

TABLE OF CONTENTS

	Page
APPROVAL PAGE	i
PRONOUNCEMENT	ii
DEDICATION PAGE	iii
ACKNOWLEDGEMENTS	iv
TABLE OF CONTENTS	v
LIST OF FIGURES	viii
LIST OF TABLES	x
NOMENCLATURE	xii
ABSTRACT	
CHAPTER 1: INTRODUCTION	1
1.1. Background	1
1.2. Problem Definition	2
1.3. Scope of Research	3
1.4. Goals of Research	3
1.5. Advantages of Research	3
CHAPTER 2: LITERATURE REVIEW	5
CHAPTER 3: THEORICAL BACKGROUND	10
3.1. Energy Conservation of Building Envelope	10
3.1.1. Definition of Energy Conservation	10
3.1.2. Definition of Building Envelope	10
3.1.3. Energy Performance of Building Envelope	11
3.1.4. Thermal Basic Performance of Building Envelope	12
3.2. Overall Thermal Transfer Value of Building Envelope	15
3.3. Life Cycle Assessment in General	17
3.4. Life Cycle Assessment in Building Envelope	19
3.5. Building Envelope Materials	21
3.6. Embodied Energy and Carbon Dioxide Emission	23
CHAPTER 4: METHODOLOGY	25

4.1. Research Materials	25
4.2. Flow Chart of Research Methodology	27
4.2.1. Literature Review	27
4.2.2. Data Collection	28
4.2.3. OTTV Calculation	28
4.2.4. Life Cycle Assessment of Building Envelope	28
4.2.5. Result Analysis	32
4.2.6. Recommendation	32
4.3. Building Envelope Properties of Cakra Kusuma	30
4.4. Building Envelope Properties of Inna Garuda	39
CHAPTER 5: RESULTS AND DISCUSSION	44
5.1. Result Analysis of Overall Thermal Transfer Value (OTTV)	44
5.2. Sensitivity Analysis of OTTV Variables	57
5.2.1. Heat Absorbitivity	57
5.2.2. U-value of wall	59
5.2.3. U-value of glass window	59
5.2.4. Temperature different equivalent	60
5.2.5. Shading coefficient	61
5.2.6. Solar Factor	61
5.3. Result Analysis of Overall Thermal Transfer Value (RTTV)	62
5.4. Electricity Consumption Per Occupancy Rate Analysis of Hotel	64
5.5. Embodied Energy and CO ₂ Emission of Building Envelope Materials	67
5.6. Comparison Analysis	75
5.6.1. Overall Thermal Transfer Value	75
5.6.1.1. Window to Wall Ratio factor	76
5.6.2.2. Building Orientation factor	76
5.6.2. Roof Thermal Transfer Value	77
5.6.3. Life Cycle Assessment	77
5.6.3.1. Embodied Energy	77
5.6.3.2. Carbondioxide Emissions	78
5.7. Towards Green Building Standard Hotel	79

CHAPTER 6: CONCLUSION AND RECOMMENDATION	80
REFERENCES	83