

Structural Plate and Fasteners – Storage Guideline

The purpose of this Guideline is to:

- Provide information about storage staining that may occur on galvanized Structural Plate Corrugated Steel (SPCS) and Deep Corrugated Structural Plate (DCSP); and,
- Offer guidance for storage of structural plates and fasteners.

Wet Storage Stain - Galvanized Plates

When galvanized plates are stacked closely together with limited access to freely circulating air for extended periods of time, wet storage stain may form, especially in moist conditions as shown in Figure No.1.

Wet storage stains range from a white powder which is considered superficial and typically disappears with weathering, to darker colours such as black and red, which can indicate potential coating damage. Below is a reference that further explains the formation of wet storage staining, direction on its field evaluation and coating repair techniques if required:

https://www.galvanizeit.org/uploads/publications/Wet_Storage_Stain_On_Galvanized_Steel.pdf

Additional guidance is provided in the CSA G401 Standard.

Wet storage stain is rarely an issue when plates and fasteners are shipped and installed in spring / summer / fall months without lengthy on-site storage, Figure 2 illustrates how parts are typically shipped in these seasons.



FIGURE 1 - WET STORAGE STAIN



FIGURE 2 - PLATE AND FASTENERS SHIPPED FOR TYPICAL SHORT-TERM STORAGE OUTSIDE ON A JOB SITE

THIS DOCUMENT PERTAINS TO CSPI MEMBERS AND STAKEHOLDERS ONLY. CO-AUTHORED BY ATLANTIC, ARMTEC, FRONTIER, HUBBELL, ACI, ARCELORMITTAL, IRONSIDE, LELAND, VALFILM AND WARNER. USE OF THIS DOCUMENT OUTSIDE OF CSPI MEMBERSHIP WITHOUT APPROVAL FROM CSPI, ATLANTIC, ARMTEC, FRONTIER OR HUBBELL IS PROHIBITED.

Structural Plate and Fasteners – Storage Guideline

White storage stain is a post-galvanizing phenomenon. Responsibility for its prevention lies in the manner it is packed, handled and stored prior to the product's installation and use. The presence of white storage stain is not a reflection on the galvanized coating's condition and future performance, but rather the responsibility of those involved in storing the material prior to installation. Special pre-cautions should be taken when long term storage is anticipated.

Storage Guidelines (Refer to Figures 3, 4 & 5)

The following precautions should be taken to mitigate the potential for wet storage staining and damage to fasteners associated with storage, especially over winter conditions with potential rain and snow accumulation causing freeze thaw cycles and additional condensation between the plates.

1. For shipping plate:

- a. Plates must be oriented so they are concave down to allow water to drain off;
- b. Spacers must be installed between each plate to provide free access of air to all parts of the surface; and,
- c. Loads must be fully tarped if there is potential for condensation/moisture (especially exposure to road salts)

2. For storing plate on-site:

- a. Plates must be raised from the ground and supported along their lengths at intervals that ensure no deflection will occur;
- b. Plates must be inclined in a manner which will give maximum drainage and airflow;
- c. Plate must be oriented so the plates are concave down with spacers to provide free access of air;
- d. Accumulation of snow on plates and tarps that inhibit ventilation must be avoided; and,
- e. Storing plate inside a weatherproof building or shipping container that provides ventilation without moisture accumulation, minimizes the risk of wet storage stain.

Structural Plate and Fasteners – Storage Guideline

3. Fasteners shall be stored inside in a weatherproof building or shipping container and all fastener containers should be checked to confirm they are free from moisture or condensation.



FIGURE 3 - WAREHOUSE STORAGE/PLATE STACKED WITH POLY ROPE SPACERS



FIGURE 4 - TYPICAL SHIPPING CONTAINER



FIGURE 5 - INTERIOR OF SHIPPING CONTAINER