



Report Table of Contents

Thesis Abstract..... Page 2

Thesis Executive Summary..... Page 4

Credits & Acknowledgements..... Page 5

General Project Information..... Page 6

Integrated Delivery Systems Research..... Page 8

 Sears Centre current PDS Summary..... Page 10

 Highlights, key points and origins of project delivery system Page 10

 Key Project Constraints Page 10

 Project Complexity..... Page 10

 Construction Cost Page 11

 Commercial Construction Loan Calculation Page 13

 Brief Summarization of PDS alternatives..... Page 18

 Brief Summarization of PDS w/ probable contract type..... Page 33

Integrated Delivery Systems Alternatives..... Page 40

 P³ Public Private Partnership..... Page 41

 BOT-Build Operate Transfer..... Page 46

 DBOM-Design Build Operate and Maintain..... Page 47

Conclusion-Analysis Verification Page 59

 Validation of Integrated Delivery System..... Page 59

Superstructure System Comparisons..... Page 60

 Pre-cast Concrete vs. Cast-in-Place Concrete..... Page 61

 Time Assessment..... Page 63

 Cost Comparison/ Conclusion..... Page 65

Ice-Rink Research..... Page 67

Ice-System Overview Page 68

 Identification needs of system Page 68

 Equipment schedule/ Refrigerant Distribution network..... Page 69

 Ice-floor construction process/ Brine Distribution Path Flow..... Page 71

Ice-System Operations..... Page 74

 Basic Refrigeration Cycle..... Page 74

 Ice-Surface Formation Procedures..... Page 76

Ice System Value Engineering Assessment/ Conclusion..... Page 77

Alternative Envelope Selection..... Page 81

Impacts of existing scenario..... Page 82

 Definition of purpose for analysis..... Page 82

Identification of complex envelope elements..... Page 82

Identification of Building Regions affected by alternative elements..... Page 83

Decision of Alternative Envelope Scheme..... Page 89

Determine impact on structural systems..... Page 90

 Alternative Load Documentation..... Page 91

Construction Management Appendix..... Page 95

Structural Appendix..... Page 128