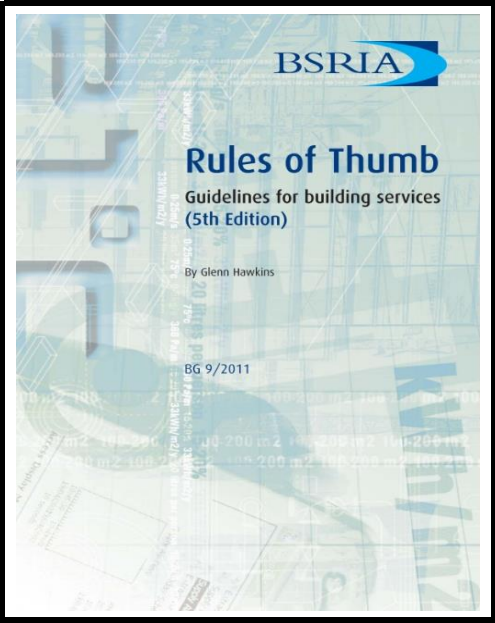


Cooling Loads Calculated using:

BSREA Design Guides



CIBSE GUIDES for London Peak Summer loads

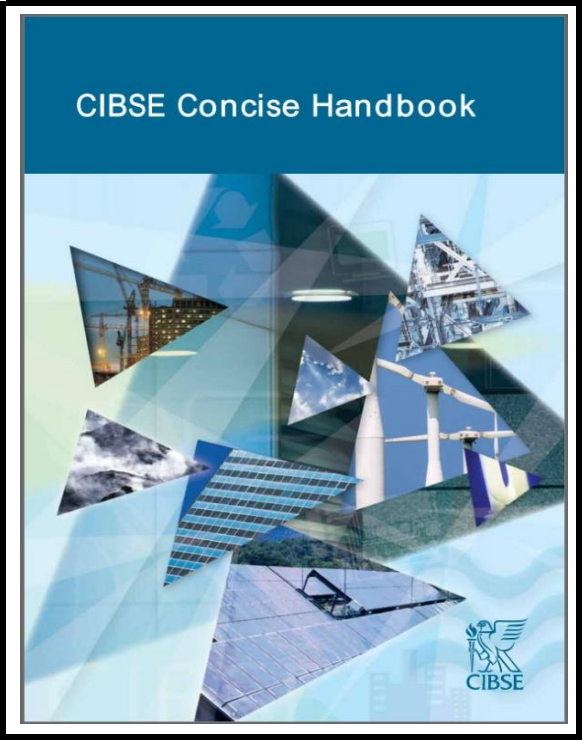


Table 2.6 Summertime dry bulb temperatures and coincident wet bulb temperatures equal to or exceeded for given percentages of hours in the year (approx. 1982–2002; see Table 2.1)

Location	Hourly temperature (/ °C) equal to or exceeded for stated percentage of hours in the year							
	0.4%		1%		2%		5%	
	Dry bulb	Wet bulb	Dry bulb	Wet bulb	Dry bulb	Wet bulb	Dry bulb	Wet bulb
Belfast	22.6	18.0	20.8	17.1	19.3	16.3	17.3	14.9
Birmingham	26.1	19.2	24.1	18.2	22.4	17.3	19.6	15.9
Cardiff	24.6	19.0	22.6	18.0	21.0	17.2	18.6	16.0
Edinburgh	22.2	17.8	20.6	16.8	19.2	15.9	17.2	14.6
Glasgow	23.5	18.2	21.3	17.1	19.7	16.2	17.4	14.7
London	28.0	20.0	26.0	19.1	24.3	18.2	21.5	16.9
Manchester	25.5	18.8	23.4	17.9	21.7	17.0	19.0	15.6
Plymouth	23.5	18.7	21.8	17.9	20.4	17.2	18.5	16.1

Cooling and heating loads

Table 16: Cooling loads for different types of building (W/m^2 gross internal area, unless otherwise stated)

Description	Rule of thumb	Comments	Ref
	Cooling load (W/m^2)	Please refer to the glossary for a definition of gross internal area	61, 12
Banks	160		
Data centres	1500	This figure is based on the net area of the data hall	
Hotels	150	Depending on occupancy, a peak guest room cooling load between 1.5 kW and 2 kW will normally be adequate for the UK	
Offices	87	The project design reports analysed during the production of this document had an average total cooling load of $87 \text{ W/m}^2 \text{ GIA}^*$	
Restaurants	200		
Retail establishments	140		
Residential buildings	70		

Comments:

*Solar gains vary with façade orientation and should fall in the range of $50 - 65 \text{ W/m}^2$ of the 4.5 m deep perimeter zone. Please refer to Table 17 for guidance about internal heat gains in offices.

Table 17: Internal heat gains in offices (W/m^2 net internal area, unless otherwise stated)

Description	Rule of thumb	Comments	Ref
	Internal heat gain (W/m^2)	Please refer to the glossary for a definition of net internal area	
Small power	25	This figure is based on 1 workspace per 10 m^2 . When diversified over an area of 1000 m^2 or more, small power consumption rarely exceeds 15 W/m^2 . This should be reflected in the assessment of overall building demand	45
Lighting	12	This figure includes task lighting and an allowance for occupier's fit-out installations	
Metabolic	12	This figure is based on 1 person per 10 m^2 and a mixture of males and females	45, 62

Tech Spec

Key Specification

Cooling Power (BTU)	27,000
Cooling Power (kW)	8.2kW
Energy Rating	A++/A+
Maximum Cooling Area (m2)	72m²
Power supply	220-240V/50hz
Installation	Multi-Split
Colour	White
Brand	TCL
Warranty (year)	2 up to 5

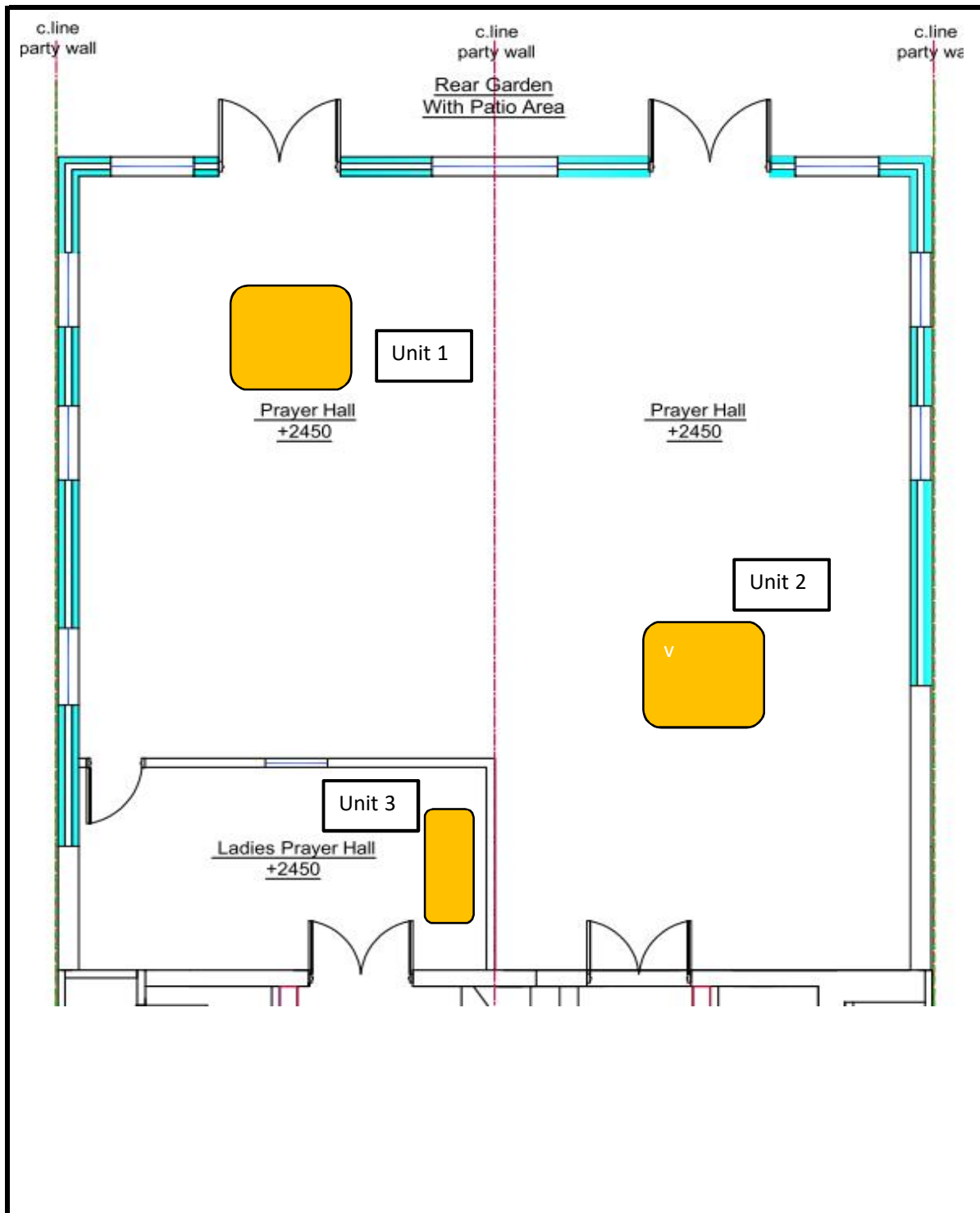
Features

Heating Function	✓
Dehumidifier function	✓
Timer	24 hours
Wifi	WiFi Built-in
Auto Restart	✓

Suitable For Cooling

Office	✓
Server Room	✓
Industrial Space	✓

Pray Hall Area



AREA = 12m x 12m	= 145m ²
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CIBSE Outside Design Criteria

(i) External : July 31 - London

peak design wb temp =

28 degC

peak design db temp =

20 deg C



Pray Hall Total Loads (KW)

Item	qty	w/m2 / person	units (w)	Notes	TOTAL [kW]
People	225	70w/person	95w/person	Friday 2hrs - Peak Duration / 4 Weeks Year	16
lighting	144m ²	12 / m ²	1750		1.75
sml pwr	144m ²	25 / m ²	3600		3.6
solar roof	144m ²	-	325 w		0.325
solar walls	99m ²	-	175 w		0.175
solar windows	7m ²	-	125 w		0.125
solar doors	10m ²	-	175 w		0.175

Load - CALCULATION EQUATION

TOTAL	22.15
-------	-------

$$U \times A \times \Delta T$$

TOTAL COOLING	22.5 KW
---------------	---------

where: ΔT

U

A

temperature difference out - inside 7 deg C

U Value - roof 0.3 / walls 0.25 / windows 2.5

area of surface



**USER AND INSTALLATION
MANUAL**



Double
Triple

iQool-C2MS12K12K
iQool-C3MS9K9K9K

2 x 12,000 BTU Cassettes
3 x 9,000 BTU Cassettes

**SMART WIFI CONTROLLED CEILING MOUNTED
MULTI CASSETTE AIR CONDITIONER**

3 Way Ceiling Cassette system 27000 BTU 8kW A++/A+ SmartApp Wifi with three 9000 BTU indoor units to a single outdoor unit - 5 years warranty - iQool-C3MS9K9K9K

Product Information

What stands out

- Smart WiFi controlled ceiling mounted multi cassette air conditioner
- Triple system, operate three indoor units with one outdoor unit
- Suitable for large office spaces up to 72 sqm
- Cooling, Heating and Dehumidifying
- A++/A+ Energy efficiency rating to help you save money

The TCL group have become one of the largest electrical appliance groups globally. TCL's innovative technologies are used every day by customers across the globe. In 2017, they became the third-biggest brand in North America. TCL is a majority shareholder in Alcatel Mobile Phones and Thomson Groups

Our TCL air conditioners are manufactured in the TCL De'Longhi home appliance factory, which is a joint venture between the Italian De'Longhi Group and the TCL Group. The TCL De'Longhi air conditioning factory is an advanced research and development facility with strict production and quality control

Your purchase comes with three indoor units and one outdoor unit. The three indoor units which are known as a triple system connect to the single outdoor unit. The new TCL Smart WiFi control cassette type inverter air conditioner has high energy efficiency A++ for cooling mode and A+ for heating mode. The TCL Cassette Air Conditioning Units is one of the most advanced on the market.

Essential info

- Net dimensions per indoor (W x L x D): 57.4 x 57.4 x 25 cm
- Net dimensions outdoor (W x L x D): 94 x 34 x 91 cm
- Weight (kg), per Indoor: 20
- Weight (kg), Outdoor: 68
- Piping Size (mm), Liquid Ø mm (inch): 6.35 (1/4)
- Piping Size (mm), Gas Ø mm (inch): 9.52 (3/8)
- Maximum Piping Length (M): 15
- Maximum Piping Height (M): 10
- Applicable Area: 72 sqm

Performance

- Cooling Capacity: 27000 Btu
- Cooling Capacity: 8.2 kW
- Heating Capacity: 27000 Btu
- Heating Capacity: 9.0 kW
- Energy Rating: A++/A+
- Air Flow Volume m3/h: 500
- SEER (Average): 6.10
- SCOP: A++/A+

Features

- Smart WiFi control
- Self-diagnostic function
- WiFi, Cooling, Heating & Dehumidifying
- Energy Saving Inverter Technology
- Heat Pump for efficient heating
- Ultra Quiet Operation
- Remote control for each indoor unit
- 24 Hour Timer
- Sleep Mode
- Health mode
- Auto restart function
- 5 years warranty

TECHNICAL SPECIFICATION

Model		iQool-C3MS9K9K9K		iQool-C2MS12K12K	
Rated voltage and frequency (Ph-V-Hz)		1Ph/220-240V~/50Hz		1Ph/220-240V~/50Hz	
Fuse Required		13A		13A	
Mode		Cooling	Heating	Cooling	Heating
Rated capacity (W)	Single	2637	2637	3517	3517
	Double / Triple	8200 (3100~8790)	9050 (2550~9800)	6150 (2800~6600)	6600 (2450~6900)
Power input (W)	Single	816	730	1083	970
	Double / Triple	2500 (410~2700)	2200 (510~2850)	1880 (350~2100)	1710 (420~2050)
Current input (A)	Single	3.83	4.42	5.07	4.55
	Double / Triple	11.3 (1.86~12.3)	9.8 (2.32~12.4)	8.5 (1.6~9.5)	7.8 (1.9~9.3)
SEER/SCOP(W/W)		6.1/A++	4.0/A+	6.1/A++	4.0/A+
Nominal load (kW)		8.20	9.05	6.15	6.60
Balance point temperature heating (°C)		/	-7	/	-7
Min. outdoor operating temperature (°C)		/	-15	/	-15
Thermostat-off mode (W)		161		129	
Standby mode (W)		6		4	
Off mode (W)		0		0	
Annual consumption (kW)		470	2733	352	2098
Number of indoor units supplied		2		3	
Max number of indoor units		3		4	
Copper Pipe Type length		5m		5m	
Liquid side / Gas side (mm/inch)		6.35 (1/4) + 9.52 (3/8)		6.35 (1/4) + 9.52 (3/8)	
Max. refrigerant pipe length for each unit		15m		15m	
Max. elevation		10m		10m	
Interconnecting Cable		4×0.75mm ²		4×0.75mm ²	
Fuse Rating		5A on indoor PCB		5A on indoor PCB	
Moisture Removal (L/h)		0.9 L/h per one unit		0.9 L/h per one unit	
Indoor	Air Flow (m ³ /h)	500		600	
	Dimensions (L*W*H) (mm)	574×574×250		574×574×250	
	Packaging (L*W*H) (mm)	725×725×330		725×725×330	
	Net / Gross weight (Kg)	20/24		20/24	
	Noise – Sound pressure level (MPa)	36~42		36~42	
	Noise – Sound power level (dB/A)	46~52		46~52	
Outdoor	Dimension (L*W*H) (mm)	940×910×340		900×660×310	
	Packaging (L*W*H) (mm)	1030×950×430		1050×715×425	
	Net / Gross Weight (Kg)	68/80		50/55	
	Noise – Sound pressure level (dB/A)	60		58	
	Noise – Sound power level (dB/A)	70		68	
	Refrigerant type/weight	R410A/2800g		R410A/2300g	
	Defrost mode	Automatic defrosting		Automatic defrosting	
	Applicable climate types	Cooling (0°C – 53°C) Heating(-20°C – 30°C)		Cooling (0°C – 53°C) Heating(-20°C – 30°C)	