

## BEC 2021 VS BEC 2024 – Summary of Major Amendments

Note:

1. The following summary table includes the major amendments, with requirements tightened in general for enhanced energy efficiency. Please refer to BEC 2024 for the detailed requirements.
2. This serves the purpose of ease of reference only. The Code should take preference over any discrepancy if identified.

Section 5 Lighting Installation	BEC 2021	BEC 2024
1) Max allowable lighting power density (LPD), Table 5.4		
<u>Type of space</u>	LPD (W/m <sup>2</sup> )	
Bar / Lounge	13.0	10.0
Banquet Room / Function Room / Ball Room	17.0	12.7
Car Park	4.0	3.0
Changing Room/ Locker Room	10.0	8.1
Clinic	15.0	12.4
Conference / Seminar Room	12.8	10.6
Corridor	7.0	6.0
Dormitory	6.2	6.1
Entrance Lobby	11.5	10.0
Exhibition Hall / Gallery	15.0	12.0
Fast Food / Food Court	14.0	12.0
Guest room in Hotel or Guesthouse	11.5	9.9
Laboratory	13.5	10.4
Library - Reading Area or Audio Visual Centre	12.0	10.2
Library - Stack Area	15.0	12.7
Lift Lobby	9.2	7.5
Long Stay Ward for elderly	15.0	12.9
Medical Examination Room	15.0	12.3
Office, enclosed (with internal floor area at or below 15m <sup>2</sup> )	9.5	9.0
Office, with internal floor area above 15m <sup>2</sup> and of or below 200m <sup>2</sup>	8.9	8.5
Office, with internal floor area above 200m <sup>2</sup>	7.8	7.2
Pantry	10.2	8.5
Patient Ward / Day Care	13.0	11.2
Plant Room / Machine Room / Switch Room (with internal floor area above 15m <sup>2</sup> )	8.8	8.4
Public Circulation Area	11.5	9.9
Restaurant	13.6	12.0
Retail	13.4	11.1
Server Room / Hub Room	8.9	8.2
Sports Arena, Indoor, for recreational purpose (with internal floor area at or below 1,000m <sup>2</sup> )	17.0	16.0
Sports Arena, Indoor, for recreational purpose (with internal floor area above 1,000m <sup>2</sup> )		17.0
Staircase	6.0	5.6
Storeroom / Cleaner (with internal floor area at or below 15m <sup>2</sup> )	7.9	7.4
Storeroom / Cleaner (with internal floor area above 15m <sup>2</sup> )		6.3
Toilet / Washroom / Shower Room	9.7	9.0
Workshop	11.5	9.4

Section 5 Lighting Installation (Cont'd)	BEC 2021	BEC 2024
2) Automatic Lighting Control, Table 5.4		
<u>Type of Space</u>		
Sports Arena, Indoor, for recreational purpose (with internal floor area at or below 1,000 m <sup>2</sup> )	No	Yes
Sports Arena, Indoor, for recreational purpose (with internal floor area above 1,000 m <sup>2</sup> )	No	Yes
3) Type of Space for Simplified Trade-off Scheme, Table 5.4		
<u>Type of Space</u>		
Lift Lobby(*)	Not specified	Allow
Toilet / Washroom / Shower Room(*)	Not specified	Allow
4) Control Area for Lighting Control Point (Clause 5.5.1)	A single lighting control point in any of the spaces that is not classified as an office should control no more than 500 m <sup>2</sup> .	A single lighting control point in any of the spaces that is not classified as an office should control no more than <u>250 m<sup>2</sup></u> .
5) Control Area for Automatic Lighting Control and Manual Override Control	(Clause 5.6.1.3(a)) control the lighting for an area of no more than 2,000 m <sup>2</sup> .	control the lighting for an area of no more than <u>250 m<sup>2</sup></u> .
	(Clause 5.6.1.4) Any manual control installed to provide override of the automatic lighting control... should not control more than 500 m <sup>2</sup>	Any manual control installed to provide override of the automatic lighting control... should not control more than <u>250 m<sup>2</sup></u> .
6) Simplified Trade-off Scheme for Lighting Power Density	Not specified	New requirements specified in Clause 5.7

Section 6 Air-conditioning Installation		BEC 2021	BEC 2024
1) Demand Control Ventilation at Carpark,		(Clause 6.10.7.1) A carpark ventilation system... , to provide down to 50% or less of the design capacity	A carpark ventilation system... , to provide down to <u>35%</u> or less of the design capacity
		(Clause 6.10.7.2(b)) the carpark ventilation system with the total fan motors' nameplate power, ... of 11 kW or above	the carpark ventilation system with the total fan motors' nameplate power, ... of <u>3.7 kW</u> or above
2) Thermal Insulation, Tables 6.11a, 6.11b and 6.11c			
Thermal conductivity		0.04 W/m <sup>2</sup> -°C	<u>0.038 W/m<sup>2</sup>-°C</u>
Ambient condition for ceiling void / void of conditioned space		Not specified	Supplement as reference
3) Minimum COP for Unitary Air-conditioner, Table 6.12a (Part 1)			
Minimum COP at cooling mode (free air flow)	7.5 kW & below	2.7 for split type 2.5 for non-split type	<u>2.8</u> for split type <u>2.8</u> for non-split type
Minimum COP at heating mode (free air flow)	7.5 kW & below	2.8	<u>3.1</u>
4) Minimum COP for VRF System (Modular unit with top-discharged fan) , Table 6.12a (Part 2)			
Minimum COP at cooling mode (free air flow)	Above 20 kW & below 40 kW	3.9	<u>4.0</u>
	Above 200 kW	3.4	<u>3.5</u>
Minimum COP at heating mode (free air flow)	Above 20 kW & below 40 kW	4.1	<u>4.2</u>
	Above 200 kW	3.7	<u>3.8</u>
5) Minimum COP for Air-cooled Chiller, Table 6.12b			
Screw	Below 500 kW	3.1	<u>3.2</u>
	500 kW & above	3.1	<u>3.2</u>
VSD Screw	Below 500 kW	3.9 @ 75% load	<u>4.0</u> @ 75% load
	500 kW & above	4.0 @ 75% load	<u>4.1</u> @ 75% load
VSD Centrifugal	All Ratings	3.2	<u>3.3</u>
6) Minimum COP for Water-cooled Chiller, Table 6.12b			
Screw	Below 500 kW	4.8	<u>5.1</u>
	500 to 1000 kW	5.0	<u>5.3</u>
VSD Screw	500 to 1000 kW	5.0 6.8 @ 75% load	<u>5.2</u> <u>7.0</u> @ 75% load
	Above 1000 kW	7.2 @ 75% load	<u>7.5</u> @ 75% load
VSD Centrifugal	Below 1000 kW	5.4 7.2 @ 75% load	<u>5.5</u> <u>7.3</u> @ 75% load
	1000 to 3000 kW	5.7 7.7 @ 75% load	<u>5.8</u> <u>7.9</u> @ 75% load
	Above 3000 kW	7.8 @ 75% load	<u>8.0</u> @ 75% load
7) Direct Digital Control (DDC)		Clause 6.14	Re-arrange to Clause 6.14.1
8) Chilled Water Temperature Reset		Clause 6.15	Re-arrange to Clause 6.14.3

<b>Section 6 Air-conditioning Installation(Cont'd)</b>	<b>BEC 2021</b>	<b>BEC 2024</b>
9) Chilled Water Plant Control System	Not specified	New requirement at 6.14.2
10) Chilled Water Plant Optimisation Control	Not specified	New requirement at 6.14.4

<b>Section 7 Electrical Installation</b>	<b>BEC 2021</b>	<b>BEC 2024</b>
1) Minimum Nominal Full-load Motor Efficiency for Single-Speed Three-phase Totally Enclosed Motor (Table 5.7.1)	Motor at 75kW to 200kW tighten to IE3	Motor at 75kW to 200kW tighten to IE4

<b>Section 8 Lift &amp; Escalator Installation</b>	<b>BEC 2021</b>	<b>BEC 2024</b>
1) Lift Ventilation and Air-conditioning (Clause 8.5.4.3)	Power consumption of lift car ventilation fan at design air flow condition should not exceed 0.7 W per litre per second (L/s).	Power consumption of lift car ventilation fan at design air flow condition should not exceed <u>0.53 W per litre per second (L/s)</u> .
2) Widen the Application of Lift Regenerative Braking	(Clause 8.5.5) (a) with rated speed of 2.0 m/s or above, and (b) rated load at 900 kg or above	Remove requirement of "(b) rated load at 900kg or above" and re-arrange as Clause 8.5.5
3) Speed of Escalator at Reduction Mode	Not specified	Specified at clause 8.5.7 ( $\geq 0.05$ m/s or $\leq 0.25$ m/s)
4) Enhancement of Monitoring Facilities for Lift Performance	Not specified	New clause 8.7.4 & Clause 8.7.5

<b>Section 9 Performance-based Approach</b>	<b>BEC 2021</b>	<b>BEC 2024</b>
1) Minor amendment on wording	(Clause 9.4.2)	Revised wordings at Clause 9.4.2

<b>Section 10 Major Retrofitting Works</b>	<b>BEC 2021</b>	<b>BEC 2024</b>
1) Trade-off for COP of Chiller Adopting Refrigerant with Lower GWP Value	Not specified	Specified in Remarks (5) of Table 10.1