*Salahaddin University*
*College Of Engineering*
*Architecture Department*

# *Green Architecture report*

# *Balla academy complex for Education and Teaching*

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# Introduction

This report is about taking a school and analysis it to know if it's sustainable or not? Or green building or not ?

So we take Balla school which is not only school it's consist of academy complex for Education and teaching and we make an analysis of the site plan,plans and the Location. Then we make tables for all the requirements and all materials and Structure that used.

It's important to know how the building is constructed and designed,to know the Operation and running cost during the years..

# General information about the school

Balla academy complex is official and belong to the ministry of education in 1998, It was the first non-government private school in Erbil,when first opened the Language of study was kurdish. Then in 2018 two other branches of this school Were opened in English language and till now it's one of the best schools in Erbil, And kurdistan region.

It's consist of Nursery , Kindergarten , and basic school under the no. (1) from Ministry of education and certification from ministry of High schools were opened Under the supervision of expert teachers.

Balla school building is 4 floors and total area of the land use is 4256sq.m
And the building area is 2300 sq.m with the startford university building.
But the only area of Balla school building is = 860 sq.m
Then if we calculate the buildup area with the openings and parkings and Green area, the land area of ball is = 2428 sq.m

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- Area of green area and walkway = 951 sq.m
- Area of parking = 617 sq.m
- Total = 1568 sq.m
- 1568 + 860 = 2428
- So the total area is 2428 sq.m

The basement floor is for nursery and cosist of:

1. Accountant room
2. Dean office
3. Store
4. Drawing room
5. Small cafeteria for children
6. Lobby
7. 2 w.c (girls,boys)
8. Kitchen
9. Store in w.c
10. Emergency room
11. Study room
12. Story room
13. Meeting room
14. Corridors (2.60m)
15. Playing room
16. Security room

The ground floor is for kindergarten and consist of:

1. Manager room
2. Reception
3. Dean office
4. Teachers room
5. W.c,s
6. Cefeteria
7. Store
8. Kitchen
9. Lobby
10. 17 classes for studying

The first floor is consist of :

1. Lobby
2. Library
3. Meeting room
4. Office
5. 9 class
6. Art room
7. W.c’s

The second floor is consist of :

1. Lobby
2. Chemistry lab
3. Physic lab
4. 2 rooms
5. Store
6. W.c’s
7. Football stadium

So the total components of the building are:

22 halls

17 class rooms

2 cafeterias

1 library

7 offices

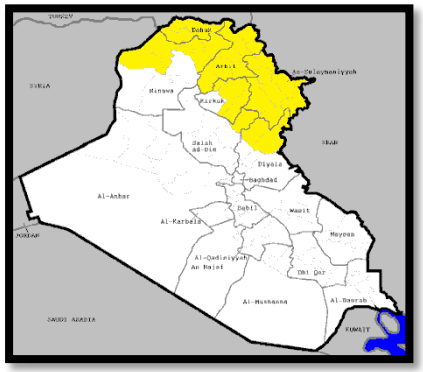
36 w.c’s

1 stadium 535 sq.m

# Location

World map

Iraq map



Hawler map


The site

# Accessibility

## Distance from city center:

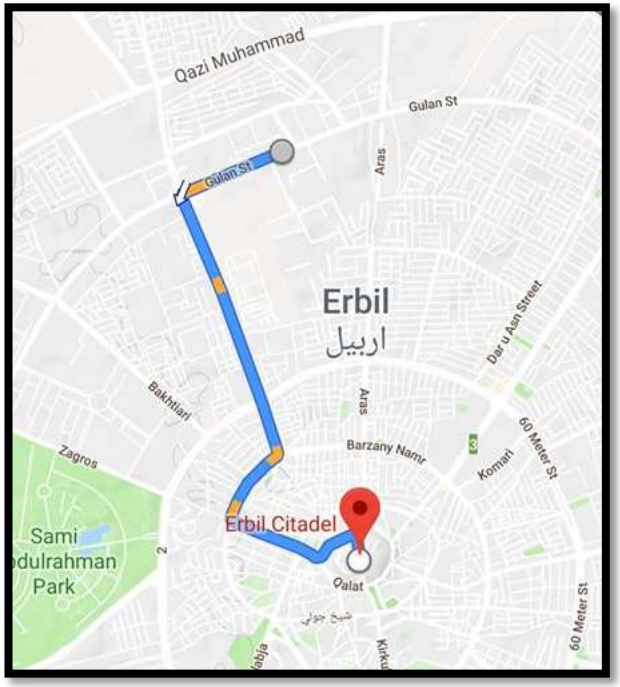
**Distance:** 4.5 km
from city center

**Car required time:** 11 min from city center
(normal case)

**Public transportation:**
17 min from city center

At 8:00 am every 5 min
At 9:00 am to 5:00 pm every 10 min

**Walking required time:**
49 min from city center



# Site analysis

**Location:** Located on north of Erbil city on 40m street(Gulan street)

**Land Area:** 4256 $M_2$

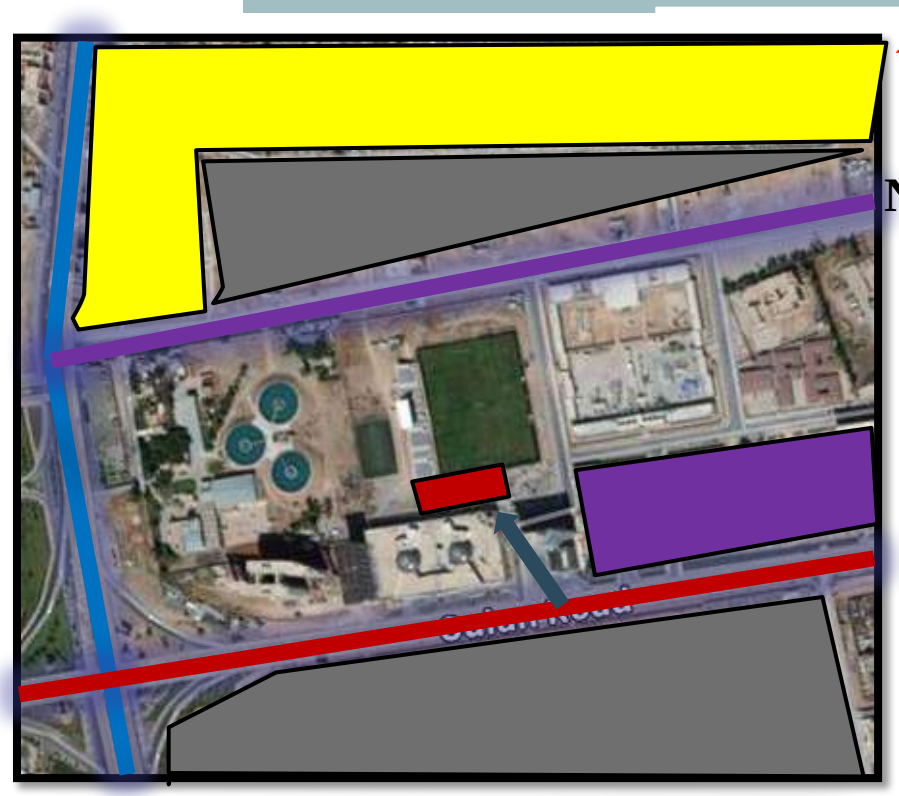
**Accessibility:**

Gulan road
40 m width

Ankawa road
60 m width

Aterial Road
30 m width

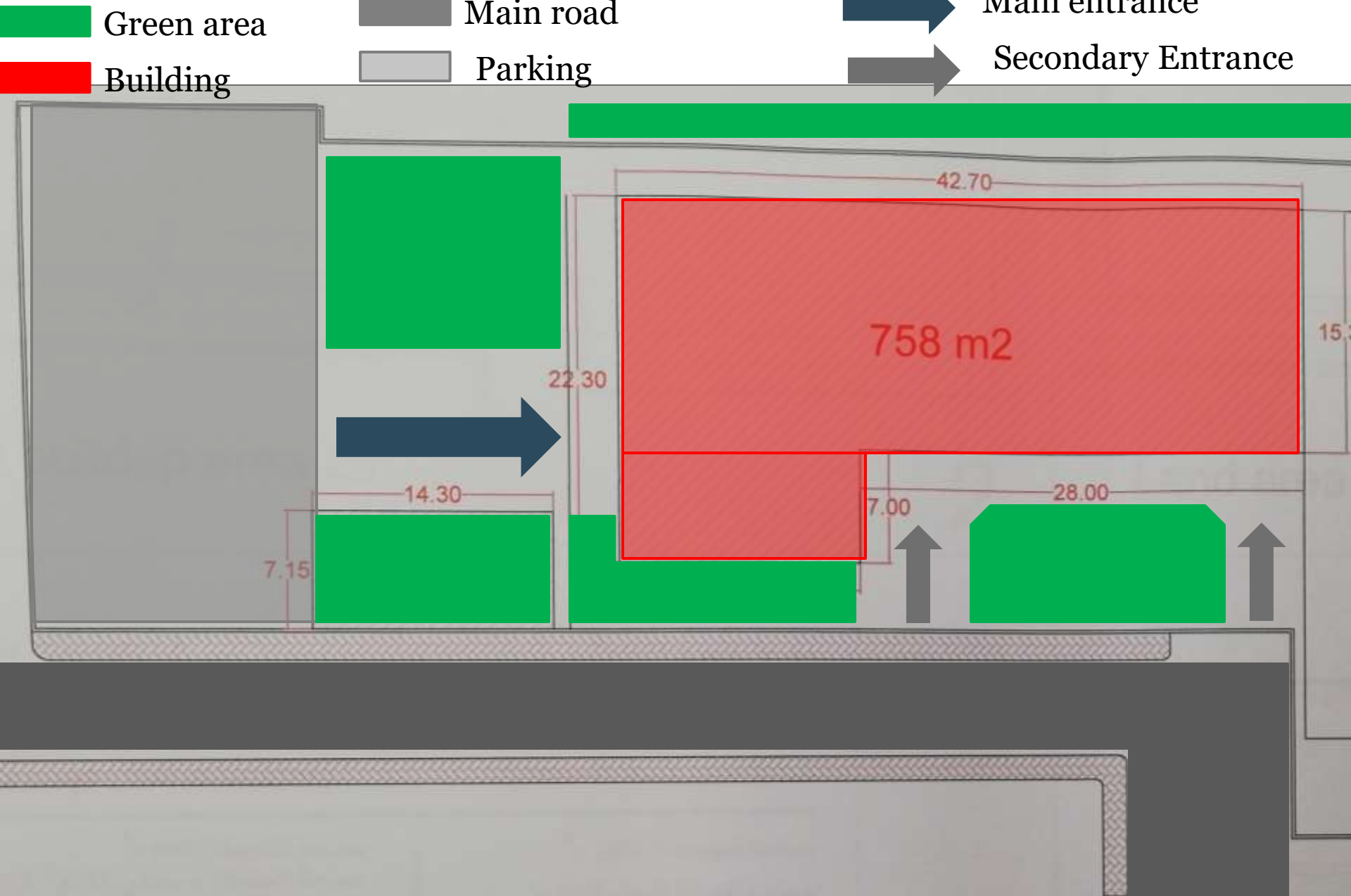
Main entrance




**Surrounding:**

- Commercial building
- Site
- vacant
- Residential building
- Government building

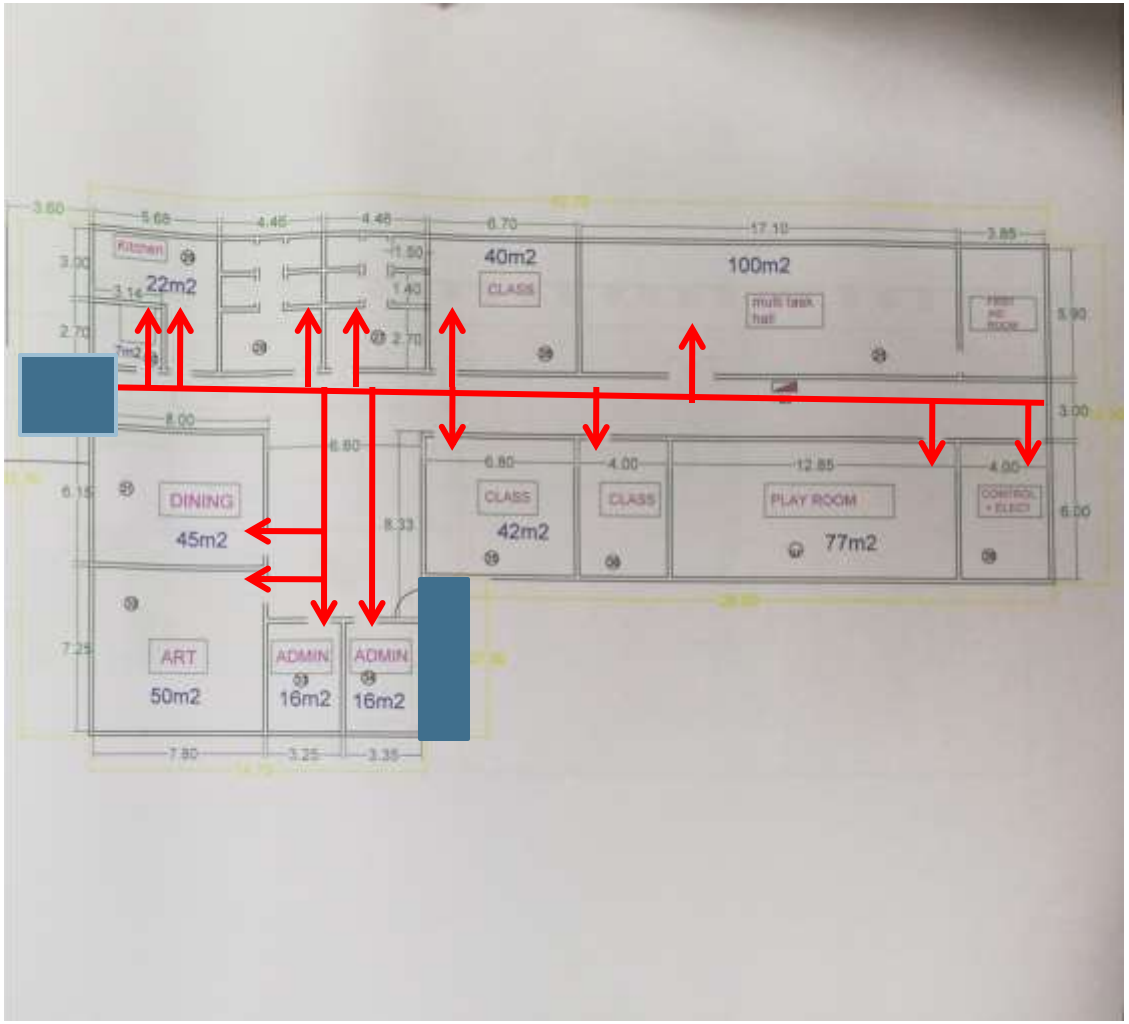
# Site plan


Green area
Building
Main road
Parking
Main entrance
Secondary Entrance
42.70
758 m2
22.30
14.30
7.15
7.00
28.00

# Plans

## 1:Basement floor plan

# 2: Basement Circulation

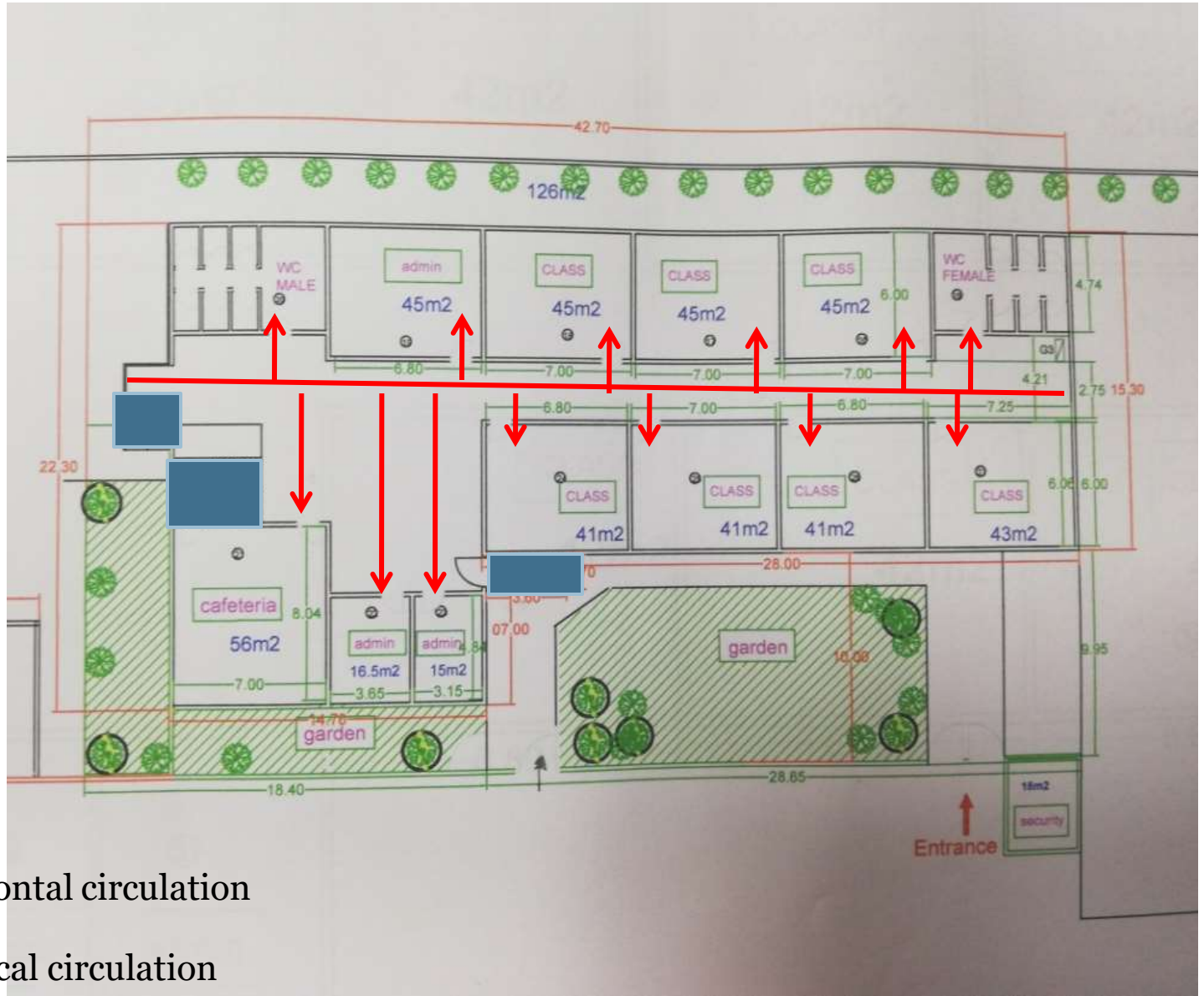



Horizontal circulation

Vertical circulation

# 3: Ground floor plan

# 4: Ground floor circulation



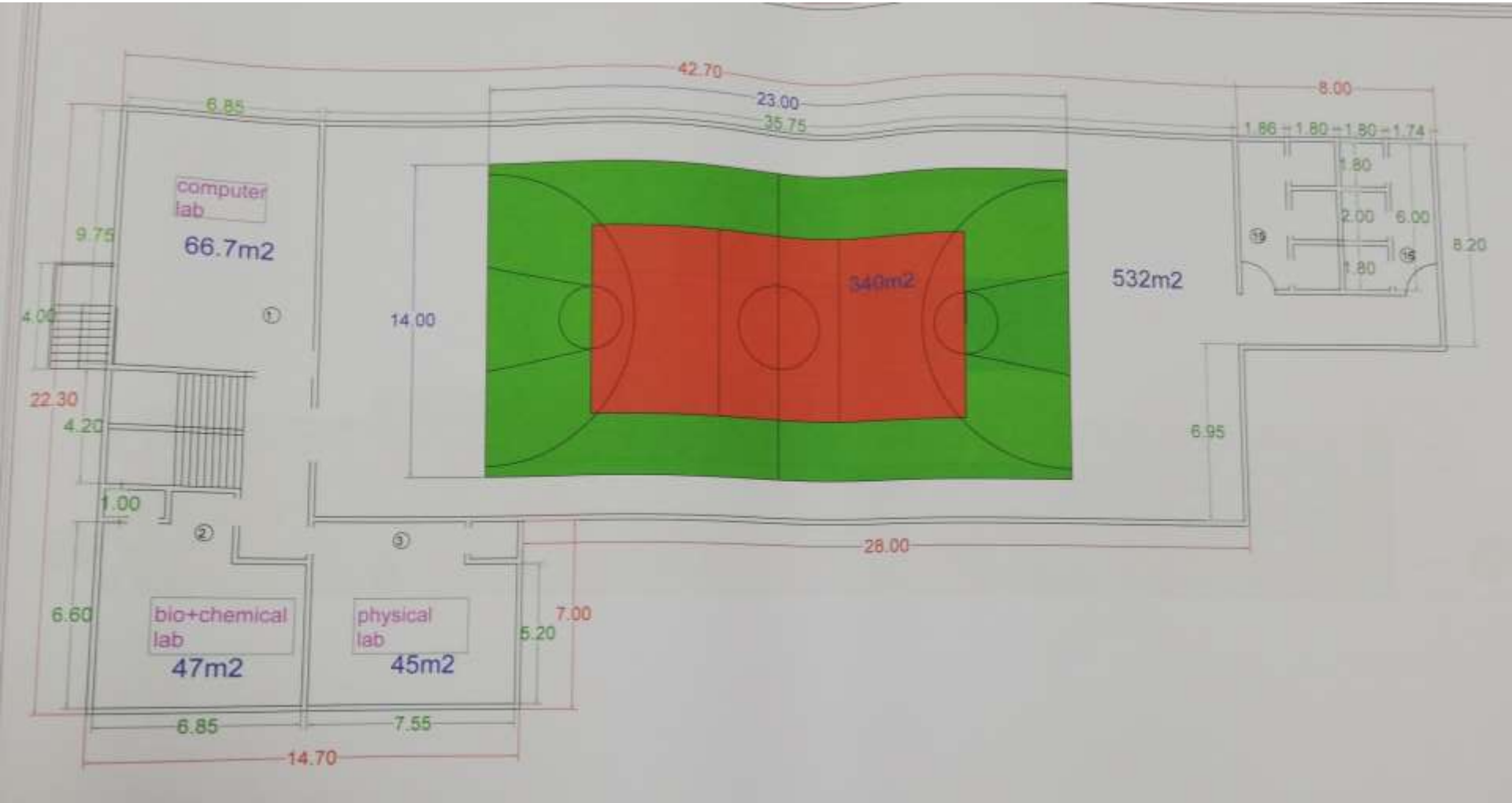

→ Horizontal circulation

Vertical circulation

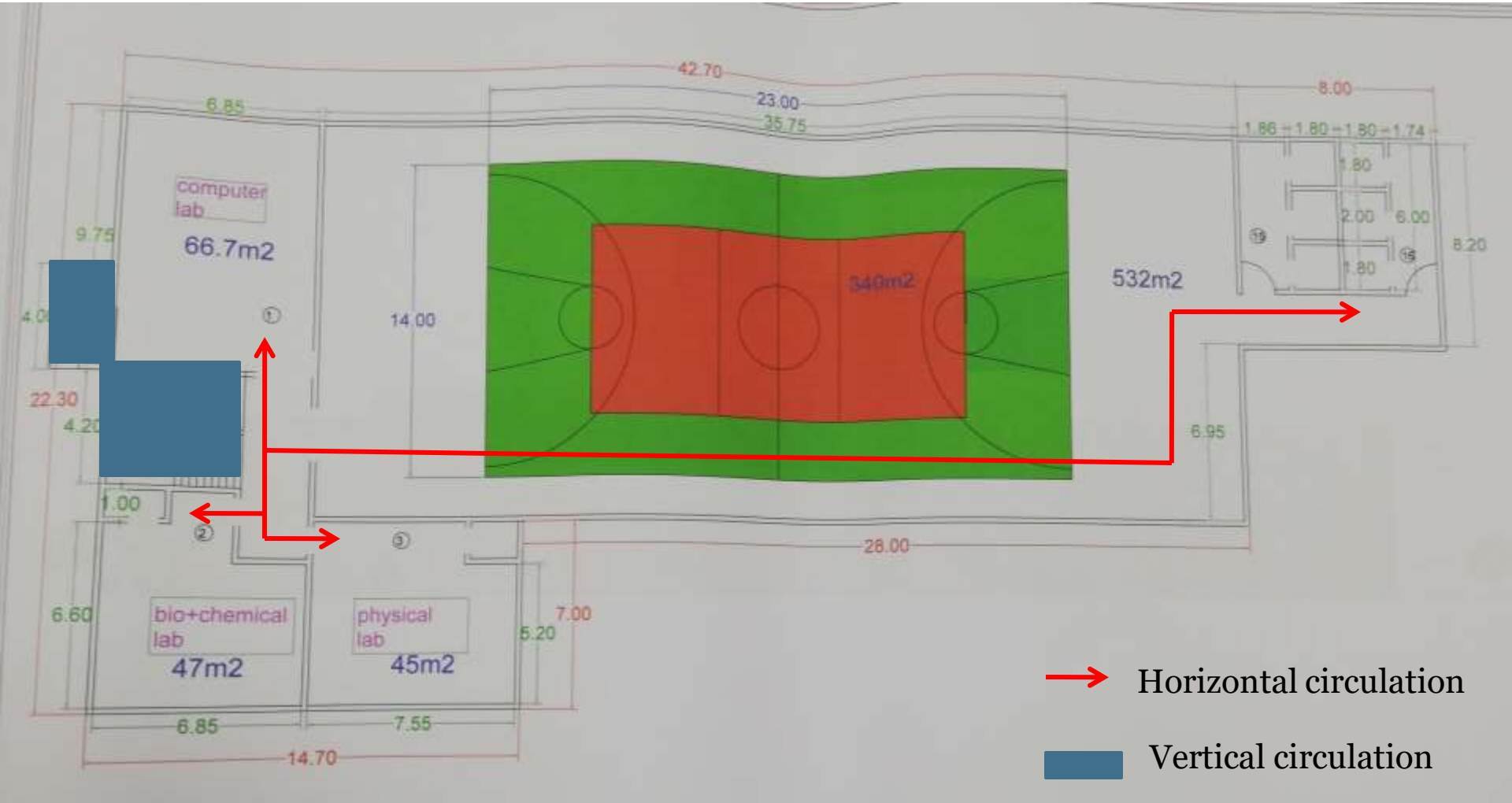
# 5: First floor plan

# 6: First floor Circulation

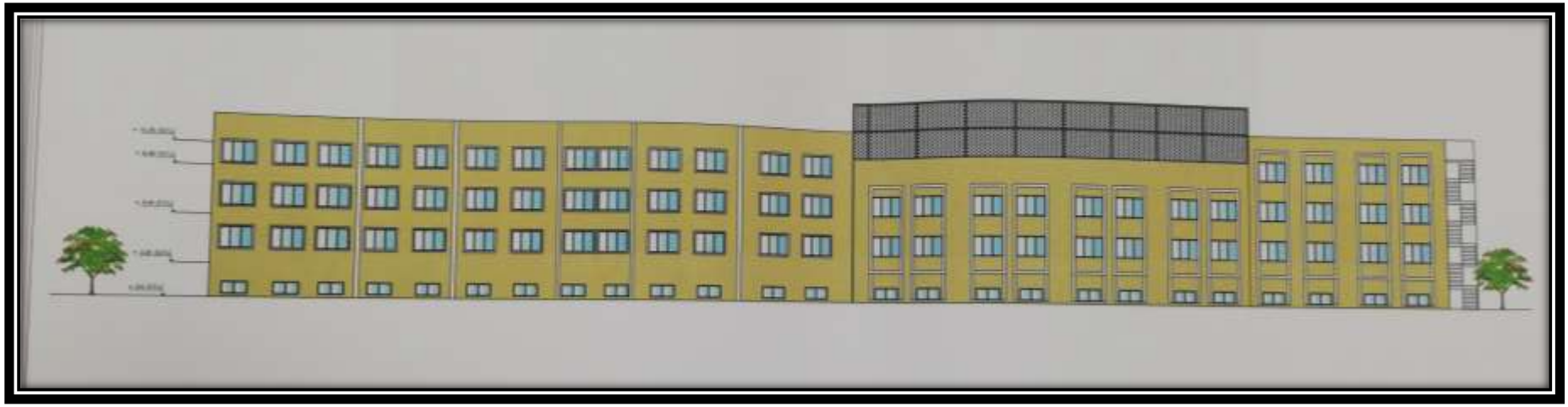
# 7: second floor plan



# 8: second floor Circulation

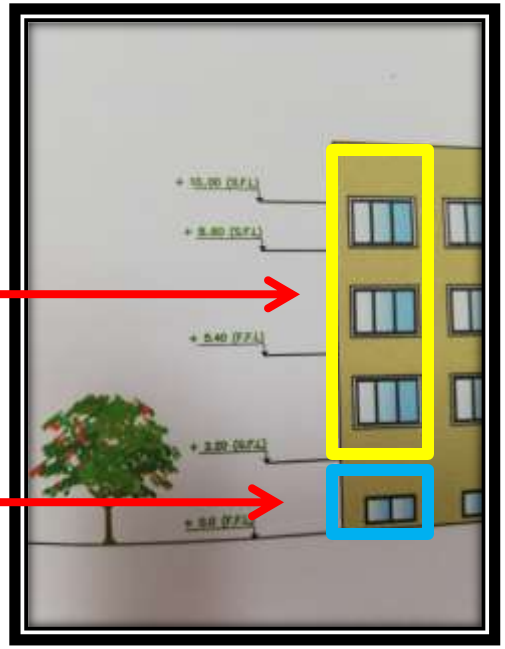


# Elevations

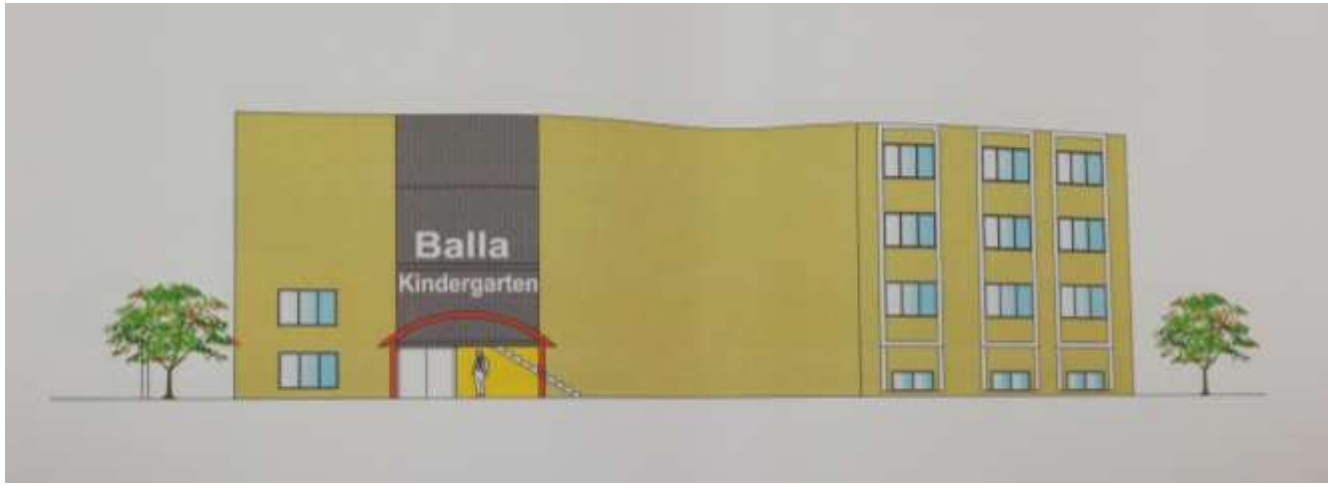


## North elevation:

- 3 floor window appear
- Basement window appear

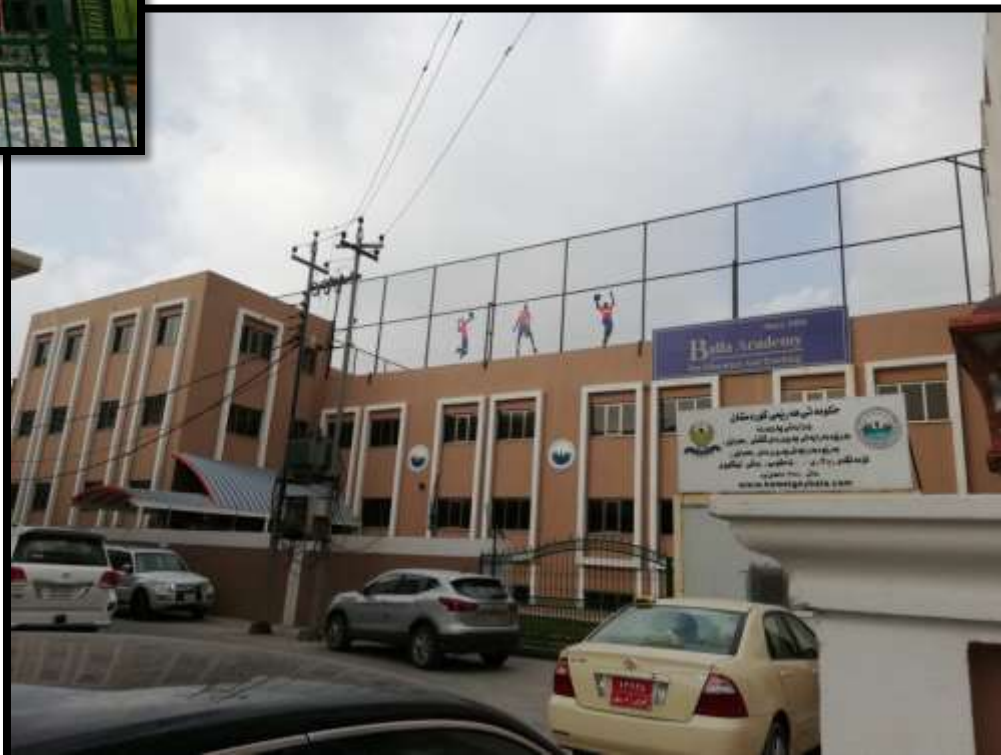


# West elevation:

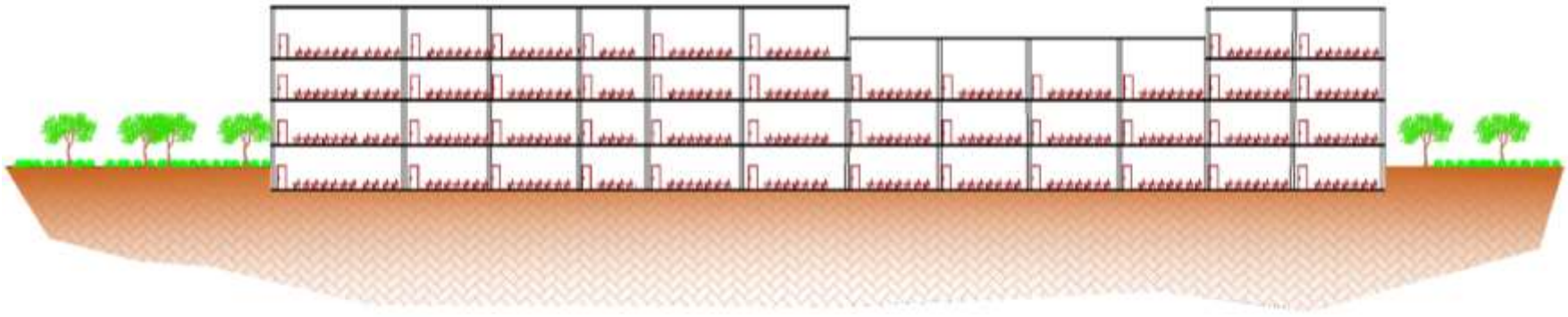



# East elevation:

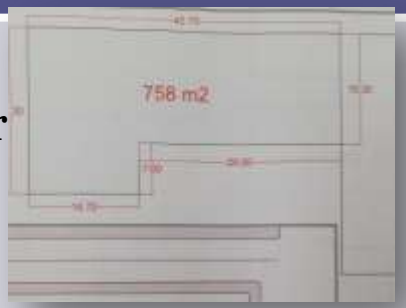

Since 1996
Balta Academy
for Education And Teaching

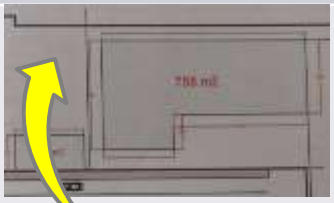

Balta Academy

# Section



## The Table below Show the satisfaction Design factors in the selected Schools

| factors | Sub-Factors | Good Satisfaction Design | Neutral | Not Good Satisfaction Design | Detail, photo , Description, Schematic Drawings |
|---|---|---|---|---|---|
| 1- Site | 1-1- Layout and form | | ● | | Simple rectangular    |
| | 1-2 -Open Spaces | | | ● |   Area of open space : 24% |

| factors | Sub-Factors | Good Satisfaction Design | Neutral | Not Good Satisfaction Design | Detail, photo , Description, Schematic Drawings |
|---|---|---|---|---|---|
| | 1-3 -Green Spaces | | | ● |  Area of green space 15%  |
| | 1-4-School Building orientation | | | ● |  N |

| factors | Sub-Factors | Good Satisfaction Design | Neutral | Not Good Satisfaction Design | Detail, photo , Description, Schematic Drawings |
|---|---|---|---|---|---|
| 1- Site | 1-5- using any natural resources as active energy | | |  | There is no using of any Natural cooling or heating. |
| | 1-6- others | | | | |

| factors | Sub-Factors | Good Satisfaction Design | Neutral | Not Good Satisfaction Design | Detail, photo , Description ,Schematic drawings |
|---|---|---|---|---|---|
| **2- School building Conservation** | 2-1- Passive heating | | ● | |  Just one side of the building has direct gain   |
| | 2-2 –Passive cooling | | | ● |   |

| factors | Sub-Factors | Good Satisfaction Design | Neutral | Not Good Satisfaction Design | Detail, photo , Description ,Schematic drawings |
|---|---|---|---|---|---|
| **2- School building Conservation** | 2-3 –Natural ventilation | ● | | |   All rooms has windows  |
| | 2-4- Horizental and vertical gardening | | | ● | There is no using of green roofs,walls or green facades. |
| | 2-5- others | | | | |

| factors | Sub-Factors | Good Satisfaction on Design | Neutral | Not Good Satisfaction Design | Detail, photo , Description ,Schematic drawings |
|---|---|---|---|---|---|
| **3- Material Conservation** | 3-1- Use of recycled Materials | | | ● | |
| | 3-2 –Use of Non-conventional materials | | | ● | Don't have it |
| | 3-3-Type of glass used in openings | | ● | | regular transport glass  |
| | 3-4-others | | | | |

| factors | Sub-Factors | Good Satisfaction Design | Neutral | Not Good Satisfaction Design | Detail, photo , Description ,Schematic drawings |
|---|---|---|---|---|---|
| 4- water Conservation | 4-1- Rain water collection and reuse them | | | ● | |
| | 4-2 –Gray water collection and reuse them | | | ● | |
| | 4-3-Reduce toilet water | ● | | |   Use of small toilet for children so reduce the amount of water that use |
| | 4-4-others | | | | |

# Materials

| Type | Color | Where it use |
|---|---|---|
| Wood | Brown | doors |
| Concrete | Painted withOrange,grey, white | Ceilings,walls |
| steel | White,Brown, Red | Doors ,windows |
| glass | - | Window |
| Fails ceiling | White | ceiling |
| Alaminuim | White | door |
| Tile | white,blue, pink | Floors,walls |
| Stone | colorful | Out door Floor |

# Structure

| Type | Color | Where it use |
|---|---|---|
| Coloumn | Grey | In the building |
| Concrete | Orange,grey, white | Ceilings,walls |
| steel | White,Brown, Red | Doors ,windows In building foundation |
| Beam | Grey | In the building |
| Fails ceiling | White | ceiling |

# Doors

| Type of material | Color | number | Type of dooe |
|---|---|---|---|
| Wood | Brown | 30 | Single swing |
| steel | White,Brown, Red | 6 | Double swing |
| Alaminuim | White | 8 | Single swing |
| | | | |

# Windows

| Type of material | Color | number | Type of window |
|---|---|---|---|
| glass | - | 66 | Double hunged |
| glass | - | 25 | one hunged |

# Photos

Dean office

Accountant

Drawing room

Playing room

Art room

Meeting room

Study room

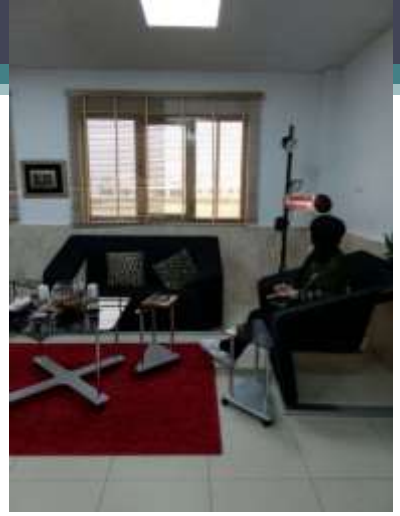
Kitchen

Corridor

Washing area

Lockers

Emergency stairs



Manager room

Lab

Ramp for children

Class

Cafeteria

Foorball stadium

# Conclusion

At the end of this report it appeared to us that this school is not a green building that means not sustainable, even there are Manymatrials , structures, insulation elements, and openings are used, but according to the standards and the tables that we fill, we achieve that there are many other important things that not used in this school to be sustainable.

# THANK YOU

Any Questions