

## The Clement W20 Steel Window Technical Specification

### Product Summary

A traditional, tried and tested robust window, designed in the 1950s, but still in demand today. W20 may be used in all types of building where strong, durable frames, efficient opening casements and hard wearing fittings are required.

### Part L Regulations

Compliant to Part L, using the centre pane glass U value method.

### Manufacturing Specification

Made to suit your individual requirements W20 windows are generally manufactured in accordance with BS 6510:2010 specifications for hot rolled steel windows. The mild steel sections used for Clement window and door frames are precision rolled in Switzerland using only recycled steel to suit Clement's unique profiles and tolerances. All frames and ancillary profiles are hot dip galvanised to BS EN ISO 1461 and available with a factory applied polyester powder coating to BS EN ISO 13438 from the RAL colour range, exceeding the minimum paint thickness over the zinc of 60 microns.

### Manufacturing Description

Frames are manufactured from hot rolled mild steel profiles with corner joints mitred, welded and dressed square and flat. Small panes can be formed with T glazing bars whose ends are tenon riveted and/or welded to the frame and cross joints are interlocked and welded with rigid joints. Composite windows can be assembled by connecting windows horizontally and/or vertically with mullions and/or transoms of hot rolled slim steel profiles. Box sections are available as tubes or as box mullions which can be either hot rolled or manufactured from sheet steel. Pressed metal cills are available in a choice of profiles. Trickle vents can be fitted in accordance with Part F of the Building Regulations.

### Locking system

The W20 range of windows is available with multi point locking to BS 7950 or traditional single point locking and other security devices if required.

### Fixing

W20 windows can be fitted into timber subframes, or direct to brickwork, concrete or stone. Windows are installed using fixing lugs or direct using stainless steel screws.

### Glazing

W20 can be supplied with various glazing options, from both inside or outside including:

- Clear glazing
- Genuine T bars
- Leaded lights, using real lead that is soldered by hand in a diamond or rectangular pattern in variable widths of lead
- G+, no grille in cavity

Combinations of fixed lights, top hung, side hung, bottom hung, horizontal and vertical pivot windows are available as well as single and double doors in both 'open in' and 'open out' configurations.

W20 windows are available as single or insulated glass units up to 16 mm. When working on highly sensitive, Listed Buildings there is an option for outside single glazing with either putty or silicone fronting. All opening vents are weather-sealed using EDPM.

In accordance with Glass & Glazing Federation best practice, Clement steel windows are factory glazed, however, our concealed fixings mean that fixed light windows need to be glazed on site after the frames have been installed. Glazing beads are made of aluminium.

W20 windows can be supplied shaped, with shaped heads, and 'curved on plan'.

## Dimensions (Provided for guidance purposes only)

Nominal profile width	32mm
Typical sight lines: fixed lights perimeter	< 40mm
Hinged casements	< 70mm

Windows and doors for composite panels are purpose made, generally within the limits shown in the table below; sizes outside these limits may be discussed with one of our sales consultants.

WINDOWS					
	Width		Height		Perimeter
	Min	Max	Min	Max	Max
Fixed light	300	3000	300	3000	9200
Top hung	300	1800	300	1800	8400
Side hung	300	900	300	2400	6400
Bottom hung	300	1800	300	1500	6400
Horizontal pivot	400	1800	400	1800	6400
Vertical pivot	400	1500	400	2400	6500
DOORS					
	Width		Height		Perimeter
	Min	Max	Min	Max	Max
Single	600	900	2000	2500	6600
Double	1200	1800	2000	2500	8400

Source: Steel Window Association

## Performance

W20 windows meet the weather-tightness (air infiltration, water penetration and wind loading) performance criteria within BS 6375-1:2009 appropriate to the specified design wind pressure.

## BS 6375-1:1989

Air permeability was measured in terms of opening joint length (m<sup>3</sup>/h/m) against progressively increasing test pressures through 200Pa (class A), 300Pa (class B) up to 600Pa (class C). Class B, or a maximum value at 300Pa of about 16 m<sup>3</sup>/h/m, was the UK standard requirement. Water tightness was measured in resistance to leakage at progressively increasing test pressures, 300Pa being considered the most severe UK requirement. Wind load resistance entailed deflection and gusting tests at pressures ranging from 1200Pa to 2400Pa.

BS 6375-1 Test Pressure Class 1989 edition				
Window Type	Air	Water	Wind	BS 6375-1 Exposure Category
Fixed light	600	300	2400	2400
Top hung	300	200	2000	2000
Side hung (open out)	300	200	2000	2000
Side hung (open in)	200	100	1600	1200
Bottom hung	200	100	1600	1200
Horizontal pivot	200	100	1600	1200
Vertical pivot	200	50	1600	1200

Source: Steel Window Association

## Heat

W20 windows when double glazed with argon filled low-E warm edge insulating glass units, will have a typical “U” value of 2.9.

## Sound

The average sound reduction index (SRI) of a single glazed unit is approximately 30 dB, but this varies with window type and size and glass thickness.