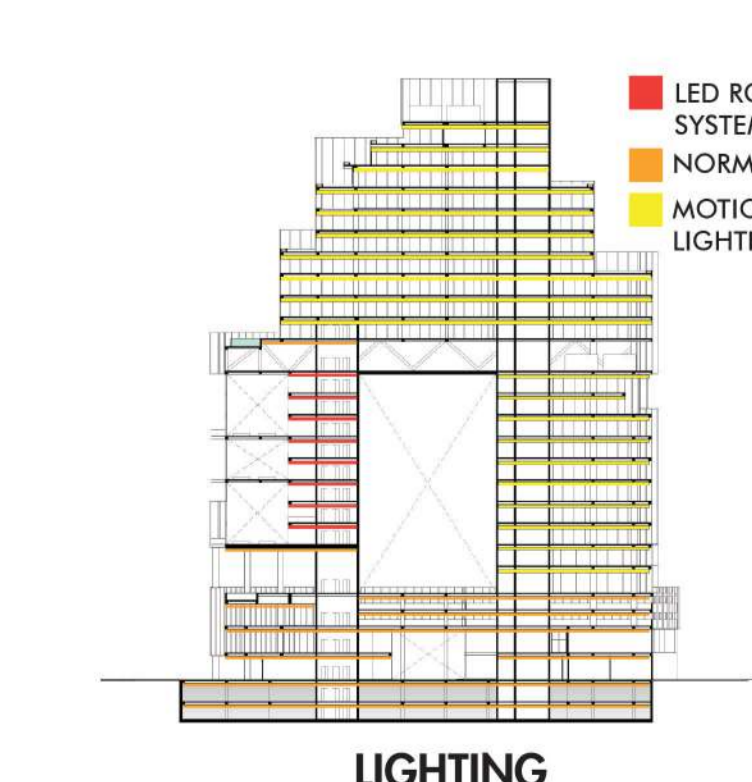


HVAC SYSTEM

Centralized chilled plant system is being used for the office tower. Tower is divided into two zones with its own ventilation system. Two chiller plant is provided, one at the basement and another at the mechanical floor on 14th level, thus eliminate a massive chiller plant in the upper reaches of building and reduces load on pumps at grade.

WATER SUPPLY

There are 3 types of water supply in the building. 1. Domestic water 2. Fire tank water 3. Rainwater harvesting. Rainwater is harvested for plant irrigation for the green terrace.

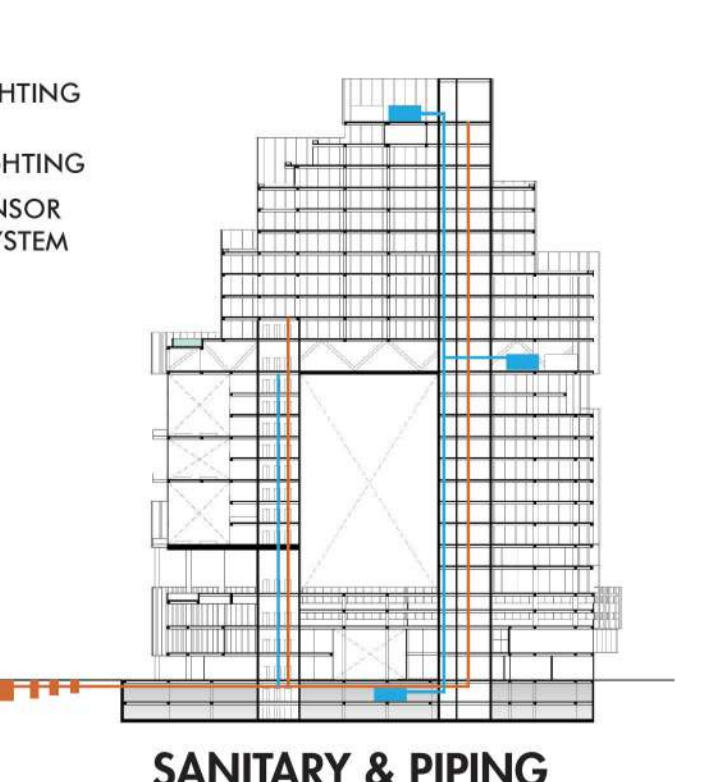


LIGHTING

Motion sensor lighting system is being used for the office tower. Sensors are installed at areas with irregular use patterns such as individual offices and washrooms. SOHO tower uses an intelligent color changing LED RGB lighting system that use light in the form of color to create energy balance.

FIRE PREVENTION AND CONTROL

The building is designed with a compartmented core equipped with heat and smoke detection to ensure occupants can evacuate safely. Hose reel and wet riser is provided at each floor near to the fire staircase.

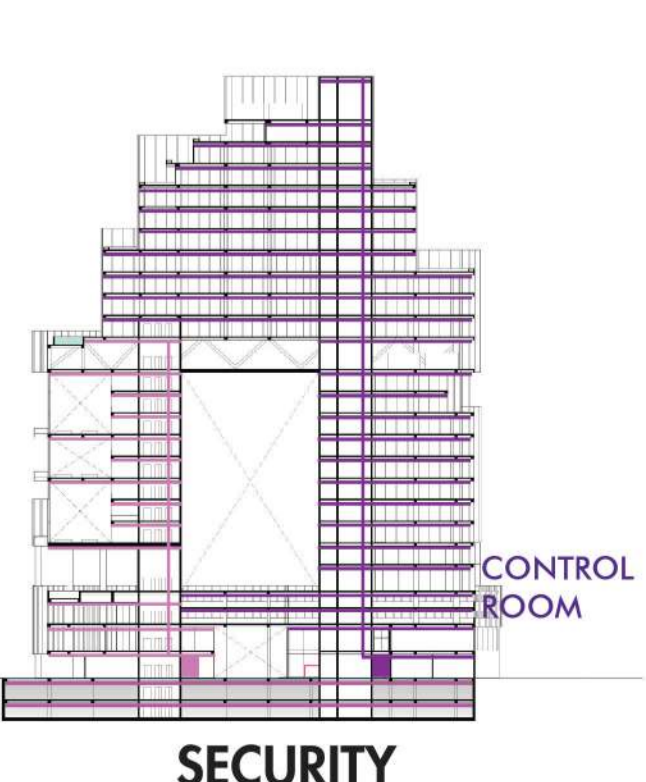


SANITARY & PIPING

Single stack system is being used where vent stack is connected to the drainage stack/soil appliance at each floor. Constant flow of water reduces blockage problem. Single stack system is highly economical in term of cost and requires lesser duct space.

VERTICAL TRANSPORTATION

Destination control system is used to increase the efficiency of the lift operation and reduces waiting time. Core size is further reduced on high zone thus allowing more usable floor area.



SECURITY

Building security system consisting two elements: 1. Monitoring system 2. Crime prevention system. Monitoring system includes motion sensors, smoke and CO2 detectors. Crime prevention system incorporate surveillance cameras, building ingress and egress management and sensors such as door open-close detectors and glass break detectors