

Solar tubes and fire regulations

If you spend any time online looking at sun tunnels and the topic of fire regulations comes up you can be forgiven for being left as best confused, and at worst terrified. So to try and help we have produced a short information sheet to try and explain.

The confusion, and opportunity for company self-interest, arises for two reasons. The first is that there are no specific building regulations written for sun tunnel systems, and the second is that there are no specific fire regulations written for roofs.

We'll start with the latter first. It may seem a surprising fact that there are no blanket regulations for fire prevention within and on a roof until you pop your head into your loft and see a forest of highly flammable timbers and piles of cardboard boxes, all of which would make a most impressive bonfire if given the chance.



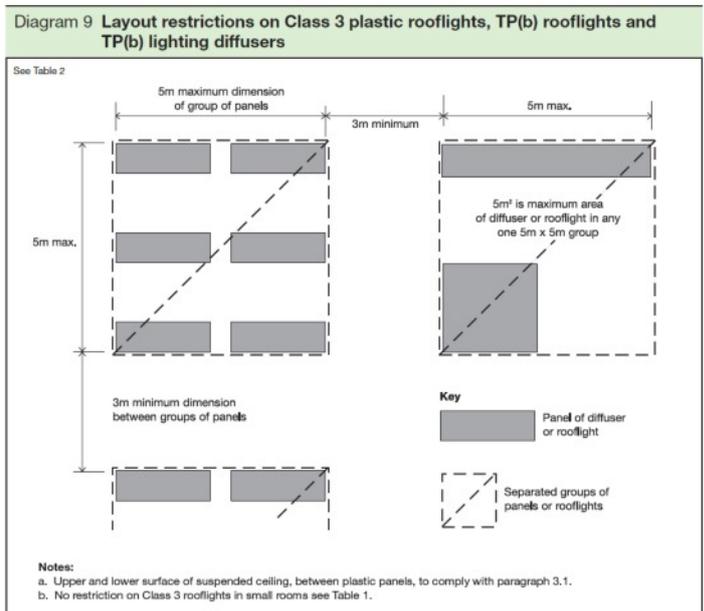
That doesn't mean to say that there aren't situations where a roof is subject to fire regulations. For example; if the roof of a building forms part of a fire escape then regulations will apply. But if like 99% of householders your home is kept weather-tight with a wooden frame covered in roofing felt then you can rest-easy knowing that, for obvious reasons, there are no fire regulations that to be met.

Going back to the issue of building regulations; probably because sun tunnel style systems are comparatively new additions to the ancient world of building, there are no specific regulations that apply although there are general regulations that still must be adhered to.

In the case of sun tunnel systems, there are two issues that need to be addressed. The first is at the ceiling. If you are in a building where the ceiling is legally required to form a defence against fire to prevent the spread from area to area, a care home or hotel for example, you may be required install fire-collars in the

loft around the bottom of the tube but this doesn't apply to private residences in all but exceptional circumstances.

The second is on the roof and this is covered by Building Standards in a section covering Thermoplastic Rooflights and Ceiling Diffusers. This states that there is a limitation to the area of a roof, or ceiling, that can be covered with TP(b) thermoplastics such as acrylic (PMMA) or Plexi-glass as it's otherwise known. This states that a maximum of 5sqm of thermoplastic glazing can be used in any 25sqm of roofing (5:1) and there must be a 3m gap between each 5sqm of glazing. Confused? We'll explain. To put this simply you could have a rooflight made of a TP(b) plastic which is 2x2.5m for every 25sqm of roof and these can't be closer than 3m to each other.



Extract from: HM Gov, Fire safety, Approved Document B Vol 1 - DwellingHouses

So how does this affect you if you want to put a sun tunnel with a TP(b) dome on your roof? Solar tube systems for residential use tend to be between 250mm and 380mm in diameter. Taking the larger size as a worst-case scenario, the 'glazing area' of this unit is 1134sq cm which means you could have 44 Solarspot D-38 units for every 25sqm of roofing. And on the basis that this number of D-38 units would light an area of almost 1000sqm, you can see how the roof-to-glazing (R:G) ratio set by the regulations don't get close to being relevant to sun tunnel systems.



To give you a sensible comparison, if you took a typical terraced house with an internal bathroom and dark hallway, and you wanted to fit a 250mm diameter sun tunnel in each area the R:G ratio would be around be around 300:1, well below the 5:1 maximum allowance. So why is it that companies like Solatube are making such a fuss about all of this?



Solatube decided that they could gain a useful marketing advantage if they could get a certificate of conformity from the BBA for their system but as there are no building regulations for sun tunnels the product had to be categorised as a 'skylight'. As most people will realise, a skylight and a sun tunnel are very different animals. Skylights have to be a lot larger than sun tunnels and don't have extensions tubes that run through the loft. A skylight is the covering on the roof and the ceiling underneath at the same time.

As a result they need to be made of glass or polycarbonate. This is fine for skylights but not great for sun tunnels. Glass is delicate so if used on a sun tunnel it needs to be quite thick to avoid being broken and so a significant amount of daylight is absorbed before it can get into the light tube itself. Polycarbonate on the other hand is strong and lightweight but has a major disadvantage as it goes yellow and cloudy when exposed to UV light – or what we call the sun.

That's why manufacturers like Solarspot, Monodraught and Lightway avoid polycarbonate and use acrylic instead. Acrylic has the best light transmittance of any material, including glass, is strong and light and has

excellent resistance to UV. This means that an acrylic dome will stay nice and clear on your roof whilst withstanding the rigours of the British weather. All of the above manufacturers could manufacture their domes from polycarbonate, there's no difference in cost, but why would they want to produce a product with built-in obsolescence?



Photo above shows an installer fitting a Solarspot D-25 in a roof where the neighbour has an existing Solatube 160 DS roughly 4 years old. The deterioration of the Solatube dome reduced the levels of daylight down to around 25% of the D-25 unit.

If you would like more information on any aspect of enhancing your home with the world's most efficient tubular daylight system please call us today on 01908 299117 or email daylight@solarspot.co.uk

“In my opinion as qualified fire engineer, with nearly 40 years' experience in the industry, the use of Acrylic as a dome material for light pipes does not infringe on any building regulations providing the ratio of rooflight to roof does not exceed the limits as laid down by British Standards and do not present any issues with proximity to other buildings.”

Graham Green FIFireE FIFSM MCIHT

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