MicroLouvre Solar Shading Systems

Fire-Safe External Shading

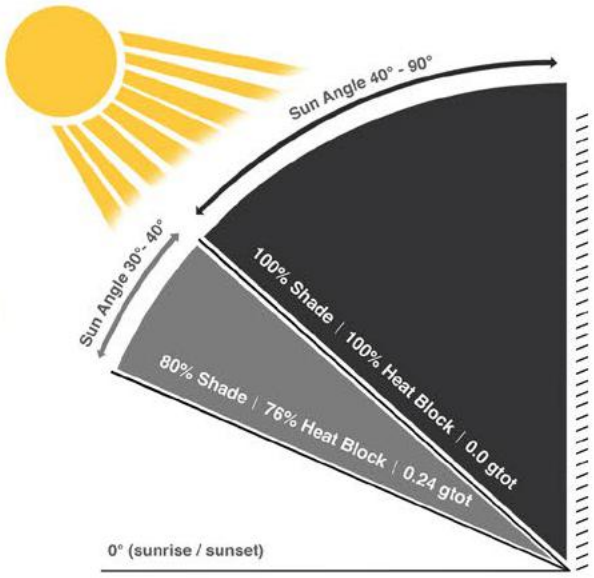
MADE IN GREAT BRITAIN

smartlouvre
MICROLOUVRE™ METAL FABRICS

MicroLouvre Solar Shading

Following tragic high-rise building fires in recent years, certain building envelopes must now be of A1/A2 non-combustible material compliant with UK Building Regulations. This applies to both new or refit buildings.

MicroLouvre™ Solar Shading is compliant to EuroClass A1/A2-s1,d0 : BSEN 13501 Reaction to Fire.

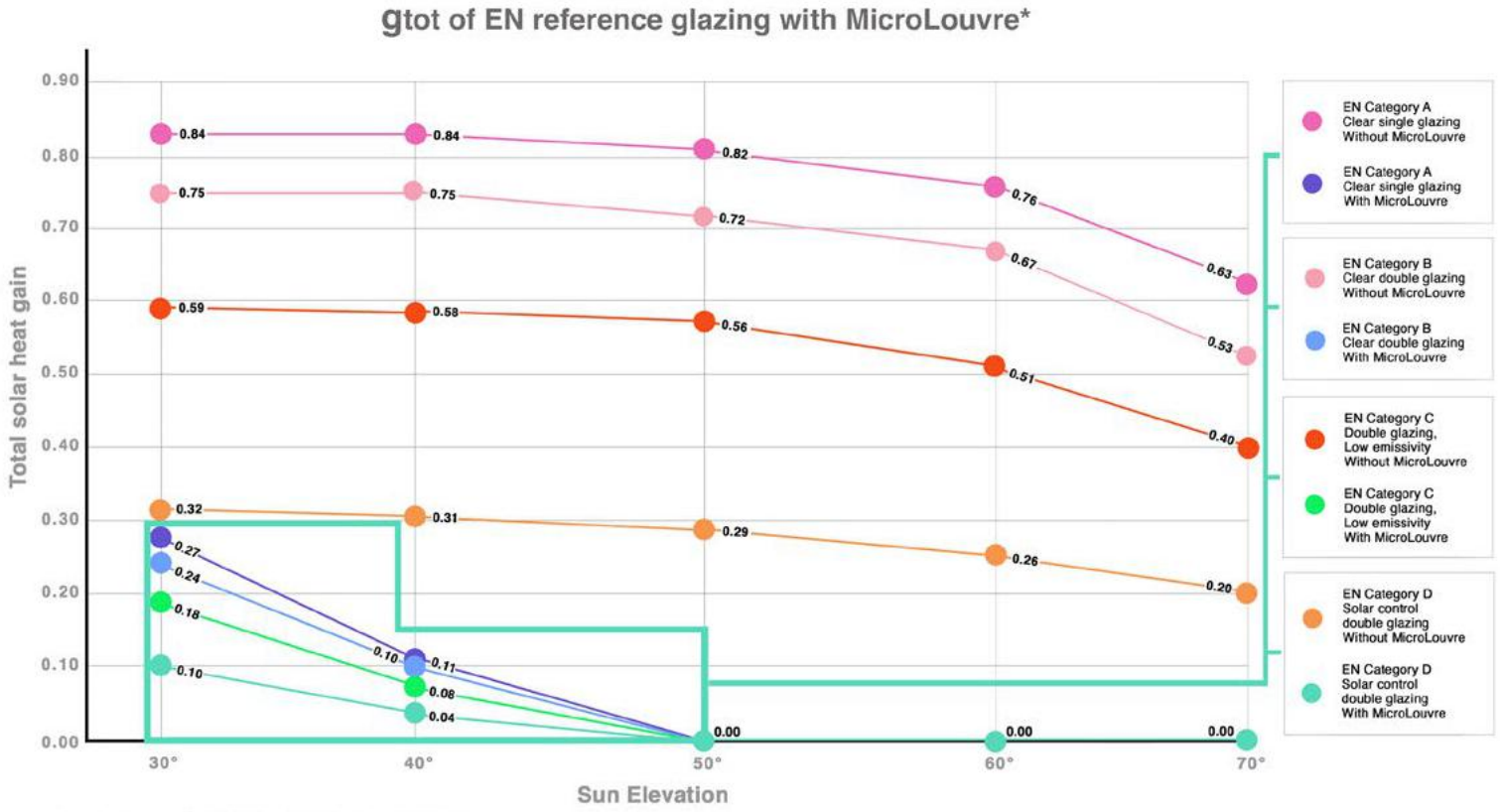


Arguably the most comprehensive external solar shading system on the market today, the all-metal MicroLouvre™ solar shading system has up to 700 paper thin brass louvres in every square metre, each only 1.2 mm apart and angled at 17°. This unique and innovative design:

- **blocks and absorbs 97% of all radiated heat gain from sun or fire**
- **enables complete outward vision**
- **permits high levels of unfiltered natural daylight, up to 70%.**
- **allows high levels of natural ventilation with 80% open area, essential for mitigating airborne viruses**
- **reduces air conditioning energy and equipment costs by up to 68%**
- **is maintenance free with a proven durability and lifespan 60+ years**
- **MicroLouvre™ louvres are made from 90% recycled copper scrap and are 100% recyclable**

MicroLouvre™ Shading outperforms solar glass and is A1/A2 Fire-Safe

Single glazing with MicroLouvre™ outperforms even top solar control glazing. Typical Low E glass, designed to retain heat in winter, is counterproductive in summer. MicroLouvre™ reduces heat gain from a massive 0.59 gtot to 0.00gtot.



*Europian Standards EN 14501 and EN 14500 and EN 52022.
Results based on Fraunhofer ISE EEB3-HRW-1812-E18

Why & When you need A1/A2 Reaction to Fire

High-rise and multi-level designs solve the problem of overcrowding but fires in such buildings are harder to control and make evacuation of occupants more difficult and hazardous. This rapid spread of fire, combined with burning droplets and toxic smoke are a real and present danger.

Regulations demanding fit for purpose construction materials used for both new build and upgrades, quite rightly, have been tightened.

England Building (Amendment) Regulation 2018 regarding materials used on building exteriors now demands materials to be proven non combustible to EuroClass A1/A2-s1,d0 : BS EN 13501. This applies to residential buildings over 18 metres eg. apartments, hospitals, schools or indeed any building of this size with any residential element.

STATUTORY INSTRUMENTS

2018 No. 1230

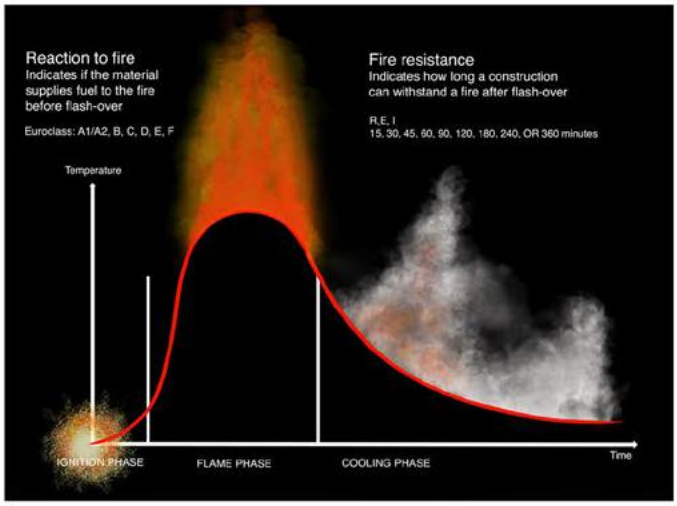
BUILDING AND BUILDINGS, ENGLAND

The Building (Amendment) Regulations 2018

Made - - - -	*28th November 2018*
Laid before Parliament	*29th November 2018*
Coming into force - -	*21st December 2018*

A1/A2 external shading is a legal requirement on buildings over 18m with a residential element

Performance	MicroLouvre™
A = Combustibility	✓
'A1/A2': Top Classifications	✓
's' = Smoke & Toxic Gases	✓
's1' : Top Classification	✓
'd' = burning droplets	✓
'd0' = Top classification	✓



How does MicroLouvre™ unconditionally achieve A1/A2-s1,d0 : BSEN 13501?

The answer is simple, the unique MicroLouvre™ system is made entirely of metal and is non combustible. The fabric is a copper / bronze alloy (melting point of nearly 1000°C (1800°F). Frames are from aircraft grade aluminium and fittings are either stainless steel or aluminium.

How MicroLouvre™ Combines Solar Shading + Fire Safety

Thermal comfort, contact with the outside and natural ventilation are proven to be vital for our well-being. But typically, external shading systems reflect/re-reflect light and glare, or simply interrupt heat gain and glare, by blocking or hazing all natural daylight, vision out and ventilation.

In contrast, with MicroLouve™ solar shading there is no trade off. With an 80% open area you get full shading and heat block plus:

- complete vision out
- natural ventilation
- 100% CRI perfect light quaility.

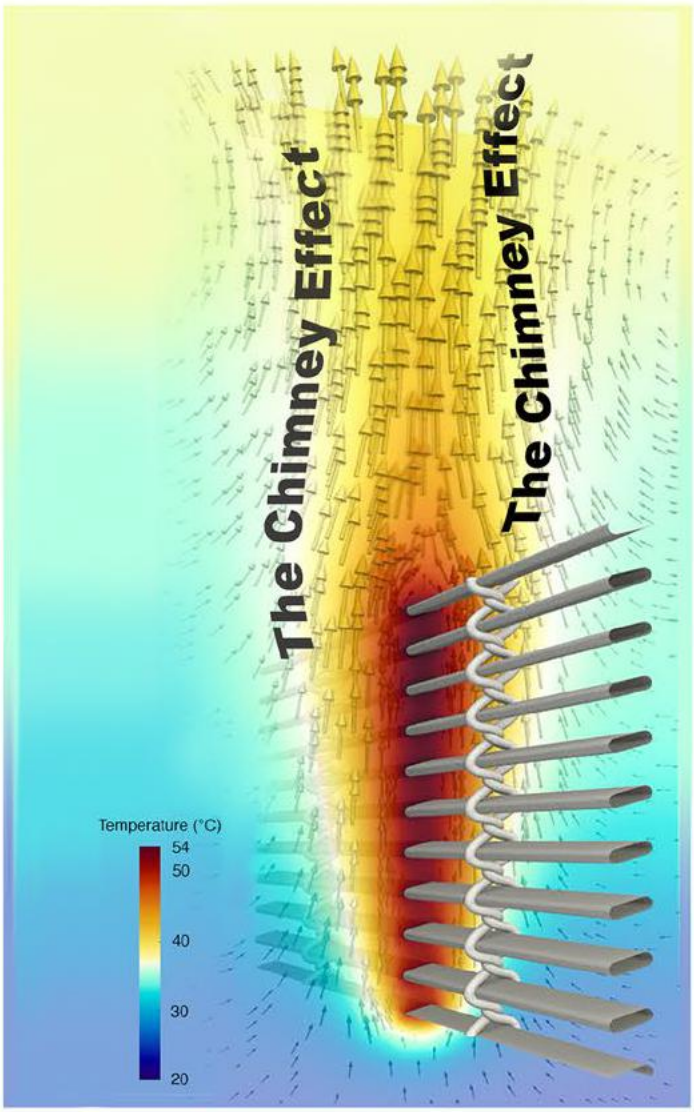
The bronze louvres in MicroLouvre's angle selective technology, are specifically designed to absorb nearly 100% of radiated heat from the sun like a sponge, venting it away before it reaches the glazing.

The Chimney Effect

The impact of the heat from the paper-thin bronze louvres on the circulating air is negligible and the air is driven upwards in a laminar flow so the louvres cannot transfer heat to the incoming air.

This is the '**Chimney Effect**', a thermal column of heated air driven upwards to be naturally ventilated away from the glazing to the outside. The Chimney Effect has been successfully modelled and proven by SimScale.

(Modelling computational fluid dynamics and thermal performance of MicroLouvre™ - SimScale 2020)



MICROLOUVRE™: AT A GLANCE KEY PERFORMANCE INDICATORS

Thermal Comfort *	
Solar Shading (Ss)	100%
Solar Heat Block (Shb)	100%
Solar Heat Gain gtot)	0.00 (glazing A-E)
Solar Transmittance (Ts)	0.00 (Fraunhofer ISE)
Solar Absorptance (As)	0.97 (Fraunhofer ISE)
Solar Reflectance (Rs)	0.03 (Fraunhofer ISE)
Visual Comfort	
Light Transmittance (Tv)	50.5%
Colour Rendering Index (CRI)	100%
Visual Contact with the Outside	Class 4 (EN14501)
Daylight Utilisation	Class 4 (EN14501)
Environment Comfort	
Natural Ventilation	80% open area
Privacy & Visual Security*	100%
Insect & Pest Protection	100% (>1.2mm)

Fire Performance	
Reaction to Fire	A1/A2-s1,d0:BSEN 13501- 2007+A1:2009
Burning Ember Exclusion	BAL-FZ AS3959-2009 100% (>1.2mm)
Fire / Heat Attenuation	49.4% CSIRO
Building Attack Level Protection	BAL-FZ/BAL-40 AS3959
Wind Performance	(BRE)
Wind Resistance	Hurricane: > Force 12 Hurricane: Cat 2
Wind Loading	14.65kg/m2 @ 60mph
Energy Saving Performance	LBNL California
Air Conditioning reduction	68%
Energy Consumption	Nil
Durability Performance	
Oldest operational installation	60 years
Maintenance	Nil

*angular selective >40° **angular selective 0° @ normal incidence or 90° to the planar surface

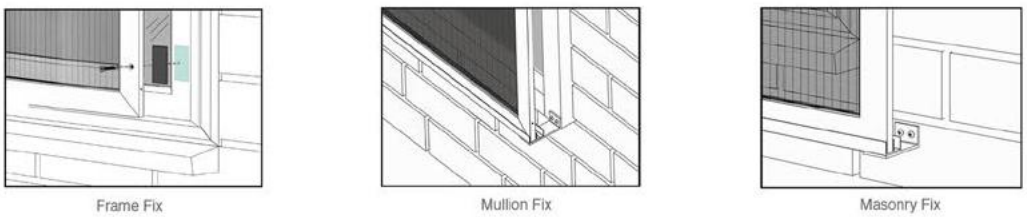
MicroLouvre™: Flying Burning Ember Protection

MicroLouvre™ metal fabric has paper thin bronze louvres, angled at 17°, each only 1.2mm apart with over 17 miniature louvres in every 25mm/1"of the metal fabric, thereby effectively stopping dangerous flying embers from lodging on, or entering into a building and spreading the fire.

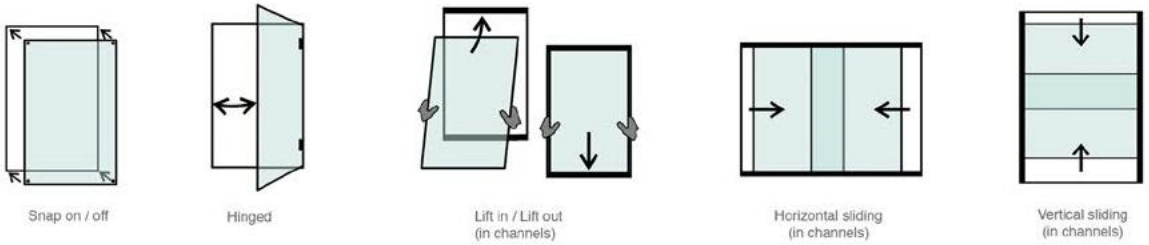
MicroLouvre™ flying burning ember protection for close proximity building fires, bush fires and wildfires

MicroLouvre™ screens are simple, quick and easy to install or retrofit

Method of fixings depend on the façade or window frame materials.
The recommendation is that suitable, fit for purpose mechanical fixings are always used.



MicroLouvre™ screens are simple, quick and easy to remove for access to windows



Fully non-combustible
Our screens conform to A1/A2 Fire Performance rating

Ember Protection
Providing protection from burning embers coming into the building

Hurricane proof
BRE tested, proven to withstand 100+mph/160+kph winds from multiple angles

Uninterrupted views out
The micro fine louvres disappear from the occupant's eye, providing unrivalled visual comfort

Lightweight & easy to fit
Simple to install or retrofit with arrangements to suit any window type

Blocks solar heat gain
Miniature bronze louvres stop the sun's heat from ever reaching the window.

MicroLouvre™ is proven to save up to 68% air conditioning energy costs

MicroLouvre™ is proven to save over 50% on air conditioning equipment

MicroLouvre™ louvres are made from +90% recycled copper scrap

MicroLouvre™ has a proven 60+ year life cycle and is 100% recyclable

Insect & pest protection
The miniature louvres provide greater protection than insect mesh

Reduces HVAC requirements
Tests show the reduction in cooling loads post install has been up to 68%

Low / easy maintenance
A simple pressure wash is recommended once a year

Natural daylighting
The angle of the louvres (17°) allows the optimum unfiltered daylight in, with full CRI

Longevity
A proven lifetime of installed screens exceeding 60 years

Allows fresh air flow
The 80% open area between the louvres provides an air flow with a distinct upwards trend

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IFC GROUP · CSIRO · CSTB le futur en construction · AKZO Nobel Coatings

MicroLouvre™ SIMSCALE Building Modelling

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