

Reading Borough Council
Civic Centre
Bridge Street
Reading
RG1 2LU

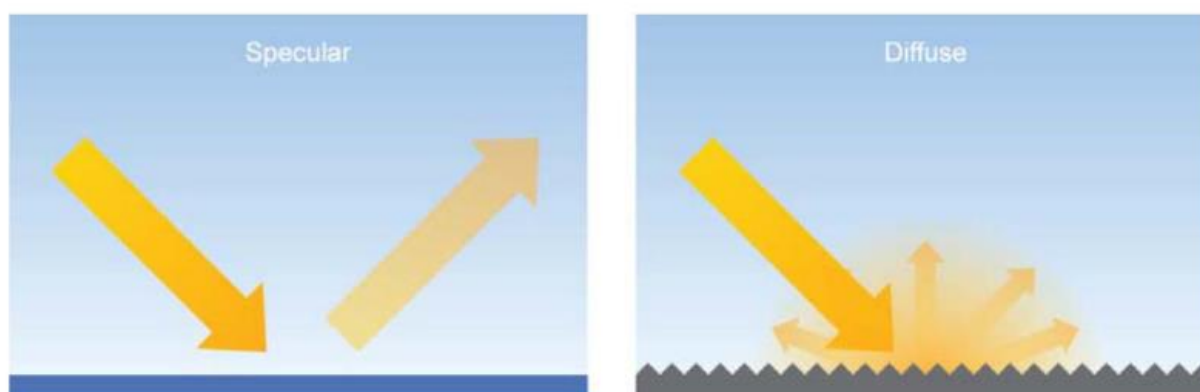
To whom it may concern,

Supporting information regarding the glare of solar PV panels

Panel Surface

First and foremost, solar panels are designed to absorb light. PV panels use silicon to convert sunlight to electricity and light that is reflected cannot be used to create electricity. Anti-reflective coatings on PV panels reduce the reflection of sunlight for PV panels. All PV panels are coated with anti-reflective materials that allow light to pass through the silicon and minimize reflection. The presence of this coating is stated on the panel datasheet included in this submission.

In addition to the anti-reflective coatings, the surfaces of PV panels are roughened, a process called “stippling.” Stippled surfaces diffuse reflection and eliminate glare. The basic concept behind stippling is for the surfaces of the glass to be textured with small types of indentations. As a result, stippling allows more light energy to be channelled/ transmitted through the glass while diffusing the reflected light energy.



The combined effects of this design results in a materials with a lower albedo that bare soil, vegetation, windows, white concrete, and snow. If the concern is for railway drivers passing by the building, consider

someone driving a car, in the snow, with other cars (with smooth glass wind-shields) approaching on the opposite side of the road.

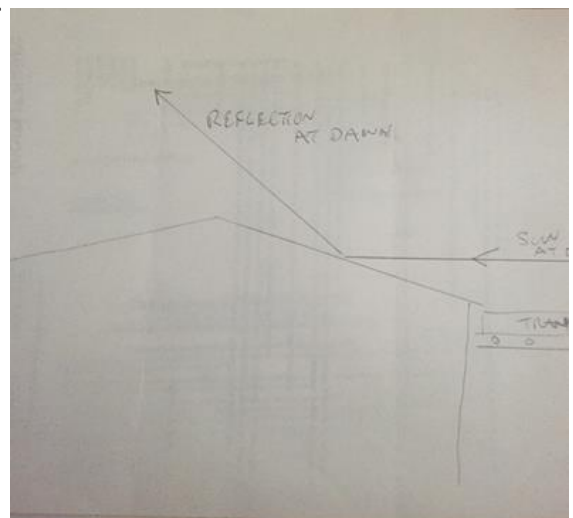
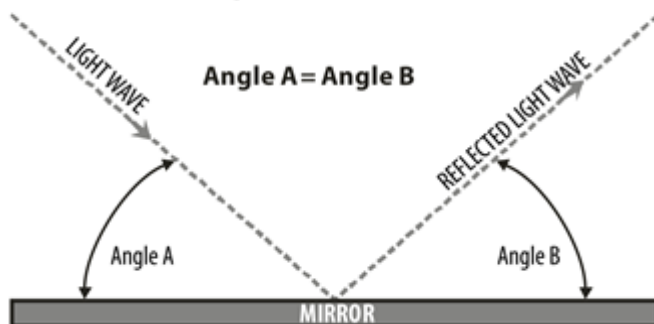
Angle of reflexion

The roof of the depot is shallow pitched and faces approximately east/west (pictured below – South is at the bottom of the page).



The roof is sighted slightly above the level of the railway tracks. We know that the angle of reflected light is equal to the angle of incidence of the sunshine. Sunlight at dawn and dusk could be very close to horizontal and would then be reflected upwards at an angle of 20 degrees, at this angle the glare would go above the line of site of any train passing train. As the sun rises the angle increases so the worst case scenarios are at dawn and dusk. At every other time of day the reflections would be upwards of 20 degrees rising to a maximum of 70 degrees in summer and 40 degrees in winter.

Reflection of Light



Again, compare this to trains passing by parked cars, houses, glass fronted businesses. In some of these cases the reflective surface will be perpendicular to the oncoming train which would cause a direct, specular reflection.

Finally, under permitted development rules, it's worth noting that it would be permitted to install a 50kWp array at the end of the building next to the railway with the same level of visibility from the railway.

Please feel free to contact me if you have any questions.

Yours sincerely,

--

Edward Baughan
Commercial Project Manager

t 01865 403 336 | **m** 07428 763 635