

TUGAS AKHIR 146 PERANCANGAN BERBASIS EDGE



SCIENTIA SQUARE OFFICE

DIKERJAKAN OLEH:

HUSNAWATI HASANAH - 21020115120027

DOSEN PEMBIMBING:

IR. SATRIO NUGROHO, MSI

TIM DOSEN:

DR. IR. EDDY INDARTO, MSI

DR. ENG. BANGUN IRH, ST, MT





DESC

Tapak bangunan berada di kawasan Scientia Square, Kelapa Dua, Tangerang Tangerang sebagai salah satu kota yang terletak dekat dengan ibu kota Indo Jakarta, menjadikannya sebagai kabupaten yang memiliki pertumbuhan ekonomi yang meningkat pesat. Di kawasan tersebut tumbuh perusahaan-perusahaan swasta dan nasional yang berkantor di daerah Kelapa Dua. Hal ini menjadi pertumbuhan banyak perusahaan baru, namun masih dalam taraf merintis usaha sehingga belum memiliki keuangan yang stabil. Maka dari itu Scientia Square Office yang disediakan pengembang untuk memfasilitasi perusahaan-perusahaan baru untuk menyewa kantor sendiri.

SCIENTIA SQUARE OFFICE

SITE DATA

Jl. Scientia Boulevard, Curug Sangereng, Kelapa Dua, Kota Tangerang, Banten
 Luas Lahan : 3800 m²
 Orientasi Tapak : Selatan
 KDB : 0,6
 KLB : 8
 GSB : 4m

Summarecon Digital Center

Perumahan



Tapak Bangunan

Summarecon Serpong Building

Universitas Multimedia Nusantara

CONCEPT

Terletak pada area perkotaan harus dapat mengakomodasi kebutuhan para pegawai yang kompleks. Rental office diharapkan dapat menjadi tempat aktualisasi diri bagi para penggunanya sehingga dapat meningkatkan produktivitas kerja. Konsep open plan office ini dirasa membuat hubungan antar staf atau karyawan menjadi lebih dekat sehingga kolaborasi makin meningkat. Kantor open plan office direpresentasikan sebagai kebersamaan, kolaborasi, atau kerjasama.

AKTUALISASI DIRI



HUBUNGAN RELASI YANG BAIK

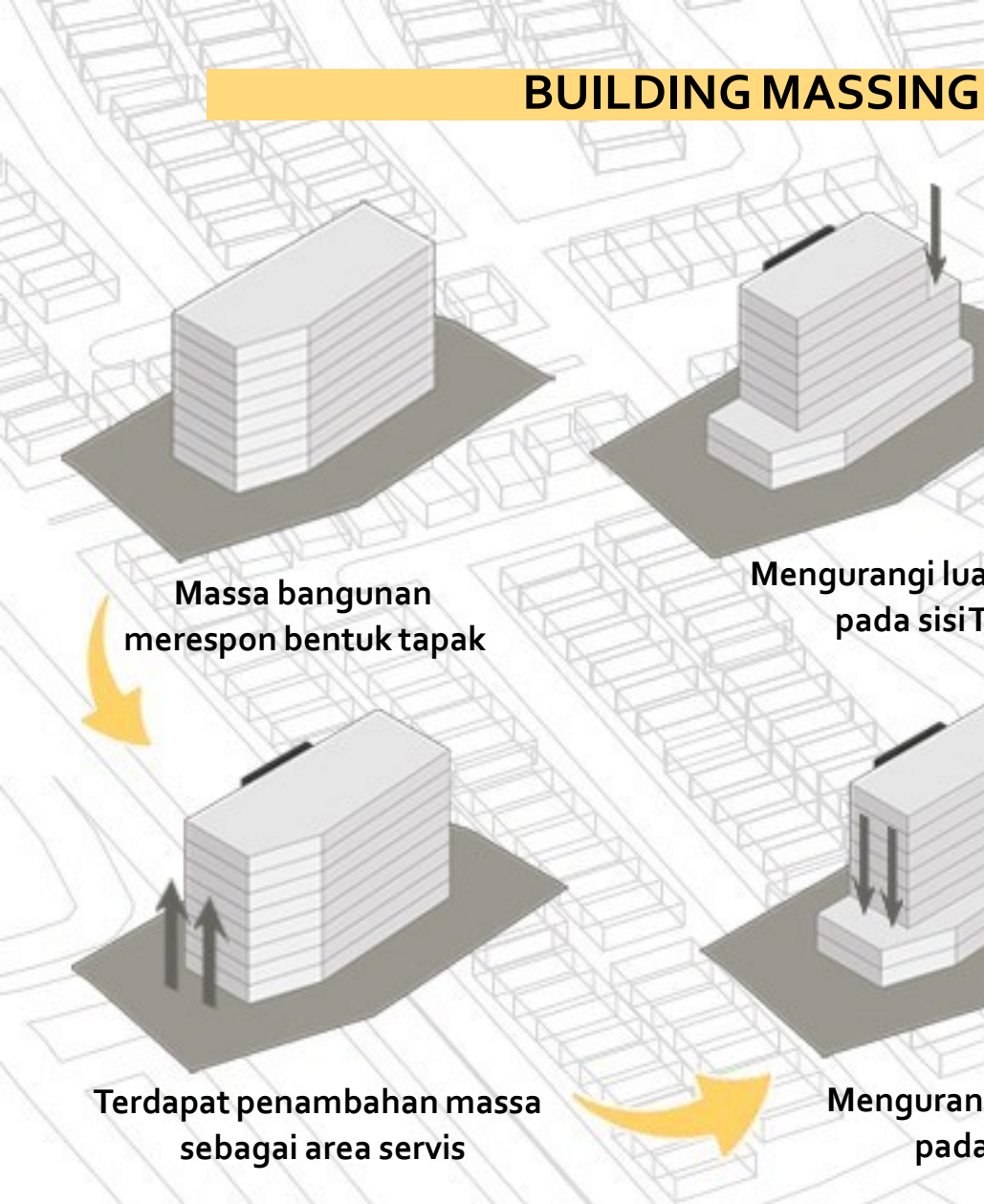


PRODUKTIVITAS MENINGKAT

BUILDING MASSING

BUILDING DATA

PASSIVE DESIGN STRATEGY



Luas Lahan : 3804,77 m²
 Building Coverage : 2282,862 m²
 Lahan Infiltran : 1521,908 m²
 Footprint Bangunan : 952,100 m²
 Jumlah Lantai di Atas Tanah : 8
 Jumlah Lantai di Bawah Tanah : 2
 Ketinggian Antar Lantai : 4 m
 Kedalaman Bangunan : 12,8 m

GSB

FLOOR PLAN DEPTH

Floor Plan Depth							
	1	2	3	4	5	6	Rata-Rata
Lantai 1	14.55	14.55	13.6	13	18.82	18.27	15.465
Lantai 2	17.28	19.73	13.6	13	18.82	18.27	16.78333333
Lantai 3		14.55	8.2	8.2	14.55	14.55	12.01
Lantai 4		14.55	8.2	8.2	14.55	14.55	12.01
Lantai 5		14.55	8.2	8.2	14.55	14.55	12.01
Lantai 6		14.55	8.2	8.2	14.55		11.375
Lantai 7		14.55	8.2	8.2	14.55		11.375
Lantai 8		14.55	8.2	8.2	14.55		11.375
						Rata-Rata	12.8004167
							12.8

BUILDING LENGTH

Utara : 39,55 m
 Selatan : 33,35 m
 Timur : 17,28 m
 Barat : 16,60 m
 Timur Laut : 0 m
 Barat Laut : 0 m
 Tenggara : 34,36 m
 Barat Daya : 14,92m

ZONING

AREA PARKIR
(Mobil & Motor)

SERVIS
(Toilet, Janitor, ME, Lift)

PRIVAT
(Rental Office, Ruang Pengelola)

SEMIPRIVAT
(Food Court, Ruang Auditorium, Ruang Rapat)

PUBLIK
(Lobby, Coffee Shop, Co-Working, Musholla)

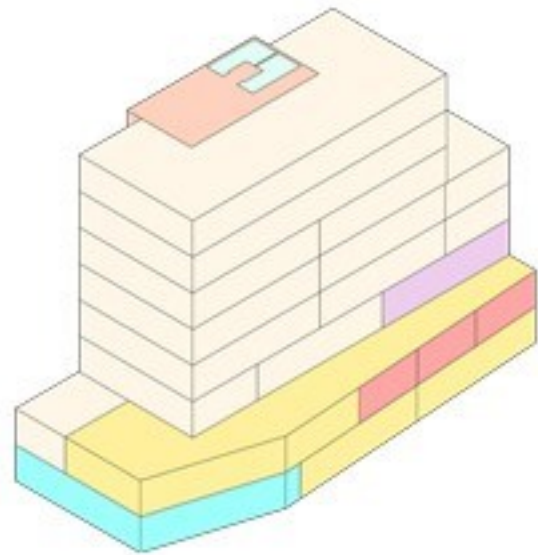
BUILDING LENGTH

	Barat	Utara	Timur	Tenggara	Selatan	Barat Daya
1	16.425	48.55	19.852	34.3658	14.2	
2	17.843	48.55	19.852	34.3658		14.9243
3	16.425	40.55	16.425		40.55	
4	16.425	40.55	16.425		40.55	
5	16.425	40.55	16.425		40.55	
6	16.425	32.55	16.425		32.55	
7	16.425	32.55	16.425		32.55	
8	16.425	32.55	16.425		32.55	
Rata	16.60225	39.55	17.28175	34.3658	33.35714	14.9243

Saving Energy 1,17%



BUILDING DATA



Conference Room (Ruang Auditorium, Ruang Rapat)

Open Plan Office Tipe Besar, Sedang, Kecil

Bathrooms

Privat Office (Kantor Pengelola)

LobbyOffice

Foodcourt, Coffee Shop

ME Rooms, Store

	Default
Open Plan Office	3,478
Private/Closed Office	822
Corridors	383
Conference Rooms	326
Lobby	441
Bathrooms	154
M&E Rooms, Store **	
Food Court	154
Gross Internal Area	

OFE01 - WINDOWSTO WALL RATIO

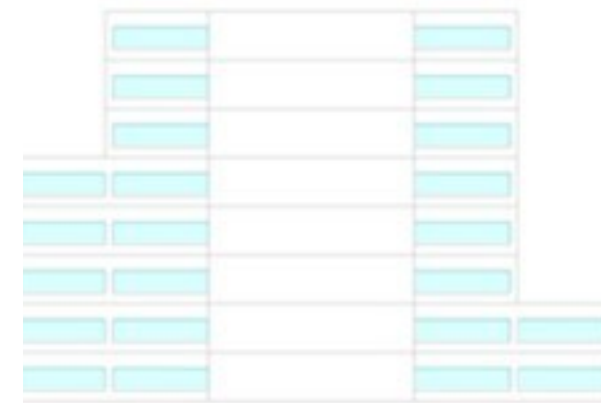
WWR SELATAN,
TENGGARA, BARAT DAYA



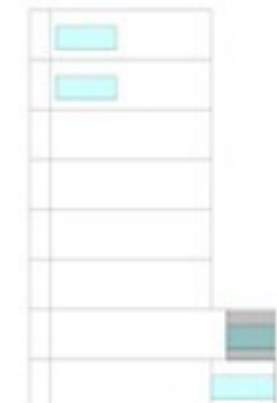
WWR TIMUR



WWR UTARA



WWR BARAT



OFE01 - WINDOWSTO WALL RATIO

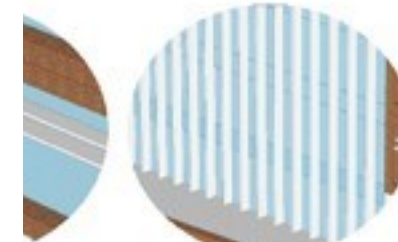
Saving Energy 18,08%

Arah Mata Angin	Luas Jendela (m2)	Luas Dinding (m2)	Rat
Utara	1285.6	32.69	
Selatan	934	396.36	
Timur	553.01	19.66	
Barat	531.27	30.62	
Tenggara	274.92	111.55	
Barat Daya	59.59	26.11	
		Rata-Rata	

OFE02 - EXTERNAL SHADING DEVICE -AASF

Saving Energy 21,13%

AASF SELATAN



TIPE 1

AASF UTARA



TIPE 4

TIPE 2

TIPE 5

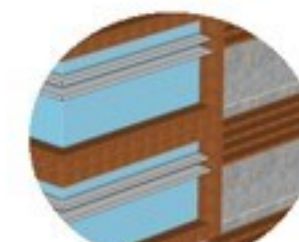
TIPE 3

AASF TENGGARA



TIPE 8

AASF BARAT



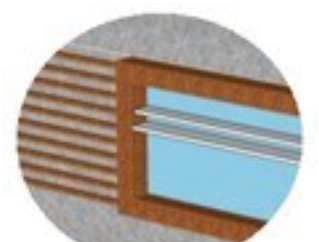
TIPE 6

AASF BARAT DAYA



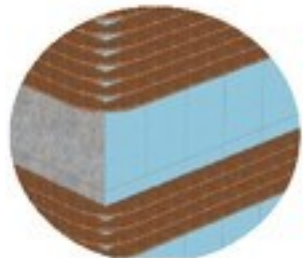
TIPE 9

AASF TIMUR

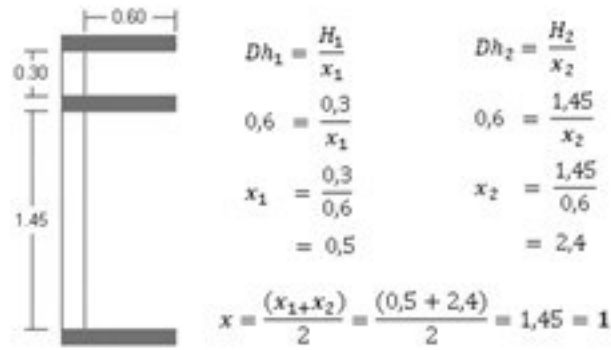


TIPE 7

AASF SELATAN

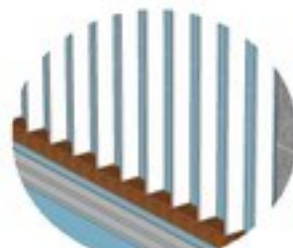


TIPE 1

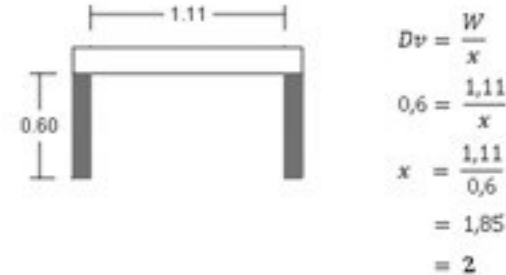


Total Window Area : 82,695 m2

AASF UTARA

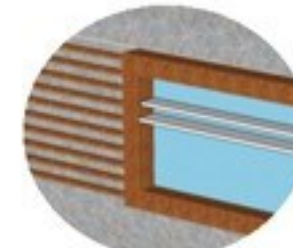


TIPE 4

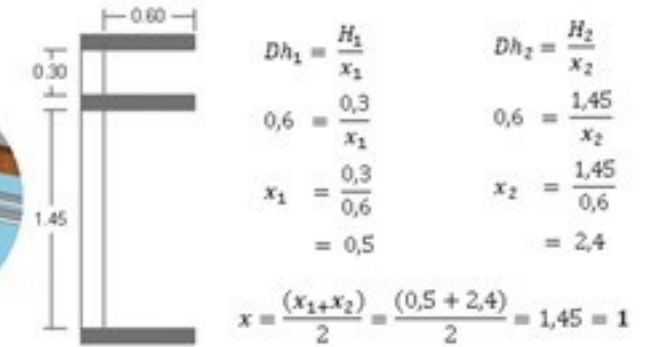


Total Window Area : 265,246 m2

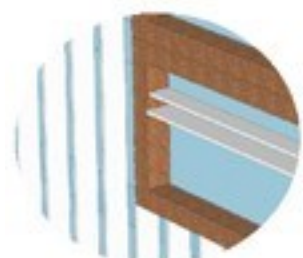
AASF TIMUR



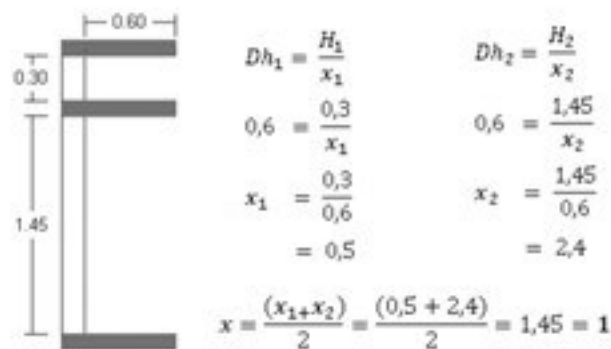
TIPE 1



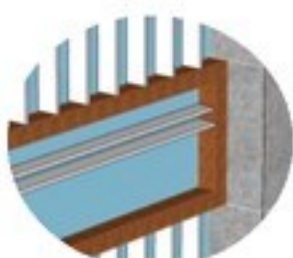
Total Window Area : 19,6655 m2



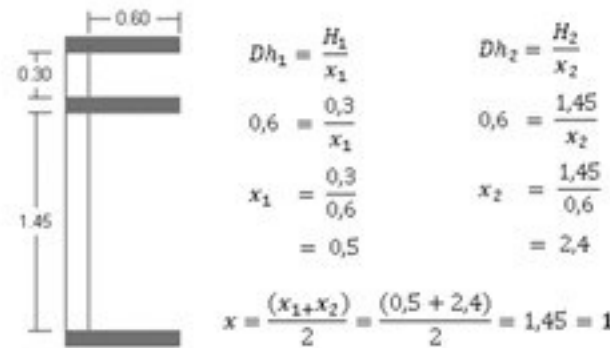
TIPE 2



Total Window Area : 27,565 m2



TIPE 5

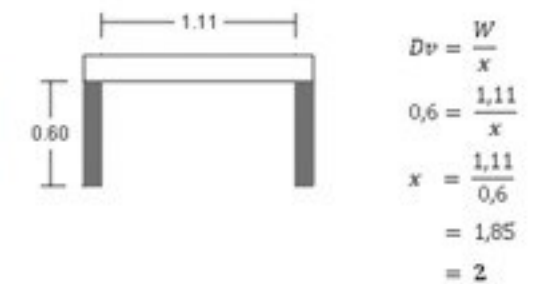


Total Window Area : 55,45125 m2

AASF TENGGARA



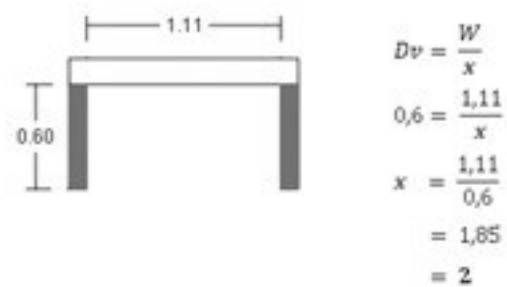
TIPE 8



Total Window Area : 111,5541 m2

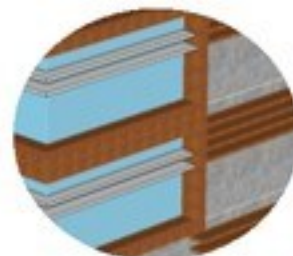


TIPE 3

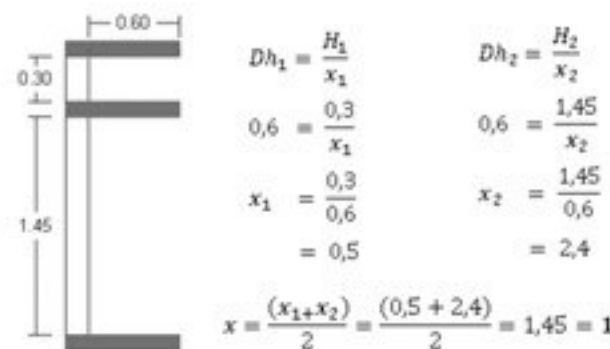


Total Window Area : 261,868 m2

AASF BARAT

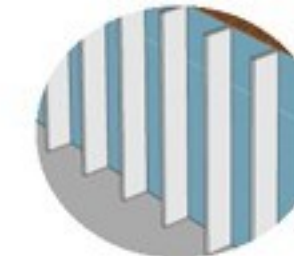


TIPE 1

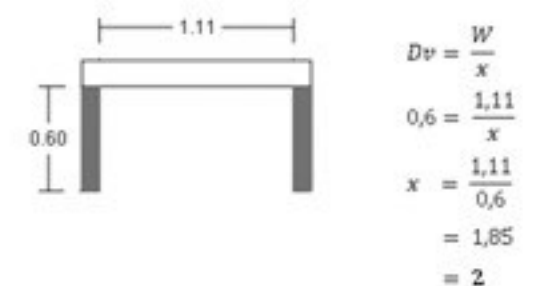


Total Window Area : 30,62675 m2

AASF BARAT DAYA



TIPE 9



Total Window Area : 26,11516 m2

OFE11 VARIABLE REFRIGERANT FLOW (VRF) SYSTEM

Saving Energy 30,85%

AC INDOOR

- Lantai 1 - Ceiling Mounted Cassete 18 Unit
- Lantai 2 - Ceiling Mounted Cassete 21 Unit
- Lantai 3 - Ceiling Mounted Cassete 8 Unit
- Ceiling Mounted Cassete Corner 8 Unit
- Lantai 4 - Ceiling Mounted Cassete 11 Unit
- Lantai 5 - Ceiling Mounted Cassete 11 Unit
- Lantai 6 - Ceiling Mounted Cassete 8 Unit
- Lantai 7 - Ceiling Mounted Cassete 7 Unit
- Lantai 8 - Ceiling Mounted Cassete 7 Unit

TOTAL INDOOR AC 117 UNIT

OUTDOOR

2 DAIKIN VRV – X Model RXUQ40AM 40 HP, 112 KW



OUTDOR UNIT

Ceiling Mounted Cassete

Ceiling Mounted Cassete Corner

WATER EFFICIENCY

OFW01 LOW-FLOW FAUCET IN ALL BATHROOMS

Saving Water 29,36%

faucet	L/menit	L/menit	(%)	(L/hari)
P 5ipm	8	5	100%	
	8			
produk/tipe produk>	8			
produk/tipe produk>	8			
luk Keran wastafel	1024.46175	640.2665938	100%	384.1731563
aran Tembok			27%	
aran Wastafel			73.0000%	
DARI KERAN (L/hari)	1024.46175	709.4397619	100%	315.0219881

OFW02 DUAL FLUSH FOR WATER CLOSET IN ALL BATHROOMS

Saving Water 40,79%

	L/flush	L/flush	(%)	(L/hari)
let, 4.5/3L Dual Flush	6	3.3	100%	
	6			
luk>	6			
luk>	6			
k (L/hari)	2663.60055	1464.980303	100%	1198.620248

OFW03 WATER EFFICIENT URINALS IN ALLOTHER BATHROOM

Saving Water 42,39%

	L/flush	L/flush	(%)	(L/hari)
im	4	3.3	100%	
	4			
	4			
	4			
	1365.949	1126.907925	100%	239.041075

OFW03 WATER EFFICIENT URINALS IN ALLOTHER BATHROOM

Saving Water 43,15%

r keran wudhu)	L/menit	L/menit	(%)	(L/hari)
	8	7	100%	
	8			
	8			
	8			
	1024.46175	896.4040313	100%	128.0577188

DIAGRAM PENGALIRAN AIR

OFWo6 RAIN WATER HARVESTING

Saving Water 49,75%

JENIS ATAP	LUAS (m ²)	C	CURAH HUJAN (m)	volu air hu (m ³)
ATAP TOWER	557.81	0.95	0.016	
ATAP PODIUM GREEN	0	0.3	0.016	
ATAP PODIUM	288.45	0.95	0.016	
ATAP KANOPI	54.47	0.95	0.016	
ATAP POWER HOUSE	0	0.95	0.016	
ATAP PLN	0	0.95	0.016	
	900.73			1:

Rainwater Harvesting		
Kapasitas tanki yang direncanakan	14000	Liter
Curah Hujan (I)	15.61	mm
Koefisien Limpasan (C)	0.95	
Luas atap (A)	900	m ²
Volume penampungan ideal	13343.326	Liter
Persentase kemampuan penampungan	105%	



SKEMA AIR PDAM, GREY WATER & RWH



OFWo7 GREY WATER TREATMENT AND RECYCLING SYSTEM

Saving Water 54,61%

Sumber Air Daur Ulang (Grey Water)	
Keran Tembok + Wastafel	709.
Keran Wudhu	853.
Air Kondensasi	173.3
Total	1736.5
	1.7

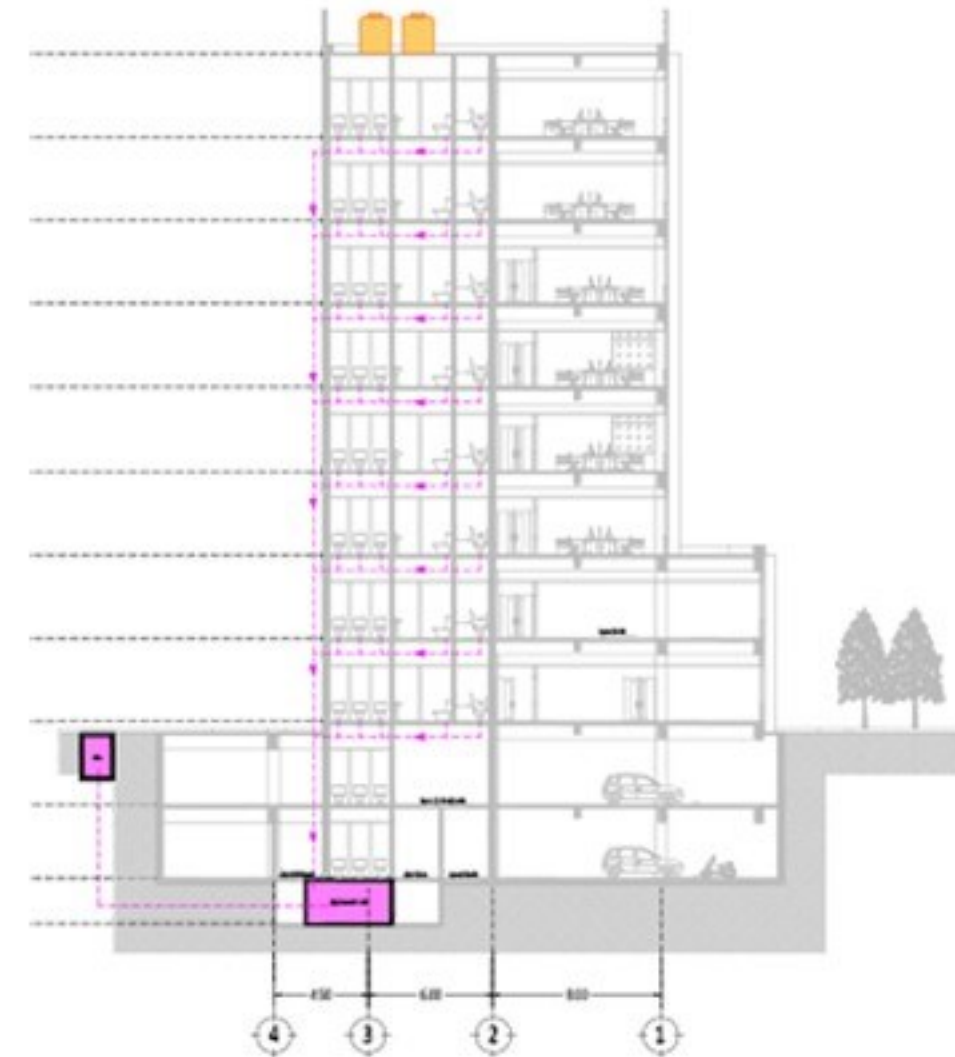
PERHITUNGAN KAPASITAS GWT PER HARI

Kebutuhan Air Bersih PDAM		Sumber Air Daur Ulang	
WC Flush Tank	1464.98	Grey Water	1.8 m ³
Peturasan Flush Valve	1126.9	RWH	14 m ³
Keran Tembok + Wastafel	709.43	Total	15.8 m³
Keran Wudhu	853.71		
Total	4155.020 L/Hari		
	4.155 m ³		
	4.2 m³		

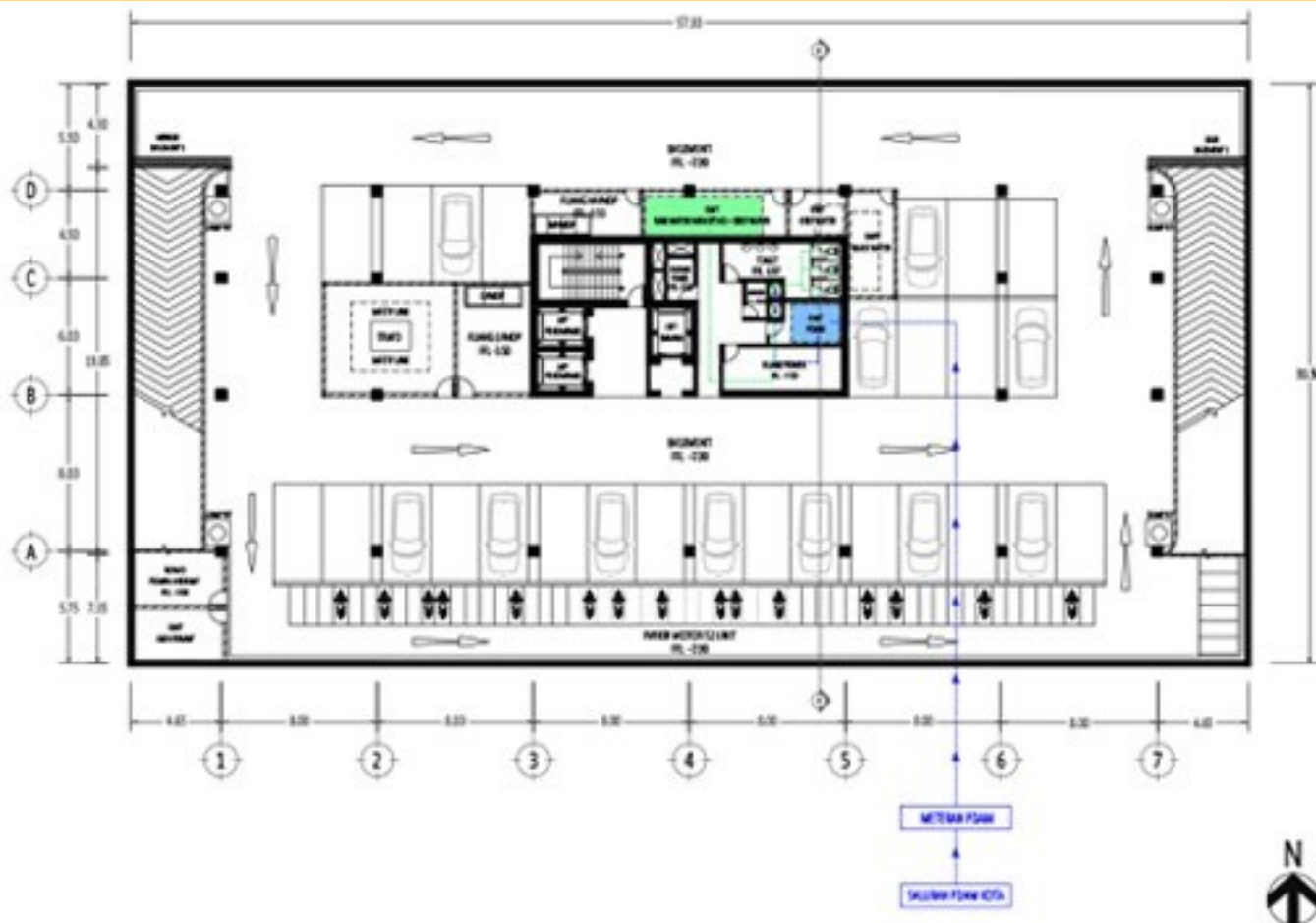
Sumber Air Daur Ulang (Grey Water)		Black Water	
Keran Tembok + Wastafel	709.43	WC Flush Tank	1464.98
Keran Wudhu	853.71	Peturasan Flush Valve	1126.9
Air Kondensasi	173.370	Total	2591.880 L/Hari
Total	1736.510 L/Hari		
	1.737 m ³		2.592 m ³
	1.8 m³		2.3 m³

Sumber Air Daur Ulang (RWH)	
Rain Water Harvesting	13354 L/Hari
	13.354 m ³
	14 m³

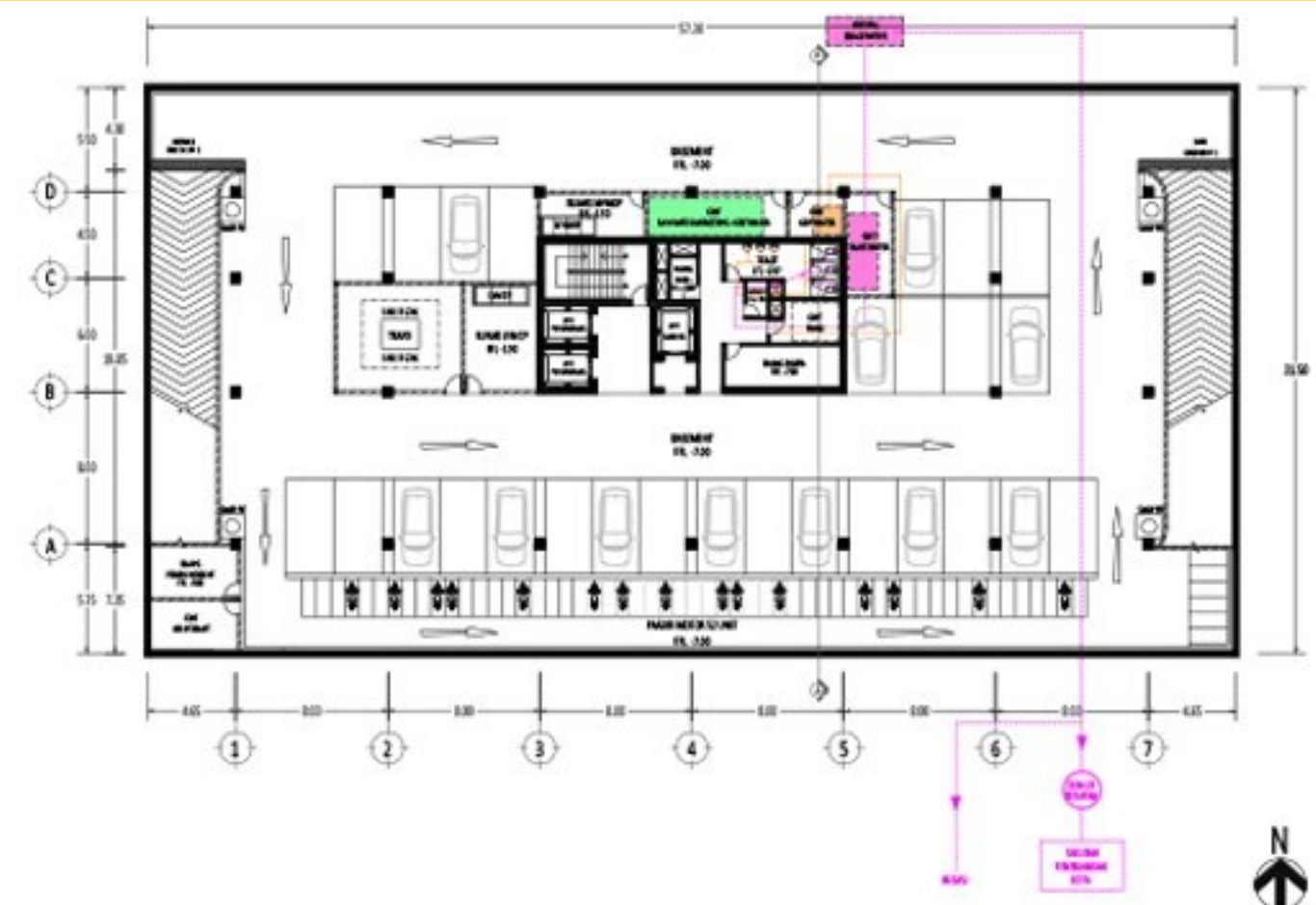
SKEMA BLACKWATER



DENAH PENGALIRAN AIR BERSIH & DAURULANG

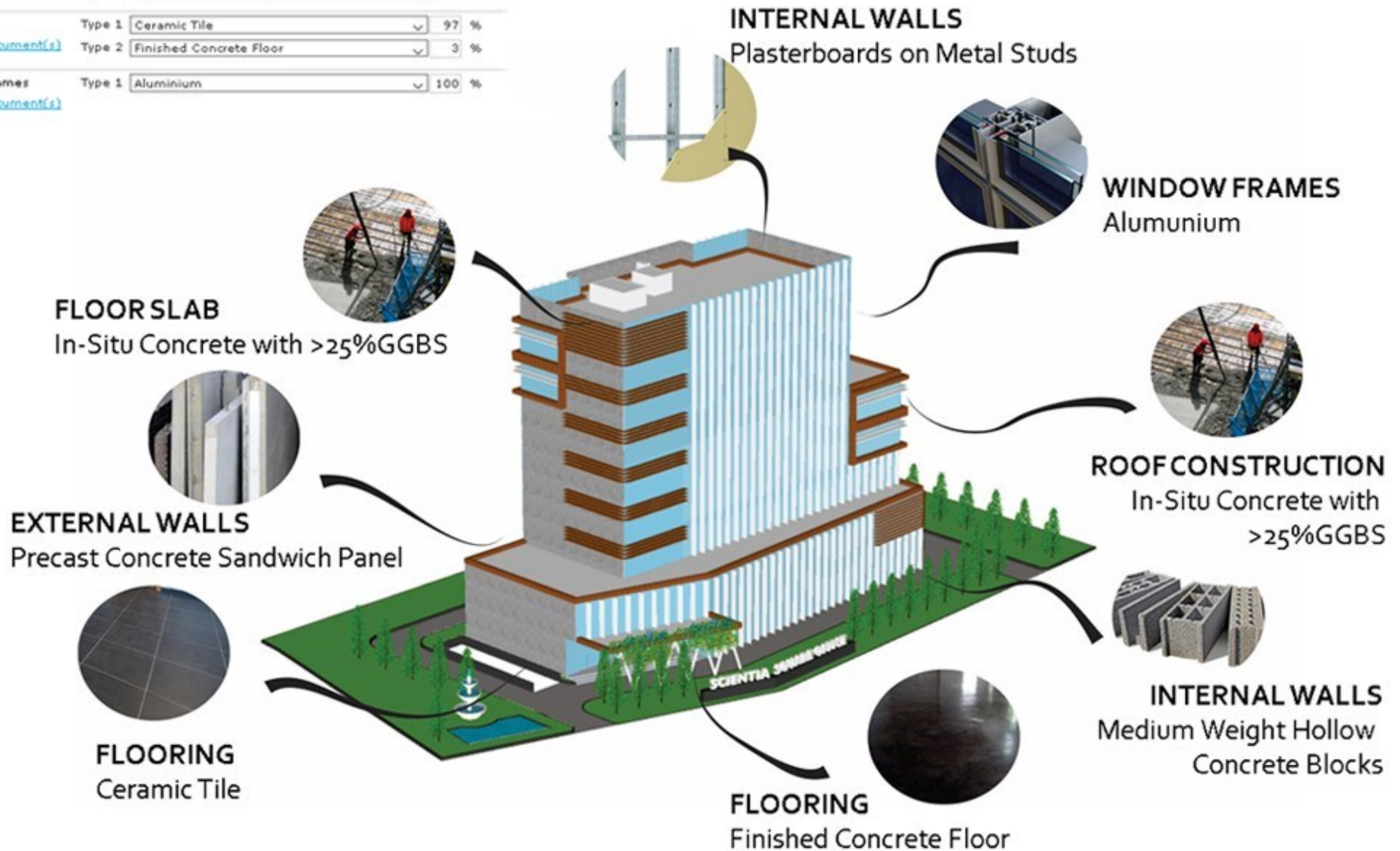


DENAH PENGALIRAN GREY WATER & BLACK WATER



Saving Materials 50,13%

Ref	Building Material	Improved Case Selection	Proportion %	Thickness
OFM01*	Floor Slabs Upload Document(s)	In-Situ Concrete with >25% GGBS		120 mm
OFM02*	Roof Construction Upload Document(s)	Type 1 In-Situ Concrete with >25% GGBS	100 %	120 mm
OFM03*	External Walls Upload Document(s)	Type 1 Precast Concrete Panels	75 %	150 mm
		Type 2 Curtain Walling (Opaque Element)	25 %	12 mm
OFM04*	Internal Walls Upload Document(s)	Type 1 Medium Weight Hollow Concrete Blocks	80 %	150 mm
		Type 2 Plasterboards on Metal Studs	20 %	
OFM05*	Flooring Upload Document(s)	Type 1 Ceramic Tile	97 %	
		Type 2 Finished Concrete Floor	3 %	
OFM06*	Window Frames Upload Document(s)	Type 1 Aluminium	100 %	



PERSPEKTIF

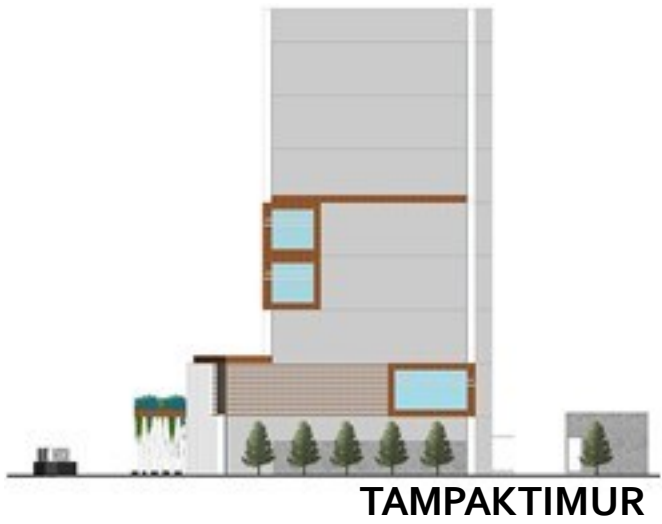


Saving Energy 30,85%

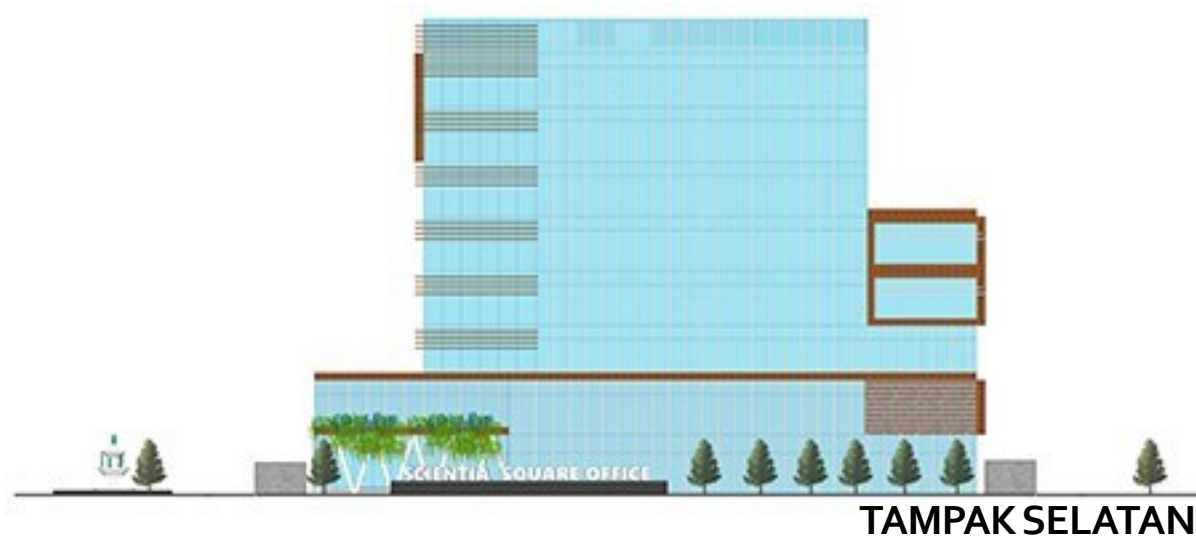
Saving Water 54,61%

Saving Materials 50,13%

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TAMPAKTIMUR



TAMPAK SELATAN



TAMPAK BARAT



TAMPAK UTARA

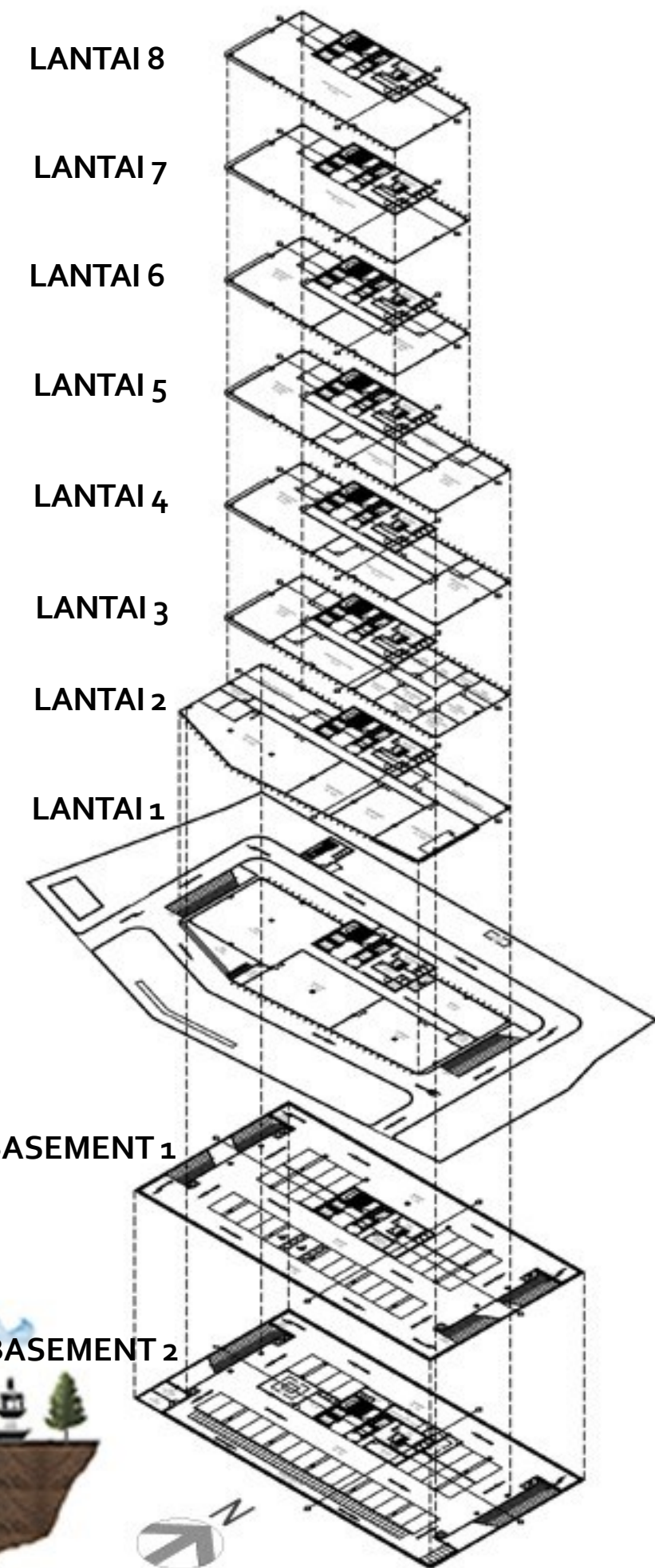
POTONGANA-A



POTONGAN B-B



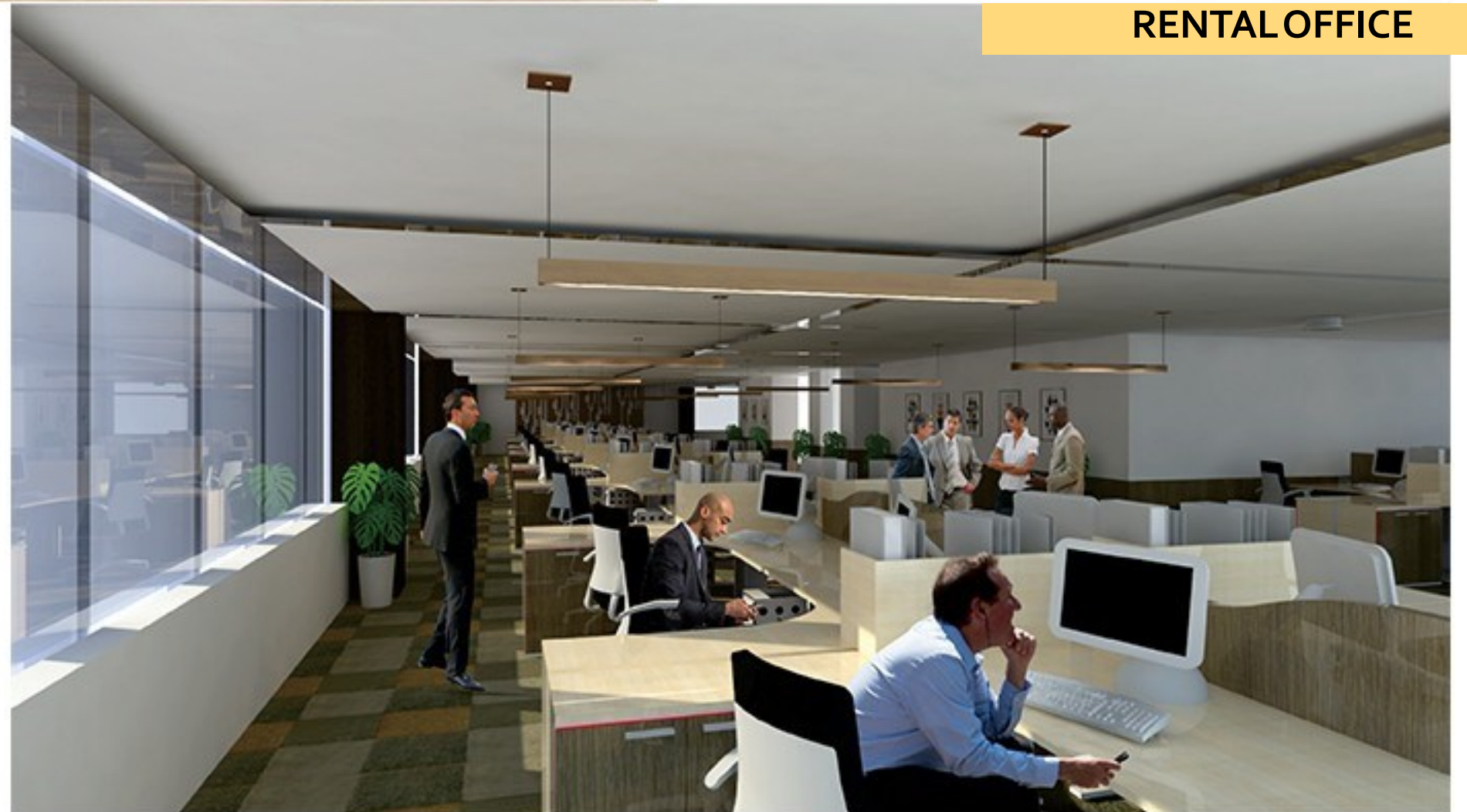
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LOBBY OFFICE



RENTAL OFFICE



COFFEE SHOP



CO-WORKING SPACE



AUDITORIUM



CO-WORKING SPACE