بسم الله الرحمن الرحيم

MONA MAGHRABY

شبكة المعلومات الجامعية

التوثيق الالكتروني والميكروفيلم

MONA MAGHRABY

شبكة المعلومات الجامعية

التوثيق الإلكتروني والميكروفيلم

جامعة عين شمس

التوثيق الإلكتروني والميكروفيلم

قسم

نقسم بالله العظيم أن المادة التي تم توثيقها وتسجيلها
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MONA MAGHRABY

WIND LOAD ANALYSIS OF TWO STEEL BUILDINGS CONNECTED WITH A SKY-BRIDGE

By

Abdullah Mohamed Fathi Abdel Razeq

A Thesis Submitted to the
Faculty of Engineering at Cairo University
In Partial Fulfillment of the
Requirements for the Degree of
MASTER OF SCIENCE
In
STRUCTURAL ENGINEERING

FACULTY OF ENGINEERING, CAIRO UNIVERSITY
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Title of the thesis:
Wind load analysis of two steel buildings connected with a sky-bridge

Key Words:
Tall buildings; Sky-bridges; Wind load; Boundary conditions

Summary:

In the last period, high rise buildings were considered from the very important and special structures. Today, in modern cities and due to limited available land tall buildings are often constructed close together. To connect adjacent tall buildings; sky-bridges are frequently used. This research investigates the effect of wind and thermal loads on two adjacent, tall buildings that are connected by a sky-bridge. The investigation addresses the straining actions in the main beams of the sky-bridge as well as the base shear and overturning moments that act on the two buildings. A comparison between results is carried out considering few controlling parameters (bridge span, bridge elevation, bridge boundary conditions, and geometry of the two buildings). It is attempted to determine the ideal boundary conditions for sky-bridges that reduce forces in bridge structural elements as well as in the two connected buildings. It was found that the effect of the elevation of the bridge on the axial forces induced in its main beams due to wind load in x-direction (direction parallel to the bridge) is bigger than the effect of its span whose effect is relatively small. The opposite appears in cases of wind load in y-direction (perpendicular on the bridge) and thermal loads, as the bridge's elevations and spans both have a significant impact on the axial forces induced in its main beams due to these loads.

Disclaimer

I hereby declare that this thesis is my own original work and that no part of it has been submitted for a degree qualification at any other university or institute.

I further declare that I have appropriately acknowledged all sources used and have cited them in the references section.

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Signature:

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