



Erie on the Park

Chicago, IL

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Structural Emphasis

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Executive Summary

It is the intent of this report to analyze the lateral force resisting system implemented when designing 500 W. Erie St. Chicago, Illinois, under wind and seismic loading.

Lateral System Description

Erie on the Park is a 25 story condominium complex on W. Erie St. in Chicago, IL. It uses a number of three story shear walls at the base that transfer to steel braced frames after the third floor. Two of the concrete shear walls are aligned in the East-West (short) direction of the building and three are in the North-South direction. All for these shear walls are at least 26' long, 18" thick and made of concrete with a 28 day compressive strength of 8000 psi. The steel braced frames continue through the remaining 22 stories are aligned two in each direction symmetric about the center of gravity of the floor slabs. Two of these braced frames can be seen in the building's East and West façades. All the braced frames are designed using large three story chevron braces that transfer the shear load down over a wider area and thus are stiffer than braces that only span column bay. Having the braces extend over three stories also allows for a greater flexibility of the floor layouts because the braces are not crossing between the floors in the same place on every floor.

Structural Design Code

Chicago Building Code
ASCE-7 2002
IBC 2000

Conclusions

During the check of the lateral systems of 'Erie on the Park' I relied heavily on ASCE-7-02 for determining the forces attributed to the wind and seismic loading cases as well as for how to distribute the loads that I found to the building elements. This caused some minor discrepancies with the design that was used for the building since it was designed under the Chicago Building Code which outlines different ways to account for the wind and seismic loads.