

STRUCTURAL TECHNICAL REPORT 3

THE ANALYSIS OF LATERAL FORCE
RESISTING SYSTEM

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CENTER

12/07/2005
AE 481W



EXECUTIVE SUMMARY

The Northbrook Corporate Center is a 5 story building located on 1500 Northbrook Drive, Philadelphia, PA. The building provides roughly 104,000 square foot of usable space for office occupants. The total height of the building is 74 feet, with each story being 14 feet high. The building provides a parking garage on its lowest level.

The structural system of the building consists of steel columns, steel girders, and steel joists. Steel joist support a 4 inch concrete slab on metal deck; joists are spaced at 3 feet o.c., and span 30 feet between the girders. Steel girders, typically W24x68, are connected to steel columns, typically W12x72, with a moment resisting connection in order to resist the lateral loads.

In this report a detail description of the building and building's lateral force resisting system is provided. The wind and seismic load development is described and compared. The lateral force resisting system is analyzed under five different subsections: *Strength Check*, *Drift Check*, *Overturning*, *Impact on Foundation*, and *Torsion*. These sections are accompanied by spot check of directly involved structural members.

The purpose of this report is to provide a detail analysis and description of Northbrook Corporate Center's lateral force resisting system. After an in-depth analysis, this report concludes that the lateral force resisting system of Northbrook Corporate Center is sufficient to resist the controlling lateral loads applied on a building. In the process the report lays out a basis for further study of Northbrook Corporate Center's lateral force resisting system.