



SATHYABAMA

INSTITUTE OF SCIENCE AND TECHNOLOGY
(DEEMED TO BE UNIVERSITY)

Accredited with “A” grade by NAAC | 12B Status by UGC | Approved by AICTE

Jeppiaar Nagar, Rajiv Gandhi Salai, Chennai – 600 119

www.sathyabama.ac.in

SCHOOL OF BUILDING AND ENVIRONMENT
DEPARTMENT OF ARCHITECTURE
PRACTICAL TRAINING PORTFOLIO (S21APT)
MAY 2023

Name of the Student : **SHANMATHI R**

Batch : **2018 - 2023**

Reg No. : **38210068**

Semester : **X**



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SCHOOL OF BUILDING AND ENVIRONMENT

DEPARTMENT OF ARCHITECTURE

VIVA - VOCE EXAMINATION

This is to certify that the practical training S21APT is the work of **SHANMATHI R** who had undergone training in **LARSEN & TOUBRO CONSTRUCTIONS, CHENNAI** has been monitored by the continuous assessment during DECEMBER 2022 to APRIL 2023.

Dr. Devyani Gangopadhyay
DEAN

Submitted for Viva voce Examination held on 09 JUNE 2023

Internal Examiner

External Examiner



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DECLARATION

I, **SHANMATHI R** hereby declare that the Training Report **DECEMBER 2022 to APRIL 2023** done by me under the guidance of **Ar.R. NAGALINGAM** is submitted in partial fulfillment of the requirements for the completion of practical training session.

DATE : 09/06/2023

PLACE : CHENNAI

A handwritten signature in black ink, appearing to be 'Shanmathi R', written over a horizontal line.

SIGNATURE OF CANDIDATE

ACKNOWLEDGEMENT

I am pleased to acknowledge my sincere thanks to **Board of Management of SATHYABAMA** for their kind encouragement in doing this practical training and for completing it successfully. I am grateful to them.

I convey my thanks to **Dr. Devyani Gangopadhyay**, Dean, School of Building and Environment and **Ar.Sarath Chandra Kanth**, Design Chair, Department of Architecture for having been a constant source of support and encouragement.

I wish to express my thanks to all Teaching and Non-teaching staff members of the Department of who were helpful in many ways for the completion of the project.

I also wish to thank **Ar. S. Nagalingam**, for the experience of interning at their firm.

JOINING LETTER



Larsen & Toubro Limited,
Construction
Buildings & Factories
P. B. No. 979, Mount Poonamallee Road,
Manapakkam,
Chennai - 600 089, INDIA
Tel : +91-44-2252 6000, 2252 8000
Fax : +91-44-2259 7288
www.Lntec.com

B&F IC/EDRC-HR/Training/662-2022

22 December 2022

Head of the Department,
Sathyabama Institute of
Technology And Science,
(Deemed University)
Chennai.

Dear Sir/Madam,

Sub: Project Training

This has reference to your letter dated **22 December 2022** regarding Project Training for your student **Ms. Shanmathi R (38210068)**. As a special case, we agree to admit her for project Training from **23 December 2022 to 15 May 2023**.

Please advise her to carry 3 Passport size photographs, copy of her College ID card and Adhaar card copy while reporting for the project training.

Please note that:

- She has to undergo the training without any financial commitment to our Company and fully at her own risk and responsibility.
- She must strictly comply with safety & other rules applicable at the project site/Office.
- She will be awarded her Project Training completion certificate on submission of the Project Report.

Thanking You,

Yours faithfully,
For **LARSEN & TOUBRO LIMITED**

SUNEET KUMAR
DGM - HUMAN RESOURCES

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Licence No.: CIN - L99999MH1946PLC004768

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MONTHLY REPORT

SATHYABAMA

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PROFESSIONAL PRACTICAL TRAINING REPORT 2023

(Monthly Progress to be documented and submitted to the HOD by the Architect in charge of Trainee of the Organization)

1. Name of the Office / Organization : Larsen & Toubro Construction

2. Address & Contact Number : Manapakkam, Chennai - 9840730379

3. Name of the Student : Shanmughi . R

4. Duration : From 26-Dec-2022 To 31-Dec-2022

5. Total No. of days : 6 days

6. Evaluation of Performance Criteria shall be on

Description of works	Excellent	Good	Fair	Poor	NA
Office Culture Comprehension		✓			
Participation in the Office		✓			
Reading of Drawings			✓		
Presentation Techniques			✓		
Model Making		✓			
Understanding of Construction Details			✓		
Drafting Skills (Manual/Computer)			✓		
Site Supervision / Client Interaction Skills			✓		
Time Schedule Adherence		✓			
Other Computer Skills			✓		
Files and Office Maintenance		✓			
Coordination with other Consultants			✓		
Overall Grading*					65

* Note: Kindly grade the student as per his/her overall performance in the office during the assessment month.*

7. Any other Remarks:

Signature of the Head of the Office / Organization (With Seal)

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PROFESSIONAL PRACTICAL TRAINING REPORT 2023

(Monthly Progress to be documented and submitted to the HOD by the Architect in charge of Trainee of the Organization)

1. Name of the Office / Organization : Larsen & Toubro Construction

2. Address & Contact Number : Manapakkam, Chennai - 9840730379

3. Name of the Student : Shanmughi . R

4. Duration : From 1-Jan-2023 To 31-Jan-2023

5. Total No. of days : 20

6. Evaluation of Performance Criteria shall be on

Description of works	Excellent	Good	Fair	Poor	NA
Office Culture Comprehension		✓			
Participation in the Office		✓			
Reading of Drawings			✓		
Presentation Techniques			✓		
Model Making		✓			
Understanding of Construction Details			✓		
Drafting Skills (Manual/Computer)		✓			
Site Supervision / Client Interaction Skills			✓		
Time Schedule Adherence		✓			
Other Computer Skills		✓			
Files and Office Maintenance		✓			
Coordination with other Consultants		✓			
Overall Grading*					70

* Note: Kindly grade the student as per his/her overall performance in the office during the assessment month.*

7. Any other Remarks:

Signature of the Head of the Office / Organization (With Seal)

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PROFESSIONAL PRACTICAL TRAINING REPORT 2023

(Monthly Progress to be documented and submitted to the HOD by the Architect in charge of Trainee of the Organization)

1. Name of the Office / Organization : L & T CONSTRUCTION

2. Address & Contact Number : THANJAVUR, CHENNAI - 7640730379

3. Name of the Student : SHANMUGHI . R

4. Duration : From 01-02-2023 To 28-02-2023

5. Total No. of days : 28

6. Evaluation of Performance Criteria shall be on

Description of works	Excellent	Good	Fair	Poor	NA
Office Culture Comprehension		✓			
Participation in the Office		✓			
Reading of Drawings			✓		
Presentation Techniques			✓		
Model Making		✓			
Understanding of Construction Details			✓		
Drafting Skills (Manual/Computer)		✓			
Site Supervision / Client Interaction Skills			✓		
Time Schedule Adherence			✓		
Other Computer Skills		✓			
Files and Office Maintenance		✓			
Coordination with other Consultants			✓		
Overall Grading*					75

* Note: Kindly grade the student as per his/her overall performance in the office during the assessment month.*

7. Any other Remarks:

Signature of the Head of the Office / Organization (With Seal)

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PROFESSIONAL PRACTICAL TRAINING REPORT 2023

(Monthly Progress to be documented and submitted to the HOD by the Architect in charge of Trainee of the Organization)

1. Name of the Office / Organization : L & T CONSTRUCTIONS

2. Address & Contact Number : Manapakkam, Chennai - 9840730379

3. Name of the Student : Shanmughi . R

4. Duration : From 01-MAR-2023 To 31-MAR-2023

5. Total No. of days : 23 DAYS

6. Evaluation of Performance Criteria shall be on

Description of works	Excellent	Good	Fair	Poor	NA
Office Culture Comprehension		✓			
Participation in the Office			✓		
Reading of Drawings			✓		
Presentation Techniques			✓		
Model Making			✓		
Understanding of Construction Details		✓			
Drafting Skills (Manual/Computer)			✓		
Site Supervision / Client Interaction Skills			✓		
Time Schedule Adherence			✓		
Other Computer Skills		✓			
Files and Office Maintenance		✓			
Coordination with other Consultants		✓			
Overall Grading*					70

* Note: Kindly grade the student as per his/her overall performance in the office during the assessment month.*

7. Any other Remarks:

Signature of the Head of the Office / Organization (With Seal)

6

WORK DIARY

SHANMATHI R INTERNSHIP (L&T)		
WORKING DAY	DATE	WORK - DECEMBER 2022
1	12/26/2022	KANCHI DC BUILDING - CANOPY RESEARCH
2	12/27/2022	KANCHI DC BUILDING - CANOPY MODELLING - SKETCHUP
3	12/28/2022	KANCHI DC BUILDING - CANOPY MODELLING - SKETCHUP
4	12/29/2022	KANCHI DC BUILDING - MATERIAL SELECTION
5	12/30/2022	ON DUTY
	12/31/2022	LEAVE
TOTAL NO.OF DAYS		6
TOTAL NO.OF WORKING DAYS		6
PRESENT DAYS		5
ABSENT DAYS		1
SHANMATHI R INTERNSHIP (L&T)		
WORKING DAY	DATE	WORK - JANUARY 2023
	1/1/2023	SUNDAY
1	1/2/2023	KANCHI DC BUILDNG - CANOPY RENDERING- MATERIAL SECTION - LUMION
2	1/3/2023	KANCHI DC BUILDNG - CANOPY RENDERING - LUMION
3	1/4/2023	KANCHI DC BUILDNG - CANOPY RENDERING - LUMION
4	1/5/2023	CANOPY DRAWING - KANCHI DC BUILDING - AUTOCAD
5	1/6/2023	RECEPTION LOBBY INTERIOR WITH CANOPY - KANCHI DC BUILDING - SKETCHUP MODELLING - MATERIAL OPTION 1
	1/7/2023	LEAVE
	1/8/2023	SUNDAY
6	1/9/2023	ELEVATION RENDERING & LIGHT FIXTURES IN CANOPY - KANCHI DC BUILDING - LUMION
7	1/10/2023	ELEVATION RENDERING & LIGHT FIXTURES IN CANOPY - KANCHI DC BUILDING - LUMION
8	1/11/2023	TERRACOTTA TILE STUDY
9	1/12/2023	TERRACOTTA TILE - EXTERIOR COLOR OPTION - LUMION RENDERING
10	1/13/2023	TERRACOTTA TILE - EXTERIOR COLOR OPTION - LUMION RENDERING
	1/14/2023	LEAVE
	1/15/2023	SUNDAY
	1/16/2023	LEAVE
	1/17/2023	LEAVE
11	1/18/2023	CANOPY DRAWING - KANCHI DC BUILDING - AUTOCAD
12	1/19/2023	STT MATERIAL SOURCE - RESEARCH
13	1/20/2023	STT MATERIAL SOURCE - EXCEL SHEET
	1/21/2023	LEAVE
	1/22/2023	SUNDAY
14	1/23/2023	LEAVE
15	1/24/2023	FINISHING SCHEDULE - STT NAVI MUMBAI
16	1/25/2023	MOOD BOARD - STT NAVI MUMBAI - PRESENTATION
17	1/26/2023	REPUBLIC DAY
18	1/27/2023	KANCHI DC BUILDNG - TERRACOTTA FAÇADE RESEARCH
	1/28/2023	LEAVE
	1/29/2023	SUNDAY
19	1/30/2023	KANCHI DC BUILDING - COLLECTING DETAILS FROM VENDOR
20	1/31/2023	KANCHI DC BUILDING - COLLECTING DETAILS FROM VENDOR
TOTAL NO.OF DAYS		31
TOTAL NO.OF WORKING DAYS		26
PRESENT DAYS		20
ABSENT DAYS		6
SHANMATHI R INTERNSHIP (L&T)		
WORKING DAY	DATE	WORK - FEBRUARY 2023
1	2/1/2023	STT ANNEX INTERIORS - OFFICE - RENDERING USING LUMION
2	2/2/2023	STT ANNEX INTERIORS - OFFICE - RENDERING USING LUMION
3	2/3/2023	STT ANNEX INTERIORS - OFFICE - SKETCHUP MODEL UPDATE
4	2/4/2023	NEUFERTS STANDARDS FOR OFFICE
	2/5/2023	SUNDAY
5	2/6/2023	STANDARDS CHECK FOR TYPICAL FLOOR PLAN
6	2/7/2023	STANDARDS CHECK FOR TYPICAL FLOOR PLAN
7	2/8/2023	KANCHI CANOPY - MATERIAL UPDATE
8	2/9/2023	KANCHI CANOPY - MATERIAL UPDATE
9	2/10/2023	KANCHI DC GROUND FLOOR PLAN UPDATE
	2/11/2023	LEAVE
	2/12/2023	SUNDAY

	2/12/2023	SUNDAY
10	2/13/2023	KANCHI DC FACADE - FINS OPTIONS
11	2/14/2023	KANCHI DC FACADE - FINS DESIGN OPTIONS
	2/15/2023	KANCHI DC FACADE - FINS MATERIAL SELECTION
12	2/16/2023	LEAVE
13	2/17/2023	KANCHI DC FACADE - FINS OPTION PRESENTATION
14	2/18/2023	KANCHI DC FACADE - FINS OPTIONS UPDATE
	2/19/2023	SUNDAY
15	2/20/2023	KANCHI DC FACADE - FINS OPTION PRESENTATION
16	2/21/2023	KANCHI DC FACADE - FINS OPTION PRESENTATION
17	2/22/2023	TERRACOTTA TILE (FAÇADE) - RESEARCH
18	2/23/2023	TERRACOTTA TILE (FAÇADE) - COLLECTING DETAILS FROM VENDOR
19	2/24/2023	TERRACOTTA TILE (FAÇADE) - RESEARCH & PRESENTATION
	2/25/2023	LEAVE
	2/26/2023	SUNDAY
20	2/27/2023	KANCHI DC FAÇADE - CLAY TILE OPTION
21	2/28/2023	KANCHI DC FAÇADE - CLAY TILE COLOR OPTION - RENDERING
TOTAL NO.OF DAYS		28
TOTAL NO.OF WORKING DAYS		24
PRESENT DAYS		21
ABSENT DAYS		3
Mar-23		
1	3/1/2023	KANCHI DC BUILDING CLAY TILE - SKETCHUP MODEL
2	3/2/2023	STT ANNEX - MEETING ROOM COLOR OPTION
3	3/3/2023	STT ANNEX - MEETING ROOM COLOR OPTION
	3/4/2023	LEAVE
	3/5/2023	SUNDAY
4	3/6/2023	STT DC BUILDING - FINISHING SCHEDULE
5	3/7/2023	STT DC BUILDING - FINISHING SCHEDULE
6	3/8/2023	DATA CENTRE BUILDING - STT NAVI MUMBAI - TYPICAL FLOOR DRAWING UPDATE
7	3/9/2023	DATA CENTRE BUILDING - STT NAVI MUMBAI - TYPICAL FLOOR DRAWING UPDATE
8	3/10/2023	DC BUILDING - TOILET - MODELING
9	3/11/2023	DC BUILDING - TOILET - MODELING & RENDERING
	3/12/2023	SUNDAY
10	3/13/2023	STT DC BUILDING - PRESENTATION
11	3/14/2023	STT DC BUILDING - PRESENTATION
12	3/15/2023	KANCHI DC BUILDING CLAY TILE - SKETCHUP MODEL
13	3/16/2023	KANCHI DC BUILDING CLAY TILE - SKETCHUP MODEL (COLOR OPTIONS)
14	3/17/2023	KANCHI DC BUILDING CLAY TILE - SKETCHUP MODEL - MATERIAL STUDY
	3/18/2023	LEAVE
	3/19/2023	SUNDAY
15	3/20/2023	KANCHI DC BUILDING - CLAY TILE - PRESENTATION
16	3/21/2023	FAÇADE OPTIONS - UPDATE
17	3/22/2023	STT NAVI MUMBAI - DC BUILDING - RECEPTION LOBBY RENDERING
	3/23/2023	LEAVE
	3/24/2023	LEAVE
18	3/25/2023	FINISHING SCHEDULE - STT DC BUILDING UPDATE
	3/26/2023	SUNDAY
19	3/27/2023	STT ANNEX - RECREATIONAL AREA - MODELING
20	3/28/2023	STT ANNEX - RECREATIONAL AREA - RENDERING & COLOR OPTIONS
21	3/29/2023	STT ANNEX - RECREATIONAL AREA - RENDERING & COLOR OPTIONS
22	3/30/2023	KANCHI DC BUILDING - CLAY TILE - PRESENTATION UPDATE
23	3/31/2023	KANCHI DC BUILDING - CLAY TILE - OPTIONS
TOTAL NO.OF DAYS		31
TOTAL NO.OF WORKING DAYS		27
PRESENT DAYS		23
ABSENT DAYS		4
Apr-23		
1	4/3/2023	KANCHI DC BUILDING - GLASS CANOPY OPTION
2	4/3/2023	KANCHI DC BUILDING - GLASS CANOPY OPTION
3	4/3/2023	L&T TC- 4 - KITCHEN & DINING AREA LAYOUT

WORK DIARY

4	4/4/2023	L&T TC- 4 - KITCHEN & DINING AREA LAYOUT
5	4/5/2023	TC-4 KITCHEN & DINING AREA CIRCULATION STUDY
6	4/6/2023	NEUFERT STUDY
7	4/7/2023	TC-4 KITCHEN & DINING AREA - FURNITURE LAYOUT
	4/8/2023	LEAVE
	4/9/2023	SUNDAY
8	4/10/2023	TC-4 KITCHEN & DINING AREA - FURNITURE LAYOUT
9	4/11/2023	TC-4 KITCHEN & DINING AREA - FURNITURE LAYOUT - PRESENTATION
10	4/12/2023	STT - ANNEX BUILDING - CONFERENCE ROOM
11	4/13/2023	STT - ANNEX BUILDING - CONFERENCE ROOM - LIGHTING OPTIONS
12	4/14/2023	STT - ANNEX BUILDING - CONFERENCE ROOM - LIGHTING OPTIONS
13	4/15/2023	STT - ANNEX BUILDING - COLLAB AREA - RENDERING
	4/16/2023	SUNDAY
14	4/17/2023	TC-4 CROWD SAFETY AND RISK ANALYSIS STUDY
15	4/18/2023	FRUINS LEVEL OF SERVICE ALAYSIS AND CALCUALTIONS
16	4/19/2023	TC-4 ELECTRICAL BUILDING - ELEVATION UPDATE
17	4/20/2023	STT ANNEX BUILDING - CABIN - COLOR OPTIONS RENDERING
	4/21/2023	LEAVE
	4/22/2023	LEAVE
	4/23/2023	SUNDAY
18	4/24/2023	TC-4 KITCHEN & DINING AREA LAYOUT OPTIONS - MEP TEAM CONSULATION
19	4/25/2023	TC-4 KITCHEN & DINING AREA LAYOUT UPDATE
20	4/26/2023	TC-4 KITCHEN & DINING AREA LAYOUT UPDATE
21	4/27/2023	TC-4 KITCHEN & DINING AREA PRESENTATION UPDATE
22	4/28/2023	KANCHI DC BUILDING - GLASS CANOPY OPTION
23	4/29/2023	KANCHI DC BUILDING - GLASS CANOPY OPTION
24	4/30/2023	TC-4 KITCHEN & DINING AREA LAYOUT OPTIONS - MEP TEAM CONSULATION
TOTAL NO.OF DAYS		30
TOTAL NO.OF WORKING DAYS		27
PRESENT DAYS		24
ABSENT DAYS		3

COMPLETION CERTIFICATE



Larsen & Toubro Limited,
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Fax : +91-44-2259 7288
www.Lntecc.com

B&F IC/EDRC-HR/Training/662-2023

19 May 2023

TO WHOMSOEVER IT MAY CONCERN

This is to certify that **Ms. Shanmathi R (38210068)** from Sathyabama Institute of Technology and Science, (Deemed University) Chennai has undergone her project internship at our Engineering Design & Research Centre (EDRC) – Headquarters from **26th Dec 2022 to 31st Apr 2023**.

We wish her all the best for her future endeavors.

Yours faithfully,

for **LARSEN & TOUBRO LIMITED**

SUNEET KUMAR
DGM - HUMAN RESOURCES

Registered Office: L&T House, N. M. Marg, Ballard Estate, Mumbai - 400 001, INDIA
Licence No.: CIN - L99999MH1946PLC004768

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INDEX

CHAPTER NO	TITLE	PAGE NO
I	ABOUT THE FIRM	13
II	PROJECTS	
1	L&T DATA CENTRE, KANCHIPURAM	14
2	TECHNOLOGY CENTRE - 4, L&T CONSTRCTIONS – CHENNAI	27
3	STT DATA CENTRE , MUMBAI	38
4	STT NAVI MUMBAI – ANNEX BUILDING	49
III	FIELD WORKS	73

TABLE OF CONTEXT

SI NO	CONTEXT	PAGE NO
I	L&T DATA CENTRE - KACHIPURAM	14
1.1	Façade Option	15
1.2	Façade Materials	16
1.3	Façade Section	17
1.4	Data Centre Ground Floor Plan	18
1.5	Entrance Lobby & Canopy details	19
1.6	Canopy Options	20
1.7	Entrance Glass canopy - Materials	21
1.8	Granite options	22
1.9	Entrance Arch - OPTIONS	23
1.10	Entrance Arch - DRAWINGS	24
1.11	Material Cost Comparison	26
2	L&T TECHNOLOGY CENTRE - CHENNAI	27
2.1	Exteriors & Landscape	28
2.2	Electrical Building – Elevation Drawing	29

SI NO	CONTEXT	PAGE NO
2.3	Ground Floor Layout – Kitchen & Dining Area	31
2.4	Circulation	32
2.5	FRUIN'S LEVEL OF SERVICE	33
2.6	Crowd safety and crowd risk analysis	34
2.7	Hierarchy of Corridors	36
2.8	Comparative Analysis	37
3	STT NAVI MUMBAI DC BUILDING	38
3.1	Interior proposal for space – design phase	39
3.2	Seventh Floor plan	40
3.3	Finishing Schedule	41
3.4	Reception Lobby	43
3.5	Toilet	44
3.6	Office	45
3.6.1	Office - Options	46
3.7	Acoustical Analysis	47

SI NO	CONTEXT	PAGE NO
4	STT NAVI MUMBAI ANNEX BUILDING	49
4.1	Annex building – Latest Quantity	50
4.2	Floor plan Drawing	51
4.3	Recreational Area	59
4.3.1	Recreational Area - Options	60
4.3.2	Design Phase – Options & Renders	61
4.4	Office	62
4.4.1	Office – options	63
4.5	Conference Room	64
4.5.1	Conference Room - Options	65
4.6	Meeting Room	66
4.6.1	Meeting Room - Options	67
4.7	Collab Area	68
4.7.1	Collab Area Options	69
4.8	Main Cabin	70

SI NO	CONTEXT	PAGE NO
4.9	Cabin	71
4.9.1	Main Cabin & Cabin - Options	72
III	FIELD WORKS	73
i	Material Selection	73
ii	Client Presentation	74
iii	Site Visit – L&T – Technology Centre - 4	75

I. ABOUT THE FIRM:



L&T Construction's Headquarters at Manapakkam in Chennai is acknowledged as an 'Outstanding Corporate Green Campus'. It is spread over 27 acres, amidst scenic eco-friendly surroundings with ample greenery. Almost every concrete structure in the campus has won prestigious awards for excellence in construction and has green features which add to its aesthetic value. Today, the campus accommodates built up area of 1.4 lakh sq.m and has a significant tree carbon sequestering capacity.

Engineering Design and Research Centre (EDRC)

LEED-EB Silver Rated Green Building

- The Chennai campus offset its entire GHG (Green House Gases) emissions in 2016-2017, thus becoming carbon neutral. Part of its Sustainability Roadmap 2021, carbon offsetting and energy efficiency of L&T campuses is a key objective and one that they continuously work towards.
- The Engineering Design and Research Centre (EDRC), titled the tree of knowledge, is triangular in shape and rises like the branches of a tree from the floor. A built up area of 8,686 sq.m in the ground plus four floors, the EDRC building is designed as two symmetrical wings one on either side of a service core.
- EDRC is the recipient of the 2002 Federation International Du Beton (FIB) Award for an Outstanding Concrete Structure. EDRC was also awarded the LEED Silver rating by the US Green Building Council in the Existing Building category for design, construction and operation of Green Buildings. EDRC is the second building in India and the second one in Chennai to get this rating under LEED EB category.
- Besides business of the Construction Group, the campus houses offices of L&T Technology Services and the iconic Henning Holck-Larsen Centre.



Green Initiatives

- Building automation system to monitor water and energy performance.
- Building system monitoring by means of temperature, humidity and CO2 sensors.
- Double Glazing
- Over Deck installation
- High performance CFC free
- Chillers
- Energy efficient light fixtures
- Recycled water for irrigation



II. PROJECTS

1. L&T DATA CENTER :

Project details

Site Location : Kanchipuram, Tamil Nadu

Project Scope : Data centre building

Site Area : 10 acres (12,000 m²)

This datacenter is proposed in kanchipuram which is a own project of L&T. There are two phases for this project , currently the first phase is under construction simultaneously the interiors are being designed.

Current scope of works handled : Interior design schemes are at the final stage of approval, after the schemes are approved , detailed drawings were made for those approved options simultaneously the material samples for the approved schemes were collected which involved the following stages , selection of materials from catalogues , collection of samples from vendors after the approval of higher authority , making preference before client visit, presenting material samples to client for their approval and documenting the same , not satisfied materials are further processed and collected for the next client visit simultaneously coordinating with the project management team and site team. Also the same procedure was followed for the facade materials which is to be cladded for the already approved facade design simultaneously designing the entrance portal with different conceptual options as per chief architects suggestions and out of box options , and creation of final presentation for the finalised options along with detailed drawings and day and night view 3d renders with proper case study.

1.1 FAÇADE OPTIONS



Option 1 – Flushed ACP and Glazing

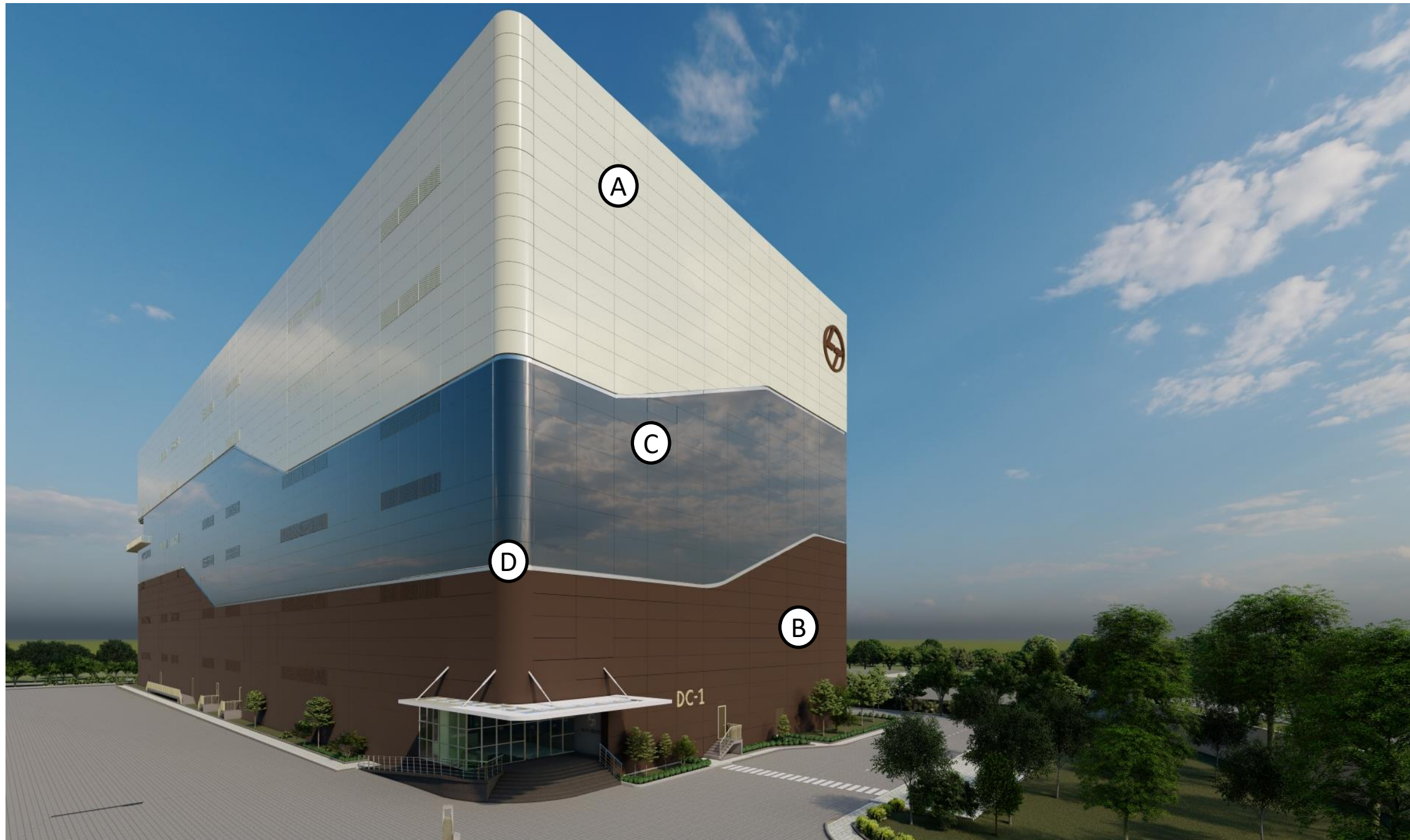


Option 2 – 300 mm projection in glazing and 600 mm projection in ACP



Option 3 - Stainless Steel Cap 300mm Reveal

1.2 FAÇADE - MATERIALS



A

Aluminium Composite Panel
VA 311 – Ivory/ Viva

B

Aluminium Composite panel
Alubond

C

Exterior Glazing – Infinity Glass
SGG Horizon Blue / Saint Goblin

D

Aluminium

1.3 FAÇADE - SECTION

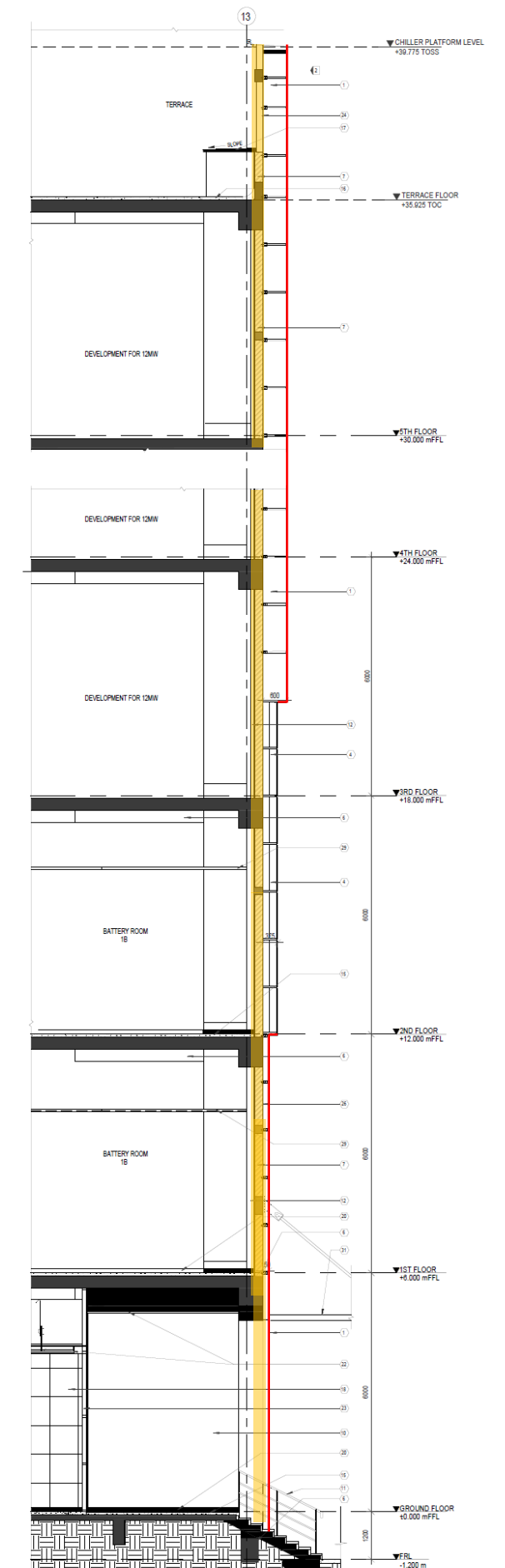


- ALUMINIUM COMPOSITE PANEL
- GLAZING - SGG HORIZON **CLEAR**



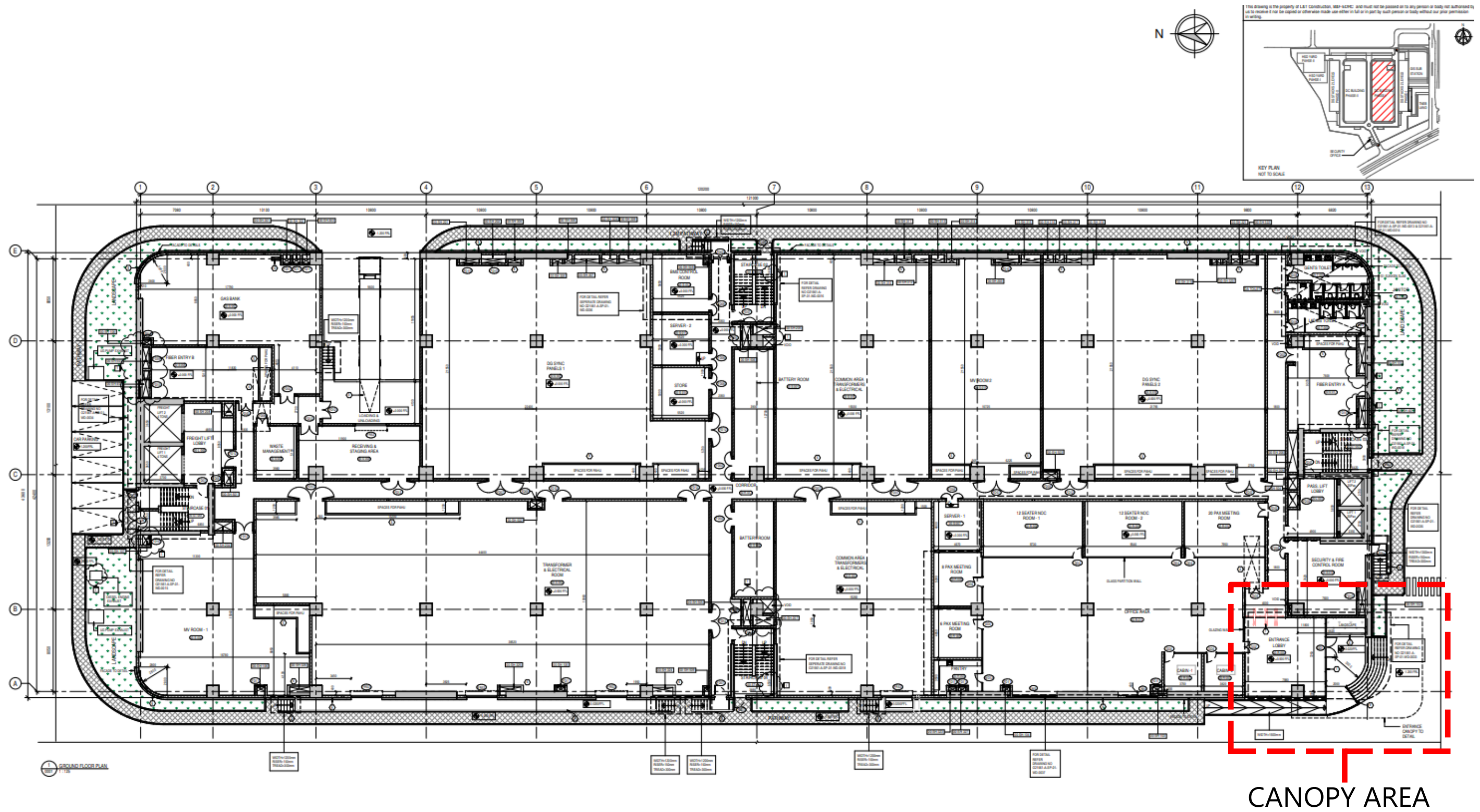
- ALUMINIUM COMPOSITE PANEL
- GLAZING - SGG HORIZON **BLUE**

WALL
PROJECTION

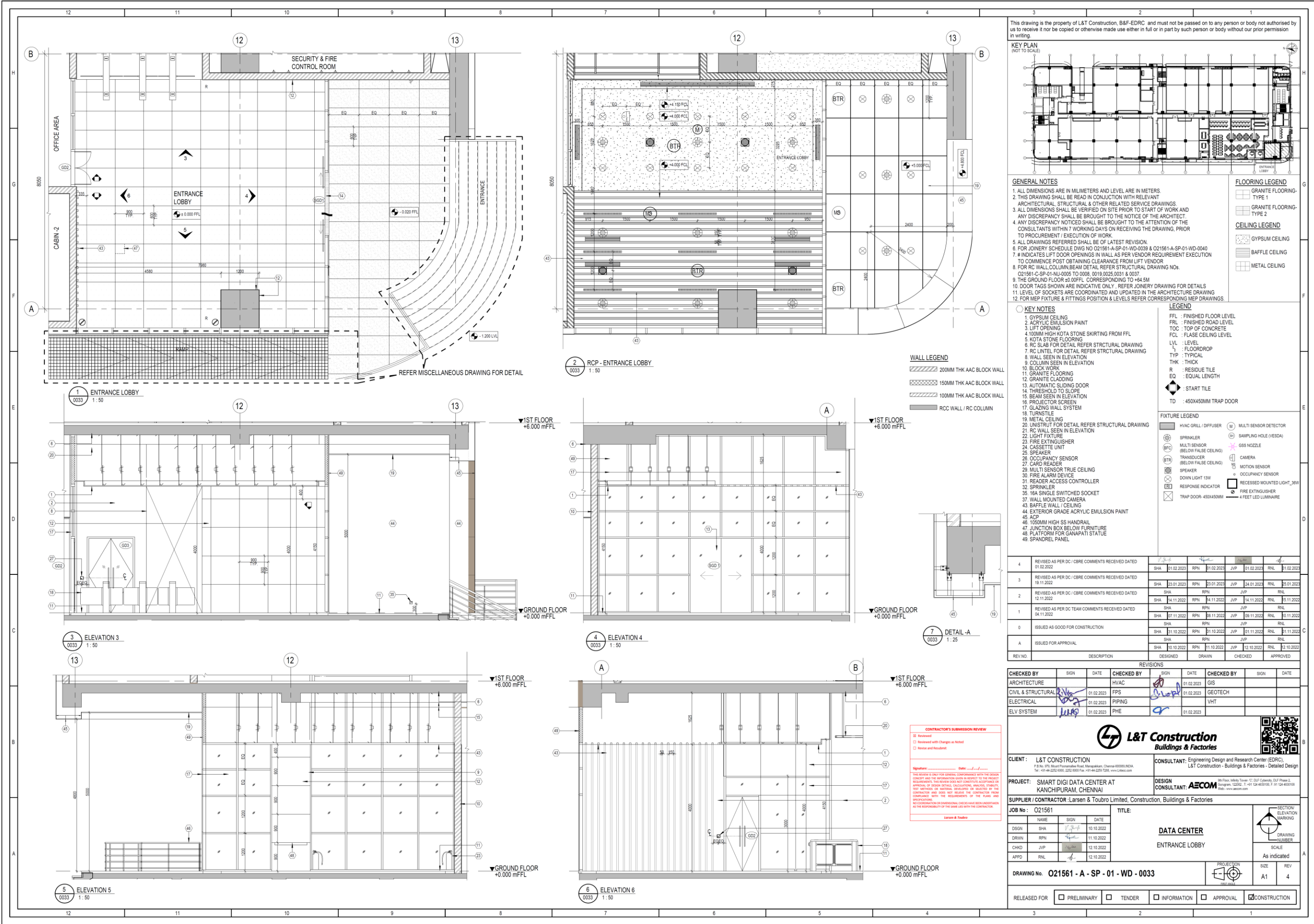


SECTION

1.4 GROUND FLOOR PLAN



1.5 ENTRANCE LOBBY & CANOPY - DETAILS

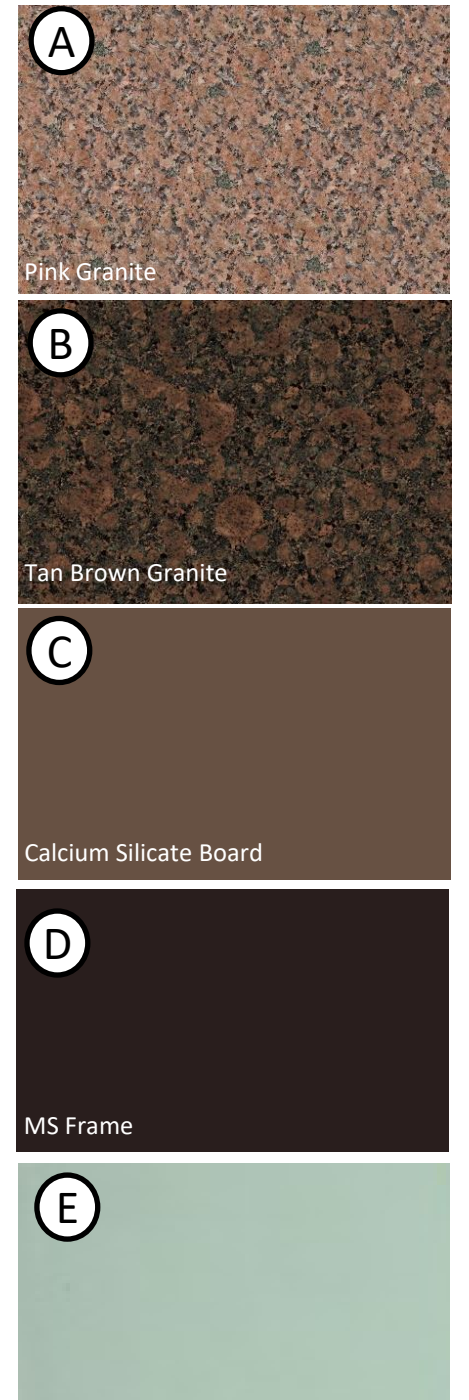
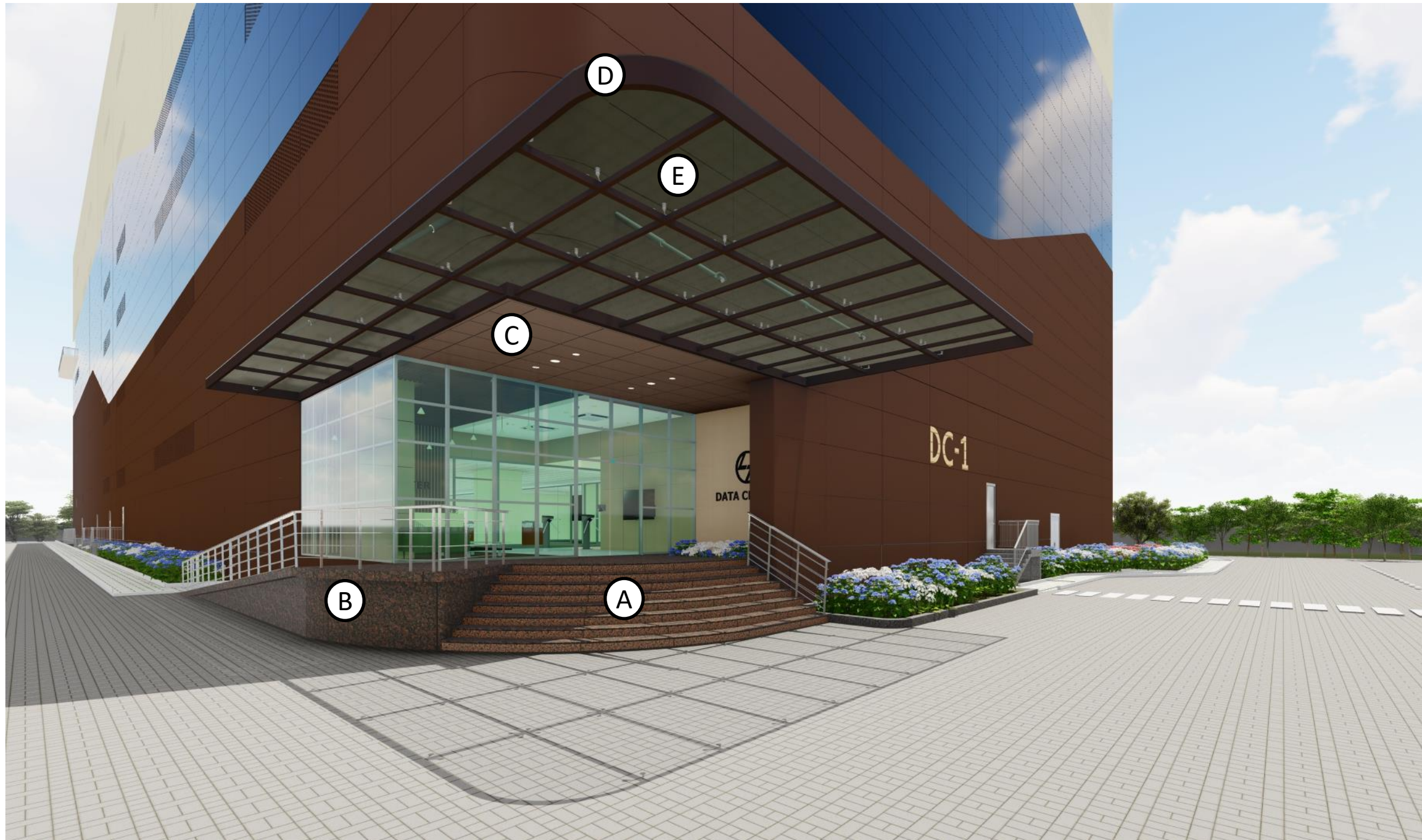


1.6 CANOPY OPTIONS

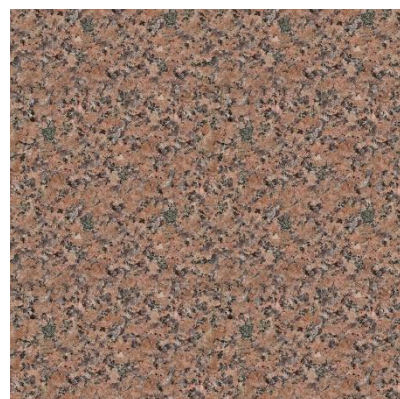
The Canopy is planned to be made with the combination of baffle and laminated glazing. Then, for the light distribution and interception, the fully laminated glazing option was opted. The various colour options were visualized for the MS Frames.



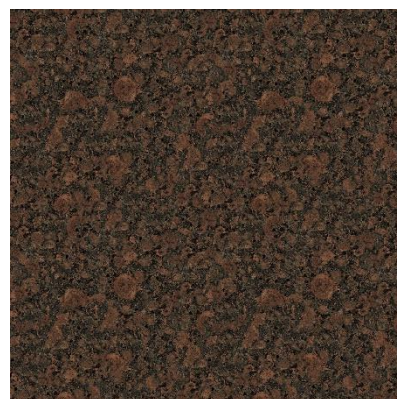
1.7 ENTRANCE GLASS CANOPY – MATERIALS



1.8 GRANITE OPTIONS



Pink Granite



Tan Red Granite



Tan Brown Granite

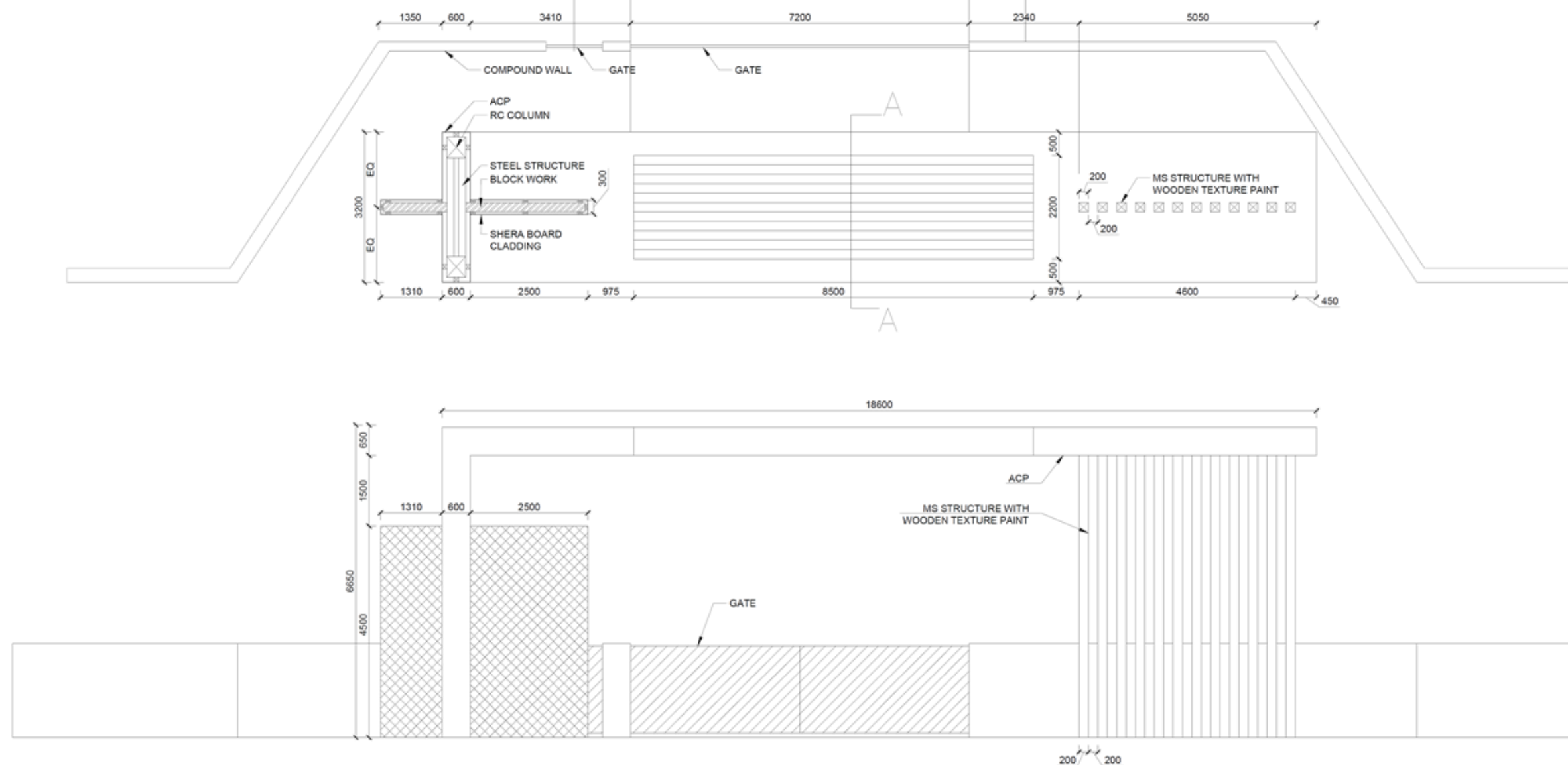
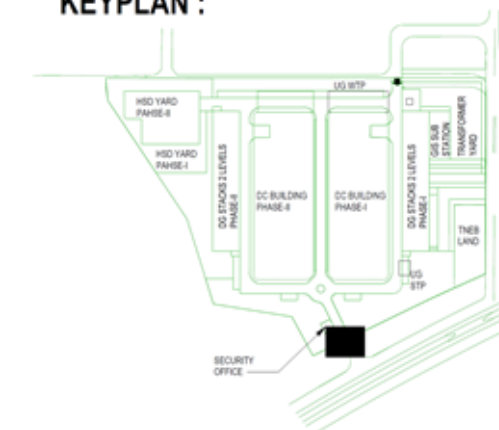


Beige Granite

1.9 ENTRANCE ARCH – OPTIONS



The entrance arch is designed with the concept of Partial Visual Connectivity. Various materials like stone, Clay tiles, wooden fins were used for visualizing the options.



ELEVATION



SECTION A-A

DRAWING NO : 01

**ENTRANCE PORTAL
PLAN , SECTION AND ELEVATION - OPTION 1**



ELEVATION

**ENTRANCE PORTAL
PLAN , SECTION AND ELEVATION - OPTION 2**

25

SCALE : 1: 100

SHEET SIZE : A3

DRAWING NO : 02

1.11 MATERIAL COST COMPARISION

CITADEL – TERRACOTTA CLAY TILE

Tile cost per sq.ft – Rs.220 to Rs.290

Tile Installation cost per sq.ft - Rs.500 to Rs.550

Total Cost per sq.ft - Rs.720 to Rs.840 approx. Rs.750/-

Total Area of Façade (Clay Tile) - 43755.3 sq.ft (4065sqm)

Total Tile Cost – Rs.3,28,16,475

Total Area of Façade (Clay Tile) with Granite cladding – 47371.97 sq.ft (336sqm)

Total tile cost – Rs. 3,55,28,977.5

CLAYTON – TERRACOTTA CLAY TILE

Total Cost per sq.m - Rs.8295/- + GST

Total Area of Façade (Clay Tile) - 43755.3 sq.ft (4065sqm)

Total Tile Cost – Rs.3,37,19,175

Total Area of Façade (Clay Tile) with Granite cladding – 47371.97 sq.ft (336sqm)

Total tile cost – Rs. 3,65,06,295



2. L&T TECHNOLOGY CENTRE - 4

Already TC2, TC3 were existing in L&T for which the interior renovations are going on. One more majestic technology center is being constructed in L&T chennai , which is TC4 currently in the stage of excavation .

Current scope of works handled : Currently the finishing works in the drawings, and detailing part is being done , also further updation in the interior layout is also being suggested and studies were being employed to enhance the proposed floor plan layouts, the sample collection stage of the interior schemes developed is also being started and presented to the higher authority. For existing technology centers the interior schemes were renovated and 3d renders were presented to higher authority and sample collection stages were being started

2.1 Exteriors & Landscape

VIRTUAL BOUNDARY AREA – 11152 SQM
LANDSCAPE AREA – 725 SQM
ROAD & PAVERS AREA – 2493 SQM
BUILDINGS' IN VIRTUAL BOUNDARY AREA – 5093 SQM
TC-4 BUILDING AREA – 3339 SQM

ROAD WIDTH -11M
FRL - +2.250M

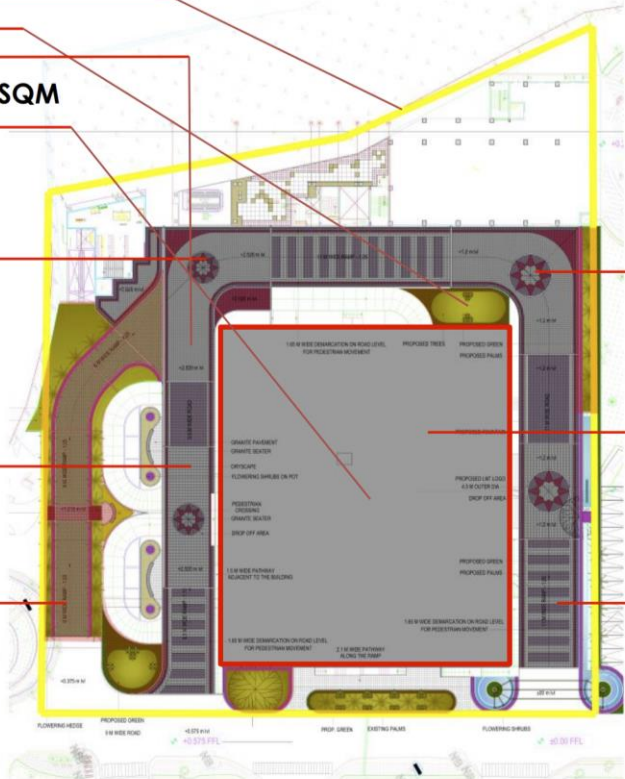
ROAD WIDTH -8.5M
FRL - +1.200M
RAMP SLOPE – 1:10

ROAD WIDTH -6M
FRL - +1.215M

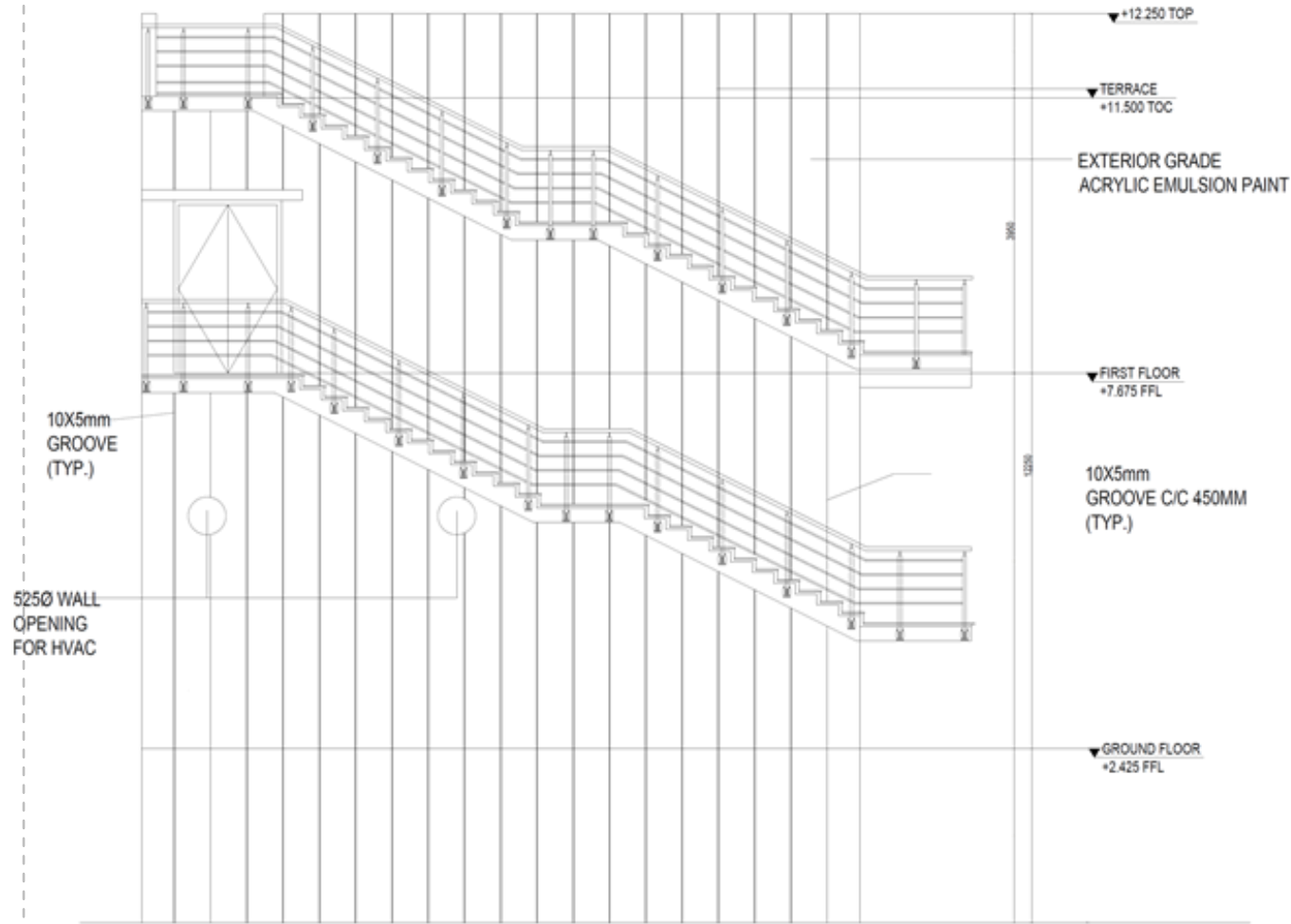
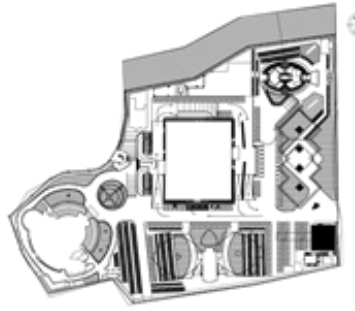
ROAD WIDTH -11M
FRL - +1.200M

BUILDING LENGTH – 63M
BUILDING WIDTH – 53M
FRL - +2.970M

ROAD WIDTH -11M
FRL - +1.200M
RAMP SLOPE – 1:20



KEYPLAN :

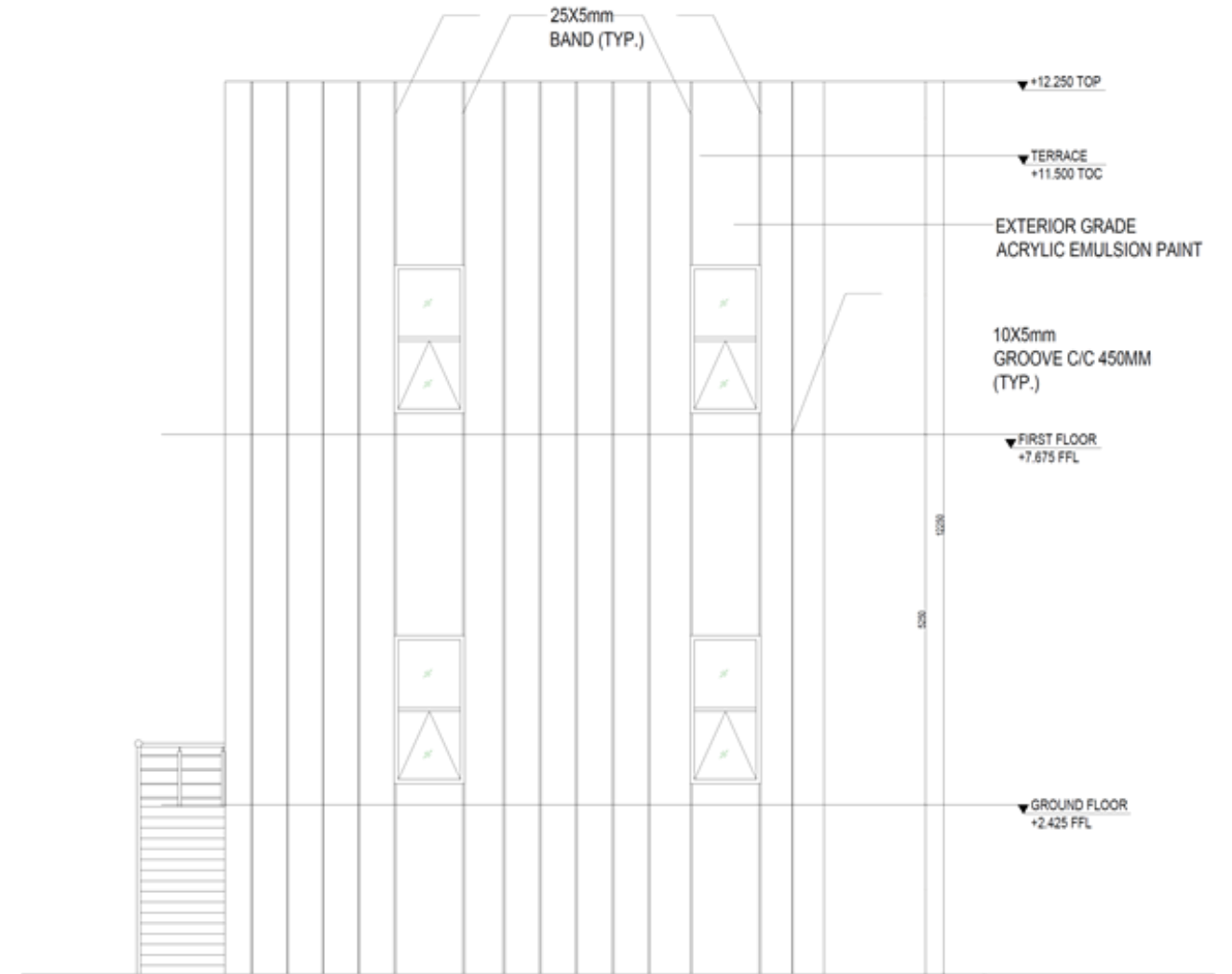


ELEVATION A

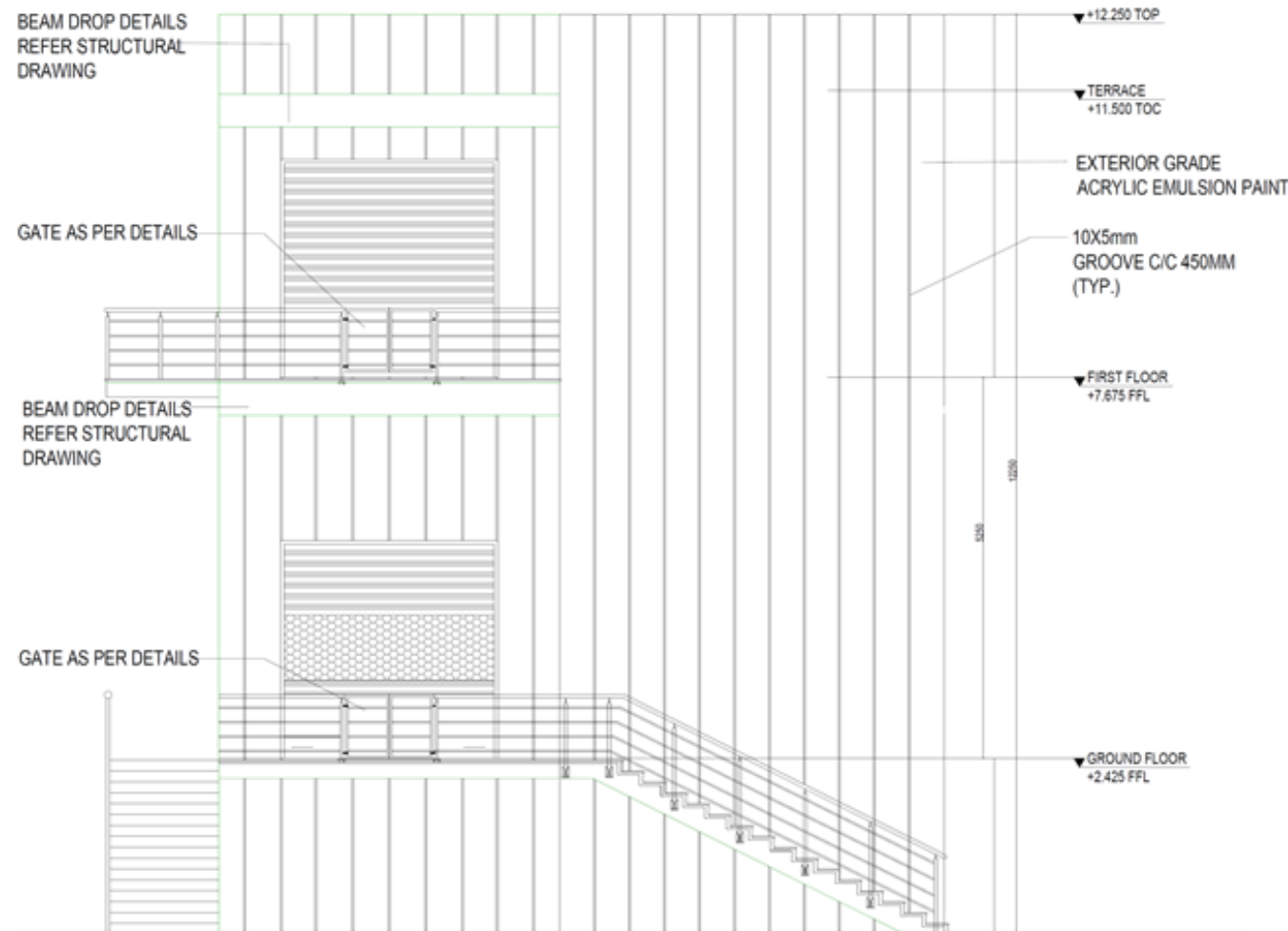
SCALE : 1: 100

SHEET SIZE : A3

DRAWING NO : 01



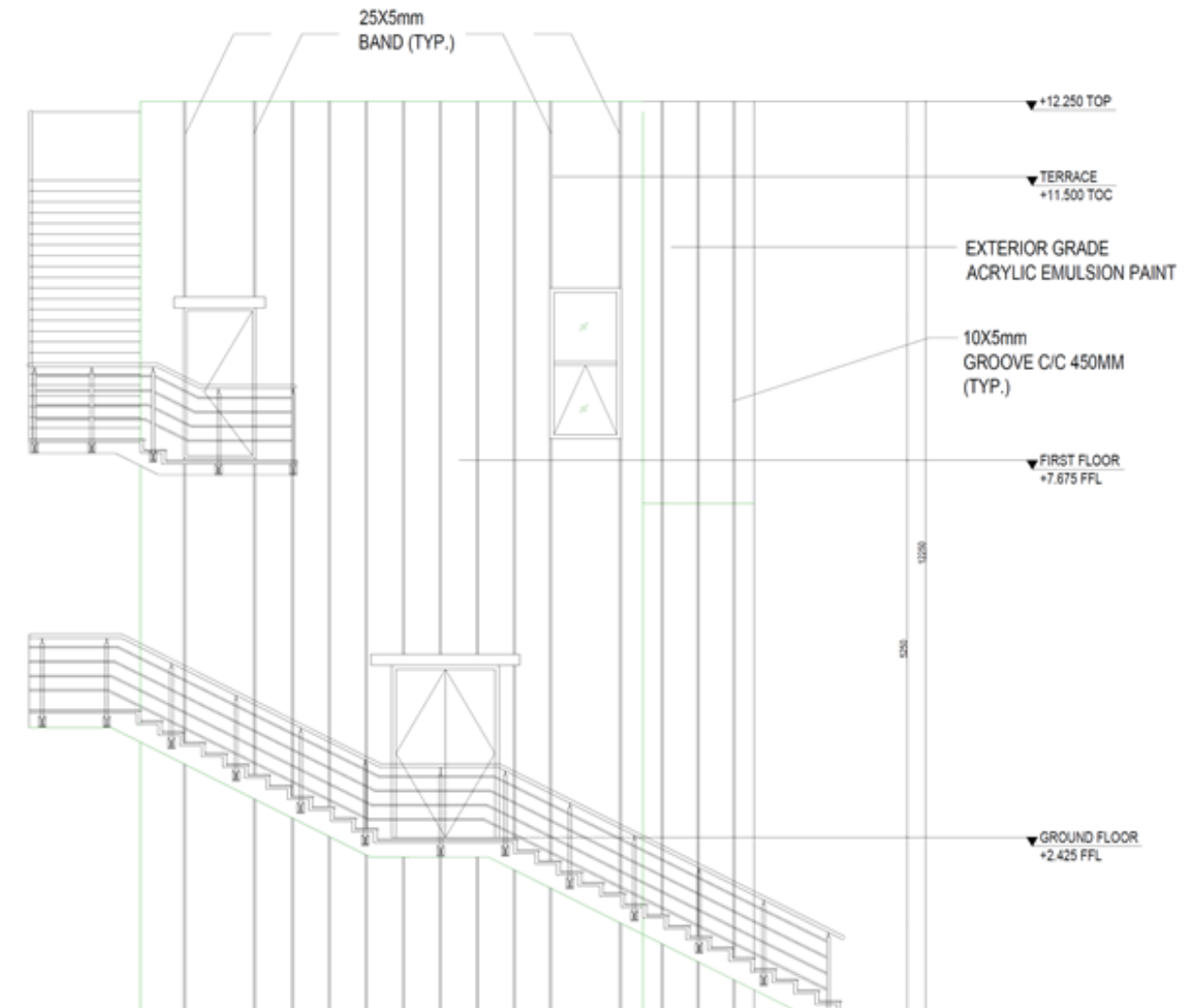
ELEVATION B

**ELEVATION C**

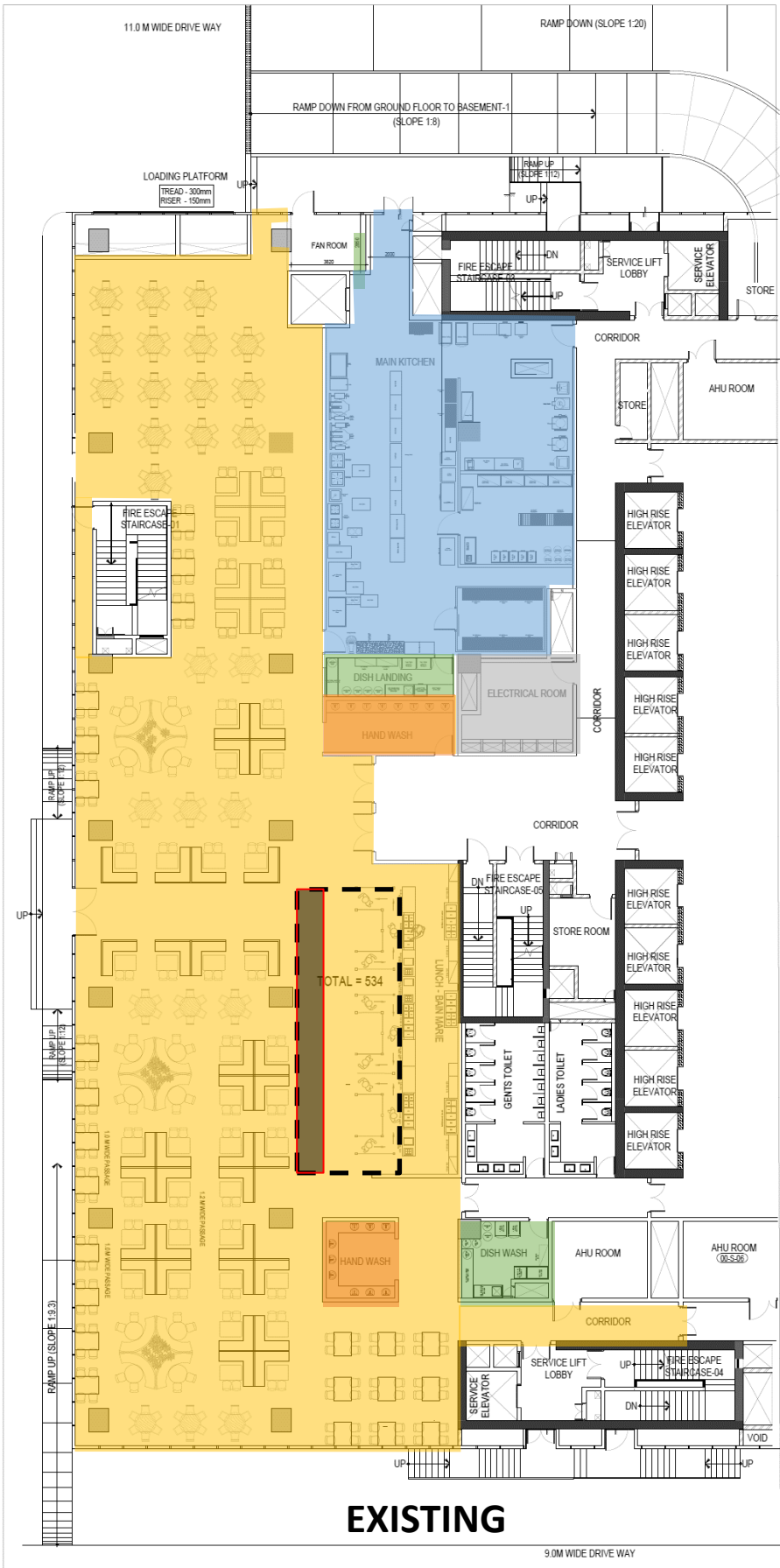
SCALE : 1: 100

SHEET SIZE : A3

DRAWING NO : 02

**ELEVATION D**

2.3 GROUND FLOOR LAYOUT – Kitchen & Dining Area

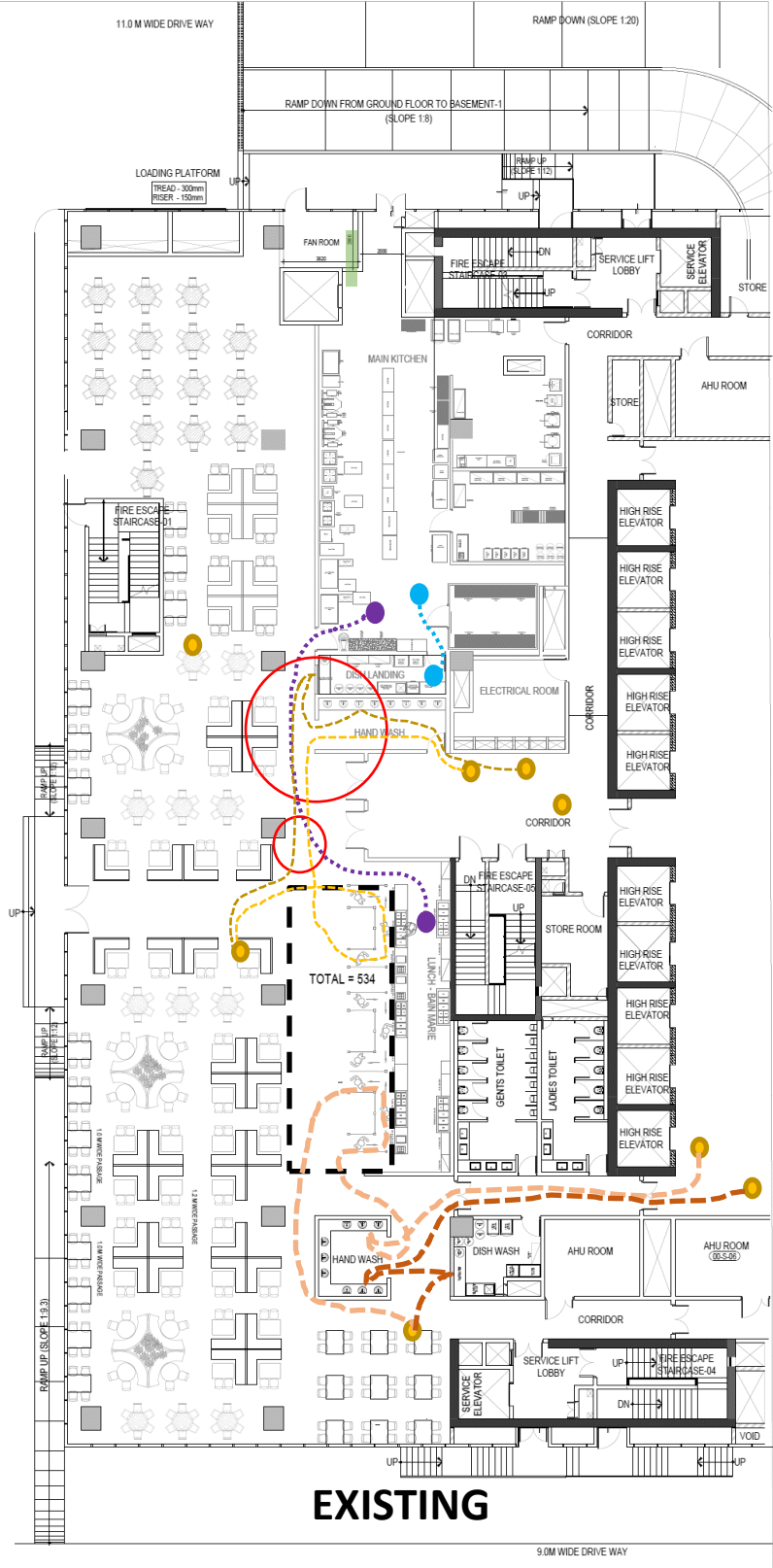


Area Calculation:

- EXISTING DINING AREA – 935 sqm
 - EXISTING KITCHEN AREA – 213 sqm
 - PROPOSED DINING AREA – 952 sqm
 - PROPOSED KITCHEN AREA – 223 sqm
- **TOTAL EXISTING DINING & KITCHEN AREA – 1148 SQM**
- **TOTAL PROPOSED DINING & KITCHEN AREA – 1175 SQM**

- DINING AREA
- KITCHEN
- HAND WASH
- DISH WASH
- ELECTRICAL ROOM

2.4 GROUND FLOOR - CIRCULATION



OCCUPANCY OF PEOPLE

- Total number of seating – 534
- Area per person in a dining space – 1.2 sqm or 13 sq.ft (as per standards)
- Dining area in existing layout (m2/seat) = 1.75
- Dining area in proposed layout (m2/seat) = 1.78

EXISTING

- From Bain Marie to last sitting area : 54 m
- From last sitting area to Farthest Hand wash: 64m

PROPOSED

- From Bain Marie to last sitting area : 67 m
- From last sitting area to Farthest Hand wash: 58m

NEUFERT STANDARDS RESTAURANTS:ARRANGEMENT Page no: 456

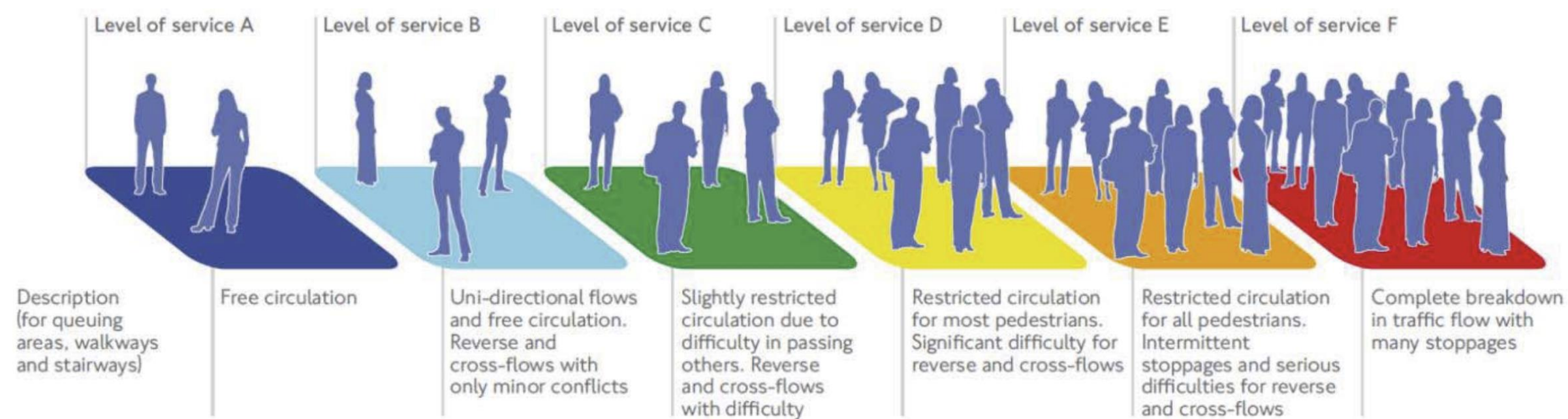
type	chair occupancy per meal	kitchen area required (m ² /cover)	dining area required (m ² /seat)
exclusive restaurant	1	0.7	1.8-2.0
restaurant with high seat turnover	2-3	0.5-0.6	1.4-1.6
normal restaurant	1.5	0.4-0.5	1.6-1.8
inn/ guesthouse	1	0.3-0.4	1.6-1.8

approx. 80% supplement is added for storage rooms, personnel rooms etc.
cover = seat × no. of seat changeovers

Floor area requirements

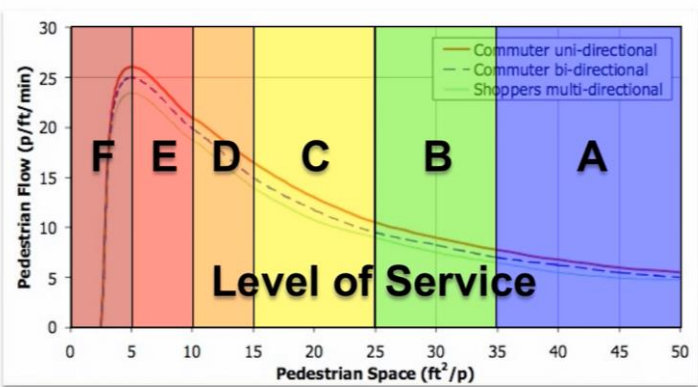
- Person Entry
- Person Exit
- Person Entry
- Person Exit
- Kitchen to Bain Marie
- Dish wash to Kitchen

2.5 FRUIN’S LEVEL OF SERVICE



John J. Fruin’s concept of Level of Service (LoS) can be used to interpret the performance of space and how people move and interact under certain conditions. The Levels of Service are categorised into six bands, with LoS A representing free-flow conditions while LoS F represents a complete breakdown in flow.

Fruin Level of Service - Walkway Crowd Flow



FRUIN WALKWAY LoS THRESHOLD

The Fruin Walkways LoS is typically applied to areas where pedestrians and corridors are traversing, such as footpaths or aisles.

Fruin LoS Criteria for Queuing

A	B	C	D	E	F	
∞	1.21	0.93	0.65	0.28	0.19	m ² /ped

Walkway LOS

LOS A		>= 35 ft ² /p, avg. speed 260 ft/min
LOS B		25-35 ft ² /p, avg. speed 250 ft/min
LOS C		15-25 ft ² /p, avg. speed 240 ft/min
LOS D		10-15 ft ² /p, avg. speed 225 ft/min
LOS E		5-10 ft ² /p, avg. speed 150 ft/min
LOS F		< 5 ft ² /p, avg. speed <150 ft./min

FRUIN QUEUING LoS THRESHOLD

The Fruin Queuing LoS is typically applied to areas where pedestrians or corridors queue or wait.

Fruin LoS Criteria for Walkways

A	B	C	D	E	F	
∞	3.25	2.32	1.39	0.93	0.46	m ² /ped
0	23	33	49	66	82	ped/min/m

Waiting Area LOS

LOS A		>= 13 ft ² per person
LOS B		10-13 ft ² per person
LOS C		7-10 ft ² per person
LOS D		3-7 ft ² per person
LOS E		2-3 ft ² per person
LOS F		< 2 ft ² per person

2.6 CROWD SAFETY AND CROWD RISK ANALYSIS

- As per Fruin's Queuing 1.2 sqm per person to achieve LoS A and 0.94 sqm per person to achieve LoS B

EXISTING

➤ LoS A – People/sqm = 0.83 (Upper limit)
Area of the queuing space = 41.4sqm
People = $0.83 \times 41.4 = 34.3 = 34$ people
(Area per person – 1.2 sqm)

➤ LoS B– People/sqm = 1.08 (Upper limit)
Area of the queuing space = 47sqm
People = $1.08 \times 41.4 = 44.7 = 44$ people
(Area per person – 0.94 sqm)

➤ LoS C– People/sqm = 1.54 (Upper limit)
Area of the queuing space = 47sqm
People = $1.54 \times 41.4 = 63.7 = 64$ people
(Area per person – 0.65 sqm)

PROPOSED

➤ LoS A – People/sqm = 0.83 (Upper limit)
Area of the queuing space = 47sqm
People = $0.83 \times 47 = 39.01 = 39$ people
(Area per person – 1.2 sqm)

➤ LoS B– People/sqm = 1.08 (Upper limit)
Area of the queuing space = 47sqm
People = $1.08 \times 47 = 50.76 = 50$ people
(Area per person – 0.94 sqm)

➤ LoS C – People/sqm = 1.54 (Upper limit)
Area of the queuing space = 41.4sqm
People = $1.54 \times 47 = 72.38 = 72$ people
(Area per person – 0.65 sqm)

Total Population of the building – 5000

10% - Absent

10% - Own food

80% - Dining – 4000 people

- ❖ 4 cycles – each cycle 1000 people.
- ❖ Lunch timing starts from 12pm to 2pm.
- ❖ 500 people in ground floor and 500 in first floor

LoS A : for each cycle (half an hour)

- 13 times queue formed in proposed layout (each queue 2.3 min)
- 15 times queue formed in existing layout (each queue 2 min)

LoS B : for each cycle (half an hour)

- 10 times queue formed in proposed layout (each queue 3 min)
- 11 times queue formed in existing layout (each queue 2.7 min)

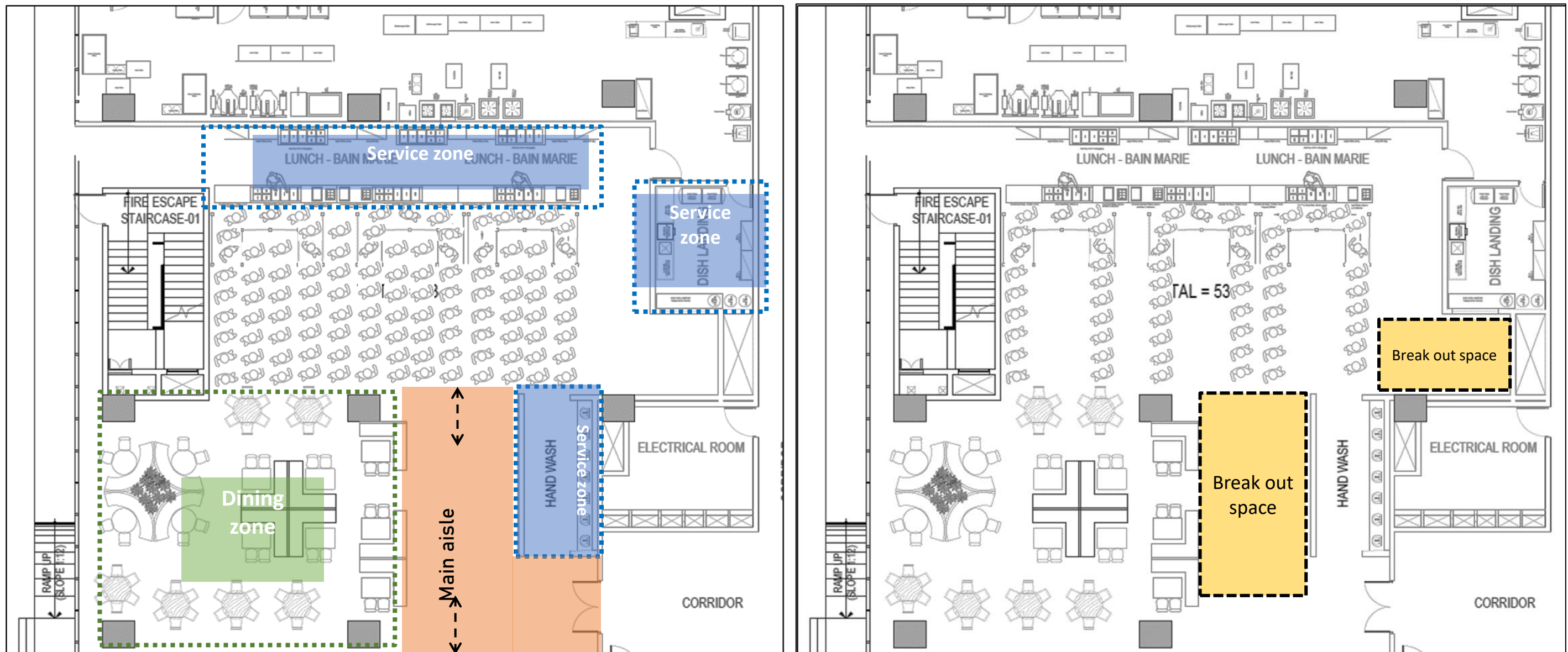
LoS C : for each cycle (half an hour)

- 7 times queue formed in proposed layout (each queue 4.2 min)
- 8 times queue formed in existing layout (each queue 3.8 min)

Fruin Queuing

Lower Limit (ppl/sqm)	Upper Limit (ppl/sqm)	LoS
0	0.83	A
0.83	1.08	B
1.08	1.54	C
1.54	3.59	D
3.59	5.38	E
5.38		F

2.7 CROWD SAFETY ANALYSIS INFERENCE – PROPOSED LAYOUT



Total number of people can occupy the space- 84 to 107
Area – 101 sqm

Total number of people can stand in queue
Area - (46.8 sqm)

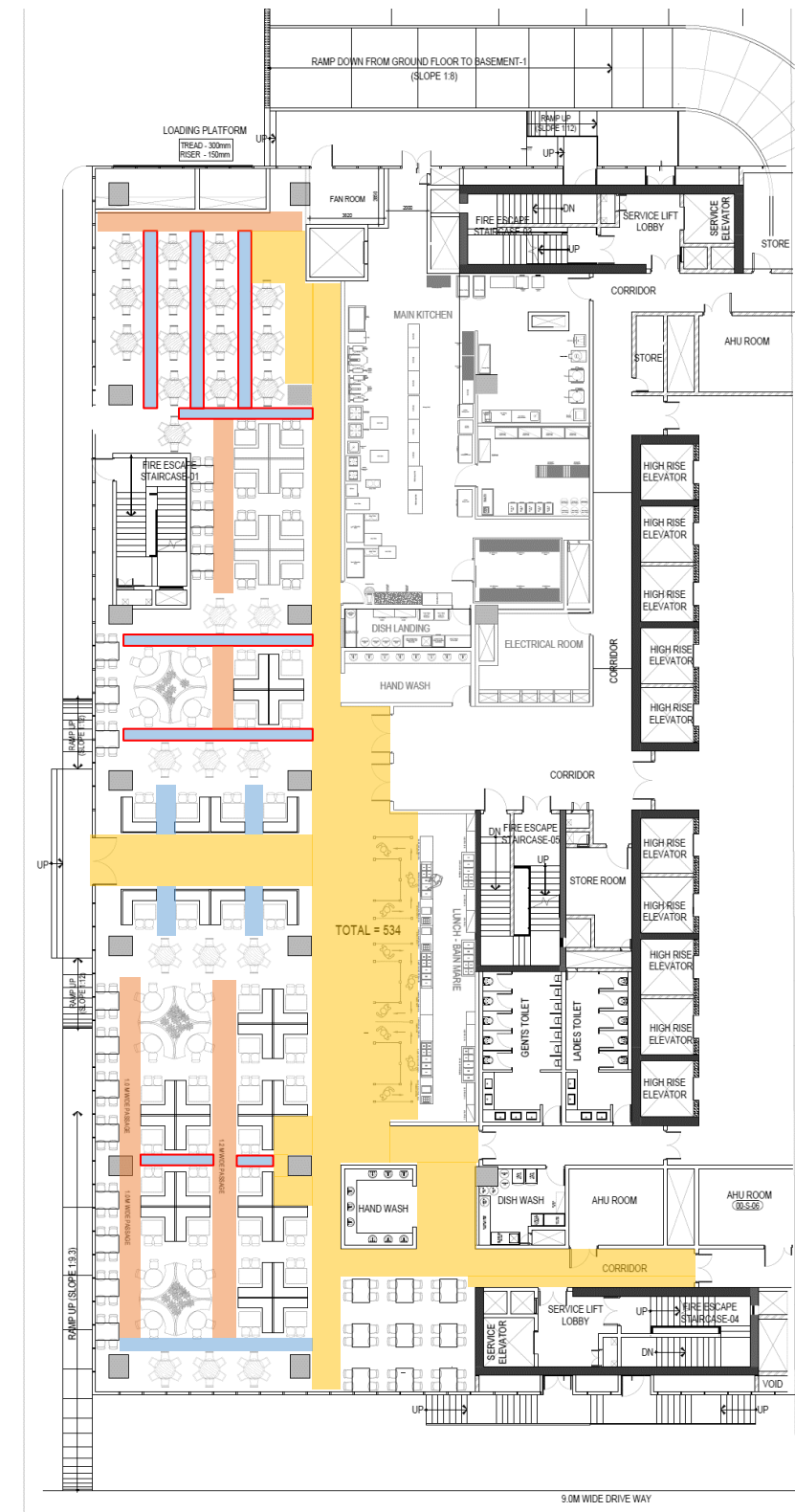
Pros:

- Bain Marie, Dish landing and Handwash area are **isolated** from the dining area which creates a **service zone** and improves the circulation in the main aisle.
- In order to avoid over crowd, **extra break out spaces are provided** behind the waiting area.

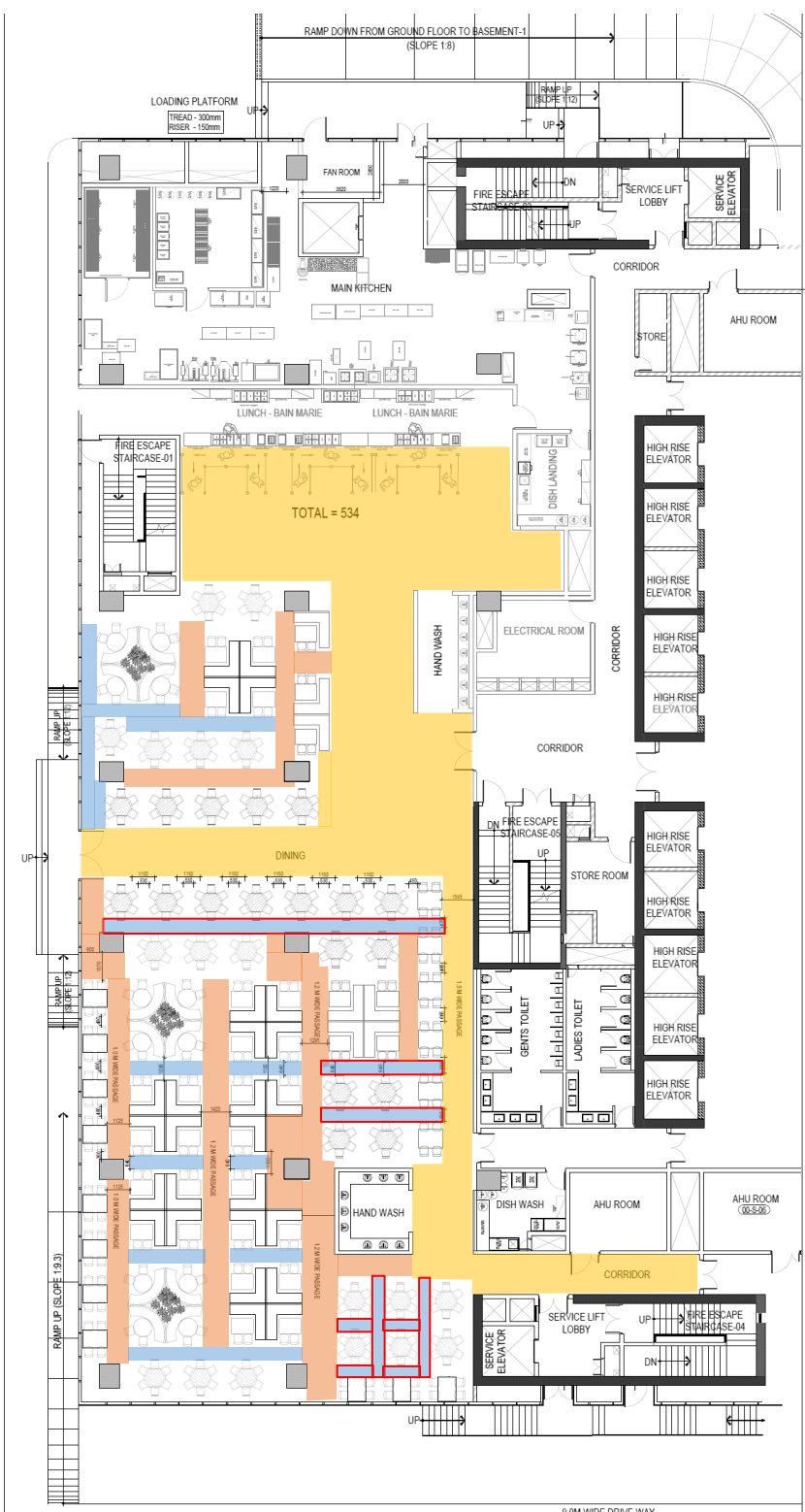
Cons:

- Bain Marie is located in the **one end** of the dining area.
- Washing area has only one access from inside

2.8 HIERARCHY OF CORRIDOR



EXISTING LAYOUT



PROPOSED LAYOUT

NEUFERT STANDARDS RESTAURANTS:ARRANGEMENT – Page no: 456

Guidelines for toilet requirements in inns or restaurants are shown in → ⑨.

dining floor area	walkway width
up to 100 m ²	≥ 1.10 m
up to 250 m ²	≥ 1.30 m
up to 500 m ²	≥ 1.65m
up to 1000 m ²	≥ 1.80 m
over 1000 m ²	≥ 2.10 m

customer places	toilets		urinal bowls	urinals (m)
	men	women		
50	1	1	2	2
50-200	2	2	3	3
200-400	3	4	6	4
400	- determine in individual case -			

⑧ Walkway widths

The minimum width of escape routes is 1.0m per 150 people. General walkways should be at least 1.10m → ⑧, with clearance heights ≥2.10m. The window area should be ≥ 1/10 of the room area of the restaurant.

⑨ Toilet facilities

type	chair occupancy per meal	kitchen area required (m ² /cover)	dining area required (m ² /seat)
exclusive restaurant	1	0.7	1.8-2.0
restaurant with high seat turnover	2-3	0.5-0.6	1.4-1.6
normal restaurant	1.5	0.4-0.5	1.6-1.8
inn/ guesthouse	1	0.3-0.4	1.6-1.8

approx. 80% supplement is added for storage rooms, personnel rooms etc.
cover = seat × no. of seat changeovers

tables	seats	waiter service (m ² /seat)	self service (m ² /seat)
square	4	1.25	1.25
rectangular	4	1.10	1.20
rectangular	6	1.05	1.10
rectangular	8	1.05	1.05

⑪ Total space requirements for dining rooms: 1.4-1.6 m²/place

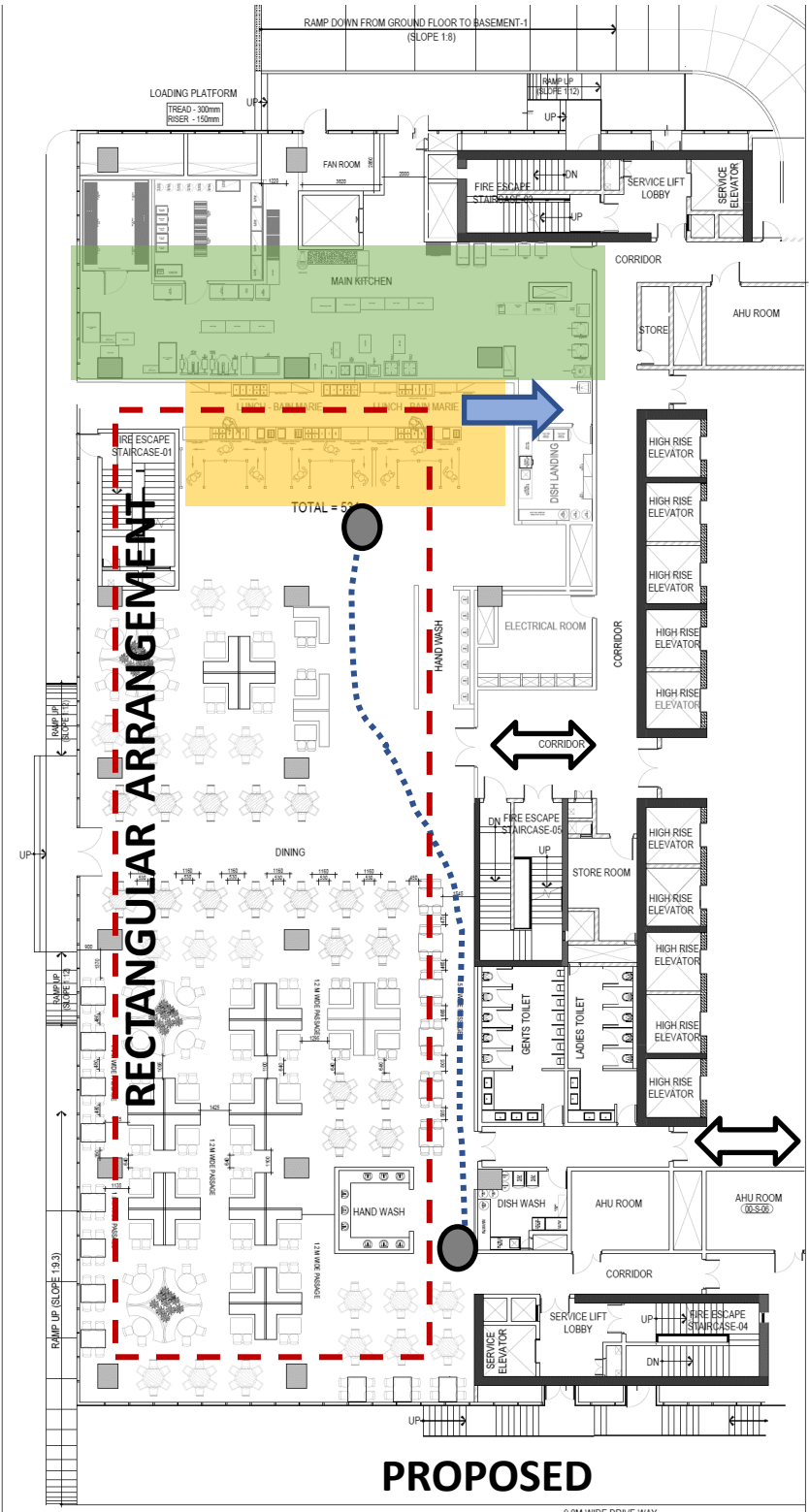
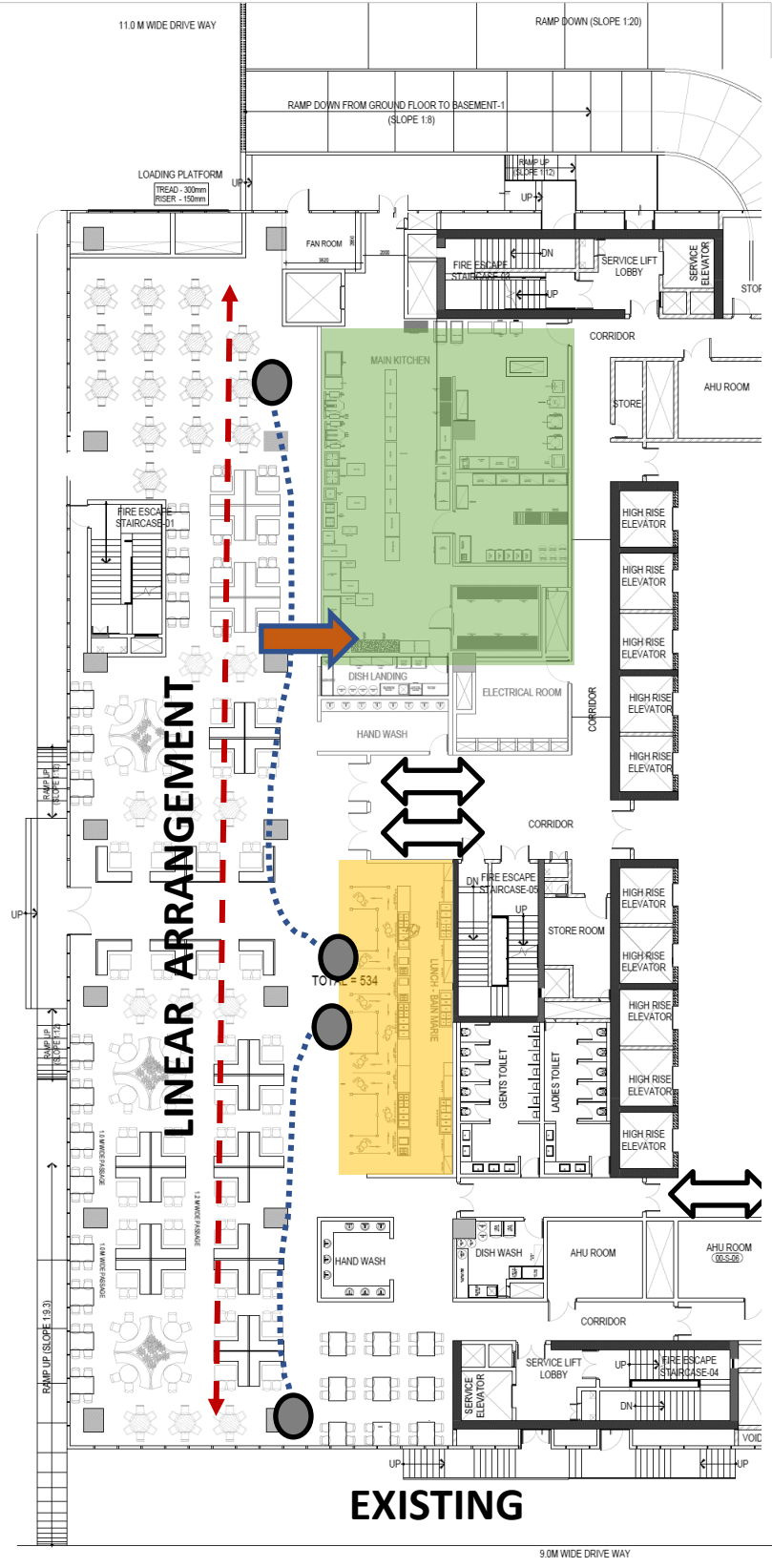
main aisles	min 2.00m wide
intermediate aisles	min 0.90m wide
side aisles	min 1.20m wide

⑩ Floor area requirements

⑫ Aisle widths

- Main aisles (1.5m to 3.5m) – (min 2m wide according to standards)
- Side aisles (1m to 1.5m) – (min 1.2m wide according to standards)
- Intermediate aisles (0.8 m to 1m) – (min 0.9m wide according to standards)

2.9 COMPARATIVE ANALYSIS



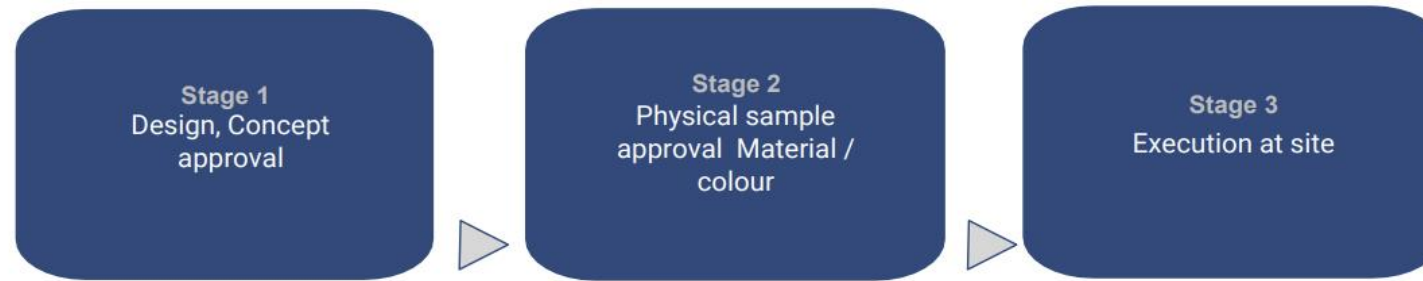
	LAYOUT 1	LAYOUT 2	EXISTING	PROPOSE D
Location of the Kitchen	Behind the Bain Marie (Direct access from the kitchen)	Behind the Bain Marie (Direct access from the kitchen)	Beside the Bain Maire (no direct access from the kitchen)	Behind the Bain Marie (Direct access from the kitchen)
Kitchen	No direct contact from dining	No direct contact from dining	Direct contract from dining	No direct contact from dining
Location of Bain Marie	Middle of the dinning area	Middle of the dinning area	Middle of the dinning area	One end of the dining area
Dinning Arrangement	Parallel	Diagonal	Parallel & Diagonal	Parallel & Diagonal
Entry & Exit / no.	Same / One	Different	Same/ two diff.	Same/ two diff.
Circulation	Linear	Rectangular	Linear	Rectangular

3. STT NAVI MUMBAI DATA CENTRE BUILDING :

This datacenter is proposed in navi mumbai , for which the conceptual design is made by Jacobs and the project was handed over to L&T construction by ST Telemedia team.

Current scope of works handled : Initially the DC building phase is being done for which the interior layouts were approved and the interior design schemes were being done , every interiors were to be aligned with the playbook that STT made for there own design scheme , so the every interiors were revised according to the playbook , our finishing schedule , and BOQ that was made after the tender phase, after the submission of first initial mood board , we were working on the interior corrections that was made by the clients , and also our own plan corrections , after several stages of revision finally it got approved and we have started collection of samples for the approved views , meanwhile the boq and finishing schedule was revised as per the approved views , since our team should coordinate with the MEP team there are some revisions needed to be made in the internal layout, after these stages the views were sent to acoustics team and there output was being processed and acoustical requirements were solved with quantity change in every materials used based on there NRC rate.

3.1 INTERIOR PROPOSAL FOR SPACES – DESIGN PHASE

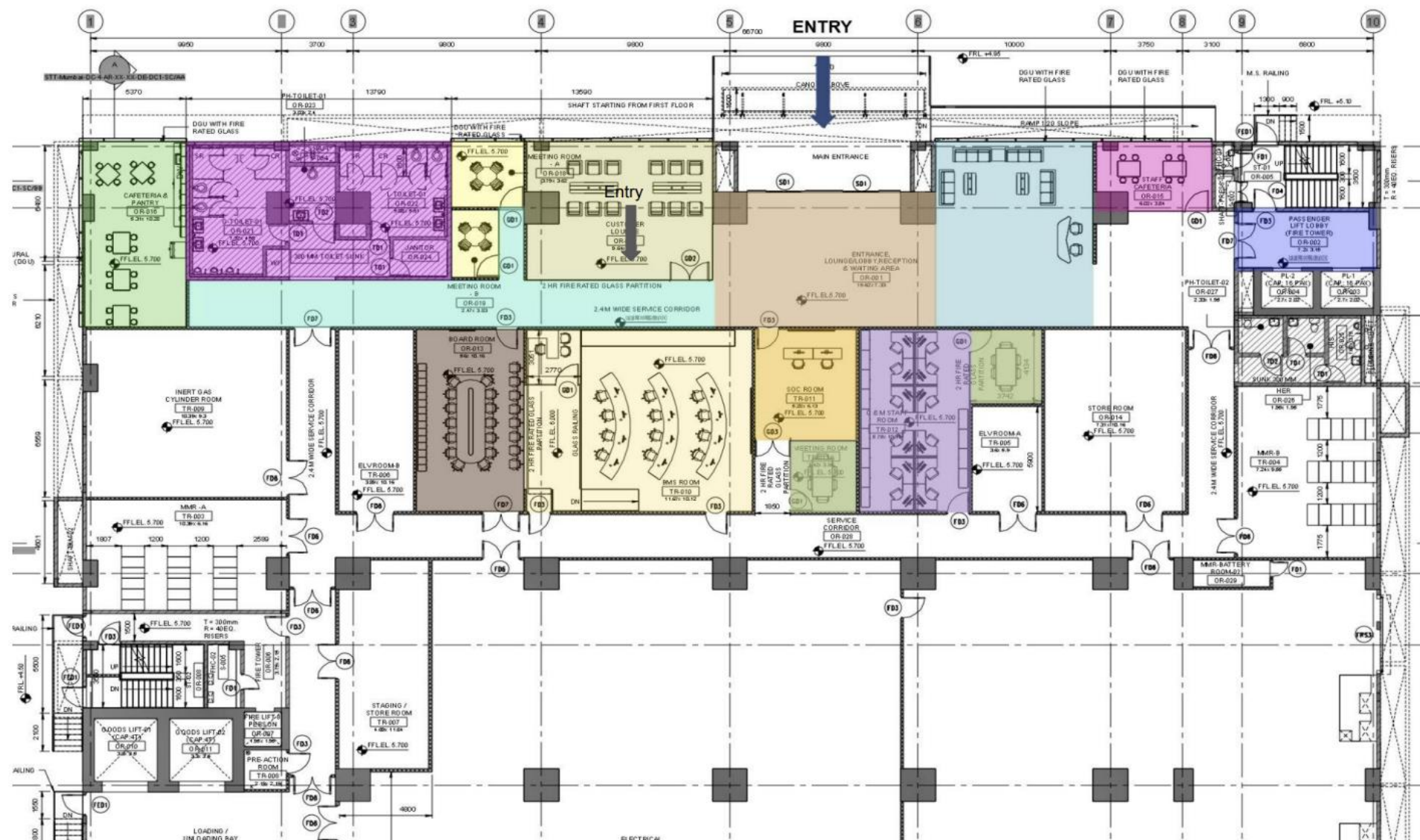
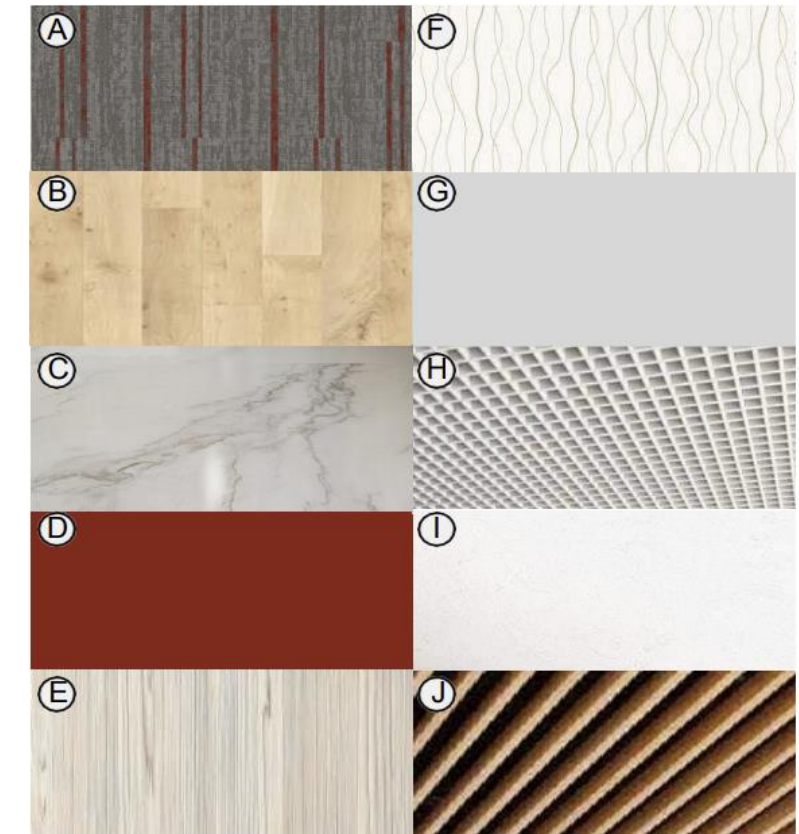


MAKE LIST

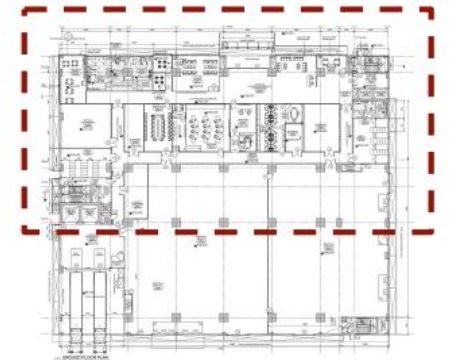
- Carpet - Interface, Shaw or eq
- Vitrified tiles - Johnson, Bell Ceramics, Somany, Nitco, Kajaria
- Laminates - Greenlam, Merino, Century
- Wallpapers - Muraspec, Vescom or eq
- Paints - Asian, Berger, Nerolac
- False ceilings - Saint Gobain, Armstrong, LA Gyp, USG, AMF, Ceiflo, LD2

MATERIALS

- Ⓐ Carpet flooring
- Ⓑ Vitrified tiles
- Ⓒ Marble
- Ⓓ Softboards
- Ⓔ Laminate
- Ⓕ Wallpapers
- Ⓖ Paint
- Ⓗ Open cell ceilings
- Ⓘ Gypsum board
- ⓵ Baffle ceilings



Key plan

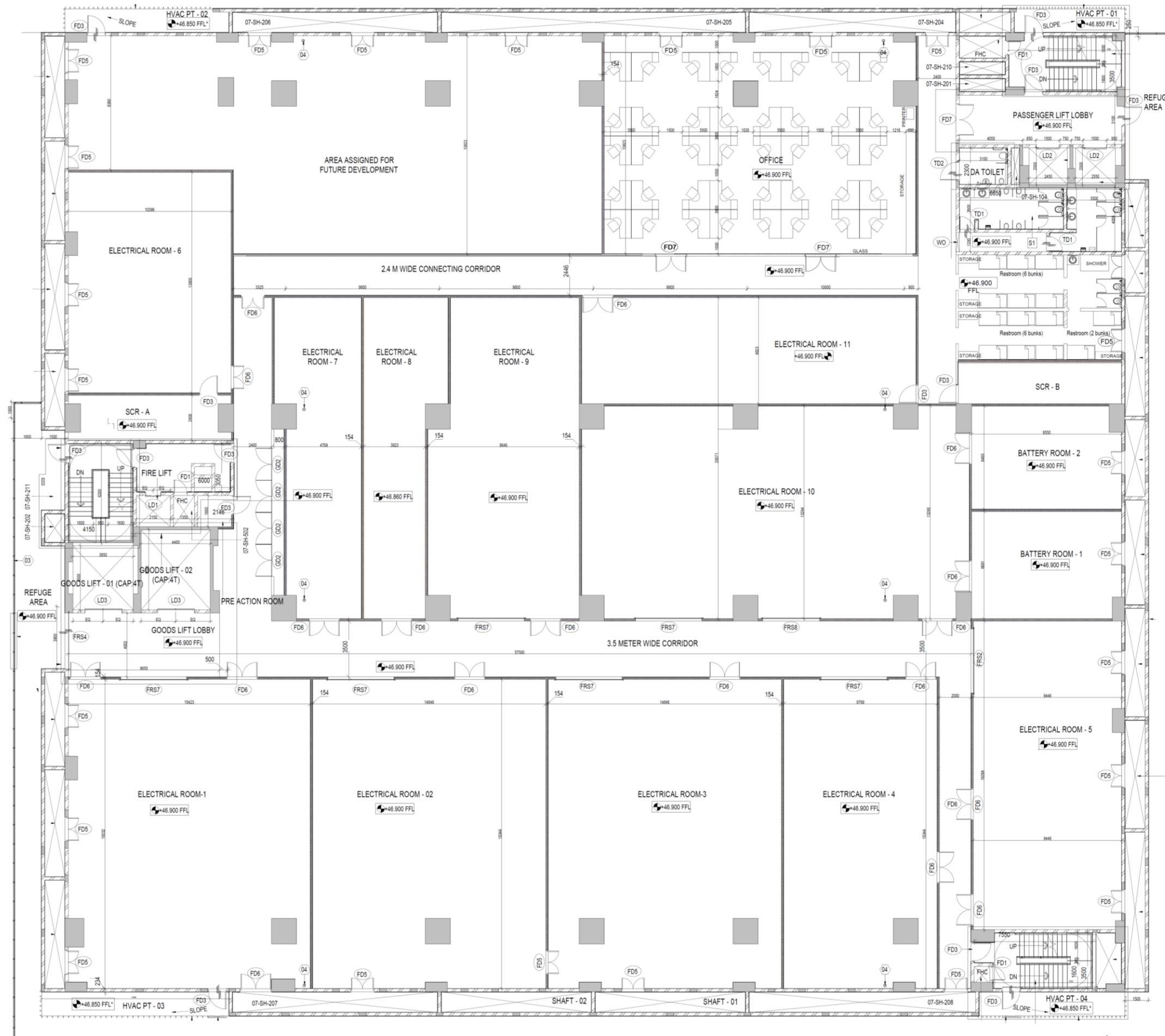


SPACES

- Entrance lobby
- Customer lounge
- Cafeteria
- Staff cafeteria
- Passenger lift lobby
- Board room
- SOC room
- BMS room
- Meeting room
- Toilet



DRAWING NO : 01



STT DC - SEVENTH FLOOR PLAN

3.3 FINISHING SCHEDULE

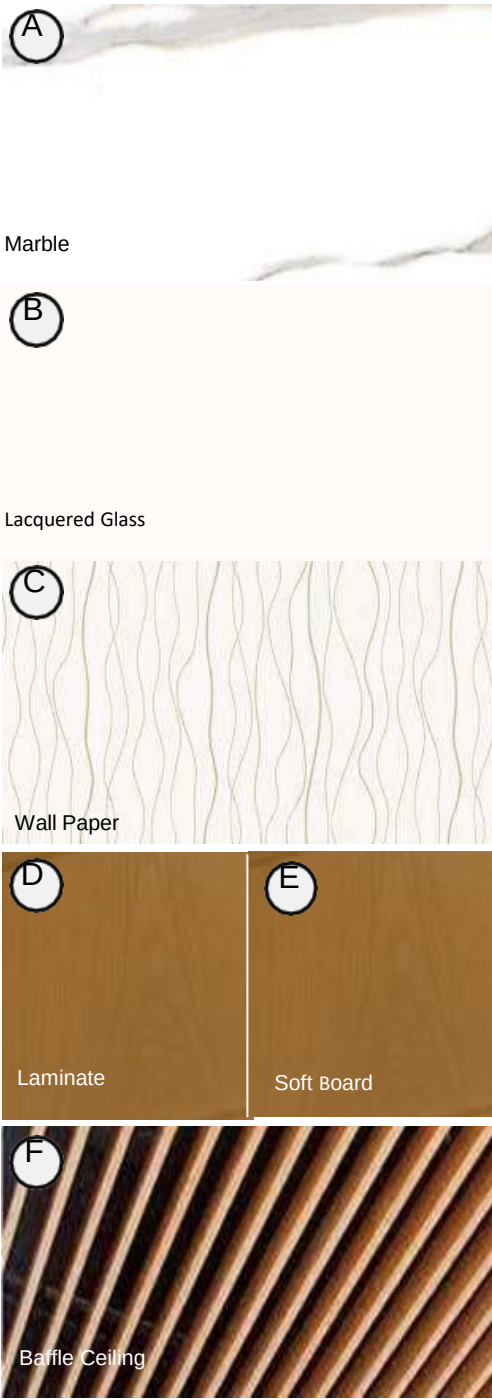
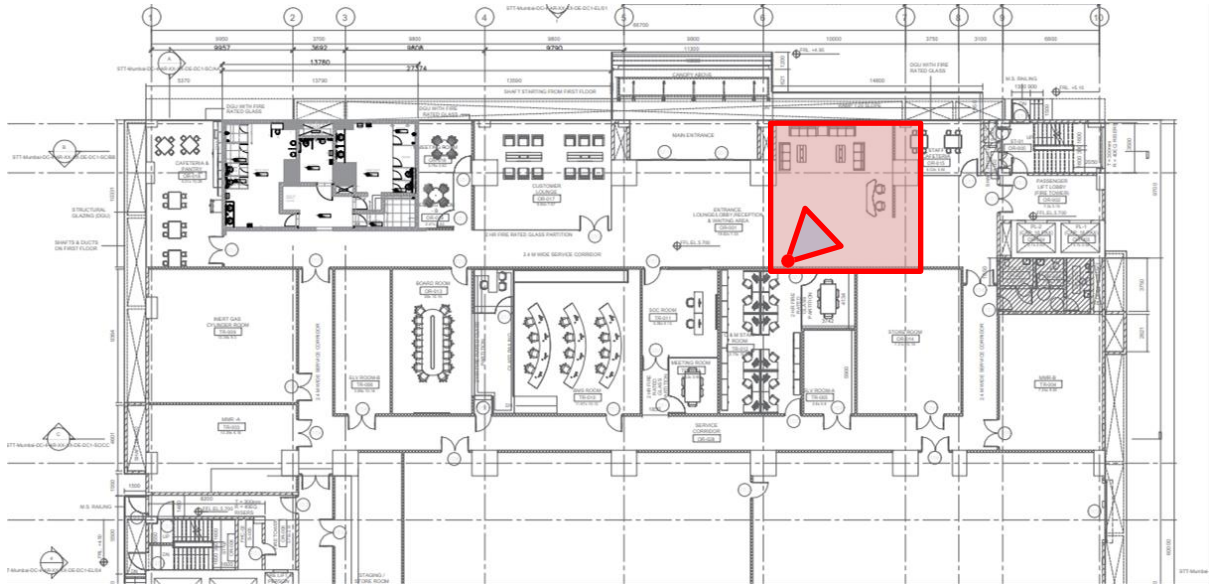
NEW FINISHING SCHEDULE AFTER REVISION OF INTERIOR VIEWS

LEVEL	ROOM NAME	FLOOR FINISH	SKIRTING		WALL		CEILING	
		FINISH	FINISH	H (MM)	PLASTER	FINISH	FINISH	CEILING HEIGHT (MM)
UNDER GROUND LEVEL	PUMP ROOM	CONCRETE FLOOR WITH FLOOR HARDENER	-	-	POP PUNNING	ACRYLIC EMULSION PAINT	CEMENT PAINT ON TRUE CEILING	-
GROUND FLOOR	MAIN ENTRANCE	MARBLE FLOORING	POLISHED MARBLE	100	CEMENT PLASTER	EXTERIOR GRADE TEXTURED PAINT	WOODEN FINISH PVC CEILING	4050
	ENTRANCE LOUNGE, LOBBY, RECEPTION AND WAITING AREA	MARBLE FLOORING	POLISHED MARBLE	100	POP PUNNING	COMBINATION OF , WALLPAPER, SOFTBOARD, LAMINATE PANELING AND LACQUERED GLASS	CEMENT PAINT ON TRUE CEILING + BAFFLE CEILING (WOODEN FINISH)	4050
	CUSTOMER LOUNGE	CARPET TILE FLOORING	ALUMINIUM	75	POP PUNNING	COMBINATION OF ACRYLIC EMULSION PAINT AND DIGITAL PRINT	CEMENT PAINT ON TRUE CEILING + SUSPENDED GRID CEILING + GYPSUM WITH ACRYLIC EMULSION PAINT	3600
	MEETING ROOM - A AND MEETING ROOM - B	CARPET TILE FLOORING	ALUMINIUM	75	POP PUNNING	COMBINATION OF ACRYLIC EMULSION PAINT, SOFTBOARD, TEXTURED PAINT AND LACQUERED GLASS	CEMENT PAINT ON TRUE CEILING + GYPSUM WITH TEXTURE PAINT	3200
	CORRIDOR	MARBLE FLOORING	POLISHED MARBLE	100	POP PUNNING	COMBINATION OF ACRYLIC EMULSION PAINT AND DIGITAL PRINT	CEMENT PAINT ON TRUE CEILING + OPEN CELL CEILING	3600
	CAFETERIA AND PANTRY	MARBLE FLOORING	POLISHED MARBLE	100	POP PUNNING	COMBINATION OF ACRYLIC EMULSION PAINT, TEXTURED PAINT AND BACK PAINTED GLASS	CEMENT PAINT ON TRUE CEILING + OPEN CELL CEILING + GYPSUM CEILING+ TEXTURED PAINT+ ACRYLIC EMULSION PAINT	3600
	STAFF CAFETERIA	VITRIFIED TILES	VITRIFIED TILES	100	POP PUNNING	COMBINATION OF ACRYLIC EMULSION PAINT, WALLPAPER AND DIGITAL PRINT	CEMENT PAINT ON TRUE CEILING + BAFFLE CEILING(WOODEN FINISH)	3600
	PASSENGER LIFT LOBBY (FIRE TOWER)	MARBLE FLOORING	POLISHED MARBLE CLADDING	FC	-	MARBLE CLADDING	CEMENT PAINT ON TRUE CEILING + SUSPENDED GRID CEILING + GYPSUM WITH ACRYLIC EMULSION PAINT	3600
	STAIRCASE - 01	POLISHED GRANITE FLOORING	POLISHED GRANITE	100	POP PUNNING	ACRYLIC EMULSION PAINT	CEMENT PAINT ON TRUE CEILING	-
	STAIRCASE - 02 & STAIRCASE - 03	20MM THK POLISHED KOTA STONE FLOORING	KOTA STONE	100	POP PUNNING	ACRYLIC EMULSION PAINT	CEMENT PAINT ON TRUE CEILING	-
	FIRE TOWER	20MM THK POLISHED KOTA STONE FLOORING	KOTA STONE	100	POP PUNNING	ACRYLIC EMULSION PAINT	CEMENT PAINT ON TRUE CEILING + SUSPENDED GRID CEILING	3200
	BOARD ROOM, BMS ROOM, SOC ROOM, STAFF MEETING ROOM, O&M STAFF ROOM	CARPET TILE FLOORING	ALUMINIUM	75	-	COMBINATION OF ACRYLIC EMULSION PAINT, SOFTBOARD , LAMINATE PANELING AND DIGITAL PRINT	CEMENT PAINT ON TRUE CEILING + SUSPENDED GRID CEILING + GYPSUM WITH ACRYLIC EMULSION PAINT	3200
	STORE ROOM, SERVICE CORRIDOR - A, SERVICE CORRIDOR - B	EPOXY FLOORING	EPOXY	100	-	ACRYLIC EMULSION PAINT	CEMENT PAINT ON TRUE CEILING	-
	TOILETS (GENTS, LADIES AND DA)	ANTI-SKID VITRIFIED TILE FLOORING	CERAMIC TILE WALL DADO + EPOXY	2400	CEMENT PLASTER	-	CEMENT PAINT ON TRUE CEILING + MOISTURE RATED GYPSUM BOARD CEILING +ACRYLIC EMULSION PAINT + EPOXY	3200
	JANITOR	ANTI-SKID VITRIFIED TILE FLOORING	VITRIFIED TILE WALL DADO	100	POP PUNNING	ACRYLIC EMULSION PAINT	CEMENT PAINT ON TRUE CEILING + MOISTURE RATED GYPSUM BOARD CEILING +ACRYLIC EMULSION PAINT	3200
	STAGING/ STORE ROOM, PRE-ACTION ROOM, INERT GAS CYLINDER ROOM	EPOXY FLOORING	EPOXY	100	POP PUNNING	PU PAINT	CEMENT PAINT ON TRUE CEILING	-
	ELECTRICAL ROOM - 01 & 02, MMR ROOM - A & B, ELV ROOM - A & B	ANTI-STATIC EPOXY FLOORING	EPOXY	100	POP PUNNING	PU PAINT	CEMENT PAINT ON TRUE CEILING	-
	MMR BATTERY ROOM - 01 & MMR BATTERY ROOM - 02	ACID-RESISTANT EPOXY FLOORING	ACID-RESISTANT EPOXY	100	POP PUNNING	PU PAINT	CEMENT PAINT ON TRUE CEILING	-
	LOADING / UNLOADING BAY	CONCRETE FLOOR WITH FLOOR HARDENER	-	-	POP PUNNING	ACRYLIC EMULSION PAINT	CEMENT PAINT ON TRUE CEILING	-
	SECURITY ROOM	CONCRETE FLOOR WITH FLOOR HARDENER	-	-	POP PUNNING	PU PAINT	CEMENT PAINT ON TRUE CEILING + SUSPENDED GRID CEILING	3200

FIRST FLOOR	PASSENGER LIFT LOBBY (FIRE TOWER)	MARBLE FLOORING	POLISHED MARBLE	100	POP PUNNING	ACRYLIC EMULSION PAINT	CEMENT PAINT ON TRUE CEILING + SUSPENDED GRID CEILING	3600
	STAIRCASE - 01	POLISHED GRANITE FLOORING	POLISHED GRANITE	100	POP PUNNING	ACRYLIC EMULSION PAINT	CEMENT PAINT ON TRUE CEILING	-
	STAIRCASE - 02 & STAIRCASE - 03	20MM THK POLISHED KOTA STONE FLOORING	KOTA STONE	100	POP PUNNING	ACRYLIC EMULSION PAINT	CEMENT PAINT ON TRUE CEILING	-
	FIRE TOWER	20MM THK POLISHED KOTA STONE FLOORING	KOTA STONE	100	POP PUNNING	ACRYLIC EMULSION PAINT	CEMENT PAINT ON TRUE CEILING + SUSPENDED GRID CEILING	3200
	GOODS LIFT LOBBY,	EPOXY + CALCIUM SULFATE TILE FALSE FLOOR	EPOXY + PVC	100	POP PUNNING	ACRYLIC EMULSION PAINT	CEMENT PAINT ON TRUE CEILING	-
	MECHANICAL ROOM, ELECTRICAL ROOM, PRE-ACTION ROOM, SCR - A & B, NETWORK ROOM - A & B, SERVER HALL	EPOXY + CALCIUM SULFATE TILE FALSE FLOOR	EPOXY + PVC	100	POP PUNNING	PU PAINT	CEMENT PAINT ON TRUE CEILING	-
	BATTERY ROOM	ACID-RESISTANT EPOXY + ACID-RESISTANT TILES	ACID-RESISTANT EPOXY + PVC	100	POP PUNNING	PU PAINT	CEMENT PAINT ON TRUE CEILING	-
	HVAC PT AND GOODS PT	CONCRETE FLOOR WITH FLOOR HARDENER	-	-	-	-	CEMENT PAINT ON TRUE CEILING	-
	SHAFT (PRESS.)	-	-	-	POP PUNNING	ACRYLIC EMULSION PAINT	-	-
	SHAFT	-	-	-	-	CEMENT PAINT	-	-
	TOILET	ANTI-SKID VITRIFIED TILE FLOORING	VITRIFIED TILE WALL DADO	2400	CEMENT PLASTER	-	CEMENT PAINT ON TRUE CEILING + MOISTURE RATED SUSPENDED CEILING	3200
TYPICAL FLOOR (2ND TO 6TH)	PASSENGER LIFT LOBBY (FIRE TOWER)	MARBLE FLOORING	POLISHED MARBLE	100	POP PUNNING	ACRYLIC EMULSION PAINT	CEMENT PAINT ON TRUE CEILING + SUSPENDED GRID CEILING	3600
	STAIRCASE - 01	POLISHED GRANITE FLOORING	POLISHED GRANITE	100	POP PUNNING	ACRYLIC EMULSION PAINT	CEMENT PAINT ON TRUE CEILING	-
	STAIRCASE - 02 & STAIRCASE - 03	20MM THK POLISHED KOTA STONE FLOORING	KOTA STONE	100	POP PUNNING	ACRYLIC EMULSION PAINT	CEMENT PAINT ON TRUE CEILING	-
	FIRE TOWER	20MM THK POLISHED KOTA STONE FLOORING	KOTA STONE	100	POP PUNNING	ACRYLIC EMULSION PAINT	CEMENT PAINT ON TRUE CEILING + SUSPENDED GRID CEILING	3200
	GOODS LIFT LOBBY	EPOXY	EPOXY	100	POP PUNNING	ACRYLIC EMULSION PAINT	CEMENT PAINT ON TRUE CEILING	-
	HVAC PT AND GOODS PT	CONCRETE FLOOR WITH FLOOR HARDENER	-	-	-	-	CEMENT PAINT ON TRUE CEILING	-
	SHAFT (PRESS.)	-	-	-	POP PUNNING	ACRYLIC EMULSION PAINT	-	-
	REFUGE AREA	KOTA STONE FLOORING	KOTA STONE	100	-	EXTERIOR GRADE TEXTURED PAINT	-	-
SEVENTH FLOOR & TERRACE LEVEL	PASSENGER LIFT LOBBY (FIRE TOWER)	MARBLE FLOORING	POLISHED MARBLE	100	POP PUNNING	ACRYLIC EMULSION PAINT	CEMENT PAINT ON TRUE CEILING + SUSPENDED GRID CEILING	3600
	STAIRCASE - 01	POLISHED GRANITE FLOORING	POLISHED GRANITE	100	POP PUNNING	ACRYLIC EMULSION PAINT	CEMENT PAINT ON TRUE CEILING	-
	STAIRCASE - 02 & STAIRCASE - 03	20MM THK POLISHED KOTA STONE FLOORING	KOTA STONE	100	POP PUNNING	ACRYLIC EMULSION PAINT	CEMENT PAINT ON TRUE CEILING	-
	FIRE TOWER	20MM THK POLISHED KOTA STONE FLOORING	KOTA STONE	100	POP PUNNING	ACRYLIC EMULSION PAINT	CEMENT PAINT ON TRUE CEILING + SUSPENDED GRID CEILING	3200
	CUSTOMER OFFICE	CARPET TILE FLOORING	ALUMINIUM SKIRTING	100	POP PUNNING	ACRYLIC EMULSION PAINT, SOFTBOARDS DIGITAL PRINT AND TEXTURED PAINT	CEMENT PAINT ON TRUE CEILING + SUSPENDED GRID CEILING	3200
	TOILETS (GENTS, LADIES AND DA)	ANTI-SKID VITRIFIED TILE FLOORING	VITRIFIED TILE WALL DADO	2400	CEMENT PLASTER	-	CEMENT PAINT ON TRUE CEILING	-
	CORRIDOR - 2.4M WIDE AND 1.2M WIDE	EPOXY FLOORING	EPOXY	100	POP PUNNING	ACRYLIC EMULSION PAINT	CEMENT PAINT ON TRUE CEILING	-
	ELECTRICAL ROOM - A1, B1 C1, D1 SCR - A & B, PRE-ACTION ROOM	ANTI-STATIC EPOXY FLOORING	EPOXY	100	POP PUNNING	ACRYLIC EMULSION PAINT	CEMENT PAINT ON TRUE CEILING	-
	BATTERY ROOM - A1 & BATTERY ROOM - B1	ACID-RESISTANT EPOXY FLOORING	ACID-RESISTANT EPOXY	100	POP PUNNING	ACRYLIC EMULSION PAINT	CEMENT PAINT ON TRUE CEILING	-
	GOODS LIFT LOBBY	EPOXY	EPOXY	100	POP PUNNING	ACRYLIC EMULSION PAINT	CEMENT PAINT ON TRUE CEILING	-
	HVAC PT AND GOODS PT	CONCRETE FLOOR WITH FLOOR HARDENER	-	-	-	-	CEMENT PAINT ON TRUE CEILING	-
	SHAFT (PRESS.)	-	-	-	POP PUNNING	ACRYLIC EMULSION PAINT	-	-
	REFUGE AREA	KOTA STONE FLOORING	KOTA STONE	100	-	EXTERIOR GRADE TEXTURED PAINT	-	-

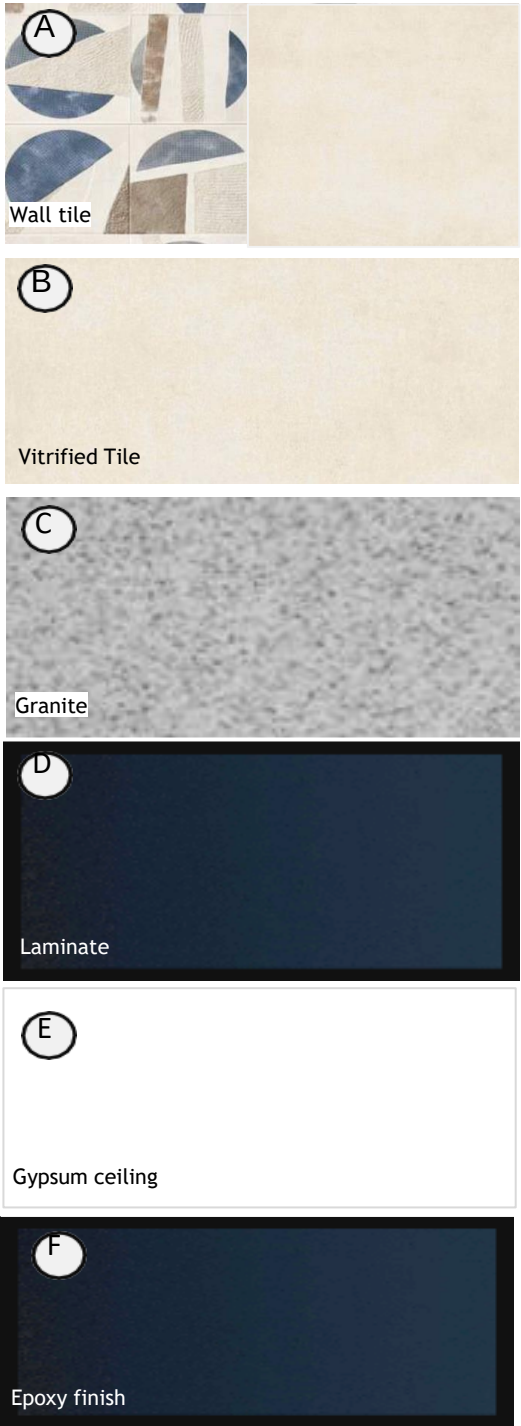
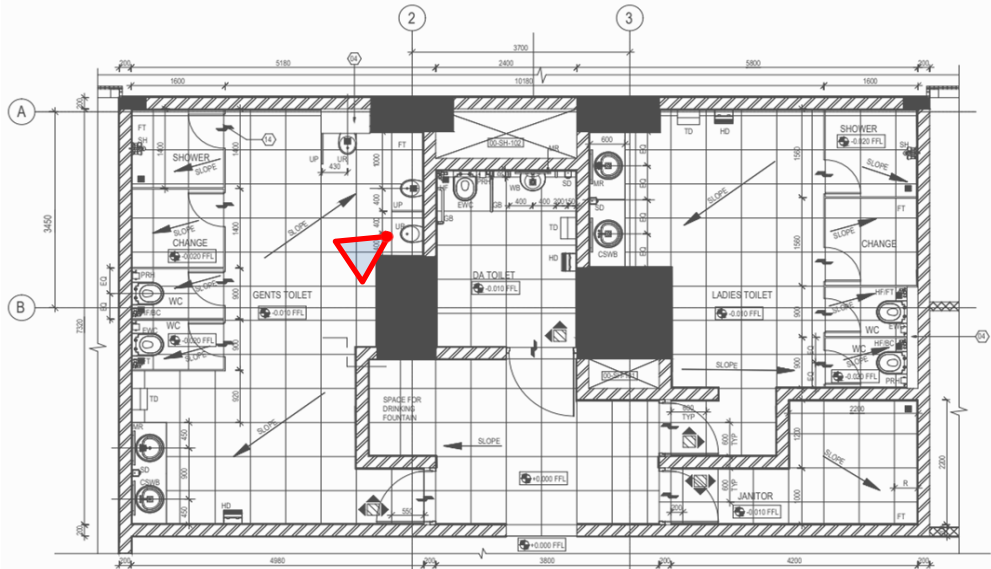
3.4 RECEPTION LOBBY

INTERIOR



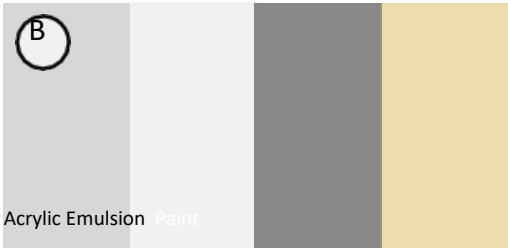
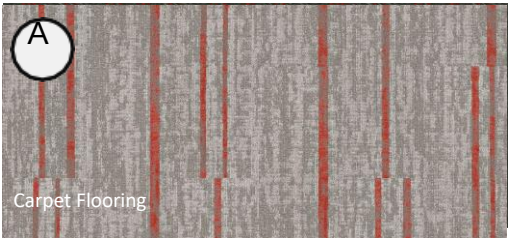
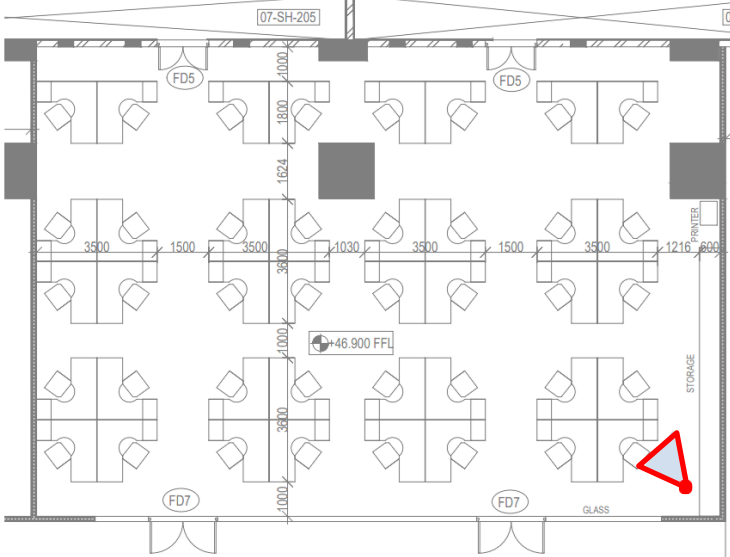
3.5 TOILET

INTERIOR



3.6 OFFICE

INTERIOR

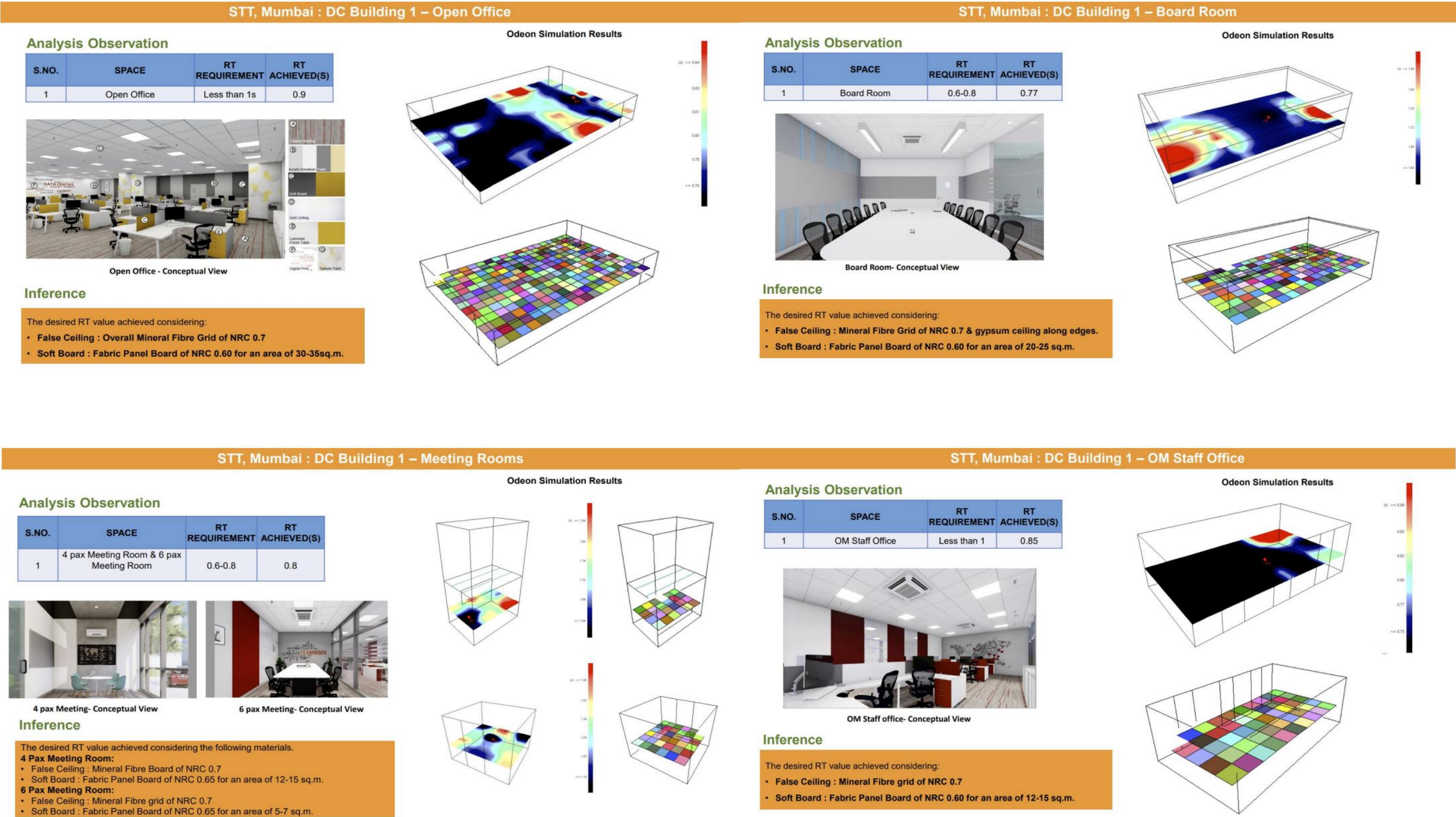


3.6.1 OFFICE - OPTIONS



3.7 ACOUSTIC ANALYSIS

ACOUSTICAL ANALYSIS OUTPUT OF OPRN OFFICE, BOARD ROOM, MEETING ROOM, OM STAFF OFFICE.



STT, Mumbai : DC Building 1 – Meeting Rooms

Analysis Observation

S.NO.	SPACE	RT REQUIREMENT	RT ACHIEVED(S)
1	4 pax Meeting Room & 6 pax Meeting Room	0.6-0.8	0.8



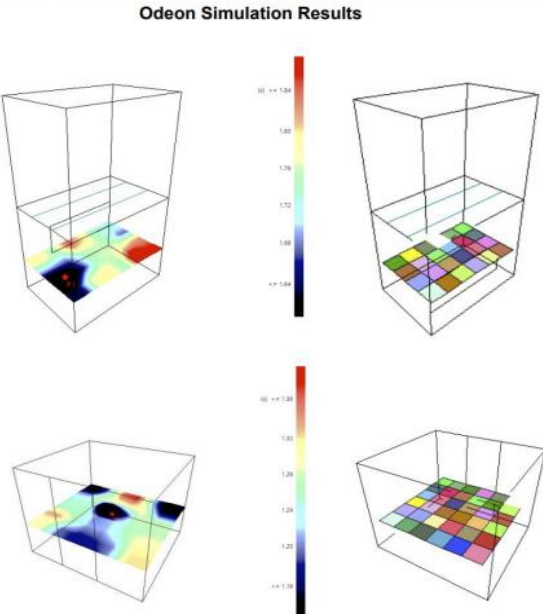
4 pax Meeting- Conceptual View 6 pax Meeting- Conceptual View

Inference

The desired RT value achieved considering the following materials.

- 4 Pax Meeting Room:**
 - False Ceiling : Mineral Fibre Board of NRC 0.7
 - Soft Board : Fabric Panel Board of NRC 0.65 for an area of 12-15 sq.m.
- 6 Pax Meeting Room:**
 - False Ceiling : Mineral Fibre grid of NRC 0.7
 - Soft Board : Fabric Panel Board of NRC 0.65 for an area of 5-7 sq.m.

Odeon Simulation Results



STT, Mumbai : DC Building 1 – OM Staff Office

Analysis Observation

S.NO.	SPACE	RT REQUIREMENT	RT ACHIEVED(S)
1	OM Staff Office	Less than 1	0.85



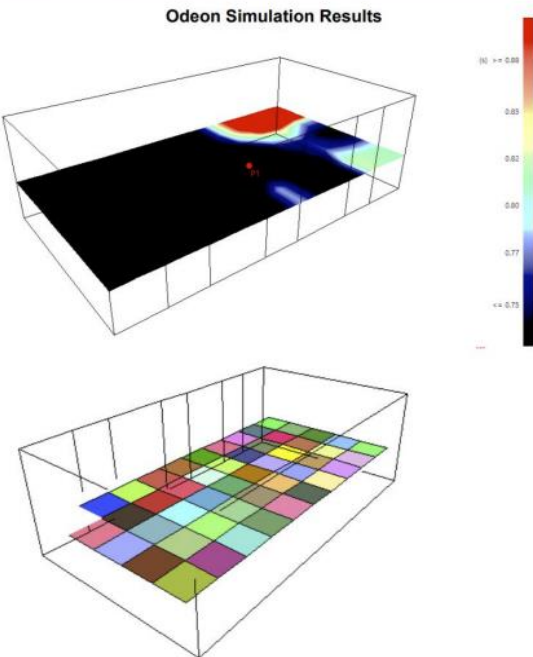
OM Staff office- Conceptual View

Inference

The desired RT value achieved considering:

- False Ceiling : Mineral Fibre grid of NRC 0.7
- Soft Board : Fabric Panel Board of NRC 0.60 for an area of 12-15 sq.m.

Odeon Simulation Results



ACOUSTIC ANALYSIS INFERENCE

QUANTITY & DESIGN REVISION AFTER ACOUSTICAL ANALYSIS

SOFTBOARD WALL PANELLING ACOUSTICAL REQUIREMENT TENDER CHECK				
S.NO	SPACE	ACOUSTICAL REQUIREMENT (SQ. M)	PROVIDED (SQ.M)	REMARKS
1	Office	30 -35	30.17	
2	Meeting room 4 pax A	12-15	7.52	As per design area is less , need to discuss
3	Meeting room 4 pax B	12-15	8.28	As per design area is less , need to discuss
4	Meeting room 6 pax (1)	5-7	4.65	
5	Meeting room 6 pax (2)	5-7	4.65	
6	Board room	20-25	19.25	
7	OM Staff room	12-15	11.16	
8	BMS room		18.6	awaiting info for acoustical requirements
9	SOC room		3.72	awaiting info for acoustical requirements
10	Reception		6.8	
		TOTAL	114.8	
		TENDER QUANTITY	122	

4. STT NAVI MUMBAI ANNEX BUILDING :

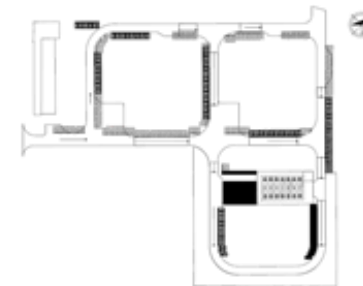
This datacenter is proposed in navi mumbai , for which the conceptual design is made by Jacobs and the project was handed over to L&T construction by ST Telemedia team.

Current scope of works handled : After the approval of DC interiors we had stepped into the annex building even though it is in small scale than the DC building , the schemes and procedures were same as the DC building. Interior schemes for every spaces were made with different concepts and exploring different new materials which is effective in its purpose were utilized , meanwhile since the floor plans were yet to be approved , I was assigned the floor plan designing part, different iterations were made and shown to higher authority , after approval the floor layouts were submitted to client , and further revisions were made according to there comments from clients , for every plan corrections renders were being updated and submitted. Further based on the new plans , the new quantities were taken to confirm with the difference between tender quantity and current quantity. Simultaneously the playbook specifications were compared with our finishing schedule options and the comparison chart were made and submitted to client team and further corrections in renders and floor plans were processing in current period.

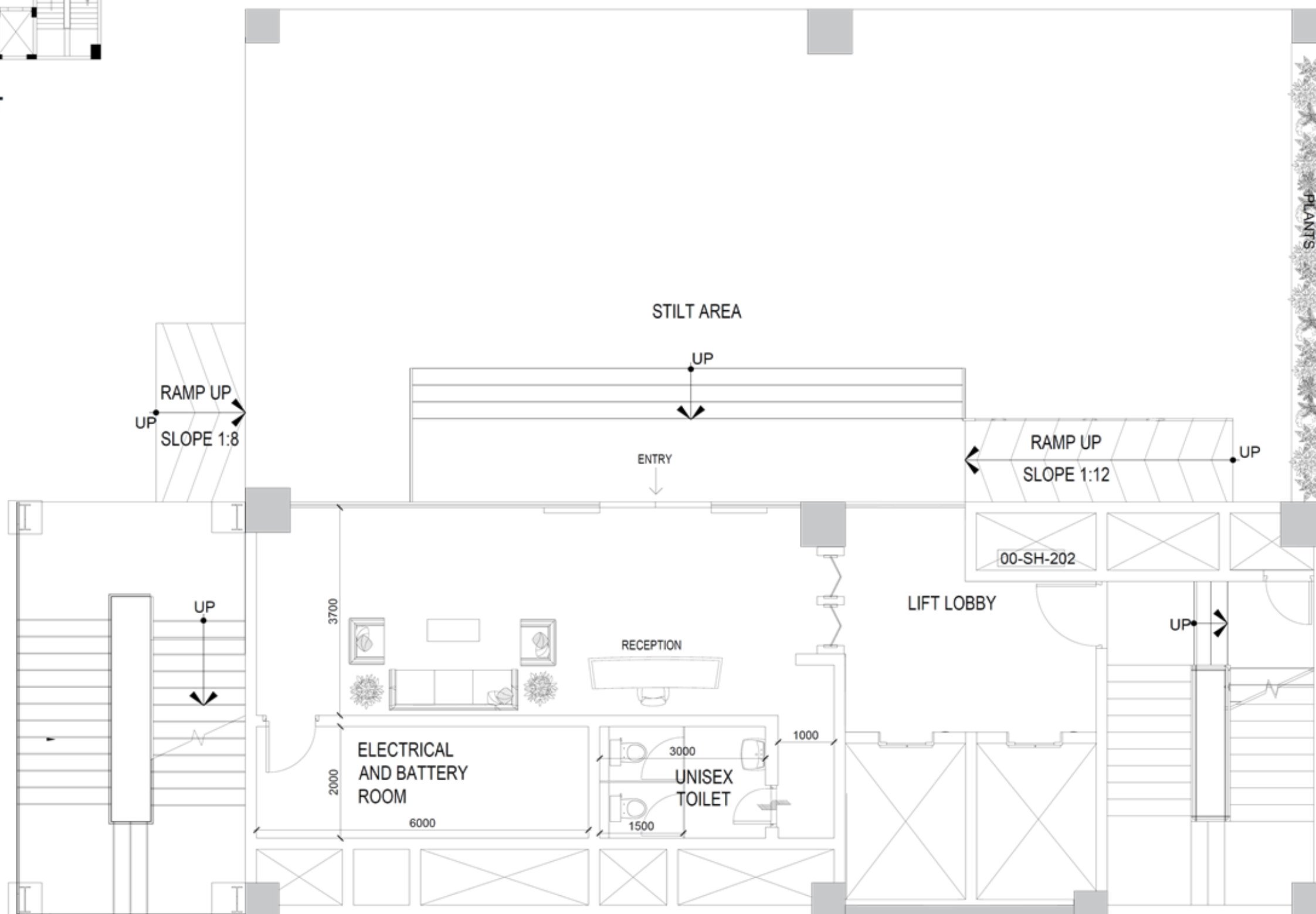
4.1 ANNEX BUILDING – LATEST QUANTITY

	Latest layout as per client's requirement	Quantities as per signed contract document
No.of cabins (16 Small + 3 Big)	19	8
No.of open workstation (L shaped workstations)	116	145
Hot seats for visiting staff (Running workstation)	40	25
3 seater sofa	7	-
2 seater sofa	6	-
1 seater sofa (Including Boardroom seating)	15	-
Chairs	322	242
Cafe seating (Including Terrace - 60)	118	40
6 pax meeting room	11	4
no.of 4 pax meeting room	1	4
no.of phone booth	5	8
store room requirement	1	2
Porta Cabin toilet	2	-
8 pax meeting room	1	-

KEYPLAN :



EXISTING LAYOUT

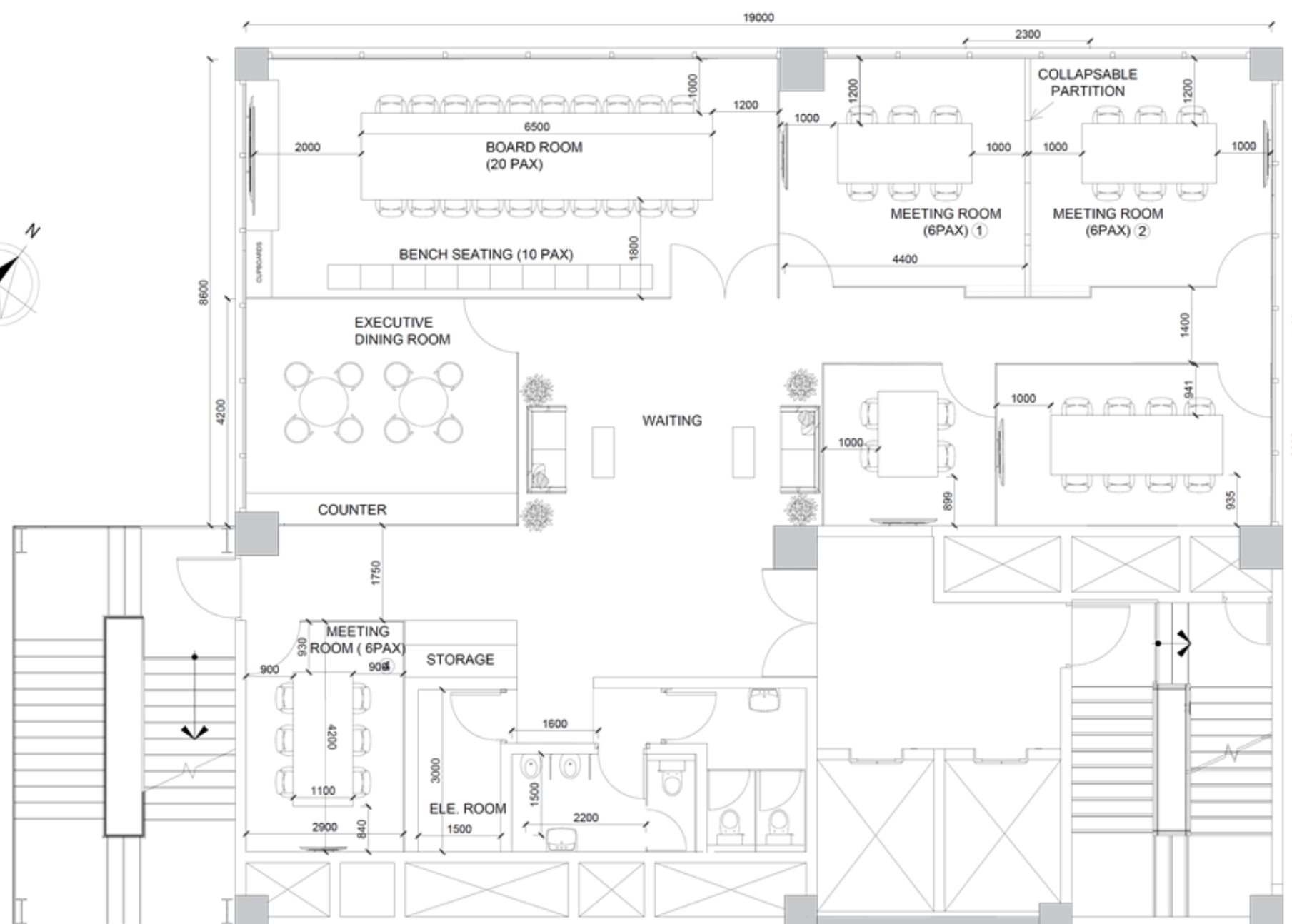
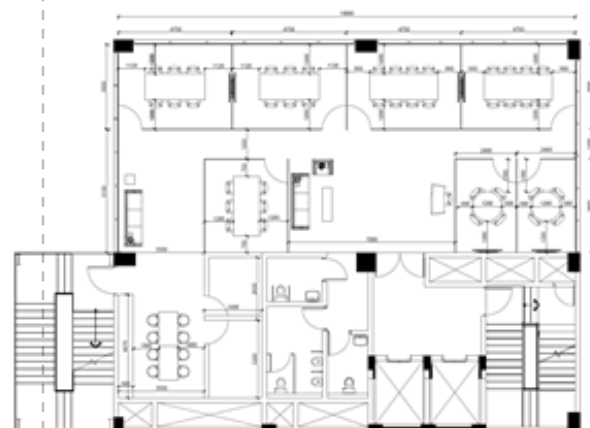
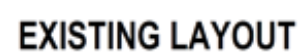


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SHEET SIZE : A3

DRAWING NO : 01

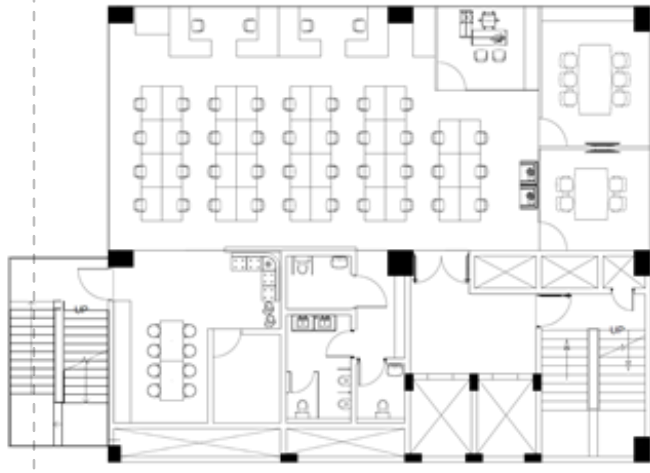
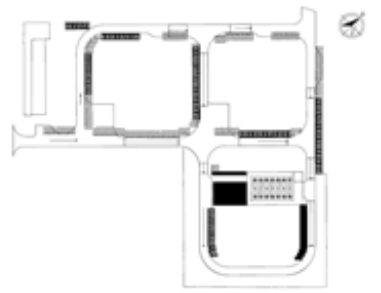
ANNEX BUILDING - STILT FLOOR PLAN



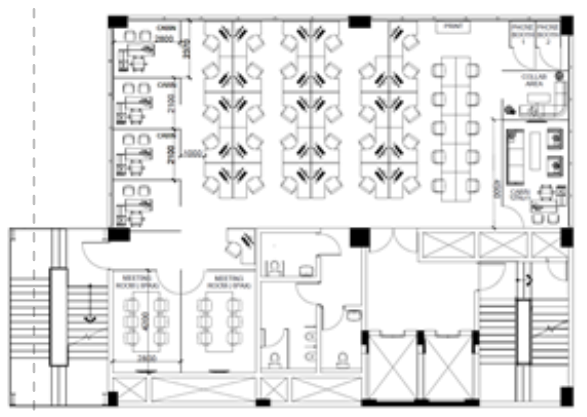
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ANNEX BUILDING - FIRST FLOOR PLAN

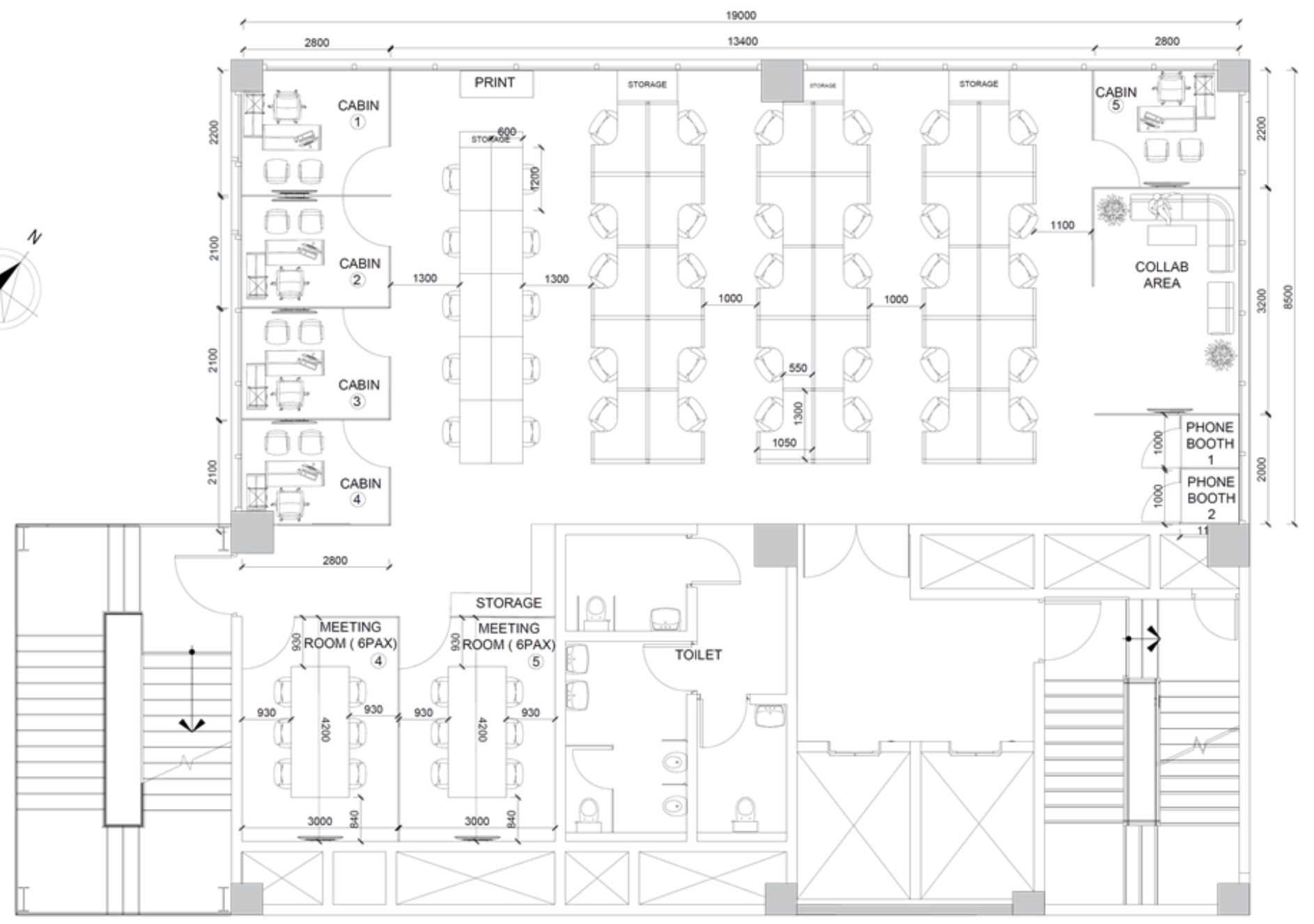
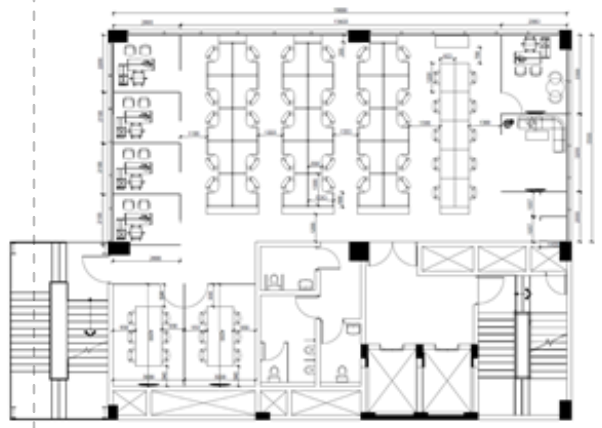
KEYPLAN :



EXISTING LAYOUT



ITERATIONS



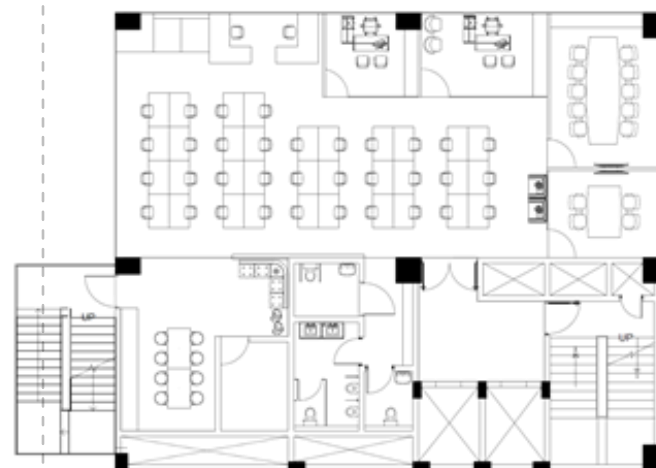
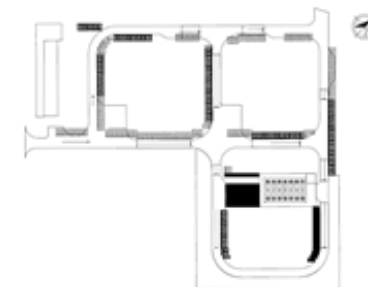
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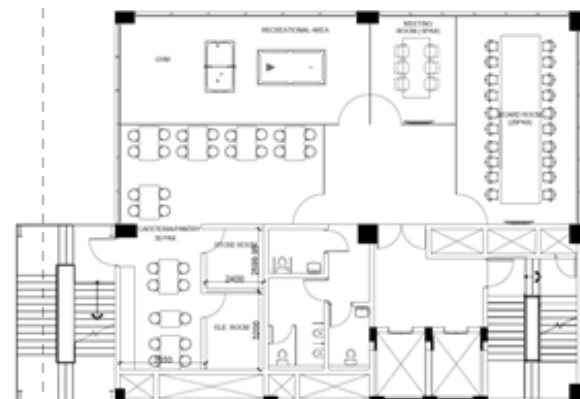
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ANNEX BUILDING - SECOND FLOOR PLAN

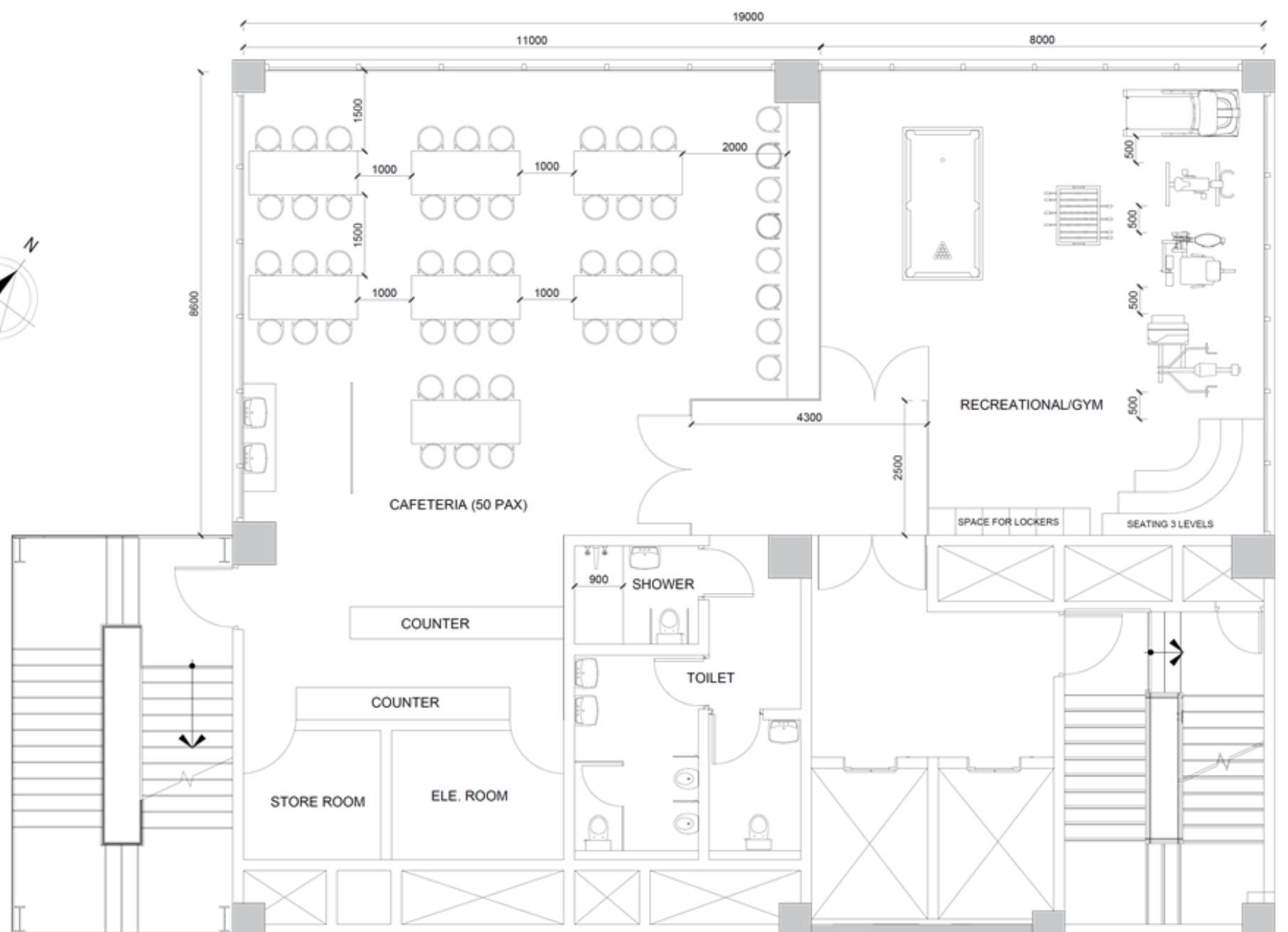
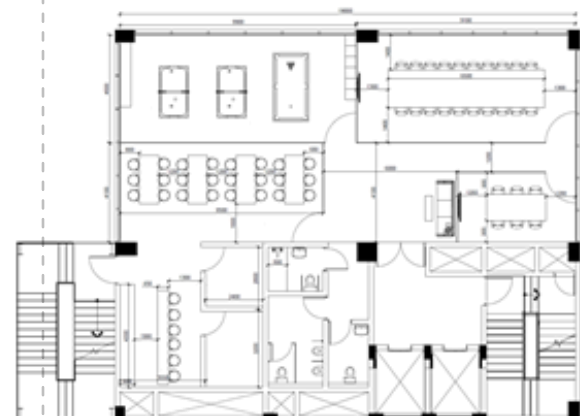
KEYPLAN :



EXISTING LAYOUT



ITERATIONS



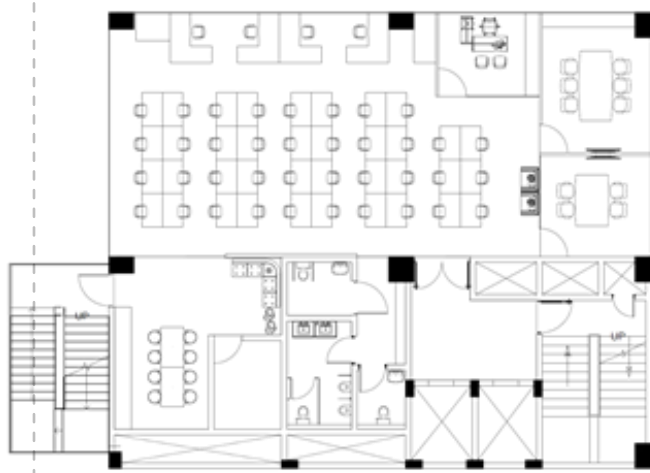
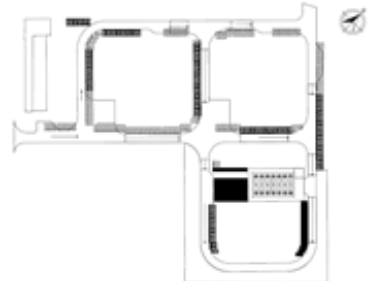
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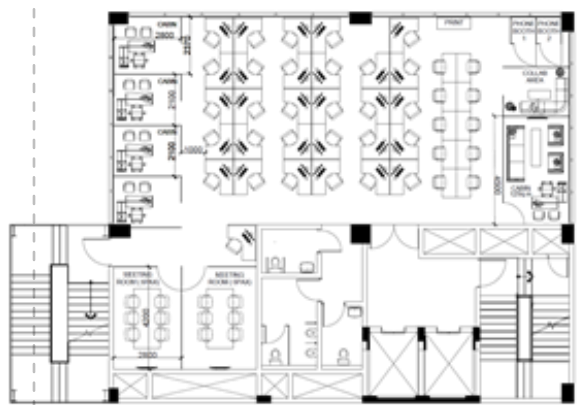
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ANNEX BUILDING - THIRD FLOOR PLAN

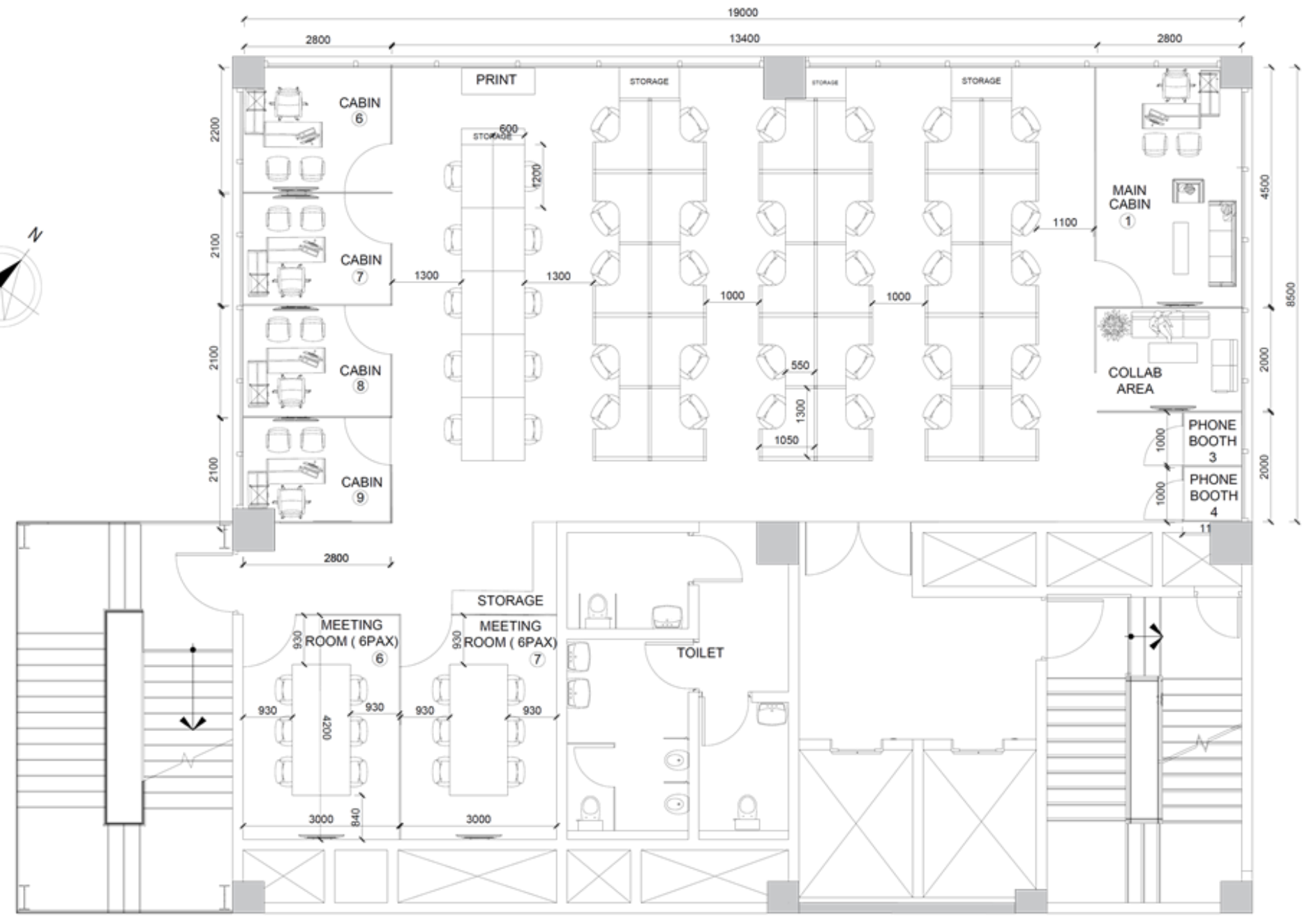
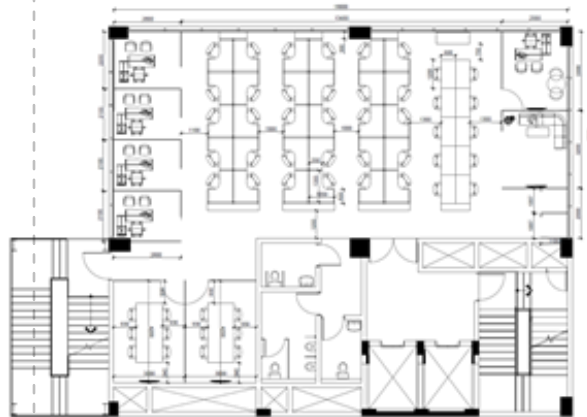
KEYPLAN :



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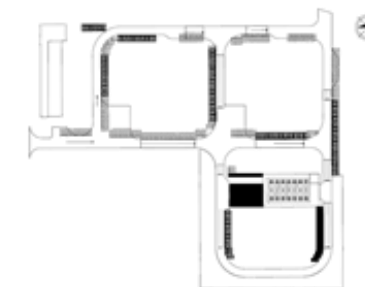
ITERATIONS



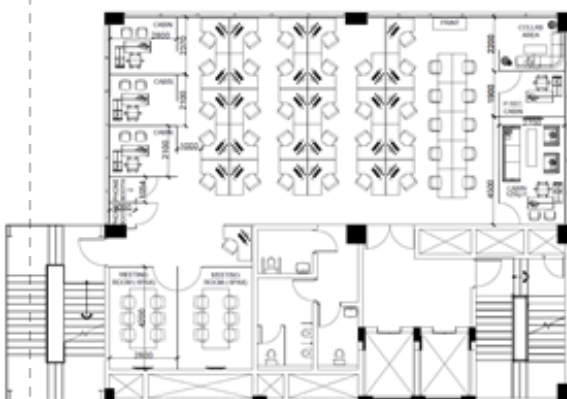
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ANNEX BUILDING - FOURTH FLOOR PLAN

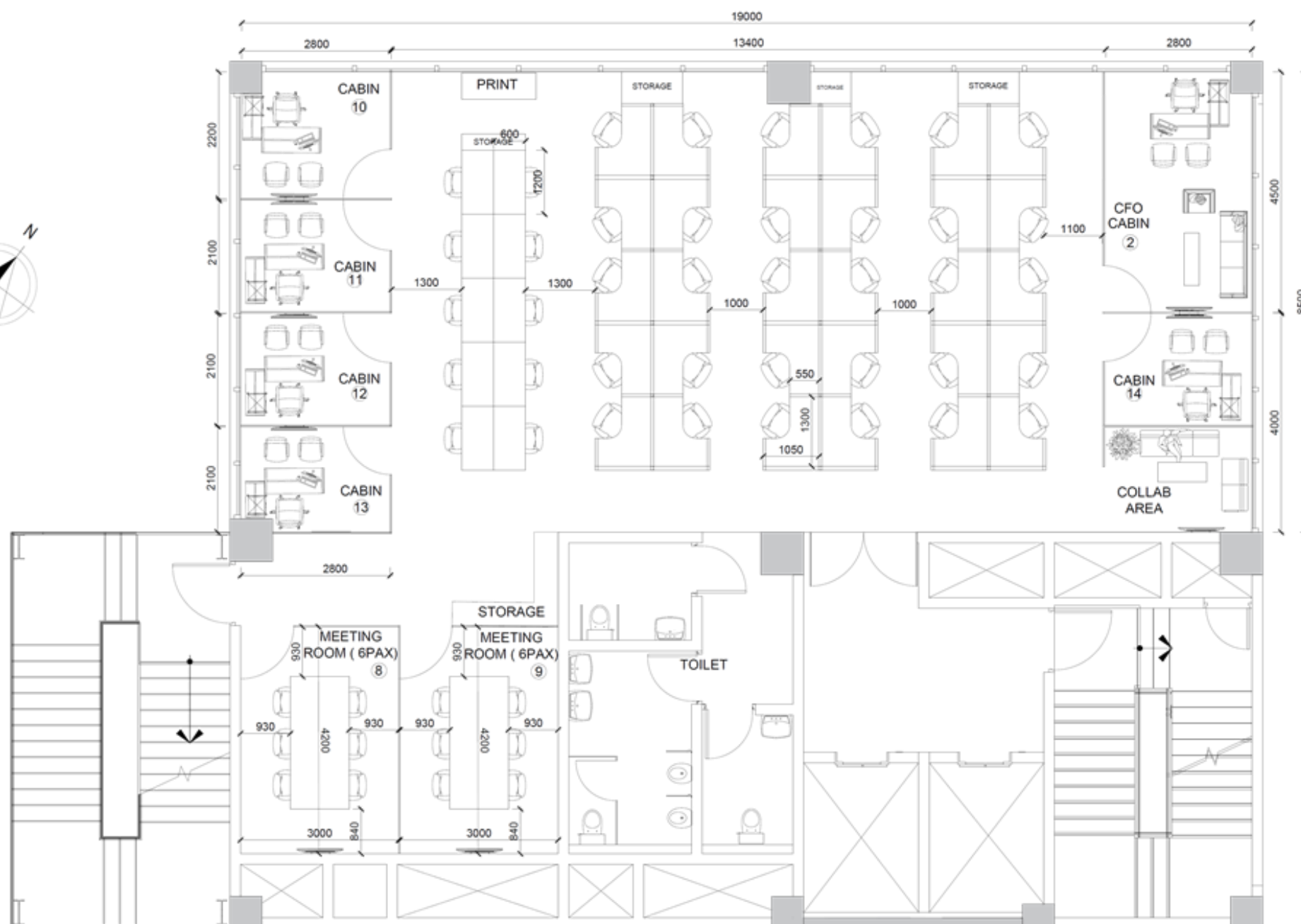
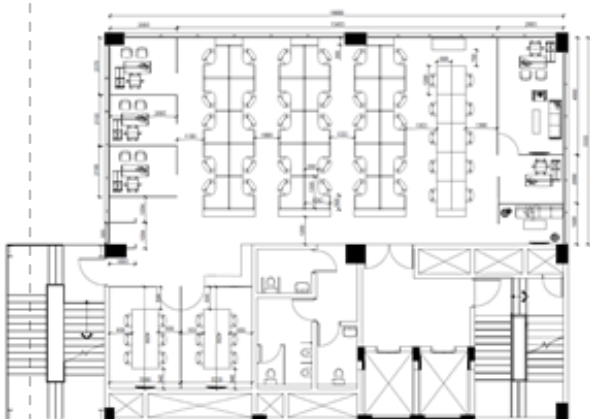
KEYPLAN :



EXISTING LAYOUT



ITERATIONS

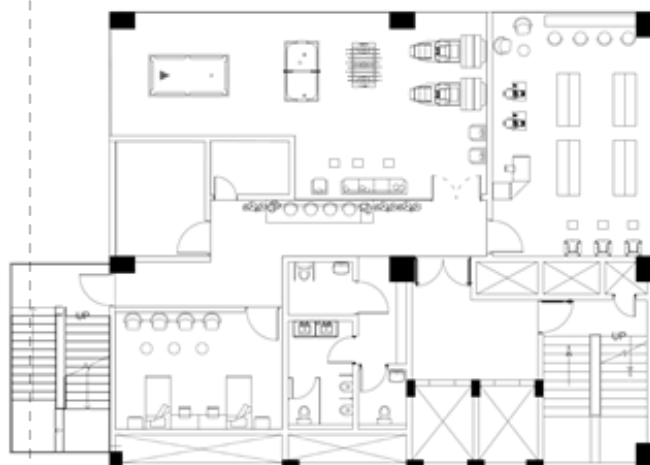


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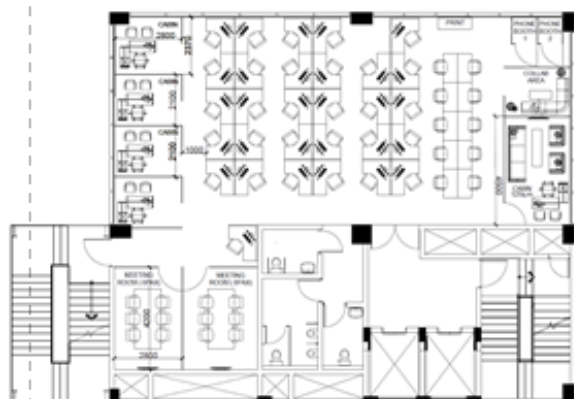
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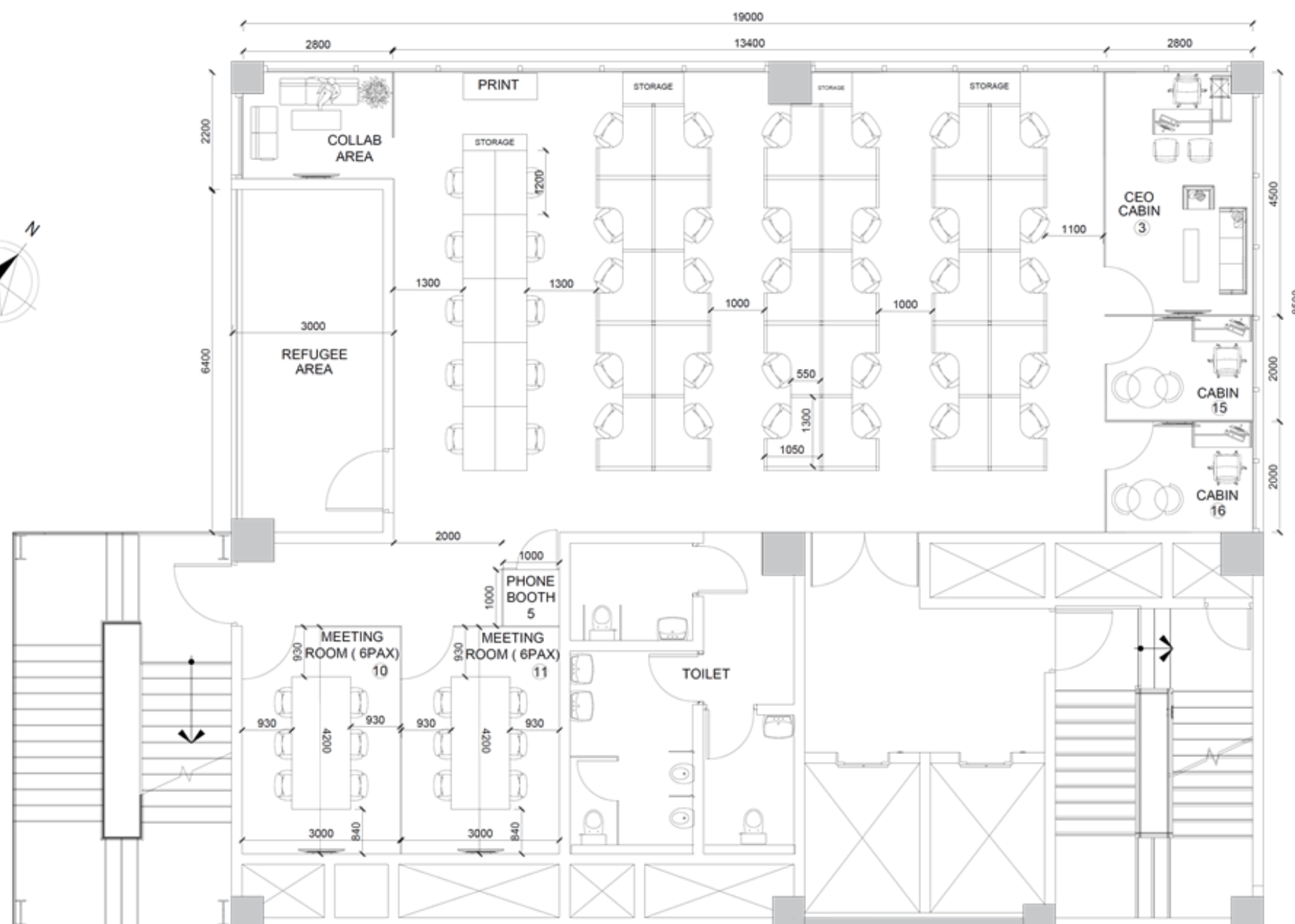
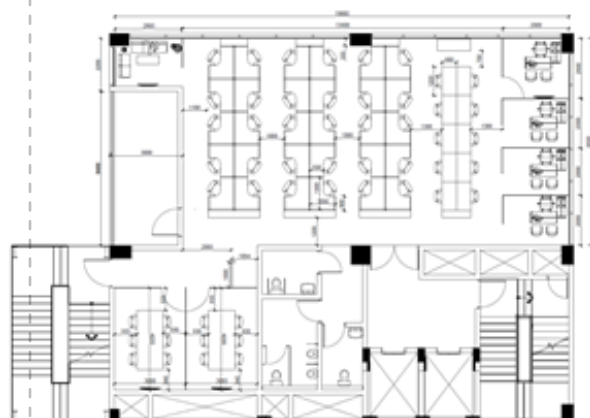
ANNEX BUILDING - FIFTH FLOOR PLAN



EXISTING LAYOUT



ITERATIONS



SCALE : 1: 100

SHEET SIZE : A3

DRAWING NO : 07

ANNEX BUILDING - SIXTH FLOOR PLAN

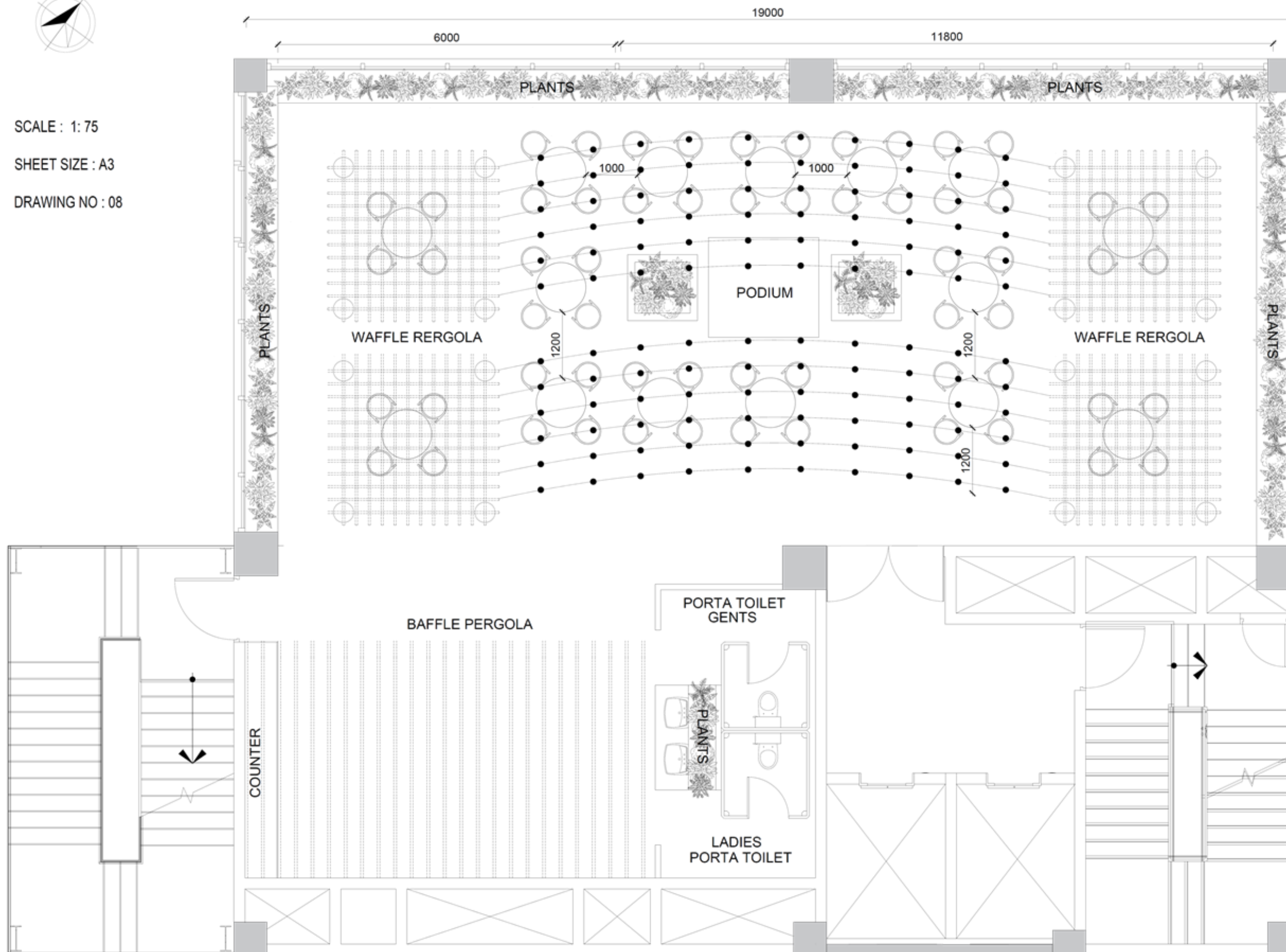
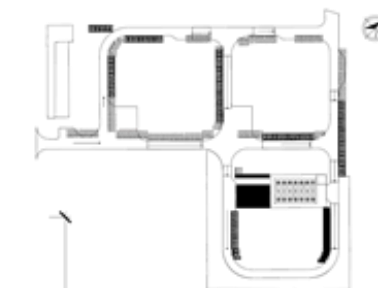


SCALE : 1: 75

SHEET SIZE : A3

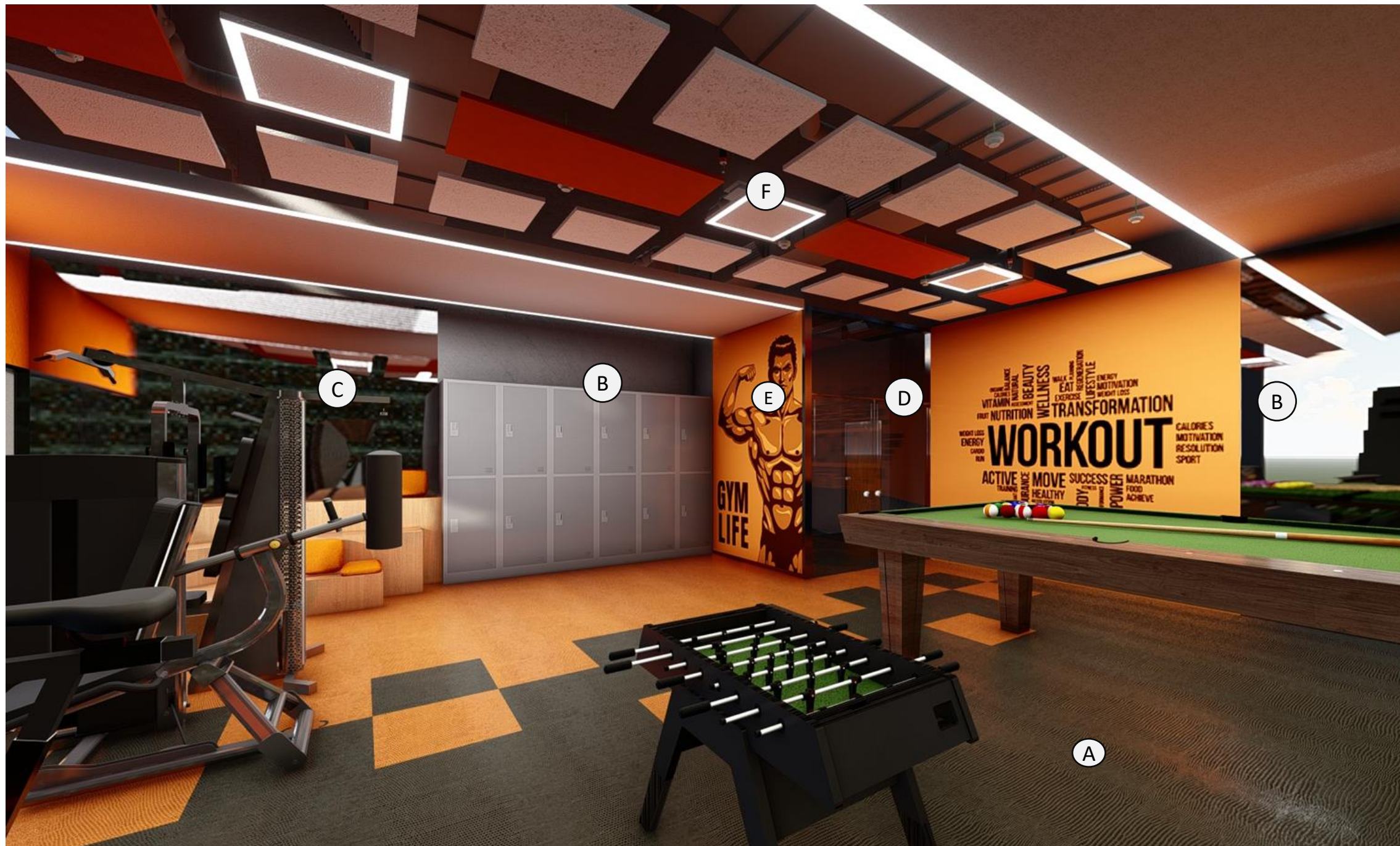
DRAWING NO : 08

KEYPLAN :



ANNEX BUILDING - TERRACE FLOOR PLAN

INTERIOR



4.3.1 RECREATIONAL SPACE - OPTIONS

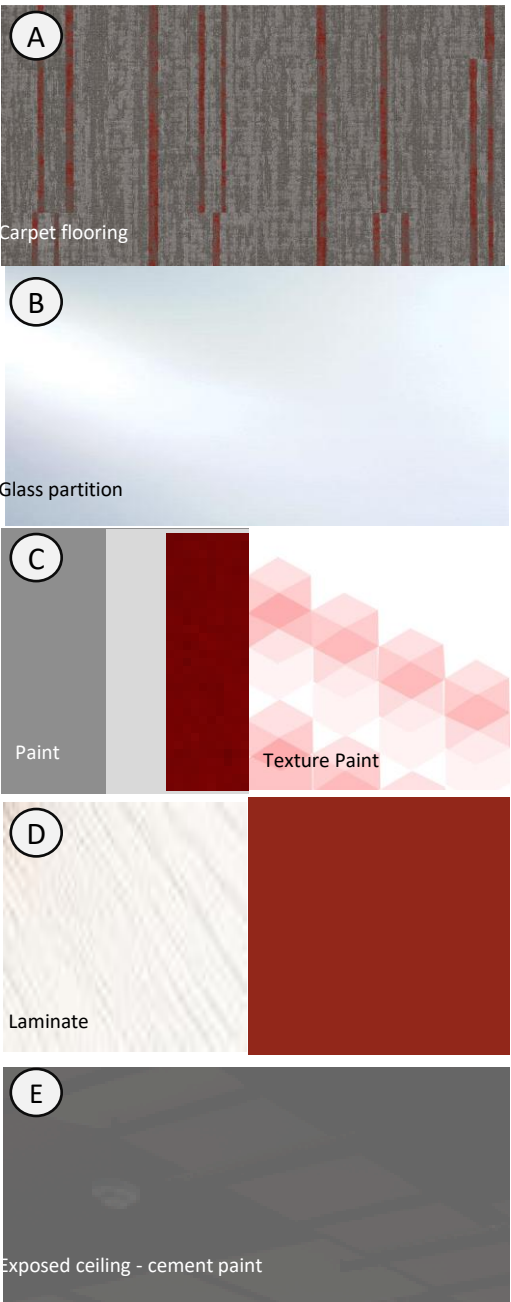
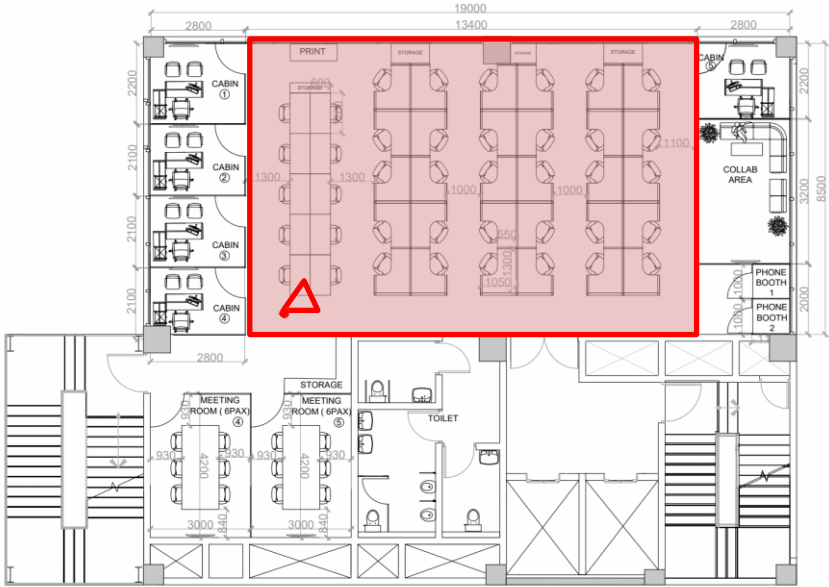


4.3.2 RECREATIONAL AREA – DESIGN PHASE RENDERS

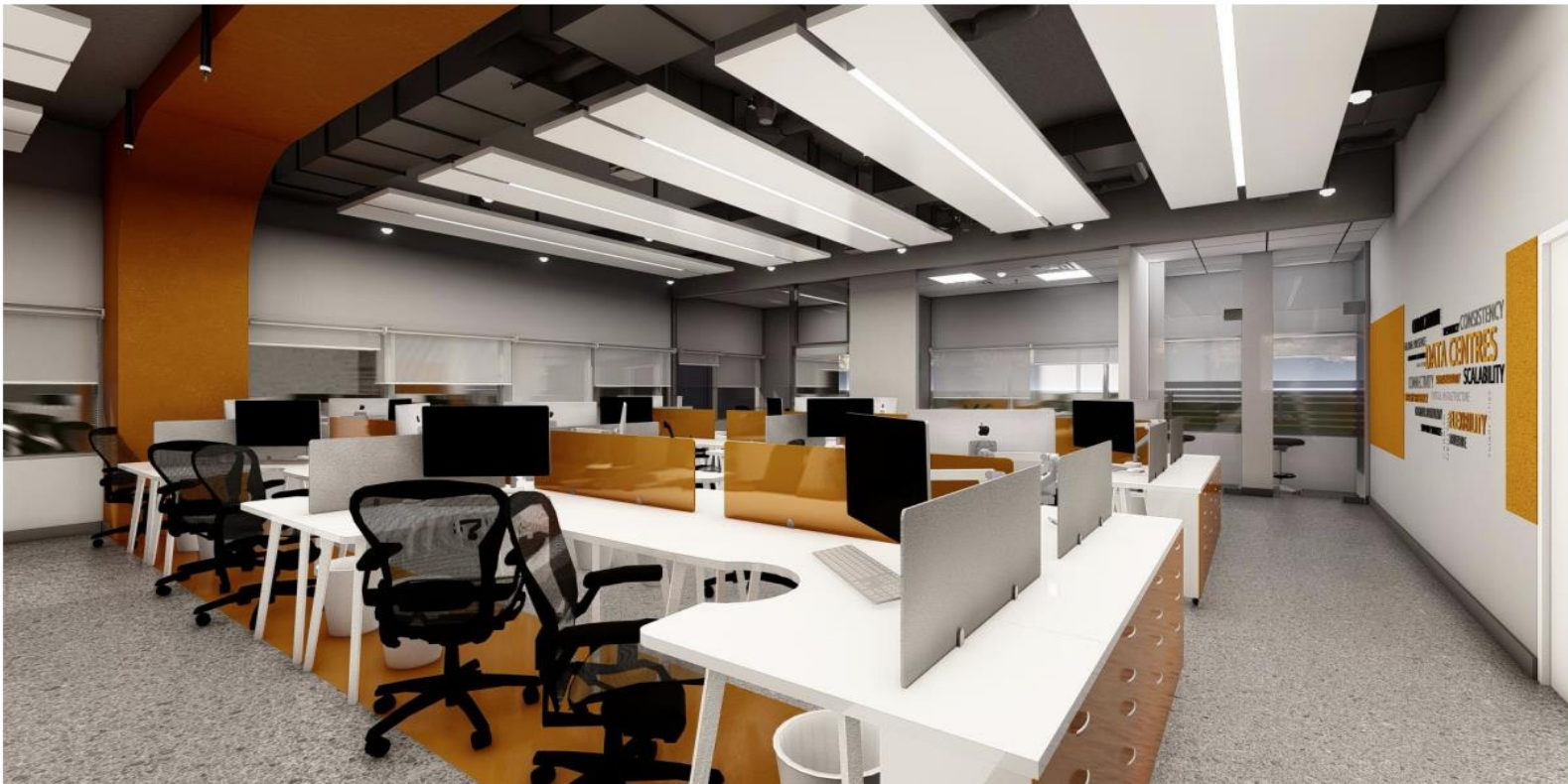
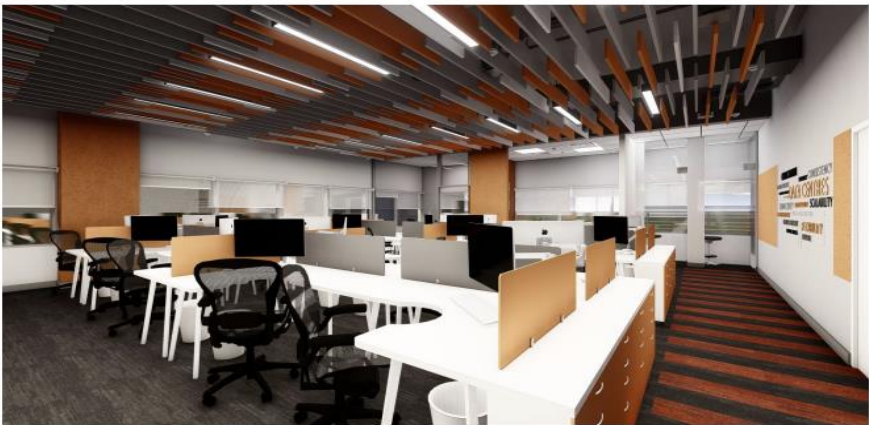


Different options are given to the client in the initial stage. These are the various recreational design ideas. Innovative interior ceiling and lighting ideas are visualized using renders.

4.4 OFFICE INTERIOR

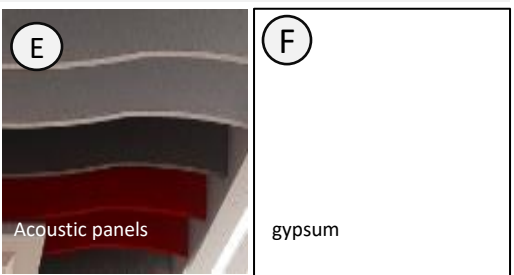
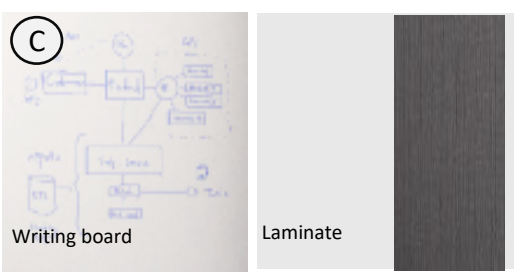
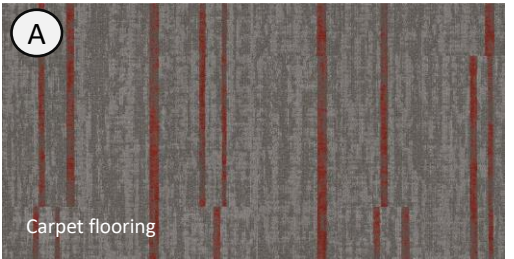
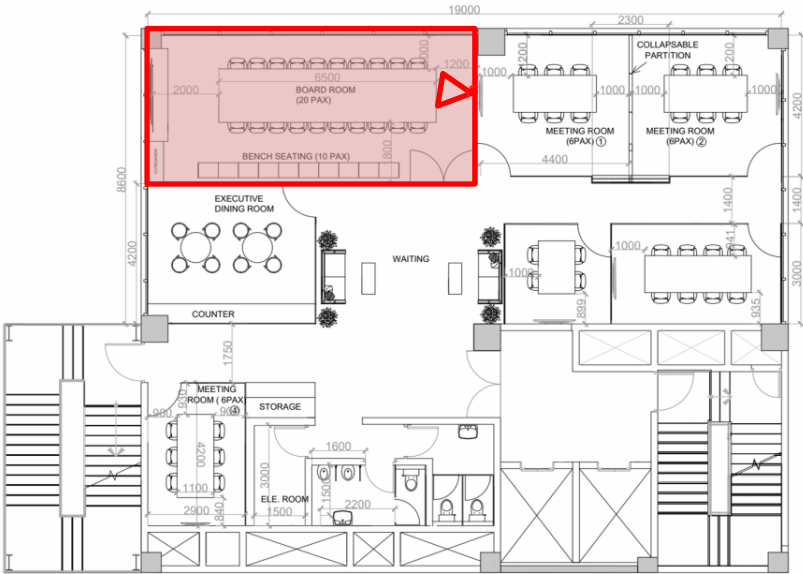


4.4.1 OFFICE - OPTIONS

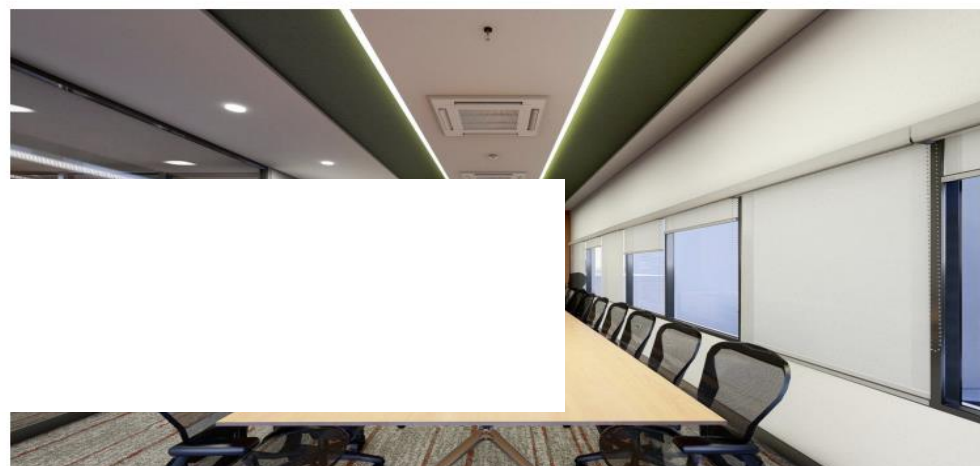
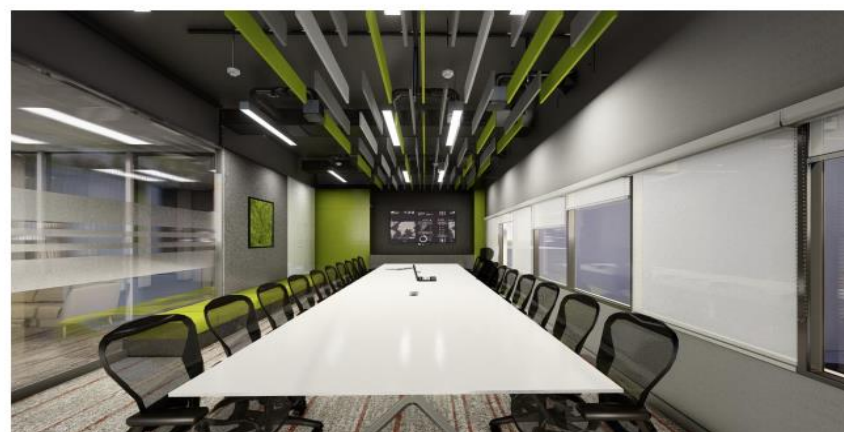
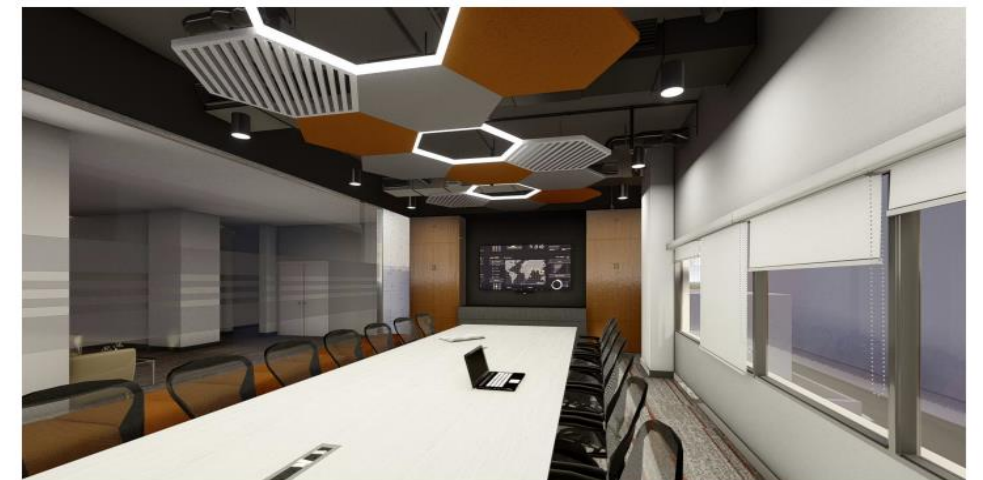
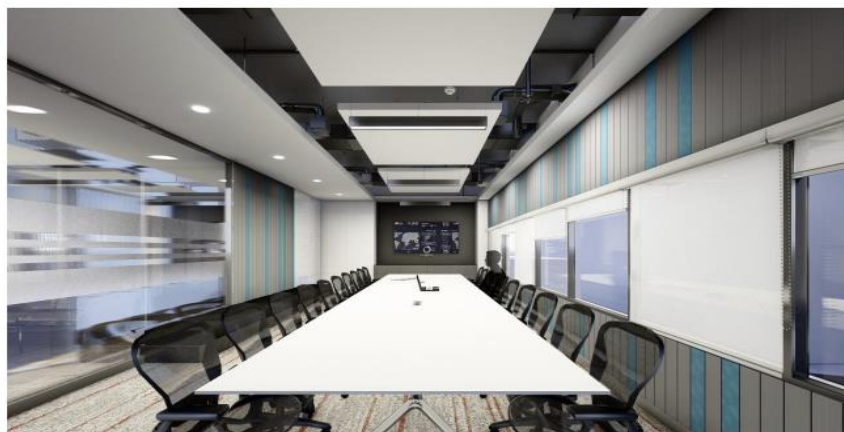


4.5 CONFERENCE ROOM

INTERIOR

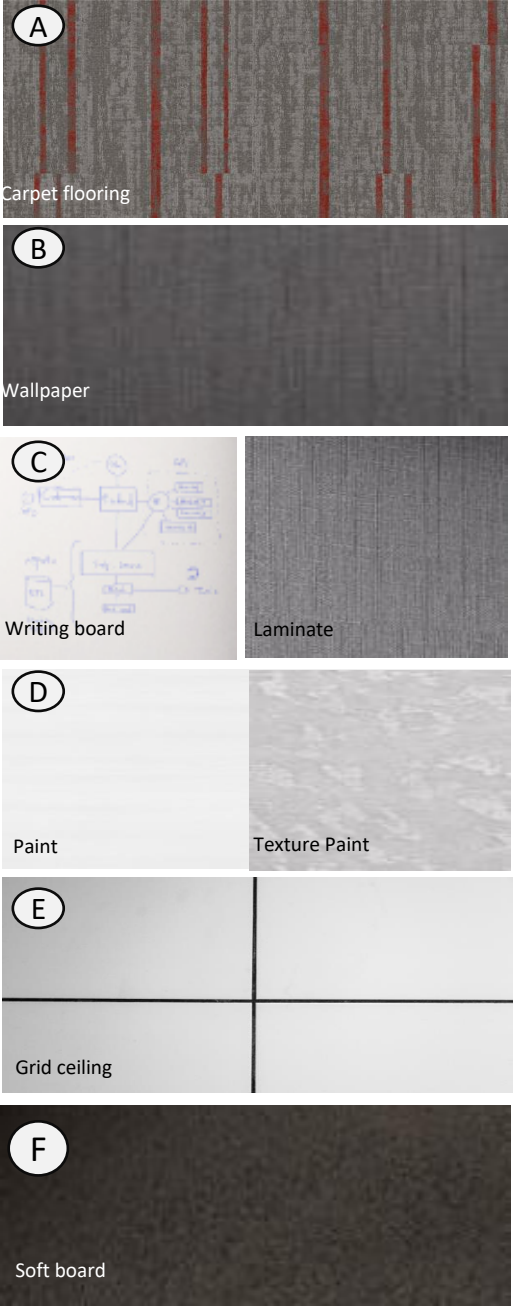
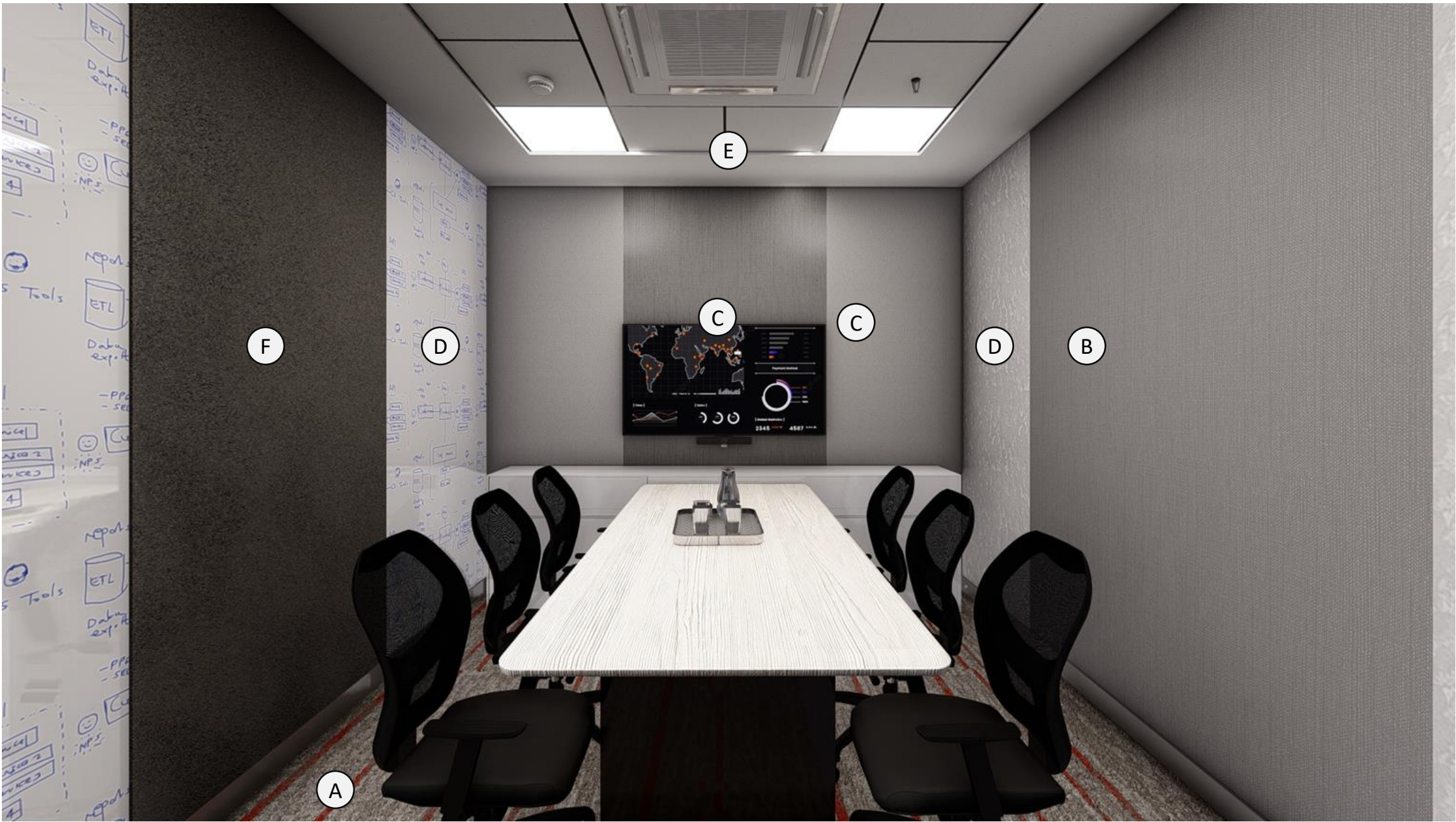
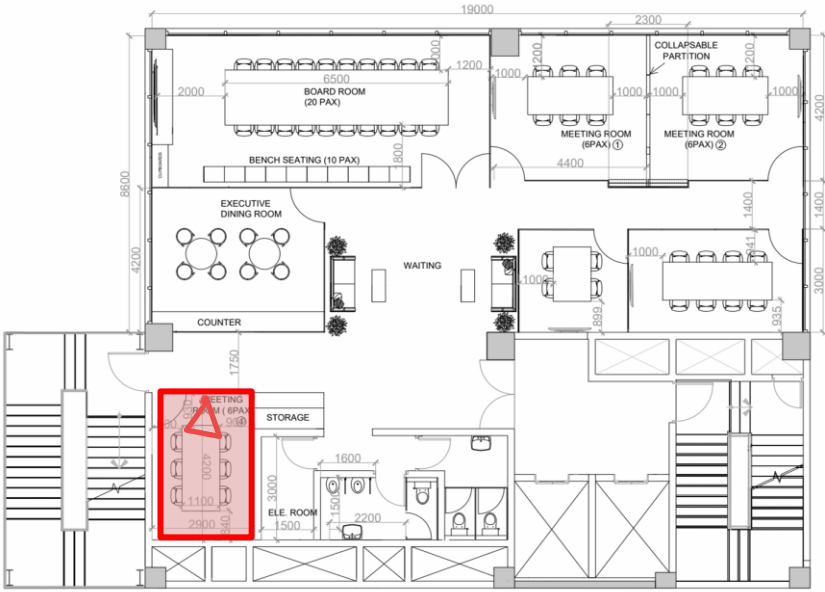


4.5.1 CONFERENCE ROOM - OPTIONS

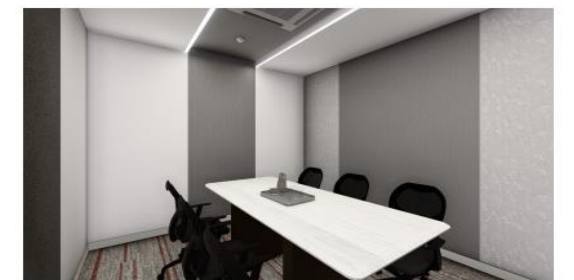
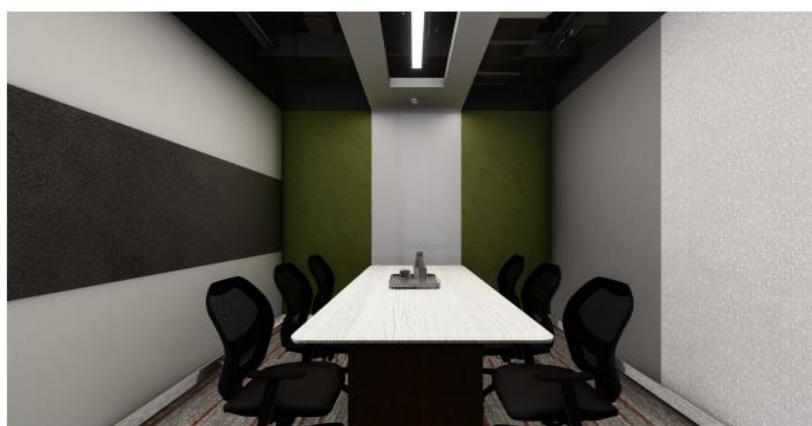


4.6 MEETING ROOM

INTERIOR

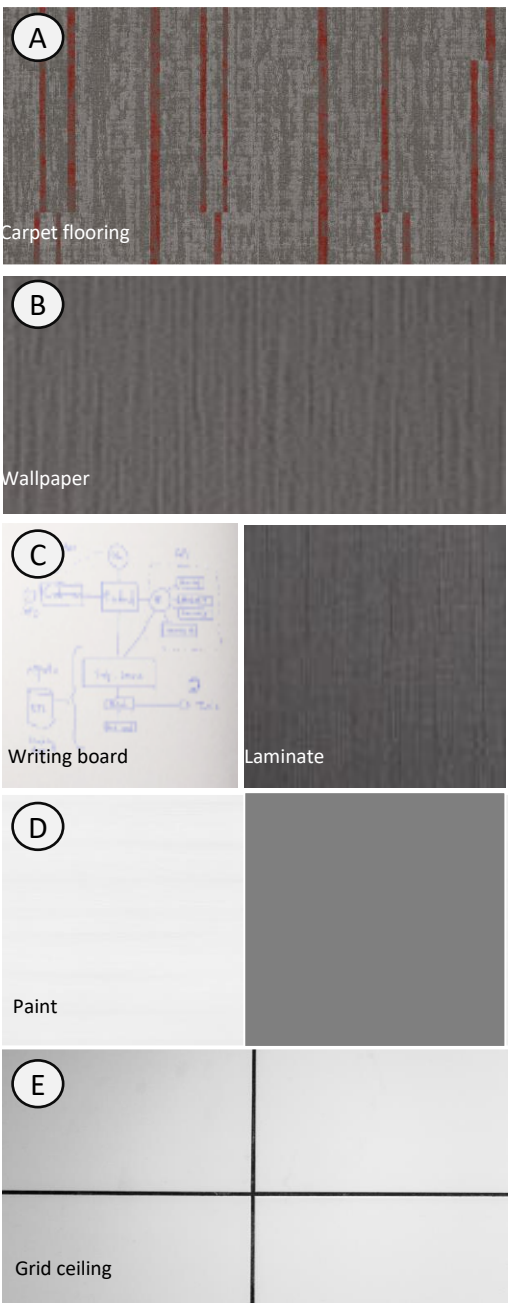
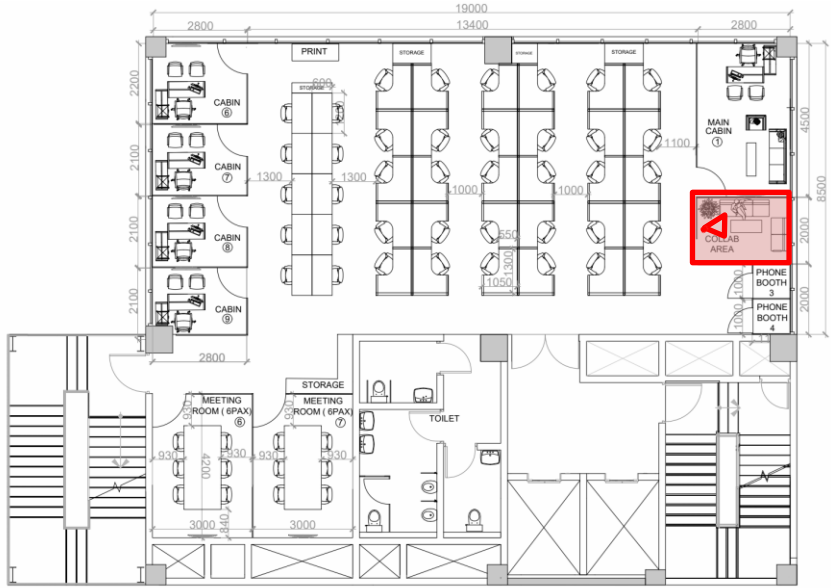


4.6.1 MEETING ROOM - OPTIONS



4.7 COLLAB AREA

INTERIOR



4.7.1 COLLAB AREA - OPTIONS

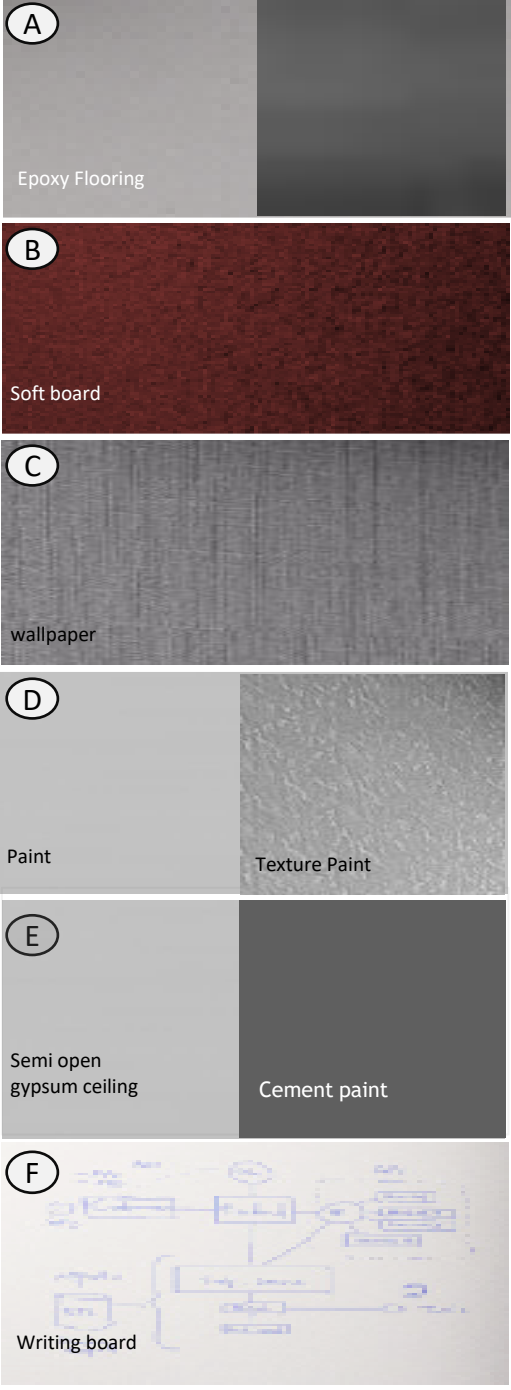
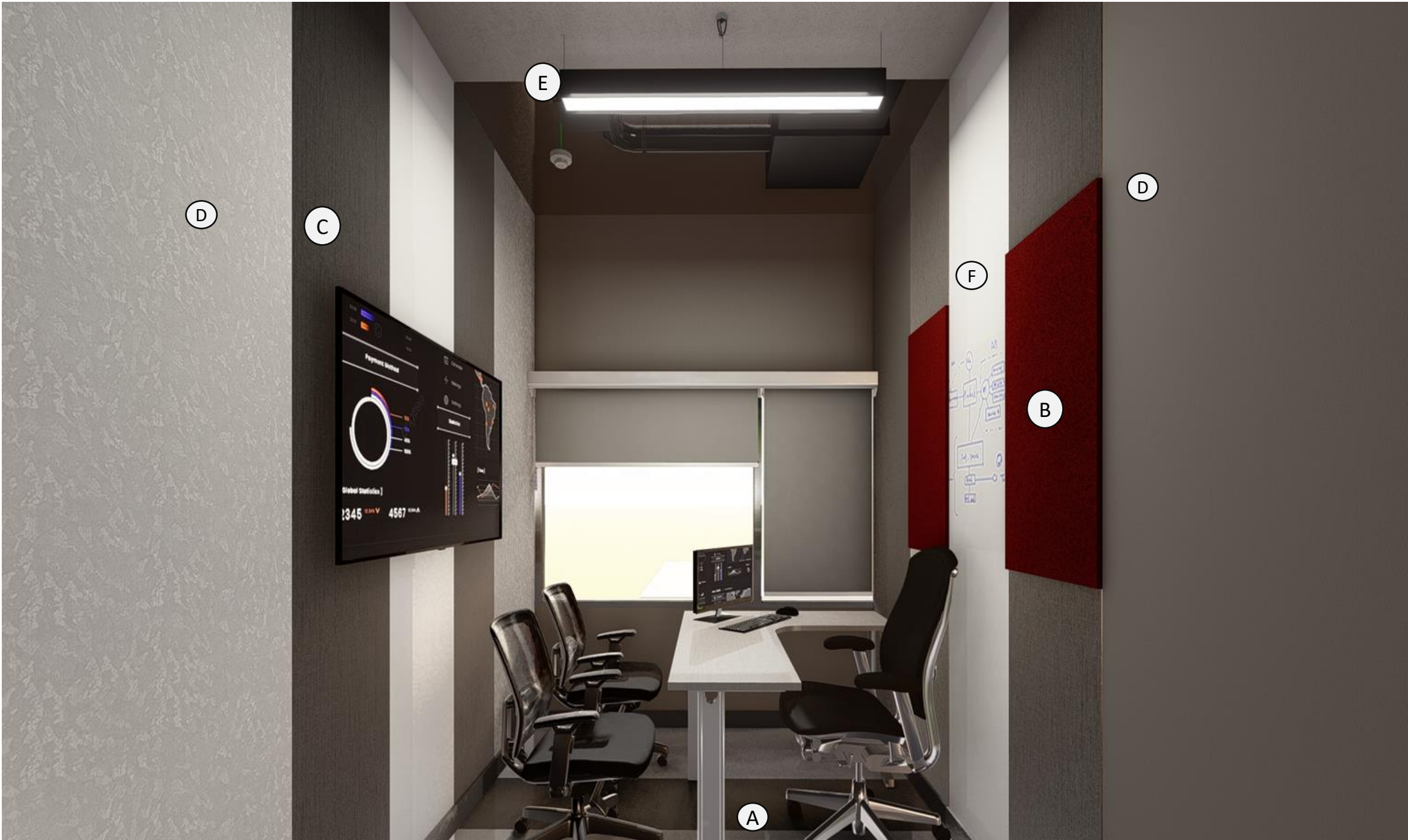
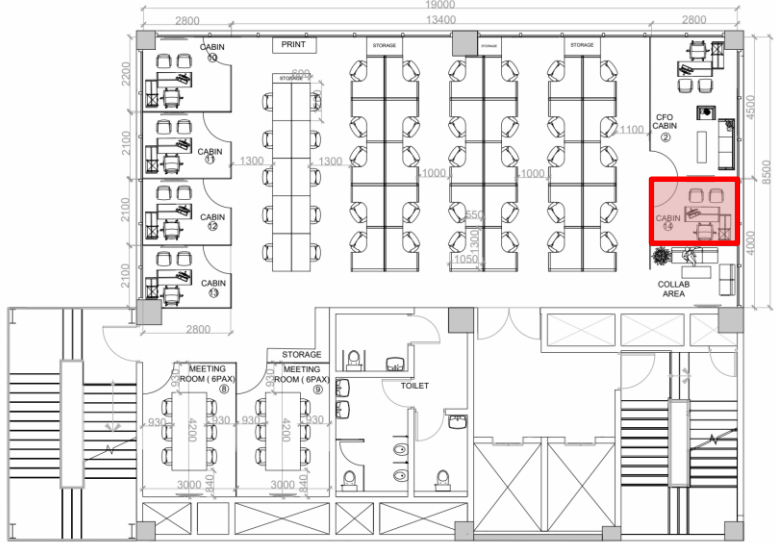


INTERIOR

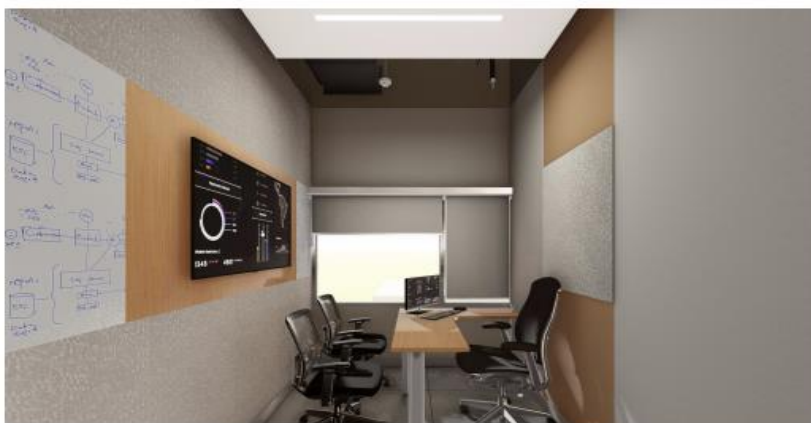


4.9 CABIN

INTERIOR



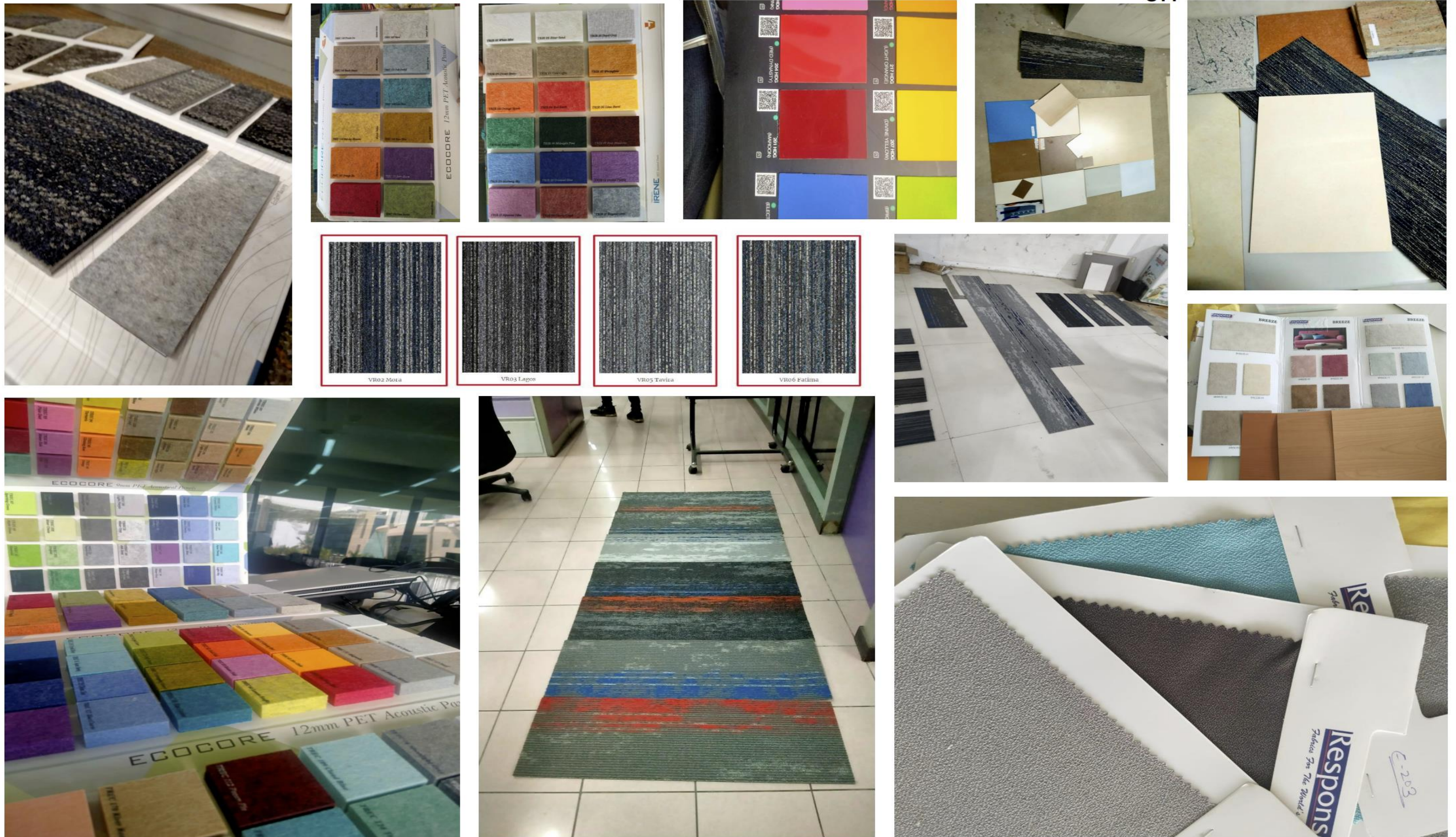
4.9.1 MAIN CABIN & CABIN- OPTIONS



III. FIELD WORK

i. MATERIAL SELECTION

KANCHI DATA CENTRE & STT NAVI MUMBAI DATA CENTRE



ii. CLIENT PRESENTATION

KANCHI DATA CENTRE BUILDING



iii. SITE VISIT – L&T TECHNICAL CENTRE - 4





THANK YOU

**SHANMATHI R
38210068**

 **L&T Construction**

எல்&டீ. கன்ஸ்ட்ரக்ஷன்

PORTFOLIO

INTERNSHIP - 2023



Shanmathi R
38210068