

**BAB IV**  
**PROGRAM PERENCANAAN DAN PERANCANGAN BANGUNAN**

**4.1. Program Ruang**

Tabel 4.1 Program Ruang

No.	Pelaku	Kegiatan	Kebutuhan ruang
1	<b>Pengelola</b>		
	Manajer	Memeriksa laporan, mengawasi kerja bawahan, menyimpan dan membuka data	Ruang Manajer Ruang Rapat
	Sekretaris	Mengolah data yang masuk, Mengurus hal-hal surat menyurat, menyimpan dan membuka data	Ruang Sekretaris Ruang Arsip Ruang Rapat
	Administrasi	Mengolah data yang masuk, Mengurus hal-hal administratif, menyimpan dan membuka data	Ruang Administrasi Ruang Arsip Ruang Rapat
	Marketing	Memasarkan	Ruang Marketing Ruang Rapat
	Teknisi	Mengontrol dan mengawasi	Ruang Teknisi Ruang Rapat
2	<b>Penyewa</b>		
	Pegawai	Bekerja	Ruang Kantor Ruang Fotokopi
3	<b>Konsumen</b>		Lobby

Tabel 4.2 pelaku dengan kegiatannya dan kebutuhan ruang (bersifat PENUNJANG)

No.	Pelaku	Kegiatan	Kebutuhan ruang
1	Semua Pelaku	Beribadah Ke toilet Makan, Minum Menyimpan barang Memarkirkan kendaraan	Musholla Toilet Nursery Room Café Gudang Area Parkir Drop Off Loading Dock Laundry ATM Centre Minimarket
2	Teknisi	Mengontrol	Ruang Genset, Panel Listrik, CCTV, dan Shaft
3	Cleaning Service	Membersihkan area kantor	Ruang Cleaning Service Janitor
4	Satpam	Menjaga keamanan kantor	Pos Satpam

Besaran Ruang UTAMA

### Ruang Pengelola

No.	Kebutuhan ruang	Jumlah Pengguna	Ukuran	Hasil	Total
1.	Ruang Manajer	1	9,30 m <sup>2</sup>	9,30 m <sup>2</sup>	9,30 m <sup>2</sup>
2.	Ruang Administrasi	2	4,50 m <sup>2</sup>	9,00 m <sup>2</sup>	9,00 m <sup>2</sup>
3.	Ruang Marketing	1	4,50 m <sup>2</sup>	4,50 m <sup>2</sup>	4,50 m <sup>2</sup>
4.	Ruang Teknisi	1	4,50 m <sup>2</sup>	4,50 m <sup>2</sup>	4,50 m <sup>2</sup>
5.	Ruang Rapat	7	2,00 m <sup>2</sup>	14,00 m <sup>2</sup>	14,00 m <sup>2</sup>
	Jumlah				= 41,30 m <sup>2</sup>
	Ruang gerak				= -
	Total				= 41,30 m <sup>2</sup> = ± 42,00 m <sup>2</sup>

### Lobby (Neufert, Time Saver dan Preseden)

No.	Kebutuhan ruang	Jumlah	Ukuran	Hasil	Total
1.	Meja Resepsionis	1	1,50 x 0,60 m	0,90 m <sup>2</sup>	0,90 m <sup>2</sup>
2.	Kursi Resepsionis	1	0,43 x 0,43 m	0,1849 m <sup>2</sup>	0,1849 m <sup>2</sup>
3.	Sofa (3 seats)	4	0,76 x 1,44 m	2,18 m <sup>2</sup>	8,72 m <sup>2</sup>
4.	Meja	2	0,6 x 0,9 m	0,54 m <sup>2</sup>	1,08 m <sup>2</sup>
	Jumlah				= 10,89 m <sup>2</sup>
	Ruang gerak (1000%)				= 108,90 m <sup>2</sup>
	Total				= 119,79 m <sup>2</sup> = ± 120,00 m <sup>2</sup>

### Kantor Sewa

No.	Kebutuhan Prabot	Ukuran	Jumlah	Total
1.	Asumsi	12000,00	1	12000,00
Jumlah				12000,00
Ruang gerak ( %)				12000,00
Total				12000,00
Total 1 unit				12000,00
Pembulatan				12000,00

### Ruang Fotokopi

No.	Kebutuhan Prabot	Ukuran	Jumlah	Total
1.	Mesin fotocopy	0.75 x 0.80 m	2	1,20
			Jumlah	1,20
			Ruang gerak (400 %)	4,80
			Total	6,00
			Total 1 unit	6,00
			Pembulatan	<b>6,00</b>

### Besaran Ruang PENUNJANG

#### Minimarket

No.	Kebutuhan ruang	Jumlah	Ukuran	Hasil	Total
1.	Ruang <i>Retail</i>	1	4,00 x 4,00 m	16,00 m <sup>2</sup>	16,00 m <sup>2</sup>
				Jumlah =	16,00 m <sup>2</sup>
				Ruang gerak =	-
				Total =	6,00 m <sup>2</sup>
				= ±	16,00 m <sup>2</sup>

#### Laundry

No.	Kebutuhan ruang	Jumlah	Ukuran	Hasil	Total
1.	Ruang <i>Retail</i>	1	4,00 x 4,00 m	16,00 m <sup>2</sup>	16,00 m <sup>2</sup>
				Jumlah =	16,00 m <sup>2</sup>
				Ruang gerak =	-
				Total =	6,00 m <sup>2</sup>
				= ±	16,00 m <sup>2</sup>

#### ATM Centre

No.	Kebutuhan Prabot	Ukuran	Jumlah	Total
1.	Bilik ATM (BNI, BRI, BCA, MANDIRI, BTN)	0.80 x 1.50 m	5	6,00
			Jumlah	6,00
			Ruang gerak (100 %)	6,00
			Total	12,00
			Total 1 unit	12,00
			Pembulatan	<b>12,00</b>

#### Drop Off Area (Pedoman Parkir dan Analisis)

No.	Kebutuhan ruang	Jumlah	Ukuran	Hasil	Total
1.	<i>Waiting-Dropping Bay</i>	1	2,50 x 9,00 m	22,50 m <sup>2</sup>	22,50 m <sup>2</sup>
2.	Selasar	1	4,00 x 9,00 m	36,00 m <sup>2</sup>	36,00 m <sup>2</sup>
	Jumlah = 58,50 m <sup>2</sup>				
	Ruang gerak = -				
	Total = 58,50m <sup>2</sup>				
	= ± 60,00 m <sup>2</sup>				

*Nursery Room* (Pedoman Toilet Indonesia)

No.	Kebutuhan ruang	Jumlah	Ukuran	Hasil	Total
1.	<i>Nursery Room</i>	1	2,00 x 3,00 m	6,00 m <sup>2</sup>	6,00 m <sup>2</sup>
	Jumlah = 6,00 m <sup>2</sup>				
	Ruang gerak = -				
	Total = 6,00 m <sup>2</sup>				
	= ± 6,00 m <sup>2</sup>				

Gudang (Asumsi)

No.	Kebutuhan ruang	Jumlah	Ukuran	Hasil	Total
1.	Gudang	1	5,00 x 5,00 m	25,00 m <sup>2</sup>	25,00 m <sup>2</sup>
	Jumlah = 25,00 m <sup>2</sup>				
	Ruang gerak = -				
	Total = 25,00 m <sup>2</sup>				
	= ± 25,00 m <sup>2</sup>				

Area Parkir *Loading Dock*

No.	Kebutuhan ruang	Jumlah	Ukuran	Hasil	Total
1.	Parkir Truk Box	1	3,00 x 7,00 m	21,00 m <sup>2</sup>	21,00 m <sup>2</sup>
	Jumlah = 21,00 m <sup>2</sup>				
	Ruang gerak = -				
	Total = 21,00 m <sup>2</sup>				

	= ± 21,00 m <sup>2</sup>
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#### Parkir

No	Kebutuhan Perabot	Ukuran	Jumlah	Total
1.	Mobil	2.50 x 5.00 m	180	2250,00
2.	Motor	2.0 x 0.70 m	100	140,00
Jumlah				2390,00
Ruang gerak (50 %)				1195,00
Total				3585,00
Total 1 unit				3585,00
Pembulatan				<b>3585,00</b>

#### Dapur (Analisis)

No.	Kebutuhan ruang	Jumlah	Ukuran	Hasil	Total
1.	Chiller	1	1,56 x 0,65 m	1,01 m <sup>2</sup>	1,01 m <sup>2</sup>
2.	Rak Penyimpanan	1	0,60 x 2,10 m	1,26 m <sup>2</sup>	1,26 m <sup>2</sup>
3.	Kabinet + Kompor	2	0,60 x 1,40 m	1,68 m <sup>2</sup>	3,36 m <sup>2</sup>
4.	Meja Masak	1	2,00 x 0,60 m	1,20 m <sup>2</sup>	1,20 m <sup>2</sup>
5.	Meja Saji	1	0,60 x 3,00 m	2,40 m <sup>2</sup>	2,40 m <sup>2</sup>
6.	Tempat Cuci	1	1,00 x 0,60 m	0,60 m <sup>2</sup>	0,60 m <sup>2</sup>
7.	Rak Piring	1	1,00 x 0,45 m	0,45 m <sup>2</sup>	0,45 m <sup>2</sup>
8.	Lemari	1	0,60 x 2,00 m	1,20 m <sup>2</sup>	1,20 m <sup>2</sup>
9.	Oven	1	1.20 x 0.50 m	0,60 m <sup>2</sup>	0,60 m <sup>2</sup>
Jumlah				= 12,08 m <sup>2</sup>	
Ruang gerak (175%)				= 18,12 m <sup>2</sup>	
Total				= 30,20 m <sup>2</sup>	
					= ± 30,00 m <sup>2</sup>

#### Ruang Pegawai (Analisis)

No.	Kebutuhan ruang	Jumlah	Ukuran	Hasil	Total
1.	Loker	7	0.40 x 0.40 m	1,44 m <sup>2</sup>	10,08 m <sup>2</sup>

	Jumlah = 10,08 m <sup>2</sup>
Ruang gerak (50%)	= 5,04 m <sup>2</sup>
	Total = 15,12 m <sup>2</sup>
	= ± 15,00 m <sup>2</sup>

Tempat Makan Pengunjung (Analisis)

No.	Kebutuhan ruang	Jumlah	Ukuran	Hasil	Total
1.	Meja dan Kursi (1 Meja + 2 Kursi)	6	0,80 x 0,62 m	0,496 m <sup>2</sup>	2,98 m <sup>2</sup>
2.	Meja dan Kursi (1 Meja + 2 Sofa)	2	2,40 x 2,00 m	4,80 m <sup>2</sup>	9,60 m <sup>2</sup>
3.	Meja dan Kursi (1 Meja + 4 Kursi)	4	1,25 x 0,80 m	1,00 m <sup>2</sup>	4,00 m <sup>2</sup>
4.	Meja dan Kursi (1 Meja + 8 Kursi)	2	2,50 x 1,60 m	4,00 m <sup>2</sup>	8,00 m <sup>2</sup>
5.	Kasir	1	1,00 x 1,50 m	1,50 m <sup>2</sup>	1,50 m <sup>2</sup>
			Jumlah = 26,08 m <sup>2</sup>		
	Ruang gerak (400%)		= 104,32 m <sup>2</sup>		
			Total = 130,40 m <sup>2</sup>		
			= ± 130,00 m <sup>2</sup>		

Total Kebutuhan Ruang Cafe : 175,00 m<sup>2</sup>  
 Sirkulasi (15%) : 26,25 m<sup>2</sup>  
 Total Luas Cafe : 201,25 m<sup>2x</sup>  
 Pembulatan : 200 m<sup>2</sup>  
 Total Luas : 200 m<sup>2</sup> x (2 tenants) = 400 m<sup>2</sup>  
 Ruang Satpam (Analisis)

No.	Kebutuhan ruang	Jumlah	Ukuran	Hasil	Total
1.	Meja	1	0,80 x 0,40 m	0,32 m <sup>2</sup>	0,32 m <sup>2</sup>
2.	Kursi	2	0,40 x 0,50 m	0,20 m <sup>2</sup>	0,40 m <sup>2</sup>
			Jumlah = 0,72 m <sup>2</sup>		
	Ruang gerak (500%)		= 3,60 m <sup>2</sup>		
			Total = 4,32 m <sup>2</sup>		

	= ± 4,00 m <sup>2</sup>
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#### Ruang CCTV (Analisis)

No.	Kebutuhan ruang	Jumlah	Ukuran	Hasil	Total
1.	Meja dan Perangkat CCTV	1	0,60 x 1,20 m	0,72 m <sup>2</sup>	0,72 m <sup>2</sup>
2.	Kursi	1	0,40 x 0,50 m	0,20 m <sup>2</sup>	0,20 m <sup>2</sup>
				Jumlah	= 0,92 m <sup>2</sup>
			Ruang gerak (400%)	= 3,68 m <sup>2</sup>	
				Total	= 4,60 m <sup>2</sup>
		= ± 5,00 m <sup>2</sup>			

#### Ruang Waste and Water Management (Analisis)

No.	Kebutuhan ruang	Jumlah	Ukuran	Hasil	Total
1.	Bak Penampung Sampah <i>Portable</i>	4	0,50 x 0,50 m	0,25 m <sup>2</sup>	1,00 m <sup>2</sup>
2.	Area Cuci Bak Sampah	1	1,00 x 1,20 m	1,20 m <sup>2</sup>	0,20 m <sup>2</sup>
3.	Bak Penampung Sampah Akhir	4	0,50 x 1,20	0,60	2,40
4.	Water Management	1	45 m <sup>2</sup>	45 m <sup>2</sup>	45 m <sup>2</sup>
				Jumlah	= 48,60 m <sup>2</sup>
			Ruang gerak (250%)	= 11,50 m <sup>2</sup>	
				Total	= 61,10 m <sup>2</sup>
		= ± 60,00 m <sup>2</sup>			

#### Ruang Panel Kelistrikan Utama (Preseden dan Analisis)

No.	Kebutuhan ruang	Jumlah	Ukuran	Hasil	Total
1.	Ruang Panel Kelistrikan Utama	1	3,00 x 4,00 m	12,00 m <sup>2</sup>	12,00 m <sup>2</sup>
				Jumlah	= 12,00 m <sup>2</sup>
		Ruang gerak = -			

	Total = 12,00 m <sup>2</sup>
= ± 12,00 m <sup>2</sup>	

#### Ruang Genset (Preseden dan Analisis)

No.	Kebutuhan ruang	Jumlah	Ukuran	Hasil	Total
1.	Ruang Genset	1	6,00 x 8,00 m	48,00 m <sup>2</sup>	48,00 m <sup>2</sup>
				Jumlah = 48,00 m <sup>2</sup>	
Ruang gerak = -					
				Total = 48,00 m <sup>2</sup>	
= ± 48,00 m <sup>2</sup>					

#### Kamar Mandi Pegawai (Analisis)

No.	Kebutuhan ruang	Jumlah	Ukuran	Hasil	Total
1.	Kloset Jongkok	1	0,40 x 0,60 m	0,24 m <sup>2</sup>	0,24 m <sup>2</sup>
				Jumlah = 0,24 m <sup>2</sup>	
Ruang gerak (700%) = 1,68 m <sup>2</sup>					
				Total = 1,92 m <sup>2</sup>	
= ± 2,00 m <sup>2</sup>					

#### Musholla Pegawai (Analisis)

No.	Kebutuhan ruang	Jumlah	Ukuran	Hasil	Total
1.	Sajadah	10	1,20 x 0,65 m	0,78 m <sup>2</sup>	7,80 m <sup>2</sup>
2.	Rak Mukena	1	0,40 x 0,80 m	0,32 m <sup>2</sup>	0,32 m <sup>2</sup>
				Jumlah = 8,12 m <sup>2</sup>	
Ruang gerak (40%) = 3,248 m <sup>2</sup>					
				Total = 11,368 m <sup>2</sup>	
= ± 12,00 m <sup>2</sup>					

#### Ruang Wudhu Pegawai (Analisis)

No.	Kebutuhan ruang	Jumlah	Ukuran	Hasil	Total
1.	Ruang / 1 Orang	1 (Pria) + 1	0,60x0,60 m	0,36 m <sup>2</sup>	0,72 m <sup>2</sup>

	(Wanita)			
	Jumlah = 0,72 m <sup>2</sup>			
	Ruang gerak (200%) = 1,44 m <sup>2</sup>			
	Total = 2,50 m <sup>2</sup>			
	= ± 2,50 m <sup>2</sup>			

#### Ruang Loker Pegawai (Analisis)

No.	Kebutuhan ruang	Jumlah	Ukuran	Hasil	Total
1.	Loker Pegawai (tiga loker vertikal)	17	0,45 x 0,30 m	0,135 m <sup>2</sup>	2,295 m <sup>2</sup>
2.	Bangku Panjang	6	0,30 x 1,60 m	0,48 m <sup>2</sup>	2,88 m <sup>2</sup>
	Jumlah = 5,175 m <sup>2</sup>				
	Ruang gerak (600%) = 31,05 m <sup>2</sup>				
	Total = 36,225 m <sup>2</sup>				
	= ± 36 m <sup>2</sup>				

#### CORE

##### Lift (Neufert)

No.	Kebutuhan ruang	Jumlah	Ukuran	Hasil	Total
1.	Lift Penumpang	4	2,45 x 2,55 m	6,2475 m <sup>2</sup>	25 m <sup>2</sup>
2.	Lift Service	1	2,45 x 2,55 m	6,2475 m <sup>2</sup>	6,2475 m <sup>2</sup>
	Jumlah = 31,2475 m <sup>2</sup>				
	Ruang gerak = -				
	Total = 31,2475 m <sup>2</sup>				
	= ± 32,00 m <sup>2</sup>				

##### Toilet Pria (Pedoman Toilet Indonesia)

No.	Kebutuhan ruang	Jumlah	Ukuran	Hasil	Total
1.	Kubikal	2	1,00 x 1,65 m	1,65 m <sup>2</sup>	3,3 m <sup>2</sup>
2.	Urinoir	3	0,50 x 0,938 m	0,47 m <sup>2</sup>	1,41 m <sup>2</sup>

3.	Wastafel + Meja	3	0,682 x 1,20 m	0,82 m <sup>2</sup>	2,46 m <sup>2</sup>
	Jumlah = 7,17 m <sup>2</sup>				
	Ruang gerak (150%) = 10,755 m <sup>2</sup>				
	Total = 17,925 m <sup>2</sup>				
	= ± 18,00 m <sup>2</sup>				

Toilet Wanita (Pedoman Toilet Indonesia)

No.	Kebutuhan ruang	Jumlah	Ukuran	Hasil	Total
1.	Kubikal	4	1,00 x 1,65 m	1,65 m <sup>2</sup>	6,60 m <sup>2</sup>
2.	Wastafel + Meja	3	0,682 x 1,20 m	0,82 m <sup>2</sup>	2,46 m <sup>2</sup>
	Jumlah = 9,06 m <sup>2</sup>				
	Ruang gerak (125%) = 11,325 m <sup>2</sup>				
	Total = 20,385 m <sup>2</sup>				
	= ± 21,00 m <sup>2</sup>				

Toilet Pengguna Kursi Roda (Pedoman Toilet Indonesia)

No.	Kebutuhan ruang	Jumlah	Ukuran	Hasil	Total
1.	Toilet Pengguna Kursi Roda	1	2,20 x 2,20 m	4,84 m <sup>2</sup>	4,84 m <sup>2</sup>
	Jumlah = 4,84 m <sup>2</sup>				
	Ruang gerak = -				
	Total = 4,84 m <sup>2</sup>				
	= ± 4,84 m <sup>2</sup>				

Janitor Room (Pedoman Toilet Indonesia dan Analisis)

No.	Kebutuhan ruang	Jumlah	Ukuran	Hasil	Total
1.	Janitor Room	1	2,00x 1,20 m	2,40 m <sup>2</sup>	2,40 m <sup>2</sup>
2.	Ruang untuk Bak Sampah	1	1,20 x 1,20	1,44 m <sup>2</sup>	1,44 m <sup>2</sup>
	Jumlah = 3,84 m <sup>2</sup>				
	Ruang gerak = -				
	Total = 3,84 m <sup>2</sup>				
	= ± 4,00 m <sup>2</sup>				

Tangga Darurat (SNI dan Analisis)

No.	Kebutuhan ruang	Jumlah	Ukuran	Hasil	Total
1.	Area Tangga Darurat	1	2,75 x 4,00 m	11,00 m <sup>2</sup>	11,00 m <sup>2</sup>
	Jumlah = 11,00 m <sup>2</sup>				
	Ruang gerak = -				
	Total = 11,00 m <sup>2</sup>				
	= ± 11,00 m <sup>2</sup>				

Musholla (Analisis)

No.	Kebutuhan ruang	Jumlah	Ukuran	Hasil	Total
1.	Sajadah	25	1,20 x 0,65 m	0,78 m <sup>2</sup>	19,5 m <sup>2</sup>
2.	Rak Mukena	2	0,40 x 0,80 m	0,32 m <sup>2</sup>	0,64 m <sup>2</sup>
	Jumlah = 20,14 m <sup>2</sup>				
	Ruang gerak (40%) = 8,06 m <sup>2</sup>				
	Total = 28,2 m <sup>2</sup>				
	= ± 28,00 m <sup>2</sup>				

Ruang Wudhu (Analisis)

No.	Kebutuhan ruang	Jumlah	Ukuran	Hasil	Total
1.	Ruang / 1 Orang	3 (Pria) + 2 (Wanita)	0,60x0,60 m	0,36 m <sup>2</sup>	1,80 m <sup>2</sup>
	Jumlah = 1,80 m <sup>2</sup>				
	Ruang gerak (200%) = 3,60 m <sup>2</sup>				
	Total = 5,40 m <sup>2</sup>				
	= ± 6,00 m <sup>2</sup>				

Shaft Listrik, Pipa Air Bersih dan Pipa Air Kotor (Asumsi)

No.	Kebutuhan ruang	Jumlah	Ukuran	Hasil	Total
1.	Shaft Listrik	1	0,75 x 2,00 m	1,50 m <sup>2</sup>	1,50 m <sup>2</sup>
2.	Shaft Air Bersih	1	1,00 x 1,50 m	1,50 m <sup>2</sup>	1,50 m <sup>2</sup>

3.	Shaft Air Kotor	2	1,00 x 2,00 m	2,00 m <sup>2</sup>	2,00 m <sup>2</sup>
	Jumlah = 5,00 m <sup>2</sup>				
	Ruang gerak = -				
	Total = 5,00 m <sup>2</sup>				
	= ± 5,00 m <sup>2</sup>				

#### Ruang Panel Listrik Distribusi (Preseden)

No.	Kebutuhan ruang	Jumlah	Ukuran	Hasil	Total
1.	Ruang Panel Listrik Distribusi	1	1,50 x 2,00 m	3,00 m <sup>2</sup>	3,00 m <sup>2</sup>
	Jumlah = 3,00 m <sup>2</sup>				
	Ruang gerak = -				
	Total = 3,00 m <sup>2</sup>				
	= ± 3,00 m <sup>2</sup>				

#### Ruang AC

No.	Kebutuhan ruang	Jumlah	Ukuran	Hasil	Total
1.	Unit <i>Outdoor VRV System</i>	1	0,93 x 0,765m	0,72 m <sup>2</sup>	0,72 m <sup>2</sup>
	Jumlah = 0,72 m <sup>2</sup>				
	Ruang gerak (150%) = 1,08 m <sup>2</sup>				
	Total = 1,80 m <sup>2</sup>				
	= ± 2,00 m <sup>2</sup>				

#### Tabel Besaran Ruang

No	Ruang	Jumlah Ruangan	Luas Ruang	Jumlah
<b>UTAMA</b>				
1	Ruang Manager	1	9,30	9,30
2	Ruang Sekretaris	1	4,50	4,50
3	Ruang Arsip	1	12,00	12,00
4	Ruang Marketing	1	4,50	4,50
5	Ruang Administrasi	2	4,50	9,00
6	Ruang Rapat	1	14,00	14,00

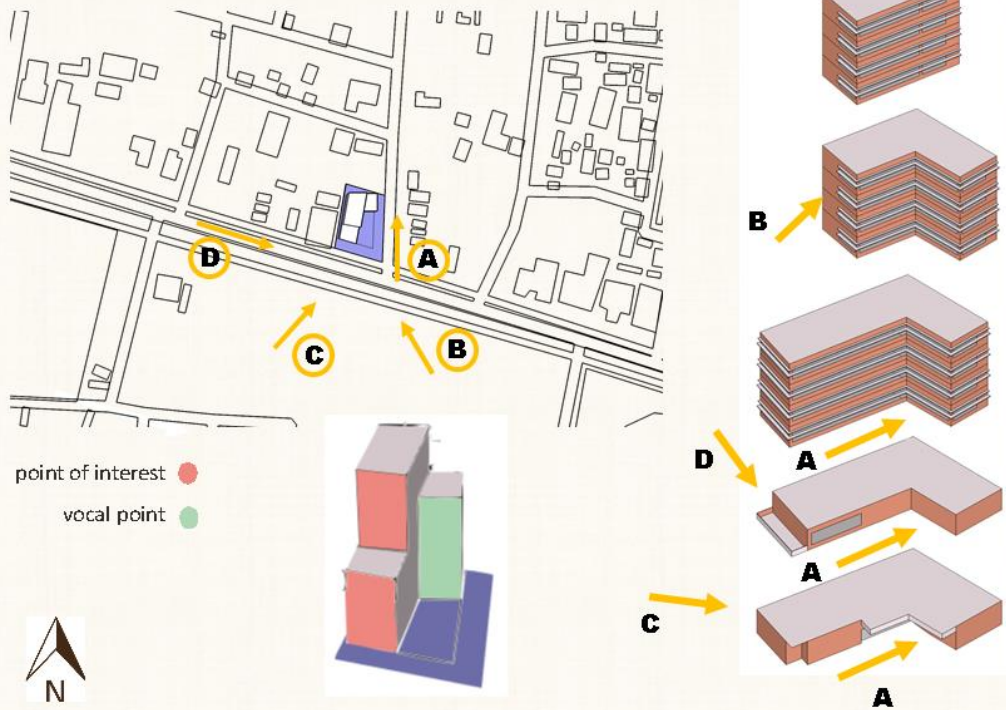
7	Ruang Teknisi	1	4,50	4,50
8	Lobby	1	120,00	120,00
9	Kantor Sewa	1	12000,00	12000,00
10	Drop Off	1	60,00	60,00
<b>PENUNJANG</b>				
9	Laundry	1	16,00	16,00
10	Minimarket	1	16,00	16,00
11	ATM Centre	1	12,00	12,00
12	<b>Cafe</b>			
	Gudang Penyimpanan	2	12,00	24,00
	Dapur	2	24,00	48,00
	Kasir	2	3,00	6,00
	Tempat makan pengunjung	2	90,00	180,00
	Ruang Loker Staff	2	6,00	12,00
15	Ruang Fotokopi	1	16,00	16,00
16	Nursery Room	10	7,00	70,00
17	Tangga Darurat	1	12,00	12,00
18	Parkir			
	Mobil (2,50 x 5,00)	180	12,50	2550,00
	Motor (0,70 x 2,00)	100	1,40	140,00
	Sirkulasi (50 %)			1195,00
<b>SERVICE</b>				
17	Ruang Waste and Water Management	1	60,00	60,00
22	Pos Satpam	1	4,00	4,00
23	Ruang Genset	1	48,00	48,00
24	Ruang Panel Listrik	1	24,00	24,00
25	Ruang AC	1	2,00	2,00
26	Musholla Pegawai	1	15,00	15,00
	Toilet Pegawai	1	2,00	2,00
26	Ruang Loker Pegawai Cleaning Service dan OB	1	36,00	36,00
27	Ruang CCTV	1	4,00	4,00
28	Gudang	1	25,00	25,00
29	Loading Dock	1	21,00	21,00
<b>CORE</b>				
29	Musholla	1	28,00	28,00
30	Tempat Wudhu	1	6,00	6,00
31	Lift Penumpang	1	24,00	24,00
32	Lift Barang	1	6,00	6,00
33	Tangga Darurat	1	12,00	12,00
34	Toilet Pria	1	18,00	18,00
35	Toilet Wanita	1	21,00	21,00
36	Toilet Disable	1	8,00	8,00
37	Janitor	1	4,00	4,00
38	Shaft	1	6,00	6,00

	Jumlah		17733,80
	Ruang gerak antar ruang 20 %		3546,76
	Total		21280,56

#### 4.2. Program Tools EDGE



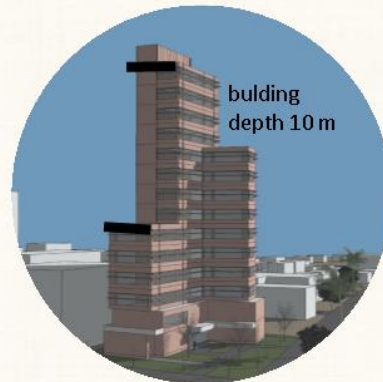
## VIEW TO SITE



## DATA BUILDING



luas bangunan	: 4.108 m <sup>2</sup>
building coverage	: 970,8 m <sup>2</sup>
building footprint	: 499,2 m <sup>2</sup>
jumlah lantai diatas tanah	: 14
jumlah lantai dibawah tanah	: 4
ketinggian antar lantai	: 4 m
kedalaman bangunan	: 10



# MODUL 2 PASSIVE DESIGN STRATEGIS

## A. Shape and Orientation

Energy: 4.95%

**4,95 %**

**Building Orientation**

Floor Plan Depth\*\*\*: 10 m  
Main Orientation\*\*\*: Equal

\*\*\* These parameters will be used to estimate building dimensions. If the exact details of the dimensions and orientation are available, then complete the User Entry fields in the Building Lengths section. The orientation of the building will have a direct effect on energy consumption.

Building Lengths		
	Default	User Entry
North	7.7	18 m
South	7.7	10 m
East	7.7	8 m
West	7.7	0 m
Northeast	7.7	0 m
Northwest	7.7	27.7 m
Southeast	7.7	22.2 m
Southwest	7.7	10 m

dengan orientasi bangunan seperti diatas, saving energy yang dihasilkan adalah 4,95%



# MODUL 2 PASSIVE DESIGN STRATEGIS

## B. WWR

OFE01\*  Reduced Window to Wall Ratio - WWR of 34.39%

North	%
South	37.20 %
East	24.76 %
West	%
Northeast	%
Northwest	%
Southeast	42.19 %
Southwest	24.37 %

**15.67% ENERGY SAVINGS**

Category	Base case	Virtual energy for comfort*	Improved case	Virtual Energy for Comfort*
Heating Energy	0	0	0	0
Cooling Energy	72	53	21	21
Fan Energy	29	21	8	8
Pump Energy	42	9	8	8
Other	7	8	8	8
Lighting	28	28	28	28
Computers	28	28	28	28
Food Court Kitchenette	6	6	6	6

Bentuk perbandingan antara dinding dan jendela. Perbandingan dibuat mengikut **15,67 %** desain ruang, kolo, balok dll

## C. AASF / Shading

OFE04  External Shading Devices - Annual Average Shading Factor (AASF) of 0.5

AASF = a/b  
AASF1 = 60/120  
AASF2 = 40/80

AASF: 0.5

**26,32 %**

**26.32% Meets EDGE Energy Standard**

Category	Base case	Virtual energy for comfort*	Improved case	Virtual Energy for Comfort*
Heating Energy	0	0	0	0
Cooling Energy	156	183	41	41
Fan Energy	62	41	17	17
Pump Energy	18	17	28	28
Other	7	28	28	28
Lighting	28	28	28	28
Computers	28	28	28	28
Food Court Kitchenette	6	6	6	6

## MODUL 2 PASSIVE DESIGN STRATEGIS

### D. Insulated Wall/Roof

**5,48 %**

OFE05  Insulation of Roof : U-value of 0.16

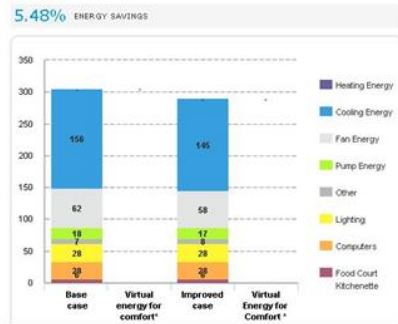
0.16 [W/m<sup>2</sup>.K]

Outside Air Film 0.040

Insulation -- Board, ex 200.00 0.033 6.061

Add Material from List Add Custom Material

Insulation roof yang digunakan adalah board, expanded polystyrene high density 32 ketebalan 32 mm



### E. U-value/SHGC

OFE07  Low-E Coated Glass : U-value of 1.164 W/m<sup>2</sup>.K and SHGC of 0.347

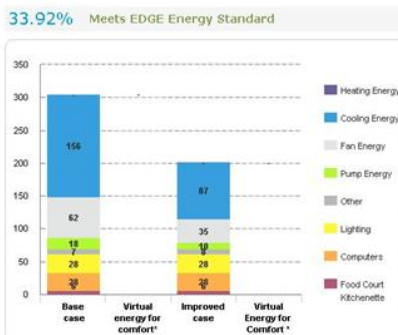
1.164 [W/m<sup>2</sup>.K]

SHGC 0.347

**33,92%**

kaca yang digunakan adalah low-e panasap green 5mm

ID	Name	Mode	Thick	U	SHGC	Tsol	RsolF	RsolD	Tvis	Rvis1	Rvis2	Tr	E1	E2	Contd	Comment
Glass 1	1227 GFRLS,ang		4.9	0.445	0.051	0.051	0.736	0.056	0.066	0.000	0.040	0.040	1.000			
Glass 2	15004 LUSAGC		8	0.402	0.415	0.286	0.756	0.070	0.071	0.000	0.007	0.040	1.000			



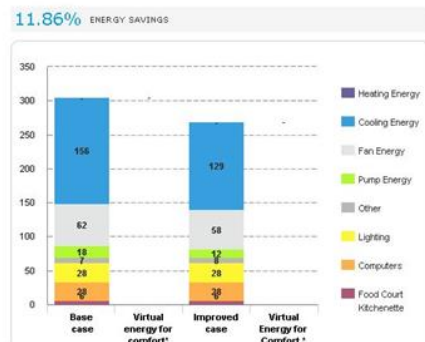
## MODUL 3 HV AC AND CONTROL

### A. Air Condition based Water Chiller

OFE13\*  Air Conditioning with Water Cooled Chiller - COP of 5.39

COP

**11,86 %**



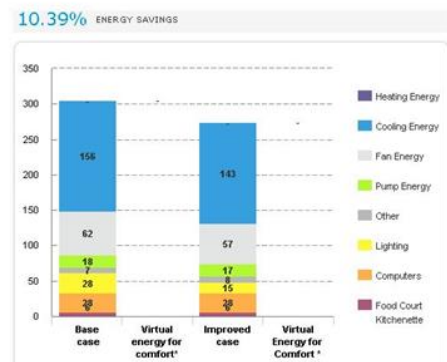
## MODUL 4 LIGHTING

OFE24  Energy-Saving Light Bulbs - Internal Spaces

[Upload Document\(s\)](#)

**10,39 %**

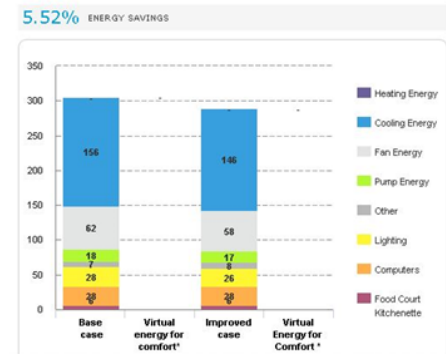
pencahayaannya semua ruangan dalam termasuk ruang kerja, area sirkulasi, lobby, gudang, kamar mandi, dll.



OFE25  Energy-Saving Light Bulbs - External Spaces  
[Upload Document\(s\)](#)

**5,52 %**

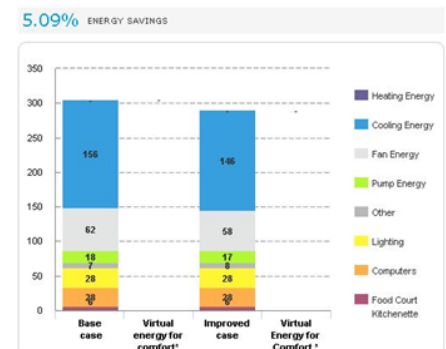
pencahayaan semua area luar bangunan seperti taman dan area outdoor lainnya



OFE26  Lighting Controls for Corridors and Staircases  
[Upload Document\(s\)](#)

**5,09 %**

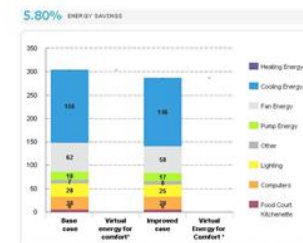
pada koridor dan tangga bangunan menggunakan sensor daylighting yang dapat untuk meningkatkan saving energy pencahayaan



OFE27  Occupancy Sensors in Bathrooms, Conference Rooms, and Closed Cabins  
[Upload Document\(s\)](#)

**5,80 %**

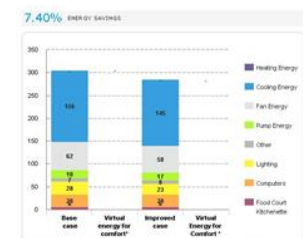
pencahayaan semua area pada toilet, ruang konferensi dan kabin yang tertutup menggunakan sensor occupansy yang dapat berfungsi sebagai saving energy pada pencahayaan luar bangunan seperti taman dan area outdoor lainnya



OFE28  Occupancy Sensors in Open Offices  
[Upload Document\(s\)](#)

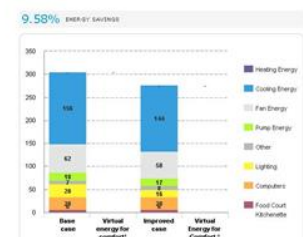
**7,40 %**

pada ruangan kerja menggunakan sensor occupansy yang dapat berfungsi sebagai saving energy pada sistem pencahayaan



OFE29  Daylight Photoelectric Sensors for Internal Spaces  
[Upload Document\(s\)](#)

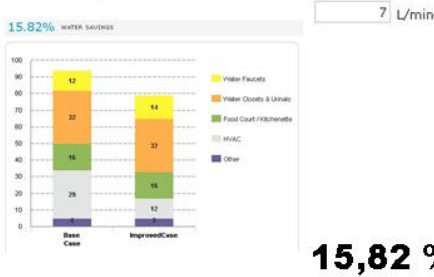
**9,58 %**



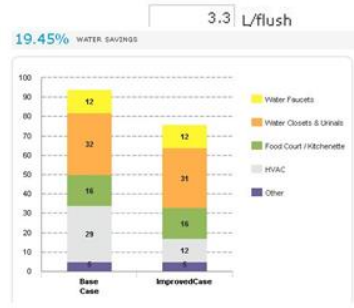
# MODUL 5 WATER EFFICIENCY

## A. Low-flow Water Fixtures

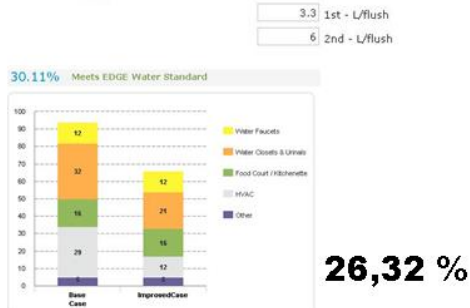
OFW01\*  Low-Flow Faucets in All Bathrooms - 7 L/min



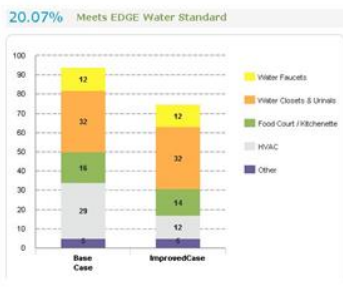
OFW03\*  Water-Efficient Urinals in All Other Bathrooms - 3.3 L/flush



OFW02\*  Dual Flush for Water Closets in All Bathrooms - 3.3 L/first flush and 6 L/second flush  
 Single Flush/Flush Valve



OFW04\*  Water-Efficient Faucets for Kitchen Sinks - 5 L/min

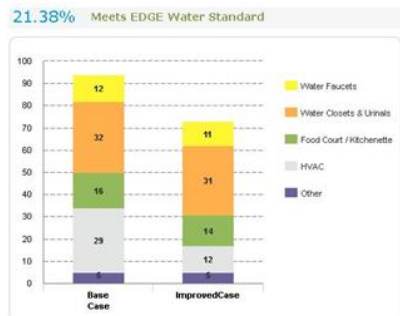


## B. Rain Water System and Recycling Water

OFW06  Rainwater Harvesting System - 100% of Roof Area Used for Collection

% of Roof Area Used

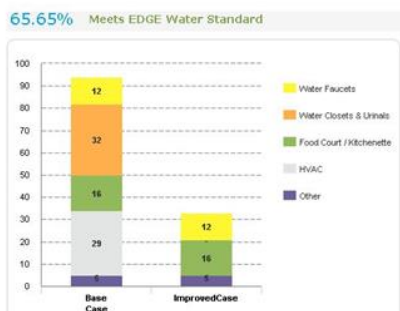
**21,38 %**



OFW07  Grey Water Treatment and Recycling System  
[Upload Document\(s\)](#)

OFW08  Black Water Treatment and Recycling System  
[Upload Document\(s\)](#)

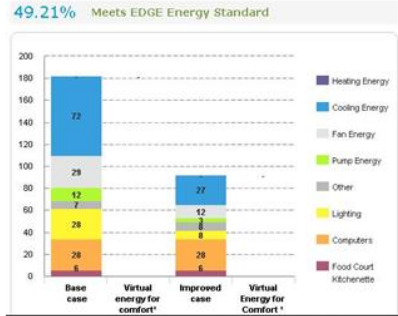
**65,65 %**



# RESULT SAVING ENERGY AND WATER

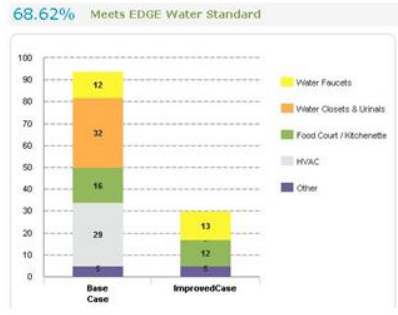
Energy: 49.21%

## 49,21 %



Water: 68.62%

## 68,62 %



## Konsep

### PLATFORM QUARTER



Platform./ menurut KBBI berarti peron atau stage.  
 Platform./ digital merupakan teknologi yang akan semakin berkembang di masa mendatang untuk membantu berbagai kegiatan salah satunya transaksi bisnis.

platform example :



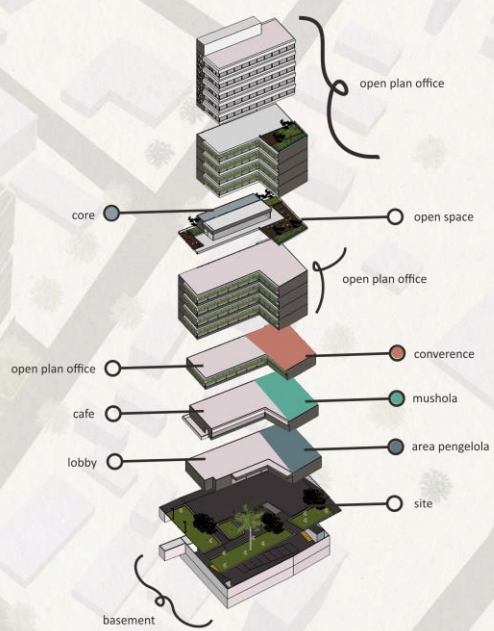
Platform./ desain yaitu rancangan bangunan yang berundak atau terlihat seperti stage.

Gabungan./ dari makna harfiah kedalam arsitektur membuat konsep platform quarter seirama dengan tujuan EDGE App yang menawarkan sebuah kemudahan di masa yang akan datang.



- stage one
- stage two
- stage three

## Zoning



# EDGE App

## A. SAVING ENERGY

OFE01

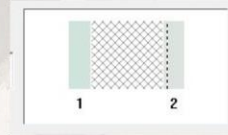
orientasi	% WWR
north	0 %
south	0 %
east	0 %
west	0 %
northeast	0 %
northwest	10,62 %
southeast	48,96 %
southwest	35,20 %

WWR./ 20.99%



OFE07

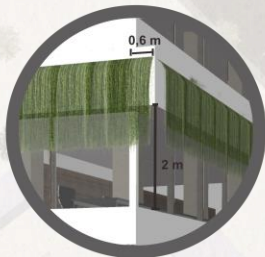
1 = panasap grey 5 mm  
 gap = argon  
 2 = low-e grey 5 mm



Center of Glass Results		Temperature Data		Optical Data		Angular Data		Color Properties		Radiance Results	
Ufactor	SC	SHGC	Rel. Ht. Gain	Tvis	Kafl	Layer 1 Kafl	Gap 1 Kafl	Layer 2 Kafl	W/m2K	W/m2K	W/m2K
1.164	0.299	0.347	251	0.560	0.0389	1.0000	0.0246	1.0000			

SHGC = 0.374  
 U faktor = 1.164

OFE04



$$AASF = \frac{0,6}{2} \cdot 0,3$$

OFE11

**Ease of Maintenance**  
 VRV provides maintenance freedom which allows for installation of FCU without drilling holes in the whole VRF system. This feature comes in handy during maintenance period as the remaining indoor units continue to operate.

**VRV configurator**  
 The VRV configurator is an advanced software solution that allows for easy system configuration and commissioning.  
 - Less time to be spent on the roof for outdoor unit commissioning.  
 - Multiple systems or different sites can be managed in the same setting file. The settings, commissioning and monitoring can be done centrally.  
 - Field settings on the outdoor unit can be managed easily.

Saat./ ini sudah banyak dari bangunan yang beralih menggunakan AC VRV yang memiliki sistem lebih canggih.

Ada./ berbagai jenis AC VRV yang digunakan disini adalah AC VRV X merk Daikin yang dengan mudah dapat di perbaiki hanya dengan menggunakan laptop



Hanya./ dengan menggunakan AC outdoor unit, controler, piping dan AC indoor unit.  
 Satu./ AC outdoor unit VRV X dapat menampung hingga 64 AC indoor unit.  
 Berikut./ skema cara kerja AC VRV X



./ outdoor unit - kontroler - piping - indoor unit./

Kemudian./ air kondensasi AC dialirkan ke shaft air kotor untuk di treatment agar dapat digunakan kembali.



OFE024 - OFE025

Penggunaan./ light bulb membuat energy listrik yang dikeluarkan lebih hemat

Level	Room	Room Name	Room Type	Room Area	Room Volume	Room Height	Room Perimeter	Room Orientation	Room Color	Room Material	Room Notes
1	101	Office	Office	10.00	30.00	3.00	40.00	North	White	Wood	
1	102	Office	Office	10.00	30.00	3.00	40.00	North	White	Wood	
1	103	Office	Office	10.00	30.00	3.00	40.00	North	White	Wood	
1	104	Office	Office	10.00	30.00	3.00	40.00	North	White	Wood	
1	105	Office	Office	10.00	30.00	3.00	40.00	North	White	Wood	
1	106	Office	Office	10.00	30.00	3.00	40.00	North	White	Wood	
1	107	Office	Office	10.00	30.00	3.00	40.00	North	White	Wood	
1	108	Office	Office	10.00	30.00	3.00	40.00	North	White	Wood	
1	109	Office	Office	10.00	30.00	3.00	40.00	North	White	Wood	
1	110	Office	Office	10.00	30.00	3.00	40.00	North	White	Wood	
1	111	Office	Office	10.00	30.00	3.00	40.00	North	White	Wood	
1	112	Office	Office	10.00	30.00	3.00	40.00	North	White	Wood	
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1	114	Office	Office	10.00	30.00	3.00	40.00	North	White	Wood	
1	115	Office	Office	10.00	30.00	3.00	40.00	North	White	Wood	
1	116	Office	Office	10.00	30.00	3.00	40.00	North	White	Wood	
1	117	Office	Office	10.00	30.00	3.00	40.00	North	White	Wood	
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1	119	Office	Office	10.00	30.00	3.00	40.00	North	White	Wood	
1	120	Office	Office	10.00	30.00	3.00	40.00	North	White	Wood	
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1	163	Office	Office	10.00	30.00	3.00	40.00	North	White	Wood	
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1	168	Office	Office	10.00	30.00	3.00	40.00	North	White	Wood	
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1	173	Office	Office	10.00	30.00	3.00	40.00	North	White	Wood	
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1	178	Office	Office	10.00	30.00	3.00	40.00	North	White	Wood	
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1	185	Office	Office	10.00	30.00	3.00	40.00	North	White	Wood	
1	186	Office	Office	10.00	30.00	3.00	40.00	North	White	Wood	
1	187	Office	Office	10.00	30.00	3.00	40.00	North	White	Wood	
1	188	Office	Office	10.00	30.00	3.00	40.00	North	White	Wood	
1	189	Office	Office	10.00	30.00	3.00	40.00	North	White	Wood	
1	190	Office	Office	10.00	30.00	3.00	40.00	North	White	Wood	
1	191	Office	Office	10.00	30.00	3.00	40.00	North	White	Wood	
1	192	Office	Office	10.00	30.00	3.00	40.00	North	White	Wood	
1	193	Office	Office	10.00	30.00	3.00	40.00	North	White	Wood	
1	194	Office	Office	10.00	30.00	3.00	40.00	North	White	Wood	
1	195	Office	Office	10.00	30.00	3.00	40.00	North	White	Wood	
1	196	Office	Office	10.00	30.00	3.00	40.00				

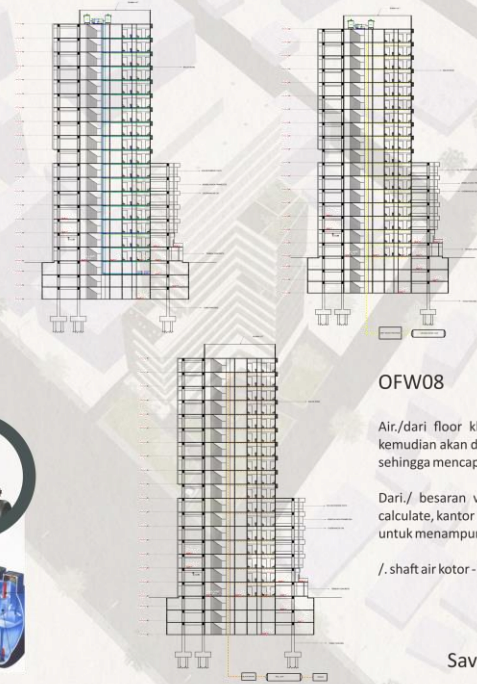
## B. SAVING WATER

### OFW01

Air./ bersih dari PDAM dtampung dalam GWT PDAM yang kemudian dipompa untuk dialirkan ke wastafel dan tempat wudhu.

Dari./ besaran volume yang sudah dihitung melalui water calculate, kantor ini memerlukan ruang 2,8 m<sup>3</sup> untuk menampung air bersih yang dialirkan dari PDAM.

/. PDAM - GWT PDAM - shaft air bersih - roof tank - wastafel, tempat wudhu./



### OFW07

Air./ dari floor drain wastafel dan air wudhu di tampung ke dalam Grey Water Tank yang kemudian akan di treatment agar dapat di gunakan kembali sebagai flushing

Dari./ besaran volume yang sudah dihitung melalui water calculate, kantor ini memerlukan ruang 1,5 m<sup>3</sup> untuk menampung air dari floor drain

/. shaft air kotor - grey water tank - water treatment - mockup tank grey water + air hujan - dipompa untuk flushing ./

### OFW08

Air./ dari floor kloset ditampung di black water tank yang kemudian akan di treatment agar bisa digunakan untuk irigasi sehingga mencapai maksimalisasi penggunaan air.

Dari./ besaran volume yang sudah dihitung melalui water calculate, kantor ini memerlukan ruang 1,5 m<sup>3</sup> untuk menampung air dari kloset

/. shaft air kotor - black water tank - water treatment - irigasi./

Saving water : 72,75%

C. SAVING MATERIAL

Saving material : 49,98%

