

WHAT IS OIL CANNING?

Oil Canning can be defined as a perceived waviness in the flat areas of metal roofing and metal siding panels.

Oil canning is an inherent part of light gauge (thin) cold formed metal products, particularly those with broad flat areas. Profiles having wide flat surfaces are often referred to as “Architectural” roofing panels.

Oil canning can be more apparent during certain times of day and in certain seasons based upon the angle at which sunlight hits the roof or wall, and based upon the temperature differential.



FACTORS ATTRIBUTING TO OIL CANNING

1

Over Driving of Fasteners

This operation creates stresses in the panel and provides a "reading line" along the fastener alignment.

2

Longitudinal Expansion

The surface temperature of exposed panels cycles throughout the year and even fluctuates daily. The temperature and the cycle depend on many variables (e.g., project location and building orientation, cloud cover, panel configuration, surface finish or color, system thermal insulation characteristics).

Under temperature fluctuation, the panels expand or contract. If panels are restrained by fasteners, clips or perimeter details, they accommodate thermal forces through several mechanisms. These include “slotting” around fasteners, out-of-plane “bowing”, and local distortion of flat areas.

Waviness can be amplified when there is uneven fastener restraint along the panel. Such restraint is common on “concealed fastener” systems having fasteners along one edge and an interlock along the other. Waviness caused by thermal forces differs from the other forms of oil canning in that waves can appear and disappear daily as the sun moves across the sky.

3

Handling

Carrying panels in the flat orientation or twisting panels can induce a wavy appearance to a previously flat panel. Twisting can occur if one corner of a panel is used to lift a panel or to remove the panel from a bundle.

Learn more about oil canning from the Metal Construction Alliance

<http://www.metalconstruction.org/index.php/online-education/oil-canning-in-metal-roof-and-metal-wall-systems>

HOW TO MINIMIZE OIL CANNING

Recommendations to reduce the inherent stresses within light gauge flat metal which cause oil canning:



Increase the thickness or gauge of the metal roofing panel.



Avoid choosing high gloss finishes of the metal roofing panel to minimize reflected light.



Avoid choosing metal roofing panels that have wide span flat areas. Panels with more tightly spaced ribs don't often exhibit oil canning.



Ensure that construction professionals follow metal roofing panel manufacturers' handling and installation guidance.