

# Fire-Resistant Glass Range

## Technical Information



### Fire Performance Table for Timber Frames

This table provides a quick reference guide only. For further details and specifications please consult Pilkington or a member of our network of independent stockists.

Performance	Wired or Clear	Fire Resistance (mins)		Glass Type	Fire Test Evidence and Recommended Maximum Sizes <sup>a</sup>	
		Integrity	Insulation		Timber Frame <sup>b</sup>	
					Doors	Screens <sup>c</sup>
Integrity and Insulation	Clear	60 <sup>d</sup>	30	15mm Pilkington <b>Pyrostop</b> <sup>™</sup> 30-10 Internal Grade	CF328 <sup>l</sup> Max area 1.11m <sup>2</sup> Max w. 630 or Max h. 1790	CF328 <sup>l</sup> Max area 5.25m <sup>2</sup> Max w. 2300 or Max h. 3000 <sup>e</sup>
		60 <sup>d</sup>	30	18mm Pilkington <b>Pyrostop</b> <sup>™</sup> 30-20 External Grade	CF328 <sup>l</sup> Max area 1.11m <sup>2</sup> Max w. 630 or Max h. 1790	CF328 <sup>l</sup> Max area 5.25m <sup>2</sup> Max w. 2300 or Max h. 3000 <sup>e</sup>
		60 <sup>d</sup>	30	29mm Pilkington <b>Pyrostop</b> <sup>™</sup> 30-15 Internal Grade IGU <sup>f</sup> 32mm Pilkington <b>Pyrostop</b> <sup>™</sup> 30-25 External Grade IGU <sup>f</sup>	-	CF328 <sup>l</sup> Max area 3.43m <sup>2</sup> Max w. 1850 or Max h. 2850
		60	60	23mm Pilkington <b>Pyrostop</b> <sup>™</sup> 60-101 Internal Grade	RF 05035 793 x 1791	CF328 <sup>l</sup> Max area 5.01m <sup>2</sup> Max w. 1879 or Max h. 2500 <sup>e</sup>
		60	60	27mm Pilkington <b>Pyrostop</b> <sup>™</sup> 60-201 External Grade	-	CF328 <sup>l</sup> Max area 5.01m <sup>2</sup> Max w. 1879 or Max h. 2500 <sup>e</sup>
		60	60	37mm Pilkington <b>Pyrostop</b> <sup>™</sup> 60-151 Internal Grade IGU <sup>g</sup> 41mm Pilkington <b>Pyrostop</b> <sup>™</sup> 60-251 External Grade IGU <sup>g</sup>	-	CF328 <sup>l</sup> Max area 3.53m <sup>2</sup> Max w. 1879 or Max h. 2500
		60	60	51mm Pilkington <b>Pyrostop</b> <sup>™</sup> 60-161 S Internal Grade IGU <sup>h</sup>	-	RF04017 Max w. 1220 x Max h. 2470
Integrity with some Insulation	Clear	30	0 <sup>i</sup>	7mm Pilkington <b>Pyrodur</b> <sup>™</sup> Plus 30-104 Internal Grade	CF328 <sup>l</sup> Max area 1.95m <sup>2</sup> Max w. 950 x Max h. 2050	CF328 <sup>l</sup> Max area 3.67m <sup>2</sup> Max w. 1093 or Max h. 2050 <sup>e</sup>
		30	0 <sup>i</sup>	10mm Pilkington <b>Pyrodur</b> <sup>™</sup> 30-201 External Grade	CF328 <sup>l</sup> Max area 2.16m <sup>2</sup> Max w. 965 or Max h. 2240	CF328 <sup>l</sup> Max area 4.47m <sup>2</sup> Max w. 2114 or Max h. 2523 <sup>e</sup>
		30	0	24mm Pilkington <b>Pyrodur</b> <sup>™</sup> 30-251 External Grade IGU <sup>j</sup>	-	CF328 <sup>l</sup> Max area 4.47m <sup>2</sup> Max w. 2114 or Max h. 2523
		60	0 <sup>i</sup>	10mm Pilkington <b>Pyrodur</b> <sup>™</sup> 60-10 Internal Grade	RF 05036 792 x 1790	RF 05036 850 x 1965
		60	0 <sup>i</sup>	13mm Pilkington <b>Pyrodur</b> <sup>™</sup> 60-20 External Grade	CF328 <sup>l</sup> Max area 1.06m <sup>2</sup> Max w. 647 or Max h. 2017	C82442 1400 x 2000
Integrity only	Wired	30	0	6mm Pilkington <b>Pyroshield</b> <sup>™</sup> Clear	C81232 - less than 0.5m <sup>2</sup> small dim < 250mm	C81232 1170 x 3000 <sup>k</sup>
		30	0	7mm Pilkington <b>Pyroshield</b> <sup>™</sup> Texture	C81232 - less than 0.5m <sup>2</sup> small dim < 250mm	C81232 1170 x 3000 <sup>k</sup>
		30	0	6mm Pilkington <b>Pyroshield</b> <sup>™</sup> Safety Clear	C81232 900 x 3000	C81232 1400 x 3000 <sup>k</sup>
		30	0	7mm Pilkington <b>Pyroshield</b> <sup>™</sup> Safety Texture	C81232 900 x 3000	C81232 1170 x 3000 <sup>k</sup>
		60	0	6mm Pilkington <b>Pyroshield</b> <sup>™</sup> Clear	C81232 - less than 0.5m <sup>2</sup> small dim < 250mm	C81232 1170 x 3000 <sup>k</sup>
		60	0	7mm Pilkington <b>Pyroshield</b> <sup>™</sup> Texture	C81232 - less than 0.5m <sup>2</sup> small dim < 250mm	C81232 1170 x 3000 <sup>k</sup>
		60	0	6mm Pilkington <b>Pyroshield</b> <sup>™</sup> Safety Clear	C81232 900 x 3000	C81232 1400 x 3000 <sup>k</sup>
		60	0	7mm Pilkington <b>Pyroshield</b> <sup>™</sup> Safety Texture	C81232 900 x 3000	C81232 1170 x 3000 <sup>k</sup>

a Maximum tested size does not necessarily relate to maximum fire resistance

b Refer to fire test summaries for frame details

c Use Pilkington **Pyroshield**<sup>™</sup> Safety for areas subject to Approved Document N requirements. i.e. low level glazing and Pilkington **Pyroshield**<sup>™</sup> information from WFR C81232

d Only achieved in this specific test

e Maximum recommended sizes are close to maximum available stock sizes so should only be specified following consultation with Pilkington Technical Helpline

f 15mm (30-15) or 18mm (30-25) Pilkington **Pyrostop**<sup>™</sup> / 8mm steel spacer / 6mm non-fire rated glass

g 23mm (60-151) or 27mm (60-251) Pilkington **Pyrostop**<sup>™</sup> / 8mm steel spacer / 6mm non-fire rated glass

h 23mm Pilkington **Pyrostop**<sup>™</sup> / 22mm spacer with integral blind / 6mm non-fire rated glass

i There is no requirement in UK standards or regulations for insulation of less than 30 minutes, however these products achieve full insulation for a short period of time and remain opaque throughout the test

j 10mm Pilkington **Pyrodur**<sup>™</sup> / 8mm steel spacer / 6mm non-fire rated glass

k Hardwood

l Refer to Pilkington Technical Helpline when considering the use of evidence based on Certifire Approvals

Certifire certification can be viewed at [www.wfr.co.uk/testing.htm](http://www.wfr.co.uk/testing.htm)

NOTE: The Pilkington fire-resistant glass range holds more than 100 official test approvals, including single glazed and IGU applications. Details can be provided on request. Summary of Physical Data can be found on page 3. Please refer to our published fire test summaries for individual details.

# Fire Performance Table for Steel Frames

Performance	Wired or Clear	Fire Resistance (mins)		Glass Type	Fire Test Evidence and Recommended Maximum Sizes <sup>a,b</sup>	
		Integrity	Insulation		Steel Frame <sup>d</sup>	
					Doors	Screens <sup>d</sup>
Integrity and Insulation	Clear	30	30	15mm Pilkington <b>Pyrostop</b> ™ 30-10 Internal Grade	-	CF328 <sup>P</sup> Max area 5.25m <sup>2</sup> Max w. 2157 or Max h. 3000 <sup>b</sup>
		60 <sup>e</sup>	30	15mm Pilkington <b>Pyrostop</b> ™ 30-10 Internal Grade	-	CF328 <sup>P</sup> Max area 3.43m <sup>2</sup> Max w. 1852 or Max h. 2860
		60 <sup>e</sup>	30	18mm Pilkington <b>Pyrostop</b> ™ 30-20 External Grade	-	CF328 <sup>P</sup> Max area 3.43m <sup>2</sup> Max w. 1852 or Max h. 2860
		60	30	29mm Pilkington <b>Pyrostop</b> ™ 30-15 Internal Grade IGU <sup>f</sup> 32mm Pilkington <b>Pyrostop</b> ™ 30-25 External Grade IGU <sup>f</sup>	-	CF328 <sup>P</sup> Max area 3.43m <sup>2</sup> Max w. 1850 or Max h. 2820
		60	60	23mm Pilkington <b>Pyrostop</b> ™ 60-10I Internal Grade	CF328 <sup>P</sup> Max area 1.79m <sup>2</sup> Max w. 1338 or Max h. 2280	Warres 113978 1495 x 2895
		60	60	51mm Pilkington <b>Pyrostop</b> ™ 60-161 S Internal Grade IGU <sup>g</sup>	-	Warres 110738 Max w. 1140 x Max h. 2390
		60	60	27mm Pilkington <b>Pyrostop</b> ™ 60-201 External Grade	CF328 <sup>P</sup> Max area 1.79m <sup>2</sup> Max w. 1338 or Max h. 2280	CF328 <sup>P</sup> Max area 4.13m <sup>2</sup> Max w. 2000 or Max h. 3000
		90	90	46mm Pilkington <b>Pyrostop</b> ™ 90-100 Internal Grade IGU <sup>h</sup>	-	CF328 <sup>P</sup> Max area 2.8m <sup>2</sup> Max w. 1400 x Max h. 2000
		90	90	50mm Pilkington <b>Pyrostop</b> ™ 90-100 Internal Grade IGU <sup>i</sup>	-	Warres 57296 755 x 988
		90	90	53mm Pilkington <b>Pyrostop</b> ™ 90-200 External Grade IGU <sup>j</sup>	-	CF328 <sup>P</sup> Max area 2.8m <sup>2</sup> Max w. 1400 x Max h. 2000
		120	120	52mm Pilkington <b>Pyrostop</b> ™ 120-104 Internal Grade IGU <sup>k</sup>	-	CF328 <sup>P</sup> Max area 3.57m <sup>2</sup> Max w. 1889 or Max h. 2520
		120	120	58mm Pilkington <b>Pyrostop</b> ™ 120-104 Internal Grade IGU <sup>l</sup>	-	CF328 <sup>P</sup> Max area 3.57m <sup>2</sup> Max w. 1889 or Max h. 2520
		120	120	62mm Pilkington <b>Pyrostop</b> ™ 120-201 External Grade IGU <sup>m</sup>	-	CF328 <sup>P</sup> Max area 3.57m <sup>2</sup> Max w. 1889 or Max h. 2520
		Integrity with some Insulation	Clear	30	0 <sup>n</sup>	7mm Pilkington <b>Pyrodur</b> ™ Plus 30-104 Internal Grade
30	0 <sup>n</sup>			10mm Pilkington <b>Pyrodur</b> ™ 30-201 External Grade	CF328 <sup>P</sup> Max area 2.58m <sup>2</sup> Max w. 1069 or Max h. 2415	CF328 <sup>P</sup> Max area 6.0m <sup>2</sup> Max w. 2561 or Max h. 3000
30	0 <sup>n</sup>			24mm Pilkington <b>Pyrodur</b> ™ 30-251 External Grade IGU <sup>o</sup>	-	CF328 <sup>P</sup> Max area 3.75m <sup>2</sup> Max w. 2417 or Max h. 3000
60	0 <sup>n</sup>			10mm Pilkington <b>Pyrodur</b> ™ 30-201 External Grade	-	Warres 112856 1430 x 2905
30	0 <sup>n</sup>			13mm Pilkington <b>Pyrodur</b> ™ 60-20 External Grade	-	CF328 <sup>P</sup> Max area 3.67m <sup>2</sup> Max w. 2561 or Max h. 3000
60	0 <sup>n</sup>			13mm Pilkington <b>Pyrodur</b> ™ 60-20 External Grade	-	CF328 <sup>P</sup> Max area 2.85m <sup>2</sup> Max w. 1688 or Max h. 2033
Integrity only	Wired	30	0	6mm Pilkington <b>Pyroshield</b> ™ Clear	C81232 - less than 0.5m <sup>2</sup> small dim < 250mm	C81232 1760 x 3000
		30	0	7mm Pilkington <b>Pyroshield</b> ™ Texture	C81232 - less than 0.5m <sup>2</sup> small dim < 250mm	C81232 1760 x 3000
		30	0	6mm Pilkington <b>Pyroshield</b> ™ Safety Clear	C81232 900 x 3000	C81232 1760 x 3000
		30	0	7mm Pilkington <b>Pyroshield</b> ™ Safety Texture	C81232 900 x 3000	C81232 1760 x 3000
		60	0	6mm Pilkington <b>Pyroshield</b> ™ Clear	-	C81232 1170 x 3000
		60	0	7mm Pilkington <b>Pyroshield</b> ™ Texture	-	C81232 1170 x 3000
		60	0	6mm Pilkington <b>Pyroshield</b> ™ Safety Clear	C81232 900 x 3000	C81232 1170 x 3000
		60	0	7mm Pilkington <b>Pyroshield</b> ™ Safety Texture	C81232 900 x 3000	C81232 1170 x 3000
		90	0	6mm Pilkington <b>Pyroshield</b> ™ Safety Clear	-	C81232 1000 x 3000
		90	0	7mm Pilkington <b>Pyroshield</b> ™ Safety Texture	-	C81232 1000 x 2400
		120	0	6mm Pilkington <b>Pyroshield</b> ™ Safety Clear	-	C81232 930 x 3000
		120	0	7mm Pilkington <b>Pyroshield</b> ™ Safety Texture	-	C81232 1000 x 2100

- a Maximum tested size does not necessarily relate to maximum fire resistance  
b Maximum recommended sizes are close to maximum available stock sizes so should only be specified following consultation with Pilkington Technical Helpline  
c Refer to fire test summaries for frame details  
d Use Pilkington **Pyroshield**™ Safety for areas subject to Approved Document N requirements. i.e. low level glazing and Pilkington **Pyroshield**™ information from WFR C81232  
e Only achieved in this specific test  
f 15mm (30-15) or 18mm (30-25) Pilkington **Pyrostop**™ / 8mm steel spacer / 6mm non-fire rated glass  
g 23mm Pilkington **Pyrostop**™ / 22mm spacer with integral blind / 6mm non-fire rated glass  
h 15mm Pilkington **Pyrostop**™ / 8mm steel spacer / 23mm Pilkington **Pyrostop**™  
i 15mm Pilkington **Pyrostop**™ / 12mm steel spacer / 23mm Pilkington **Pyrostop**™  
j 18mm Pilkington **Pyrostop**™ / 12mm steel spacer / 23mm Pilkington **Pyrostop**™  
k 23mm Pilkington **Pyrostop**™ / 6mm steel spacer / 23mm Pilkington **Pyrostop**™  
l 23mm Pilkington **Pyrostop**™ / 12mm steel spacer / 23mm Pilkington **Pyrostop**™  
m 27mm Pilkington **Pyrostop**™ / 12mm steel spacer / 23mm Pilkington **Pyrostop**™  
n There is no requirement in UK standards or regulations for insulation of less than 30 minutes, however these products achieve full insulation for a short period of time and remain opaque throughout the test  
o 10mm Pilkington **Pyrodur**™ / 8mm steel spacer / 6mm non-fire rated glass  
p Refer to Pilkington Technical Helpline when considering the use of evidence based on Certifire Approvals

NOTE: The Pilkington fire-resistant glass range holds more than 100 official test approvals, including single glazed and IGU applications. Details can be provided on request. Summary of Physical Data can be found on page 3. Please refer to our published fire test summaries for individual details.

# Physical Data

Glass Type	Product Code	Fire resistance Integrity	Fire resistance Insulation	Nominal Glass Thickness approx - mm	Light Transmission	Weight approx. kg/m <sup>2</sup>	Glass Thickness Tolerance approx. mm	Sound <sup>b</sup> reduction approx - dB	BS 6206 Impact <sup>c</sup>
Pilkington <b>Pyrostop</b> <sup>™</sup>	30-10	30	30	15	0.85	35.0	±1.0	38	B
Pilkington <b>Pyrostop</b> <sup>™ d</sup>	30-15	30	30	29	0.76	51.0	±2.0	38	B
Pilkington <b>Pyrostop</b> <sup>™</sup>	30-20	30	30	18	0.84	42.0	±1.0	38	A
Pilkington <b>Pyrostop</b> <sup>™ e</sup>	30-25	30	30	32	0.75	58.0	±2.0	39	A
Pilkington <b>Pyrostop</b> <sup>™</sup>	60-101	60	60	23	0.88	55.0	±2.0	40	A
Pilkington <b>Pyrostop</b> <sup>™ f</sup>	60-151	60	60	37	0.78	69.0	±3.0	41	A
Pilkington <b>Pyrostop</b> <sup>™ g</sup>	60-161 S	60	60	51	0.78	76.0	±3.0	42	A
Pilkington <b>Pyrostop</b> <sup>™</sup>	60-201	60	60	27	0.86	61.0	±2.0	41	A
Pilkington <b>Pyrostop</b> <sup>™ h</sup>	60-251	60	60	41	0.78	77.0	±2.0	41	A
Pilkington <b>Pyrostop</b> <sup>™ i</sup>	90-100	90	90	46	0.76	89.0	±3.0	42	A
Pilkington <b>Pyrostop</b> <sup>™ j</sup>	90-100	90	90	50	0.76	89.0	±3.0	42	A
Pilkington <b>Pyrostop</b> <sup>™ k</sup>	90-200	90	90	49	0.75	96.0	±3.0	43	A
Pilkington <b>Pyrostop</b> <sup>™ l</sup>	90-200	90	90	53	0.75	96.0	±3.0	43	A
Pilkington <b>Pyrostop</b> <sup>™ m</sup>	120-104	120	120	52	0.78	106.0	±3.0	42	A
Pilkington <b>Pyrostop</b> <sup>™ n</sup>	120-104	120	120	58	0.78	106.0	±3.0	43	A
Pilkington <b>Pyrostop</b> <sup>™ o</sup>	120-201	120	120	62	0.76	116.0	±3.0	44	A
Pilkington <b>Pyrodur</b> <sup>™</sup> Plus	30-104	30	0	7	0.88	17.0	±1.0	35	B
Pilkington <b>Pyrodur</b> <sup>™</sup>	30-201	30	0	10	0.88	24.0	±1.0	36	B
Pilkington <b>Pyrodur</b> <sup>™ p</sup>	30-251	30	0	24	0.78	40.0	±2.0	38	B
Pilkington <b>Pyrodur</b> <sup>™</sup>	60-10	60	0	10	0.88	24.0	±1.0	35	C
Pilkington <b>Pyrodur</b> <sup>™</sup>	60-20	60	0	13	0.86	31.0	±1.0	38	B
Pilkington <b>Pyroshield</b> <sup>™</sup> Clear		30	0	6	0.80	16.6	-0,+1.4	32	N/A
Pilkington <b>Pyroshield</b> <sup>™</sup> Texture		30	0	7	0.79	16.7	±0.7	32	N/A
Pilkington <b>Pyroshield</b> <sup>™</sup> Safety Clear		30	0	6	0.77	16.6	-0,+1.4	32	C
Pilkington <b>Pyroshield</b> <sup>™</sup> Safety Texture		30	0	7	0.76	16.7	±0.7	32	C

a With reference to the relevant product standard

b R<sub>w</sub> index (weight sound reduction) corrected for the human ear based on internal measurements

c BS 6206 classifies individual panes of glass only

d 15mm Pilkington **Pyrostop**<sup>™</sup> / 8mm steel spacer / 6mm non-fire rated glass

e 18mm Pilkington **Pyrostop**<sup>™</sup> / 8mm steel spacer / 6mm non-fire rated glass

f 23mm Pilkington **Pyrostop**<sup>™</sup> / 8mm steel spacer / 6mm non-fire rated glass

g 23mm Pilkington **Pyrostop**<sup>™</sup> / 22mm spacer with integral blind/ 6mm non-fire rated glass

h 27mm Pilkington **Pyrostop**<sup>™</sup> / 8mm steel spacer / 6mm non-fire rated glass

i 15mm Pilkington **Pyrostop**<sup>™</sup> / 8mm steel spacer / 23mm Pilkington **Pyrostop**<sup>™</sup>

j 15mm Pilkington **Pyrostop**<sup>™</sup> / 12mm steel spacer / 23mm Pilkington **Pyrostop**<sup>™</sup>

k 18mm Pilkington **Pyrostop**<sup>™</sup> / 8mm steel spacer / 23mm Pilkington **Pyrostop**<sup>™</sup>

l 18mm Pilkington **Pyrostop**<sup>™</sup> / 12mm steel spacer / 23mm Pilkington **Pyrostop**<sup>™</sup>

m 23mm Pilkington **Pyrostop**<sup>™</sup> / 6mm steel spacer / 23mm Pilkington **Pyrostop**<sup>™</sup>

n 23mm Pilkington **Pyrostop**<sup>™</sup> / 12mm steel spacer / 23mm Pilkington **Pyrostop**<sup>™</sup>

o 27mm Pilkington **Pyrostop**<sup>™</sup> / 12mm steel spacer / 23mm Pilkington **Pyrostop**<sup>™</sup>

p 10mm Pilkington **Pyrodur**<sup>™</sup> / 8mm steel spacer / 6mm non-fire rated glass

**Thermal Safety** – The possibility of excessive thermal stress being developed in the glass due to solar radiation should be considered at all stages of design and construction. It is recommended that a thermal safety check is performed for all sloping installations or when used in insulating glass units or secondary glazing.

**Handling & Storage** – Glass should be stored in dry conditions and out of direct sunlight, stacked upright and fully supported in a manner which prevents the glass from sagging. It should be stood on edge on strips of wood, felt or other relatively soft material. Special care should be taken to protect the glass, especially the edges and the edge protection tape, from impact damage (knocks, abrasions and excessive local pressure). Upon receipt and before glazing, each glass should be checked for damage. Damaged glass should not be glazed. Water must not be allowed to reach the edges of stacked glass as it can be drawn between the plates by capillary action and cause damage which may affect fire performance. The glass must be protected from site contamination such as welding, cementitious, plaster products or adhesives.

Glazing and handling details are available on request.

Insulating glass units incorporating Pilkington fire-resistant glass have been successfully tested and combined with low-E glass help in meeting the requirements of Part L (England & Wales) and Part J (Scotland). Detailed glazing information can be found in our published fire test summaries. We recommend that glazing is carried out by a FIRAS accredited installer.

**Further details** – For technical advice, or to receive a copy of our general CD-ROM or the Pilkington Specifire Selection CD-ROM including all performance details, please call **01744 692000**.

This publication gives a general description of the product and materials. It is the responsibility of the users to ensure that their use is appropriate for any particular application and that such application complies with all relevant local and national legislation, standards, codes of practice and other requirements.

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Pilkington **Pyrostop**<sup>™</sup>, Pilkington **Pyrodur**<sup>™</sup>,  
Pilkington **Pyrodur**<sup>™</sup> Plus and Pilkington **Pyroshield**<sup>™</sup> are  
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PILKINGTON

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