

SCHOOL OF BUILDING AND ENVIRONMENT
DEPARTMENT OF ARCHITECTURE
PROFESSIONAL TRAINING REPORT FORMAT GUIDELINES

Sequence of the **A3 Formats** to be bounded in the Practical Training Report

Title Page –	Refer Annexure - I
Bonafide Certificate –	Refer Annexure - II
Declaration –	Refer Annexure – III
Acknowledgements – Order of names to be acknowledged -	Refer Annexure – IV
Confirmation letter	Annexure – V
Joining Letter	Annexure – VI
Weekly Report (Xerox copy of 2 weeks in one A3 sheet)	Annexure – VII
Work diary	Refer Annexure – VIII
Consolidated Certificate (Experience)	Annexure – IX
Table of Contents with page numbers	Refer Annexure – X

Note: Bring the original copy of the following

- **Letter of consent to appoint you as a trainee**
- **Confirmation letter, Joining Letter, Monthly Report, Consolidated Certificate**

PROFESSIONAL TRAINING REPORT

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

by

SHALINI.S - 39890017



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

SATHYABAMA
INSTITUTE OF SCIENCE AND TECHNOLOGY
(DEEMED TO BE UNIVERSITY)
Accredited with Grade "A" by NAAC
JEPPIAAR NAGAR, RAJIV GANDHI SALAI, CHENNAI - 600 119

JUNE 2019



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)**

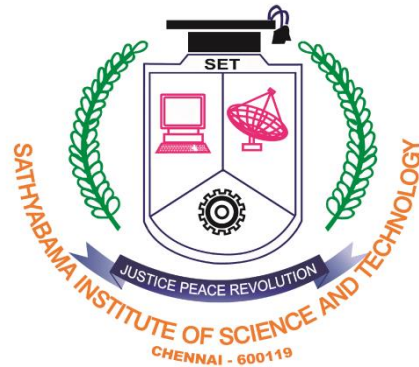
PROFESSIONAL TRAINING PORTFOLIO S89 INT

Name of the Student : Shalini S

Semester : III

Reg No. : 39890017

Batch : 2019-2021



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)

BONAFIDE CERTIFICATE

This is to certify that the professional training is the work of **Shalini.S - 39890017** who had undergone training in **GREEN SKETCH CONSULTANTS** and has been monitored by the continuous assessment during **Dec 07 2020 to Jan 20 2021.**

DR.DEVYANI GANGOPADHYAY

DEAN,

School of Building and

Environment

Department of Architecture

Submitted for Viva voce Examination held on Sheetal.A.

Internal Examiner

External Examiner



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



DECLARATION

I **SHALINI.S** hereby declare that the Professional Training Report **DEC 07 2020 – JAN 20 2021** done by me under the guidance of **Ar. KRITHIKHA MUTHUKRISHANAN** is submitted in partial fulfillment of the requirements for the completion of practical training session.

DATE :

PLACE :

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.Krithikha ,Green Sketch Consultants** for her valuable guidance, suggestions and constant encouragement paved way for the successful completion of my project work. My sincere thanks to **Ar.Sheetal Kalamkar**, Professional Training Coordinator for her motivation.

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 Architect of the firm)_____ **(Architect's or PM'S name, Firm Name, Address)**

(Family and Others) _____

JOINING LETTER

To,

The Head of the Department,
Sathyabama Institute of Science and Technology,
Chennai - 600 119,
Tamil Nadu.

Subject : Joining letter for internship programme.

Respected Madam,

This is to inform Shalini.S (CA/2020/118779) bearing reg no: 39890017 pursuing 3rd semester M.Arch - Sustainable Architecture, Department of Architecture, Sathyabama Institute of Science and Technology, has joined our firm as an intern for her internship program for the academic year 2020-2021 (Dec 7 2020 onwards).



Regards and Thanks ,
Krithikha Muthukrishnan
Partner & Principal Consultant,
GREENSKETCH
Green Sketch Consultants
Chennai 600097



Date: 20 Jan 2021

CONSOLIDATED CERTIFICATE (EXPERIENCE)

To,

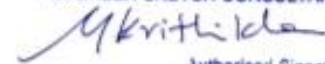
The Head of the Department,
Department of Architecture
Sathyabama Institute of Science and Technology,
Chennai - 600 119,
Tamil Nadu

Subject: Trainee confirmation for Dec 2020 to Jan 2021

Respected Madam,

This is to certify that Shalini.S (CA/2020/118779) bearing reg no: 39890017 pursuing 3rd semester M.Arch - Sustainable Architecture, Department of Architecture, Sathyabama Institute of Science and Technology, has successfully completed one month long professional training working in our firm. She was associated as an intern for the period of 31 days between (Dec-7 2020 to Jan-20 2021).
She excelled in her work as a trainee in our firm during her period of work.

For GREEN SKETCH CONSULTANTS



Authorised Signatory

Thanks & Regards
Krithikha Muthukrishnan
Partner & Principal Consultant,
Green Sketch Consultants



ABOUT THE FIRM:

Green Sketch Consultants is a green building design and consultancy firm that aims to provide cutting edge sustainability solutions and services in the industry of sustainable development. To create a green building design process that is simple, approachable and effective. They help in building certification to various projects globally.



Our Green Design services help you enhance your building in the following ways

- Reduced power/fuel consumption which translate into immediate cost savings
- Reduced water consumption and wastage
- Selecting the right materials for use in your buildings which enhance its thermal and aesthetic performance.
- Enhancing the built environment with natural daylight, fresh air and making the building and enjoyable space to live, work and play
- Improving the construction process by best management practices which reduces wastage
- Syncing with the outdoor environment, the site and the community at large.

Green Sketch® Provides Green Building Design services for the following types of buildings

- New buildings, building renovations and upgrades,
- New interiors,

- Individual Homes and Apartments complexes
- Schools and other institutional buildings
- Healthcare buildings
- Townships and neighborhoods
- Other specific and/or multipurpose buildings

BUILDING SIMULATION AND ANALYSIS

Energy and Water-Efficiency analysis

Take advantage of our specific services in energy modeling and simulation and water use analysis to develop the best design at a low cost. Energy simulations are conducted by Green Sketch by taking into account various factors such as real weather conditions, shape and actual materials used in the building and so on. These simulations can help to visualize the actual performance of the design as well as help in making key decisions over green conservation measures.

Our Various services include-

- Complete Building Energy Simulation
- Energy analysis for Energy conservation measures
- Daylighting analysis
- Artificial Lighting analysis
- Shading analysis and Design
- Fenestration analysis and Design
- Water use calculations

JIPMER- PONDICHERRY (INTERNATIONAL BOYS HOSTEL)

SVAGRIHA PROJECT



- SVAGRIHA will be applicable only for projects which are less than 2500 sq.m. built-up area.
- The rating system has 14 criteria.
- The criteria are divided into 5 broad sub-groups namely:
 - 1) architecture & energy,
 - 2) water & waste,
 - 3) materials,

- 4) landscape and
- 5) lifestyle.

- It will be mandatory to attempt certain points under each sub-group. This has been listed on a later page.
- The total points that a project can achieve are 50.
- The rating will be done on a 1-5 star scale.

Sub-Group	Maximum points	Minimum points to be achieved
Landscape	6	3
Architecture & Energy	21	11
Water & waste	11	6
Materials	8	4
Lifestyle	4	1

Points achieved	SVAGRIHA Rating
25-29	★
30-34	★ ★
35-39	★ ★ ★
40-44	★ ★ ★ ★
45-50	★ ★ ★ ★ ★

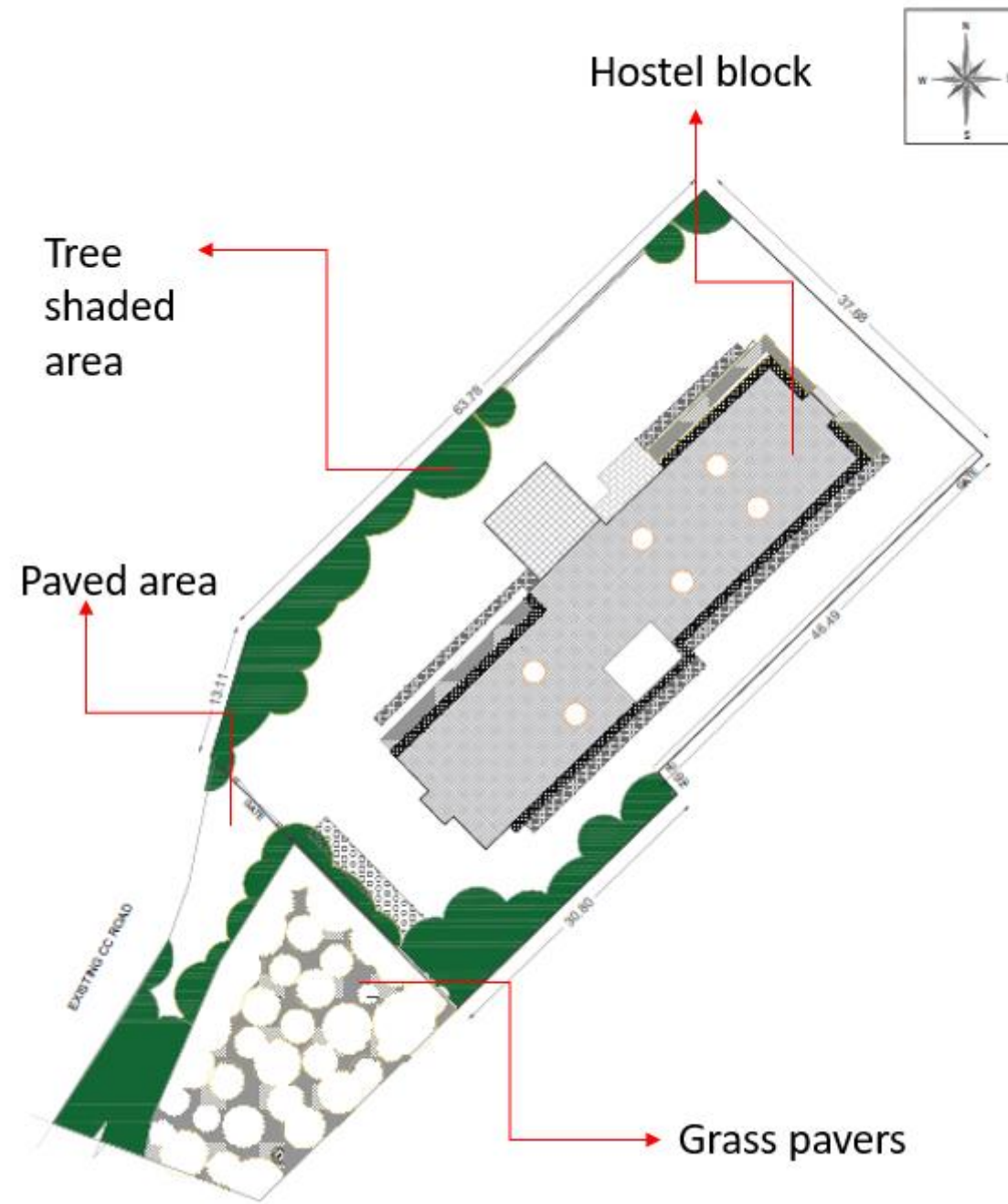
The given tabular column shows the list of criteria's and the star rating based on points achieved by the building.

A detailed classification of each criteria is further explained in a tabular column.

Criterion number	Criterion name	Points
1	Reduce exposed, hard paved surface on site and maintain native vegetation cover on site	6
2	Passive architectural design and systems	4
3	Good fenestration design for reducing direct heat gain and glare while maximising daylight penetration	6
4	Efficient artificial lighting system	2
5	Thermal efficiency of building envelope	2
6	Use of energy efficient appliances	3
7	Use of renewable energy on site	4
8	Reduction in building and landscape water demand	5
9	Rainwater harvesting	4
10	Generate resource from waste	2
11	Reduce embodied energy of building	4
12	Use of low-energy materials in interiors	4
13	Adoption of green Lifestyle	4
14	Innovation	2
Total		50

CRITERIA 1:

Reduce exposed hard paved surface on site and maintain native vegetation cover on site



Criterion 1

▼

▶ Reduce exposed hard paved surface on site and maintain native vegetation cover on site

Points Attempted

▶ 6

Maximum Points

▶ 6

Points Awarded

▶

Calculate

1. Urban Heat Island Effect

Total site area of the project	▶	3886.00	(sq.m.)
Building Footprint	▶	787.00	(sq.m.)
Total area under garden/landscape	▶	646.00	(sq.m.)
Total paved area	▶	2453	(sq.m.)
Total paved area on your site which has soft paving (like grass pavers etc.) or is shaded by trees/ pergolas/any other or is a combination of both	▶	1228.00	(sq.m.)

The GRIHA project login for JIPMER - PONDICHERRY is the above image for the criteria 1.

2. Tree Cover

Are there existing mature trees on your site?	▶	Yes	▼
How many mature trees exist on your site?	▶	10	
How many of these trees are in the perimeter zone of your site?	▶	6	
Are you protecting all the trees in the perimeter zone?	▶	Yes	▼
How many trees are you cutting in your site?	▶	10	
Are you planting new trees?	▶	Yes	▼
Enter the total number of new trees being planted	▶	40	
Are all new trees planted on site native/naturalised?	▶	Yes	▼

CRITERIA 2:

1. Passive Design Strategies:

- Cool Roofs
- Internal distribution of spaces to be carried out such as, toilets, store rooms staircase.

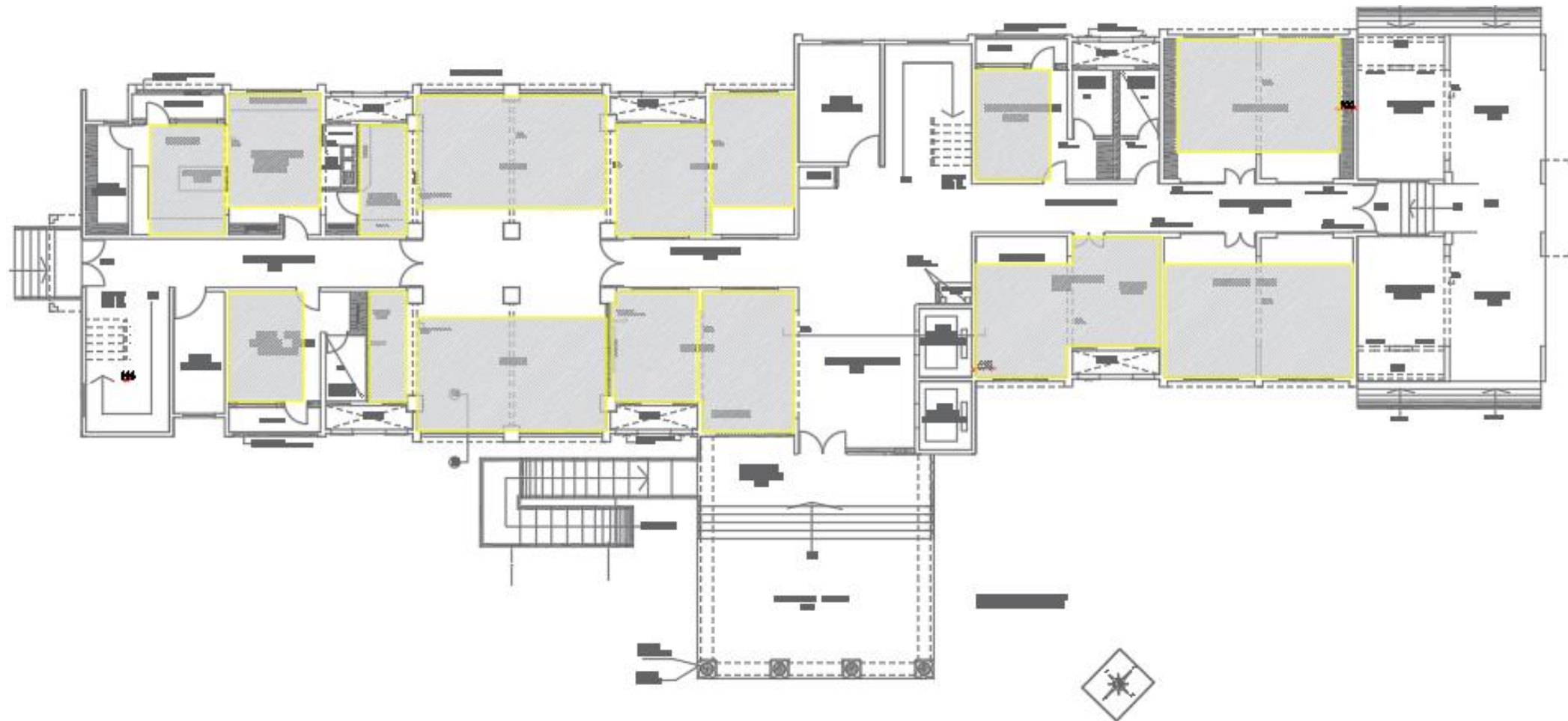
2. Active, low energy heating/cooling system

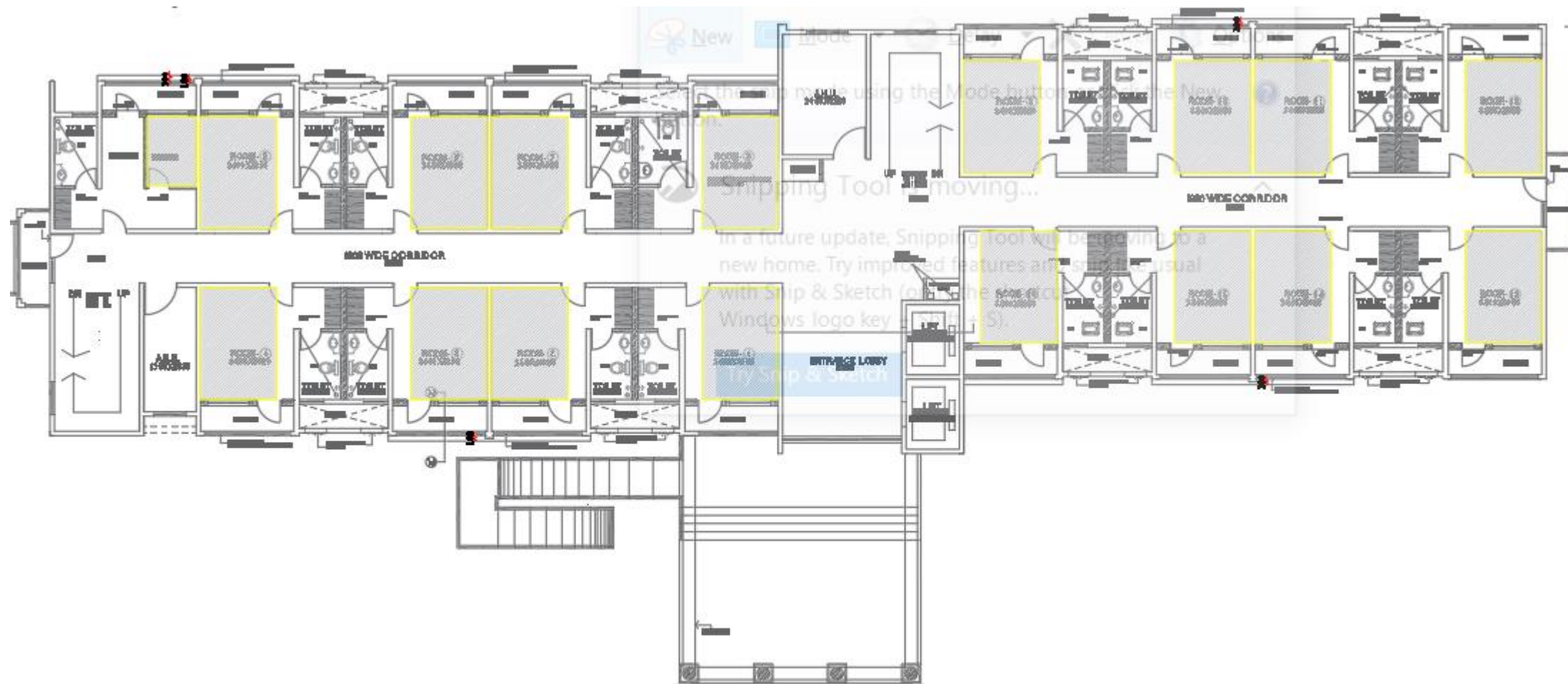
- There is no such system followed in the

CRITERIA 3 :

Good fenestration design for reducing direct heat gain and glare while maximising daylight penetration

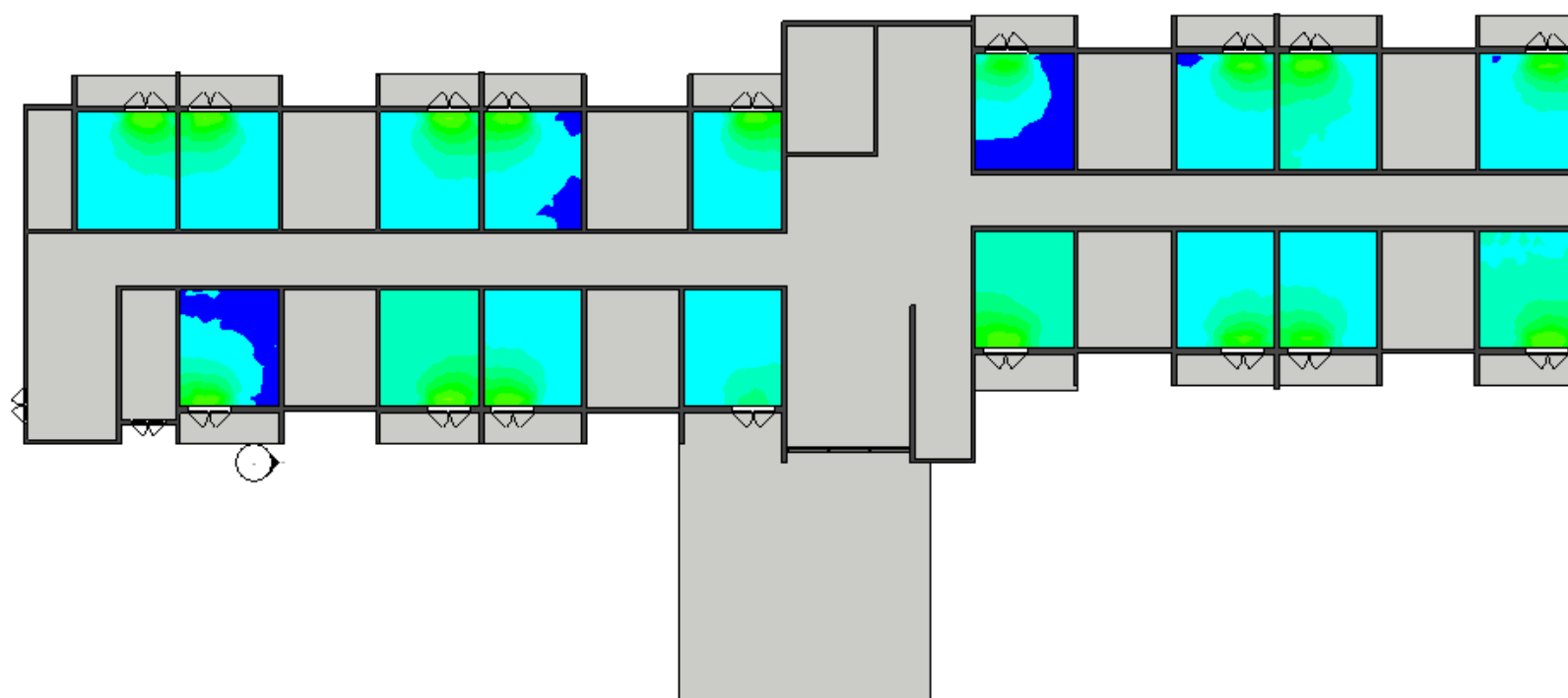
GROUND FLOOR DAY LIT ZONES:



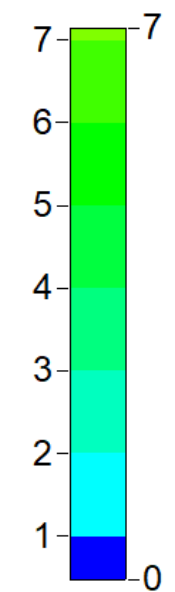


FIRST FLOOR PLAN
AREA :693.28 SQM

FIRST FLOOR



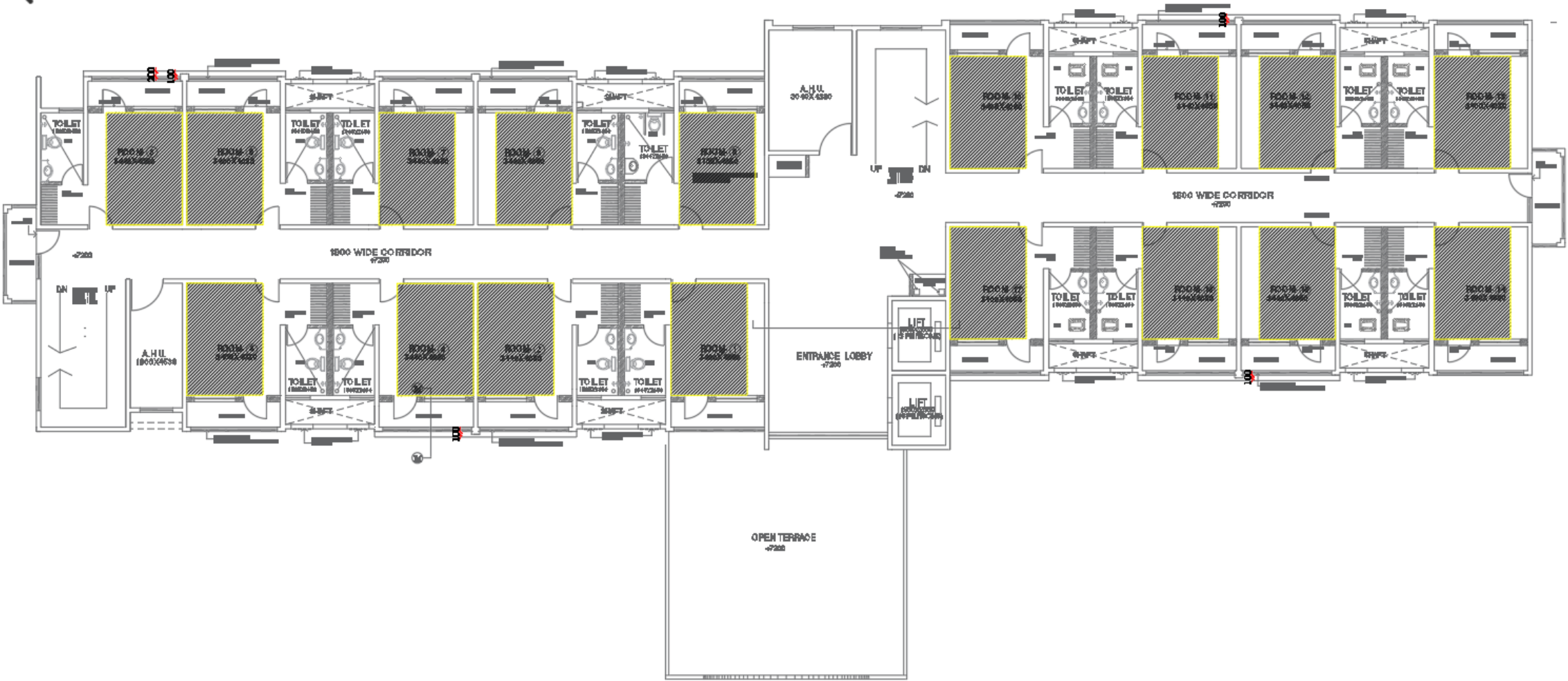
(Percent)



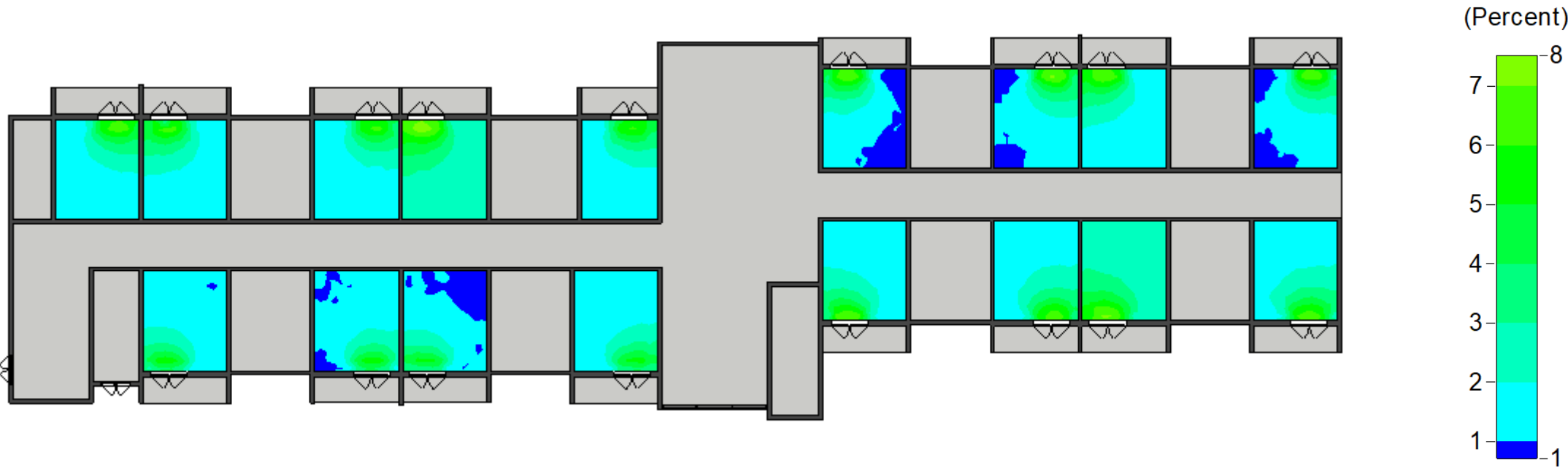
Results of Lighting Analysis

Lighting Daylight Factor

TYPICAL FLOOR



SECOND FLOOR PLAN
AREA :693.28 SQM



The above simulations are been proceeded in REVIT and daylit zones are marked up in CAD , as per ECBC standards. The total percentage of daylit zone is being calculated.

Floor	Room	Typical	Area (sq.m.)	Daylight Area (sq.m.)	
Ground Floor	Waiting Hall	1	31.72	31.72	Edit Delete
Ground Floor	Dining hall	1	116.60	86.38	Edit Delete
Ground Floor	Kitchen	1	16.90	14.20	Edit Delete
Ground Floor	Preparation	1	14.03	11.30	Edit Delete
Ground Floor	kitchen staff	1	13.80	11.30	Edit Delete
Ground Floor	Reading room	1	36.40	29.50	Edit Delete
Ground Floor	Indoor games room	1	31.60	28.09	Edit Delete
Ground Floor	office room	1	31.05	25.03	Edit Delete
First Floor	Pantry	1	4.46	4.46	Edit Delete
First Floor	Room Type-1	7	13.80	11.32	Edit Delete
First Floor	Room type-2	8	14.03	11.32	Edit Delete
Second Floor	Room Type-1	7	13.80	11.32	Edit Delete
Second Floor	Room type-2	9	14.03	11.32	Edit Delete
First Floor	PH room	1	12.60	11.32	Edit Delete
Second Floor	PH room	1	12.60	11.32	Edit Delete
Third Floor	Room Type-1	7	13.80	11.32	Edit Delete
Third Floor	Room type-2	9	14.03	11.32	Edit Delete
Third Floor	PH room	1	12.60	11.32	Edit Delete

Total Living Area (sq.m.)	988.94
Total Daylight Zone Area (sq.m.)	807.98
Percentage of living area falling under Daylight zone	81.70

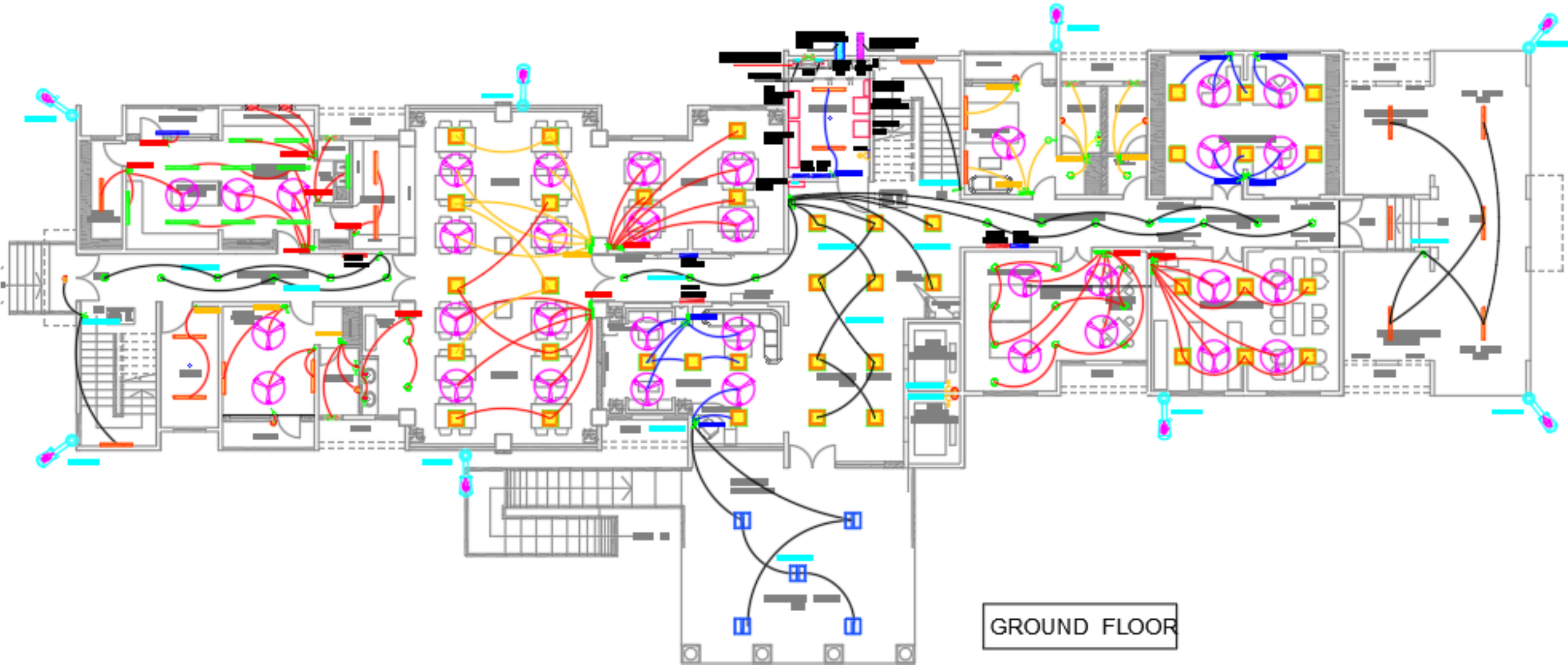
CRITERIA 4:

Efficient Artificial Lighting System

Floor	Name of Room	Typical	Area (sq.m.)	Total Wattage
Ground Floor	entrance lobby	1	56.19	360.00
Ground Floor	waiting hall	1	31.72	144.00
Ground Floor	kitchen staff room	1	20.80	60.00
Ground Floor	A.H.U room	1	9.78	40.00
Ground Floor	pantry	1	7.10	40.00
Ground Floor	kitchen	1	30.93	180.00
Ground Floor	store	1	6.36	20.00
Ground Floor	EB room	1	13.30	40.00
Ground Floor	indoor games room	1	31.60	144.00
Ground Floor	Reading room	1	36.40	216.00
Ground Floor	office room	1	31.00	216.00
Ground Floor	hostel in charge room	1	27.50	116.00
Ground Floor	corridor & stair case	1	92.20	244.00
Ground Floor	dining hall	1	124.40	548.00
First Floor	entrance lobby	1	56.19	360.00
First Floor	room type1	7	19.94	94.00
First Floor	room type 2	8	20.17	94.00
First Floor	corridor & stair case	1	115.90	232.00
First Floor	pantry	1	21.05	104.00
First Floor	A.H.U room	2	11.50	40.00
Second Floor	room type1	7	19.94	94.00
Second Floor	room type 2	9	20.17	94.00
Second Floor	ph room	1	18.74	94.00
Second Floor	staircase & corridor	1	115.90	252.00
Second Floor	entrance lobby	1	56.19	360.00
Second Floor	A.H.U room	2	11.50	40.00

Third Floor	entrance lobby	1	56.19	360.00
Third Floor	A.H.U room	2	11.50	40.00
Third Floor	corridor & stair case	1	115.90	252.00
Third Floor	room type1	7	19.94	94.00
Third Floor	room type 2	9	20.17	94.00
Third Floor	ph room	1	18.74	94.00

Total Building Area (sq.m.)	2106.24	Design case LPD (watt/sqm)	4.34
Total lighting load (watt)	9134.00	Base case LPD (watt/sqm)	10.80



CRITERIA 5:

Thermal Efficiency of Building Envelope

The intent of this criterion is to design the buildingenvelope, external wall sections and select construction materials such that the overall heat gain through the building envelope is within acceptable limits, thereby reducing the energy consumption required by the HVAC system and/or induced thermal comfort.

Criterion 5

▶ Thermal Efficiency of Building Envelope

Points Attempted

▶ 2

Maximum Points

▶ 2

Points Awarded

▶

Initial Benchmark

▶ 275.00

Final Benchmark

▶ 350.00

Final Efficiency

▶ 855.92

Building

50nos international students hostel at jipmer campus pondicherry

Residential

Total built-up area (sq.m.)

2446.00

City	Pondicherry	Floor-to-Floor Height (m.)	3.00
Volume (cu.m.)	7338.00	People	75
AC / Non AC	Air Conditioned	Result in	sq.ft./TR 855.92

CRITERIA 6:

Use of Energy Efficient Appliances

This is to ensure that all the appliances used in the building are all energy efficient and energy star rated.

The equipment such as fans, Air conditioner and Geyser are the mandatory checks for energy rated appliances. In JIPMER – Pondicherry International Boys Hostel, none o the appliances are star rated .

This criteria has 0 points.

CRITERIA 7:

Use of Renewable Energy on Site

Solar Panels & Solar Heater has 2 points for each. Since there is no solar panelson site and the building. The points achieved here is 0.

2. Solar Water Heater

Hostel

Is building used for office purpose	☐
Unit Detail	30 lpd/student
No. of Units in your project	6.00
Capacity of hot water system installed	1000.00

The provision of 6 solar water heater, itself satisfies the allotted number of points for this criteria alone.

CRITERIA 8:

Reduction in Building and Landscape Water Demand

1. Landscape Water Demand

Area under grass	232.00 (sq.m.)	Design Case landscape water requirement (L)	245.20
Area under shrubs	33.00 (sq.m.)	Base Case landscape water demand (L)	842.00
Area under exotic species	0.00 (sq.m.)	Reduction in landscape water demand (in %)	70.88
Area under native/naturalised trees	577.00 (sq.m.)		
Area under trees on podium	0.00 (sq.m.)		

The GRIHA online calculator helps by calculating the areas of respective and the reduction of water for landscape water.

Building Water Demand

The building water demand has yet to be classified based on the flow rate of the water closet and other toilet fixtures.

CRITERIA 9:

Rainwater Capturing:

This criterion helps in categorizing rain water collection and storage capacity and calculated wether it satisfies to the point of using it , incase of emergency.

Total building water requirement over 2 days (litre)	13500.00
Total water collected from roof in 2 days (litre)	85652.00
Size of the rainwater harvesting tank (litre)	270000.00

2. Rainwater Recharging

Is recharge advisable as per Central Ground Water Board norms	▶	Yes ▼
Are you recharging rainwater into the groundwater aquifer	▶	Yes ▼
Is there a filtration system to filter rainwater before it gets recharged into the groundwater aquifer?	▶	Yes ▼

CRITERIA 10:

Generate Resource from Waste

This criterion has been satisfied as the JIPMER campus is utilizing strategy to convert organic waste into manure.

CRITERIA 11

Reduce Embodied Energy of Building

Reduce the overall embodied energy of building structure and reduce the use of OPC.

TOTAL WALL AREA	4788.8
PRE FAB WALL	4788.8

FLOORING	GROUND FLOOR	FIRST FLOOR	SECOND FLOOR	THIRD FLOOR	total area
COMMON AREA GRANITE	121.06	140.23	140.23	140.23	
ROOMS - VERTIFIED TILE	344.02	288.41	289.01	289.01	
TOILET - ANTI SKID TILE	13.74	65.2	65.2	65.2	
	478.82	493.84	494.44	494.44	1961.54

- 1.The overall embodied energy of the floor slabs, roof slabs and walls is reduced by 5% or more over the base case - 1 point.
2. The overall embodied energy of the floor slabs, roof slabs and walls is reduced by 10% or more over the base case - 2 points

2. Reduction in embodied energy

Floor

Total area of all floor slabs	▶ 2446.00 (sq.m.)	Design Case	▶ 1785580
Total floor slab area with low-energy materials	▶ 0.00 (sq.m.)	Base Case	▶ 5257460
Identify from the list, the low-energy roof composition used	▶ RCC slab ▼	Reduction in embodied energy	▶ 66.04

Wall

How many different types of walls do you have in your building ?	▶ 1 ▼
Total wall area	▶ 4788.80 (sq.m.)
Wall 1 Details	
Total wall area with low-energy materials	▶ 4788.80 (sq.m.)
Identify from the list, the low-energy wall composition used	▶ AAC blocks 200 ▼ astered on both sides

CRITERIA 12:

Use of Low - Energy Materials in Interiors

FALSE CEILING	GROUND FLOOR	FIRST FLOOR	SECOND FLOOR	THIRD FLOOR	total area	
	449.19	456.43	462.23	462.23	1830.08	
PANELLING						
TOILET DADO TILES(Length X 2.1m)	13.74	138.95	138.95	138.95	430.59	904.239
WALL TILES (Length X 2.1m)	175.3	161.24	161.24	161.24	659.02	1383.942
ROOM SKIRTING (Length X 0.1m)	140.4	292.96	293.36	293.36	1020.08	102.008
						2390.189

The intent of the criterion is to promote the use of low-energy materials in interiors and to maintain indoor air quality through the use of low-VOC and lead-free paints.

CRITERIA 13:
Adoption of Green Lifestyle

Adoption of green lifestyle in order to reduce the carbon footprint of building occupants.

2. Passenger Distance Travelled			Building Type
			Residential
Amenities	No. of trips in a Year	Distance to each (in km.)	Total Distance travelled in a year per amenity
Grocery Store *	182	0.50	182.00
ATM / Bank *	52	0.40	41.60
Park *	365	0.55	401.50
Pharmacy *	24	1.10	52.80
Restaurant	52	0.30	31.20
Community Center	52	0.55	57.20
Metro Station	220		0.00
Threatre	52		0.00
Gym	365	1.20	876.00
School	200	0.70	280.00
Place of Worship	104	0.70	145.60
Total Distance travelled in a year			2067.9

CRITERIA 14:

Innovation:

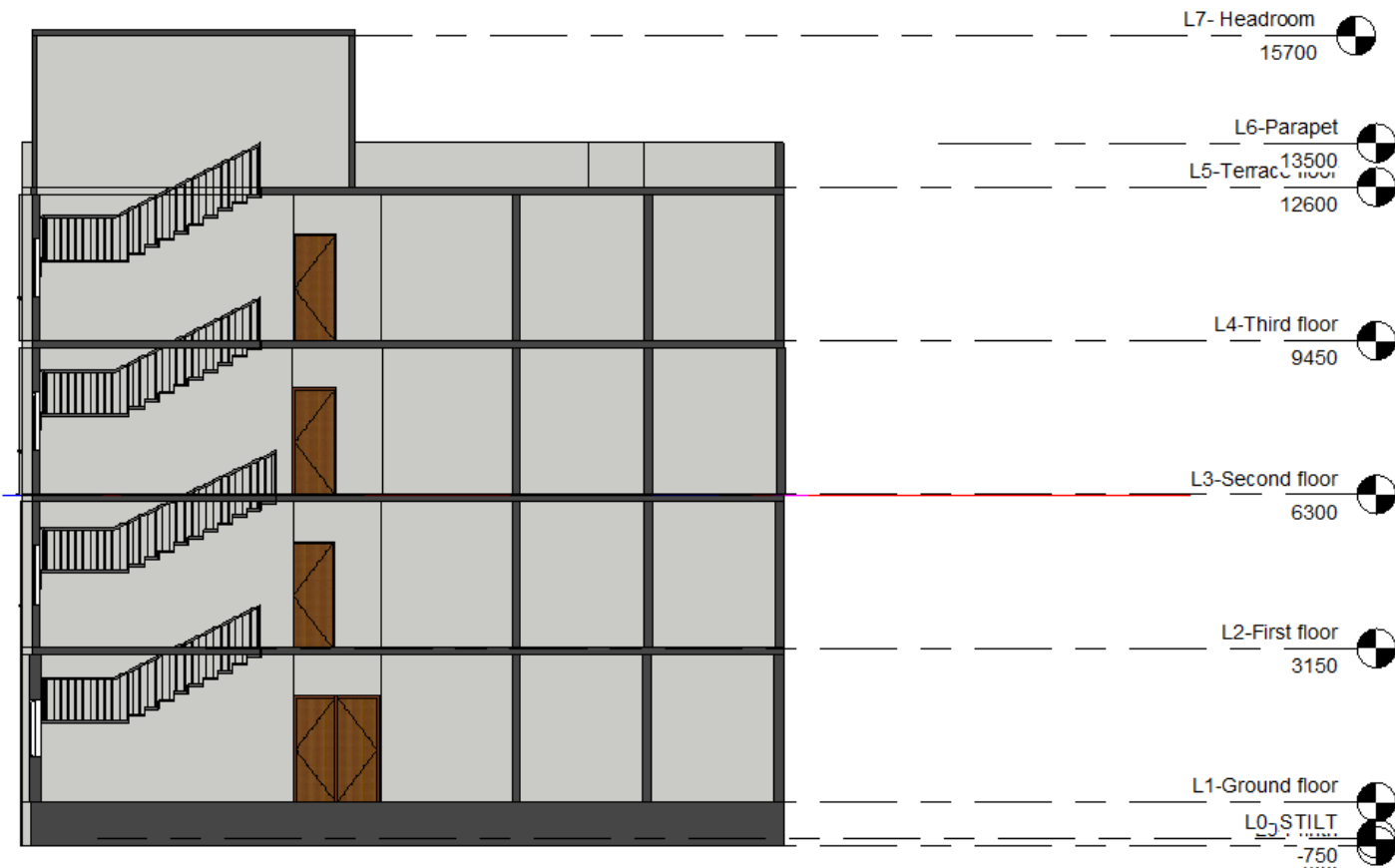
The intent of awarding points for innovation is to reward additional measures adopted by the project which have not been covered in the previous 13 criteria.

Innovation

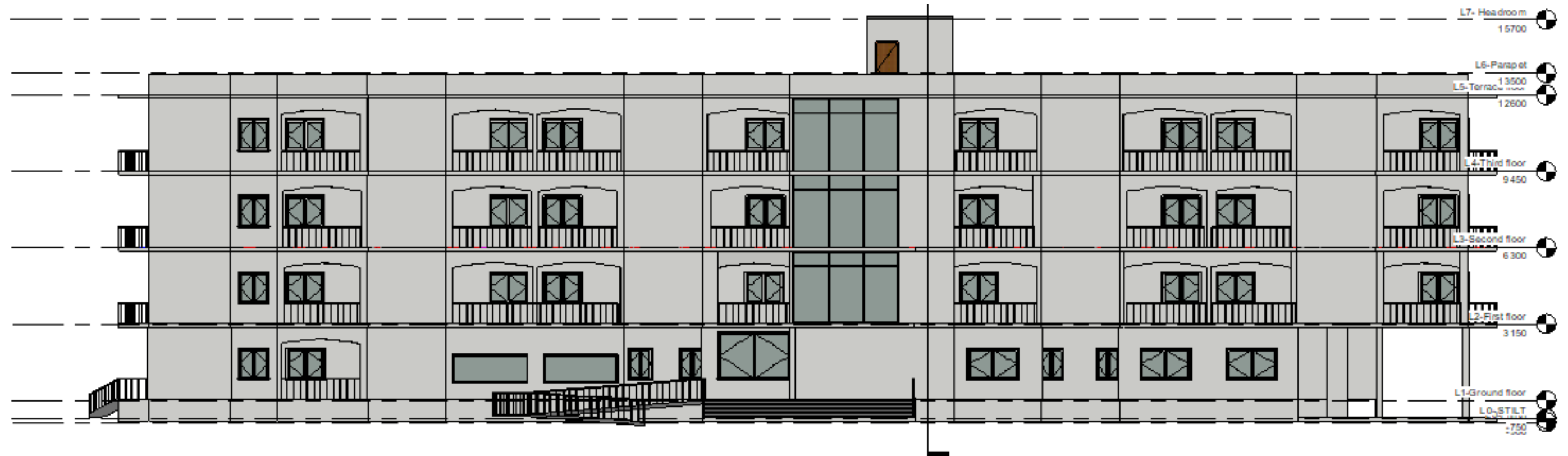
Have you adopted any strategies not mentioned in the previous 13 criteria to make your project more sustainable		Yes
Innovation 1	☒	recharge points for vehicles
Innovation 2	☒	physical and visually impaired

- In innovation criteria, they have allotted recharge vehicle points for vehicles, an initiative to e-vehicle systems. Also the design is completely barrier free design with provision for lift, ramps, tactile tile for visually impaired people.
- Separate room for physically challenged along with that PH toilets.

ELEVATION, SECTION & VIEWS:



L7-Headroom
157.00



CATEGORY	LANDSCAPE	ARCHITECTURE & ENERGY	WATER & WASTE	MATERIALS	LIFE STYLE		
THRESHOLD MET						TOTAL POINTS	40

No	Criterion Name	Maximum Points	Points Attempted	Status	
01	Reduce exposed hard paved surface on site and maintain native vegetation cover on site	6	6	Submitted at client	Feedback
02	Passive Architectural Design and Systems	4	2	Submitted at client	Feedback
03	Good fenestration design for reducing direct heat gain and glare while maximising daylight penetration	6	3	Submitted at client	Feedback
04	Efficient Artificial Lighting System	2	2	Submitted at client	Feedback
05	Thermal Efficiency of Building Envelope	2	2	Submitted at client	Feedback
06	Use of Energy Efficient Appliances	3	0	Pending at Client level	Feedback
07	Use of Renewable Energy on Site	4	2	Submitted at client	Feedback
08	Reduction in Building and Landscape Water Demand	5	5	Submitted at client	Feedback
09	Rainwater Harvesting	4	4	Submitted at client	Feedback
10	Generate Resource from Waste	2	2	Submitted at client	Feedback
11	Reduce Embodied Energy of Building	4	2	Submitted at client	Feedback
12	Use of Low - Energy Materials in Interiors	4	4	Submitted at client	Feedback
13	Adoption of Green Lifestyle	4	4	Submitted at client	Feedback
14	Innovation	2	2	Submitted at client	Feedback

Note : Project can only be submitted to GRIHA Council, after all the criteria are submitted and they meet the compliance and all the project documents are uploaded (Number of document should be equal to number of templates).

