SOLAR ENERGY BEHAVIOR OF VISIBLE LIGHT

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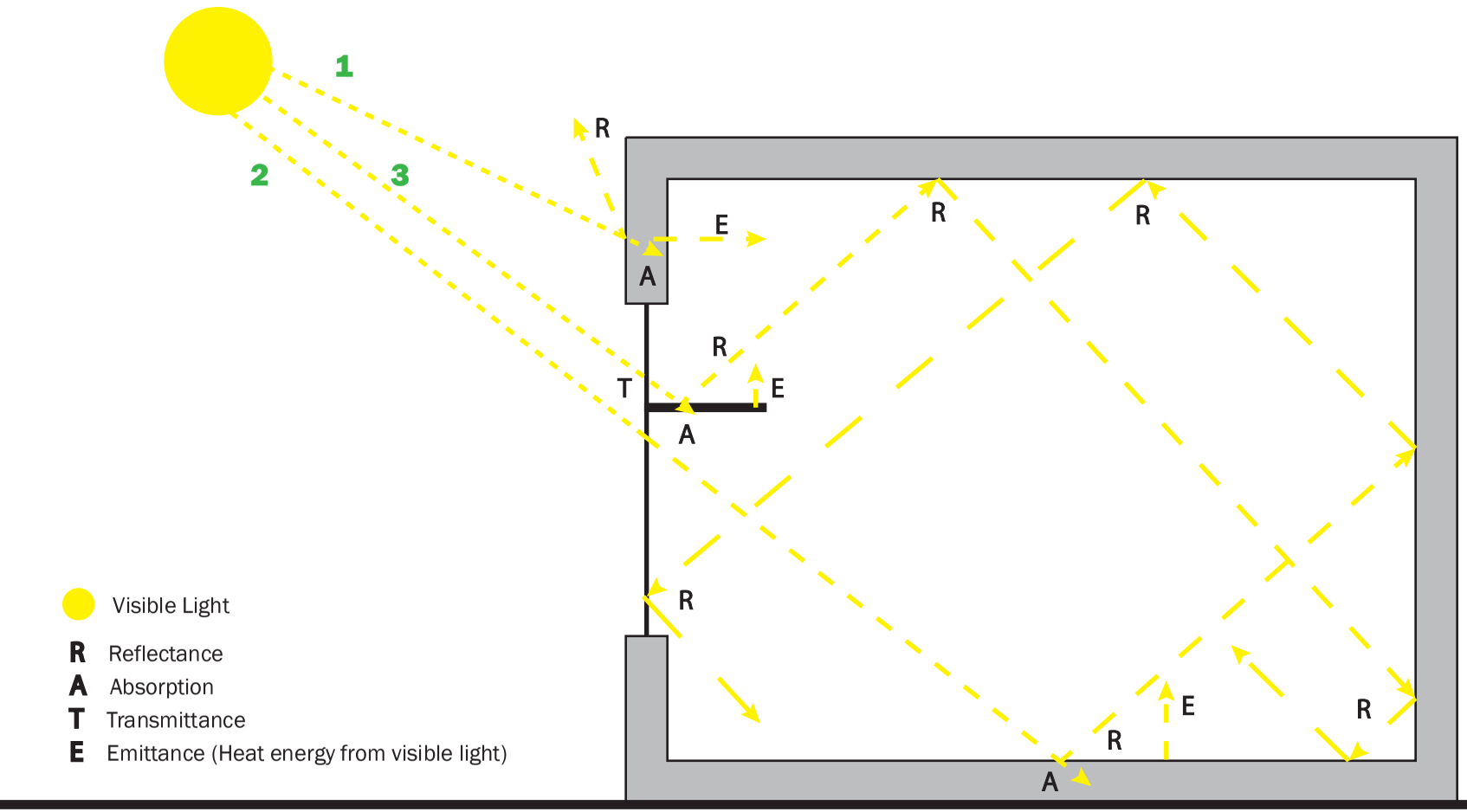

1 shows how the visible light spectrum of solar energy behaves when it hits an opaque surface. Light will be prevented from passing through, but depending on the wall material and the reflective properties of its color, some of the light will be reflected while the rest will be absorbed and stored as heat. Then, once the floor reaches its absorption capacity or the indoor temperature is significantly colder then the wall or outdoor temperature, the stored heat will be emitted into the room.

2 shows how the visible light spectrum of solar energy behaves when it hits a transparent surface and **3** shows how it behaves if there is a light shelf on the interior of the building. When light passes through the window, assuming a single clear pane of glass is used with no coatings to block any components of light, the short, high-frequency wave will pass right through. Once it passes through, it will hit the horizontal surface of the room, the floor or the light shelf. Similar to the opaque surface scenario, depending on the horizontal material and the reflective properties of the color, some of the light will be reflected while the rest will be absorbed and stored as heat for delayed release. The light will continue to bounce around the room. The degree to which these secondary surfaces reflect light into the space will vary depending on the shape of the room, surface materials and paint/finish colors. Dark colors will reflect less light and absorb more, whereas lighter colors will do the opposite. Furthermore, with each reflection, the wavelength of light looses energy and becomes longer. The longer less energetic wave length is unable to pass through the window creating a greenhouse effect where the light waves and related heat energy are trapped within the space.