

Natural Ventilation in Building

Design Tool for Buildings

ملخص البحث (باللغة الإنجليزية):

Goal of designers recently to provide the most appropriate care to the climatic conditions of the internal spaces of buildings, Indoor Air Quality (IAQ) is still one of the most factors responsible for providing healthy ventilation and thermal comfort for users of internal space, In addition, you cannot neglect the effective role of air movement which contribute to the energy saving consumption of buildings as one of the most important renewable energy sources.

Although the important role of natural ventilation of buildings but it has not been exploited optimally in many buildings to achieve the environmental needs of users, In addition to the lack of sufficient awareness among some designers about foundations conscious architectural design for air movement.

The research aims to extract elements of design influencing the movement of air and standards of design, whether at the level of the building and the composition of the outer skin or on the level of Foreign surrounding elements, and study their direct impact on buildings and spaces of the Interior to reach the standards of design bases from which these positive elements of the contribution of design in raising the efficiency of movement air and achieve natural ventilation of the interior spaces during the successive stages of the design process, as well as in the evaluation of ventilation efficiency and the exploitation of actual internal and external air movement in existing buildings in order to raise environmental efficiency.

And based research methodology to conclude and define the architectural elements of the buildings with a direct impact on the movement of air and the quality of the buildings, which have been classified into seven main levels include: the form of the building - Orientation - elements of the general location coordination - spatial distribution - internal spaces ratios - interior design - the outer skin design , and analytical study of the impact of each element on ventilation performance through monitoring and analysis of its impact and relevance and basic measurements to design a conclusion indicators, in order to design and improve the efficiency and utilization of air movement internally and externally.

It is clear from research that the study of the elements surrounding the building of the blocks and barriers to wind have main role in the formation of the movement and direction of the wind actually on the building and identify areas under the wind percentages and specific measures have been drawn from the study, while the direct impact on the wind speed was

evident in the effect of the topography of the surrounding land percentages varying effect it has been identified in the study. As for the elements of the building itself was a direct impact on determining wind speed internal emptiness and the formation of spots silence, but the relationship between the inlet and outlet wind had a major impact in determining the direction of the wind inner emptiness and efficient ventilation homogeneous required rate adequate ventilation.