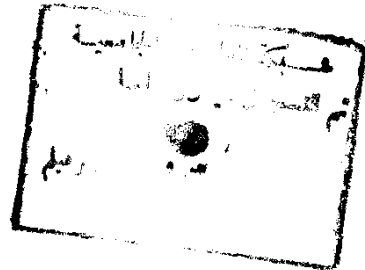
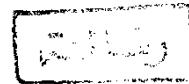


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**EFFICIENT PLANNING AND DESIGN OF AIRPORT
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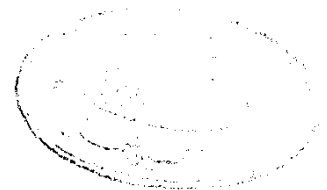
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A THESIS

SUBMITTED IN PARTIAL FULFILMENT FOR THE
REQUIREMENTS OF THE DEGREE OF DOCTOR OF
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SUPERVISORS



PROF. DR. EMAM M. SHALABY

PROF. DR. MAHMOUD HISHAM ELALFI

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THESIS TITLE : EFFICIENT PLANNING AND DESIGN OF
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DEGREE : REQUIREMENTS OF THE DEGREE OF
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ARCHITECTURAL ENGINEERING
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SUPERVISORS COMMITTEE

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PROFESSOR OF ARCHITECTURE
AIN SHAMS UNIVERSITY

PROF. DR. MAHMOUD HISHAM ELALFI
PROFESSOR OF ARCHITECTURE
AIN SHAMS UNIVERSITY

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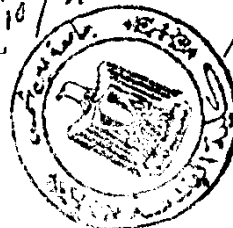
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Faculty of Engineering
Ain Shams University

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Azza Taha Elkallini

STATEMENT

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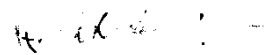
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SIGNATURE : 

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INTRODUCTION

The civil aviation interact with the other economic sectors of the nations, and benefits from the contributes to the economic development of it. The demand for aviation service expands as the incomes and production level increase. At the same time, by forecasting tourism, trade and employment, aviation is an important instrument in economic development. Air transport also provides intangible benefits by facilitating increased international contact and understanding.

The airports are national concern in the first place because they represent the land country. Progress and growth of a nation depends on the exchanges with the outside world; for that matter, an airport is the real accelerate of economic growth for its surrounding region. Airports are the gateways to their countries. The first and last impression are given by that gateway. It has to express what the country is, what are its state of development, its ambitious and its culture. Airports belong to the type of buildings, which have to support and express the country identity through modernism. The passenger terminal must be functional and economical to the users. In the same time it has to be beautiful and impressive to the travellers. The political pressure surround the evolution of air transport because the airports became a part of nations regional communities and urban areas. The social and economic factors also put responsibilities on airport planners. Thus, in this era the airports have entered the period which need more emphasis on planning integration of airport facilities into social system. So, the planners must be sensitive either to prevailing culture values or social desires of their communities.

The passenger terminal is the airport main component. It is used by the passengers. For an architect, the architecture design of the passenger terminal is different from any other types of buildings. The Terminals must have the identity of their countries. The passenger terminals are buildings of special features, the international area is used by many nationalities of the World. The design of passenger terminal flow is based on international regulations set by international organizations.

The terminal building is the point of start, end or transfer for the passengers and their baggage. The design of the terminal has to be efficient and simple to reach the equilibrium in operating the system. The passenger terminal building is the point of changing different traffic modes, on one side ground transportation using ground access mode, while on the other side air transport using airways through their operations. The Terminal is the station of transfer of the passengers and their baggage from the point of interchange between ground transportation and the passenger building to the point of connection with the aircraft.

These kinds of totally different transportation-modes request a special type of service to choose the right combination of facilities to serve it, and in using resources efficiently with respect to convenient time, space, and flexibility in design.

The objective of this thesis is to analyze and study the existing and late development of passenger terminal design concepts all over the world in order to conclude the most optimum planning and design concept which fulfil the efficiency of airport operations with respect to time, space, and flexibility. Another important objective of the thesis is to propose recommendations for Architects to reach optimum solutions for future efficient terminal design which fulfil the requirements for both users and operators without congestions and delays in easy passenger movement within enough space and optimum time.

The methodology of the thesis is done through its different parts .

PART 1

The first part of the thesis is concerned with the classification and comparative study of different passenger terminals design concepts. The study is done to reach the most efficient concept in fulfilling the successful landside and airside operations through the development of famous high density airport terminals in 20 years.

PART 2

In the second part of the thesis an Analytical Study of Terminal Design (w.r.t. Time and Space) is done through the airport terminal design principles and their effect on the design i.e. the passenger characteristics and their level of service, Security, Government Control Policy ..etc.

This is done through the following method:

- a. Airport Design Principles, which affect the design such as the passenger characteristics, Level-of-Service, Security Policy, Government Control Policy, ...etc.
- b. Process of planning : Forecast, Site, Environment Aspects.
- c. Passenger Terminal Building Circulation
Importance of Time & Space Components.

Part 3

The third part is *Study of the Latest New Trends in Passenger Terminal Designs* from all over the world. In-order to extract the new design trends which fulfil maximum Flexibility to accommodate next century future demands. These latest trends give high light on the Modern New Technology used to minimize passenger time and walking distances. Also the Design Flexibility is studied through the using of maximum free space ceilings.

Part 4

CONCLUSION

The efficient design and how to be reached through flexibility is very important. The pier concept with its different generations is the main concept for the next century. The planning and design of new terminals should give future flexibility to terminal design to keep efficiency in operation and enough space for passengers according to high level of service. Also the space should be efficient for the movement of all the parties using the airport terminal without congestions or delays. All that with respect to the main design concept. The main considerations, which should be respected in design, are mentioned. New horizons of air transport in Egypt are discussed.