

Interior Design of Administrative Establishments Spaces According to Eco-Technology Trend

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- Abstract:

As a result of technological development occurring in the world and the subsequent environmental problems, Modern technology has adversely affected the ecology of the surrounding architecture, Environmentalists have called on designers to find new design trends to solve these problems, Therefore, the trend of Eco-Technology in architecture emerged as a trend that supports the environment by using modern technology without harming the environment surrounding the spaces.

In this paper we will discuss the definition of the trend of Eco-Technology architecture, and study the basic principles of this trend through the study and analysis of the interior design of the headquarters of the administrative building (GSW), To take advantage of these global buildings in the development of Eco-Technology design commensurate with the local environment.

- Key Words:

Technological architecture - Ecological architecture - Technological environmental solutions
– Interior Design - Administrative Establishments Spaces.

- Research Introduction:

Because of the emergence of the energy crisis of the last century, Energy trends in interior spaces are emerging, and in the field of conservation of natural resources and the environment and pollution control, there are also trends that reject industry and call for a return to nature. And trends that support modern technologies in architecture such as the trend of (Hi-Tech) and sustainable, ecological architecture and other. And became the schools of thought graduate pioneers in those Fields.

- Research problem:

Loss of an integral relationship between the interior design of administrative facilities spaces that use technological means to achieve energy efficiency and compatibility with the surrounding environment.

- Research Objective:

Access to an appropriate system integrates the interior design of administrative buildings, contemporary technology and the surrounding environment.

- search Outline:

- **Spatial Outline:** an analytical study of the headquarters of the administrative building (GSW) in Berlin - Germany as a case study.

- **Time Outline:** the last decade of the twentieth century and until now (from 1990 to the present).

- Research Methodology:

The research follows the theoretical, descriptive and analytical approach.

1- ECO – Technology Architecture Trend:

ECO – Technology Trend aims to save the elements of the environment and energy sources, through the adoption of the building on the exploitation of renewable sources of energy using advanced technological methods and the appropriate economic way, by merging the ecological and the technological trend in architecture. Therefore, the architectural Space of the ECO – TECH Trend can be considered as an integrated system, aiming to achieve the required comfort for the user of the space, based on its work on the efficient consumption of environmental concepts and the relationships surrounding the building.

2- An analytical study of the headquarters of the administrative building (G S W) through the Principles of Eco-Technology Architecture Trend in Interior Design:

A four-part management company, consisting of a 22-storey high-rise building, a three-storey low-rise building, an elliptical three-story tower on the northeast, and the end of the low-rise building.



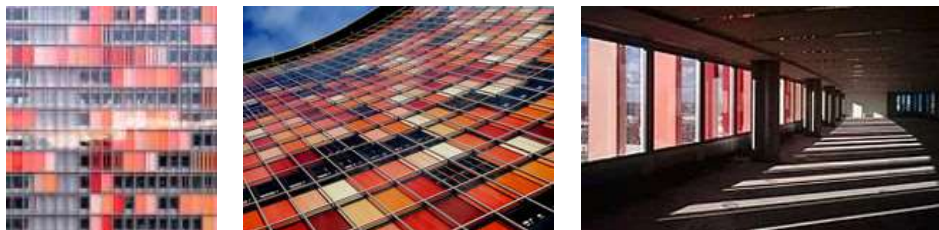
Pic No. (1) The GSW office building in Berlin

(2-1) Understanding the site and its Associated Solutions:

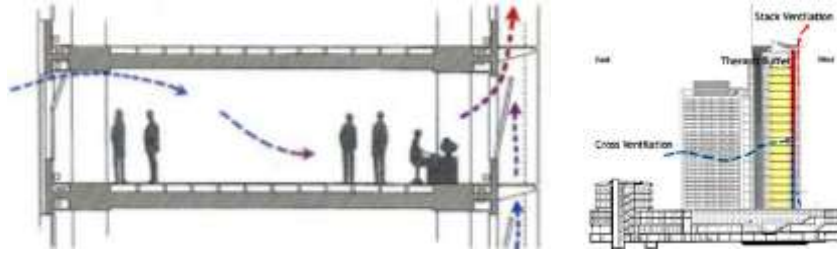
The building is quite distinctive as it is the first skyscraper in Berlin. The highest temperature recorded in August, was 38.8°C. In August, the average temperature was 14.5 °C. The lowest temperature was recorded in -25.0°C. Mm, and the monthly sunshine brightness hours are 2025.6 / year

(2-2) Communication with the External Environment:

The building provides a visual connection to the external environment and interacts with the surrounding environmental influences. According to their interaction with the surrounding environmental conditions.



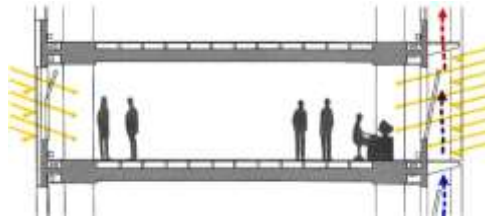
Pic No. (2) Colored metal plates that cover the facades are shown to prevent unwanted sunlight from entering the spaces. Which opens and closes according to the need for spaces for natural lighting

(2-3) Environmentally Compatible Design

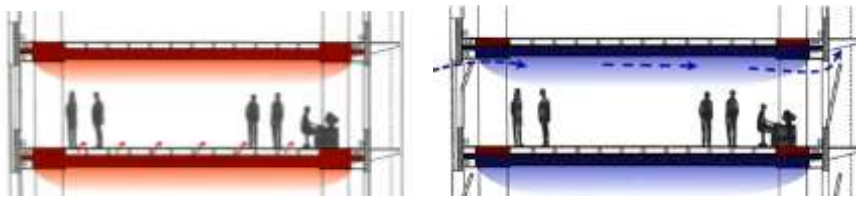
Form No. (1) It shows the direction of air movement by entering from the three-tiered east façade, exiting the two-tiered western façade, and the air rising from the floors through the tower in the western side to get out of the top.

(2-4) Consider the Ecological Foundations of Design:

The tower consumes 40% less energy than any similar administrative building, and integrates and reacts to the surrounding environmental impacts by relying on natural renewable energy sources to reduce the economic cost of the building, as the interior spaces are equipped with triple and two-layer glass exterior walls with openings and It closes technology according to its interaction with the surrounding environmental conditions and according to the needs of the interior spaces of natural ventilation and lighting. In addition, the double layers of the outer shell provide an opportunity to reduce noise and sound insulation and harmful sunlight, where the glass wall layers have controls and sensors to prevent the entry of harmful sunlight.



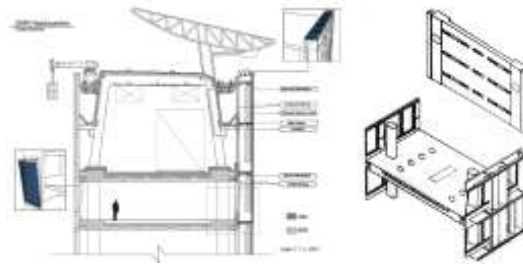
Form No. (2) One of the interior spaces of the GSW tower shows the sunlight that the space needs through the openings in the facades, reflecting the excessive and harmful rays.



Form No. (3) Shows the spaces in the building in the summer (in the right) where when entering the air from the vents do an air exchange by vacuum and cooling roofs and floors, and in winter (in the left) when closing the vents in the facades the concrete systems treated in the ceilings and floors and located under Raised floors with space heating

(2-5) Consider the Technological Development of the Building:

The interior spaces are subject to the control of the opening and closing of industrial lighting based on the amount of natural lighting entering the building during the day, and the extent of the occupants in different spaces and roles, while allowing the occupants to control the opening and closing of lighting as needed, where the interior spaces can get lighting Natural through the western and eastern glass facades. Where there are particles and crystals between the glass panels that form the inner and outer walls of the spaces arranged, moving and adjusted from their position to allow the entry of appropriate lighting for the spaces



Form No. (4) A section and perspective in the GSW building illustrates the installation of the three-tiered and western double-faced eastern facades, and the openings above the tower from which the air exits.

(2-6) Take into Consideration the Users of Spaces in Design:

The interior designer has been interested in achieving the spaces for the objectives after the occupancy, where users of the interior spaces of the building GSW achieve optical comfort through natural lighting, in addition to the heat exchange system, which provides thermal comfort within the space.



Pic No. (3) A range of interior spaces for the GSW office building, which show the dependence of the interior spaces on natural lighting, and the interior designer's dependence on open multi-use administrative spaces.

– Results:

– Most architectural spaces that follow the trend of eco-technology in design depend on energy saving, by depending on natural lighting, ventilation, heating and cooling from the surrounding environment by relying on different technological methods that are suitable for each environment after the study, so that it saves energy Up to 40 or 50%.

-Recommendations:

Design institutions and universities alike must study and analyze many international architectural works, to benefit from them in the development of eco-technology design appropriate to the local environment.

-References:

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