

DSS-Th.04.01 | Thermal / Hot Particle / Fusion & Thermal Stress

Localized Thermal “Hot Spot” Imprint (Solar Concentration / Reflective Interactions)

Thermal - envelope interaction; localized radiant focus from adjacent surfaces

Diagnosis summary

A localized thermal “hot spot” imprint is a compact patch or band of appearance change (and, at higher severities, stress damage) produced when reflected or concentrated solar radiation from adjacent surfaces (e.g., concave façades, mirrored fins, metal panels, light shelves, vehicles) focuses on the glass. The result is a tone/shine shift ± modeled micro-texture within the focal footprint;

Field identification cues

- Surface-catch class (MSRT)
- SC-0 for optical-only impressions (gloss/tone shift without relief).
- SC-1 where very shallow modeled micro-texture exists; SC-2 is uncommon but possible in pronounced softening.
- Perform one light, non-marring pass; use a polymer stylus if a coating is suspected. Do not pass across any suspected crack. MSRT supports classification, not acceptance.

Classification, severity and scope

- Assign CAT by appearance + MSRT + morphology (three-part cueing). Depth/relief values below are indicative-measurement is not required.
- CAT-1 (Benign / non-relief): Sheen/tone shift only; SC-0; visible mainly in raking at close/standard view. Indicative relief: ~0-10 µm (optical only).
- CAT-2 (Light): Subtle modeled micro-texture within the hotspot; SC-1; limited impact at standard view; no chip flanks. Indicative relief: ~10-40 µm.
- CAT-3 (Moderate): SC-2 (clear) modeled micro-texture visible at standard view, boundaries soft; no discrete pits. Indicative relief: ~40-120 µm.
- CAT-4 (Severe): Pronounced matte/frosted hotspot or narrow focused band; distinct at standard & wide-field views; still no peppering. Indicative relief: ~120-300 µm+.

Distinguishing criteria

- vs. Torch proximity streak (Th.02.01): Torch produces tool-path bands and may leave soot; solar hotspot ties to external reflector geometry and time of day.
- vs. Overheated grinder/belt burn (Th.02.02): Burn lines track abrasive travel and often show compound/rubber smear; solar hotspots are stationary footprints that migrate with the sun.
- vs. Hot-particle damage (Th.01.xx): Slag/spark fields show discrete nodules/pits with bright rims; solar hotspots are continuous patches without pepper.

Documentation and inspection

- Photo set (VIS): 12 / 36 / 72 in, normal + oblique, include raking macros of the hotspot; add context frames showing suspected reflector and the specular path.
- MSRT result: Record SC class (SC-0/1/2) with one light, non-marring pass (polymer stylus on suspected coated faces). Do not pass across any crack.
- Forms: Pane ID; product family & surface numbering; worked surface Y/N; functional coating present on worked surface?

Safety / repairability boundary: Complete only the non-invasive reveal and inspection steps authorized by the controlling VIS guidance. Classification does not authorize restoration, establish acceptance, or override stop-work, coating, crack, integrity, access, chemical, fall-protection, or project-specific requirements.

Full DSS publication: use the catalog download. Web specification:

<https://a7df714357.nxcli.io/learning-center/resource-center/damage-specification-standards/dss-th-04-01-localized-thermal-hot-spot-imprint-solar-concentration-reflective-interactions/>