بسم الله الرحمن الرحيم

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Faculty of Engineering

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Graduation project

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**1. Architectural Design**

The entertainment has become one of the standards of civilization and of the

Economy reinforcement to become a pressing necessity for the humanity.

The entertainment is need by which the man can utilize his physical energy

to serve the production and creativity as a result. There by, the project has

been selected which is composed of sportive, cultural and social activities.

The site of the project has been selected in a tranquil neighborhood

accomplishing to a playing field and stadium in Talfeet which is located in

the way Qabatya and American university.

**Structural Design**

introduces the final and

practical structural analysis and design of the structural elements with the practical

structural drawings that are ready for construction.

This project aims to design the center of youth , which has a mixed structural system of

frames, shear walls and columns.

The design will include static and dynamic analysis, in 3D view, in order to approach

the actual model as much as possible.

The Method will be used:

Program analysis: (assuming 3D structural elements, using structural analysis program

sap 2000 v.14.2.2). After that we try to achieve the same results by manual calculation

with acceptable different.

The method will be used in seismic design is response spectrum method after we

compare the modal response from SAP with manual approximation method (Rayleiph

method).

**Mechanical system**

Feed water to buildings divided into two main sections: the cold water supply

and the hot water supply. Each system consists of several subsystems and

each floor has special system of water distribution.

Cold water supply system:-

Depends on the idea of the fall of water under the influence of gravity, is that the

work of the water tank top of the building where the direction of water from the

top down and thus feed the whole building in an easy and suitable pressure, but

the upper floor(second floor) has low pressure so we need to use pump

(Auxiliary pump).

\_ The drainage system:

\_ Branched into

• Black water design

• Grey water design

• Storm water design

\_ The pipes of the black water will be connected to the public sewage

system.

\_ HVAC system:

By calculating the heat gain from walls, ceiling, floor, windows, occupants,

lighting and equipment we estimate the number of diffusers required in each

room in second floor by using fan coil unit system.

\_ Design of Fire-fighting system :

When designing buildings,safety procedures should be taken to ensure the

safety of users, and reduce the incidents that have exposed users .

One of the main risks in buildings is the occurrence of fires, so it must be

provided protection systems and fire-fighting systems .

Four common design intents related to buildingfire safety, in order of usual

importance, are:

1 Protection of life

2. Protection of building

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3. Protection of contents

4. Continuity of operation.

**Lighting**

Systems include the electrical distribution and lighting, sockets, telephone,

television, intercom. In our project we have connected a complete accounts of

the lighting for spaces of different spaces, where we have determined on the

basis that there is no illumination normal to the building (lighting, industrial

100%), on the other hand we have analyzed the natural lighting for most

sections of the building. And we choose the rooms to identify a sample of the

solution manual and based on the schedules and specifications of lighting we

have to choose the amount of light intensity(( I luminance)) for these rooms as

well as find the amount of glow factor ((GI)) allowed. Dialux program for the

design and analysis of industrial lighting.

For lighting systems, there are several ways to calculate the amount of lighting

required according to the function of space and it is volume .

The two main methods for lighting accounts are a lumen method, and zonal

cavity method .

For sockets , there is no particular method to calculate the number, but are

estimated based on the electrical loads according to the expected use of the

space .

4.2 lighting Calculations :

Design according to( CIE Standard 008/E-2001)

based on the schedules and specifications of lighting we have to choose the

amount light intensity(( Il luminance)) for these spaces of.

Lighting calculation will be based of the lumenmethod , which requires

knowledge of the recommended values of lighting required according to the

function of space, and this method takes into consideration the light reflections

on surface of the work coming from the ceiling and walls while neglecting

reflections resulting from the floor , and these reflections depends on the color

and texture of surfaces .

Space Erecommended Work surface

Stairs 150 floor

Lifts 150 floor

corridors 150 floor

Multi-purpose hall 300 Horizontal seat level

MANGER room 300 Working plane

cafeteria 200 table

Library 300 table

gymnasia 500 display

Administration office 300 desk

Conference room 750 table

bathrooms 100 Floor

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The Recommended reflectance used :

element reflectance

ceiling 0.9

Walls 0.7

floors 0.5