

# Reflective Surfaces

Worker exposure to UV radiation depends on direct sun and the amount of reflected solar UV they receive. Reflected solar UV is particularly important for eye exposure and the development of eye conditions.<sup>1</sup>

Workplaces should consider the surfaces around which their employees work. This includes using **engineering controls** to reduce the amount of reflection from these surfaces, and ensuring workers are using appropriate **personal protection** to minimize reflected solar UV exposure.

Some surfaces reflect more sunlight than others. The following table includes measured values for solar UV reflectance for some common surfaces:<sup>1</sup>

Surface	% Solar UV Reflected
Lawn grass, summer/winter	2.0 – 5.0
Wild grasslands	0.8 – 1.6
Soli, clay/humus	4.0 – 6.0
Sidewalk, light concrete	10.0 – 12.0
Sidewalk, aged concrete	7.0 – 8.2
Asphalt roadway, new (black)	4.1 – 5.0
Asphalt roadway, old (grey)	5.0 – 8.9
House paint, white, metal oxide	22
Aluminum, dull, weathered	13
Open water	3.3
Open ocean	8.0
Sea surf, white foam	25 – 30
Beach sand, wet	7.1
Beach sand, dry, light	15 – 18
Snow, fresh (2 days old)	88 (50)

For many surfaces, solar UV reflection differs depending on whether the surface is new/fresh or old, with older surfaces often having less reflection. For hard manufactured surfaces, surface colour/treatment and material can influence the amount of UV reflectance. For example, pale green coated steel roofing has substantially less UV reflectance than standard zinc aluminum coated steel roofing.<sup>2</sup> Aluminum, stainless steel and galvanized iron are highly reflective for all wavelengths of solar UV.<sup>3,4</sup>

## Hierarchy of Risk Controls for Sun Safety:

1. Elimination or substitution

**2. Engineering controls**

3. Controls that increase awareness

4. Administrative controls

**5. Personal protection**



Visit [sunsafetyatwork.ca](https://sunsafetyatwork.ca) for more information.

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## Reducing Reflective Surfaces at Your Workplace

Highly reflective surfaces should be painted, treated, or substituted to have less UV reflection, where possible. For example:

- Paints containing pigments of titanium dioxide and zinc oxide are generally less reflective than other paints.<sup>5</sup>
- Darker colored paints (for example, green, brown, burgundy) generally have less UV reflectance compared to brighter colors (for example, white or sandstone).<sup>4</sup> However, darker colours may make the equipment, structures, or workspaces hotter.

### Personal Protection for Workers

For workers in a highly reflective environment, adequate **personal protection** should also be worn. This includes long sleeved shirts and pants, UV protective eyewear, broad-brimmed hats or hard hats with brims, and use of sunscreen.

During **winter months**, it is particularly important to ensure that workers use UV protective eyewear due to the potential for high levels of solar UV being reflected off snow.