CYCLIC BEHAVIOR OF BASE CONNECTION FOR C-BENT PIER SUBJECTED TO COMBINED FLEXURAL – TORSIONAL LOADING

By

Mohamed Abdelaziz Mohamed Abdelaziz

A Thesis Submitted to the
Faculty of Engineering at Cairo University
in Partial Fulfillment of the
Requirements for the Degree of
DOCTOR OF PHILOSOPHY
in
<Structural Engineering>

FACULTY OF ENGINEERING, CAIRO UNIVERSITY
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Title of Thesis:

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Key Words:
Torsion; SAC Protocol; Drift-Rotation ratio; Stiffness; Base connection; Contact pressure

Summary:
A base connection of C-bent pier has been numerically investigated under combined cyclic flexural and torsional loading using software, Strand7. Material and geometrical nonlinearities are incorporated. Stiffness, strength, deformation, and ductility parameters are introduced to assess flexural and torsional response of the connection when subjected to cyclic loading. Individual behavior of base connection components has been addressed and design recommendations were introduced accordingly. An expression for anchor rod shear stiffness and global resistance of the connection to the twisting rotation are provided.

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Dedication

To my wonderful beloved mother who is always wanted to call me a doctor. Dear Mom your wish came true.

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