



50plus Handyman



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1 Designing a domestic heating system

Please refer to:

www.plumbingpages.com/featurepages/HeatingandcontrolsHomeIntro.cfm
which provides an excellent guide.

2 Guidelines to size a radiator and boiler system

The size of radiator required for a room depends on:

- the temperature that you want it to be able to maintain. Typical room temperatures are shown in Figure 1.
- the heat loss from your room. The calculations for this take into account the size of windows, numbers of doors and, in particular, the construction materials used in the building (the 'U' values) to get an accurate radiator size.

Figure 1 - Typical room temperatures

Room Temperatures (deg C)	
Lounge	21
Dining Room	21
Kitchen	16
Bedrooms	15
Bathroom	23
Stairs	18

There are a number of BTU calculators available on-line.

A quick way to arrive at the output size of the radiator required in BTUs (British Thermal Units) for any room in your house is by:

- measuring the room in cubic feet
- apply the following factors to the cubic feet figure arrived at:

Lounges and dining rooms	Multiply cubic feet by 5
Bedrooms	Multiply cubic feet by 4
Common areas and kitchens	Multiply cubic feet by 3
For rooms facing north	Add 15%
For French windows	Add 20%
For double glazing	Deduct 10%

Adding the total for all the rooms in your home will give you the approximate demand in BTUs for the whole house. Add 20% to the total for a hot water circulating tank and 10% for general losses. This will give the boiler size needed.

Select the first size of radiator above the estimated heat requirement. With rooms greater than 6 meters (18ft) in any one direction consider distributing a number of radiators to minimise the thermal gradient within the room.

3 Remember....

- A separate means of controlling temperatures in bedrooms and living areas (required). Either separate circuits, each with a room stat for each or thermostatic valves on each radiator
- Separate means of controlling hot water and heating on/off timing (required)
- Separate heating of towel rails in bathrooms (desirable)
- Condensing boilers (essentially required)
- Back up if the boiler fails (desirable) e.g. an immersion heater for hot water
- Wireless control systems are increasingly available.