

PROPOSED 6 STOREY OFFICE BUILDING AT HULHUMALE'
CLIENT: MINISTRY OF NATIONAL PLANNING AND INFRASTRUCTURE

ARCHITECTURAL CONCEPT AND SCHEMATIC DESIGN
SHELL AND CORE CONCEPTUAL DESIGN

SUBMISSION: 14/04/2019

DESIGN CONSULTANCY: GEDOR CONSULTING PRIVATE LIMITED
DATE: 10/04/2019

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Executive Summary.

The building is designed as an office building but keeping in mind possible change of use. It is designed, at ground level, for public access to building and reception/lounge area plus car-parking and the first floor entirely devoted to motorcycles parking. If need be, access to first floor is designed for car parking also. The rest of the floors are all offices. The topmost, level six, has seminar rooms and an office space and beyond that, at roof level, a multi-purpose hall. The building is designed with modern day security features in mind and access to upper floors controlled by turnstile entrance to lift lobby. Furthermore, enough space within the entrance area is provided for placement of body-scanning and x-ray machines, in case of tighter access control.

A summary of key building features are as follows

1. Footprint area: 2,256sqm (Note: In comparison, STO Head Office - 350sqm, Maldives Monetary Authority - 650sqm & Velaanaage Office Building - 700sqm)
2. Total floor area: 13,500sqm
3. Office floors area 9,000 sqm (4 floors)
4. Building in-house population, approximately 600 to 1000.
5. Office floor population. approximately 120 to 160
6. Ground floor, cars only parking: 25 cars
7. First floor, motorcycles only parking: 392 motorcycles (approximately 40% to 65% of in-house population)
8. Number of passenger lifts: 7 (12 persons/lift)
9. Number of service lifts: 1
10. Number of staircases: 4
11. Number of toilets: 67 (including wheelchair accessibility on all floors)

Design Philosophy

As a building having a large footprint, the underlying design philosophy is based on two specific design decisions. To develop a structure that is durable and adaptable, namely the superstructure or the main structural frame, should last and second, adaptability, meaning that modern building use continuously evolves and therefore a building of this scale hardly gets demolished, but is always adapted to future needs.

In order to achieve the above design criteria; first the structural grid or the pacing of the structural columns are worked out so that.

1. It is economical in construction
2. It considers a common spacing that caters well for parking spaces as well as for office buildings.

3. It also contributes to how well day-lighting will enter the building so that lighting could be reduced as much as possible during daytime.

In line with the issue of 'adaptability', all vertical elements, namely the building (facade) and all internal walls (except for stairs and lift cores) will be designed to be dismantled. This means that an entire floor including external wall could be opened up or bare. This will allow for retrofitting internal walls according to the new use and allowing the facade and the windows to be repositioned. An entire new clad system could be installed on this basis. (Note: Today even old stone buildings through this tedious process whilst more modern buildings of the 70s, 80s and 90s facade cladding systems are easily changed in much less time).

Good design means ease of use and convenience. The basis for this in comes from the way the building is serviced. From how efficiently the circulation is designed to how well it performs in case of an emergency evacuation. A building of this scale creates a micro-climate that has to consider, temperature, humidity control and proper ventilation. Also lighting (including natural and artificial lighting) which produces lighting levels that is task appropriate. It also considers ambient noise levels. Some of these such as the interior temperature levels depend on properly calculating the design and composition of the building which are the cladding system, glazing and the roof. It is the overall thermal and noise reduction characteristic of this assembly that controls these external elements. All these factors contribute to comfort conditions and along the line with design strategies, also contributes to energy efficiency whilst in operation, will help reduce the carbon footprint of the building.

Finally, a building is functional art, it is public art and no matter how well it performs technically, it will have to have visual appeal, ambience and feel good to be associated with it. The aesthetics of a building becomes important at this stage, much thought is given on the geometric form, the material finishes, texture, lighting, considering its appeal during the daytime as well when it is lit up at night.

Good design philosophy will be rewarding to the owner or investor, by making it durable, maintenance free and appealing. That is what makes it a piece of property that is saleable, high in demand and also sustain that demand, which is one of the ultimate test that justifies such an investment.

EXECUTIVE SUMMARY

Key Environmental Considerations

Consideration is given to maximum use of day light. As a deep-planned building, this can only be achieved through large glazed areas and the design concept takes in a full floor to ceiling height window wall system for the building envelope. The disadvantage of large glazed areas is heat gain within the interior spaces. Therefore exterior shading is provided, especially to the side facing direct afternoon sun and secondly, the glazing system is specified to be provided by a manufacturer that adheres to the required thermal resistivity of the window wall system. The building envelope design is a passive system that contributes to the energy efficiency of the building.

Other aspects in making a building energy efficient are the active systems that comes into operation when the building is in use, such as artificial lighting and air-conditioning. For lighting, energy efficiency is achieved through lighting luminaires that uses less energy but that which has high efficacy so that required lighting levels are efficiently achieved. In this regard artificial lighting design will have to consider the lighting levels for task lighting and achieve energy efficiency.

Air-conditioning system is designed as a VRV system, synchronised with an active ventilation system, that will provide the required volume of air-changes within each buildings space. The system will provide the necessary fresh air supply to the entire building based on an active system. Efficiency of the air-conditioning system depends on how well the building envelope is designed to insulate from solar gain and how well other areas such as the roof provides the necessary thermal insulation. An energy-saving air-conditioning and ventilation system is the intention.

The building's electrical system is designed to consider a roof-mounted photovoltaic system to harness solar power as a supplement to cut down on fossil fuels, as part of the energy management of the building. The intention is to again, reduce energy waste.

The purpose of the environmental design is to lower the carbon footprint of the building.

The building envelope, including the roof and glazing should be designed for noise control. Noise level readings should be observed to the site and the total building envelope as mentioned here, shall be designed to achieve 30 to 40 db(A) to the enclosed space.

Noise produced within the interiors also accounts for the background noise level. This will be controlled through surface absorption and achieved by specifying appropriate material

finishes to the floors, walls and ceilings. The performance specification of the material chosen for these purposes must provide sound absorption coefficient as measured by test data, so that interior acoustics are acceptable.

Summing Up

This compilation covers the architectural concept and architectural component. It further includes the shell and core conceptual design. This is a complete design study that will guide the rest of the design disciplines, namely civil and mechanical engineering and building services engineering. A developer/contractor will detail the project from this study, It can also be used for a fairly accurate cost estimate of the development.

At this stage, the schematic plans have been addressed according to comments on the evolving concept and it is understood that due to the nature of building, the actual internal planning can have many variations. Therefore internal layouts will depend on the tenants' requirements, the internal circulation governed by means of escape, plus coordination with building services, such as air-conditioning, IT network etc.

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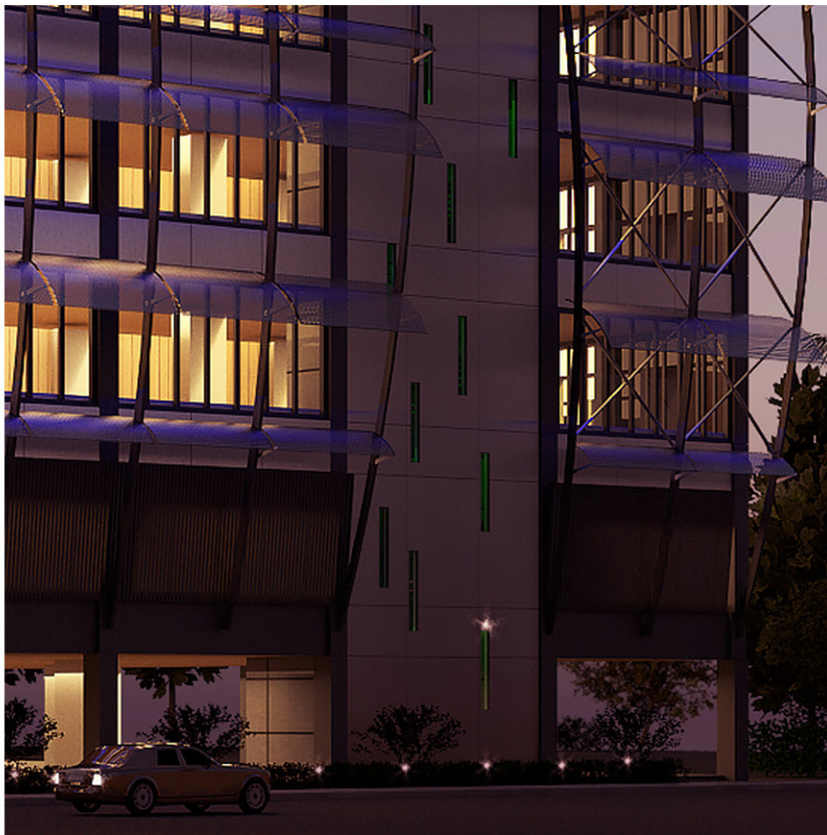
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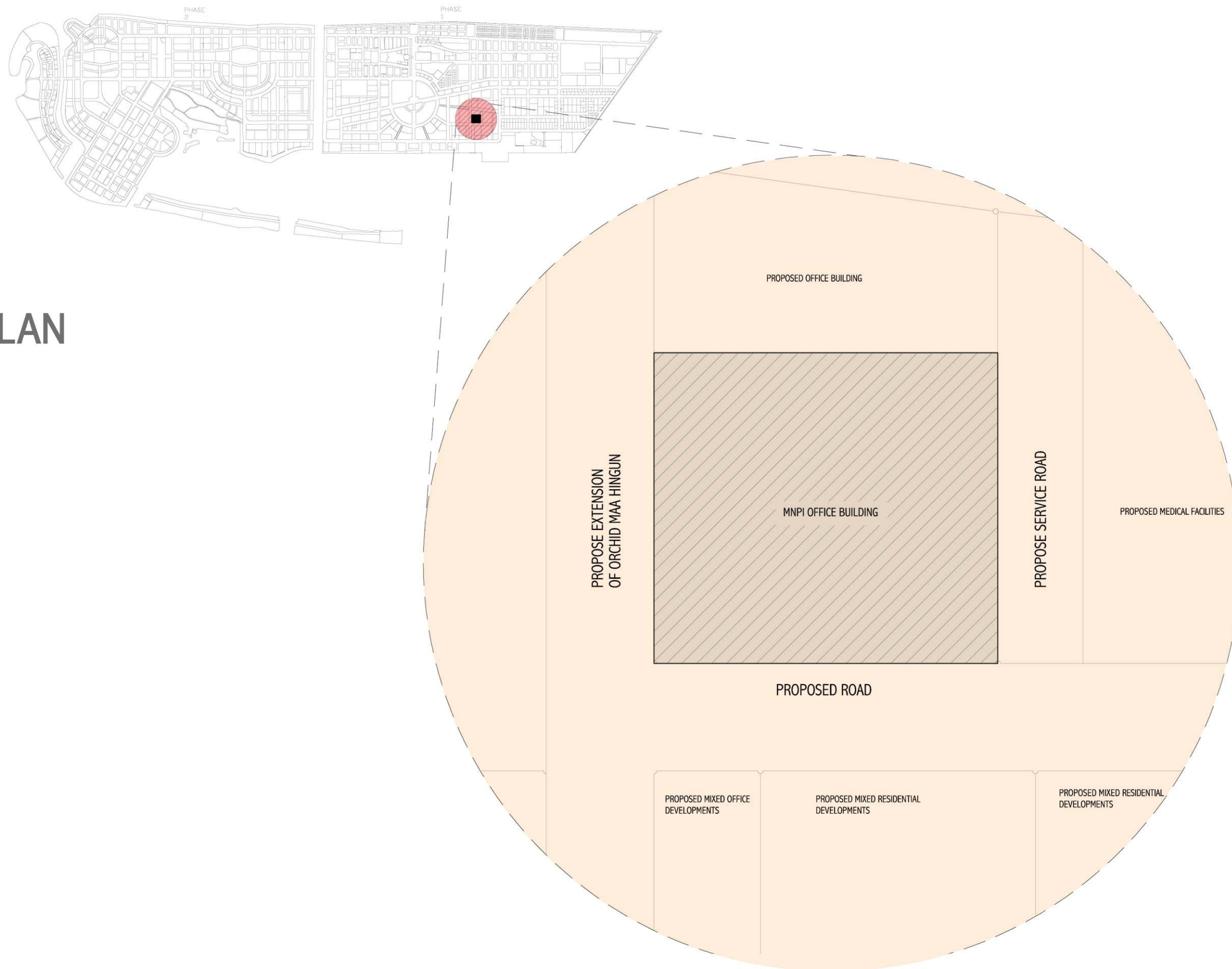
Project: P1 (PROPOSED SIX STOREY OFFICE BUILDING AT HULHUMALE)																
Date: 14.04.2019					PLOT AREA (m ²)				3,472.00		TOTAL GROSS FLOOR AREA (GFA, m2)				11,399.20	
					BUILDING FOOT PRINT AREA (m2)				2,256.00		FLOOR SPACE INDEX (FSI, m2)				3.28	
No.	Building Name	Number or units	Footprint area	Built up area (sq. m.)	No.	Building Name	Number or units	Footprint area	Built up area (sq. m.)	No.	Building Name	Number or units	Footprint area	Built up area (sq. m.)		
1	GROUND FLOOR				50	Corridor 7 & 8	4.00	21.30	85.20	99	Corridor 1	1.00	33.20	33.20		
2	Pick up / drop off area	1.00	42.40	42.40	51	Reception and Waiting Area 1	2.00	45.29	90.58	100	Corridor 2	1.00	92.85	92.85		
3	Security check	1.00	47.78	47.78	52	Reception and Waiting Area 2	2.00	47.52	95.04	101	Corridor 3	1.00	33.04	33.04		
4	Lift Lobby	1.00	67.40	67.40	53	Office zone 1/1	2.00	67.32	134.64	102	Corridor 4	1.00	34.56	34.56		
5	Staircase	4.00	14.29	57.16	54	Office zone 1/2	2.00	80.08	160.16	103	IT Room	1.00	33.58	33.58		
6	Waiting Lounge, Reception	1.00	397.42	397.42	55	Office zone 2/1 & 2/2	4.00	399.60	1,598.40	104	Toilet 1 & 4 (Wheelchair accessible)	2.00	9.07	18.14		
7	Maintenance office	1.00	37.85	37.85	56	Office zone 3/1 & 3/2	4.00	80.57	322.28	105	Toilet 2 & 3 (Male and Female)	2.00	26.91	53.82		
8	Security room /CCTV	1.00	38.98	38.98	57	Pantry 1 & 2	4.00	18.95	75.80	106	Baby room	1.00	8.82	8.82		
9	Staff tuck shop	1.00	31.00	31.00	58	PA office 1 & 2	4.00	16.16	64.64	107	Maintenance	1.00	10.25	10.25		
10	Toilet (Male)	1.00	20.07	20.07	59	Minister's office 1 & 2	4.00	53.72	214.88	108	Lift (12 pax passenger lift)	7.00	Void	66.72		
11	Toilet (Female)	1.00	19.74	19.74	60	State Minister's office 1/1, 2/1, 3/1 & 1/2, 2/2, 3/2	12.00	19.76	237.12	109	Lift (service lift)	1.00	Void	18.08		
12	Toilet (Wheelchair accessible)	1.00	5.86	5.86	61	Toilet 5 & 6 (Male, Female & Wheelchair accessible)	4.00	24.08	96.32	110	Service ducts	3.00	Void	38.26		
13	Baby Room	1.00	5.72	5.72	62	FOURTH FLOOR				111	OFFICE AREA					
14	Prayer room (Male and Female)	2.00	63.77	127.54	63	Lift Lobby	1.00	67.40	67.40	112	Corridor 5	1.00	90.48	90.48		
15	Ablution area (Male and Female)	2.00	16.79	33.58	64	Staircase 1 & 2	2.00	13.96	66.72	113	Corridor 6	1.00	78.75	78.75		
16	Electrical substation	1.00	29.08	29.08	65	Staircase 3 & 4	2.00	18.56	37.12	114	Corridor 7 & 8	2.00	21.30	42.60		
17	Waste management	1.00	28.85	28.85	66	Corridor 1	1.00	33.20	33.20	115	Reception and Waiting Area 2	1.00	47.52	47.52		
18	Building Services	1.00	82.69	82.69	67	Corridor 2	1.00	92.85	92.85	116	Office zone 1	1.00	399.60	399.60		
19	Car Parking	1.00	880.23	880.23	68	Corridor 3	1.00	33.04	33.04	117	Office zone 2	1.00	469.49	469.49		
20	Maintenance	1.00	10.80	10.80	69	Corridor 4	1.00	34.56	34.56	118	Meeting room 1	1.00	36.05	36.05		
21	Lift (12 pax passenger lift)	7.00	Void	34.09	70	IT Room	1.00	33.58	33.58	119	Meeting room 2	1.00	31.26	31.26		
22	Lift (service lift)	1.00	Void	9.04	71	Toilet 1 & 4 (Wheelchair accessible)	2.00	9.07	18.14	120	Seminar room 1 & 2	2.00	161.14	322.28		
23	Service ducts	3.00	Void	19.13	72	Toilet 2 & 3 (Male and Female)	2.00	26.91	53.82	121	Catering	1.00	33.57	33.57		
24	FIRST FLOOR				73	Baby room	1.00	8.82	8.82	122	Rolling track storage	1.00	80.08	80.08		
25	Lift Lobby	1.00	88.60	88.60	74	Maintenance	1.00	10.25	10.25	123	Pantry 1 & 2	2.00	18.95	37.90		
26	Staircase	4.00	14.29	57.16	75	Lift (12 pax passenger lift)	7.00	Void	66.72	124	PA office 1 & 2	1.00	16.16	16.16		
27	Motorcycle parking	1.00	1,979.73	1,979.73	76	Lift (service lift)	1.00	Void	18.08	125	Minister's office 1 & 2	1.00	53.72	53.72		
28	Maintenance	1.00	10.80	10.80	77	Service ducts	3.00	Void	38.26	126	State Minister's office 1 to 6	6.00	19.76	118.56		
29	Lift (12 pax passenger lift)	7.00	Void	34.09	78	OFFICE AREA				127	Toilet 5 & 6 (Male, Female & Wheelchair accessible)					
30	Lift (service lift)	1.00	Void	9.04	79	Corridor 5 & 6	2.00	78.75	157.50	128	SIXTH FLOOR					
31	Service ducts	3.00	Void	19.13	80	Corridor 7 & 8	2.00	21.30	42.60	129	Lift Lobby	1.00	67.40	67.40		
32	SECOND AND THIRD FLOOR				81	Reception and Waiting Area 1	1.00	45.29	45.29	130	Staircase 1 & 2	2.00	13.96	66.72		
33	Lift Lobby	2.00	67.40	134.80	82	Reception and Waiting Area 2	1.00	47.52	47.52	131	Staircase 3 & 4	2.00	14.66	29.32		
34	Staircase 1 & 2	4.00	13.96	66.72	83	Office zone 1	1.00	399.60	399.60	132	Corridor 1	1.00	28.84	28.84		
35	Staircase 3 & 4	4.00	18.56	74.24	84	Office zone 2	1.00	469.49	469.49	133	Corridor 2	1.00	53.02	53.02		
36	Corridor 1	2.00	33.20	66.40	85	Meeting room 1	1.00	36.05	36.05	134	Corridor 3	1.00	28.67	28.67		
37	Corridor 2	2.00	92.85	185.70	86	Meeting room 2	1.00	31.26	31.26	135	Toilet 1 & 4 (Wheelchair accessible)	2.00	9.07	18.14		
38	Corridor 3	2.00	33.04	66.08	87	Meeting room 3	1.00	107.42	107.42	136	Toilet 2 (Male)	1.00	11.53	11.53		
39	Corridor 4	2.00	34.56	69.12	88	Meeting room 4	1.00	53.71	53.71	137	Toilet 3 (Female)	1.00	10.54	10.54		
40	IT Room	2.00	33.58	67.16	89	Rolling track storage	1.00	80.08	80.08	138	Maintenance	1.00	10.25	10.25		
41	Toilet 1 & 4 (Wheelchair accessible)	4.00	9.07	36.28	90	Pantry 1 & 2	2.00	18.95	37.90	139	AC outdoor unit zone 1	1.00	285.76	285.76		
42	Toilet 2 & 3 (Male and Female)	4.00	26.91	107.64	91	PA office 1 & 2	1.00	16.16	16.16	140	AC outdoor unit zone 2	1.00	300.35	300.35		
43	Baby room	2.00	8.82	17.64	92	Minister's office 1 & 2	1.00	53.72	53.72	141	Lift (12 pax passenger lift)	7.00	Void	66.72		
44	Maintenance	2.00	10.25	20.50	93	State Minister's office 1 to 6	6.00	19.76	118.56	142	Lift (service lift)	1.00	Void	18.08		
45	Lift (12 pax passenger lift)	14.00	Void	66.72	94	Toilet 5 & 6 (Male, Female & Wheelchair accessible)	2.00	24.08	48.16	143	Service ducts	3.00	Void	38.26		
46	Lift (service lift)	2.00	Void	18.08	95	FIFTH FLOOR				144	MULTI-PURPOSE HALL					
47	Service ducts	6.00	Void	38.26	96	Lift Lobby	1.00	67.40	67.40	145	Multi-purpose Hall	1.00	581.34	581.34		
48	OFFICE AREA				97	Staircase 1 & 2	2.00	13.96	66.72	146	Outdoor seating area	1.00	716.29	716.29		
49	Corridor 5 & 6	4.00	78.75	315.00	98	Staircase 3 & 4	2.00	18.56	37.12	147	Kitchen	1.00	29.50	29.50		

AREA PROGRAMME BRIEF

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KEY PLAN

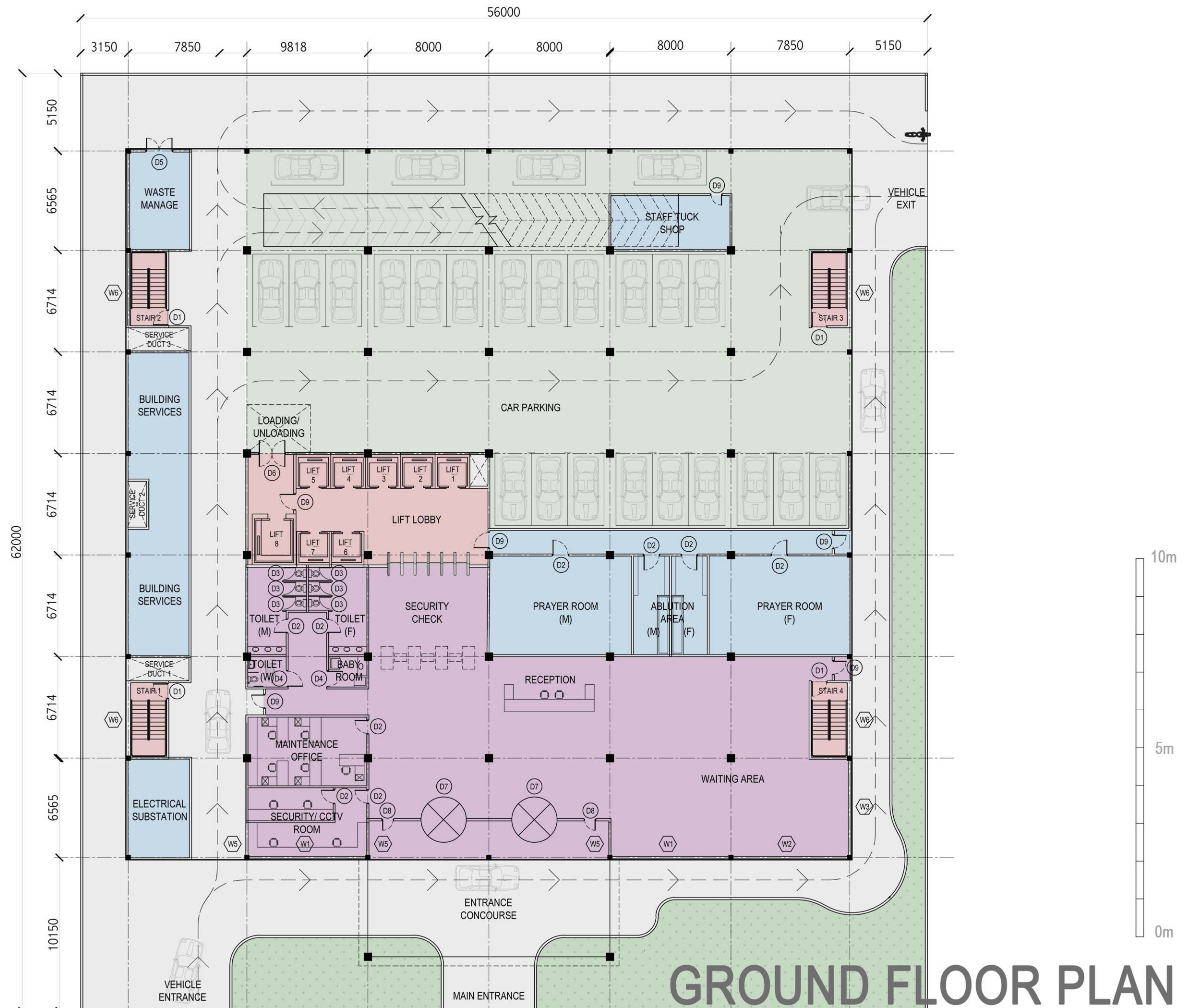


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LOCATION PLAN

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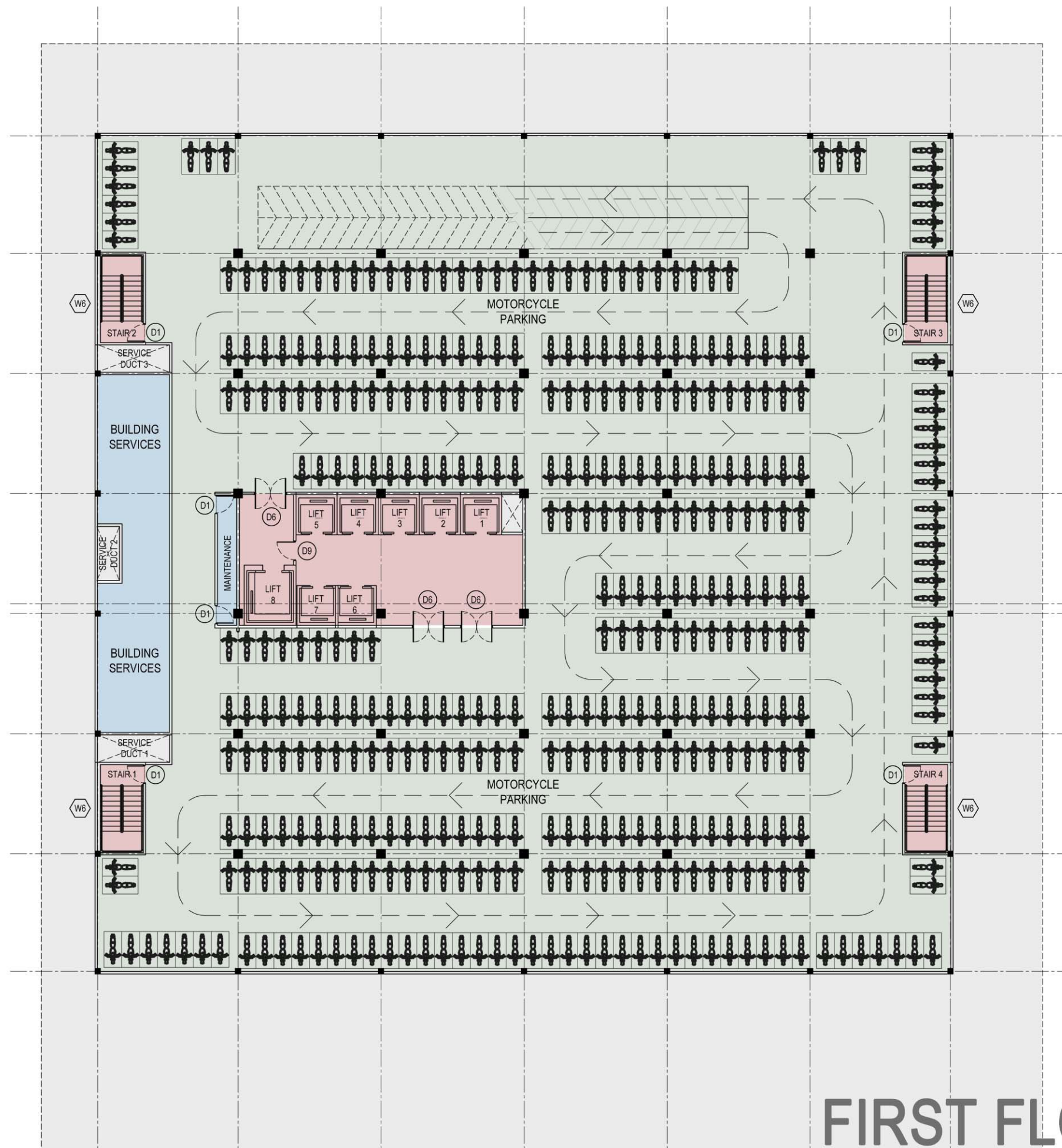


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GROUND FLOOR PLAN

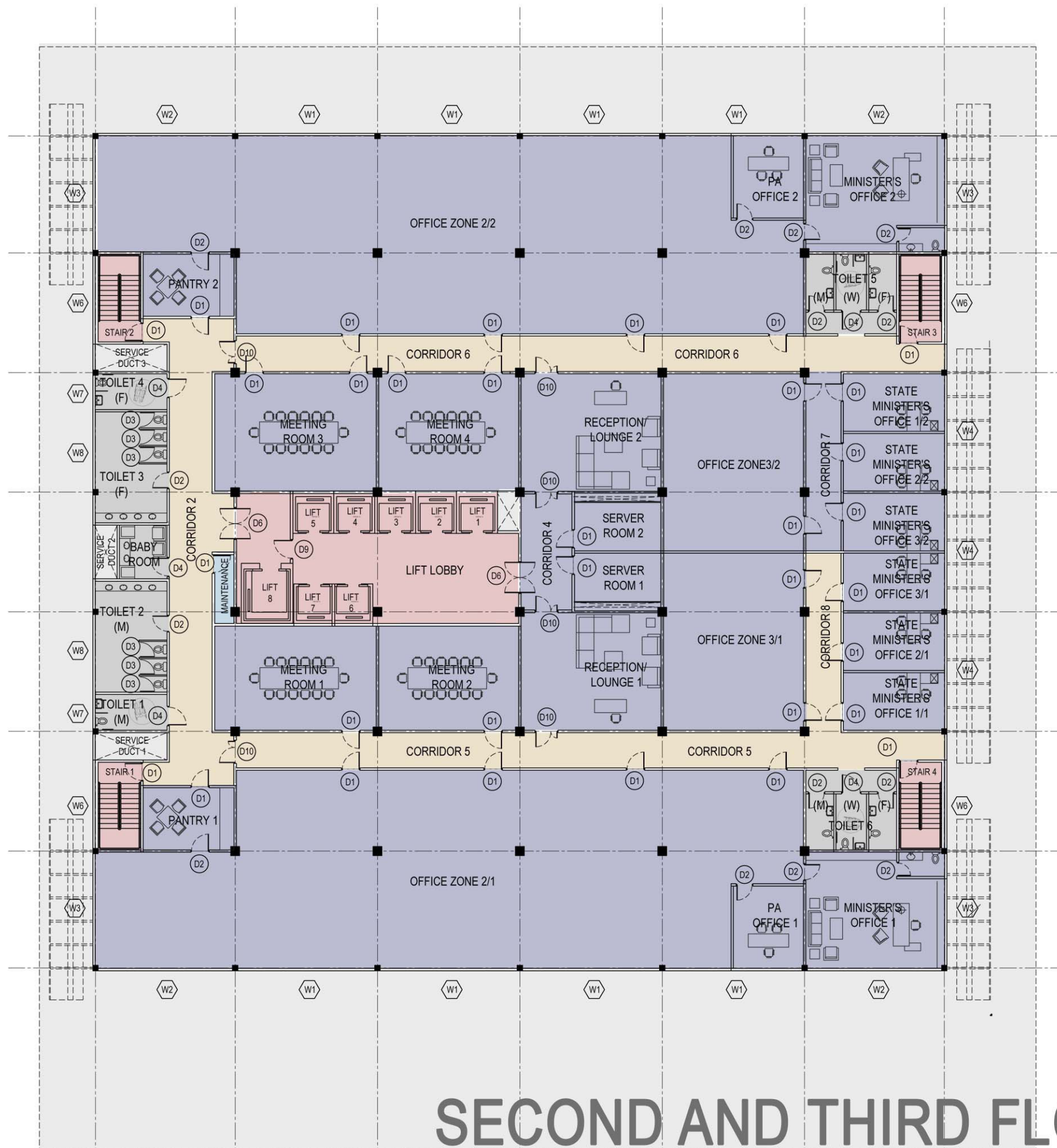
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FIRST FLOOR PLAN

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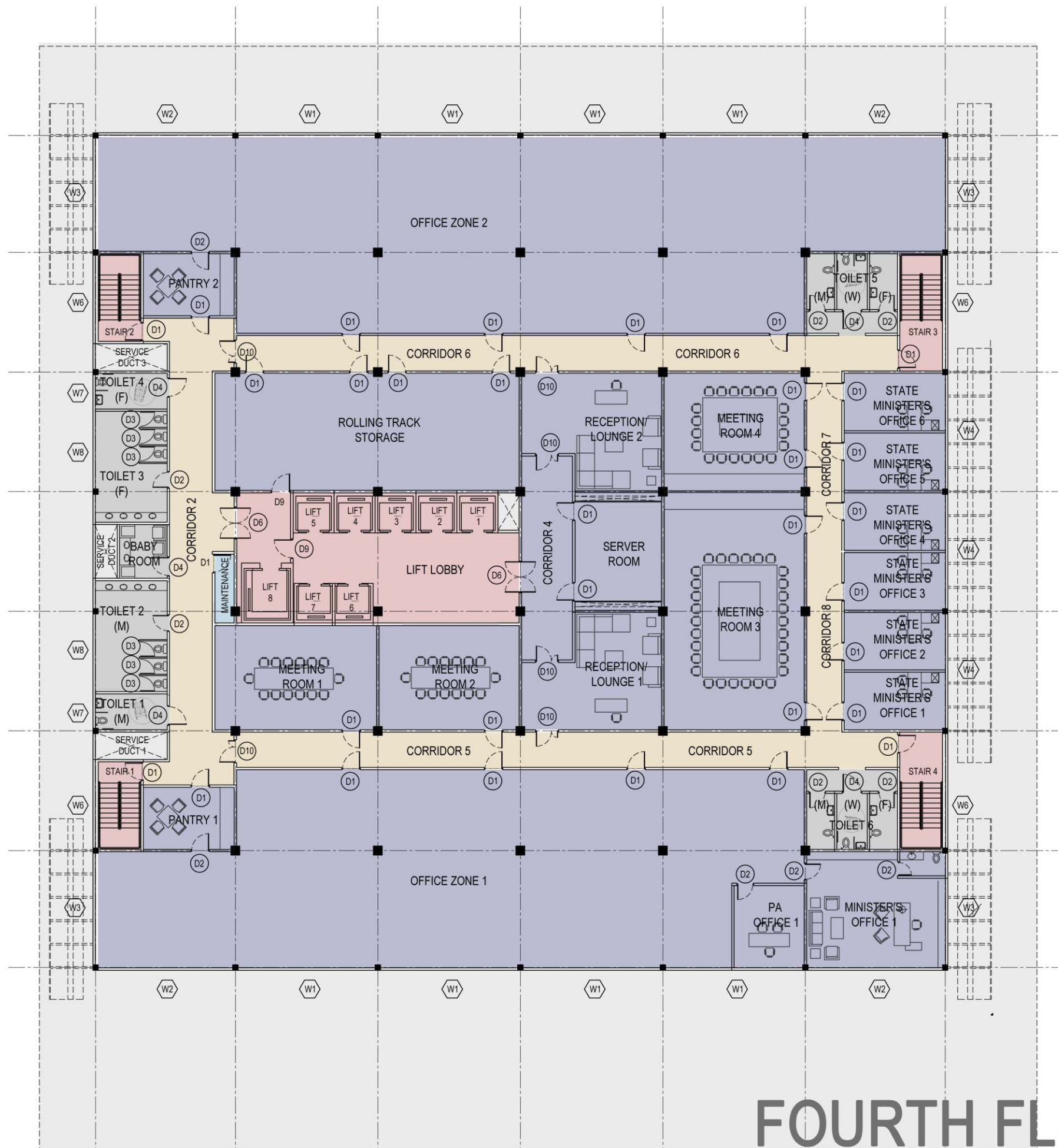
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SECOND AND THIRD FLOOR PLAN

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FOURTH FLOOR PLAN

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