

Boiler size guide and worksheet



This guide will help you choose the correct sized boiler for your property; it is designed to be used by heating engineers and homeowners.

Designed and produced by City Gas Services. Visit www.citygasservices.co.uk for more Information.

The purpose of this guide is for heating engineers and homeowners to be able to correctly size which boiler heat output is required.

You will need to set aside 30-60 minutes of your time to complete the measurements and calculations required.

City Gas Services reserve all rights to this guide. We will give no responsibility for any person following this guide and selecting an output based on the calculations in this guide.

How to use the worksheet.

Complete sections 1-7 by filling in the blank areas. Follow the instructions very carefully.

If the property you are measuring is an irregular shape you will need to divide into sections and complete separate worksheets for each section.

Important – Where the calculations ask for a table value/factor, use the table on page 4 and choose the relevant value/factors.

Replacement boilers are often sized incorrectly, the aim of this guide is to reduce the unnecessary emissions from oversized boilers and the loss of efficiency caused by boilers cycling.

Not only are oversized boilers more expensive to buy in the first instance, they are also more expensive to maintain and have higher running costs.

For more information about our company please visit www.citygasservices.co.uk

➤ Boiler sizing Worksheet

Ref: _____

Name: _____

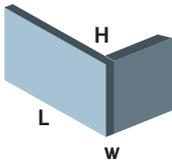
Site Address: _____

Type of dwelling: _____



1: Take three measurements of the property in metres

Length _____ Width _____ Room Height _____ No. of Floors _____



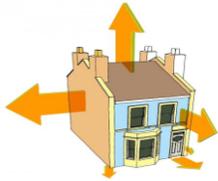
2: Calculate the total external wall area

(A) Length _____ x _____ No. of outside walls = _____ Total A

(B) Width _____ x _____ No. of outside walls = _____ Total B

3: Total A + B = _____ x _____ room heights x _____

No. of Floors = _____ area m²



4: Calculate the heat loss

➤ Total ext. wall area _____ x _____ Table 1 = _____ Window area x _____

Table 2 = _____ **A) Window heat loss**

➤ Total ext. wall area _____ x _____ Window area = _____ Wall area x _____

Table 3 = _____ **B) Wall heat loss**

➤ Length of Property _____ x _____ Width = _____ Roof area x _____

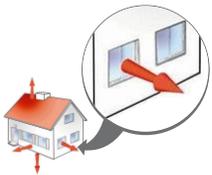
Table 4 = _____ **C) Roof heat loss**

➤ Length of Property _____ x _____ Width = Floor area x 0.7 = _____

D) Floor heat loss

5: Add up total heat loss

A + B + C + D = _____ x _____ Table 5 = _____ **E Total fabric heat loss**



6: Calculate ventilation heat loss

Floor area _____ x _____ Room height x _____ No. of floors = _____

Volume x 0.25 x _____ Table 5 = _____ **F Ventilation heat loss**

7: Calculate total boiler output required

E + F = _____ + 2000w for water heating if required = _____ **Boiler output**

(Divide by 1000 to get KW)

Total boiler output required = _____ Watts divide by 1000 =

Total boiler output required = _____ KW

➤ Table values and factors.

Table 1 - Select window factors

- . Flat 0.25
- . Mid terrace 0.25
- . Detached 0.17
- . Semi-detached 0.2

Table 2 - Window U – Values

- . Single glazed with metal frame 5.8
- . Single glazed plastic/wood 4.7
- . Double glazed metal frame 4.2
- . Double glazed wood/plastic 3.0

Table 3 - Wall U-Values

- . Filled cavity wall 0.45
- . Solid wall 220 mm
- . Unfilled cavity wall 1.6

Table 4 - Roof U Values

- . Flat non-Insulated 2.0
- . Flat 50mm Insulated 0.54
- . Pitched 75mm Insulated 0.44
- . Pitched 50-75mm Insulated 0.99
- . Pitched less than 50mm Insulated 2.6

Table 5 - Location Factors

- . Scotland 28.5
- . North & Midlands 29
- . South East & Wales 27
- . South West 25