

# ROOM AIR CONDITIONER HEAT LOAD ESTIMATE

Print out this form and complete, step-by-step instructions on next page.

STEP	HEAT SOURCE	“A” m <sup>2</sup>	“B” Multiplying factor (Watts per square metre)				“C” Watts Cooling Load = “A” x “B”
1.	<b>Area of Glass Window.</b> Select the window which gives the largest value of <b>A x B</b> facing:		No Awnings, Curtains and Blinds	No Awnings Yes Curtains Yes Blinds	Yes Awnings, Curtains and Blinds	Fully Shaded eg. Patio, Carport	
	Window No 1.						
	South		120	95	65	60	
	Sth East or Sth West		380	260	130	60	
	East or West		430	300	145	60	
	North		270	190	100	60	
	Nth East or Nth West		370	260	130	60	
	Window No 2.						
	South		120	95	65	60	
	Sth East or Sth West		380	260	130	60	
	East or West		430	300	145	60	
	North		270	190	100	60	
	Nth East or Nth West		370	260	130	60	
	2.	<b>Outside Wall Area less window</b>					
Wall No. 1			Brick, brick veneer	Exposed to sun	35		
			Weatherboard, fibro	Exposed to sun	40		
Wall No. 2			Brick, brick veneer weatherboard, fibro	Not exposed to sun	15		
			Brick, brick veneer	Exposed to sun	35		
			Weatherboard, fibro	Exposed to sun	40		
Wall No. 3			Brick, brick veneer weatherboard, fibro	Not exposed to sun	15		
			Brick, brick veneer	Exposed to sun	35		
			Weatherboard, fibro	Exposed to sun	40		
			Brick, brick veneer Weatherboard, fibro	Not exposed to sun	15		
3.	<b>Door Area</b>		Closed when not in use			100	
4.	<b>Internal Wall Area</b>						
	Wall No. 1				8		
	Wall No. 2				8		
	Wall No. 3				8		
5.	<b>Floor Area</b>		Uncarpeted		12		
			Carpeted		6		
6.	<b>Ceiling Area</b> (same measurement as floor area)		Uninsulated		50		
			Insulated		8		
7.	<b>Number of People</b> Living in household		Sitting or Sleeping		120 per person		
			Active		250 per person		
8.	<b>Lights and Appliances</b> Eg. Television, Audio System, Fridge, lighting		Calculate total power in watts				
9.	<b>SENSIBLE COOLING LOAD (WATTS)</b>		<b>TOTAL “C” =</b>				
10.	Required Thermal Cooling Capacity		<b>Sensible total x 1.3 ÷ 1000 =</b>				

# Instructions - How to Calculate Heat Load

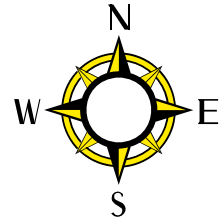
**Tools required:** Measuring tape and calculator

**Disclaimer:** This calculation is to be used as a guide only based on 1 enclosed room. The selection should be checked by a suitable qualified person prior to the purchase. Failure to do so is at the sole risk of the user.

## **STEP 1 – Area of Glass Window**

- If there is more than one window on one wall, select the largest. Calculate the Area (Length x Height) in metres, write value in column “A”. e.g. length 0.9m x height 1.8m = 1.62m<sup>2</sup>. If there is another window on a different wall, this must also be measured.
- Column “B” - Determine and circle which direction the window is facing, e.g. N, NE, S, SW etc. Also, determine whether the window has awnings, curtains, blinds or fully shaded. This is the value of “B”.
- Calculate “A” x “B” for value in column “C”.

**Note:** The sun rises in the East and sets in the West with a Northerly aspect.



## **STEP 2 – Outside Wall Area**

- Calculate the Area (Length x Height) in metres minus (-) window measurement calculated in **Step 1** - “A”, write value in **Step 2** column “A”. e.g. length 7.6m x height 3.8m = 28.88m<sup>2</sup> (- 1.62m<sup>2</sup>) = 27.26m<sup>2</sup>.
- Column “B” - Determine and circle the type of material room has been built and if wall has any exposure to the sun. This is the value of “B”.
- Calculate “A” x “B” for value in column “C”.

**Note:** Do not calculate walls that are attached to another room, ie kitchen, bedroom, garage. These are internal walls that will be calculated in Step 4.

## **STEP 3 – Door Area**

- Calculate the Area (Length x Height) in metres then write value in column “A”.
- Calculate “A” x “B” for value in column “C”.

**Note:** Based on room with closed door only.

## **STEP 4 – Internal Wall Area**

- Calculate the Area (Length x Height) in metres, write value in column “A”.
- If a door is on the same wall measured, calculations of the door need to be subtracted from the “A” value.
- Calculate “A” x “B” for value in column “C”.

**Note:** Calculate walls that are attached to another room, ie kitchen, bedroom, garage etc.

## **STEP 5 – Floor Area**

- Calculate the Area (Length x Height) in metres, write value in column “A”.
- Column “B” - Determine and circle the type of floor material, ie carpet or tile/floorboards (uncarpeted). This is the value of “B”.
- Calculate “A” x “B” for value in column “C”.

## **STEP 6 – Ceiling Area**

- “A” calculation will be the same as the floor.
- Column “B” - Determine and circle whether the ceiling has insulation. This is the value of “B”.
- Calculate “A” x “B” for value in column “C”.

## **STEP 7 – Number of People**

- Add all people living in the house, write value in column “A”.
- Column “B” - Determine and circle if people occupying the room will be sitting or active.
- Calculate “A” x “B” for value in column “C”.

### STEP 8 – Light and Appliances

- Calculate power of all appliances used in the room where air conditioner is to be installed. Please see general guide below to assist you with your calculation.  
ie. A typical household lounge area has between 500-1500 watts worth of appliances.
- Write value in column “C”.

Appliance	Avg Watts
LCD Television	220W
Audio System	35W
Home Theatre System	330W
Set Top Box	35W
VCR	40W
DVD	25W
CRT TV 68cm	150W
Wireless Router	7W
Lights	20-100W
Lamp	10-50W
Refrigerator	540W
PC	80W
Playstation 3	197W
Nintendo Wii	19W
Xbox 360	187W

### STEP 9 – Sensible Cooling Load total

- Calculate all values in column “C”.

### STEP 10 – Required Thermal Cooling Capacity

- Calculate the “Sensible” total x 1.3 and divide by 1000.

**Note:** This will give the **minimum** wattage for the air conditioner required. If the calculation does not fall between a specific range, select the next higher wattage air conditioner.

SHARP MODEL	WATTS
AC09RLCSYS	2.6 - 2.85kW
AC12RLCSYS	3.5 - 3.85kW
AC18RLCSYS	5.3 - 5.6kW
AC24RLCSYS	6.5 - 7.2kW