

PROFESSIONAL TRAINING REPORT

Submitted in partial fulfillment of the requirements for the award of
Master of Architecture degree in Sustainable Architecture
by

(Rudhraa Shree S.K) (40890013)



**SCHOOL OF BUILDING AND ENVIRONMENT
DEPARTMENT OF ARCHITECTURE**

SATHYABAMA
INSTITUTE OF SCIENCE AND TECHNOLOGY
(DEEMED TO BE UNIVERSITY)
Accredited with Grade "A" by NAAC
JEPPIAARNAGAR, RAJIVGANDHISALAI, CHENNAI-600119

JAN 2022



SATHYABAMA

INSTITUTE OF SCIENCE AND TECHNOLOGY
(DEEMED TO BE UNIVERSITY)

(Est U/s(3) of UGC Act,1956) Accredited with Grade "A" by NAAC (A Christian Minority Institution)

JEPPIAAR NAGAR, RAJIV GANDHI SALAI, CHEMMENCHERY, CHENNAI – 600119. TAMILNADU.

PHONE: 2450 1443/9941912481 INTERNET: www.sathyabama.ac.in

E-mail: archhod@sathyabama.ac.in



**SCHOOL OF BUILDING AND ENVIRONMENT
DEPARTMENT OF ARCHITECTURE
M. Arch (Sustainable Architecture)**

**PROFESSIONAL TRAINING PORTFOLIO (S89A PT)
JAN 2022**

Name of the Student : Rudhraa shree S.k

Semester : III

Batch : 2020-2022

Reg No. : 20S895013



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SCHOOL OF BUILDING AND ENVIRONMENT

DEPARTMENT OF ARCHITECTURE

M. Arch (Sustainable Architecture)

BONAFIDE CERTIFICATE

This is to certify that the professional training (**S89A PT**) is the work of **Rudhraa shree S.K,40890013** who had undergone training in **Ela Green Building & Infrastructure Consultants** and has been monitored by the continuous assessment during **DEC 2021 to JAN 2022**

DR.DEVYANI GANGOPADHYAY

DEAN,

School of Building and Environment
Department of Architecture

Submitted for Viva voce Examination held on 5/2/2022

Internal Examiner

External Examiner





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DECLARATION

I Rudhraa shree s.k hereby declare that the Professional Training Report 2nd Dec to 21th Jan done by me under the guidance of Ar. Samhita.M is submitted in partial fulfillment of the requirements for the completion of practical training session.

DATE : 21 JANUARY

PLACE :CHENNAI

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 project and for completing it successfully. I am grateful to them.

I convey my thanks to **Dr. Devyani Gangopadhyay**, Dean and Head of Department , School of building and Environment, Dept. of architecture for providing me necessary support and details at the right time during the progressive training session.

I would like to express my sincere and deep sense of gratitude to **Ar.Samhita M,Sustainable architect, Ela Green Building & Infrastructure Consultants pvt Ltd** for his valuable guidance, suggestions and constant encouragement paved way for the successful completion of my project work. My sincere thanks to **Ar.Sheetal Amraotkar** Professional Training Coordinator for her motivation and guidance.

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

(Also thank to, Ar samhita.M , Sustainable Architect, Ela Green Building Infrastructure consultants Pvt Ltd, Pallavaram ,Chennai-600063)

CONFIRMATION LETTER



Ela Green Buildings
& Infrastructure
Consultants Pvt. Ltd.
Certification Training

21-1-2022

To

The Head of the Department

Sathyabama Institute of Science and Technology

Rajiv Gandhi Salai, Jeppiaar Nagar,

Chennai-600 119

Tamil Nadu.

Respected Sir/ Madam,

This to inform that S.K.Rudhrashree (Reg no: 40890013) pursuing M.Arch - Sustainable Architecture (Batch 2020-2022) in Sathyabama Institute of Science and Technology, has completed her internship successfully at our firm from 01-12-2021 to 20-01-2022, for a period of 39 days.

Yours Sincerely,

For Ela Green Buildings & Infrastructure Consultants,

M. Samhita
Director.



Ela Green Buildings
& Infrastructure
Consultants Pvt. Ltd.
Certification Training

1-12-2021

To,

The Head of the Department

Sathyabama Institute of Science and Technology

Rajiv Gandhi Salai, Jeppiaar Nagar,

Chennai-600 119

Tamil Nadu.

Respected Sir/ Madam,

This to inform that S.K.Rudhrashree (Reg no: 40890013) pursuing M.Arch - Sustainable Architecture (Batch 2020-2022) in Sathyabama Institute of Science and Technology, will be undergoing her internship at our firm from 01-12-2021 to 20-01-2022, for a period of 39 days.

Yours Sincerely,

For Ela Green Buildings & Infrastructure Consultants,

M. Samhita
Director

WEEKLY REPORT


SATHYABAMA
 INSTITUTE OF SCIENCE AND TECHNOLOGY
 (DEEMED TO BE UNIVERSITY)
 Accredited with 'A' grade by NAAC
 Jeppiaar Nagar, Rajiv Gandhi Salai, Chennai - 600 119.
 Phone: 044 - 2450 3150 / 3151 / 3152 / 3154 / 3155 Fax: 044 - 2450 2344
 www.sathyabama.ac.in



DEPARTMENT OF ARCHITECTURE
M. Arch (Sustainable Architecture)
Continuous Assessment Report for Professional training
 (Continuous progress report of the trainee architect/Project Manager for the period of 30 working days in the office to be submitted to HOD by the Trainee attending the training session)

Name of the office / organization : Ela Green Buildings & Infrastructures

1. Consultants Private Limited

2. Address & Contact Number : Pallavaram, Chennai

3. Name of the student : Rudhrashree

4. Duration : From 3 Jan To __20.1.22

5. Total No. of days : 14 Days

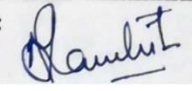
6. Evaluation of Performance criteria shall be on

** Note: Kindly grade the student as per his/her overall performance in the office during the assessment month; which will be converted to the allotted 200 marks by the department.*

Description of works	Excellent	Good	Fair	Poor	NA
Understanding of office culture and methodology		6			
Active Participation in the Project activities		6			
Documentation and tracking of project		6			
Presentation Skills developed		6			
Understanding of construction details & techniques		7			
Participation and contribution in project meetings					NA
Understanding of codes and standards		6.5			
Schedule preparation & tracking activities					NA
Preparation / Management of drawings		6			
Learning / Application of software in Projects		6			
Preparation of concept for projects		6			
Site Management / Discussion with clients					NA
Overall Grading*	6.5				

(A - 8.0, B - 7.0, C - 6.0, D - 5.5, E - 5.0, F - <5)

7. Any other Remarks : _____

8. Signature of the Head of the Office / Organization (With Seal) : 


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Name of the office / organization : Ela Green Buildings & Infrastructures

1. Consultants Private Limited

2. Address & Contact Number : Pallavaram, Chennai

3. Name of the student : Rudhrashree

4. Duration : From 1.12.22 To __31.12.22

5. Total No. of days : 25 Days

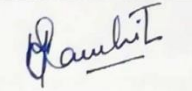
6. Evaluation of Performance criteria shall be on

** Note: Kindly grade the student as per his/her overall performance in the office during the assessment month; which will be converted to the allotted 200 marks by the department.*

Description of works	Excellent	Good	Fair	Poor	NA
Understanding of office culture and methodology		6			
Active Participation in the Project activities		6			
Documentation and tracking of project		6			
Presentation Skills developed		6			
Understanding of construction details & techniques		7			
Participation and contribution in project meetings					NA
Understanding of codes and standards		6.5			
Schedule preparation & tracking activities					NA
Preparation / Management of drawings		7			
Learning / Application of software in Projects		7			
Preparation of concept for projects		6			
Site Management / Discussion with clients					NA
Overall Grading*	6.5				

(A - 8.0, B - 7.0, C - 6.0, D - 5.5, E - 5.0, F - <5)

7. Any other Remarks : _____

8. Signature of the Head of the Office / Organization (With Seal) : 

WORK DAIRY

DATE	PROJECT NAME	WORK DONE
2 nd - 8th Dec	Hospital - Adilabad	Developing 3D Model, Solar analysis, Sunpath & CFD
9th - 11th Dec	Hospital - Warrangal	Developing 3D model, Formit, Sunpath & CFD, Pline, Built-up Area
12th- 13th Dec	Hospital -Allapey	Developing 3D model, Formit, Sunpath & CFD
15 th -17 th Dec	Infoysis	Pline, Built-up Area
20 th – 23 rd Dec	Sports Development Centre	Analysis and simulation of Artificial lighting using dialux software
24 th Dec	Commercial complex	WWR
27 th – 31 th Dec	Residential	Rain water harvesting calculation
3 rd - 12th Jan	Hospital - Dibrugarh	Analysis and simulation of artificial lighting using Dialux, Analysis and simulation of natural lighting using Eco tech
17th - 18th Jan	Hospital - Kozhikode	Dialux Model Making

Associate Architect's Signature:

Office seal:

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ABOUT THE FIRM

Ela Green Buildings &Infrastructure Pvt .Ltd Started by a young dynamic professional is today one of India's upcoming Green Building Consultancy firms and has emerged as a pioneer in providing solutions to a wide range of projects across Commercial, Residential, Industrial, Retail, Hospitality and others.

In a very short span Ela has been able to create value and expertise in the area of Green Building Consultancy by using the design technique, skills on knowledge of materials, renewable energy methods and energy analysis, best customized to the client's needs.

SUSTAINABLE SCOPE OF WORK



SUN PATH ANALYSIS

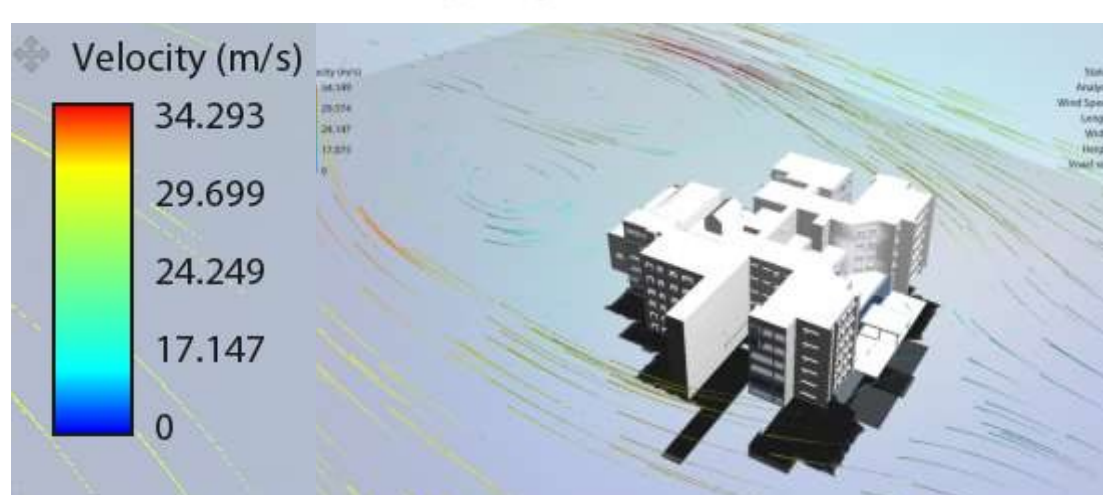
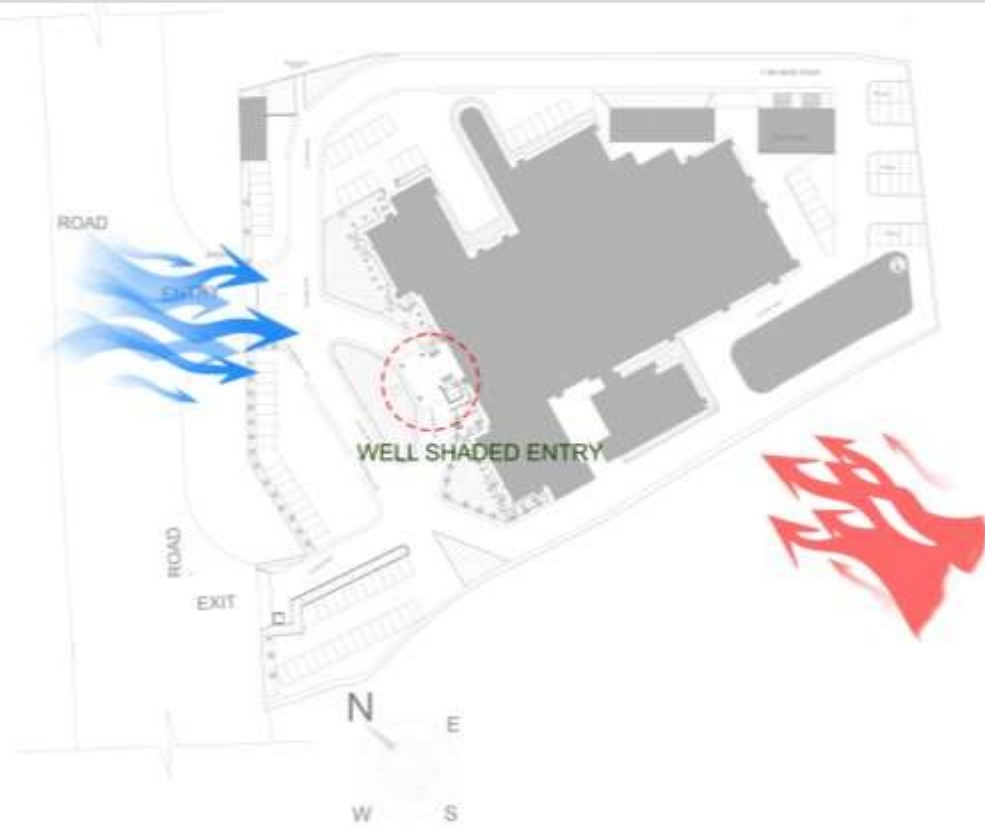
Typology : Hospital

No .of .floor : G+5

Scope of work : GRIHA ,LEED

Location : Adilabad

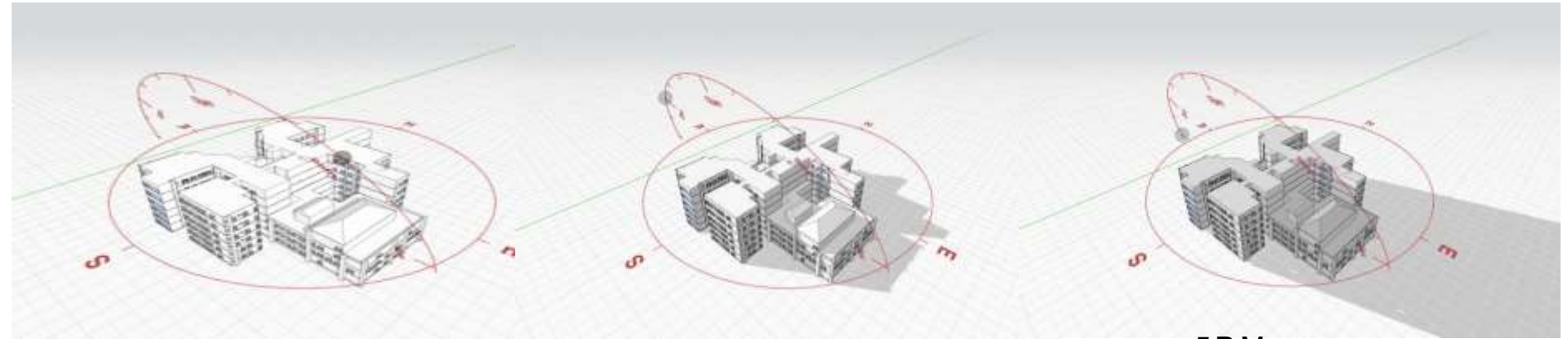
Project Description : 3D Modeling using Sketch
up software, solar analysis,CFD analysis, Sun path



EAST FACING : 9 A.M

3 P.M

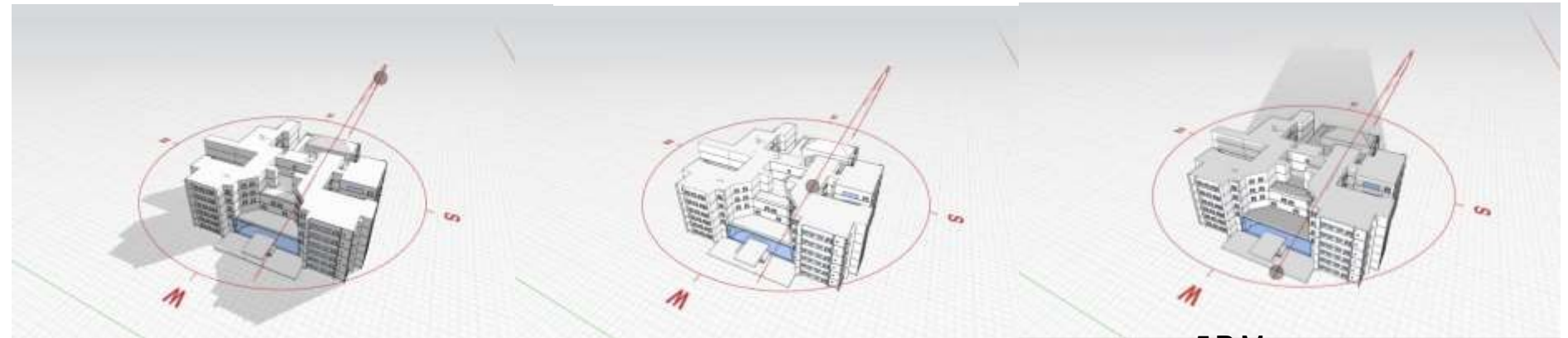
5 P.M



WEST FACING: 9 P.M

3 P.M

5 P.M



NORTH FACING: 9 P.M

3 P.M

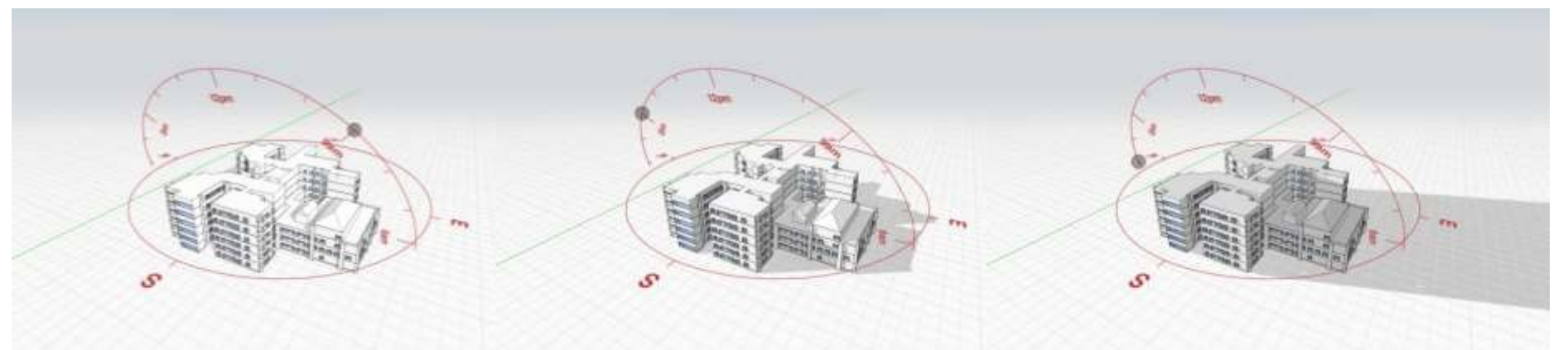
5 P.M



SOUTH FACING 9 P.M

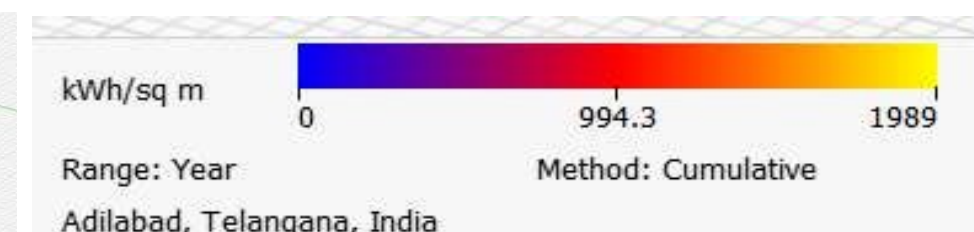
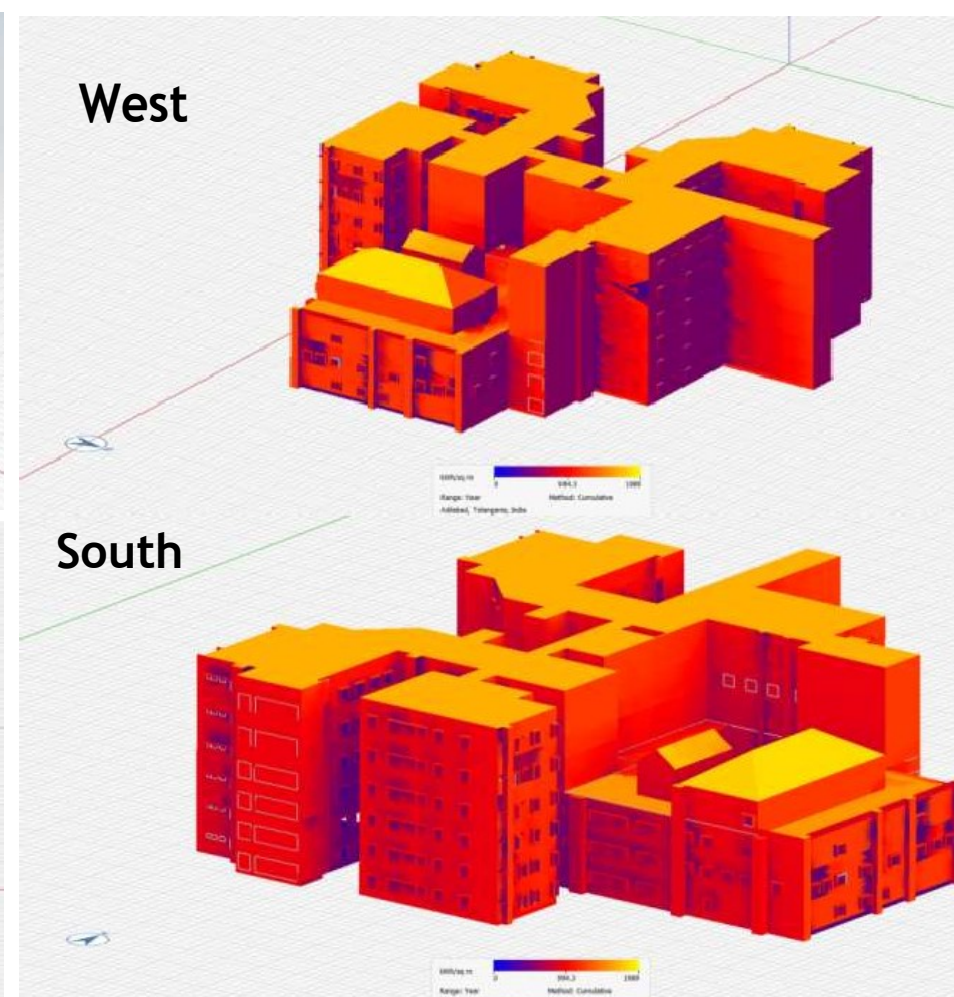
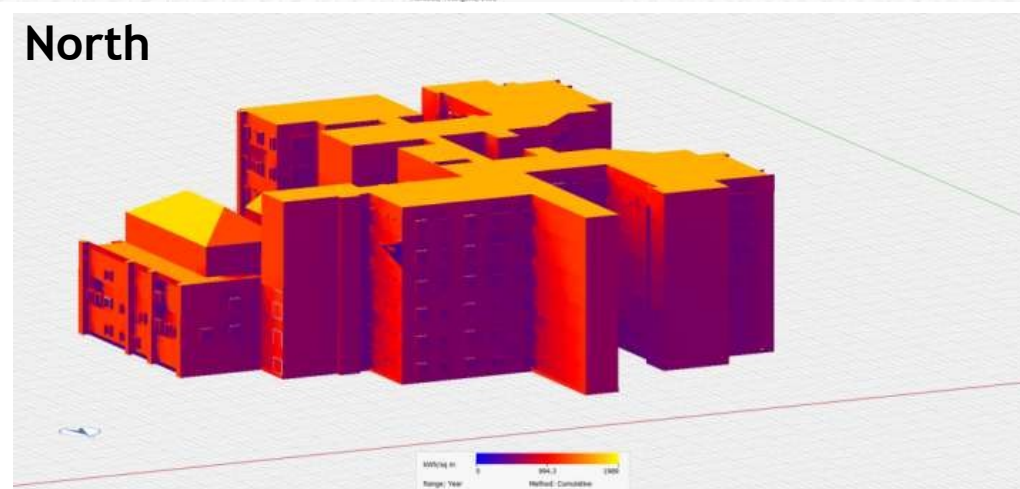
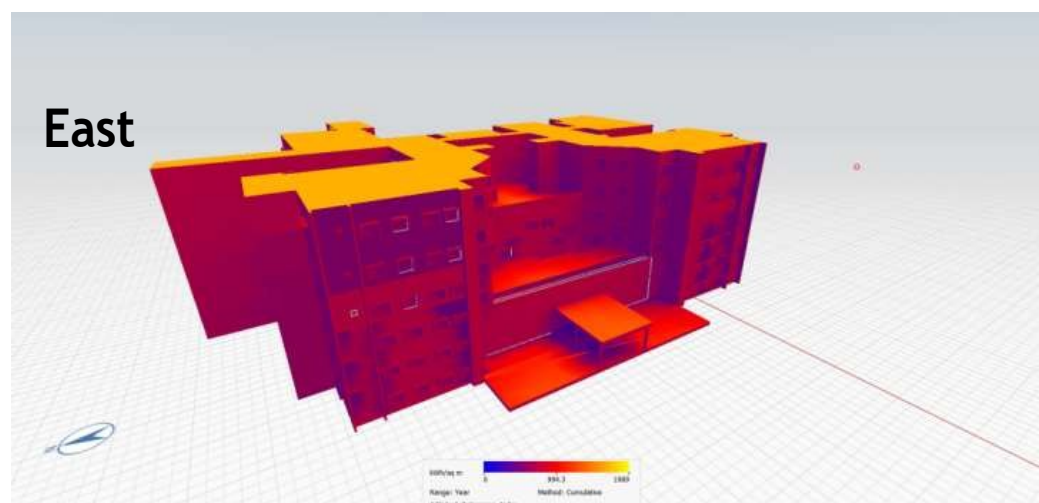
3 P.M

5 P.M



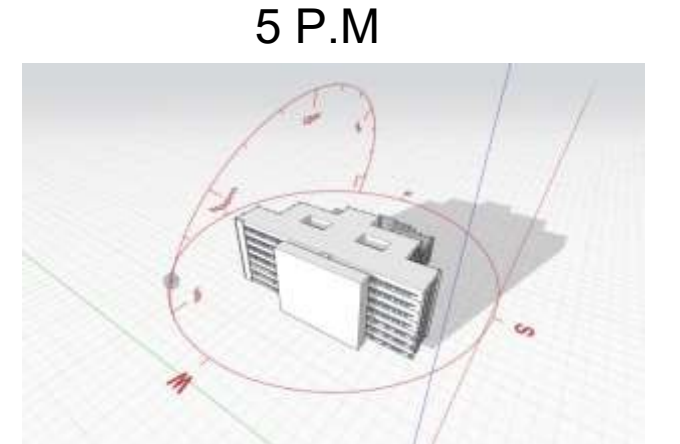
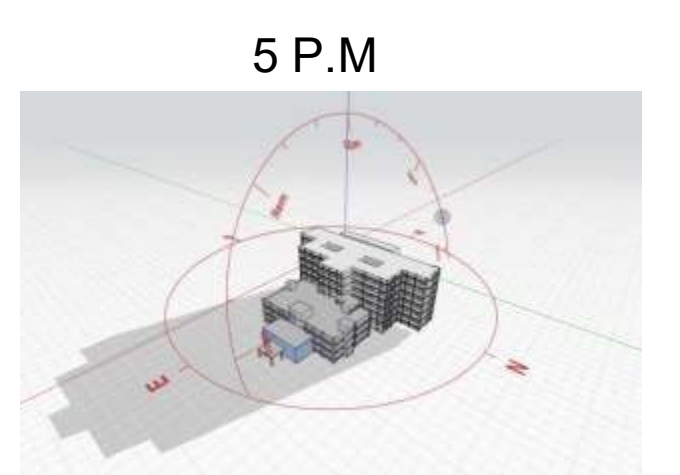
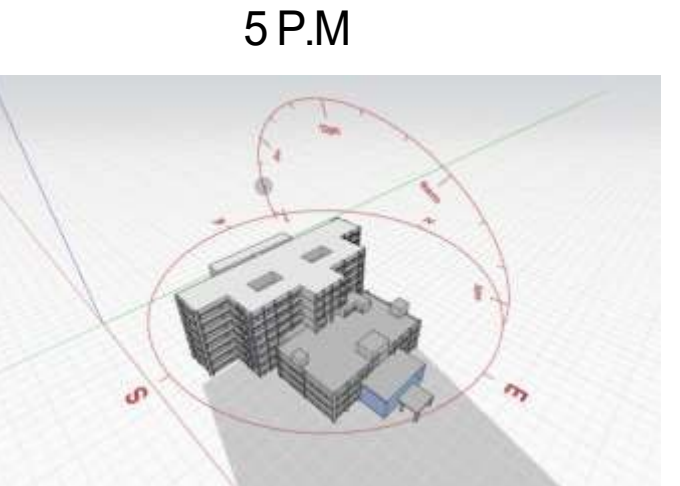
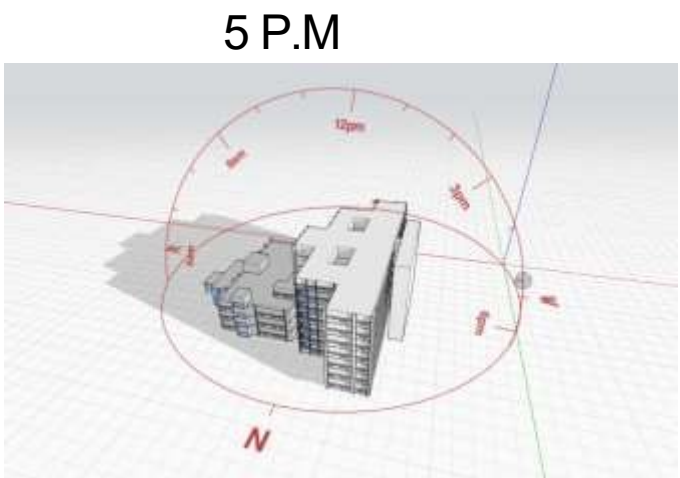
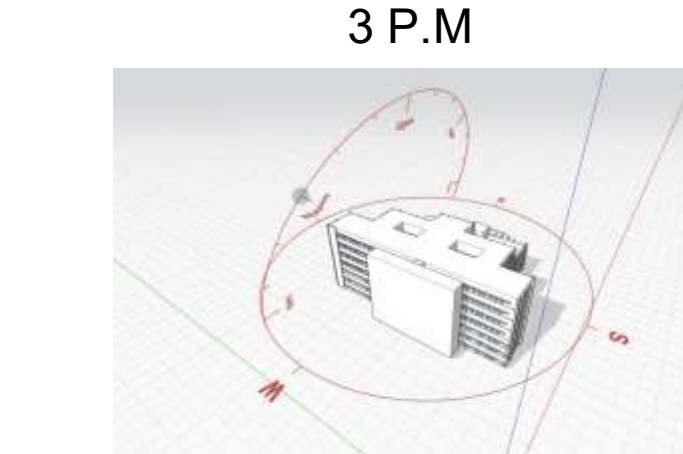
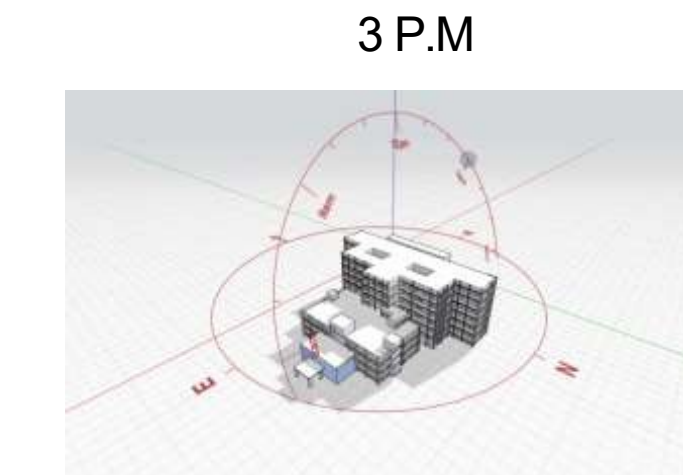
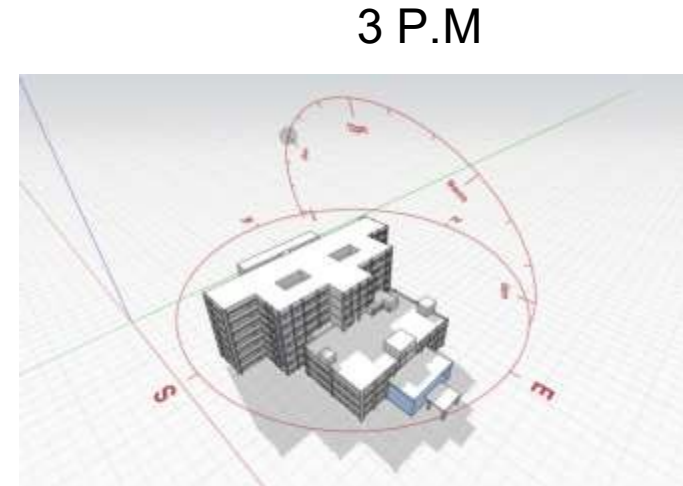
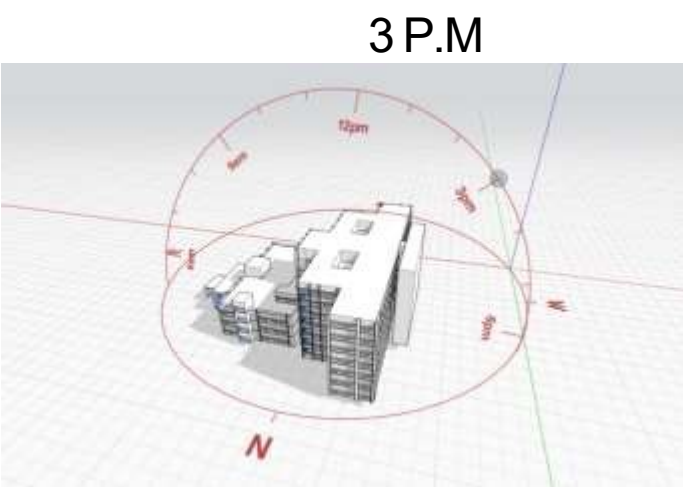
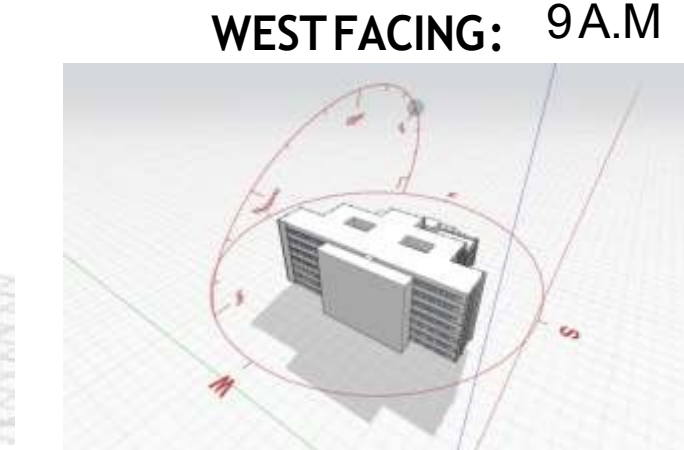
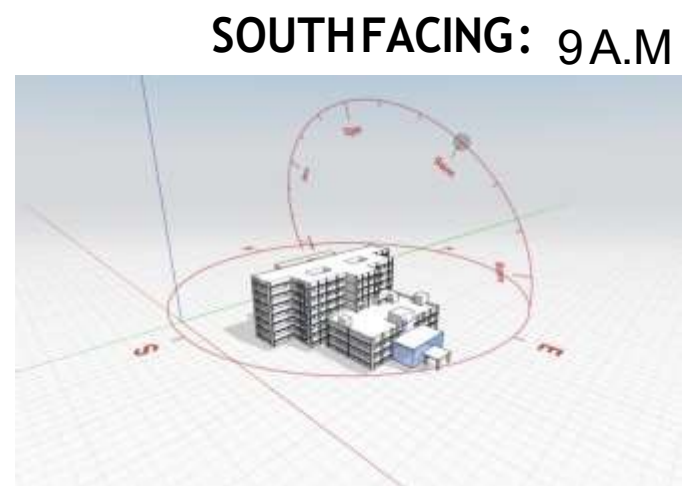
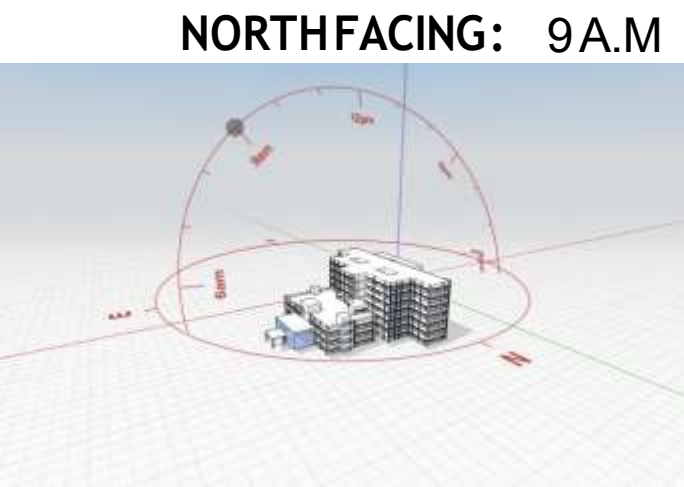
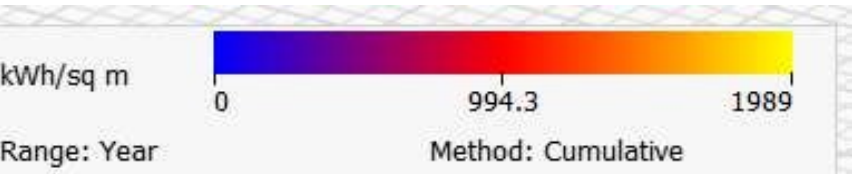
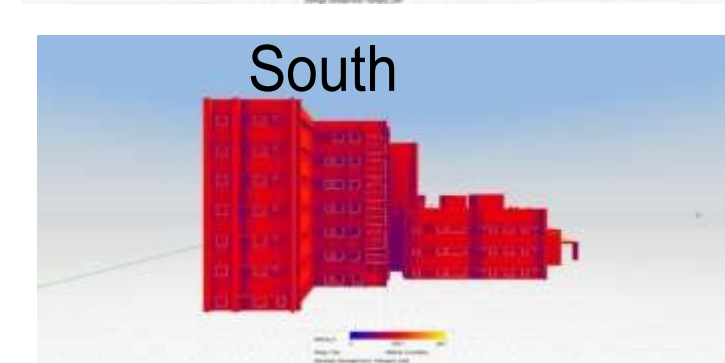
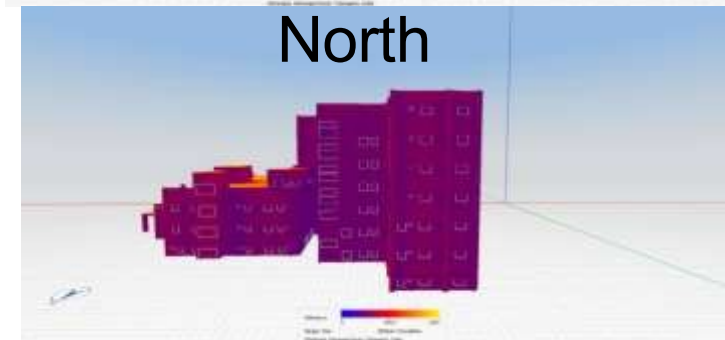
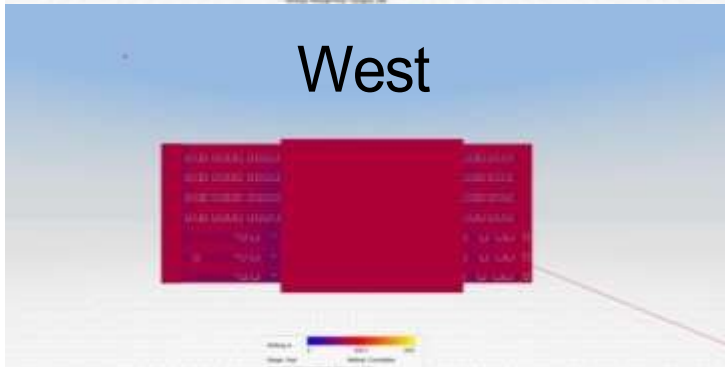
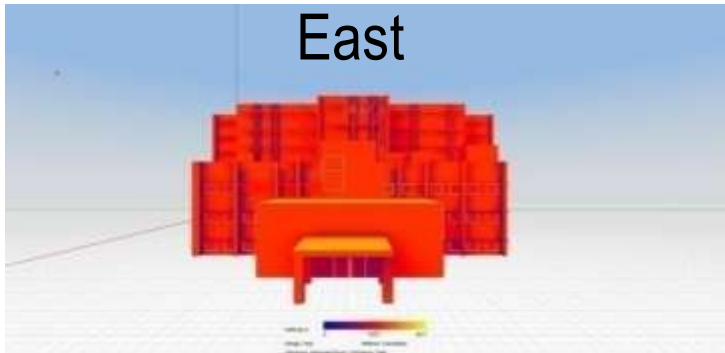
DESIGN CASE	NORTH FACADE		SOUTH FACADE		WEST FACADE		EAST FACADE	
	Highest	Lowest	Highest	Lowest	Highest	Lowest	Highest	Lowest
Ground Floor	318 kwh/ sqm	147.5 kwh/ sqm	874.6 kwh/ sqm	299.4 kwh/ sqm	551.2 kwh/ sqm	172.1 kwh/ sqm	874.5 kwh/ sqm	169.6 kwh/ sqm
First Floor	318 kwh/ sqm	171.9 kwh/ sqm	877.9 kwh/ sqm	285.6 kwh/ sqm	552.5 kwh/ sqm	189 kwh/ sqm	874.5 kwh/ sqm	171.4 kwh/ sqm
Second Floor	317 kwh/ sqm	174.1 kwh/ sqm	884 kwh/ sqm	293.6 kwh/ sqm	552.5 kwh/ sqm	192.8 kwh/ sqm	874.5 kwh/ sqm	176.5 kwh/ sqm
Third Floor	317 kwh/ sqm	187.9 kwh/ sqm	885 kwh/ sqm	291.7 kwh/ sqm	552.5 kwh/ sqm	205.3 kwh/ sqm	874.5 kwh/ sqm	179.8 kwh/ sqm
Fourth Floor	317 kwh/ sqm	188.4 kwh/ sqm	886.2 kwh/ sqm	305.3 kwh/ sqm	552.5 kwh/ sqm	207.9 kwh/ sqm	874.5 kwh/ sqm	184.6 kwh/ sqm
Fiveth Floor	318 kwh/ sqm	196.3kwh/ sqm	886 kwh/ sqm	626.7 kwh/ sqm	552.5 kwh/ sqm	210 kwh/ sqm	874.5 kwh/ sqm	147 kwh/ sqm

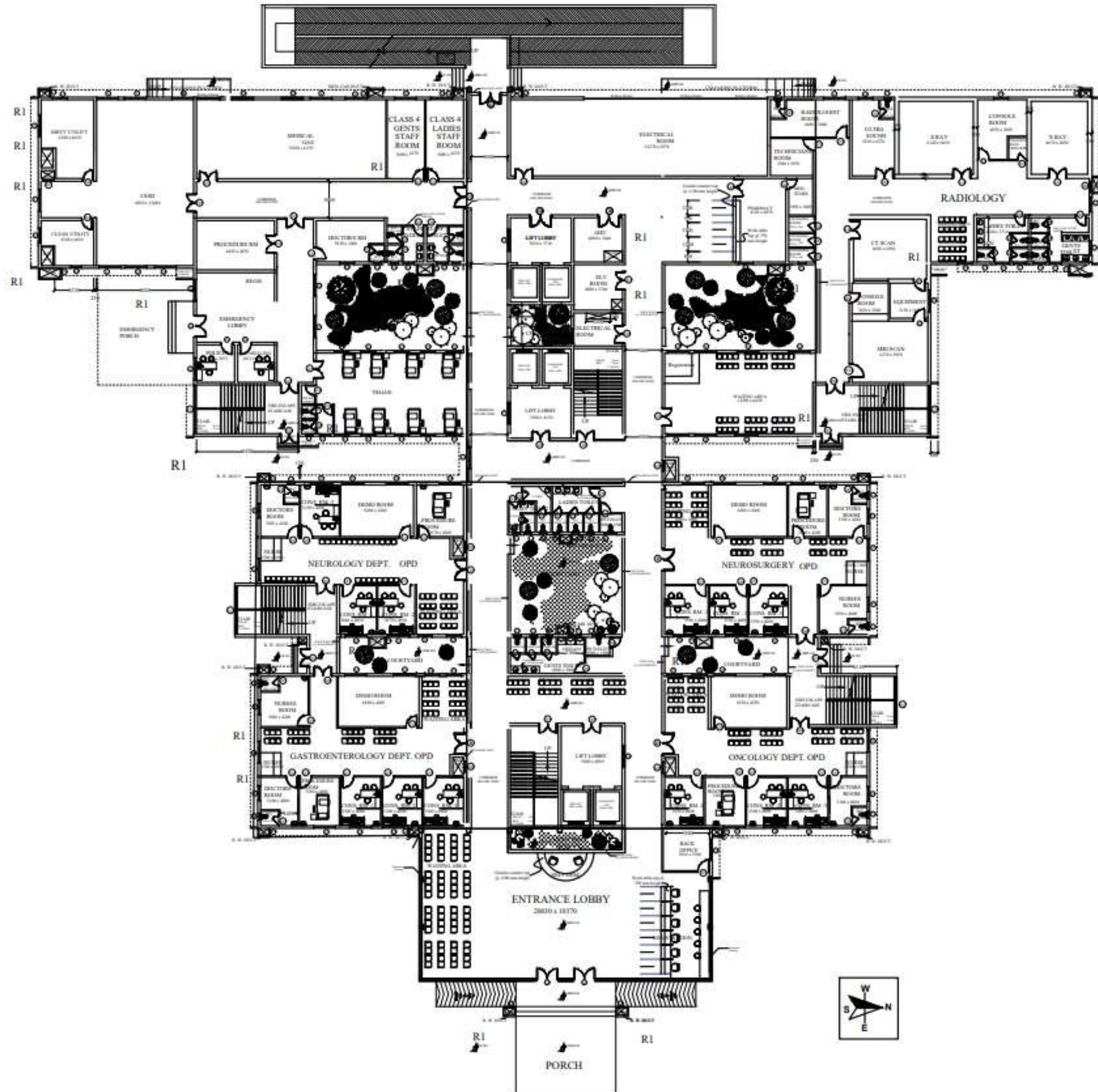
BASE CASE	NORTH FACADE		SOUTH FACADE		WEST FACADE		EAST FACADE	
	Highest	Lowest	Highest	Lowest	Highest	Lowest	Highest	Lowest
All Floors	319.1 kwh/ sqm	-	885.9 kwh/ sqm	-	552.5 kwh/ sqm	-	874.5 kwh/ sqm	-



The formit analysis shows the thermal radiation is highest on the south façade. All other 4 side it has been designed with proper sunshade both vertical and horizontally ,so its reduce in less btu value.

Typology : Hospital
 No .of .floor : G+7
 Scope of work : GRIHA ,LEED
 Location : Warrenal
 Building is east facing







FRONT ELEVATION



SIDE ELEVATION

GROUND FLOOR						
Console 1	36	12.52	2.88	150	300	120
Console 2	36	24.32	1.48	150	300	76.9
Consultaion 1	72	19	3.79	200	500	181
Consultaion 5	72	18.85	3.82	200	500	180
Consulation 6	72	18.85	3.82	200	500	180
Consulation 4	72	18.57	3.88	200	500	184
Consulation 8	72	19.96	3.61	200	500	176
Consulation9	72	17.58	4.10	200	500	157
Consulation10	72	18.56	3.88	200	500	181
Consulation11	72	19.52	3.69	200	500	178
Counselling	36	11.99	3.00	200	500	123
CT - Scan	180	42.47	4.24	200	500	242
Demo Romm 3	144	38.23	3.77	200	500	217
Demo Room 1	144	39.87	3.61	200	500	210
Doctor's Room 4	36	14.5	2.48	200	500	103
Nurse Room2	36	19.8	1.82	100	300	94.4
Pharmacy	108	40.87	2.64	150	300	154
Police	36	12.63	2.85	150	300	119
Procedure 1	72	18.98	3.79	150	300	181
Procedure Room 3	108	37.62	2.87	150	300	165
Procedure Room 4	72	19.05	3.78	150	300	177
Procedure Room 5	72	18.6	3.87	150	300	183
Procedure Room 2	72	23.86	3.02	150	300	159
Radiologist	36	13.36	2.69	150	300	114
Registration	108	37.76	2.86	150	300	157
Technicians	36	14.28	2.52	150	300	112
Triage	324	112.72	2.87	150	300	200
Waiting Area 1	144	105.43	1.37	100	200	75.6
Waiting Area 2	36	19.88	1.81	100	200	78.5
Waiting areaneuro OPD	180	109	1.65	200	500	87.3

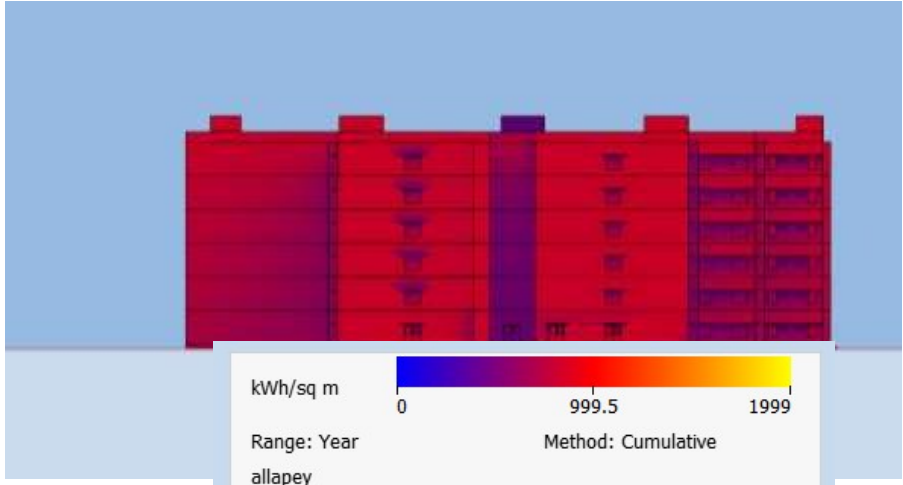
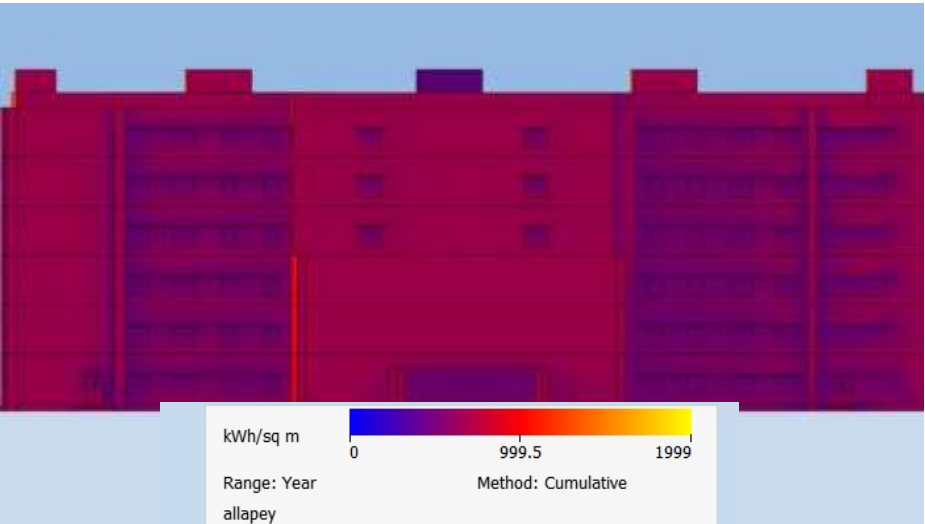
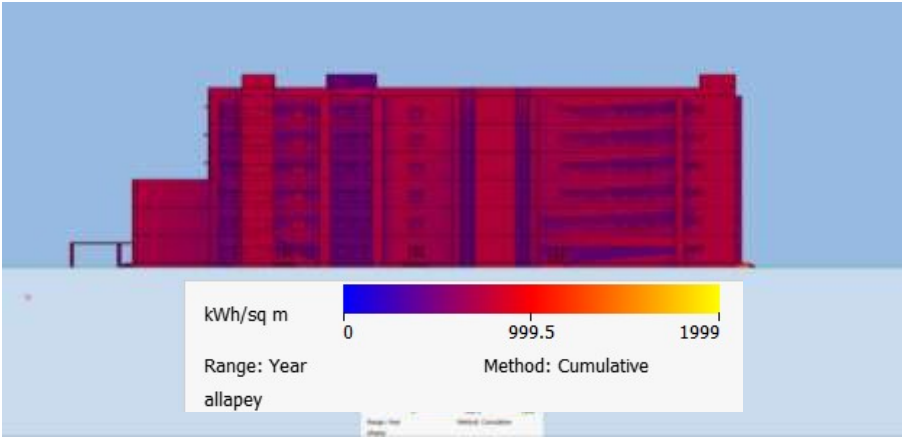
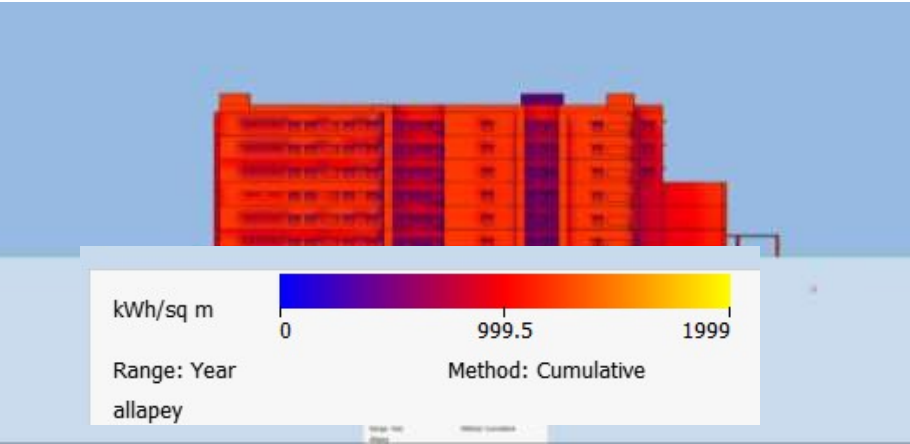
Waiting Gastro	180	115.8	1.55	200	500	83.1
Waiting Nurology	216	106.88	2.02	100	300	107
Waiting Oncology	180	107.92	1.67	100	300	85.6
X -ray 2	108	40.54	2.66	50	100	160
X -ray 1	144	53.2	2.71	50	100	147
Corridor 1	216	80.17	2.69	100	200	115
Corridor 2	216	103.1	2.10	100	200	103
Corridor 3	504	253.96	1.98	100	200	101
Corridor 4	324	139.33	2.33	100	200	108
Lift Lobby 1	54	26.88	2.01	100	200	132
Lift Lobby 2	54	36.22	1.49	100	200	105
Lift Lobby 3	54	29.77	1.81	100	200	122
Medical Gas	320	146.88	2.18	100	200	135
Ramps	300	251	1.20	100	200	75.9
Stairs 1	40	42.59	0.94	50	200	46.7
Stairs 2	40	46.7	0.86	50	200	47
Stairs 3	40	49.7	0.80	50	200	43.9
Stairs 4	40	48.35	0.83	50	200	46.2
Stairs 5	80	51.95	1.54	50	200	79.9
Stairs 6	40	46.51	0.86	50	200	45.7
Toilet	20	8.76	2.28	100	200	61
Toilet Gents 2	85	26.21	3.24	100	200	110
Toilet Gents Staff	25	7.64	3.27	100	200	63.2
Toilet Ladies 1	65	22.25	2.92	100	200	88.6
Toilet Ladies 3	140	29.87	4.69	100	200	157
Toilet Staff 1	50	12.75	3.92	100	200	105
Toilet Staff 2	50	12.87	3.89	100	200	100
TOTAL	5992	3073.48	1.95			



Lowest to the limit
Higher to the limit

Inference : The lighting levels are tabulated with reference of NBC standards & The simulation is done by Dialux Software to meet the needs as per NBC standards .

Project : Hospital
Location :Allapey
Project description:
3D sketchup model , sun path
analysis, solar analysis



WEST

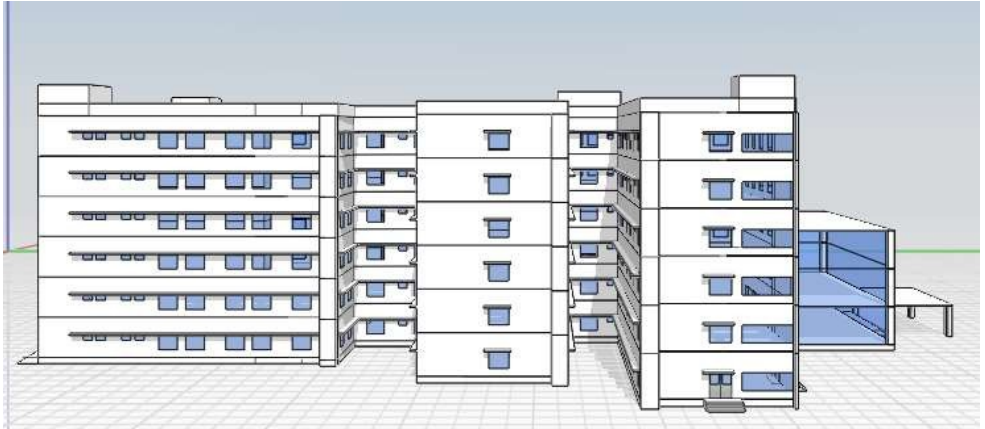
9 AM

12 PM

3 PM



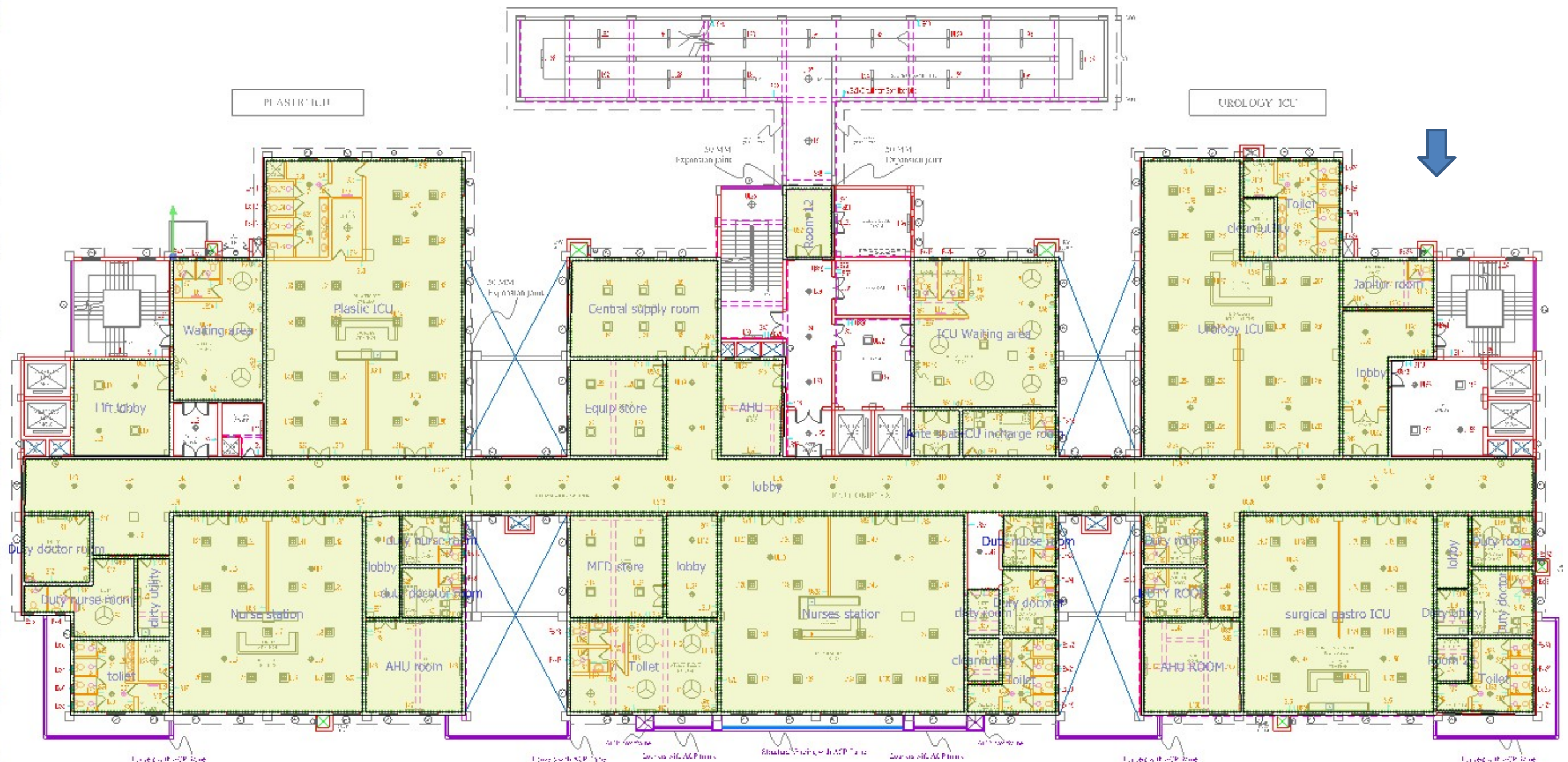
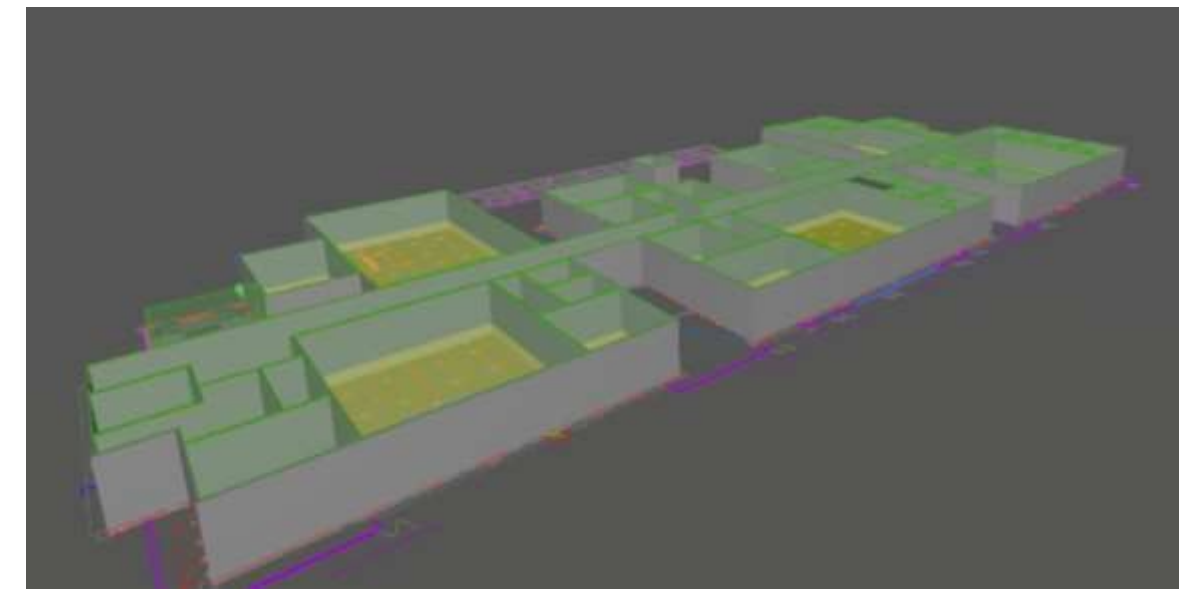
EAST



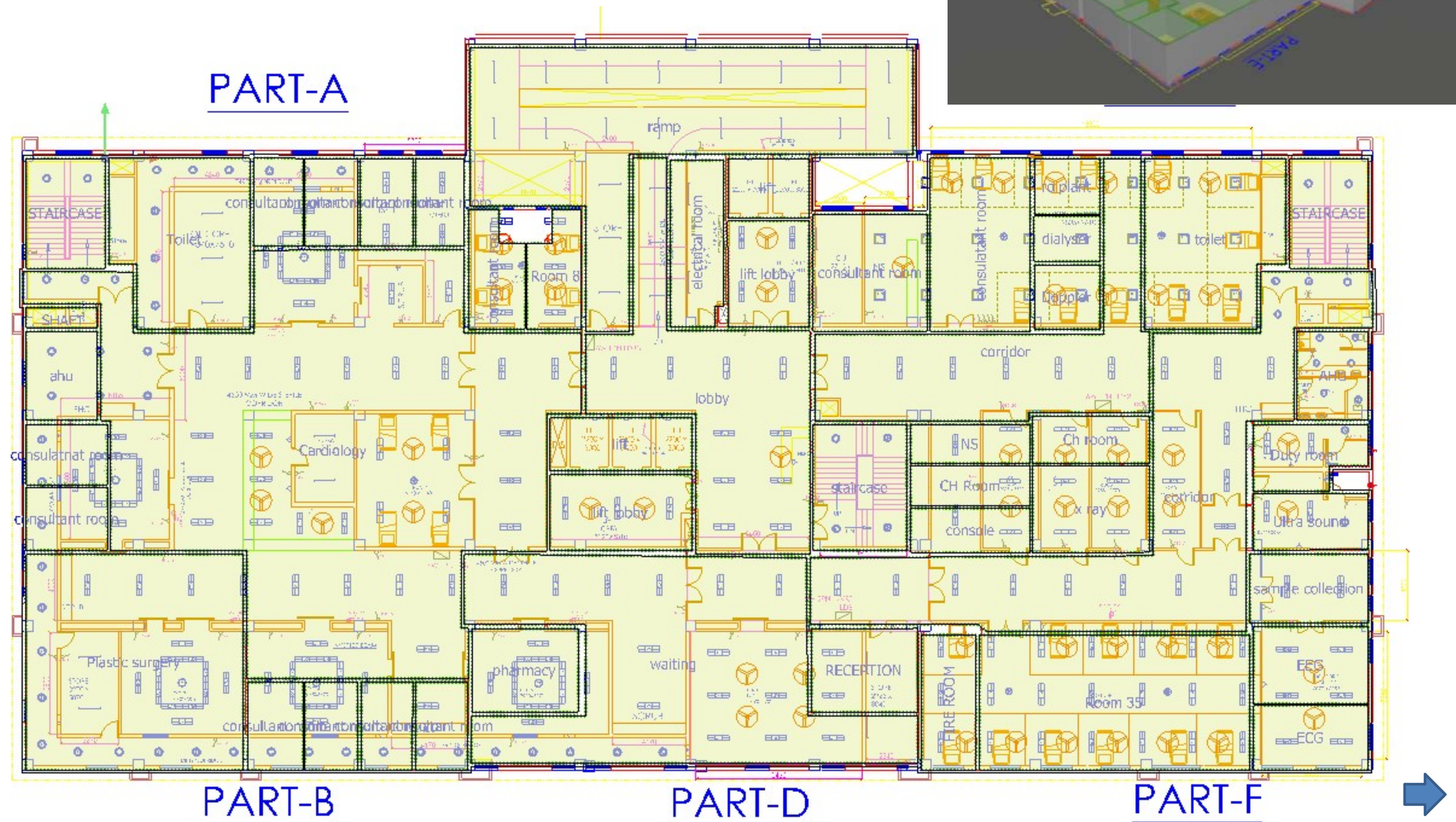
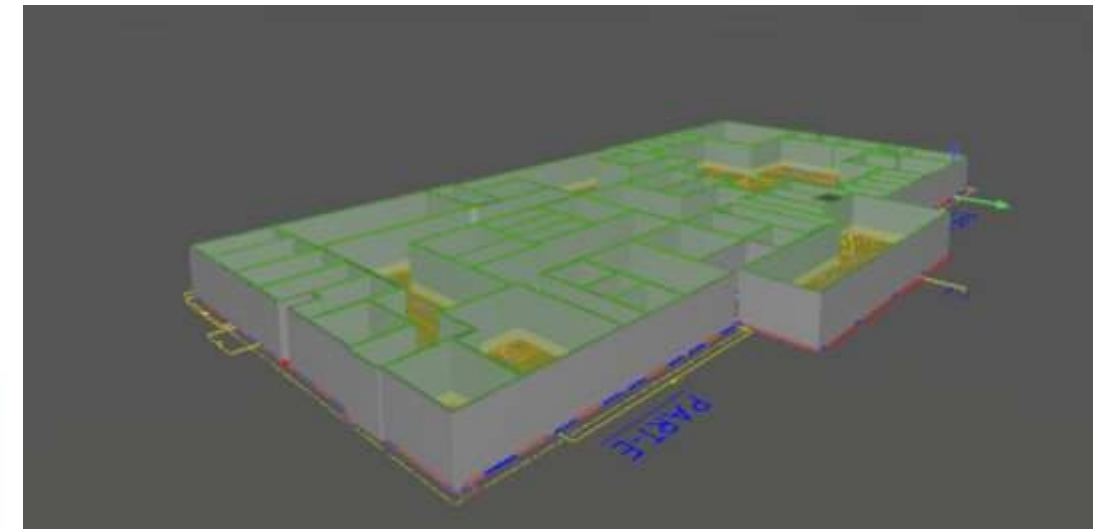
Project : Hospital

Location : Kozhikode

Project description : 3D modelling in dialux



Project : Hospital
Location : Dibrugarh
Project description: 3D modelling in dialux



Rain Water Harvesting Calculation :

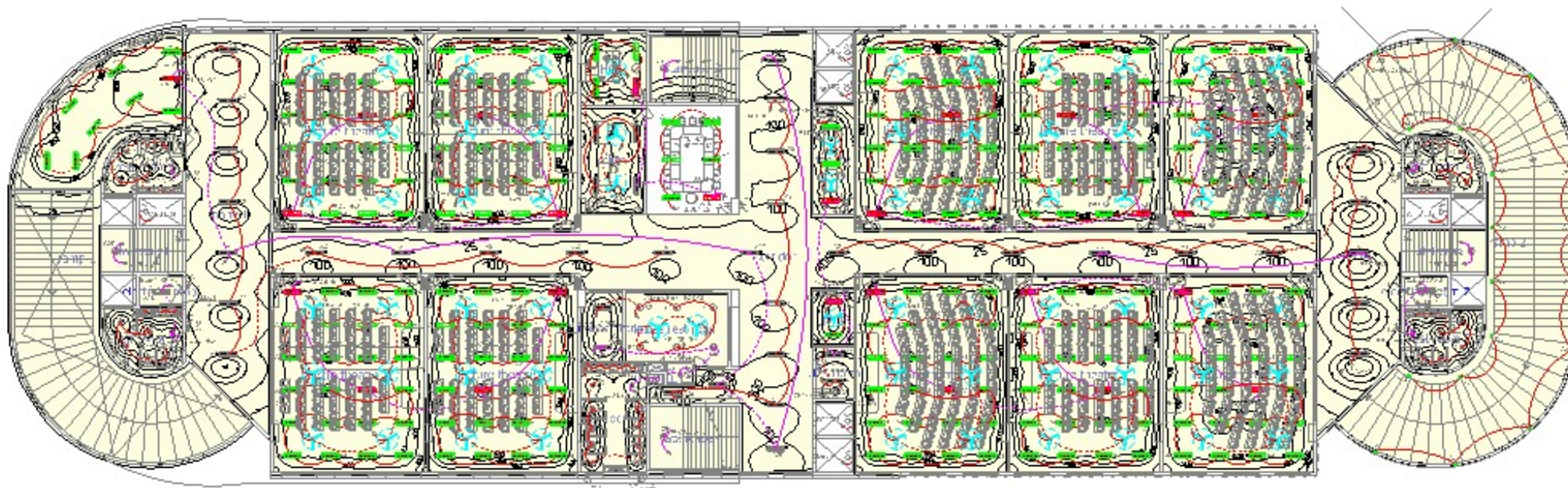
ONEDAY RAINFALL CALCULATION					
LOCATION			Chennai		
LOCATION	YEAR	PEAK RAINY MONTH	TOTAL RAINFALL	Average peak rainfall	One day rainfall
Chennai	2016	September	275.30	380.96	53.33
	2017	November	583.80		
	2018	August	197.70		
	2019	October	277.60		
	2020	November	570.40		
One - day Rainfall/day (mm)					53.33
One - day Rainfall/day (m)					0.053

RAINWATER HARVESTING BOREWELL CALCULATION			
Parameters	Value	Unit	Comments
InjectionRecharge rate	10	lps	Value from CGWBChennai
Number ofDays	1	Day	
Quantity ofRecharge	864	M ³	lps to m3 conversion as per CGWB calculation metholodolgy
Number ofBorewell	1.00		
TotalQuantityRecharge	864.00	m ³	

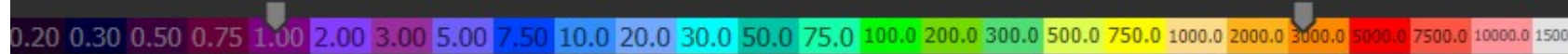
POST CONSTRUCTION RUNOFF					
SI. NO	SURFACE TYPE	RUN OFF CO-EFFICIENT	AVERAGE RAINFALL (m/day)	AREA (m2)	VOLUME OF CAPTURED RUN OFF
1	Roof Area	0.95	0.053	577.84	29.28
2	Non roof Area	0.95	0.053	1181.00	59.84
3	Landscape Area	0.1	0.053	21.54	0.11

Totalroof & non roofrun offvolume (Cum/day)		89.23
Total Harvesting Capacity (cum/day)		864.00
Total Storage Capacity(cum/day)		22.50
% of Rain Water Capacity		993.49%

Project : Hospital
No.of Floors : G+6
Location : vijayawada



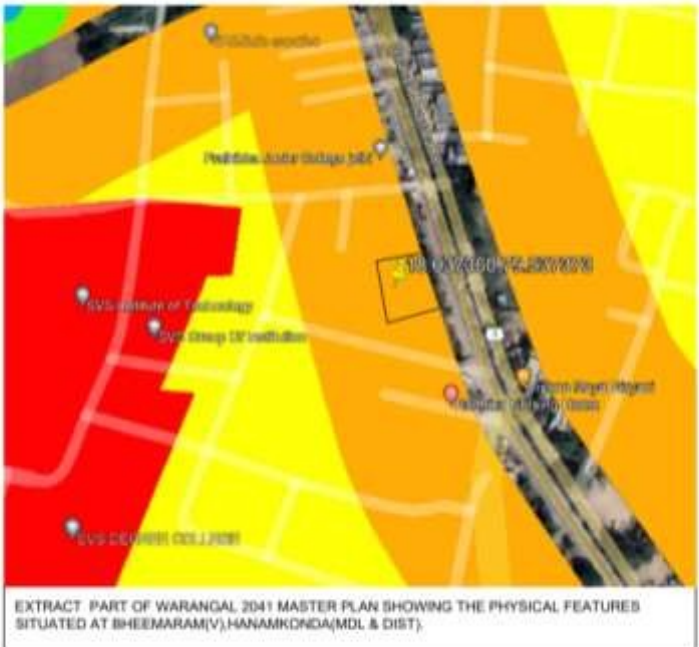
leactre theatre 10	
Workplane (leactre theatre 10)	
521 lx	0.45
leacture theatre 3	
Workplane (leacture theatre 3)	
1041 lx	0.48
leacture theatre 5	
Workplane (leacture theatre 5)	
1057 lx	0.45
lecture theater 2	
Workplane (lecture theater 2)	
521 lx	0.49
lecture theatre 1	
Workplane (lecture theatre 1)	
522 lx	0.48
lecture theatre 4	
Workplane (lecture theatre 4)	
1041 lx	0.47
lecture theatre 6	
Workplane (lecture theatre 6)	
528 lx	0.40
lecture theatre 7	
Workplane (lecture theatre 7)	
521 lx	0.51
lecture theatre 8	



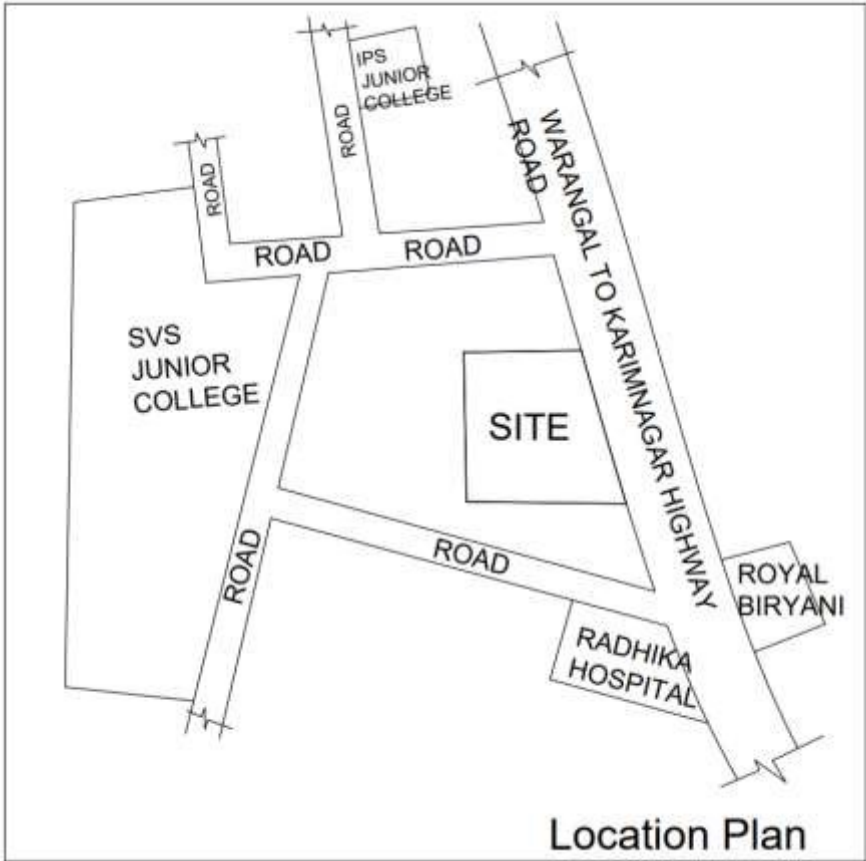
lx cd/m²

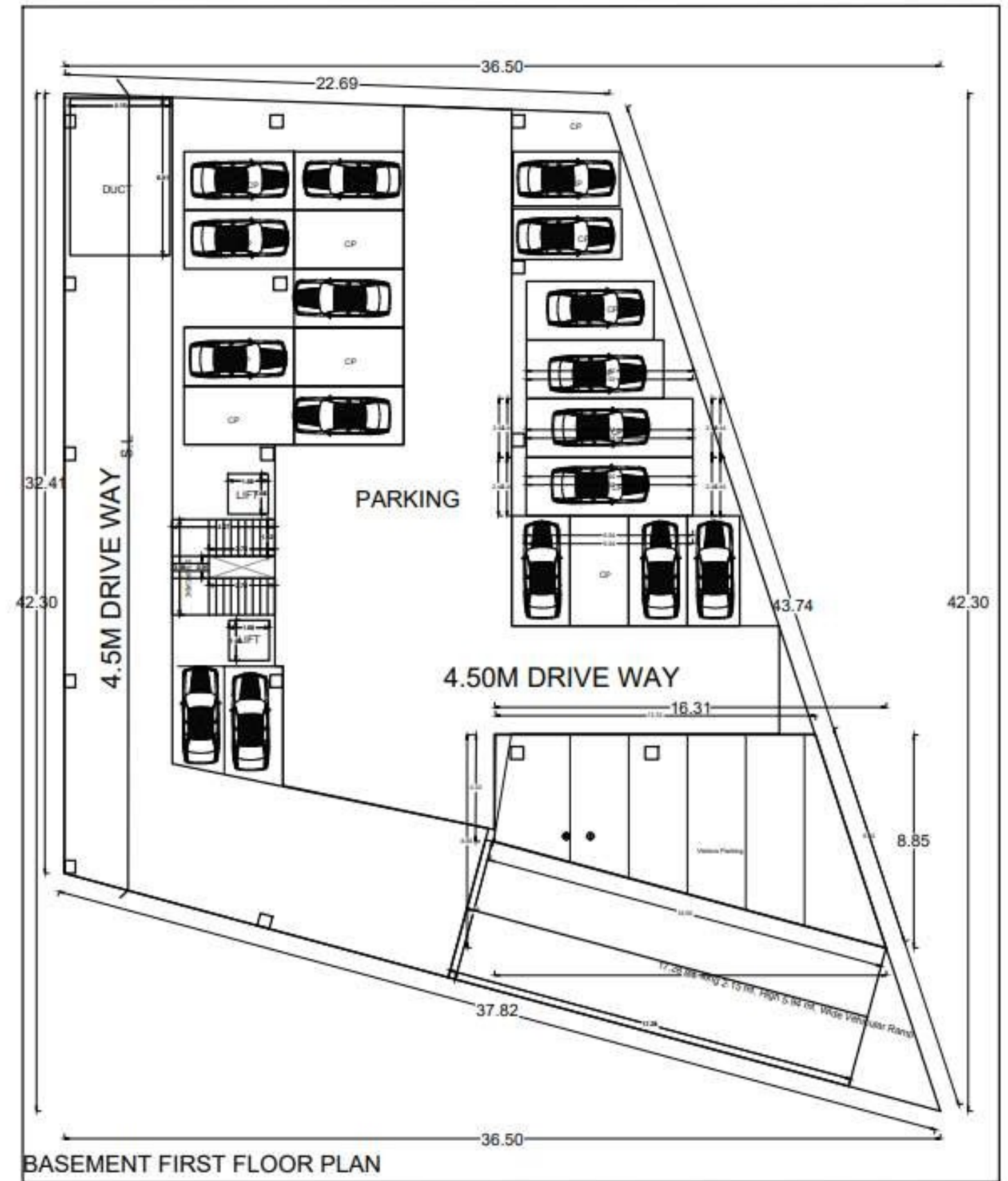
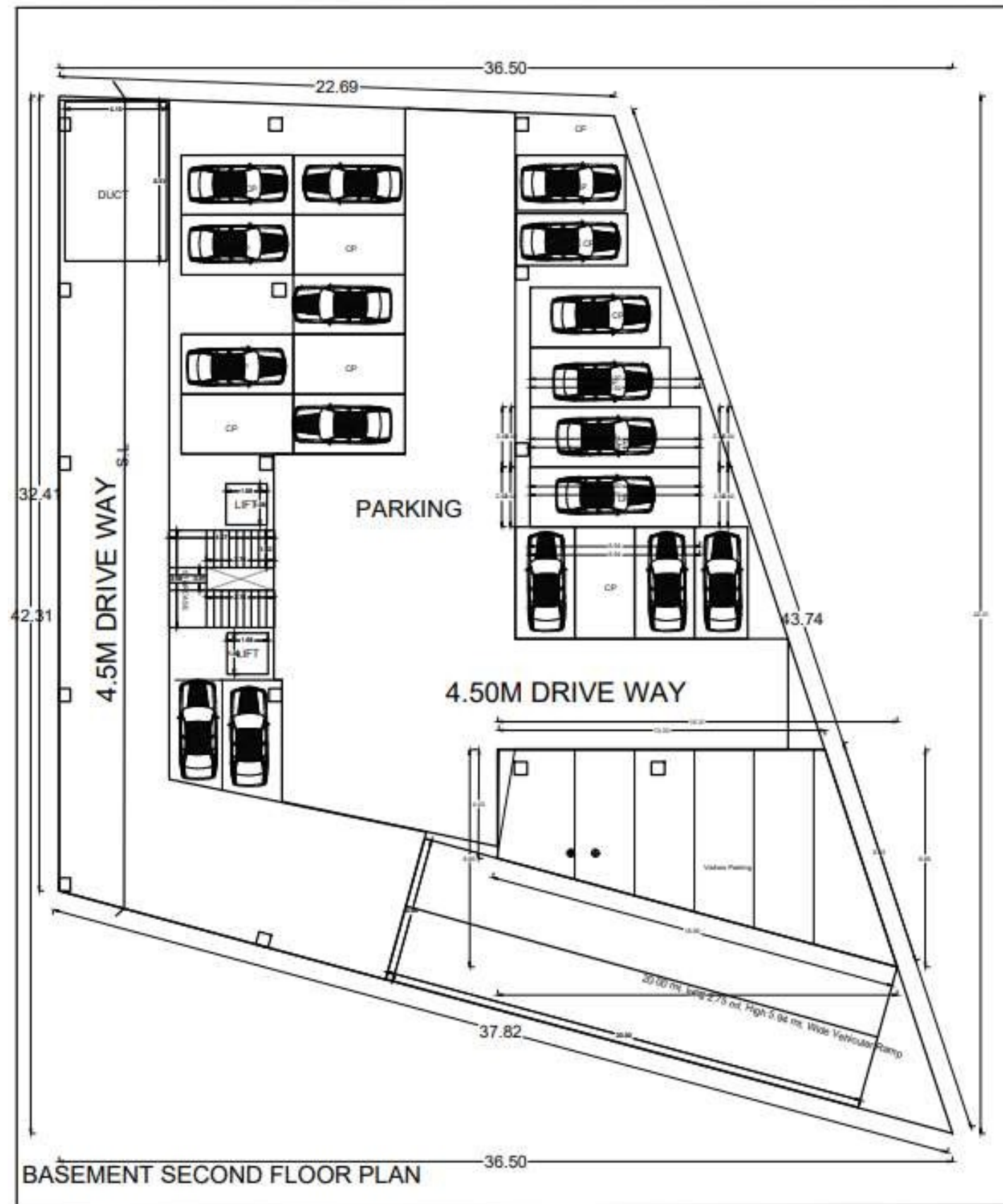
Settings

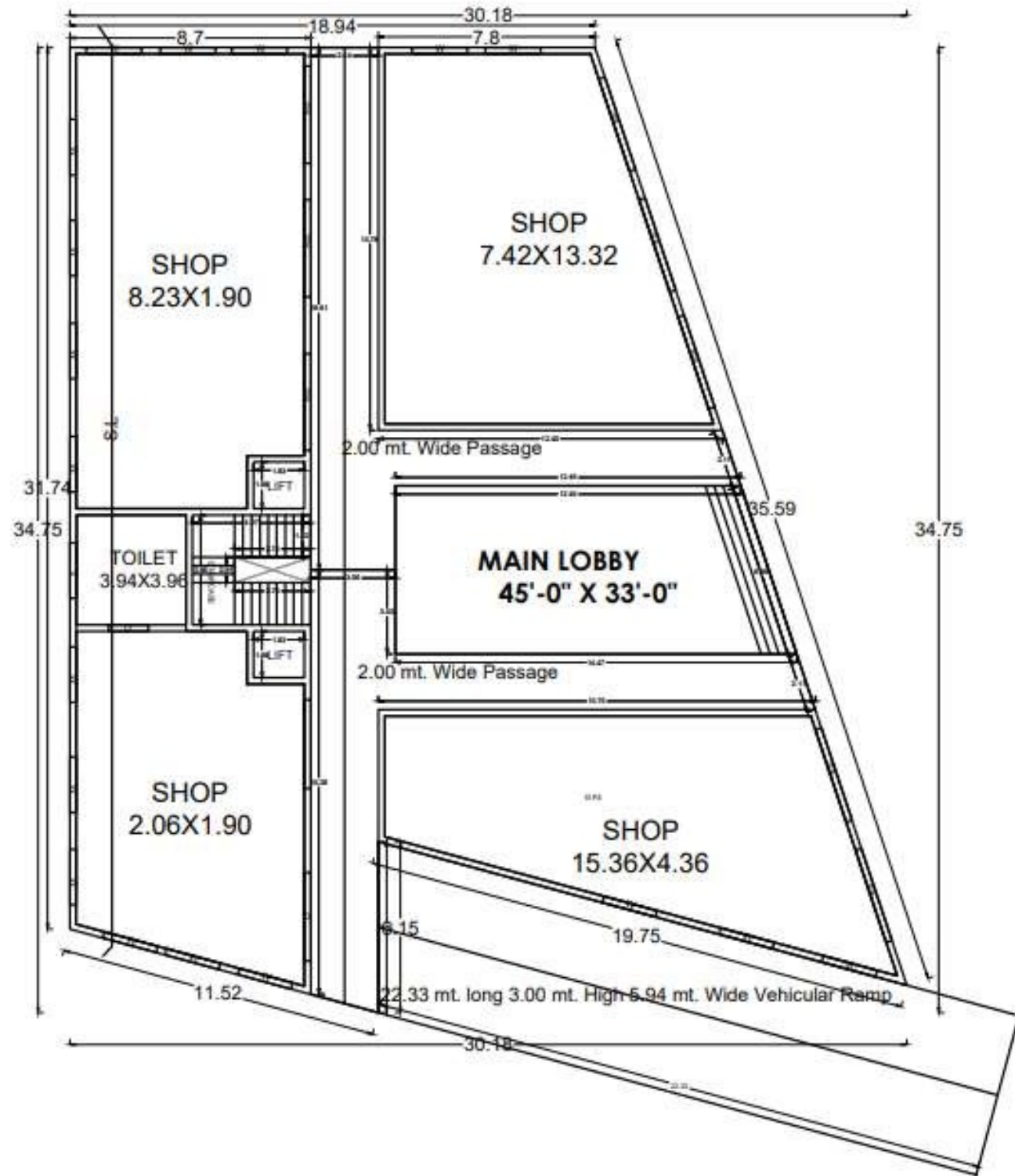
Project : Commercial building
Location : Warrengal



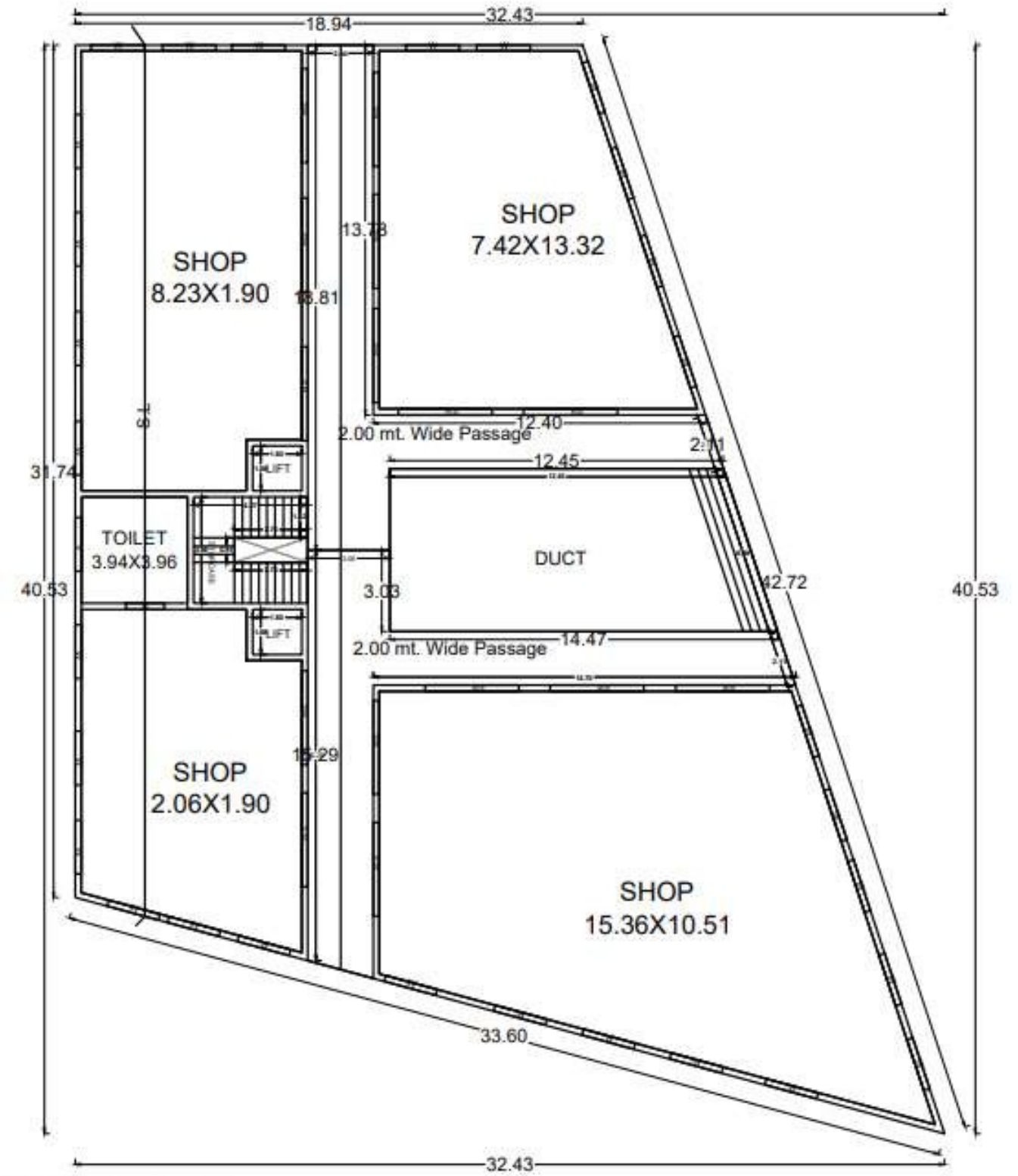
Key Plan



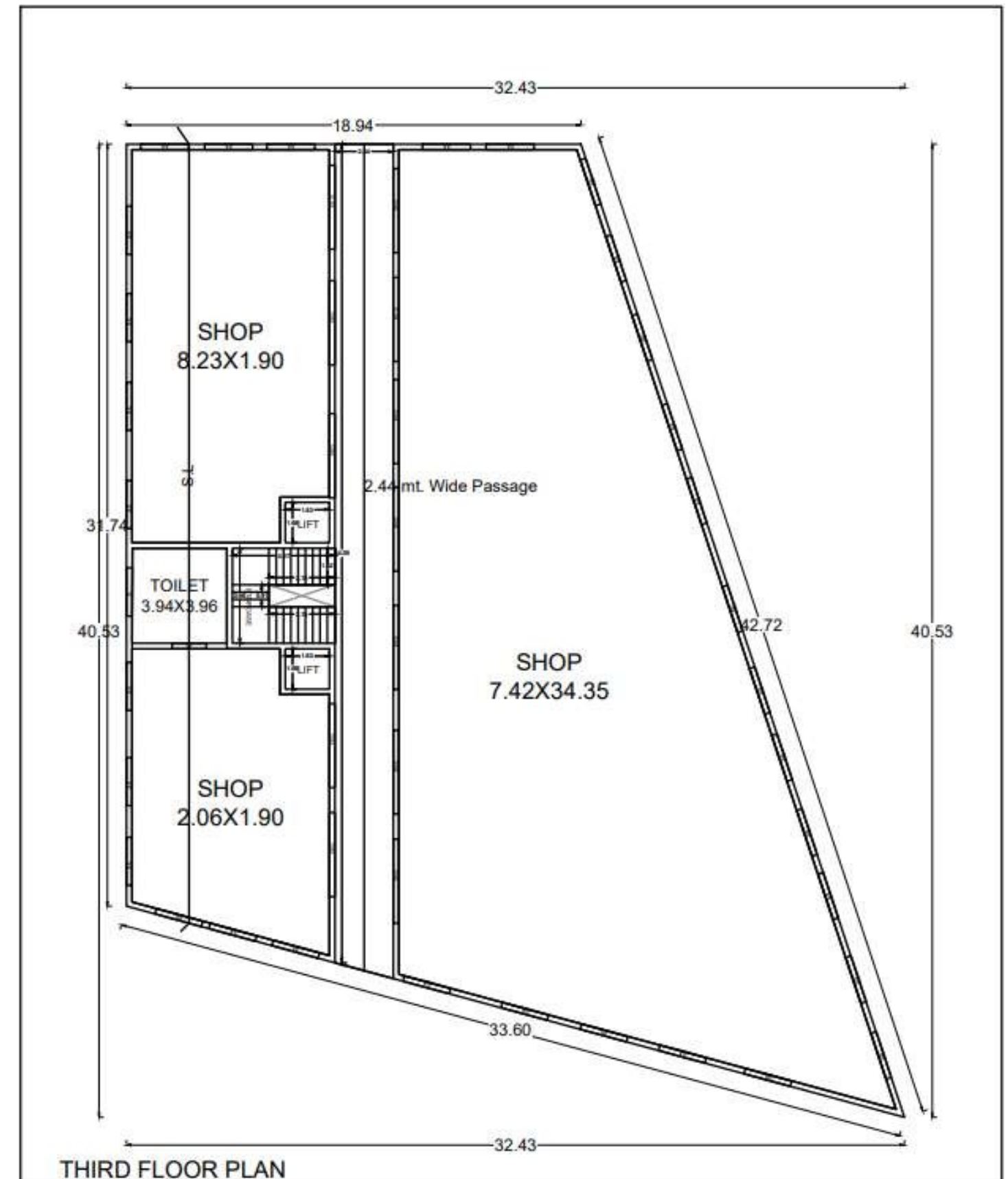
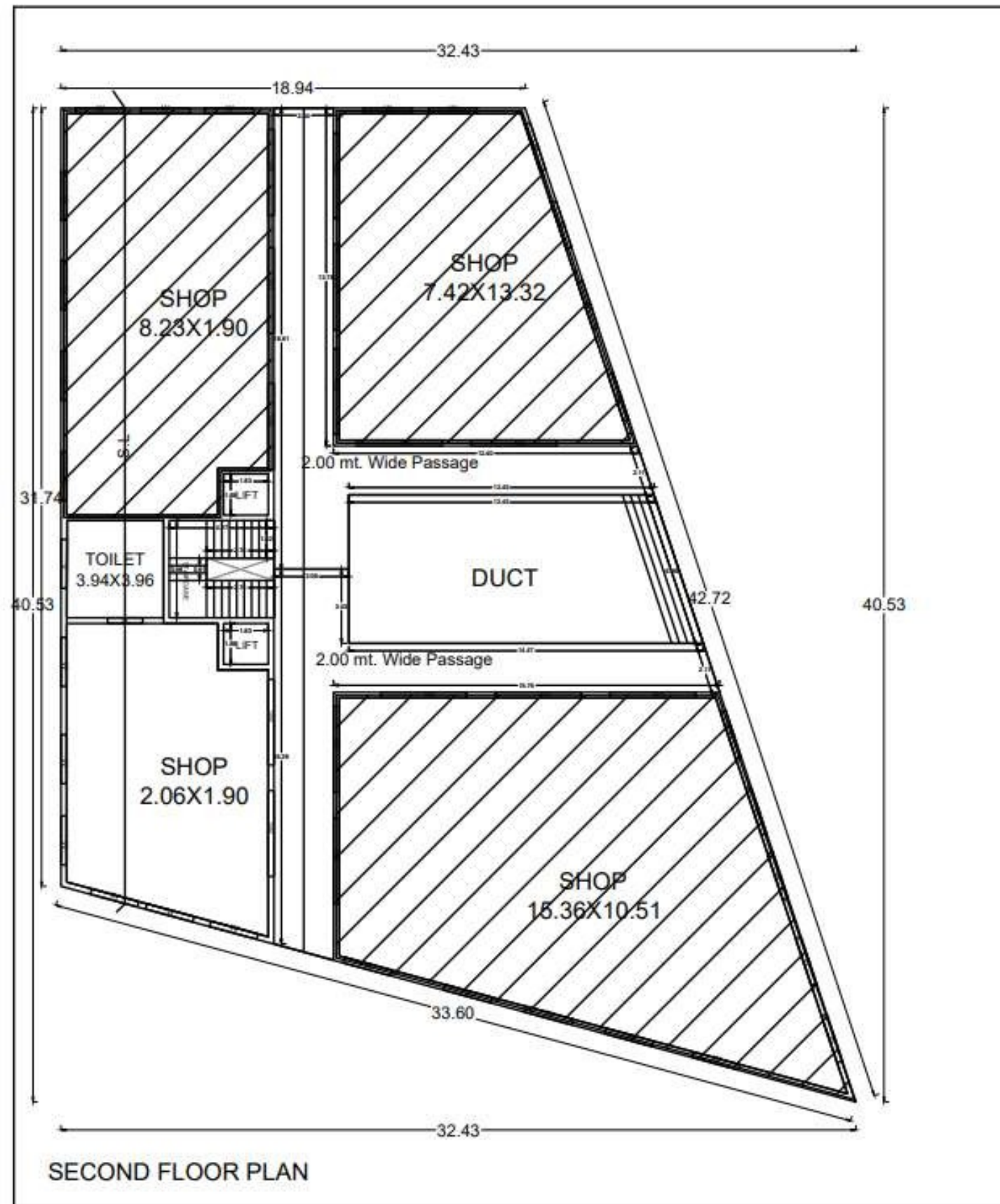


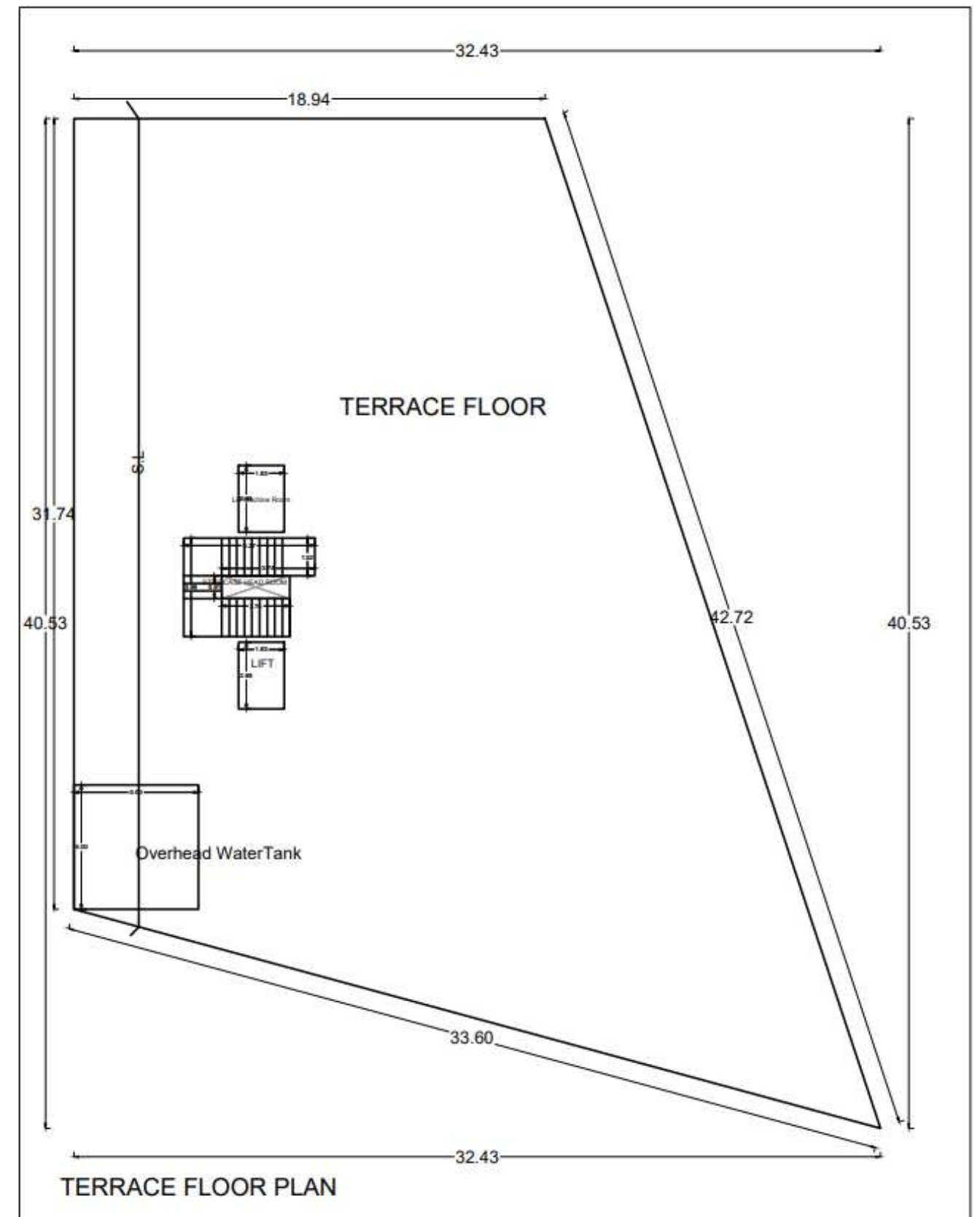
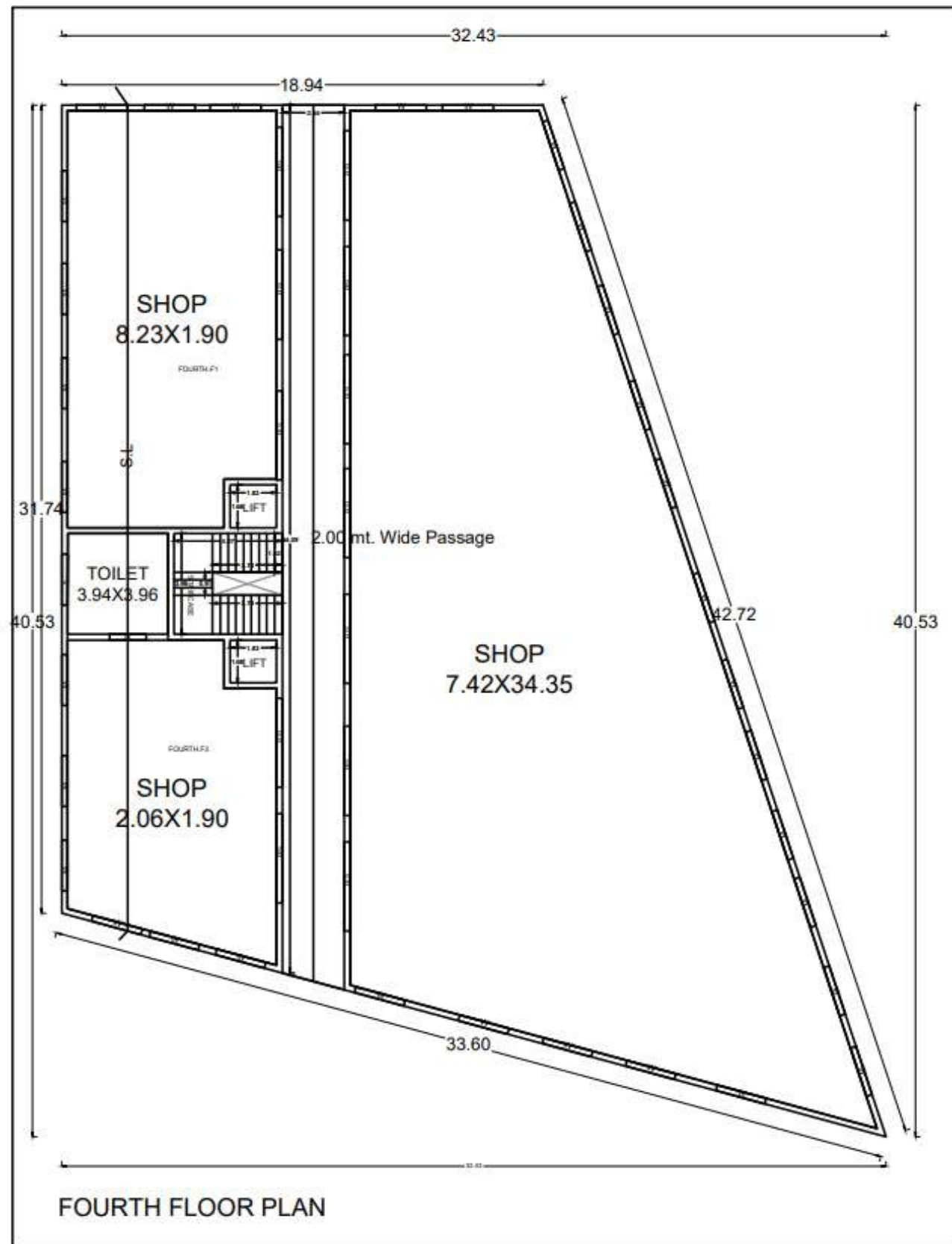


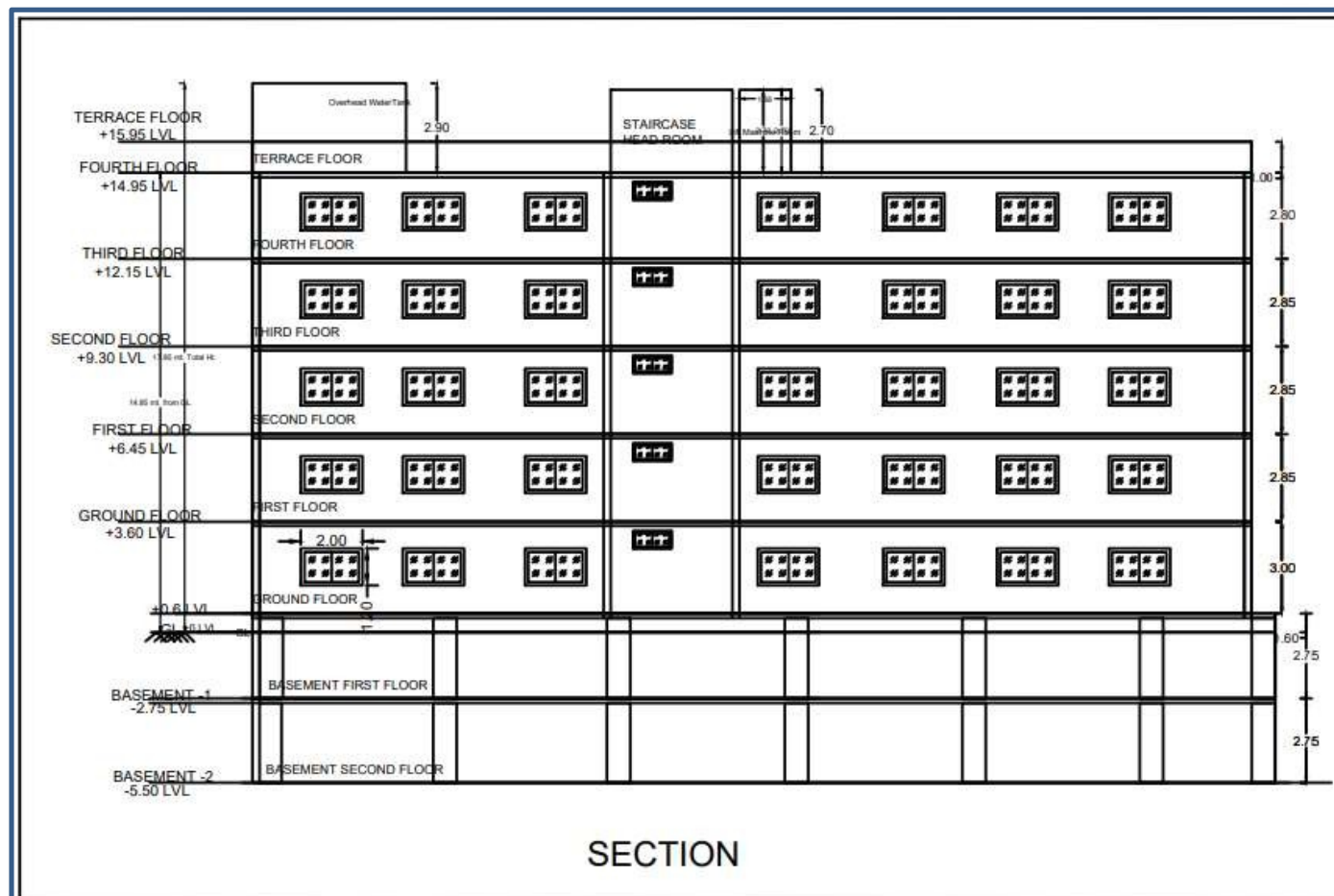
GROUND FLOOR PLAN



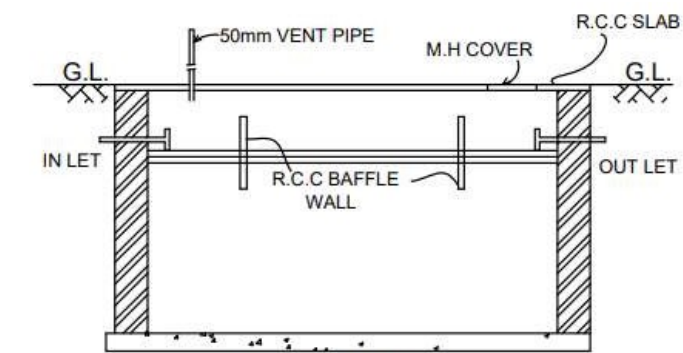
FIRST FLOOR PLAN



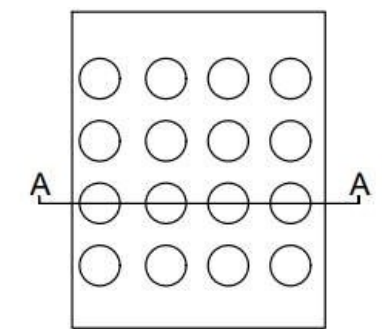




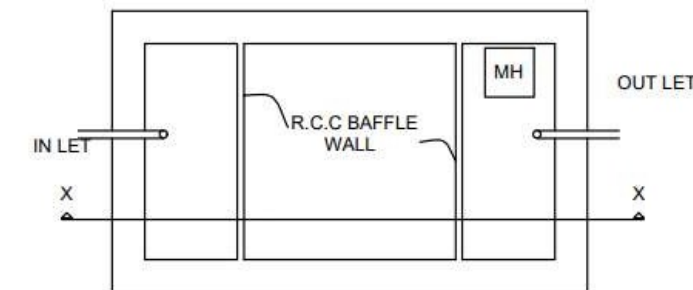
SECTION



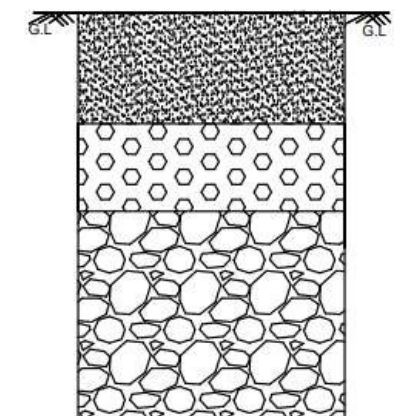
SECTION AT 'XY'
SEPTIC TANK PLAN



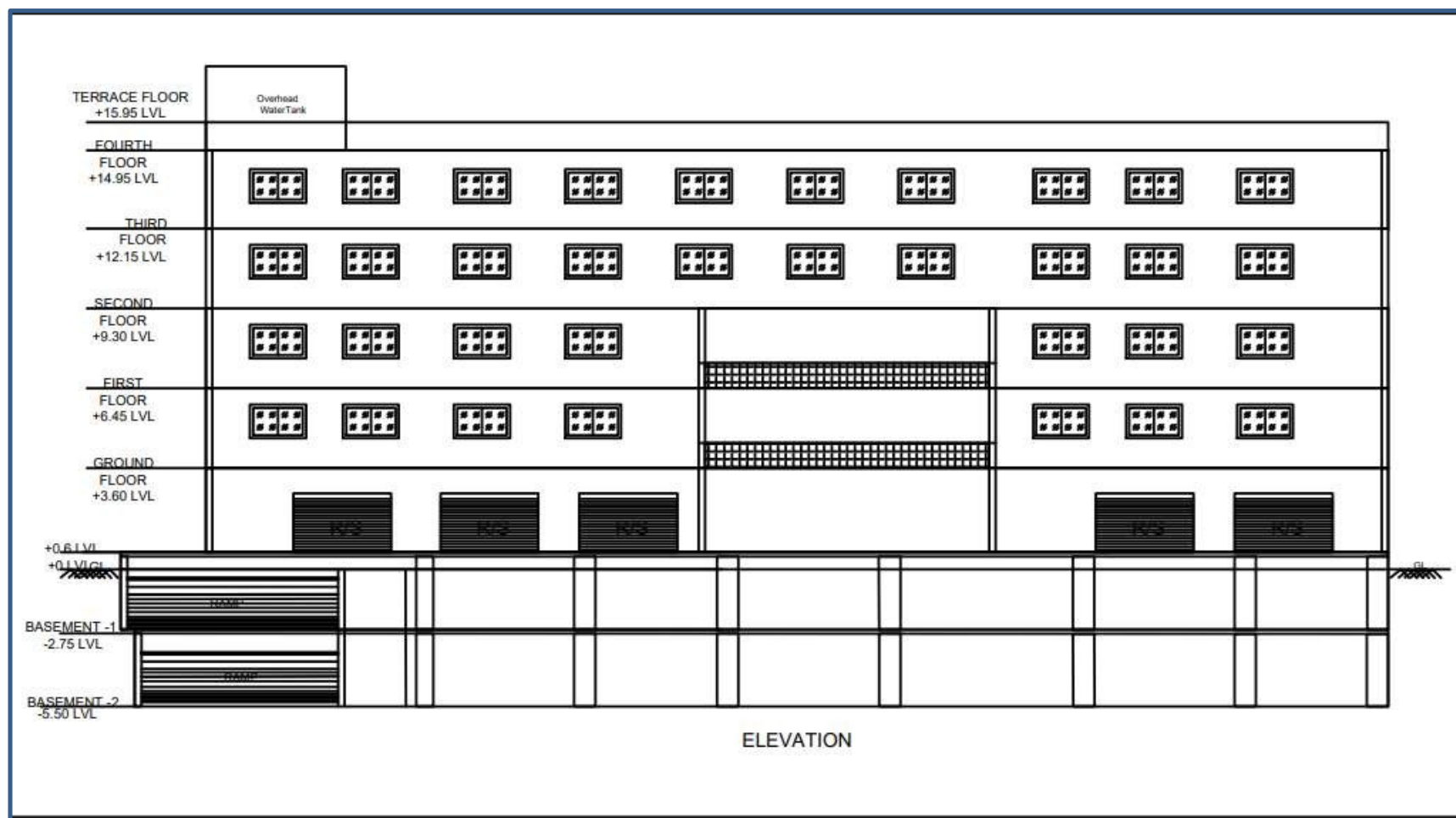
PERCOLATION
PIT PLAN



SEPTIC TANK PLAN



SECTION AT A-A
PERCOLATION PIT



ELEVATION

AREA DETAILS :		SQ.MT.
AREA OF PLOT (Minimum)	(A)	1735.90
NET AREA OF PLOT	(A-Deductions)	1426.39
BALANCE AREA OF PLOT	(A-Deductions)	1426.39
Accessory Use Area		9.00
Vacant Plot Area		518.88
COVERAGE		
Proposed Coverage Area (62.99 %)		898.51
Total Prop. Coverage Area (62.99 %)		898.51
Existing Structure To Be Demolish		68.95
Net BUA		
Commercial Net BUA		4123.70
StairCase Area Add in Net BUA		44.69
Lift Lobby Area Add in Net BUA		16.13
Proposed Net BUA Area		4214.42
Total Proposed Net BUA Area		4214.42
BUILT UP AREA CHECK		
Total Proposed BuiltUp Area		6678.59

Calculation of window-to-wall ratio								
ORIENTATION	OPENING NAME	OPENING AREA (M2)	NO. OF OPENINGS	TOTAL OPENING AREA (M2)	TOTAL WALL LENGTH (M), EXPOSED TO AMBIENT	TOTAL WALL HEIGHT (M), EXPOSED TO AMBIENT	TOTAL WALL AREA (M2)	WWR
GROUND FLOOR								
North	W	2.4	5	12	18.94	3	56.82	21%
North East	NA	0	0	0	35.59	3	106.77	0%
South west	W	2.4	6	14.4	31.27	3	93.81	15%
West	W	2.4	7	16.8	31.74	3	95.22	18%
West	V	0.71	1	0.71				
East	NA	0	0	0	6.15	3	18.45	0%
FIRST FLOOR								
North	W	2.4	5	12	18.94	2.85	53.979	22%
North East	W	2.4	9	21.6	42.72	2.85	121.752	18%
West	W	2.4	7	16.8	31.74	2.85	90.459	19%
West	V	0.71	1	0.71				
South west	W	2.4	8	19.2	33.6	2.85	95.76	20%

Calculation of window-to-wall ratio

SECOND FLOOR								
North	W	2.4	5	12	18.94	2.85	53.979	22%
North East	W	2.4	9	21.6	42.72	2.85	121.752	18%
West	W	2.4	7	16.8	31.74	2.85	90.459	19%
West	V	0.71	1	0.71				
Southwest	W	2.4	8	19.2	33.6	2.85	95.76	20%

THIRD FLOOR								
North	W	2.4	5	12	18.94	2.85	53.979	22%
North East	W	2.4	12	28.8	42.72	2.85	121.752	24%
West	W	2.4	7	16.8	31.74	2.85	90.459	19%
West	V	0.71	1	0.71				
Southwest	W	2.4	8	19.2	33.6	2.85	95.76	20%

FOURTH FLOOR								
North	W	2.4	5	12	18.94	2.8	53.032	23%
North East	W	2.4	12	28.8	42.72	2.8	119.616	24%
West	W	2.4	7	16.8	31.74	2.8	88.872	20%
West	V	0.71	1	0.71				
South west	W	2.4	8	19.2	33.6	2.8	94.08	20%