

Part 1 - Performance-based Approach Summary		Page ___ of ___
(* Please delete, if not applicable)		
Name of Building / Unit / Common Area * _____ _____		
Address of Building / Unit / Common Area * _____ _____		
Date of Declaration by Registered Energy Assessor in Form EE2 / EE3 / EE4 * _____		
Documents submitted (Please tick where applicable)	No. of sheets	
<input type="checkbox"/> Form EE-PB Part 1: Performance-based Approach Summary		
<input type="checkbox"/> Form EE-PB Part 2: Building Energy Consumption Worksheet		
<input type="checkbox"/> Form EE-PB Part 3: Software Program Worksheet		
<input type="checkbox"/> Demonstration of compliance with basic requirements (BEC Clause 9.4.1) : Forms EE-LG, EE-AC, EE-EL & EE-LE and corresponding drawings/technical documents etc. (Please print "Compliance with basic requirements" on the Forms, corresponding technical documents and drawings.)		
<input type="checkbox"/> Trade-off items counting towards the increase in design energy (BEC Clause 9.5.4) : Forms EE-LG, EE-AC, EE-EL & EE-LE applicable to the trade-off items, and corresponding drawings/technical documents etc. (Please print "Items counting towards increase in design energy" on the Forms, corresponding technical documents and drawings)		
<input type="checkbox"/> Trade-off items counting towards the reduction in design energy (BEC Clause 9.5.4) : Forms EE-LG, EE-AC, EE-EL & EE-LE applicable to the trade-off items, and corresponding drawings/technical documents etc. (Please print the wording "Items counting towards reduction in design energy" on the Forms, corresponding technical documents and drawings)		
<input type="checkbox"/> Input and output reports (BEC App A Clause A2.7) generated from the simulation program performing the building energy analysis, including – <ul style="list-style-type: none"> ▫ a breakdown of energy consumption for : <ul style="list-style-type: none"> - lighting, - space cooling and heat rejection equipment, - space heating equipment (if provided), - fans of AHUs and ventilation fans, - pumps for air-conditioning, and - service water heating equipment (if provided and included in the simulation), - miscellaneous equipment/appliance loads (e.g. computer, photocopier, water dispenser etc.); ▫ monthly total building energy consumption profile; ▫ output report to show the amount of time any air-conditioning loads are not met by the air-conditioning system for both designed building and reference building; and ▫ explanation of any error messages noted in the output report 		
<input type="checkbox"/> Others (Please give details.) _____		
Remarks (applicable to Parts1 to 3) :-		
1) Please submit in addition to Form EE-PB also Forms EE-LG, EE-AC, EE-EL & EE-LE for the trade-off items (BEC Clause 9.5.4) and for demonstration of compliance with the basic requirements (BEC Clause 9.4.1). 2) All documents including this Form are for demonstration of compliance with the BEC for the building services installation, and should cover all the relevant items governed by the BEC in respect of the lighting, air-conditioning, electrical and lift & escalator installations. 3) Should space provided in this Form be inadequate, please provide details with clear cross-referencing on separate sheets and attach to this Form. 4) Descriptions and numbering of each installation, system, equipment, building block, floor, room, space etc. in each of Forms EE-LG, EE-AC, EE-EL, EE-LE & EE-PB, should such appear in more than one type of Form, should be identical. 5) Any incomplete or erroneous information in this Form may render this Form being regarded invalid.		

Part 2 – Building Energy Consumption Worksheet						(BEC Clause 9.5)	Page ___ of ___
(A) Design Energy and Energy Budget (BEC Clause 9.5.3)							
Design energy (kWh/year)				Energy budget (kWh/year)			
(B) Compliance with Basic Requirements (BEC Clause 9.4)							
All basic requirements complied (BEC Clause 9.4.1) ? <input type="checkbox"/> Yes (Please tick if yes) (Please substantiate compliance with Forms EE-LG, EE-AC, EE-EL & EE-LE and corresponding technical documents and drawings)							
(C) Trade-off in Design Energy (BEC Clause 9.5.4)							
1) Items counting towards increase in design energy (BEC Clause 9.5.4.1)			Applicable minimum standard * ¹		Energy * ² requiring off-set (kWh/yr)		
Description of item (including type and Ref No. of installation/system, major equipment, capacity, location of installation, operating schedule and design assumption etc)	Drawing No.	Design performance	Applicable BEC Clause	BEC requirement			
(Please insert additional row if necessary)							
Please provide in corresponding Forms EE-LG, EE-AC, EE-EL & EE-LE the detailed performance of the items above.							Total :
2) Items with reduction in design energy as a result of (a) improvement over corresponding minimum allowable level of performance, or (b) a better building OTTV [®] (BEC Clause 9.5.4.1 (a) or (b))			Applicable minimum standard * ¹		Energy * ² available for off-set (kWh/yr)		
Description of item (including type and Ref No. of installation/system, major equipment, location of installation, operating schedule and design assumption etc)	Drawing No.	Design performance	Applicable BEC Clause	BEC requirement			
(Please insert additional row if necessary)							
Please provide in corresponding Forms EE-LG, EE-AC, EE-EL & EE-LE the detailed performance of the items above.							Total :
® If a better building OTTV is used in the off-set (BEC Clause 9.5.4.1 (b) & Clause 9.5.4.2), please provide information below : OTTV of designed building : _____ , OTTV of reference building : _____ Please provide and attach to this Form a copy of the OTTV calculation submitted to the Building Authority.							

Part 2 – Building Energy Consumption Worksheet		(BEC Clause 9.5)	Page ___ of ___	
3) Recovered energy or renewable energy (BEC Clause 9.5.4.1 (c), & App A Clause A3.1.5) (Please also provide information required in (E) below, if method in (E) is adopted)				Energy *2 available for off-set (kWh/yr)
Description of item (including type and Ref No. of installation/system, major equipment, capacity, location of installation, operating schedule and design assumption etc)	Drawing No.			
(Please insert additional row if necessary)				
Total :				
4) Ownership of items in trade-off process (BEC Clause 9.5.4.3)				
Owner of items in Part 2(C)1) :				
Owner of items in Part 2(C)2) :				
Owner of items in Part 2(C)3) :				
(D) Energy Consumption of Yet-to-be Designed/Installed Items				
Items not yet designed or installed (BEC App A Clauses A3.2.1, A3.2.2 & A3.2.3), with exclusion from building energy simulation not applicable		Energy performance (Estimated energy consumption should be included in design energy in (A))		
Description of item (including type and Ref No. of installation/system, major equipment, capacity, location of installation, operating schedule and design assumption etc)	Drawing No.	Assumed design energy performance	Applicable BEC *1 requirement	Estimated energy consumption (kWh/yr)
(Please insert additional row if necessary)				
Total :				

Part 2 – Building Energy Consumption Worksheet (BEC Clause 9.5) Page ___ of ___

(E) Exceptional Calculation Method (BEC App A Clause A3.4)

Items warranting exceptional calculation method (BEC App A Clause A3.4.1), with exclusion from building energy simulation not applicable		Energy performance			
Description of item (including type and Ref No. of installation/system, major equipment, capacity, location of installation, operating schedule and design assumption etc), and description of exceptional calculation method	Drawing No.	Design energy performance	Applicable BEC *1 requirement	Contributing to trade-off in design energy ?	Estimated energy *2 requiring or available for off-set (kWh/yr)
(Please insert additional row if necessary)					
				<input type="checkbox"/> No <input type="checkbox"/> Yes	
				<input type="checkbox"/> No <input type="checkbox"/> Yes	
				<input type="checkbox"/> No <input type="checkbox"/> Yes	
				<input type="checkbox"/> No <input type="checkbox"/> Yes	
				<input type="checkbox"/> No <input type="checkbox"/> Yes	
				<input type="checkbox"/> No <input type="checkbox"/> Yes	
				<input type="checkbox"/> No <input type="checkbox"/> Yes	
				<input type="checkbox"/> No <input type="checkbox"/> Yes	
Total :					

Remarks (applicable to Part 2) :-

- 1) *1 Applicable minimum standard refers to the minimum performance standard in the relevant clause of the BEC, example being for lighting power density the corresponding LPD value of a relevant space specified in BEC Table 5.4.
- 2) *2 Energy requiring off-set to be presented in positive value, and energy available for off-set to be presented in negative value.
- 3) If an item is not applicable, please insert underneath "Description of item" the wording "Not applicable".

Part 3 – Software Program Worksheet			Page ___ of ___
(A) Items Excluded in Building Energy Simulation			
1) Due to exemption or exception given in the Ordinance or this BEC (BEC App A Clause A3.1.7)		Relevant Clause No. in Ordinance / BEC	Rough estimate of energy consumption (kWh/yr)
Description of item (including type and Ref No. of installation/system, major equipment, capacity, location of installation, operating schedule and design assumption etc)	Drawing No.		
(Please insert additional row if necessary)			
2) Due to the component energy usage (from non-major building system) not affecting the energy usage of items that are considered for trade-off (BEC App A Clause A3.2.9)			Rough estimate of energy consumption (kWh/yr)
Description of item (including type and Ref No. of installation/system, major equipment, capacity, location of installation, operating schedule and design assumption etc)	Drawing No.		
(Please insert additional row if necessary)			
Total (sum of 1) & 2)) of rough estimates of energy consumption (kWh/yr) excluded :			

Part 3 – Software Program Worksheet		Page ___ of ___	
(B) Items Warranting Special Simulation due to Software Limitation			
1) Building components & systems, which have insignificant impact on trade-off and cannot be modeled by the software program, that are ignored in the simulation (BEC App A Clause A3.2.11 (a))		Contributing to trade-off in design energy ?	Rough estimate of energy consumption (kWh/yr)
Description of item (including type and Ref No. of installation/system, major equipment, capacity, location of installation, operating schedule and design assumption etc)	Drawing No.		
(Please insert additional row if necessary)			
		<input type="checkbox"/> No <input type="checkbox"/> Yes	
		<input type="checkbox"/> No <input type="checkbox"/> Yes	
		<input type="checkbox"/> No <input type="checkbox"/> Yes	
		<input type="checkbox"/> No <input type="checkbox"/> Yes	
		<input type="checkbox"/> No <input type="checkbox"/> Yes	
		<input type="checkbox"/> No <input type="checkbox"/> Yes	
2) Items substituted with corresponding thermodynamically similar components or systems in the simulation, due to practical difficulty in the modeling (BEC App A Clause A3.2.11 (b))		Contributing to trade-off in design energy ?	Rough estimate of energy consumption (kWh/yr)
Description of item (including type and Ref No. of installation/system, major equipment, capacity, location of installation, operating schedule and design assumption etc)	Drawing No.		
(Please insert additional row if necessary)			
		<input type="checkbox"/> No <input type="checkbox"/> Yes	
		<input type="checkbox"/> No <input type="checkbox"/> Yes	
		<input type="checkbox"/> No <input type="checkbox"/> Yes	
		<input type="checkbox"/> No <input type="checkbox"/> Yes	
		<input type="checkbox"/> No <input type="checkbox"/> Yes	
		<input type="checkbox"/> No <input type="checkbox"/> Yes	
3) Items modeled in the simulation using the same corresponding components or systems of the reference building, due to practical difficulty in the modeling (BEC App A Clause A3.2.11 (c))		Contributing to trade-off in design energy ?	Rough estimate of energy consumption (kWh/yr)
Description of item (including type and Ref No. of installation/system, major equipment, capacity, location of installation, operating schedule and design assumption etc)	Drawing No.		
(Please insert additional row if necessary)			
		<input type="checkbox"/> No <input type="checkbox"/> Yes	
		<input type="checkbox"/> No <input type="checkbox"/> Yes	
		<input type="checkbox"/> No <input type="checkbox"/> Yes	
		<input type="checkbox"/> No <input type="checkbox"/> Yes	
		<input type="checkbox"/> No <input type="checkbox"/> Yes	
		<input type="checkbox"/> No <input type="checkbox"/> Yes	
Total (sum of 1), 2) & 3)) of rough estimates of energy consumption (kWh/yr) of items warranting special simulation :			
Remarks (applicable to Part 3 (A) & (B)) :- If an item is not applicable, please insert underneath "Description of item" the wording "Not applicable".			

Part 3 – Software Program Worksheet

Page ___ of ___

(C) Operation Parameters for Different Types of Space

1) Please list below the operation parameters for 3 most common types of space (BEC App A Clause A3.5.2 (a) & (b))

Type of space (BEC App A Clause A3.5.2(a))	Building operation parameters						
	Occupant density (m ² /person)	Minimum outdoor air (L/s /person)	Operating schedule No.	Lighting power density (W/m ²)	Equipment power density (W/m ²)	Service water heating power (W/person)	Others _____ (Please give details.)

2) Please list in the table for operating schedule (BEC App A Clause A3.5.2 (b) & (c)) below the operation densities of the operation parameters for one of the types of space in 1) above. (Table below only provides spacing for insertion of information for one type of space. Please add additional sheets for the other two types of space.)

Operating Schedule No. _____ applicable to _____ (Please insert description for type of space in 1) above)

Hour	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24
Occupants																								
Mon – Fri																								
Sat																								
Sun																								
Equipment																								
Mon – Fri																								
Sat																								
Sun																								
Lighting																								
Mon – Fri																								
Sat																								
Sun																								
AHU/Fan																								
Mon – Fri																								
Sat																								
Sun																								
Cooling																								
Mon – Fri																								
Sat																								
Sun																								
Heating																								
Mon – Fri																								
Sat																								
Sun																								
Hot Water																								
Mon – Fri																								
Sat																								
Sun																								
Others _____ (Please give details.)																								
Mon – Fri																								
Sat																								
Sun																								

Part 3 – Software Program Worksheet		(Please tick where applicable)	Page ___ of ___
(D) Simulation Software Program (BEC App A Clause A2)			
1) General information			
Name of software :			
Software version no. and release no. :			
Developed by (organization) :			
2) Software capability (BEC App A Clauses A2 & A3)			
Capable to perform full-year hour-by-hour, multiple thermal zone analysis (BEC App A Clause A2.2)	<input type="checkbox"/> Yes		
Maximum No. of thermal zones the program can handle:			
Capable to comprehensively model and simulate at all full load and part load conditions the thermal behaviour of the building, including the thermal interaction of the building envelope, building materials, no. of occupants, thermal mass effect, lighting installation, air-conditioning installation and relevant energy consuming equipment/systems serving the building, based on applicable building operating schedules including time-dependent variations of occupancy, fresh air intake, lighting loads, air-conditioning loads, thermostat settings, mechanical ventilation, process loads, and equipment/system loads ? (BEC App A Clause A2.1, A2.3 & A3.1.3)	<input type="checkbox"/> Yes		
Capable to simulate building operation schedules including hourly profiles for daily operation accounting for variations between weekdays, weekends, holidays and any seasonal operations ? (BEC App A Clause A3.1.3)	<input type="checkbox"/> Yes		
Capable to perform design load calculations to determine the air-conditioning equipment capacities, and the corresponding air and water flow rates ? (BEC App A Clause A2.5)	<input type="checkbox"/> Yes		
3) Weather data (BEC App A Clause A3.1.2)			
Cover full calendar year of 8760-hour	<input type="checkbox"/> Yes		
Reflect coincident hourly condition of temperature, solar radiation, humidity and wind speed based on data from Hong Kong Observatory	<input type="checkbox"/> Yes		
Format (Test Reference Year / Typical Meteorological Year / Others) (Please specify, and if "others is selected please give details)			