

Table of Contents

Abstract	ii
Table of Contents	iii
Acknowledgments	1
Executive Summary	2
Background Information	3
Existing Structural System	6
Building Description.....	7
Lateral System.....	8
Roof System.....	10
Column System.....	11
Foundation System.....	11
Design Codes.....	12
Required Loads.....	13
Proposal	14
Problem Statement.....	15
Design Criteria.....	16
Post-Tensioned One-Way Slab	17
Introduction.....	18
Design Criteria.....	18
Load Analysis.....	19
Post-Tension Analysis – Flexural Strength	20
Post-Tension Analysis – Deflection	24
Post-Tension Analysis – Shear Strength.....	26
Cost Comparison.....	27
Conclusion.....	28
Shear Wall Design	29
Introduction.....	30
Design Criteria.....	31
Design Analysis.....	32
Drift Analysis.....	33
Conclusion.....	33
Acoustical Analysis	34
Introduction.....	35
Goals.....	35
Analysis I – IBC 2000 Requirements.....	36
Solution.....	37
Analysis II – Mechanical Room.....	37
Conclusion.....	38
Mechanical Analysis – Energy Recovery Ventilator	39
Introduction.....	40
Solution.....	42
Appendices	43