BEHAVIOR OF LIGHTWEIGHT REINFORCED CONCRETE BEAMS WITH OPENINGS IN SHEAR ZONE

By

Eng. Mohamed Ibrahim Mohamed Ahmed

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 Thesis:

Behavior of Lightweight Reinforced Concrete Beams with openings in Shear Zone

Key Words:

Lightweight concrete; Simply-support beams; Openings; Shear zone; Stiffness.

Summary:

The construction of modern buildings requires many pipes and ducts to accommodate necessary services such as air conditioning, electricity, telephone, and computer network. Presence of openings in reinforced concrete beams enables the installation of these services, minimizes the required floor height, and decreases the construction cost. However, the presence of these openings in reinforced concrete beams affects their structural behavior. Thus, this thesis investigates the behavior of simply supported beams with openings in shear zone subject to two symmetrical-concentrated loads.

ACKNOWLEDGMENTS

First and foremost, praise and thanks to Almighty **ALLAH**, the most Gracious, the most merciful, and peace is on his Prophet, Mohamed.

I wish to express my sincere gratitude and thanks to my supervisor, **Prof. Dr. Hany Ahmed Abdalla**, Professor of Concrete Structures, Faculty of Engineering, Cairo University, for his continuous help, support, suggestions, advice and guidance throughout the research program.

I am indebted with great favor to **Dr. Nasser Fekri Elshafey** for his generous supervision, motivation, continuous hard work, fruitful positive discussions, guidance, and following me up through the study and final preparation of this thesis.

I would also like to express my heartfelt appreciation to my family; my father, my uncle **Salah**, Cultural Councellor at Sudan Embassy, Cairo, my sister, my brothers and my aunt for lots of support.

Finally, I would like to express my gratitude to all those who encouraged me to complete this thesis.

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