Introduction

Those who observe the development of architecture throughout the various ages can easily notice that the Middle Ages architecture contained the weather problems then, and used shading and inclusion to find shelter from the solar warmth and violent winds. In addition, resorting to the less hot, less polluted and less noisy indoor environment and utilizing air movement resulted from both variations in temperature between indoor and outdoor environments and in wind pressure to contain the weather problems. Thus, these characteristics were applied to the architecture through the general style of architecture, urban fabric and the form plants and trees take in the overall site. It can also affect designing the buildings' fronts in terms of the shape of the vent, the distinguishing architectural items and the proper architectural solutions or the shape the horizontal elevations take and the indoor walls coordinating.

Administrative buildings are one of the most distinctive elements of the general character of a state, to which function is a key issue when it comes to the architectural style of the building in general and the formation of its front.

Thus, there is a need to draw and develop a set of environmental values to suit the local environment where the administrative buildings are located as well as apply various environmental control technologies that fit the local environment where the buildings are. There is also a need to study the effect ventilation has on the overall nature and structure of administrative buildings' fronts to achieve the utmost thermal comfort to the occupants, other components, however, should not be overrated; i.e. technological, decorative , or economic components, etc…

The importance of this study

Natural ventilation plays a vital role in architecture due to the following:

1. Ventilation is important to people's life as it provides both comfort and health by achieving the needed ventilation rates within spaces.
2. It has a direct effect on the structure of fronts by setting the dimensions, areas and heights of vents so that they can well-suit the building where they are installed, with the ultimate goal of achieving the required ventilation.
3. Fronts are the visible and tangible element which reflect the building and the architectural idea behind it. They are also the first thing to be seen by a viewer leaving him/her with their-the fronts'- own visual impression.

Research problem:

Rapid technological development concerning methods of construction, execution and building materials has led to the recent emerge of many administrative buildings patterns which are characterized by various form-related and design-related dimensions. Such dimensions were a result to a set of technological, social, decorative among other determinants, neglecting, to some extent, the environmental factors. Consequently, administrative buildings with large glass surfaces came into existence, causing lack of thermal comfort to the occupants. In addition, environmentally-traditional items that achieve natural ventilation such as wind catchers , tasbils and wind towers and other items, all have disappeared. Instead, buildings depend on mechanical ventilation and lighting which adds more cost to energy consuming within buildings, **a problem which faces Egypt nowadays due to traditional energy shortage.**

The research problem is also the multi- dimensional design of the fronts administrative buildings in particular: the technological and aesthetic ones, while neglecting the environmental dimension in forming the administrative buildings' fronts, which is reflect in the recently constructed fronts.

Study Objectives

The main objective:

The study aims to achieve the highest rates of natural ventilation inside the space through a set of parameters and requirements concerning vents, their dimensions, size, height

and position in the fronts, as well as the impact of these parameters on the composition of the overall architectural fronts.

Secondary objectives:

1. To identify the natural ventilation rates needed to achieve thermal comfort for humans, inside spaces of various elements of the administrative building.
2. To identify the concept of the process of formation of facades and architectural requirements and parameters of the formation process.
3. To identify the impact of natural ventilation on the architectural items of the formation of facades.
4. To conduct an analytical study of a group of administrative buildings in contemporary architecture in Egypt.

Methodology of the study

In order to achieve the above objectives, the study pursues the following scientific methods:

I- The theoretical study

In its first part, the study addresses the theory of concepts associated with natural ventilation which achieve thermal comfort for man as well as the elements of the different climate.

In addition, its second part deals with the concepts of the architectural composition of facades and the optical properties of the elements of architectural composition.

The third part is dedicated to the study the impact of natural ventilation on the elements of the architectural composition of facades of administrative buildings.

II- The analytical study

This section conducts an analytical study on a group of administrative buildings' facades to monitor the effect of natural ventilation on the architectural composition of these facades .