

**GREEN BUILDING INFORMATION MODELLING
TECHNOLOGY ADOPTION FOR EXISTING BUILDINGS:
FACILITIES MANAGEMENT PERSPECTIVE**

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This effort may a dedication, To

my beloved family

To every individual who blessed me

Towards my success.....

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ABSTRACT

GREEN BUILDING INFORMATION MODELLING TECHNOLOGY ADOPTION FOR EXISTING BUILDINGS: FACILITIES MANAGEMENT PERSPECTIVE

There is a manifest increase for the use of Building Information Modelling (BIM) techniques in the construction industry due to its evident benefits that facilitate the construction processes than traditional approaches. The need of incorporating BIM based techniques for building constructions has been increasingly acknowledged both at the academic research and industrial levels. Herein, Green BIM as one of BIM based technologies has been discussed in recent years in relation to sustainable and green concepts with its advanced technological features that help to accomplish sustainable goals. The fundamental advantage of Green BIM is the ability of generating advanced building performance analysis results that are important in optimizing energy consumption of buildings through improved decision making. The inherent benefits of Green BIM have been extensively discussed in literature especially considering its implementation during design and construction phases of building construction projects towards the energy optimization. Evidently, there are lack of research for the use of Green BIM for existing buildings even though there is a huge potential in optimizing energy during operation and maintenance phases of existing buildings. As discussed in literature, facilities managers are being faced numerous challenges in adopting Green BIM for existing buildings due to lack of necessary building data during the operation and maintenance phases of buildings discouraging the implementation of Green BIM for existing buildings. The aim of this research therefore, was to study the potential of adopting Green BIM for existing buildings from facilities management perspective.

To achieve the aforementioned aim, a qualitative research approach was followed which included a multiple case study analysis. The case study was conducted with two cases through the practical implementation of Green BIM. The practical implementation was mainly included creating the basic BIM models and running Green BIM techniques to analyse the performances of selected buildings. The Green BIM techniques used for the selected cases were solar analysis and energy analysis respectively. The experiences gathered during the study were analysed and discussed as the findings of the research. The findings include the challenges faced during the study when implementing Green BIM for the selected cases and the actions taken during the study were discussed with further recommended solutions. Finally, a framework was developed as a guidance to overcome the challenges of Green BIM implementation for existing buildings. The findings of this research emphasized the challenges that can be faced from facilities management point of view, over the implementation of Green BIM for existing buildings during the operation and maintenance phases. Thus, the framework provided in this study may significantly helpful for facilities managers to implement Green BIM for existing buildings that maintain with lack of data, towards the energy optimization through improved decision making.

Key Words: Building Information Modelling, Building Performances, Energy, Facilities Management, Green BIM.

TABLE OF CONTENTS

1.0	BACKGROUND	1
1.1	Problem Statement	7
1.2	Aim and Objectives	8
1.3	Methodology	8
1.4	Scope and Limitations	9
1.5	Chapter Breakdown	10
2.0	LITERATURE REVIEW.....	11
2.1	Energy Consumption of Buildings	11
2.2	Sustainability and Green Buildings	12
2.3	Building Simulations and Performance Analysis.....	13
2.4	Issues of Traditional Building Performance Analysis.....	14
2.5	Building Information Modelling (BIM)	15
2.6	Evolution of Building Information Modelling	16
2.7	Definitions of Building Information Modelling	20
2.8	Integration of Building Information Modeling for Building Performance Analysis and Environmental Sustainability	21
2.8.1	Integrated Project Delivery	22
2.8.2	Design Optimization	22
2.9	Green BIM Technology.....	26
2.9.1	Green BIM Techniques	28
2.9.2	Green BIM Tools	34
2.10	BIM Design Tools	35
2.10.1	Revit	35
2.10.2	Bentley System	35
2.10.3	ArchiCAD	36

2.10.4	Digital Project	36
2.10.5	Vectorworks	36
2.10.6	Tekla Structures	36
2.11	BIM Simulation Tools	37
2.11.1	Ecotect.....	37
2.11.2	Green Building Studio	37
2.11.4	Riuska	38
2.11.3	Energy Plus	39
2.11.4	Design Builder	39
2.11.5	eQUEST	39
2.11.6	Eco Designer	39
2.12	Application of Green BIM for Existing Buildings	39
2.13	Data Requirements for the Application of Green BIM in Existing Buildings 41	
2.14	Level of Detail / Development (LOD)	46
2.15	Challenges Over the Application of Green BIM for Existing Buildings	48
3.0	RESEARCH METHODOLOGY	52
3.1	Research Design	52
3.2	Research Approach.....	52
3.2.1	Quantitative Research Approach.....	53
3.2.2	Qualitative Research Approach.....	53
3.3	Research Process	53
3.3.1	Phase 01 - Initial Study	54
3.3.2	Phase 02 -Literature Survey	55
3.3.3	Phase 03 – Multiple Case Study.....	55
3.3.4	Selection of Cases for the Multiple Case Study.....	57

3.3.5	Data Collection (Multiple Case Study)	60
3.3.6	Data Analysis (Multiple Case Study).....	60
3.3.7	Development of the Framework	63
3.3.8	Conclusion and Recommendation.....	63
3.3.9	Chapter Summary.....	63
4.0	DATA ANALYSIS AND DISCUSSION.....	64
4.1	Overview of the Project.....	64
4.2	Multiple Case Study Analysis	64
4.2.1	Investigation of Drawings and Specifications.....	65
4.2.2	Analysis of the Availability of Data	66
4.2.3	Specification of LOD Scale	69
4.2.4	Designing of BIM Model for the Selected Cases.....	71
4.2.5	Simulation Results of the Cases	73
4.3	Potential Energy Saving Strategies for Walls	82
4.3.1	Thermal Insulation	82
4.3.2	Solar Shading Elements	82
4.4	Window Retrofits	82
4.4.1	Solar Control Low-E Application	82
4.4.2	Multi Pane Glazing	83
4.4.3	Vacuum Tube Window	83
4.4.4	Renovation of Window Frames	83
4.5	Roof Retrofits	84
4.5.1	Roof Insulation.....	84
4.5.2	Green Roof Application	84
4.5.3	High-albedo Roof Paintings	84

4.6	Analysis of the Suitability of Data Used for the Application of Green BIM	99
4.7	Challenges Identified During the Application of Green BIM.....	99
4.7.1	To get missing information of the building plan.....	99
4.7.2	To ensure the accuracy of data.....	99
4.7.3	Difficulties in obtaining permission to acquire drawings from the contractor of the building projects	100
4.7.4	Complexity of understanding details due to the incompatibility of available data with the actual building	100
4.7.5	Need of access for more resources.....	100
4.7.6	Excessive time consumption	101
4.7.7	To determine the accurate thickness of walls and slabs.....	101
4.7.8	To measure the accurate dimensions of columns and beams.....	101
4.7.9	To measure the accurate dimensions of the roof terrace.....	102
4.7.10	Creation of families.....	103
4.7.11	Difficulty to measure the dimensions of building facades and shading elements	103
4.7.12	Difficulty to create different architectural features of the building ...	103
4.7.13	Clashes and errors between elements during the modeling	104
4.7.14	Identification of types of building materials	104
4.7.15	Lack of support from building occupants	104
4.7.16	Validation of the developed BIM model.....	104
4.7.17	Creation of families.....	105
4.7.18	Errors and missing information of drawings.....	105
4.7.19	Complex details of drawings and excessive time consumption.....	105
4.7.20	Challenges Faced During the Simulations	105

4.8	Development of the Framework.....	107
4.8.1	Actions Taken During the Study and Proposed Solutions to Overcome the Challenges.....	108
4.9	Cross Case Analysis of the Cases Used in the Study	114
	Creation of families	114
	Complex details of drawings	114
	Excessive time consumption.....	114
4.10	Benefits of Adopting Green BIM for Existing Buildings	118
4.11	Discussion	119
4.12	Validation	122
4.12.1	Expert Interviews	122
4.13	Chapter Summary.....	123
5.0	CONCLUSION AND RECOMMENDATIONS.....	124
5.1	Summary of the Study	124
5.2	Conclusions	127
5.3	Recommendations	128
5.4	Contribution to Knowledge	128
5.5	Limitations.....	129
5.6	Areas for Further Studies	129
6.0	References	130

List of Figures

Figure 1: Chapter Breakdown	10
Figure 2: Evolution of BIM	17
Figure 3: Development of BIM.....	19
Figure 4: Integrated Project Delivery.....	22
Figure 5: Conceptual Framework for BIM Based Sustainability Analysis	24
Figure 6: Conceptual Framework for BIM based Sustainability Analysis	25
Figure 7: Green BIM Process.....	33
Figure 8: Green BIM Tools.....	35
Figure 9: BIM Based Sustainability Analysis.....	42
Figure 10: LOD Scales.....	46
Figure 11: Research Process	54
Figure 12: Process Flow Diagram Developed for the Study.....	62
Figure 13: Ground floorplan of Case 01 and Case 02.....	66
Figure 14: Actual Building	72
Figure 15: BIM Model of Case 01	72
Figure 16: Actual Building of Case 02	73
Figure 17: BIM Model of Case 02	73
Figure 18: Insight Plug-ins in Revit.....	74
Figure 19: Technical Error Message	74
Figure 20: Solar Analysis.....	75
Figure 21: Interface for Location and Type of Simulation	75
Figure 22: Images of Lighting Simulation	76
Figure 23: Scale of Cumulative Insolation.....	77
Figure 24: Study Settings for Solar PV Analysis.....	77
Figure 25: Solar PV Analysis.....	78
Figure 26: gbxml File for Case 01	85
Figure 27: gbxml file for Case 02	86
Figure 28: Energy Model for Case 01 and Case 02	86
Figure 29: Annual Electricity Demand	90
Figure 30: Energy Criteria	91

Figure 31: Electric Use Intensity	91
Figure 32: Annual Costs Results.....	92
Figure 33: Monthly Cost Data for Case 01	92
Figure 34: Monthly Energy Data for Case 01	93
Figure 35: Monthly Energy Data for Case 02.....	93
Figure 36: Monthly Cost Data for Case 02	94
Figure 37: Project Defaults for U values and R values.....	98
Figure 38: Issue of Measuring Columns	102
Figure 39: Issue of Roof Terrace	102
Figure 40: Issue of Measuring Shading Elements.....	103
Figure 41: Classification of challenges	107
Figure 42: Exported gbxml Model.....	110
Figure 43: Developed Framework for the Study.....	117

List of Tables

Table 1: Definitions of BIM.....	20
Table 2: Green BIM Techniques, Features and Outcomes	29
Table 3:Input Data for Green BIM Tools	45
Table 4: Input Data for BIM Simulations Under LOD Scales.....	48
Table 5: Criteria for the Selection of Cases	58
Table 6 : Analysis of Geometry Data Availability.....	67
Table 7: Analysis of Simulation Data Availability	68
Table 8: Summary of the Analysis	80
Table 9: Project Defaults.....	87
Table 10: Energy Simulation Results.....	95
Table 11:Cross case analysis.....	114