



SATHYABAMA

INSTITUTE OF SCIENCE AND TECHNOLOGY

(DEEMED TO BE UNIVERSITY)

Accredited "A" Grade by NAAC | 12B Status by UGC | Approved by AICTE

www.sathyabama.ac.in

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

**PROFESSIONAL TRAINING (S89APT)
JUL 2022 - AUG 2022**

Name of the Student : GAYATHRIDEVI P

Semester : III

Reg No. : 41890007

Batch : 2021-2023



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M. Arch (Sustainable Architecture)

VIVA-VOCE EXAMINATION

This is to certify that the Professional Training Report (S89APT) is the work of GAYATHRIDEVI P who had undergone training in GREEN SKETCH CONSULTANCY and has been monitored by the continuous assessment during Jul 2022 to Aug 2022.

Dr. Devyani Gangopadhyay
HOD AND DEAN

Submitted for Viva-voce Examination held on 20/12/2022

Internal Examiner

External Examiner



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DECLARATION

I GAYATHRIDEVI P hereby declare that this Professional Training Report one month done by me under the guidance of Ar. KRITHIKHA MUTHUKRISHNAN is submitted in partial fulfillment of the requirements for the completion of practical training session.

DATE : 20/12/2022

PLACE : CHENNAI



P. Gayathridevi

SIGNATURE OF CANDIDATE

ACKNOWLEDGEMENT

I acknowledge my sincere thanks to Board of Management of **SATHYABAMA INSTITUTE OF SCIENCE & TECHNOLOGY** for their kind encouragement in doing this project and for completing it successfully. I am grateful to them.

I would like to thank **Dr. Devyani Gangopadhyay** Dean, School of building and Environment for her encouragement,
Internal Co-ordinator **Ar. Catherine Selvaraj** for her support and guidance through out this internship period.

I convey my sincere gratitude to **Ar. Krithikha Muthukrishnan**, principal architect and consultant at **Green sketch consultancy, Chennai** for this wonderful opportunity and a great learning experience. I am grateful for all the guidance and supervision from Architects, Project co ordinators, Engineers and fellow team members. Green Sketch consultancy helped me gain practical knowledge and their relation to architecture in the present day context. I would like to thank everyone for teaching and sharing their ideas and views alongside their invitable knowledge.

I thank **GSC team** for their constant support encouragement and progressive reviews helping me complete this internship period successfully.

GSC/Intern/2022-23/001

07 Jul 2022

To,

The Dean
School of Building & Environment
Sathyabama Institute of Science and Technology,
Chennai - 600 119,
Tamil Nadu

Subject: Confirmation for Joining our firm for practical training as Internship

Ref: Your reference dated 30.05.2022

Respected Madam,

This is to confirm that **Ms. Gayathri Devi P**, Registration No: **41890007** pursuing 3rd semester M.Arch - Sustainable Architecture, Department of Architecture, Sathyabama Institute of Science and Technology, has joined in our firm for her practical training on 07 Jul 2022 for a period of 30 working days.

For GREEN SKETCH CONSULTANTS


Authorised Signatory



Krithikha Muthukrishnan
Partner & Principal Consultant,
Mobile: 9940174586/e-Mail: krithikha@greensketch.in
for Green Sketch Consultants
Address:
Plot No. 123, 3rd Main Road
Chandrasekaran Avenue, Thoraipakkam
Chennai - 600009

GSC/Intern/2022-23/001

07 Jul 2022

To,

The Dean
School of Building & Environment
Sathyabama Institute of Science and Technology,
Chennai - 600 119,
Tamil Nadu

Subject: Consolidated certificate for Joining our firm for practical training as Internship

Ref: Your reference dated 30.05.2022

Respected Madam,

This is to certify that **Ms. Gayathri Devi P**, Registration No: **41890007** pursuing 3rd semester M.Arch Sustainable Architecture, Department of Architecture, Sathyabama Institute of science and Technology, has successfully completed her Internship from 07th July 2022 to 18th August 2022.

During her tenure of internship, she had been sincere and hardworking. We wish her success in all her professional endeavours and best of luck.

For GREEN SKETCH CONSULTANTS


Authorised Signatory



Krithikha Muthukrishnan
Partner & Principal Consultant,
Mobile: 9940174586/e-Mail: krithikha@greensketch.in
for Green Sketch Consultants
Address:
Plot No. 123, 3rd Main Road
Chandrasekaran Avenue, Thoraipakkam
Chennai - 600009

MONTHLY REPORT



SATHYABAMA

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SCHOOL OF BUILDING & ENVIRONMENT, DEPARTMENT OF ARCHITECTURE
M. Arch (Sustainable Architecture) Batch 2021-2023
Continuous Assessment Report for Professional training

(Continuous progress report of the trainee architect/Project Manager for the period of 15 working days in the office to be submitted to HOD)

1. Name of the office / organization :	Green Sketch Consultants
2. Address & Contact Number :	Thoraipakkam, Chennai - 044 48505858
3. Name of the student :	Gayathridevi . P
4. Duration :	From 07.07.2022 To 18.08.2022
5. Total No. of days :	34
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;

Description of works	Excellent	Good	Fair	Poor	NA
Understanding of office culture	✓				
Skillssets related to project management	✓				
Design Management					✓
Understanding the Triple Constraints	✓				
Observation during Site Visits	✓				
Understanding of construction details	✓				
Understanding of Construction sequences	✓				
Site Supervision / Discussion with clients	✓				
Adherence to Time schedule	✓				
Quantitative aptitude	✓				
Documentation skills	✓				
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 :

Great Team Player !!

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

For GREEN SKETCH CONSULTANTS

Authorised Signatory



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Overall Grading*

A

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

7. Any other Remarks :

Awesome Work! Keep Soaring !!

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

For GREEN SKETCH CONSULTANTS

Authorised Signatory



WORK DIARY

Student Name	GAYATHRIDEVI P
College Name	SATHYABAMA UNIVERSITY - Sustainable Architecture
Date	Topics Learnt/Discussed
2022-07-07	IGBC & LEED book study KNit asia site photos
2022-07-08	MES Villa Type IV_Lighting Analysis_Revit model
2022-07-09	MES Villa Type V_Lighting Analysis_Revit model
2022-07-10	Sunday - leave
2022-07-11	MES Villa Type V_Lighting Analysis_Revit model
2022-07-12	MASCO_Light Fixture Comparision & Review_Documentation
2022-07-13	Trust Knitwear Ltd, Bangladesh_Sustainable Sites Cr.2 Development Density and Community Connectivity_Credit Documentation
2022-07-14	ITPC Pinnacle - Health & Comfort 1,3,5,6,7,8 HC - CR
2022-07-15	Jinnat Knitwear Ltd, Bangladesh_Sustainable Sites Cr.5.2 Site Development-Maximize Open Space_Maximum open space calculation
2022-07-16	Saturday - Leave
2022-07-17	Sunday - leave
2022-07-18	Jinnat Knitwear Ltd, Bangladesh_Landscape area specifications
2022-07-19	Dynamatics Technologies Ltd, Bangalore_Lighting Analysis_Revit model
2022-07-20	Birds A & Z, Bangladesh_Sustainable Sites Cr.2 Development Density and Community Connectivity_Credit Documentation
2022-07-21	Birds A & Z, Bangladesh_Sustainable Sites Cr.2 Development Density and Community Connectivity_Credit Documentation
2022-07-22	Dhaka Garments & Washing Ltd, Bangladesh_Sustainable Sites Pr.1 Construction Activity Pollution Control, Innovation in Design, Regional Priority_Credit Study
2022-07-23	Birds A & J, Bangladesh_Sustainable Sites Pr.1 Construction Activity Pollution Control_Credit Documentation
2022-07-24	Sunday - leave
2022-07-25	Hindustan Aeronautics Ltd, Karnataka_Lighting Analysis_Revit model
2022-07-26	Hindustan Aeronautics Ltd, Karnataka_Lighting Analysis_Revit model
2022-07-27	Hindustan Aeronautics Ltd, Karnataka_Lighting Analysis_Revit model

For GREEN SKETCH CONSULTANTS

Y. K. K. K.

Authorised Signatory



WORK DIARY

2022-07-28	Hindustan Aeronautics Ltd, Karnataka_Lighting Analysis_Revit model
2022-07-29	MASCO_Light Fixture Comparision & Review_Documentation
2022-07-30	Training class 01
2022-07-31	Sunday - leave
2022-08-01	Jinnat Knitwear Ltd, Bangladesh_Sustainable Sites Cr.5.2 Site Development-Maximize Open Space calculation
2022-08-02	HAMZA and Birds A & J, Bangladesh_Sustainable Sites Cr.5.2 Site Development-Maximize Open Space calculation
2022-08-03	ITP, Chennai - Site Visit
2022-08-04	Jinnat Knitwear Ltd, Bangladesh_Lighting Analysis_Revit model
2022-08-05	Jinnat Knitwear Ltd, Bangladesh_Lighting Analysis_Revit model
2022-08-06	Jinnat Knitwear Ltd, Bangladesh_Lighting Analysis_Revit model
2022-08-07	Sunday - leave
2022-08-08	Jinnat Knitwear Ltd, Bangladesh_Lighting Analysis_Revit model
2022-08-09	Jinnat Knitwear Ltd, Bangladesh_Lighting Analysis_Revit model
2022-08-10	Jinnat Knitwear Ltd, Bangladesh_Lighting Analysis_Revit model
2022-08-11	Jinnat Knitwear Ltd, Bangladesh_Lighting simulation and Report
2022-08-12	Jinnat Knitwear Ltd, Bangladesh_Lighting simulation and Report
2022-08-13	Jinnat Knitwear Ltd, Bangladesh_Lighting simulation and Report
2022-08-14	Sunday - leave
2022-08-15	Monday - leave
2022-08-16	Jinnat Knitwear Ltd-Daycare Building, Bangladesh_LPD calculation
2022-08-17	Jinnat Knitwear Ltd-Daycare Building, Bangladesh_LPD calculation
2022-08-18	Jinnat Knitwear Ltd-Printing Building, Bangladesh_LPD calculation

Chief Architect Signature:

Office seal:

For GREEN SKETCH CONSULTANTS

Y. K. K. K.
Authorised Signatory



TABLE OF CONTENTS

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ABOUT THE FIRM & NATURE OF WORK

Green Sketch is a green building design and consultancy firm that aims to provide cutting edge sustainability solutions and services in the industry of sustainable development.

Firm Green sketch is green building design and consultancy firm aims to provide sustainability solutions and services in the industry of sustainable development including LEED, IGBC, GRIHA and other certifications through energy modelling and simulations.

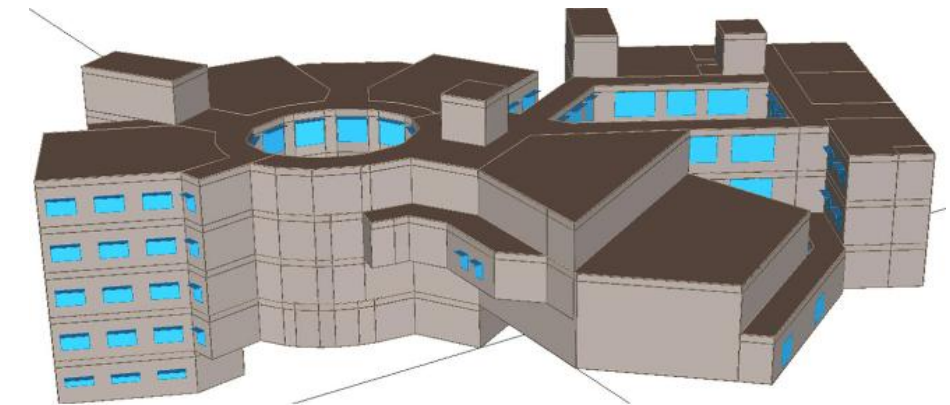


CERTIFICATIONS

Performing green buildings have been proven to improve worker performance, reduce absenteeism and overall enhance the quality of life.

ENERGY MODELING

Energy Modeling is a comprehensive method to help determine, how various energy conservation measures will affect your projects energy consumption.

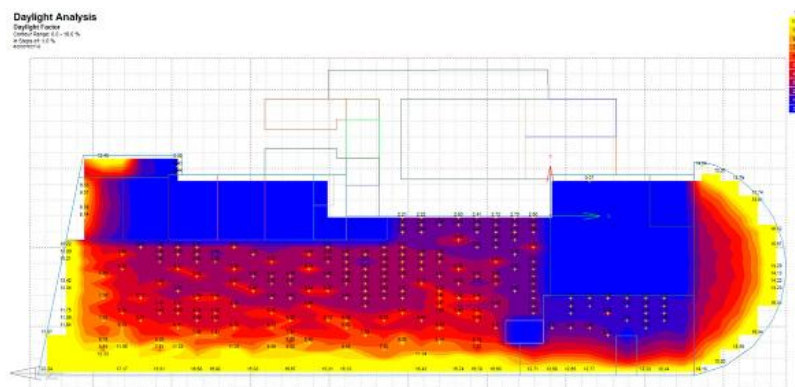


DAYLIGHT SIMULATION

Daylight and Shading simulations help projects to design optimum facades which let in maximum daylight with minimum heat exposure.

Well designed shading devices can cut down the Glare and also help to cut down glare as well as reduce heat ingress.

Good day lighting design can avoid the use of artificial lights during the daytime which leads to energy savings as well as better occupant health and comfort.



LEED 2009 – NC
SUSTAINABLE SITES
SS-CR.2 – DEVELOPMENT DENSITY AND COMMUNITY CONNECTIVITY
Available Points: 5 points
Applied Points: 5 points

Content:

1. Narrative & Compliance to credit
2. Jinnat Knitwear Ltd -2-Previously Developed site details
3. Residential density details and photographs
4. Map Showing basic amenities
5. List of 10-Basic community Services
6. Photographs of basic services.

The Jinnat Knitwear Ltd.-2 Project is Pursuing Option 2: Community Connectivity.

As per these Requirements-

1. Is site Located on a Previously Developed Land:

Yes- Site has a constructed area at the middle of the project boundary that was being previously used in different occasions and there was a bounded parking area at the North West side.

2. Is it within ½ Mile(800 meters) of a Residential area or Neighborhood with an average density of 10 units per acre net:

Yes. There are many denser residential zones nearby. Detailed hereinafter.

3. Is it within ½mile(800 meters) of 10 basic services:

Yes, Detailed hereinafter.

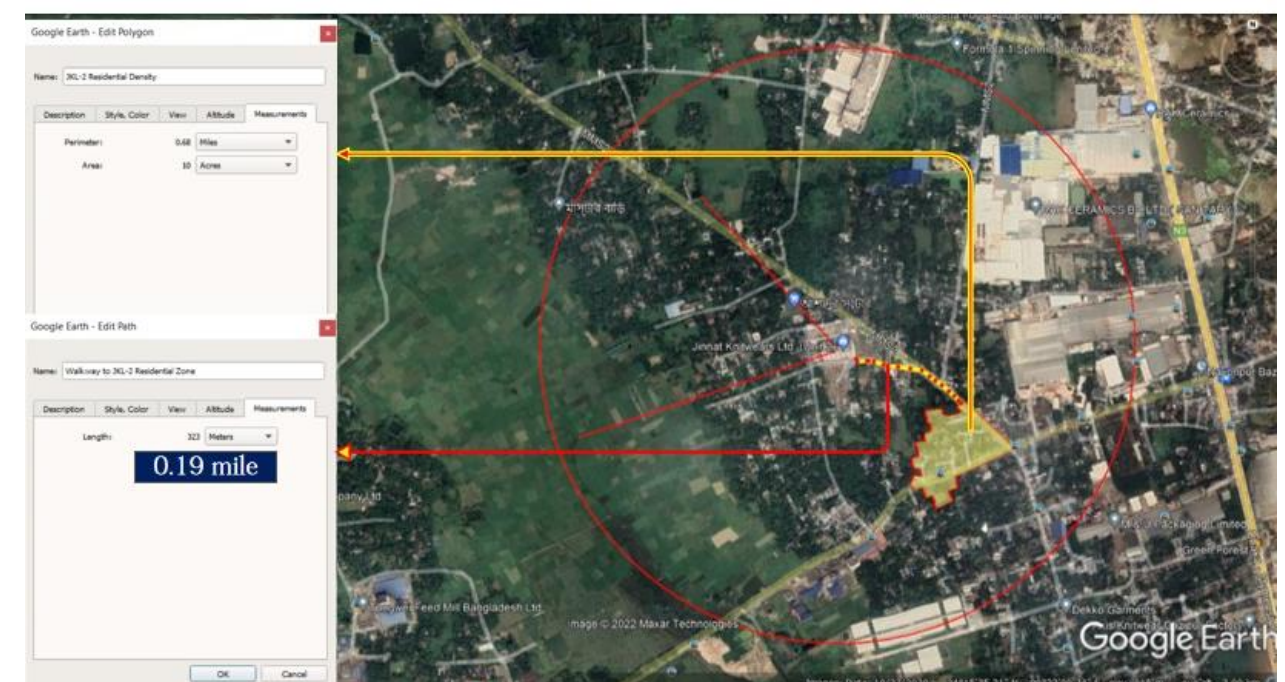
4. Has Pedestrian access between the Buildings and services:

Yes.

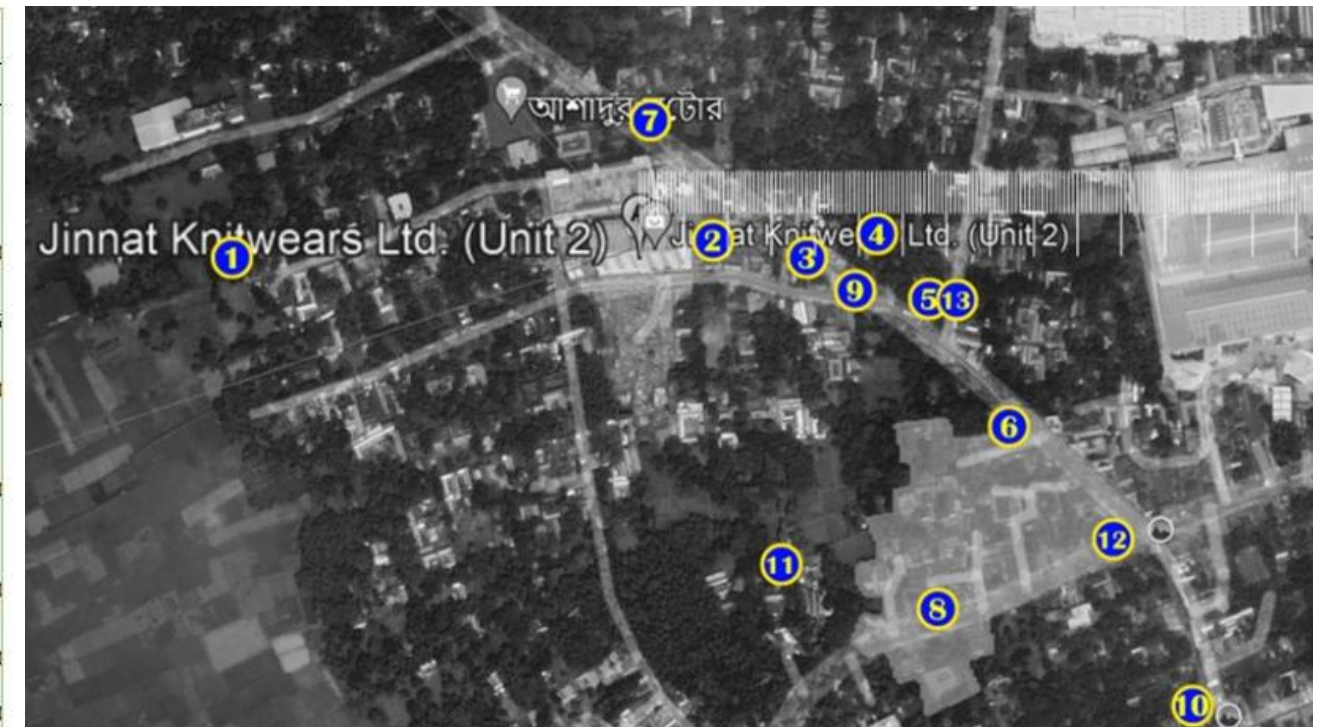
Fig: 01- Site Historical Satellite image showing previously graded site attribute.



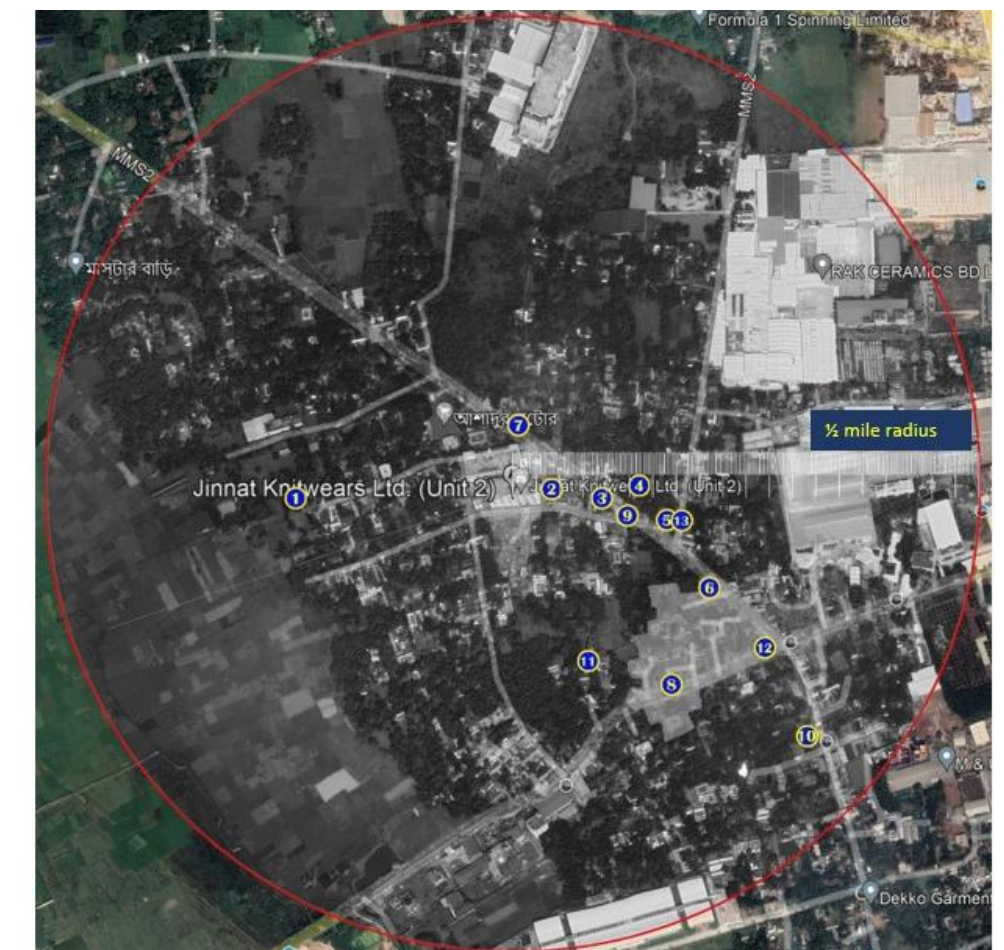
- **RESIDENTIAL ZONE 1:** It is located at 0.20 mile (323 meters) walking distance from the Jinnat KnitwearLtd.-2 ,
- **AREA – 10 Acres**
- **No. of Residential Units – 176 nos**
- **Density: 17.6 units per Acre Net**



BASIC 10-COMMUNITY SERVICES						
List of Community Service within 1/2 Mile (800 m) radius of Jinnat Knitwear Ltd-2						
Service Identification No.	Service Type	Identifier Name/Person	Address	On-Map	Distance miles	Distance meters
1	Lobolong Limited, 795M+RV, Mawna Union, Bangladesh	Park	Dhanua	1	0.311	500
2	Abed-Isa Community Health Care Center, Dhanua, Bangladesh	Medical or Dental Office	Dhanua	2	0.003	5
3	Adiba General Store, 795Q+WW8, Dhunua,Noton Bazar, Sreepur, Bangladesh	Hardware	Dhanua	3	0.168	270
4	Saadat Confectionery & Varieties Store, 795R+Q6C, MMS2, Bangladesh	Convenience Grocery	Dhanua	4	0.118	190
5	New Bazar Road South Dhanua Nayanpur Bazar,Sreepur, 795R+P8H, Sreepur, Bangladesh	Supermarket	Dhanua	5	0.124	200
6	Kashem Store, 795R+9P6, Dhanua, Bangladesh	Convenience Grocery	Dhanua	6	0.217	350
7	Sumaiya Telecom, MMS2, Dhanua 1714, Bangladesh	Hardware	Dhanua	7	0.249	400
8	Nayanpur Ideal Public School, 794R+PCP, nayapur ideal public school, Sreepur, Bangladesh	School	Dhanua	8	0.435	700
9	Nur-E-Abed Mohammadia Jame Masjid, 795R+Q4G, MMS2, Bangladesh	Place of Worship	Dhanua	9	0.093	150
10	Three Daughters Heart Hotel & Confectionery Store, 794V+F92, Ansar Road, Sreepur, Bangladesh	Restaurant	Dhanua	10	0.404	650
11	Abdul Gafur Maulvi Jame Mosque Dhanua Sreepur Gazipur 794Q+VR7, Dhanua, Bangladesh	Place of Worship	Dhanua	11	0.466	750
12	Aftab Uddin Sarkar Super Market	Supermarket	Dhanua	12	0.311	500
13	Al-Arafat Jewellery	Convenience Grocery	Dhanua	13	0.124	200



MAP SHOWING
ELEVEN BASIC
AMENITIES WITHIN
½ MILE (800 M)
RADIUS



JINNAT KNITWEAR LTD. UNIT-2		
SS.C.5.2 Maximum Open Space Calculation		
Name	m ²	sq.ft
8 Storied RMG Building	3,620.08	38,966.25
8 Storied Printing Building	2,422.67	26,077.39
6 Storied Day care Building	543.95	5,855.01
4 Storied Utility Building	418.95	4,509.57
RMS Room	118.76	1,278.36
Total Bldg. Footprint	7,124.41	76,686.58
Total Hardscape Area	2,310.41	24869.09
Total Area of Vehicular Driveway	1,838.11	19785.28
Total Paved Open Space Area	472.30	5,083.80
Total Site Area	13413.89535	144386.03

% Calculation for Maximum Open Space Area		
33% of open space as per Local Regulation	4426.585464	47647.3899
Overall Open Space within LEED Boundary (excl. Bldg. Footprint)	6,289.48	67,674.83
% of Overall Open Space within LEED Boundary	46.89%	46.87%
Area of Vegetated Open Space	3979.068935	42814.78174
% of Vegetated Open Space	29.66%	29.65%
Total Paved Open Space Area	472.3012004	5081.960917
% of Paved Open Space	3.52%	3.52%

Considerable Area for LEED Maximize Open Space	4451.370136	47896.74266
% of Considerable Area for LEED Maximize Open Space	33.18%	33.17%

Open space Area exceeding Local Regulation 33% open space within SITE	24.78467163	249.3527581
25% of 33% Local Regulation-open space	1106.646366	11911.84748
% of Open spaces exceeding local regulation	0.56%	0.52%
Available Additional % of Open Space	-24.44%	-24.48%

JINNAT KNITWEAR LTD. UNIT 2 Landscape area specifications				
			Area	
S.NO	Name	Nos	sq.ft	sq.m
1	Birds of paradise	11	17.38	1.61
2	Wedilia	41	50.43	4.69
3	Pantho pod	2	52.06	4.84
4	Phycus	4	11.84	1.10
5	Kat golap	6	131.22	12.19
6	Bagan bilash	2	28.86	2.68
7	Rabish plum	12	40.08	3.72
8	Iris lili	131	45.85	4.26
9	Furn	59	20.06	1.86
10	Dimond vetica	13	5.33	0.50
11	Rongon	9	57.15	5.31
12	Devdaru	18	315.9	29.35
13	Kanchon	3	235.32	21.86
14	Korobi	3	185.37	17.22
15	Chalta	1	243.34	22.61
16	Amm rupali small	8	961.52	89.33
17	Bel	2	208.74	19.39
18	Bottol brsh	6	489.96	45.52
19	Catina plum	24	1154.88	107.29
20	Naga chura	8	353.44	32.84
21	Kirsnochura	2	201.4	18.71
22	Kat badam	2	272.08	25.28
23	Kodom	1	247.65	23.01
24	Sunalu	10	437.5	40.65
25	Hasna hena	4	51.04	4.74
26	Beli	7	89.32	8.30
27	Bokul	6	370.38	34.41
28	Bok ful	6	211.74	19.67
29	Nim	2	144.78	13.45
30	Kata mehedi	7	168	15.61
31	Bamboo	5	236.35	21.96
32	Helosinia	15	113.85	10.58
33	Butterfly brsh	38	271.32	25.21
34	Drasina	25	306	28.43
35	Bamboo bush	41	241.9	22.47
TOTAL		534	7972.04	740.6264321

Regularly Occupied Space ID	Total Floor Area (sq ft)		Floor Area with Direct Line of Sight to Perimeter Vision Glazing (sq ft)	View at Seated Height (typically 42in)	Total Area with Access to Views (sq ft)
L0 CCTV Room	280.00		211.27	Yes	211.27
L0 Laboratory (ETP)	528.00		508.56	Yes	508.56
L1 Printing Area	20,809.00		20,809.00	Yes	20,809.00
L1 Pregnant Women Working Area	207.00		207.00	Yes	207.00
L1 Factory Incharge Room	116.00		95.57	Yes	95.57
L1 Planning Ex	111.00		111.00	Yes	111.00
L1 Sub Color Room	259.00		251.19	Yes	251.19
L2 Flocking Area	207.00		207.00	Yes	207.00
L2 Printing Area 1	8,837.00		8,837.00	Yes	8,837.00
L2 Printing Area 2	11,952.00		11,952.00	Yes	11,952.00
L2 PM & APM	116.00		98.66	Yes	98.66
L2 Work Study	111.00		0.00	Yes	0.00
L2 Sub Color Room	259.00		251.19	Yes	251.19
L3 Printing area	21,073.00		21,073.00	Yes	21,073.00
L3 QM & AQM	116.00		98.66	Yes	98.66
L3 Pattern Keeping	111.00		0.00	Yes	0.00
L3 Sub Color Room	259.00		251.19	Yes	251.19
L4 Printing Area	19,418.00		19,418.00	Yes	19,418.00
L4 Expose Room	1,361.00		1,342.19	Yes	1,342.19
L4 Design Room	367.00		347.06	Yes	347.06
L4 Testing Lab	608.00		594.24	Yes	594.24
L4 Master Color Room	386.00		370.98	Yes	370.98
L5 Printing Area	21,073.00		21,073.00	Yes	21,073.00
L5 Office	116.00		98.66	Yes	98.66
L5 Work Station	111.00		0.00	Yes	0.00
L5 Sub Color Room	259.00		251.19	Yes	251.19
L6 Printing Area	21,064.00		21,064.00	Yes	21,064.00
L6 Sub Color Room	259.00		251.19	Yes	251.19
L7 Sub Color Room	207.00		207.00	Yes	207.00
L7 Printing Area	8,683.00		8,683.00	Yes	8,683.00
L7 Dining Space 1	4,563.00		4,563.00	Yes	4,563.00
L7 Dining Space 2	1,165.00		1,165.00	Yes	1,165.00
L7 Office	370.00		370.00	Yes	370.00
L7 Female Prayer Space	774.00		768.71	Yes	768.71
L7 Male Prayer Space	1,321.00		1,321.00	Yes	1,321.00
L7 Open Office	1,284.00		1,284.00	Yes	1,284.00
Total regularly occupied area (sq ft)	148,740.00		Total area with views (sq ft)		148,134.50

LEED 2009 – NC
SUSTAINABLE SITES
SS-CR.2 – DEVELOPMENT DENSITY AND COMMUNITY CONNECTIVITY
Available Points: 5 points
Applied Points: 5 points

Content:

1. Narrative & Compliance to credit
2. Trust Knitwear Ltd - Previously Developed site details
3. Residential density details and photographs
4. Map Showing basic amenities
5. List of 10-Basic community Services
6. Photographs of basic services.

The Trust Knitwear Ltd Project is Pursuing Option 2: Community Connectivity.

As per these Requirements-

1. Is site Located on a Previously Developed Land:

Yes- Site has a constructed area at the middle of the project boundary that was being previously used in different occasions and there was a bounded parking area at the North West side.

2. Is it within ½ Mile(800 meters) of a Residential area or Neighborhood with an average density of 10 units per acre net:

Yes. There are many denser residential zones nearby. Detailed hereinafter.

3. Is it within ½mile(800 meters) of 10 basic services:

Yes, Detailed hereinafter.

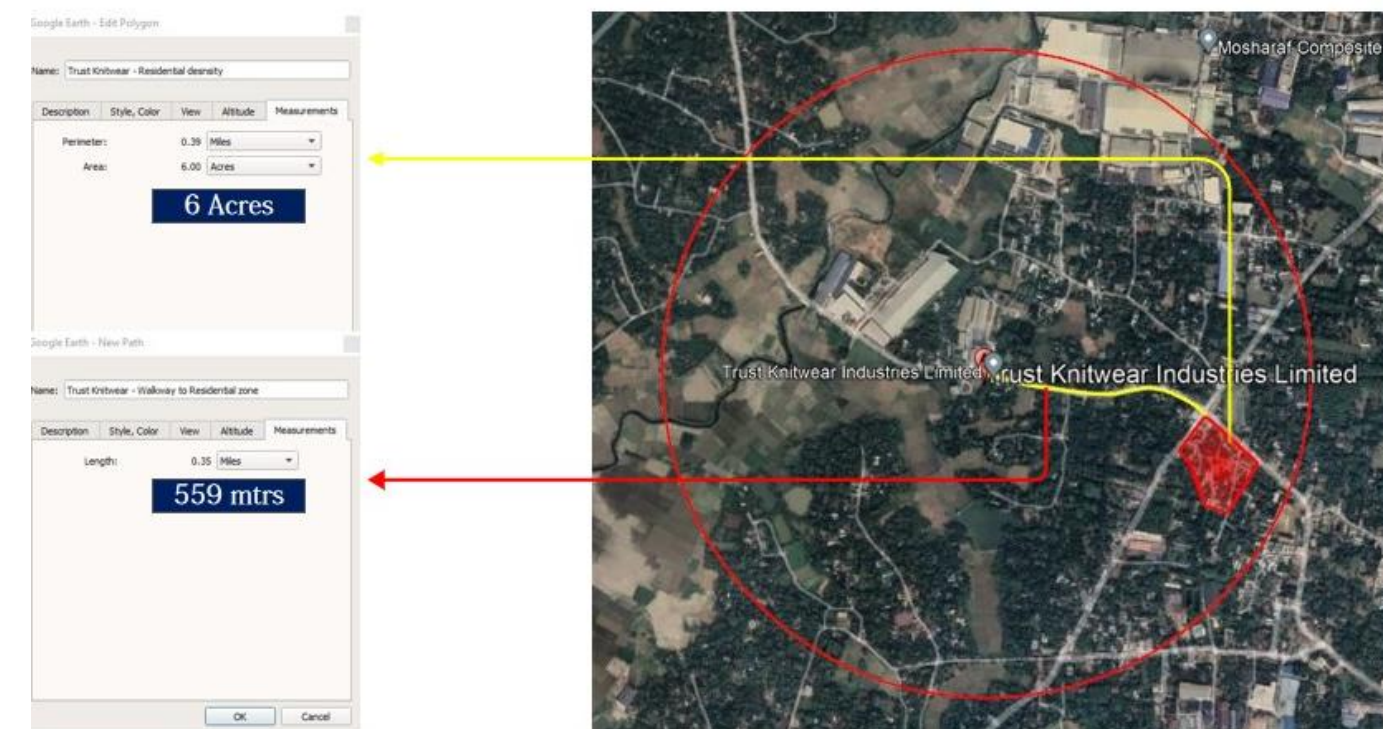
4. Has Pedestrian access between the Buildings and services:

Yes.

Fig: 01- Site Historical Satellite image showing previously graded site attribute.



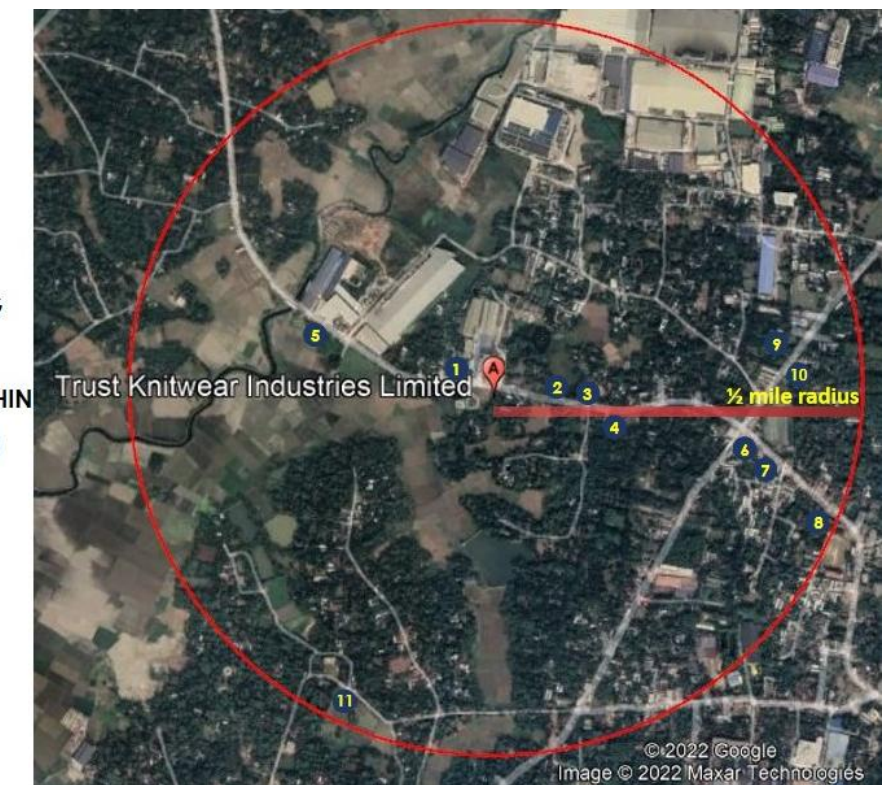
- **RESIDENTIAL ZONE 1:** It is located at 0.35 miles (559 meters) walking distance from the Trust Knitwear Industries Limited.
- **AREA – 6 Acres**
- **No. of Residential Units – 66 nos**
- **Density: 11 units per Acre Net**



BASIC 10-COMMUNITY SERVICESList of Community Service within 1/2 Mile (800 m) radius of Trust Knitwear Ltd

Service Identification No.	Service Type	Identifier Name/Person	Address	On-Map	Distance miles	Distance meters
1	Sinhiya pharmacy and telecom center, 5C23+JJG, Mahona Bhabanipur, Bangladesh	Pharmacy	Mahona Bhabanipur	1	0.060	98
2	Baitul Mumin Jame Mosque, 5C24+GF2, road, Bangladesh	Place of Worship	Mahona Bhabanipur	2	0.086	140
3	Sumaiya Store, 5C24 + CPX, Big Floor, Bhabanipur, Safari Park Road, Gazipur, Bangladesh	Convenience Grocery	Mahona Bhabanipur	3	0.136	220
4	Omar Farooq Grill Workshop, Bhabanipur Safari, Park Road, Bangladesh	Hardware	Mahona Bhabanipur	4	0.161	260
5	Lovolong Jalkutir & Khabarghor Restaurant, 5C32 + 29W Bangabandhu Safari, Park Road, Bangladesh	Restaurant	Mahona Bhabanipur	5	0.279	450
6	Sheikh Bari Market, 5C26+42P, Mahona Bhabanipur, Bangladesh	Supermarket	Mahona Bhabanipur	6	0.372	600
7	A, S Bicycle Store and Auto Workshop	Hardware	Mahona Bhabanipur	7	0.403	650
8	Bhabanipur High School & Government Primary School, Bangladesh	School	Mahona Bhabanipur	8	0.434	700
9	Bhabanipur Mailing service, 5C26+WC2, Bangladesh	Post Office	Mahona Bhabanipur	9	0.466	750
10	Baitul Mamur Jame Masjid, 5C26+PF6, Bangladesh	Place of Worship	Mahona Bhabanipur	10	0.466	750
11	Bhauraghata Playground, 4CV2+VX5, Mahona Bhabanipur, Bangladesh	Park	Mahona Bhabanipur	11	1.056	1700

MAP SHOWING
ELEVEN BASIC
AMENITIES WITHIN
½ MILE (800 M)
RADIUS



**LEED 2009 – NC
SUSTAINABLE SITES
SS-PR.1 – CONSTRUCTION ACTIVITY POLLUTION CONTROL**
Available Points: MANDATORY
Applied Points: MANDATORY

Content:

1. Narrative & Compliance to credit
2. Supportive Documents



NARRATIVE:

Erosion and Sedimentation Control Plan:

The project team of Trust Knitwear Ltd. building located at Sreepur, Gazipur, Bangladesh has developed and implemented an Erosion and Sedimentation Control (ESC) plan that conforms to the 2003 EPA Construction General Permit (CGP) to implement the measures for site for reducing pollution during the construction activities.

OBJECTIVE:

Abide by the construction activity pollution prevention plan to accomplish the following objectives:

- Prevent loss of soil during construction by storm water runoff and/or wind erosion, including protecting topsoil by stockpiling for reuse.
- Prevent sedimentation of storm sewer or receiving streams.
- Prevent polluting the air with dust and particulate matter

This is to be implemented during the construction and any future expansion or renovation, and the proof of undertaking by the owner has been attached separately.

STRATEGIES :

Below measures are required as per 2003 EPA standards which have been implemented in the project during construction activity.

- Soil Erosion Control – Construction Measure
- Site Barricade
- Topsoil storage
- Sedimentation Pits & trenches
- Dust Suppression
- Spill prevention

ESC Measures Monitoring:

At-least monthly monitoring of the ESC measures shall be carried out by the PMC/General contractor to check the effective functioning of the ESC measures. Corrective action shall be carried out if required and documented.

O&M Plan for Soil Erosion Control Measures - Post Occupancy:

The following steps and methodologies have been implemented as post occupancy soil erosion and sedimentation control strategy :

- Landscaping with shrubs and Ground cover species
- Concrete pathways
- Storm water drains
- Rainwater Percolation Pits with Filtration
- Barricade walls around the site

All the above measures are required as per the 2003 EPA CGP. This meets the mandatory requirement. The site logistic plan indicating ESC measures has been attached separately.

Supportive Documents:

1. ESC Logistics Plan – Highlighting construction measures
2. Post Occupancy – Site Landscape Layout
3. Post Occupancy – Rainwater Harvesting Layout
4. Photographs

LEED 2009 – NC
SUSTAINABLE SITES
SS-CR.2 – DEVELOPMENT DENSITY AND COMMUNITY CONNECTIVITY
Available Points: 5 points
Applied Points: 5 points

Content:

1. Narrative & Compliance to credit
2. Birds A&Z - Previously Developed site details
3. Residential density details and photographs
4. Map Showing basic amenities
5. List of 10 - Basic community Services
6. Photographs of basic services.

The Birds A&Z Project is Pursuing Option 2: Community Connectivity.

As per these Requirements-

1. Is site Located on a Previously Developed Land:

Yes- Site has a constructed area at the middle of the project boundary that was being previously used in different occasions and there was a bounded parking area at the North West side.

2. Is it within ½ Mile(800 meters) of a Residential area or Neighborhood with an average density of 10 units per acre net:

Yes. There are many denser residential zones nearby. Detailed hereinafter.

3. Is it within ½mile(800 meters) of 10 basic services:

Yes, Detailed hereinafter.

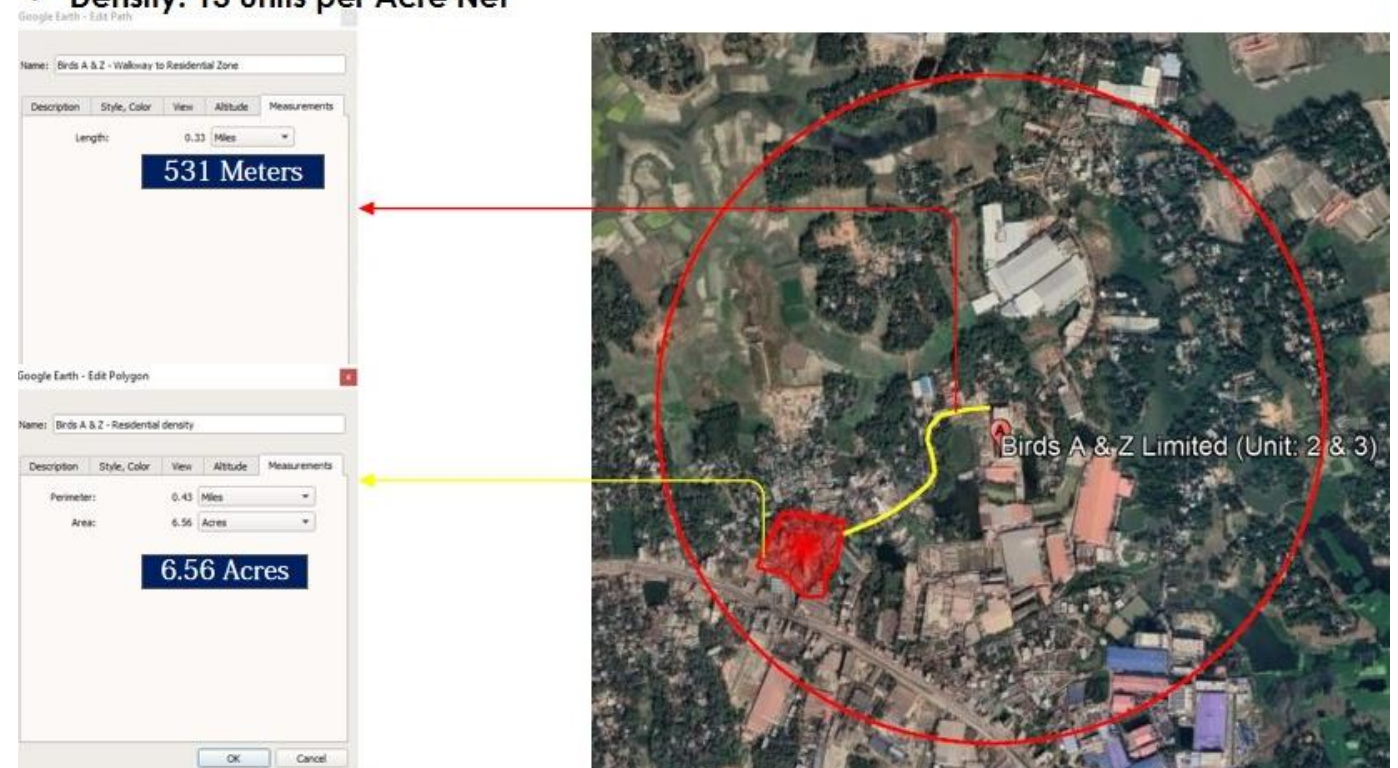
4. Has Pedestrian access between the Buildings and services:

Yes.

Fig: 01- Site Historical Satellite image showing previously graded site attribute.



- RESIDENTIAL ZONE 1: It is located at 0.33 miles (531 meters) walking distance from the Birds A&Z.
- AREA – 6.6 Acres
- No. of Residential Units – 90 nos
- Density: 13 units per Acre Net

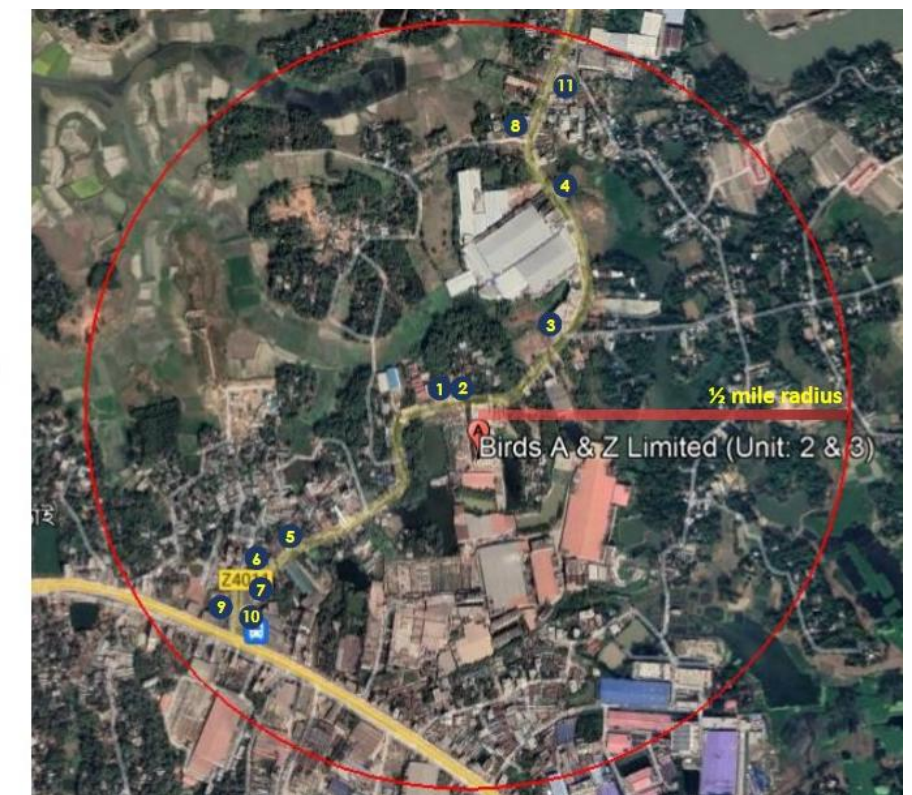


BASIC 10-COMMUNITY SERVICES

List of Community Service within 1/2 Mile (800 m) radius of Jinnat Knitwear Ltd-2

Service Identification No.	Service Type	Identifier Name/Person	Address	On-Map	Distance miles	Distance meters
1	Pradeep pharmacy, momin Nogor, Gorai sokhipur road, Bangladesh	Pharmacy	Mirzapur, Bangladesh	1	0.035	57
2	Allah's Gift Bharta Bhaji Restaurant, momin Nogor, Gorai sokhipur road, Bangladesh	Restaurant	Mirzapur, Bangladesh	2	0.035	57
3	Shirin Spinning Mills Jame Masjid, 453F+35Q, Mirzapur, Bangladesh	Place of Worship	Mirzapur, Bangladesh	3	0.149	240
4	Kobir General Store, 454F+46H, Mirzapur, Bangladesh	Convenience Grocery	Mirzapur, Bangladesh	4	0.342	550
5	Afjal electronic store, 35X8+CXW, Mirzapur - Shakhipur Rd, Hatobanga, Bangladesh	Hardware	Mirzapur, Bangladesh	5	0.372	600
6	Dutch Bangla Bank Ltd, 35X8+7MG, Tangail Highway, 1941, Bangladesh	Bank	Mirzapur, Bangladesh	6	0.435	700
7	NRBC Bank ATM, 35X8+5JC, Z4011, Bangladesh	Bank	Mirzapur, Bangladesh	7	0.435	700
8	Nasir ferdous trust hospital, 454C+MWP, Bangladesh	Medical or Dental Office	Mirzapur, Bangladesh	8	0.466	750
9	Shubo Hotel & Suites, 35W8+WG8, Sakhipur Road, Hatuvhanga, Gogai, Mirzapur, Tangail.	Restaurant	Mirzapur, Bangladesh	9	0.497	800
10	Broken hair cutting salon, 35W8+XH5, Hatubhanga Road Bus Stop, Dhaka - Tangail Hwy, Bangladesh	Beauty Salon	Mirzapur, Bangladesh	10	0.497	800
11	Jahid mobile store, 454F+R4H, Bangladesh	Hardware	Mirzapur, Bangladesh	11	0.497	800

MAP SHOWING ELEVEN BASIC AMENITIES WITHIN 1/2 MILE (800 M) RADIUS



LEED 2009 – NC SUSTAINABLE SITES SS-PR.1 – CONSTRUCTION ACTIVITY POLLUTION CONTROL Available Points: MANDATORY Applied Points: MANDATORY

Content:

1. Narrative & Compliance to credit
2. Supportive Documents



NARRATIVE:

Erosion and Sedimentation Control Plan:

The project team of BIRDS A & Z Ltd located At Gorai, Mirzapur, Tangali has developed and implemented an Erosion and Sedimentation Control (ESC) plan that conforms to the 2003 EPA Construction General Permit (CGP) to implement the measures for site for reducing pollution during the construction activities.

OBJECTIVE:

Abide by the construction activity pollution prevention plan to accomplish the following objectives:

- Prevent loss of soil during construction by storm water runoff and/or wind erosion, including protecting topsoil by stockpiling for reuse.
- Prevent sedimentation of storm sewer or receiving streams.
- Prevent polluting the air with dust and particulate matter

This is to be implemented during the construction and any future expansion or renovation, and the proof of undertaking by the owner has been attached separately.

STRATEGIES :

Below measures are required as per 2003 EPA standards which have been implemented in the project during construction activity.

- Soil Erosion Control – Construction Measure
- Site Barricade
- Topsoil storage
- Sedimentation Pits & trenches
- Dust Suppression
- Spill prevention

ESC Measures Monitoring:

At-least monthly monitoring of the ESC measures shall be carried out by the PMC/General contractor to check the effective functioning of the ESC measures. Corrective action shall be carried out if required and documented.

O&M Plan for Soil Erosion Control Measures - Post Occupancy:

The following steps and methodologies have been implemented as post occupancy soil erosion and sedimentation control strategy :

- Landscaping with shrubs and Ground cover species
- Concrete pathways
- Storm water drains
- Rainwater Percolation Pits with Filtration
- Barricade walls around the site

All the above measures are required as per the 2003 EPA CGP. This meets the mandatory requirement. The site logistic plan indicating ESC measures has been attached separately.

Supportive Documents:

1. ESC Logistics Plan – Highlighting construction measures
2. Post Occupancy – Site Landscape Layout
3. Post Occupancy – Rainwater Harvesting Layout
4. Photographs

LEED 2009 – NC SUSTAINABLE SITES SS-PR.1 – CONSTRUCTION ACTIVITY POLLUTION CONTROL Available Points: MANDATORY Applied Points: MANDATORY

Content:

1. Narrative & Compliance to credit
2. Supportive Documents



NARRATIVE:

Erosion and Sedimentation Control Plan:

The project team of Knit Asia Ltd. building located at Bangladesh has developed and implemented an Erosion and Sedimentation Control (ESC) plan that conforms to the 2003 EPA Construction General Permit (CGP) to implement the measures for site for reducing pollution during the construction activities.

OBJECTIVE:

Abide by the construction activity pollution prevention plan to accomplish the following objectives:

- Prevent loss of soil during construction by storm water runoff and/or wind erosion, including protecting topsoil by stockpiling for reuse.
- Prevent sedimentation of storm sewer or receiving streams.
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- Barricade walls around the site

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4. Photographs

HAMZA TEXTILE LTD		
SS.C.5.2 Maximum Open Space Calculation		
Name	m²	sq.ft
ZONE - 1		
GAURD ROOM	34.14	367.49
GAS ROOM	83.71	901.05
GAS ROOM (UN01)	52.00	559.72
GENERATOR ROOM	339.00	3,648.96
GENERATOR ROOM (UN01)	63.00	678.13
WATER PUMP HOUSE	121.00	1,302.43
WATER PUMP HOUSE (UN01)	48.00	516.67
CHEMICAL STORE	500.00	5,381.95
PROPOSED DRIVERS WAITING AREA	116.00	1,248.61
MYMUN TEXTILE LTD	2,880.00	31,000.03
BOILER ROOM	385.25	4,146.83
WORKSHOP	232.20	2,499.38
HAMZA TEXTILE LTD	1,755.44	18,895.34
HAMZA TEXTILE LTD	5,974.46	64,308.53
DB TEX LTD	8,425.64	90,692.74
ACID WASH	414.63	4,463.05
R E B 01	326.09	3,509.98
E.T.P MONITORING BUILDING	368.51	3,966.61
COLOR CITY-02	4,404.78	47,412.58
GENERATOR ROOM	1,008.29	10,853.14
BOILER ROOM	1,569.11	16,889.74
WATER HOUSE	47.73	513.79
RAIN WATER HARVESTING	307.44	3,309.28
AREA	29456.43	317066.02
ZONE - 2		
PROPOSED CHEMICAL STORE	1,705.12	18,353.73
FABRIC STORE AREA	1,771.29	19,065.98
LOADING/UNLOADING & DISTRIBUTION	746.12	8,031.19
PROPOSED MEDICAL	485.32	5,223.94
PROPOSED YARN STORE	1,556.37	16,752.56
HAMZA WASHING	3,251.59	34,999.79
COLOR CITY-01	18,792.93	202,285.24
THERMAL BOILER	1,074.65	11,567.44
AREA	29383.39	316279.88
ZONE - 3		
CPB(PROPOSED)	10,516.99	113,203.83
HTL-02 UNDER CONSTRUCTION	13,638.60	146,804.56
U.G.T	56.19	604.80
STP	74.62	803.20
AREA	24286.4001	261416.38
ZONE - 4		
UTILITY (HTL-02) UNDER CONSTRUCTION	4,387.86	47,230.52
DYEING FACTORY SPORTS WARE (PROPOSED)	7,967.22	85,758.31
WARP KNIT (PROPOSED)	6,149.98	66,197.72
PROPOSED 3 STORIED SECURITY ACCOMMODATION	505.40	5,440.08
PROPOSED 3 STORIED OFFICER'S ACCOMMODATION	232.75	2,505.34
POND	6,919.52	74,480.98
AREA	26162.7242	281612.948
TOTAL BLDG. FOOTPRINT AREA	109,288.94	1,176,375.24
Total Paved Open Space Area	53,086.50	571,417.77
Total Site Area	197547.93	2126386.21

% Calculation for Maximum Open Space Area			
33% of open space as per Local Regulation		65190.82	701707.4494
Overall Open Space within LEED Boundary (excl. Bldg. Footprint)		88258.99	949666.7636
% of Overall Open Space within LEED Boundary		44.68%	44.66%
Area of Vegetated Open Space		35172.49	378456.03
% of Vegetated Open Space		17.80%	17.80%
Total Paved Open Space Area		53,086.50	571210.7338
% of Paved Open Space		26.87%	26.87%

Considerable Area for LEED Maximize Open Space		88258.9929	949666.7636
% of Considerable Area for LEED Maximize Open Space		44.68%	44.66%

Open space Area exceeding Local Regulation 33% open space within SITE		23068.17457
25% of 33% Local Regualtion-open space		16297.70458
% of Open spaces exceeding local regulation		35.39%
Available Additional % of Open Space		10.39%

RAINWATER HARVESTING CALCULATIONS Has been done for Entire Site						
PREDEVELOPMENT						
S. N O	SURFACE TYPE	Area in M²	RUN - OFF CO-EFFICIENT	RAINFALL in M	RUN-OFF VOLUME (M³)	Impervious area (M³)
1	Gravel Pavement	15418.6	0.75	0.147	1699.90	11563.97
		15418.6			1699.90	11563.97
	Predevelpoment Run-off				1699.90	11563.97

POST DEVELOPMENT					
S.NO	SURFACE TYPE	Area in M ²	RUN - OFF CO-EFFICIENT	RAINFALL in M	RUN-OFF VOLUME (M ³)
1	Cemented / Tiled Roof	7485	0.95	0.147	1045.34
2	Concrete Pavement	2266	0.95	0.147	316.50
3		0	0.1	0.147	0.00
4	Vegetated Areas (Trees, Shrubs & Lawns) (Here We have included the areas along the sides where no hatching is given)	5666.817	0.25	0.147	208.26
TOTAL		15419	Post Development Run-off		1570.10
DIFFERENCE BETWEEN POST AND PRE DEVELOPMENT RUN-OFF					-129.81

Based on the Calculations and LEED Requirements, the Post Development Run-off should not Exceed the Pre-developemnt Runoff. Hence, We need to Harvet 1656 Cubic Meter of Water. This is Too High- The reason too much Roof Area, Too Much Hardscape Area and Too Less Green Area and Pond area. To Reduce Harvesting Volume, them have to Plan Lot of Trees and Also some amount of Terrace Gardens. All Roads can be with Grass Grid Pavers.

PREDEVELOPMENT				
TOTAL SITE	AREA	SURFACE TYPE	SQFT	RUN-OFF CO-EFFICIENT
				Impervious Area sqft
	Building Roof	Conventional Concrete Roof	34856	0.95
	Preserved Landscape	Trees	2517	0.1
	Rest of Site	Open space parsely vegetated	108507	0.6
TOTALS			145880	
PERCENTAGE OF SITE IMPERVIOUSNESS				0.68
PRE DEVELOPEDMENT SITE RUN-OFF QUANTITY FOR 2 YEAR 24 HOUR STORM Considering 5.85 Inches (0.4875 ft) of Rainfall. IN CUBIC FEET/STORM				48003.69

POSTDEVELOPMENT				
TOTAL SITE	AREA	SURFACE TYPE	SQFT	RUN-OFF CO-EFFICIENT
				Impervious Area sqft
	Building Roof	Conventional Concrete Roof	88848	0.95
	Preserved Landscape	Trees	2517	0.1
	New Landscape	Shrubs	22901	0.25
	Brick Pervious Paver	Pervious Paving	25776	0.7
	Concrete Hardscape	Concrete Paver	5838	0.95
TOTALS			145880	
VOLUME OF POND in Cubic Feet				3400000.00
Considering that the Pond is about 60% full during the Monsoon and the Draw down rate is more than 3 to 4 days				1360000
Runoff from Site to Pond Considering 5.85 Inches (0.4875 ft) of Rainfall. IN CUBIC FEET/STORM				55561.28
POST DEVELOPMENT RUN-OFF				0

Adex Corporation														
LEED STRATEGY	FIXTURE TYPE	Flood Light 20W	Flood Light 50W	Flood Light 100W	Flood Light 150W	Flood Light 200W	High bay light 60W	High bay light 120W	High bay light 150W	High bay light 200W	LED Bulb light	Panel light 36W	Tube light 7.3W	Tube light 22W
	MODEL NO	LDVAL FL 20W 865	LDVAL FL 50W 865	LDVAL FL 100W 865	LDVAL FL 150W 865	LDVAL FL 200W 865	LED ECO HIGHBAY 60 W/6500 K	LED Performance HighBay 1-10V 120 W/6500 K	LED Performance HighBay 1-10V 150 W/6500 K	LED Performance HighBay 1-10V 200 W/6500 K		PANEL VAL 600 36 W 6500 K WT	ST8A-EM 7.3 W/6500 K 600 mm	ST8A-EM 22 W/6500 K 1200 mm
	WATTAGE	20	50	100	150	200	60	120	150	200		36	7.3	22
B	CRI Should be 80+	80	80	80	80	80	80	80	80	80		80	80	80
	LUMENS (lm)	1855.6	4,808.10	9574.6	14445	18946	Value not available	16800	21000	28000		3599.8	1067.6	2711.6
	Luminous Efficacy (lm/W) > 100 lm/W	92.78	96.16	95.746	96.3	94.73	0	140	140	140		99.99	146.25	123.25
A	CD/M2 between 45 to 90Deg should be < 2500	Value not available	Value not available	Value not available	Value not available	Value not available	Value not available	116321	104927	104927		3882	Value not available	Value not available
	RATED LIFE (hours) > 24000 Hrs	30000	30000	30000	30000	30000	30000	50000	50000	50000		50000	50000	50000
	IES AVAILABLE	YES	YES	YES	YES	YES	NO	YES	YES	YES		YES	YES	YES
	Any other Info Required													
	Approved Yes/No?	NO as Luminous Efficacy is not met	NO as Luminous Efficacy is not met	NO as Luminous Efficacy is not met	NO as Luminous Efficacy is not met	NO as Luminous Efficacy is not met	More Info Required.	NO as CD/m2 is not met	NO as CD/m2 is not met	NO as CD/m2 is not met	More Info Required.	NO as CD/m2 is not met	More Info Required.	More Info Required.

Megaman Bangladesh													
LEED STRATEGY	FIXTURE TYPE	Flood Light 50W	Flood Light 100W	Flood Light 150W	Flood Light 200W	Flood Light 400W	High bay light 100W	High bay light 150W	High bay light 200W	Panel light 48W	Tube light 5W	Tube light 12W	Tube light 22W
	MODEL NO	ZDL3010	ZDL3010	ZDL3010	ZDL3010		GDXL1028	GDXL1028	GDXL1028	MQL3035	MXL2097		
	WATTAGE	50	100	150	200		100	150	200	5	5	12	22
B	CRI Should be 80+	80	80	80	80		80	80	80	80	80		
	LUMENS (lm)	4905.3	11,767.70	14479.5	20588.9	53326.10	10829.6	16076.5	20588.9	4744	420.9	1114.8	1472.3
	Luminous Efficacy (lm/W) > 100 lm/W	98.11	117.68	96.53	102.94		108.30	107.18	102.94	948.8	84.18	92.9	66.92272727
A	CD/M2 between 45 to 90Deg should be < 2500	Value not available	2063	Value not available	Value not available		Value not available	Value not available	Value not available	4202	Value not available	Value not available	Value not available
	RATED LIFE (hours) > 24000 Hrs	25000	25000	25000	25000		25000	25000	25000	25000	25000		
	IES AVAILABLE	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
	Any other Info Required												
	Approved Yes/No?	NO as Luminous Efficacy is not met	YES Approved	NO as Luminous Efficacy is not met	More Info Required.	More Info Required.	More Info Required.	More Info Required.	More Info Required.	NO as CD/m2 is not met	More Info Required.	More Info Required.	More Info Required.

Energy Plus												
LEED STRATEGY	FIXTURE TYPE	LED High Bay Light	LED High Bay Light	LED High Bay Light	LED High Bay Light	LED High Bay Light	LED High Bay Light	LED High Bay Light	LED High Bay Light	LED High Bay Light	LED High Bay Light	LED High Bay Light
	MODEL NO	EPPHB-22003-EW-W60-50-R.Acrylic	EPPHB-22003-EW-W60-50-R.Alu	EPPHB-22003-EW-W60-100	EPPHB-22003-EW-W60-100-R.Acrylic	EPPHB-22003-EW-W60-100-R.Alu	EPPHB-22003-EW-W60-150	EPPHB-22003-EW-W60-150-R.Acrylic	EPPHB-22003-EW-W60-150-R.Alu	EPPHB-22003-EW-W60-200	EPPHB-22003-EW-W60-200-R.Acrylic	EPPHB-22003-EW-W60-200-R.Alu
	WATTAGE	50	50	100	100	100	150	150	150	200	200	200
B	CRI Should be 80+	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available
	LUMENS (lm)	6668.5	7,292.80	12268	12423	13380	19163	17,586.00	18823	27541	23908	25633
	Luminous Efficacy (lm/W) > 100 lm/W	133.37	145.86	122.68	124.23	133.80	127.75	117.24	125.49	137.71	119.54	128.17
A	CD/M2 between 45 to 90Deg should be < 2500	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available
	RATED LIFE (hours) > 24000 Hrs	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available	Not Available
	IES AVAILABLE	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES	YES
	Any other Info Required											
	Approved Yes/No?	More Info Required.	More Info Required.	More Info Required.	More Info Required.	More Info Required.	More Info Required.	More Info Required.	More Info Required.	More Info Required.	More Info Required.	More Info Required.

Energy Plus						
LEED STRATEGY	FIXTURE TYPE	LED Flood Light	LED Flood Light	LED Flood Light	LED Flood Light	LED Flood Light
	MODEL NO	EPPFLDR-22001-M-W60-100	EPPFLDR-22001-M-W60-150	EPPFLDR-22001-M-W60-200	EPPFLDR-22001-M-W60-250	EPMFDL-17017-W-W65-200
	WATTAGE	100	150	200	250	200
B	CRI Should be 80+	Not Available	Not Available	Not Available	Not Available	Not Available
	LUMENS (lm)	15024	21,658.00	29314	35445	29798
	Luminous Efficacy (lm/W) > 100 lm/W	150.24	144.39	146.57	141.78	148.99
A	CD/M2 between 45 to 90Deg should be < 2500	Not Available	Not Available	Not Available	Not Available	Not Available
	RATED LIFE (hours) > 24000 Hrs	Not Available	Not Available	Not Available	Not Available	Not Available
	IES AVAILABLE	YES	YES	YES	YES	YES
	Any other Info Required					
	Approved Yes/No?	More Info Required.	More Info Required.	More Info Required.	More Info Required.	More Info Required.

Energy Plus ==				
LEED STRATEGY	FIXTURE TYPE	LED Tube Light	LED Tube Light	LED Tube Light
	MODEL NO	EPPTL-22006-EW-W60-5	EPPTL-22006-EW-W60-12	EPPTL-22006-EW-W60-22
	WATTAGE	5	12	22
B	CRI Should be 80+	Not Available	Not Available	Not Available
	LUMENS (lm)	950.6	794.3	2294.3
	Luminous Efficacy (lm/W) > 100 lm/W	190.12	66.19	104.29
A	CD/M2 between 45 to 90Deg should be < 2500	Not Available	Not Available	Not Available
	RATED LIFE (hours) > 24000 Hrs	Not Available	Not Available	Not Available
	IES AVAILABLE	YES	YES	YES
	Any other Info Required			
	Approved Yes/No?	More Info Required.	More Info Required.	More Info Required.

INDOOR ENVIRONMENT QUALITY AND OCCUPATIONAL HEALTH

Day Lighting, 50%, 75%, 95%

Design Submittal

IEQ Credit 3.0

Points: 6

Goal

To ensure connectivity between the interior and exterior environment, by providing good day lighting.

Compliance Options

Achieve a minimum average daylight factor of 2% for atleast 50% of the total floor area of all regularly occupied spaces.

Points for Day Light for regularly occupied Spaces

Percentage of Lighting	Points
≥ 50%	2
≥ 75%	4
≥ 95%	6

Average daylight factor can be calculated using the formula given below:

$$\text{Daylight Factor} = \frac{\text{Window Area [SF]} \times \text{Window Geometry} \times \frac{\text{Actual Visible transmittance}}{\text{Minimum Visible transmittance}} \times \text{Height Factor}}{\text{Floor Area [SF]}}$$

Notes:

- ❖ Window openings which are less than 0.76 meters (2.5 feet) above the floor are not considered for day lighting calculations
- ❖ Window openings where the angle of obstruction of objects obscuring the sky dome is greater than 70 deg. from the horizontal shall not be considered for daylight calculations

Insight Lighting Analysis with Revit provides in context daylighting and lighting analysis results and automated scheduling to help you document light levels throughout your design. The plugin provides automated settings for specific study types, as well as customizable options. The following analysis types are currently available:

Analysis Type	Description
Illuminance Analysis	Full custom control over date, time, threshold, and analysis plane height
Daylight Factor (Beta)	Full custom control over threshold, and analysis plane height
LEED 2009 IEQc8 – Option 1	Automated settings for LEED 2009 IEQc8 opt1 settings
LEED v4 EQc7 – Option 1	Automated settings for LEED v4 EQc7 opt1 (sDA & ASE)
LEED v4 EQc7 – Option 2	Automated settings for LEED v4 EQc7 opt2 settings
Solar Access	Customizable hours of sun study

Insight Lighting Analysis with Revit leverages the A360 Rendering service, a cloud based rendering service, to provide quick and accurate lighting analysis results. The diagram below represents how Insight Lighting Analysis with Revit works.

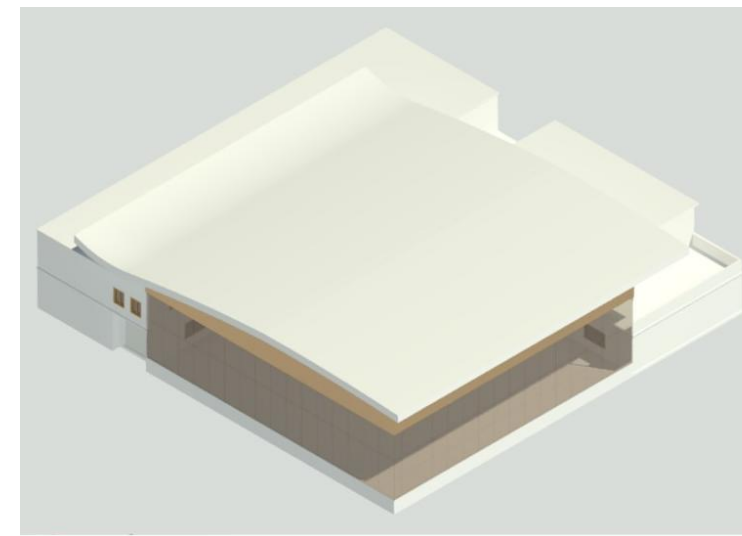


FIG 01: PRESPECTIVE VIEW



FIG 05: NORTH – WEST PRESPECTIVE VIEW



FIG 02: SOUTH – EAST PRESPECTIVE VIEW

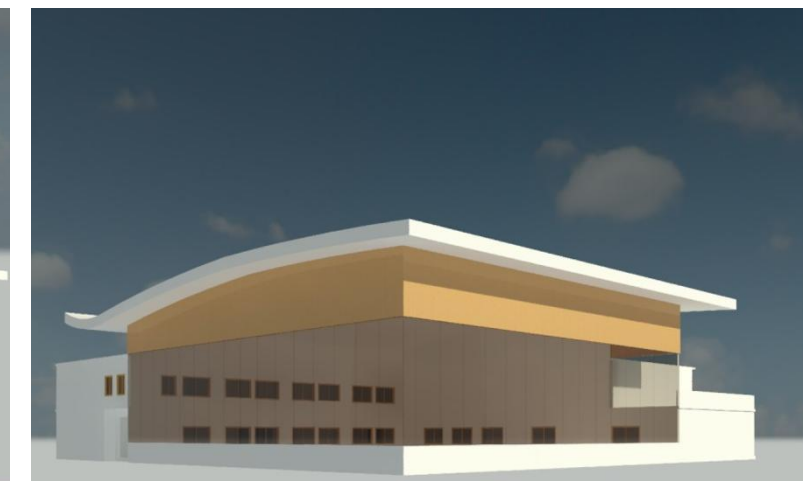


FIG 05: NORTH – EAST PRESPECTIVE VIEW

SCREEN SHOT OF ECBC MANUAL VALUES FOR UNRATED FENESTRATION: Source ECBC 2007, Specification considered are highlighted in red box (compliance towards 4.2.1)

For unrated windows, follow the values given in Table 4.7 (Table 11.1 of Appendix C of ECBC).

Table 4.7: Defaults for Unrated Vertical Fenestration (Overall Assembly including Sash and Frame) - Table 11.1 of ECBC

Frame Type	Glazing Type	Clear Glass			Tinted Glass		
		U-factor (W/m ² ·K)	SHGC	VLT	U-Factor (W/m ² ·K)	SHGC	VLT
All frame types	Single Glazing	7.1	0.82	0.76	7.1	0.70	0.58
Wood, vinyl, or fiberglass frame	Double Glazing	3.3	0.59	0.64	3.4	0.42	0.39
Metal and other frame type	Double Glazing	5.1	0.68	0.66	5.1	0.50	0.40

L1: Ground Floor
Total Regular area – 1090 m²
Area of Daylight Factor meet – 727 m²
Percentage of Daylight Factor meet – 66.72%
Average Daylight Factor – 2.1%

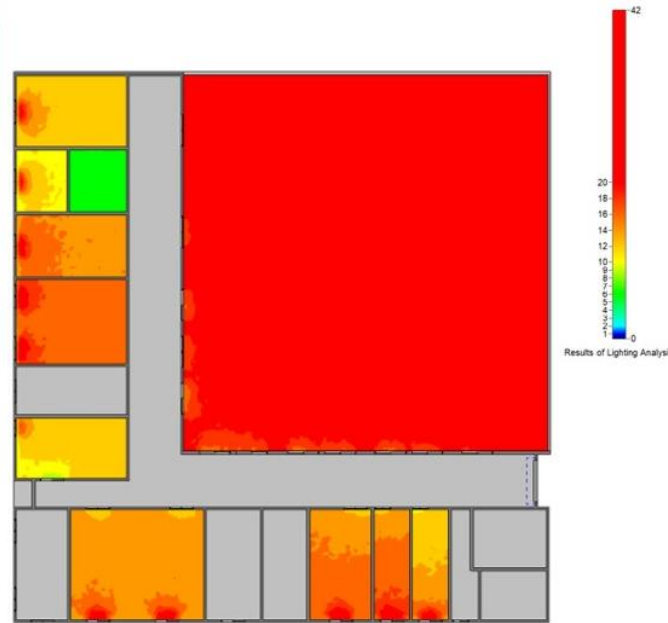


FIG 15: GROUND FLOOR – DAYLIGHT FACTOR RESULT

Daylight Factor Whole Building Results: National Institute Of Technology Karanafka, India										
83% of points are between 2.0-10.0% (Building ADF is 3.6%)										
S.No	Level	Name	Area	DF Sky threshold results						
				within threshold		above threshold		below threshold		ADF %
			(m²)	%	Area (m²)	%	Area (m²)	%	Area (m²)	
1	L1 Ground Floor	L1 Gymnasium	508	57	290	0	0	43	218	2.1
2		L1 Aerobics	509	86	438	0	0	14	71	2.1
3		L1 Office	49	0	0	0	0	100	49	0.5
4		L1 Green Room 1	12	0	0	0	0	100	12	0.2
5		L1 Green Room 2	12	0	0	0	0	100	12	0.3
6	L2 Mezzanine (Ground)	L2 Domitory 1	25	100	25	0	0	0	0	7.7
7		L2 Domitory 2	21	100	21	0	0	0	0	7.4
8		L2 Office	38	0	0	0	0	100	38	0.2
9		L2 Domitory 3	25	100	25	0	0	0	0	5.1
10		L2 Domitory 4	21	100	21	0	0	0	0	6.2
11	L3 First Floor	L3 Billards	508	100	508	0	0	0	0	5.4
12		L3 Table Tennis	508	100	508	0	0	0	0	5.4
13		L3 P.D	20	100	20	0	0	0	0	6.3
14		L3 A.P.D	20	100	20	0	0	0	0	5.3
15	L4 Second Floor	L4 Badminton	508	81	411	0	0	19	97	2.3
16		L4 Squash	508	80	406	0	0	20	102	2.4
17	L5 Mezzanine (Second)	L5 Media Room / Press Gallery	189	100	189	0	0	0	0	5.6
Total Daylighted Area (m²)			3481	82.80	2882	0	0	17.20	599	3.6

L3: First Floor
Total Regular area – 1056 m²
Area of Daylight Factor meet – 1056 m²
Percentage of Daylight Factor meet – 100%
Average Daylight Factor – 5.8%

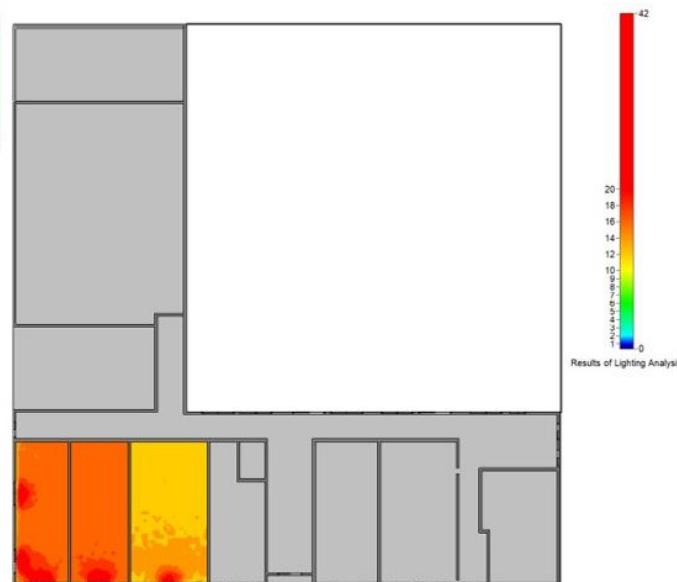


FIG 17: FIRST FLOOR – DAYLIGHT FACTOR RESULT

Daylight Factor Whole Building Results: National Institute Of Technology Karnataka, India								
83% of points are between 2.0-10.0% (Building ADF is 3.6%)								
Level	Area	DF Sky threshold results						ADF %
		within threshold		above threshold		below threshold		
	(m²)	%	Area (m²)	%	Area (m²)	%	Area (m²)	
L1 Ground Floor	1090	66.72	727	0	0	33.28	363	2.1
L2 Mezzanine (Ground)	130	70.77	92	0	0	29.23	38	6.6
L3 First Floor	1056	100.00	1056	0	0	0.00	0	5.8
L4 Second Floor	1016	80.50	818	0	0	19.50	198	2.4
L5 Mezzanine (Second)	189	100.00	189	0	0	0.00	0	5.6
Total Daylighted Area (m²)	3481	82.80	2882	0	0	17.20	599	3.6

In Computer Simulation this project is meeting with **82.80%** of the regularly Occupied spaces in the building to achieve Daylight Factor. So this project is Eligible to Achieve **2 Points** in 13.3.2 Daylight Factor.

INDOOR ENVIRONMENT QUALITY AND OCCUPATIONAL HEALTH

Day Lighting, 50%, 75%, 95%

Design Submittal

IEQ Credit 3.0

Points: 6

Goal

To ensure connectivity between the interior and exterior environment, by providing good day lighting.

Compliance Options

Achieve a minimum average daylight factor of 2% for atleast 50% of the total floor area of all regularly occupied spaces.

Points for Day Light for regularly occupied Spaces

Percentage of Lighting	Points
≥ 50%	2
≥ 75%	4
≥ 95%	6

Average daylight factor can be calculated using the formula given below:

$$\text{Daylight Factor} = \frac{\text{Window Area [SF]} \times \text{Window Geometry} \times \text{Actual Visible transmittance}}{\text{Floor Area [SF]} \times \text{Minimum Visible transmittance}} \times \text{Height Factor}$$

Notes:

- ❖ Window openings which are less than 0.76 meters (2.5 feet) above the floor are not considered for day lighting calculations
- ❖ Window openings where the angle of obstruction of objects obscuring the sky dome is greater than 70 deg. from the horizontal shall not be considered for daylight calculations

Insight Lighting Analysis with Revit provides in context daylighting and lighting analysis results and automated scheduling to help you document light levels throughout your design. The plugin provides automated settings for specific study types, as well as customizable options. The following analysis types are currently available:

Analysis Type	Description
Illuminance Analysis	Full custom control over date, time, threshold, and analysis plane height
Daylight Factor (Beta)	Full custom control over threshold, and analysis plane height
LEED 2009 IEQc8 – Option 1	Automated settings for LEED 2009 IEQc8 opt1 settings
LEED v4 EQc7 – Option 1	Automated settings for LEED v4 EQc7 opt1 (sDA & ASE)
LEED v4 EQc7 – Option 2	Automated settings for LEED v4 EQc7 opt2 settings
Solar Access	Customizable hours of sun study

Insight Lighting Analysis with Revit leverages the A360 Rendering service, a cloud based rendering service, to provide quick and accurate lighting analysis results. The diagram below represents how Insight Lighting Analysis with Revit works.

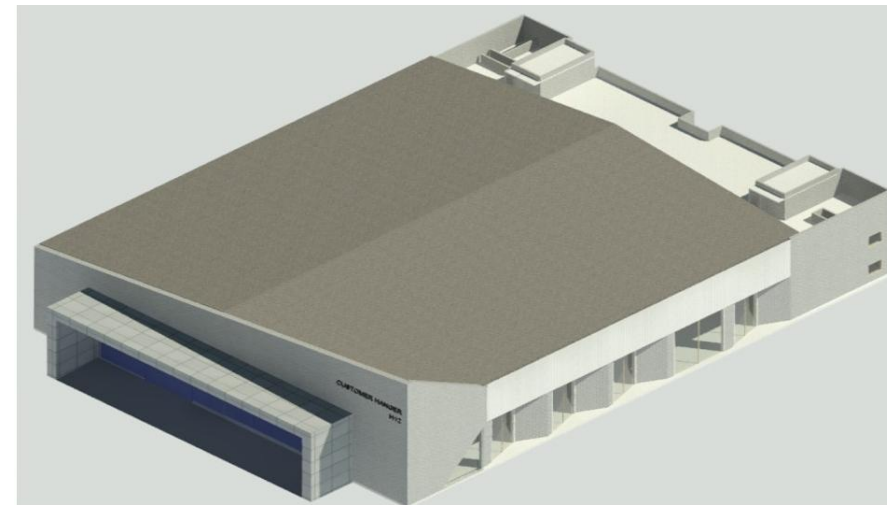


FIG 01: PRESPECTIVE VIEW



FIG 04: SOUTH – WEST PRESPECTIVE VIEW



FIG 02: SOUTH – EAST PRESPECTIVE VIEW



FIG 05: NORTH – WEST PRESPECTIVE VIEW

SCREEN SHOT OF ECBC MANUAL VALUES FOR UNRATED FENESTRATION: Source ECBC 2007, Specification considered are highlighted in red box (compliance towards 4.2.1)

For unrated windows, follow the values given in Table 4.7 (Table 11.1 of Appendix C of ECBC).

Table 4.7: Defaults for Unrated Vertical Fenestration (Overall Assembly including Sash and Frame) - Table 11.1 of ECBC

Frame Type	Glazing Type	Clear Glass			Tinted Glass		
		U-factor (W/m ² ·K)	SHGC	VLT	U-Factor (W/m ² ·K)	SHGC	VLT
All frame types	Single Glazing	7.1	0.82	0.76	7.1	0.70	0.58
Wood, vinyl, or fiberglass frame	Double Glazing	3.3	0.59	0.64	3.4	0.42	0.39
Metal and other frame type	Double Glazing	5.1	0.68	0.66	5.1	0.50	0.40

L1: Ground Floor

Total Regular area – 1090 m²
Area of Daylight Factor meet – 727 m²
Percentage of Daylight Factor meet – 66.72%
Average Daylight Factor – 2.1%

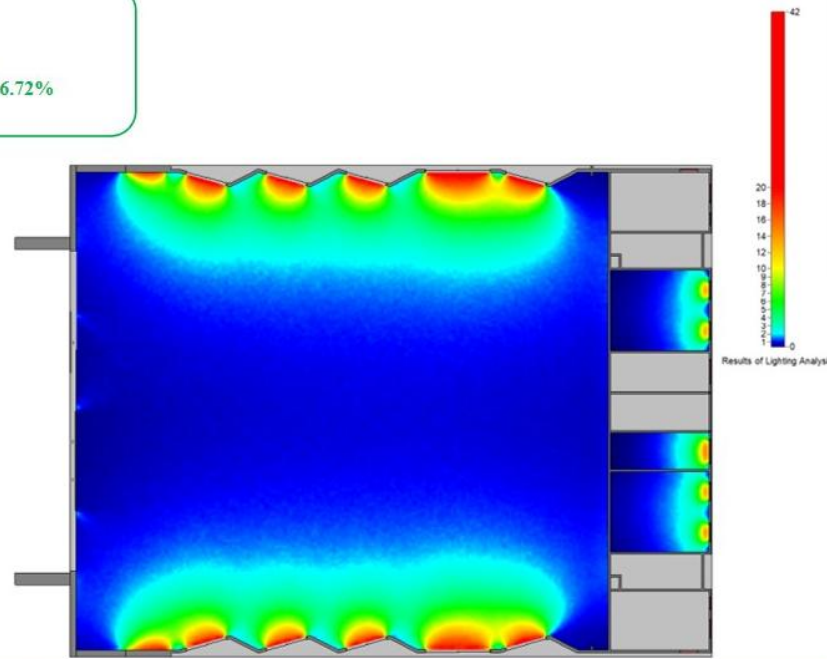


FIG 15: GROUND FLOOR – DAYLIGHT FACTOR RESULT

L3: First Floor

Total Regular area – 1056 m²
Area of Daylight Factor meet – 1056 m²
Percentage of Daylight Factor meet – 100%
Average Daylight Factor – 5.8%

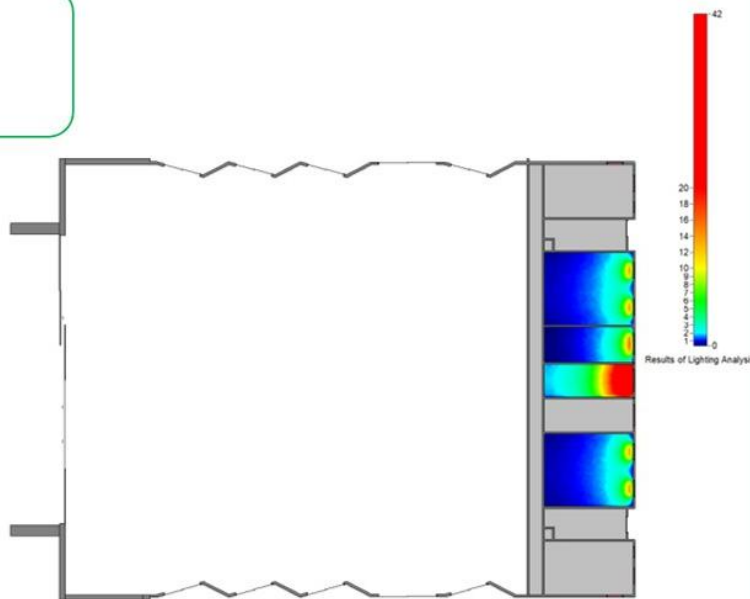


FIG 17: FIRST FLOOR – DAYLIGHT FACTOR RESULT

Daylight Factor Whole Building Results: National Institute Of Technology Karnataka, India

83% of points are between 2.0-10.0% (Building ADF is 3.6%)

S.No	Level	Name	Area	DF Sky threshold results						
				within threshold		above threshold		below threshold		ADF %
			(m²)	%	Area (m²)	%	Area (m²)	%	Area (m²)	
1	L1 Ground Floor	L1 Gymnasium	508	57	290	0	0	43	218	2.1
2		L1 Aerobics	509	86	438	0	0	14	71	2.1
3		L1 Office	49	0	0	0	0	100	49	0.5
4		L1 Green Room 1	12	0	0	0	0	100	12	0.2
5		L1 Green Room 2	12	0	0	0	0	100	12	0.3
6	L2 Mezzanine (Ground)	L2 Dormitory 1	25	100	25	0	0	0	0	7.7
7		L2 Dormitory 2	21	100	21	0	0	0	0	7.4
8		L2 Office	38	0	0	0	0	100	38	0.2
9		L2 Dormitory 3	25	100	25	0	0	0	0	5.1
10		L2 Dormitory 4	21	100	21	0	0	0	0	6.2
11	L3 First Floor	L3 Billards	508	100	508	0	0	0	0	5.4
12		L3 Table Tennis	508	100	508	0	0	0	0	5.4
13		L3 P.D	20	100	20	0	0	0	0	6.3
14		L3 A.P.D	20	100	20	0	0	0	0	5.3
15	L4 Second Floor	L4 Badminton	508	81	411	0	0	19	97	2.3
16		L4 Squash	508	80	406	0	0	20	102	2.4
17	L5 Mezzanine (Second)	L5 Media Room / Press Gallery	189	100	189	0	0	0	0	5.6
Total Daylighted Area (m²)			3481	82.80	2882	0	0	17.20	599	3.6

Daylight Factor Whole Building Results: National Institute Of Technology Karnataka, India

83% of points are between 2.0-10.0% (Building ADF is 3.6%)

Level	Area	DF Sky threshold results						
		within threshold		above threshold		below threshold		ADF %
		(m²)	%	Area (m²)	%	Area (m²)	%	
L1 Ground Floor	1090	66.72	727	0	0	33.28	363	2.1
L2 Mezzanine (Ground)	130	70.77	92	0	0	29.23	38	6.6
L3 First Floor	1056	100.00	1056	0	0	0.00	0	5.8
L4 Second Floor	1016	80.50	818	0	0	19.50	198	2.4
L5 Mezzanine (Second)	189	100.00	189	0	0	0.00	0	5.6
Total Daylighted Area (m²)	3481	82.80	2882	0	0	17.20	599	3.6

In Computer Simulation this project is meeting with 82.80% of the regularly Occupied spaces in the building to achieve Daylight Factor. So this project is Eligible to Achieve 2 Points in 13.3.2 Daylight Factor.

INDOOR ENVIRONMENT QUALITY AND OCCUPATIONAL HEALTH

Day Lighting, 50%, 75%, 95%

Design Submittal

IEQ Credit 3.0

Points: 6

Goal

To ensure connectivity between the interior and exterior environment, by providing good day lighting.

Compliance Options

Achieve a minimum average daylight factor of 2% for atleast 50% of the total floor area of all regularly occupied spaces.

Points for Day Light for regularly occupied Spaces

Percentage of Lighting	Points
≥ 50%	2
≥ 75%	4
≥ 95%	6

Average daylight factor can be calculated using the formula given below:

$$\text{Daylight Factor} = \frac{\text{Window Area [SF]} \times \text{Window Geometry} \times \text{Actual Visible transmittance} \times \text{Height Factor}}{\text{Floor Area [SF]} \times \text{Minimum Visible transmittance}}$$

Notes:

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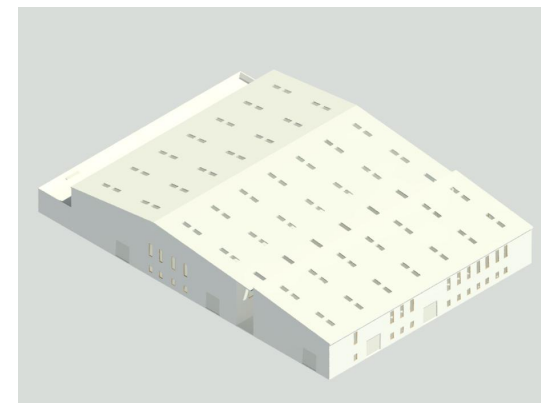


FIG 01: SOUTH - WEST PERSPECTIVE VIEW



FIG 02: NORTH - EAST PERSPECTIVE VIEW

L1: Ground Floor

Total Regular area - 3923 m²

Area of Daylight Factor meet - 1018 m²

Percentage of Daylight Factor meet - 26%



FIG 3: GROUND FLOOR - DAYLIGHT FACTOR RESULT

HAL P1S3 - T-22 GI & TRANSMISSION STORES									
Daylight Factor Whole Building Results: Tumakuru									
26% of points are between 2.0-20.0% (Building ADF is 22.7%)									
Daylight Factor Sky (unshaded horizontal 100%)									
S.No	Name	Area m²	DF Sky threshold results						ADF %
			within threshold %	above threshold %	below threshold %	Area m²	Area m²	Area m²	
1	L1 Office Space 1	95	100	95	0	0	0	0	13
2	L1 Office Space 2	45	100	45	0	0	0	0	15.4
3	L1 Production Space	2606	0	0	100	2606	0	0	28.2
4	L1 Shipping & Packing area	332	10	33	90	299	0	0	21.3
5	L1 Shipping Office	164	100	164	0	0	0	0	11.4
6	L1 Calibration Lab	164	100	164	0	0	0	0	7.1
7	L1 GSE	517	100	517	0	0	0	0	3.1
Total Daylighted area m²		3923	26	1018	74.05	2905	0	0	22.7

In Computer Simulation this project is meeting with 26% of the regularly Occupied spaces in the building to achieve Daylight Factor. So this project is Eligible to Achieve 2 Points in 13.3.2 Daylight Factor.

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Solar Access	Customizable hours of sun study

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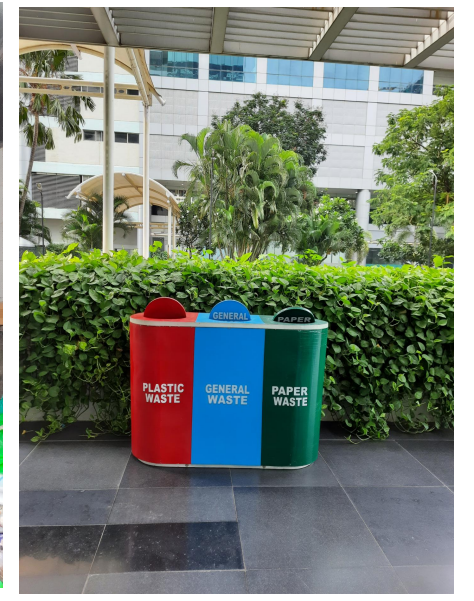
FIRE FIGHTING



WELL BEING CENTRE



WASTE BIN CENTRE



FIRST AID



LANDSCAPE & HARDSCAPE AREA



SIGNAGE BOARDS



WATER AUDIT



HVAC SYSTEMS

