

Table S1. Case Study Tool Inputs of Project Participant in Design Phase.

Are you Committed to the following Decision		If Select No Justify Your Selection	Commitment Indicator For Energy Consumption Reduction		Identify the renewable energy technologies available in the market	Select suitable renewable technologies	Integrated the selected renewable technologies with project design	Use dynamic simulation to check project systems synergy	Commitment Outcome for Energy Consumption Reduction
Energy Consumption Reduction	Yes		Incorporation level of renewable energy sources into the project design	Yes	Y	Y	N	N	Medium Energy Reduction Commitment 50%
			Involving green experts with energy reduction experience in the design team	NA	N	N	N	N	
Energy Consumption Reduction					Identify the design elements	Collect necessary information	Integrate and analyze renewable energy technologies in the design	Using BIM analysis tools to optimize energy design	
			The usage level of BIM computer modeling in the project design to reduce energy consumption.	Yes	Y	Y	Y	N	
					Identify equipment accessibility, standardization, modularization, ease of	Seek inputs from maintenance personnel	Integrate energy equipments maintenance and operation considerations in the design	Simulate annual loads and peak demands	

				maintenance for the selected energy equipments and machines				
		The consideration level of operating and maintenance factors during the design	No	N	N	N	N	
				Identify innovative technologies and renewable power generation available in the market	Deciding on the most fitting energy-efficient equipment and techniques	Achieving design energy efficiency through reducing the demand for energy	Conduct an asset assessment to identify energy-saving	
		Design for net-zero energy (total amount of energy used yearly by a building is equal to or less than the amount of energy created on-site)	Yes	Y	Y	N	N	
At The End of The Design Phase								
Participant 1	PM-Consultant							
	Did Your Commitment level Same as Beginning of The Phase							
What is Your Commitment at The End of The Design Phase	Waste Reduction				No	If Yes Do not Complete Waste Reduction Table Otherwise Complete the Waste Reduction Tables According to What Has Been Done		

	Energy Consumption Reduction				Yes	If Yes Do not Complete Energy Consumption Reduction Table Otherwise Complete the Energy Consumption Reduction Tables According to What Has Been Done				
	Carbon Emissions Reduction				No	If Yes Do not Complete Carbon Emissions Reduction Table Otherwise Complete the Carbon Emissions Reduction Tables According to What Has Been Done				
Are you Committed to the following Decision	If Select No Justify Your Selection			Commitment Indicator For Waste Reduction	Is This Indicator Applicable to The Project	Identify resource demand from project design	Specify designed resource capacity	Specify the resource's gap	Close resource's gap	Commitment Outcome for Waste Reduction
Waste Reduction	Yes		Availability of resources.	Yes	Y	Y	Y	N	Low Waste Reduction Commitment 25%	
			The usage level of reuse and recycle construction and demolition materials in the project design	NA	N	N	N	N		
			The usage level of BIM computer modeling in the project design to reduce waste.	NA	N	N	N	N		
					Identify the design elements	Defined the effectiveness of the architectural spaces	Allow for adaptation of the space	Conduct risk analysis		

		Incorporate design flexibility factors (buildings that are designed with the flexibility to adapt to changing functions over long useful lives)	Yes	Y	Y	Y	Y	
		Involving green experts with waste management experience in the design team	NA	N	N	N	N	