

**An- Najah National University**

**Engineering Faculty**

**Building Engineering Department**

**The effect of Environmental Design**

 **on Construction Direct and operation Cost**

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**Chapter one: Introduction**

**1.1 Problem definition**

In our project we will check the impact of environmental design on construction project total direct & operational cost on HIGH SCHOOL .

**1.2 Why this project is important**

lack of knowledge of the owners of buildings, designers and contractors to influence environmental design to direct & operation construction cost .

**1.3 Applications**

Provide recommendation for designers about the costly environmental design elements and provide recommendations about the high school operating cost reduction.



**Chapter two : Methodology**

**2.1 work methodology**

1. Evaluate a high school project already designed and constructed .

2. Analysis the direct cost and estimate the operating cost .

3. look about correct methods for the design and how do that .

4. look about environmental aspects that can affect on our high school project.

5. Redesign of the school With the application of environmental aspects and also the correct methods for the design .

6. Recalculate the direct cost analysis estimate the operational cost .

7. Compare the results with previous results for the design and recording .

8. look for payback period .

**2.2 Design criteria**

For the programs we used, we follow these values for the design

1. Reflection percent

 Floor = 30 %

 Ceiling = 80 %

 Wall = 60 %

2. Recommended Illuminance values

 Corridor = 150 Lux

 Stair = 150 Lux

 Classroom = 500 Lux

 Laboratory = 500 Lux

 Kitchen = 150 Lux

 Library = 500 Lux

 Bathroom = 100 Lux

 Head master room = 500 Lux

 Secretary room = 500 Lux

 Social assistant room = 500 Lux

 3. Temperature

 In Summer T in = 24 cº

 In Winter T in = 22 cº

 The reference region for the design is Jerusalem

 4. Humidity ratio = 50 %

 5. Number of students in each class = 30 student