

PROFESSIONAL TRAINING REPORT

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

by

ARKIP STELIN D (39890002)

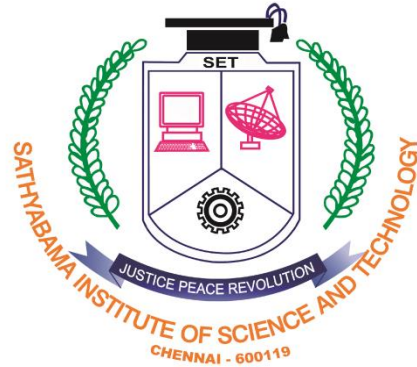


SCHOOL OF BUILDING AND ENVIRONMENT
DEPARTMENT OF ARCHITECTURE

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

DEC 2020

(Annexure I)



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)
DEC 2020**

Name of the Student	: Arkip stelin D	Semester	: III
Reg No.	: 39890002	Batch	: 2019-2021

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E-mail: archhod@sathyabama.ac.in

DEPARTMENT OF ARCHITECTURE

M. Arch (Sustainable Architecture)

BONAFIDE CERTIFICATE

This is to certify that the professional training (S89 INT) is the work of **ARKIP STELIN D (39890002)** who had undergone training in **Earthonomic Engineers Private Limited in Adyar, Chennai** and has been monitored by the continuous assessment during **Dec 2020 to Jan 2021**

DR. DEVYANI GANGOPADHYAY

DEAN,

School of Building and Environment

Department of Architecture

Submitted for Viva voce Examination held on _____



Internal Examiner

External Examiner

(Annexure III)

SATHYABAMA

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

E-mail: archhod@sathyabama.ac.in



DECLARATION

I **ARKIP STELIN D** hereby declare that the Professional Training Report (**Dec 2020 to Jan 2021**) done by me under the guidance of **Mr. Girish R Visvanathan (Director of Earthonomic Engineers Private Limited)** is submitted in partial fulfillment of the requirements for the completion of practical training session.

DATE : 01-10-2021

A handwritten signature in black ink, appearing to read 'Arkip Stelin D', on a white background.

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 **Mr. Girish R Visvanathan** (**Director of Earthonomic Engineers Private Limited**) for his 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, thanks to **Mr. Siva Sankaran.R** (MANAGER-TECHNICAL) and **Mr. Prabhakaran.S** (MANAGER-TECHNICAL) for the guidance during this internship.

Earthnomic Engineers Private Limited
Registered office: F2 Ashok Castle, 47, 12th Avenue
Ashok Nagar, Chennai – 600083
Email: info@earthnomic.com
Website: www.earthnomic.com
GSTIN: 33AAFCE2933A1ZA



To

The Head of the Department,
Sathyabama Institute of Science and Technology
Rajiv Gandhi Salai, Jeppiaar Nagar,
Chennai - 600119,
Tamil Nadu.

Subject: Trainee Confirmation for Dec 2020 to Jan 2021

Respected Madam,

I Sivasankaran.R accept Arkip stelin D bearing reg.no 39890002 Pursuing 3rd semester M.Arch Department of Architecture in Sathyabama Institute of Science and Technology as an intern and Confirm his internship program with us for the period of one month (December 2020 to January 2021).

For Earthnomic Engineers Pvt. Ltd.

Regards and Thanks,
Authorized Signatory

Sivasankaran.R

(Manager - Technical)

Earthnomic Engineers Private Limited

Adyar, Chennai - 600020.



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Ashok Nagar, Chennai – 600083
Email: info@earthnomic.com
Website: www.earthnomic.com
GSTIN: 33AAFCE2933A1ZA



To

The Head of the Department,
Sathyabama Institute of Science and Technology
Rajiv Gandhi Salai, Jeppiaar Nagar,
Chennai - 600119,
Tamil Nadu.

Subject: Joining letter for internship program.

Respected Madam,

This is to inform Arkip stelin D bearing reg.no 39890002 Pursuing 3rd semester M.Arch Department of Architecture in Sathyabama Institute of Science and Technology, has joined our office as an intern for his internship program for the academic year 2020-2021 (11th December onwards) .

For Earthnomic Engineers Pvt. Ltd.

Regards and Thanks,
Authorized Signatory

Sivasankaran.R

(Manager – Technical)

Earthnomic Engineers Private Limited

Adyar, Chennai - 600020



Registered Office: F2 Ashok Castle, 47, 12th Avenue, Ashok Nagar, Chennai, Tamilnadu 600083

Business Office : B4, Yamuna Apartments, 4th Street, Parameshwari Nagar, Adyar, Chennai - 600020

Registered Office: F2 Ashok Castle, 47, 12th Avenue, Ashok Nagar, Chennai, Tamilnadu 600083

Business Office : B4, Yamuna Apartments, 4th Street, Parameshwari Nagar, Adyar, Chennai - 600020



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Phone: 044 - 2450 3150 / 3151 / 3152 / 3154 / 3155 Fax: 044 - 2450 2344

www.sathyabama.ac.in



DEPARTMENT OF ARCHITECTURE - M. Arch (Sustainable Architecture)

Professional training Report 2021

(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 in charge of the organisation)

1. Name of the Office / Organization: **EARTHONOMIC ENGINEERS**

2. Address and contact number: Yamuna B4, 4th St, Parameshwari Nagar,
Adyar, Chennai – 600020.
+91 6379181440, 4479635984

3. Name of the Student: ARKIP STELIN D

4. Duration: From 19.1.2021 To 23.1.2021

5. Total number of days: 5

6. Evaluation of performance criteria shall be on

(Note: Kindly grade the student as per his overall performance in the office during the assessment month, which will be converted to the allotted 40 marks by the department.)

Description of works	Excellent	Good	Fair	Poor	NA
Understanding of office culture	✓				
Participation in the office	✓				
Reading of drawings	✓				
Presentation techniques		✓			
Model making works	✓				
Understanding of construction works		✓			
Drafting skills (Manual / Computer)		✓			
Site supervision / Discussion with clients	✓				
Adherence to time schedule		✓			
Other computer skills	✓				
File and office maintenance	✓				
Coordination with other consultants		✓			

Overall Grading:

'A'

(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)

R. Prithvi
Chennai
600 083
Earthonomic Engineers Pvt. Ltd.



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2. Address and contact number: Yamuna B4, 4th St, Parameshwari Nagar,
Adyar, Chennai – 600020.
+91 6379181440, 4479635984

3. Name of the Student: ARKIP STELIN D

4. Duration: From 28.12.2020 To 2.1.2021

5. Total number of days: 5

6. Evaluation of performance criteria shall be on

(Note: Kindly grade the student as per his overall performance in the office during the assessment month, which will be converted to the allotted 40 marks by the department.)

Description of works	Excellent	Good	Fair	Poor	NA
Understanding of office culture	✓				
Participation in the office		✓			
Reading of drawings		✓			
Presentation techniques		✓			
Model making works	✓				
Understanding of construction works		✓			
Drafting skills (Manual / Computer)		✓			
Site supervision / Discussion with clients				✓	✓
Adherence to time schedule				✓	
Other computer skills		✓			
File and office maintenance		✓			
Coordination with other consultants					✓

Overall Grading:

'B'

(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):

R. Prithvi
Chennai
600 083
Earthonomic Engineers Pvt. Ltd.



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Professional training Report 2021

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1. Name of the Office / Organization: **EARTHONOMIC ENGINEERS**

2. Address and contact number: Yamuna B4, 4th St, Parameshwari Nagar,
Adyar, Chennai – 600020.
+91 6379181440, 4479635984

3. Name of the Student: ARKIP STELIN D

4. Duration: From 11.12.2020 To 19.12.2020

5. Total number of days: 8

6. Evaluation of performance criteria shall be on

(Note: Kindly grade the student as per his overall performance in the office during the assessment month, which will be converted to the allotted 40 marks by the department.)

Description of works	Excellent	Good	Fair	Poor	NA
Understanding of office culture	✓	✓			
Participation in the office	✓	✓			
Reading of drawings	✓	✓			
Presentation techniques	✓	✓			
Model making works	✓	✓			
Understanding of construction works		✓			
Drafting skills (Manual / Computer)		✓			✓
Site supervision / Discussion with clients			✓		
Adherence to time schedule		✓			
Other computer skills		✓			
File and office maintenance		✓			✓
Coordination with other consultants					✓

Overall Grading:

B

(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):

R. Prakashan
Chennai
600 083



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DEPARTMENT OF ARCHITECTURE - M. Arch (Sustainable Architecture)

Professional training Report 2021

(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 in charge of the organisation)

1. Name of the Office / Organization: **EARTHONOMIC ENGINEERS**

2. Address and contact number: Yamuna B4, 4th St, Parameshwari Nagar,
Adyar, Chennai – 600020.
+91 6379181440, 4479635984

3. Name of the Student: ARKIP STELIN D

4. Duration: From 21.12.2020 To 26.12.2020

5. Total number of days: 5

6. Evaluation of performance criteria shall be on

(Note: Kindly grade the student as per his overall performance in the office during the assessment month, which will be converted to the allotted 40 marks by the department.)

Description of works	Excellent	Good	Fair	Poor	NA
Understanding of office culture	✓	✓			
Participation in the office		✓			
Reading of drawings		✓			
Presentation techniques		✓			
Model making works	✓	✓			
Understanding of construction works		✓			
Drafting skills (Manual / Computer)		✓			
Site supervision / Discussion with clients		✓			
Adherence to time schedule		✓		✓	
Other computer skills		✓			
File and office maintenance		✓			
Coordination with other consultants		✓			

Overall Grading:

A

(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):

R. Prakashan
Chennai
600 083



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DEPARTMENT OF ARCHITECTURE - M. Arch (Sustainable Architecture)

Professional training Report 2021

(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 in charge of the organisation)

1. Name of the Office / Organization: **EARTHONOMIC ENGINEERS**

2. Address and contact number: Yamuna B4, 4th St, Parameshwari Nagar,
Adyar, Chennai – 600020.
+91 6379181440, 4479635984

3. Name of the Student: ARKIP STELIN D

4. Duration: From 4.1.2021 To 11.1.2021

5. Total number of days: 7

6. Evaluation of performance criteria shall be on

(Note: Kindly grade the student as per his overall performance in the office during the assessment month, which will be converted to the allotted 40 marks by the department.)

Description of works	Excellent	Good	Fair	Poor	NA
Understanding of office culture	✓				
Participation in the office		✓			
Reading of drawings		✓			
Presentation techniques		✓			
Model making works	✓				
Understanding of construction works		✓			
Drafting skills (Manual / Computer)	✓				
Site supervision / Discussion with clients	✓				
Adherence to time schedule			✓		
Other computer skills					
File and office maintenance	✓				
Coordination with other consultants		✓			

Overall Grading:

'B'

(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):

R. Srinivasan





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(Annexure VIII)

DEPARTMENT OF ARCHITECTURE

M. Arch (Sustainable Architecture)

WORK DIARY - (DEC 2020 - JAN 2021)

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)

1. Name of the office / organization : **Earthonomic Engineers Private Limited**

Yamuna B4, 4th St, Parameshwari Nagar,

Adyar, Chennai, Tamil Nadu 600020.

+91 6379181440, 4479635984

info@earthonomic.com

2. Student name : **ARKIP STELIN D**

3. Duration of internship : From 11.12.2020 To 23.01.2021

4. Total No. of days : **30**

5. 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 marks by the department.

* * DATE	* DESCRIPTION OF WORK	* EXCELLENT	* GOOD	* FAIR	* POOR	* NA
* 11/12/2020	Ventilation calculation		✓			
* 12/12/2020	Ventilation calculation		✓			
* 13/12/2020	SUNDAY					
* 14/12/2020	ECBC daylight compliance presentation		✓			
* 15/12/2020	Study on Ventilation	✓				
* 16/12/2020	Signature villa N1 , Hyderabad		✓			
* 17/12/2020	Study on water conservation.		✓			
18/12/2020	Signature villa N2 , Hyderabad	✓				
19/12/2020	Signature villa N2, Hyderabad Report generation and Study on RWH.		✓			
20/12/2020	SUNDAY					
21/12/2020	Signature villa N1, Hyderabad		✓			
* 22/12/2020	Signature villa N3, Hyderabad Report generation		✓			

* 23/12/2020	Signature villa W9, Hyderabad		✓			
* 24/12/2020	HOLIDAY					
* 25/12/2020	Guindy office simulation review	✓				
* 26/12/2020	Signature villa E5, Hyderabad		✓			
* 27/12/2020	SUNDAY					
* 28/12/2020	Signature villa E5, Hyderabad	✓				
* 29/12/2020	Signature villa N3, Hyderabad		✓			
* 30/12/2020	Signature villa N2, Hyderabad		✓			
* 31/12/2020	Signature villa W9, Hyderabad		✓			
* 1/1/2021	HOLIDAY					
* 2/1/2021	HOLIDAY					
* 3/1/2021	SUNDAY					
* 4/1/2021	Ventilation report discussion		✓			
* 5/1/2021	Signature villa w9, Hyderabad Modelling and Daylight analysis.	✓				

* 6/1/2021	Signature villa n2 , Hyderabad Report generation	✓				
* 7/1/2021	18 Floor apartment ecotect model		✓			
* 8/1/2021	18 Floor apartment ecotect model	✓				
* 9/1/2021	18 Floor apartment ecotect model		✓			
* 10/1/2021	SUNDAY					
11/1/2021	18 Floor apartment ecotect model	✓				
12/1/2021	HOLIDAY					
13/1/2021	HOLIDAY					
14/1/2021	HOLIDAY					
15/1/2021	HOLIDAY					
16/1/2021	HOLIDAY					
17/1/2021	HOLIDAY					
18/1/2021	SUNDAY					

19/1/2021	18 Floor apartment ecotect model	✓				
20/1/2021	18 Floor apartment ecotect model		✓			
21/1/2021	18 Floor apartment ecotect model		✓			
22/1/2021	18 Floor apartment ecotect model	✓				
23/1/2021	STUDY ON GREEN BUILDING RATING SYSTEMS.		✓			

Earthonomic Engineers Private Limited
Registered office: F2 Ashok Castle, 47, 12th Avenue
Ashok Nagar, Chennai – 600083
Email: info@earthonomic.com
Website: www.earthonomic.com
GSTIN: 33AAFCE2933A1ZA



To,

The Head of the Department

Sathyabama institute of science and technology,

Rajiv Gandhi Salai,

Jeppiaar Nagar,

Chennai -600019.

Subject: Successful completion of 1month long professional training.

Respected madam,

This is to certify that '**ARKIP STELIN D**' bearing reg. No 39890002 of 3rd semester M. Arch (SA), Department of Architecture in Sathyabama institute of science and technology, has successfully completed 1 month long professional training by working in our office "Earthonomics Engineers". He was associated as a trainee for the period between (11th Dec 2020 - 22nd Jan 2021).

He Excelled in his work as an intern in " Earthonomics engineers, Adyar, Chennai." during his period of work.

For Earthonomic Engineers Pvt. Ltd.

R. Sivasankaran
Authorized Signatory

Thanks and Regards,

Sivasankaran.R

(Manager – Technical)

**Earthonomic Engineers Private Limited,
Adyar, Chennai - 600020.**



Registered Office: F2 Ashok Castle, 47, 12th Avenue, Ashok Nagar, Chennai, Tamilnadu 600083

Business Office : B4, Yamuna Apartments, 4th Street, Parameshwari Nagar, Adyar, Chennai - 600020

Understanding of office culture and methodology
Active Participation in the Project activities
Documentation and tracking of project
Presentation Skills developed
Understanding of construction details & techniques
Participation and contribution in project meetings
Understanding of codes and standards

Schedule preparation & tracking activities
Preparation / Management of drawings
Learning / Application of software in Projects
Preparation of concept for projects
Site Management / Discussion with clients

Overall Grading*	<i>A</i>
-------------------------	----------

(**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)**

R. J. Jaisankar



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2.	HISTORY OF THE FIRM	
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7.	PROJECT 3 DETAILS	
8.	DRAWINGS	
9.	PRESENTATIONS	
10.	CRITICAL OVERVIEW OF THE FIRM	

GENERAL

Firstly, I always wanted to have my job or Internship in a compact Firm which has quiet good number of projects and a small team. Because, I Believe that being in a small team helps to work in all fields and take up all responsibilities and learn a lot which will be very helpful when I need to start up my own firm. This certainly develops a lot of skills like understanding and convincing the client, Finding out the building materials which is good and economical, Understanding the practical difficulties that needs to be addressed on site during the time of execution.

Thereby, I found Mr.Girish R Visvanathan runs a compact Firm with a small capable team in Chennai and working on sustainable projects in more practical way. I had a look into his prior projects, which were unique. I admire their self- sustainability concepts which had very less impact on the environment. He was aware in the ecological aspects of the site, which inspired me further.

ABOUT THE FIRM:

The firm work towards developing sustainable environments for homes and organizations. Their primary aim is to provide the best options for sustainable living by creating high performance environments for everyone.

They aim to transform people's perception of "environment is cost" and strongly believe that going beyond compliance saves cost at the same time generates revenue. They are pioneers in providing a new lean and green paradigm that is ROI centric.

They assist architects and consultants to improve building designs, energy efficiency, selection of building materials, and optimize building economics, for residencies, institutions, offices, and factories.

APPROACH TO SUSTAINABILITY

In today's business setting, where organizations are realizing the importance of finding the right balance between economic, social, and environmental priorities, They provide a carefully orchestrated sustainability strategy that is vital to long-term success. Their strategies are integrated with existing initiatives and coordinated with an intelligent approach that evaluates the related risks and rewards. They aim to quantify and monetize impacts on sustainability initiatives beyond just financial return.

CORE COMPETENCIES AND TEAM EXPERTISE

- IGBC, LEED, ECBC, EDGE and GRIHA Accredited Professionals
- Trained Energy Modeling Software experts
- Architecture and Construction Experts
- HVAC, Thermal & Electrical Design Experts
- Lighting Design Experts

- Renewable Energy Specialists
- Commissioning and Energy Auditing Specialists
- Product Performance Analysts
- Phytoremediation Experts
- Organic Farming and Landscaping Experts
- Water Management and RWH Specialists

ECBC - Energy Conservation Building Code

- With the background of high energy saving potential and its benefits bridging the gap between demand and supply, reducing environmental emissions through energy saving and to effectively overcome the barrier the Govt. of India has enacted the Energy Conservation Act, 2001.
- The Act provides the much needed legal framework and institutional arrangement for embarking on an energy efficiency drive.
- The Act empowers Govt. of India and State Governments to modify ECBC as per climatic conditions of states.

Purpose

- The purpose of this code is to provide minimum requirements for energy efficient design and construction of buildings.

Scope

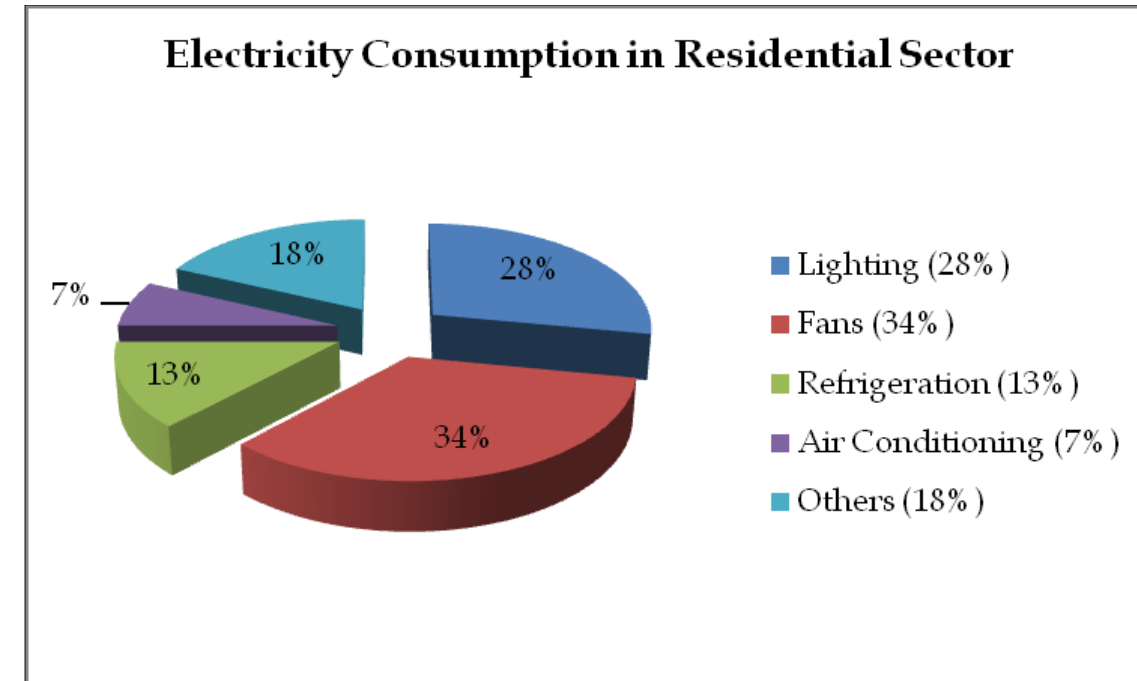
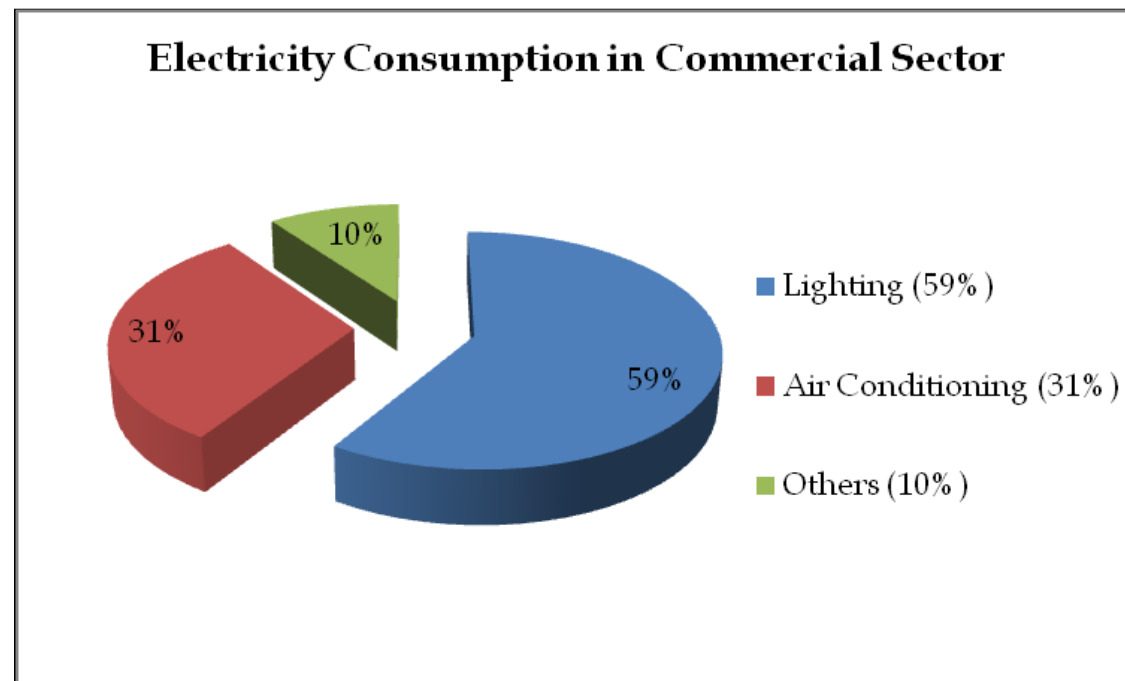
- Applicable to building complexes having connected
- It's a voluntary adoption in the country
- Shall become mandatory after gazette notification by any state or central government
- Buildings or complexes having conditioned area of 1000 sq m or more

- Building sector -33%
- Commercial sector -8%
- Residential sector-25%
- ECBC compliance building –can save 40 to 60% electricity
- Nation wide mandatory compliance- 1.7 billion KWH
- Its a first step towards Energy conservation
- Developed after extensive research work
- Considered comfort conditions
- Helpful for persons involved in design and construction of ECBC compliant building

Applicable to buildings

- Minimum energy performance standards for design and construction be prescribed.
- Applies to new construction and major renovation.
- Building components included
- Building Envelope (Walls, Roofs, Windows)
- Interior and exterior Lighting
- HVAC system
- Service water heating and pumping
- Electrical Systems (Power factor, Transformer)

Typical Electricity Use in Buildings



Application of building codes reduces electricity consumption by 25% -30%.

Impact of ECBC Compliance

- Market Development for Energy Efficient products.
- Building Insulation
- Energy Efficient Windows
- High efficiency HVAC systems
- Improved Design Practices.
- Lighting and Day Lighting
- Natural Ventilation/ Free cooling system
- Improved Building performance.
- Lower HVAC load.
- Lesser addition of power generation capacity.

Definition of Commercial Building

- According to energy information administration- Any building that is used for neither residential, manufacturing, nor agricultural purposes.
- Many types of commercial buildings-
 - Office Buildings
 - Hotels
 - Restaurants
 - Retail malls and shops
 - Hospitals
 - Educational Institutes.

Building Envelope

- A well designed building envelope not only help in complying with ECBC code but can also result in first cost saving by taking advantage of day light and correct HVAC system sizing
- Opaque part (walls, roof, slab)
- Fenestration Systems(window ,sky light, ventilators and doors that are half Glazed),.
- Envelope affects the thermal comfort of occupants as well as energy consumption of the building
- Heat Transfer Takes place through walls , window and roof by all the three methods i.e. Conduction , convection of air , Radiation
- Air Leakage- From doors shall be avoided with the gaskets.
- Building envelope Sealing .
- Insulation of roofs
- Insulation to be protected from sunlight, moisture, wind, and other physical damage

Heating ,Ventilation and Air conditioning(HVAC)

- Natural Ventilation
- Suitable Wind direction & orientation of building
- Opening in the buildings should be well distributed
- Air to enter at low level and out ward at higher level

Sky lights

- Surface in the building exposed to sun with slope of less than 60 degrees
- The sky light area should not be more than 5 % of the roof area
- The sun emits visible solar radiation in the form of light and infrared radiation that can not be seen ,but causes heat.
- Special glasses allow the visible light to pass while bypass the infra red radiation.

Importance of Energy Efficient Envelope Design

- Helps in reducing heating/ cooling load.
- Helps in optimizing daylight.
- First cost and recurring savings.
- Helps in utilizing latest technological advances
- Simulation models greatly helps in designing high performance envelopes.

By Stack Effect

- Natural ventilation by stack effect occurs when inside building is hot and out side is cool.
- Cool air from outside will try to come from out side and hot air shall go out side from the top where ventilators have been provided .
- Hence ,Ventilators should be kept as close to the ceiling as possible.

Energy Conservation in Ventilation System

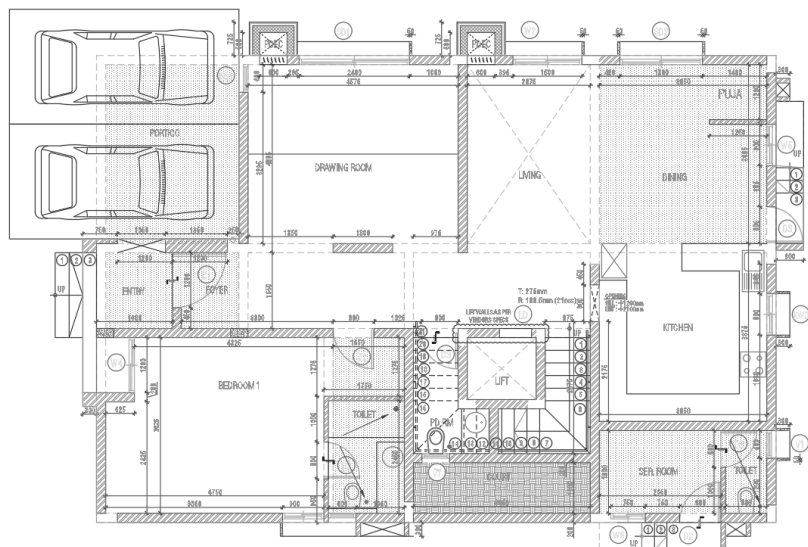
- Use of adequate number of ceiling fan(sizes are provided in the Code)
- Use of electronic regulators

VENTILATION CALCULATION

Floor Number	Flat number	Regularly Occupied Spaces	Total Floor Area (Carpet) (Sq.ft)	Total Floor Area (Carpet) (Sq.m)	Window type 1	Window type 2	Window type 3	Glazed Door if Any	Wooden Doors	Operable Window 1 Area	Operable Window 2 Area	Operable Window 3 Area	Operable glazed Door Area	Operable Wooden Door Area	Total Operable area	Opening to carpet area ratio	Mandatory Requirement to Meet credit point - Fresh Air	Credit Requirement to Meet credit point	Does it meet MR for Fresh Air	Does it meet CR for Fresh Air
Typical floor	unit 1,4	Kitchen	177.39	16.48	KW				D1	0.54	0.00	0.00	0.00	2.10	2.64	16.02%	6.00%	6.00%	Yes	Yes
		Bed Room	229.21	21.29	W1					1.44	0.00	0.00	0.00	0.00	1.44	6.76%	8.00%	8.00%	No	No
		Master bedroom	272.16	25.28	W1					1.44	0.00	0.00	0.00	0.00	1.44	5.70%	8.00%	8.00%	No	No
		Living dinning and drawing	939.21	87.26				SD4	MD	0.00	0.00	0.00	4.52	2.88	7.40	8.48%	8.00%	8.00%	Yes	Yes
		Multipurpose room	281.88	26.19	W6					2.94	0.00	0.00	0.00	0.00	2.94	11.23%	8.00%	8.00%	Yes	Yes
		Bedroom	204.41	18.99	W1			SD1		1.44	0.00	0.00	4.20	0.00	5.64	29.70%	8.00%	8.00%	Yes	Yes
		Bed room	154.46	14.35				SD3	SD1	0.00	0.00	0.00	3.68	4.20	7.88	54.88%	8.00%	8.00%	Yes	Yes

Floor Number	Flat Number	Regularly Occupied Spaces	Total Floor Area (Carpet) (Sq.ft)	Total Floor Area (Carpet) (Sq.m)	Window type 1	Window type 2	Window type 3	Glazed Door if Any	Wooden Doors	Operable Window 1 Area	Operable Window 2 Area	Operable Window 3 Area	Operable glazed Door Area	Operable Wooden Door Area	Total Operable area	Opening to carpet area ratio	Mandatory Requirement to Meet credit point - Fresh Air	Credit Requirement to Meet credit point	Does it meet MR for Fresh Air	Does it meet CR for Fresh Air
Typical floor	Unit - 2,3	Kitchen	166.60	15.48					D2	0.00	0.00	0.00	0.00	1.89	1.89	12.21%	6.00%	6.00%	Yes	Yes
		Bed room	180.77	16.80	W1					1.44	0.00	0.00	0.00	0.00	1.44	8.57%	8.00%	8.00%	Yes	Yes
		Master bedroom	277.61	25.80					SD1	0.00	0.00	0.00	0.00	4.20	4.20	16.28%	8.00%	8.00%	Yes	Yes
		Living dinning and drawing	927.94	86.24				SD4	MD	0.00	0.00	0.00	4.52	2.88	7.40	8.57%	8.00%	8.00%	Yes	Yes
		Bed Room	185.07	17.20				SD1		0.00	0.00	0.00	4.20	0.00	4.20	24.42%	8.00%	8.00%	Yes	Yes
		Bedroom	198.95	18.49	W7					2.58	0.00	0.00	0.00	0.00	2.58	13.95%	8.00%	8.00%	Yes	Yes
		Multipurpose room	255.40	23.74	W3					2.70	0.00	0.00	0.00	0.00	2.70	11.38%	8.00%	8.00%	Yes	Yes

Signature villa W4, Hyderabad

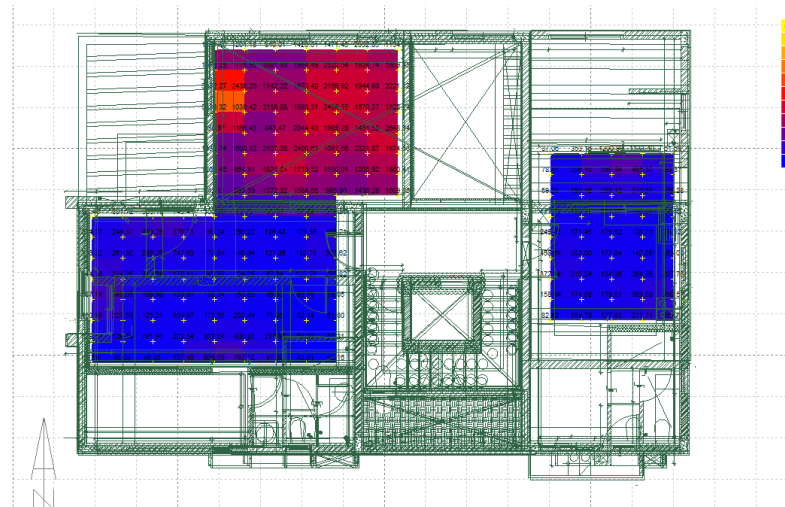


GF

W4- Ground floor

Daylight Analysis
Daylighting Levels
Value Range: 0 - 5435 lux
© ECOTECT v8

Average Value: 733.81 lux
Visible Nodes: 173

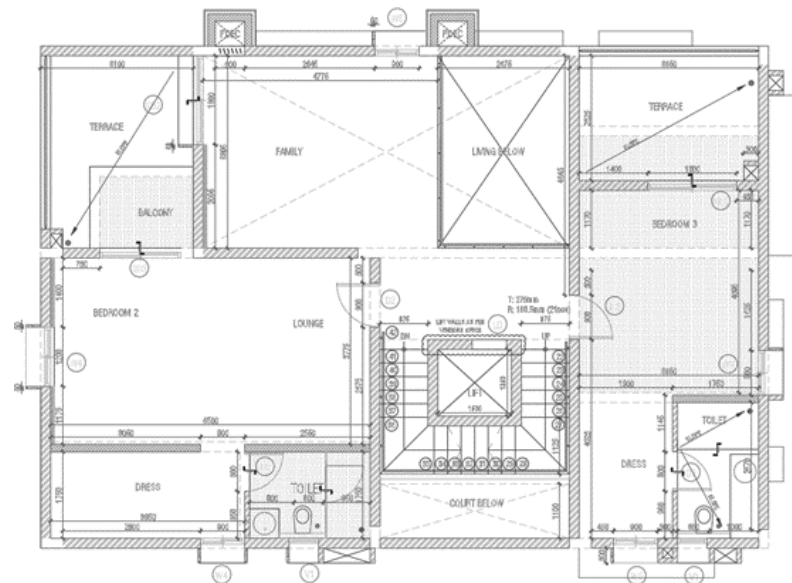


DRAWING ROOM – 16.9 SQMM Avg 298 lux

LIVING - 13.5 SQM Avg 1400 lux

DINING AND KITCHEN - 22.8 SQM Avg 620 lux

BEDROOM – 20.5 SQM Avg 230 lux

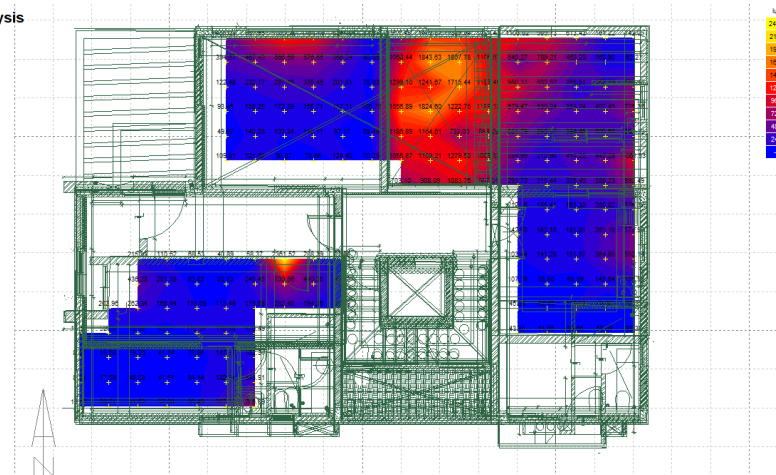


FF

W4- First floor

Daylight Analysis
Daylighting Levels
Value Range: 0 - 2400 lux
© ECOTECT v8

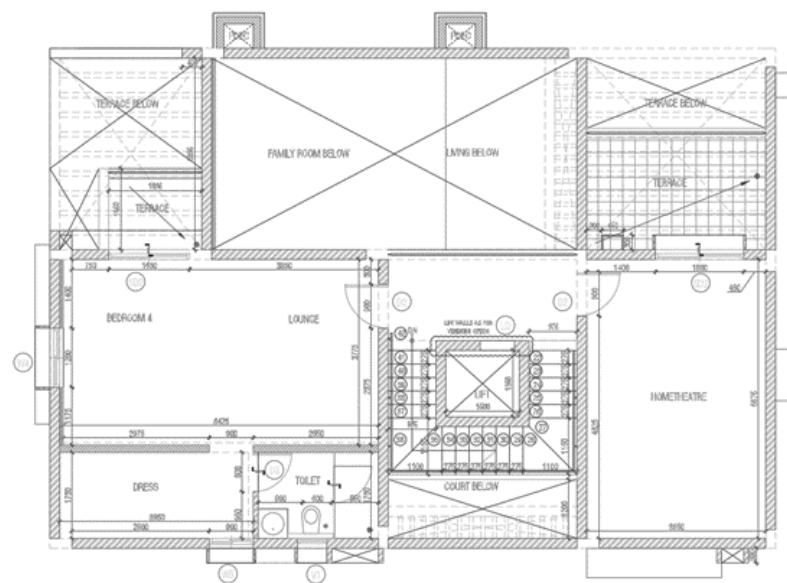
Average Value: 410.67 lux
Visible Nodes: 102



FAMILY – 18.4 SQM Avg 2050 lux

BEDROOM2 – 23.9 SQM Avg 260 lux

BEDROOM3 – 15.0 SQM Avg 190 lux

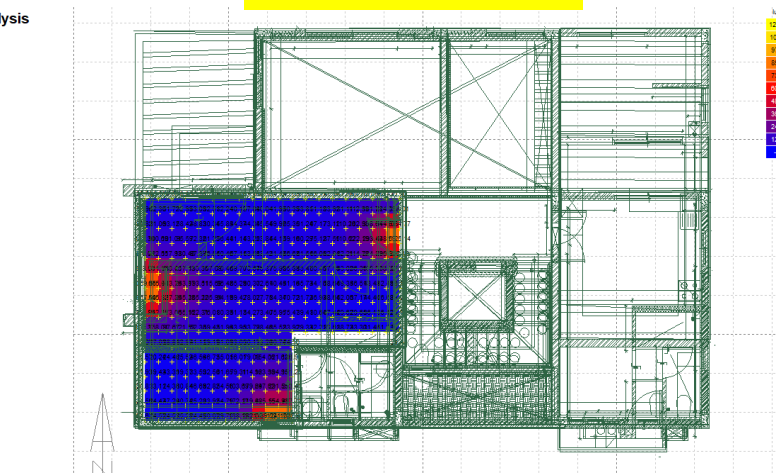


SF

W4- Second floor

Daylight Analysis
Daylighting Levels
Value Range: 0 - 1210 lux
© ECOTECT v8

Average Value: 124.41 lux
Visible Nodes: 273

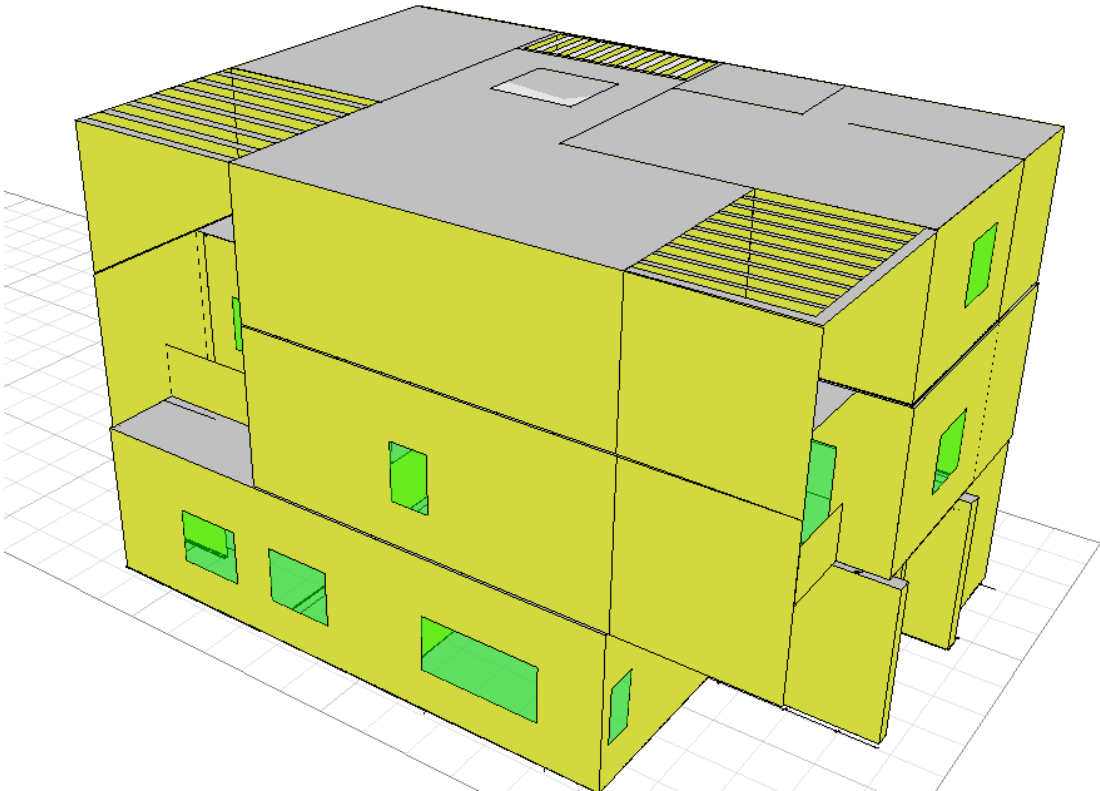


BEDROOM3 – 24.1 SQM Avg 740 lux

Daylighting Levels

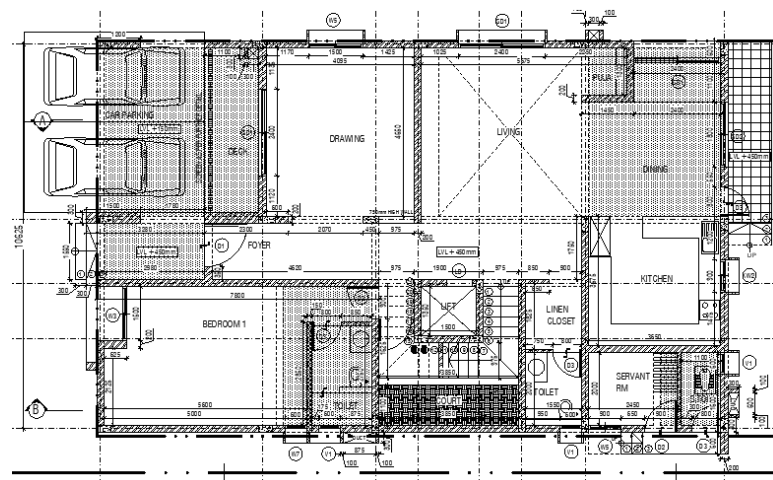
Contour Band	Within		Above	
(from-to)	Pts	(%)	Pts	(%)
0-108	205	75.09	273	100.00
108-216	31	11.36	68	24.91
216-324	18	6.59	37	13.55
324-432	4	1.47	19	6.96
432-540	2	0.73	15	5.49
540-648	5	1.83	13	4.76
648-756	0	0.00	8	2.93
756-864	0	0.00	8	2.93
864-972	1	0.37	8	2.93
972-1080	3	1.10	7	2.56
1080-1188	3	1.10	4	1.47
1188-1296	1	0.37	1	0.37

FLOOR TYPE	% OF DAYLIGHT ACHEIVED
GROUND FLOOR	99.47
FIRST FLOOR	95.29
SECOND FLOOR	100
OVERALL % OF DAYLIGHT ACHEIVED –	98.2%

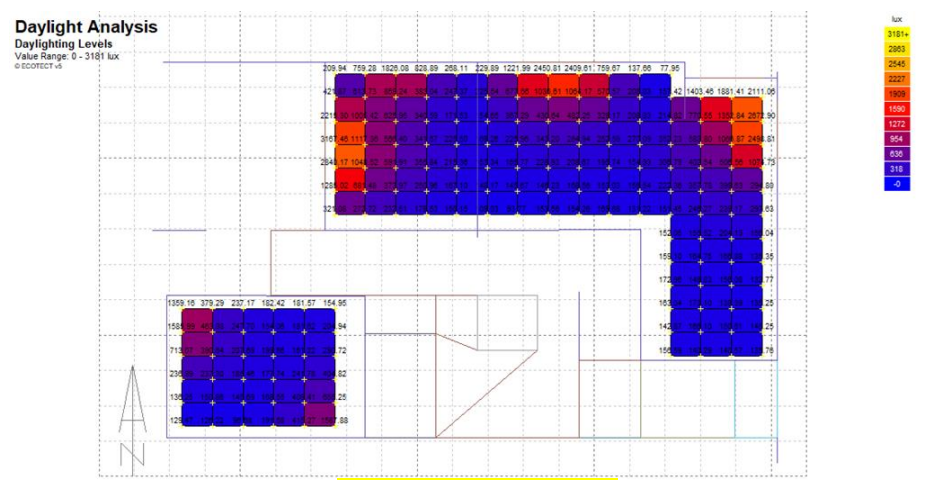


W6- villa, Hyderabad

W6- Ground floor

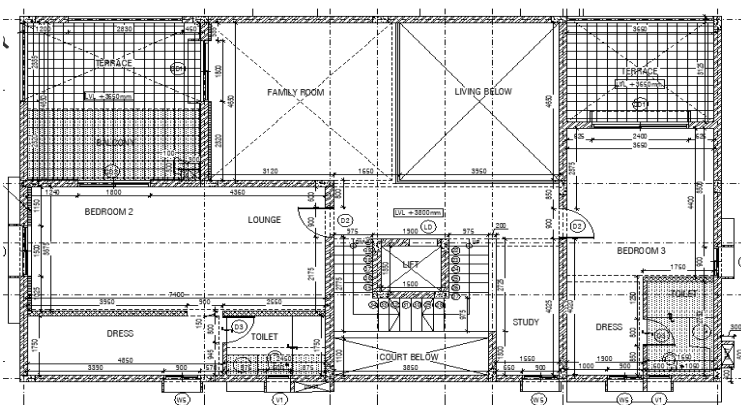


GF

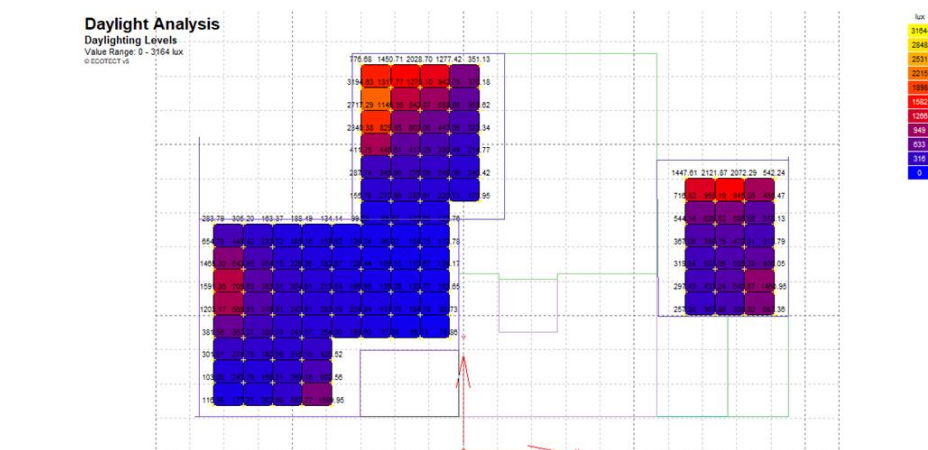


- BEDROOM (21.5 SQM) Avg: 300LUX
- DRAWING (19.1SQM) Avg: 650LUX
- LIVING (21.5 SQM) Avg:750 LUX
- DINING AND KITCHEN (24.5 SQM) Avg:450 LUX

W6- First floor

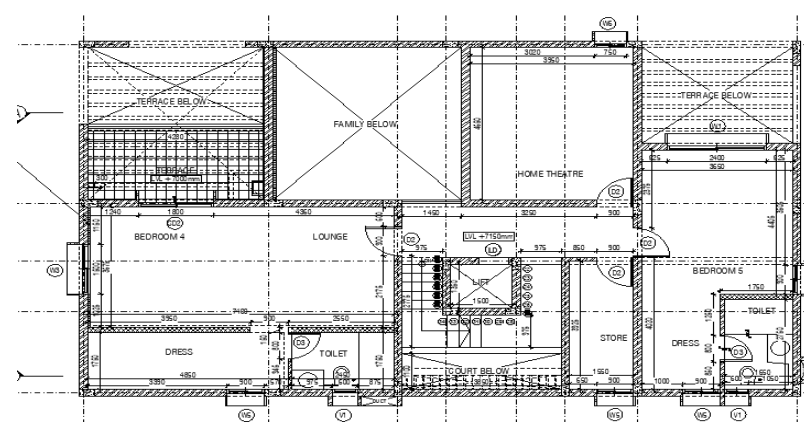


FF

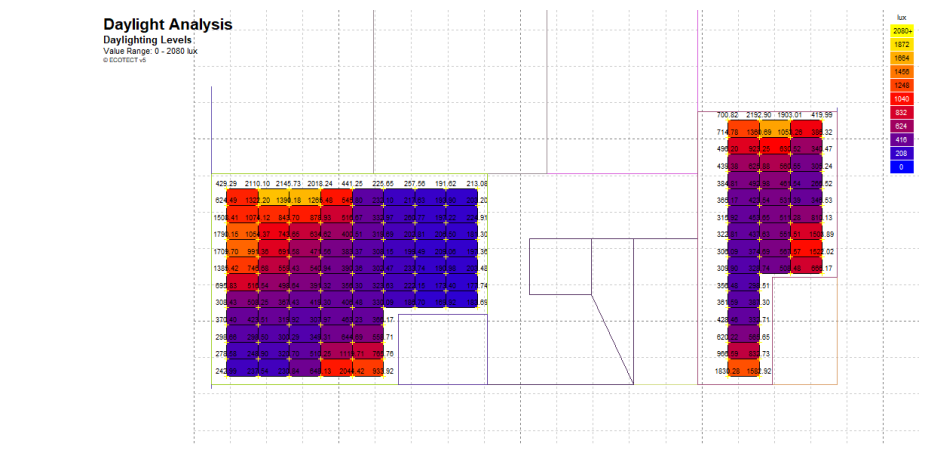


- FAMILY(21.2SQM) Avg: 650 LUX
- BEDROOM2 (26.9SQM) Avg: 350LUX
- BEDROOM3 (16.1SQM) Avg: 632.4 LUX

W6- Second floor



SF

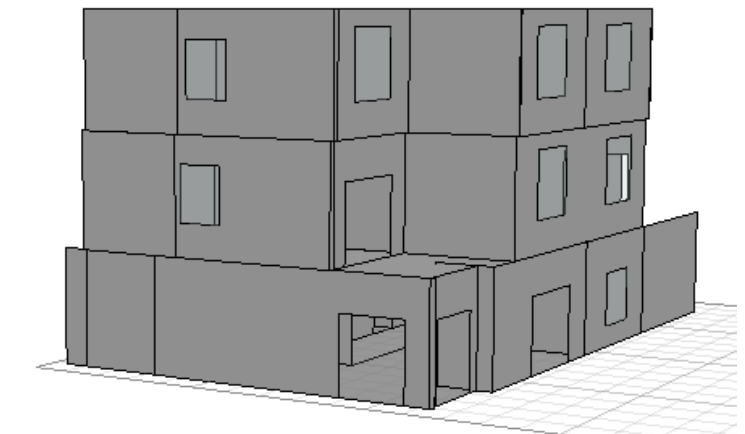


- BEDROOM4 (26.9 SQM) Avg: 1200 LUX
- BEDROOM4 (19.1SQM) Avg: 1100

Daylighting Levels

Contour Band	Within		Above	
(from-to)	Pts	(%)	Pts	(%)
0-108	3	1.85	162	100.00
108-216	72	44.44	159	98.15
216-324	26	16.05	87	53.70
324-432	19	11.73	61	37.65
432-540	3	1.85	42	25.93
540-648	6	3.70	39	24.07
648-756	4	2.47	33	20.37
756-864	5	3.09	29	17.90
864-972	0	0.00	24	14.81
972-1080	6	3.70	24	14.81
1080-1188	1	0.62	18	11.11
1188-1296	2	1.23	17	10.49
1296-1404	3	1.85	15	9.26
1404-1512	0	0.00	12	7.41
1512-1620	2	1.23	12	7.41
1620-1728	0	0.00	10	6.17
1728-1836	1	0.62	10	6.17
1836-1944	1	0.62	9	5.56
1944-2052	0	0.00	8	4.94
2052-2160	1	0.62	8	4.94
2160-2268	1	0.62	7	4.32

FLOOR TYPE	% OF DAYLIGHT ACHEIVED
GROUND FLOOR	94.4
FIRST FLOOR	89.4
SECOND FLOOR	99.3
OVERALL % OF DAYLIGHT ACHEIVED – 94.3%	



VENTILATION CALCULATION(TOWER 1)

		TOWER 4 and 6																		
Floor Number	Flat number	Regularly Occupied Spaces	Total Floor Area (Carpet) (Sq.ft)	Total Floor Area (Carpet) (Sq.m)	Window type 1	Window type 2	Window type 3	Glazed Door if Any	Wooden Doors	Operable Window 1 Area	Operable Window 2 Area	Operable Window 3 Area	Operable glazed Door Area	Operable Wooden Door Area	Total Operable area	Opening to carpet area ratio	Mandatory Requirement to Meet credit point - Fresh Air	Credit Requirement to Meet credit point	Does it meet MR for Fresh Air	Does it meet CR for Fresh Air
First Floor to Fifth Floor	Unit 1 - 6	Kitchen	46.50	4.32	kw					0.54	0.00	0.00	0.00	0.00	0.54	12.50%	6.00%	6.00%	Yes	Yes
		living /dining	174.38	16.20	SD				MD	2.21	0.00	0.00	0.00	2.21	4.41	27.22%	8.00%	8.00%	Yes	Yes
		Master Bed Room	101.24	9.41	W					0.72	0.00	0.00	0.00	0.00	0.72	7.66%	8.00%	8.00%	No	No
		Bed Room	87.19	8.10	W					0.72	0.00	0.00	0.00	0.00	0.72	8.89%	8.00%	8.00%	Yes	Yes
		Study Room	69.02	6.41	W					0.72	0.00	0.00	0.00	0.00	0.72	11.23%	8.00%	8.00%	Yes	Yes

Floor Number	Flat Number	Regularly Occupied Spaces	Total Floor Area (Carpet) (Sq.ft)	Total Floor Area (Carpet) (Sq.m)	Window type 1	Window type 2	Window type 3	Glazed Door if Any	Wooden Doors	Operable Window 1 Area	Operable Window 2 Area	Operable Window 3 Area	Operable glazed Door Area	Operable Wooden Door Area	Total Operable area	Opening to carpet area ratio	Mandatory Requirement to Meet credit point - Fresh Air	Credit Requirement to Meet credit point	Does it meet MR for Fresh Air	Does it meet CR for Fresh Air
First Floor to Fifth Floor	Unit - 7 - 11, and Unit 18 - 21	Kitchen	44.06	4.10	KW2				D2	0.27	0.00	0.00	0.00	1.68	1.95	47.62%	6.00%	6.00%	Yes	Yes
		Living	180.12	16.74	SD				MD	2.21	0.00	0.00	0.00	2.21	4.41	26.34%	8.00%	8.00%	Yes	Yes
		Master Bedroom	120.08	11.16	W					0.72	0.00	0.00	0.00	0.00	0.72	6.45%	8.00%	8.00%	No	No
		Bedroom 2	99.13	9.21	W					0.72	0.00	0.00	0.00	0.00	0.72	7.82%	8.00%	8.00%	No	No
		Bedroom 3	79.89	7.43	W					0.72	0.00	0.00	0.00	0.00	0.72	9.70%	8.00%	8.00%	Yes	Yes

Floor Number	Flat Number	Regularly Occupied Spaces	Total Floor Area (Carpet) (Sq.ft)	Total Floor Area (Carpet) (Sq.m)	Window type 1	Window type 2	Window type 3	Glazed Door if Any	Wooden Doors	Operable Window 1 Area	Operable Window 2 Area	Operable Window 3 Area	Operable glazed Door Area	Operable Wooden Door Area	Total Operable area	Opening to carpet area ratio	Mandatory Requirement to Meet credit point - Fresh Air	Credit Requirement to Meet credit point	Does it meet MR for Fresh Air	Does it meet CR for Fresh Air
First Floor to Fifth Floor	Unit - 16	Kitchen	46.57	4.33	KW1					0.41	0.00	0.00	0.00	0.00	0.41	9.36%	6.00%	6.00%	Yes	Yes
		Living/Dining	180.77	16.80	SD				MD	2.21	0.00	0.00	0.00	2.21	4.41	26.25%	8.00%	8.00%	Yes	Yes
		Master Bedroom	105.02	9.76	W					0.72	0.00	0.00	0.00	0.00	0.72	7.38%	8.00%	8.00%	No	No
		Bedroom	105.02	9.76	W					0.72	0.00	0.00	0.00	0.00	0.72	7.38%	8.00%	8.00%	No	No

Floor Number	Flat Number	Regularly Occupied Spaces	Total Floor Area (Carpet) (Sq.ft)	Total Floor Area (Carpet) (Sq.m)	Window type 1	Window type 2	Window type 3	Glazed Door if Any	Wooden Doors	Operable Window 1 Area	Operable Window 2 Area	Operable Window 3 Area	Operable glazed Door Area	Operable Wooden Door Area	Total Operable area	Opening to carpet area ratio	Mandatory Requirement to Meet credit point - Fresh Air	Credit Requirement to Meet credit point	Does it meet MR for Fresh Air	Does it meet CR for Fresh Air
First Floor to Fifth Floor	Unit - 12 - 15 and Unit 22 - 26	Kitchen	41.96	3.90	KW1				D2	0.41	0.00	0.00	0.00	1.68	2.09	53.46%	6.00%	6.00%	Yes	Yes
		Living/Dining	180.12	16.74	SD				MD	2.21	0.00	0.00	0.00	2.21	4.41	26.34%	8.00%	8.00%	Yes	Yes
		Master Bedroom	120.08	11.16	W					0.72	0.00	0.00	0.00	0.00	0.72	6.45%	8.00%	8.00%	No	No
		Bedroom	99.13	9.21	W					0.72	0.00	0.00	0.00	0.00	0.72	7.82%	8.00%	8.00%	No	No
		Bedroom 3	79.89	7.43	W					0.72	0.00	0.00	0.00	0.00	0.72	9.70%	8.00%	8.00%	Yes	Yes



IGBC GREEN HOMES BUILDING



CREDITS	POINTS AVAILABLE
Site Selection & Planning	9
Water Efficiency	11
Energy Efficiency	22
Material & Resources	13
Indoor Environment Quality	15
Innovation & Design Process	5
TOTAL	75



Indian Green Building Council



Certification Level	Points Required	Recognition
Certified	38-44	Best Practices
Silver	45-51	Outstanding Performance
Gold	52-59	National Excellence
Platinum	60-75	Global Leadership



IGBC GREEN HOMES BUILDING



CREDITS	POINTS AVAILABLE
Site Selection & Planning	9
Water Efficiency	11
Energy Efficiency	22
Material & Resources	13
Indoor Environment Quality	15
Innovation & Design Process	5
TOTAL	75



Indian Green Building Council



Certification Level	Points Required	Recognition
Certified	38-44	Best Practices
Silver	45-51	Outstanding Performance
Gold	52-59	National Excellence
Platinum	60-75	Global Leadership

CRITICAL OVERVIEW

I had a wonderful time in learning many new things in this firm. The project which I worked on was sustainable in many ways like use of recycled materials, use of lime mortar, which has eliminated the use of Cement which is huge contribution towards sustainability.

Another great thing I learnt from the Firm is dealing with the client. Clients usually keep changing their requirement which needs to be updated in the drawings but keep on changing Irritates a lot, Patience is very important and Understanding the Client and convincing them is a great challenge. If the project needs to be Sustainable, we need to develop Managing skills in dealing with client, contractors and labors which directly and indirectly affects the Project.