

BEC 2015 Vs BEC 2018 - 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 2018 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	<u>BEC 2015</u>	<u>BEC 2018</u>	
1) Max allowable lighting power density (LPD)			
<u>Type of space</u>	(clause 5.4) LPD (W/m ²)	(clause 5.4) LPD (W/m ²)	
Changing room/ Locker Room	LPD requirement not specified	10	
Common room/ Break Room		8	
Confinement cell		12	
Copy/ Printing Room, Photocopy Machine Room		10	
Covered playground (underneath building)/ Sky garden		12	
Fast food / Food court		14	
Indoor swimming pool, for recreational or leisure purposes		15	
Long stay ward for elderly		15	
Nurse station		13	
Pantry		12	
Porte Cochere		13	
Porte Cochere with headroom over 5m		15	
Office, with IFA at or below 15m ²		13	12
Office, Internal floor area above 15m ² and of or below 200m ²		12 (Office, open plan or with internal floor area above 15m ²)	10
Office, Internal floor area above 200m ²		9	
Bar / Lounge	14	13	
Banquet Room / Function Room / Ball Room	20	17	
Entrance Lobby	14	13	
Exhibition Hall / Gallery	17	15	
Gymnasium / Exercise Room	13	11	
Library – Reading Area or Audio Visual Centre	15	12 (Library – Stack Area: 15 W/m ²)	
Lift Lobby	11	10	
Patient Ward / Day Care	15	13	
Retail	17	16	
2) Automatic Lighting Control			
<u>Type of space</u>			
Changing room/ Locker Room	Not specified	Yes	
Common room/ Break Room		Yes	
Confinement cell		No	
Copy/ Printing Room, Photocopy Machine Room		Yes	
Covered playground (underneath building)/ Sky garden		Yes	

Section 5 Lighting Installation	<u>BEC 2015</u>	<u>BEC 2018</u>
Fast food / Food court		No
Indoor swimming pool		No
Long – stay ward for elderly		No
Nurse station		No
Pantry		Yes
Porte Cochere		No
Porte Cochere with headroom over 5m		No
Toilet / Washroom / Shower Room	Yes (occupant sensing control not applicable)	Yes (Remarks: Using occupant sensor in toilet is acceptable)
3) Automatic Lighting Control		
Clause 5.6.1.6 (New Clause)	Not Specified	Exception on ALC for space occupied or manned in 24 hours a day and 7 days a week manner.

Section 6 Air-conditioning Installation	<u>BEC 2015</u>	<u>BEC 2018</u>		
1) Air-conditioning system off-hours control	Specifies automatic equipment shutdown and setback control	Elaborated technical requirements on automatic equipment shutdown and setback control		
2) Minimum COP for VRF System				
<u>Air-cooled VRF - Minimum COP at cooling mode</u>	3.3 (7.5kW & Below 40kW)	3.6 (20 kW or below)		
		3.6 (Above 20 kW to 40 kW)		
	3.3 (40 to 200kW)	3.45 (Above 40 kW to 200 kW)		
<u>Air-cooled VRF - Minimum COP at heating mode</u>	3.8 (7.5kW & Below 40kW)	4.0 (20 kW or below)		
		3.8 (Above 20 kW to 40 kW)		
	3.6 (40 to 200kW)	3.8 (Above 40 kW to 200 kW)		
<u>Water-cooled VRF - Minimum COP at cooling mode (free air flow)</u>	4.3 (All Ratings)	4.5 (All Ratings)		
3) Min allowable (COP) of Chiller				
<u>Equipment type / Capacity (kW)</u>				
Water-cooled Chiller	VSD Screw	< 500 kW	6.1 at 75% load	6.4 at 75% load
		500 to 1000 kW	6.3 at 75% load	6.7 at 75% load
		> 1000 kW	5.2 (6.7 at 75% load)	5.3 (7.0 at 75% load)
	Centrifugal	1000 to 3000 kW	5.7	5.8
	VSD Centrifugal	< 1000 kW	5.1 (6.6 at 75% load)	5.3 (7.0 at 75% load)
		1000 to 3000 kW	5.5 (7.1 at 75% load)	5.6 (7.5 at 75% load)

Section 6 Air-conditioning Installation			<u>BEC 2015</u>	<u>BEC 2018</u>
		> 3000 kW	5.6 (7.2 at 75% load)	5.8 (7.6 at 75% load)
Air-cooled Chiller	Screw	< 500 kW	2.9	3.0
		≥ 500 kW	3.0	3.1
Chiller	VSD Screw	< 500 kW	2.8 (3.6 at 75% load)	3.0 (3.8 at 75% load)
		≥ 500 kW	2.9 (3.7 at 75% load)	3.1 (3.9 at 75% load)
	VSD Centrifugal	All Ratings	3.1 (4.0 at 75% load)	3.2 (4.2 at 75% load)
4) Minimum COP for Heat Pump			Not specified	New requirement (Table 6.12c)
5) Cooling Tower Fan Speed Control			Not specified	New requirement (clause 6.12.5)

Section 7 Electrical Installation		<u>BEC 2015</u>	<u>BEC 2018</u>
1)	Min allowable motor efficiency (%): Motor rated output below 7.5 kW	(clause 7.5.1) IE2 (77.4% to 87.7%)	(clause 7.5.1) IE3 (80.7% to 89.6%)
2)	Requirements on monitoring in respect of measurement interval and data storage period etc.	Not specified	New requirements (by updating clause 7.7 and adding new clause 7.7.4 and 7.7.5)
3)	Definition of total power factor	Total apparent power addressed as simplified method in the TG-BEC	New definition of total power factor in section 2, with elaboration on total apparent power and are applicable also to 3-ph 4-wire system.

Section 8 Lift and Escalator Installation		<u>BEC 2015</u>	<u>BEC 2018</u>
1)	Max allowable traction lift electrical power reduced by 5% in general	Specified in Table 8.4.1a and Table 8.4.1b	Revised Table 8.4.1a and Table 8.4.1b
2)	TPF and THD measurement location of escalator and passenger conveyor	At the isolator connecting the escalator or passenger conveyor to the building's electrical supply circuit	At either the isolator connecting the escalator (or passenger conveyor) to the building's electrical supply circuit; or At the circuit protective device serving the equipment
3)	Max allowable lift decoration load reduced by 10%	Equation in Table 8.5.2	Equation fine-tuned (Table 8.5.2)
4)	Regenerative braking of lift installation	For rated speed ≥ 3m/s and rated load ≥ 1000 kg.	For rated speed ≥ 2.5m/s and rated load ≥ 1000 kg.
5)	Lift car automatic lighting control	15-minute activation time	10-minute activation time; 150W exception not applicable to automatic lighting control in lift car.

6) Evaluation of Total Power Factor for lift and escalation installation served by three-phase and three-wire system.	Addresses simplified method in the TG-BEC.	New Appendix B showing the procedure of deriving the TPF (with 3-phase & 3-wired system) based on measured line currents and line voltages.
7) Requirements on monitoring in respect of measurement interval and data storage period etc.	Not specified	New clause 8.7.3

Section 9 Performance-based Approach (Also Appendix A)	<u>BEC 2015</u>	<u>BEC 2018</u>
1) Trade-off items covers most of the energy efficiency requirements in section 5 to section 8	Specified in Table 9.4.	Table 9.4 revised.
2) Energy efficiency performance of trade-off not exceed 20% lower than prescriptive requirements of clause 5.4 & 6.7 on LPD and system fan motor power.	Specified in clause 9.4.2 as 15%	New clause 9.4.3
3) Metering and monitoring provision for on site recovered energy or renewable energy systems involved in the trade-off process	Not specified	New requirement (clause 9.5.4.6)

Section 10 Energy Requirements for Major Retrofitting Works	<u>BEC 2015</u>	<u>BEC 2018</u>
1) VRF system, heat pump included as major retrofitting work	Not Specified	Table 10.1 revised.
2) Major retrofitting works involving lift car replacement or addition	Table 10.1	Table 10.1 revised.