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Structural Option
Metropolis at Dadeland
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Tech 3 – Exec Summary Resubmittal
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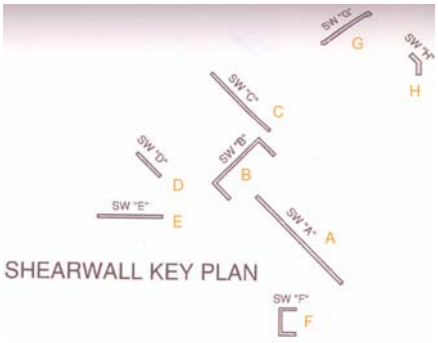
Technical Report 3 – Executive Summary
Lateral System Analysis and Confirmation Design

The structure of the Metropolis at Dadeland tower resists lateral loads by utilizing shear walls. There are eight different walls that run in four different directions within the building. The most unique part of the shear walls is that while most of the walls are solid on many levels there are openings within the walls both at the top of wall A and within the parking deck in walls A, C, and E. Walls D, F, G, and H end at the eighth floor, C and E reach the 22nd floor, and A and B reach the roof level. On the top floors wall A once again has an opening in it to allow for the use of the space as a connected living space.



The loads lateral loads on the structure were found using the method found in ASCE 7-02. As was expected due to the location of my building and confirmed in technical report 1, wind easily controls over seismic loading on the structure even though the building is rather massive. In order to calculate my deflection values and shear wall loads I modeled the structure using ETABS. The resulting drifts were reasonable, but noticeably larger than what should be allowed based on an H/400 limitation. The strength checks revealed that my structure is sufficiently designed for the loads that it sees. Both the columns and shear walls pass design checks at critical locations, whether calculated by hand or computer. This fact is amplified if the wind tunnel results were used to calculate lateral loads instead of the ASCE method's results.

After analyzing the results obtained from this report is it evident that most of the structure adequately carries the applied lateral loads. The one limiting part of the design is the excessive lateral deflections when lateral stiffness is attributed only to the shear walls.