

DSS-Th.03.02 | Thermal / Hot Particle / Fusion & Thermal Stress

Spontaneous Tempered Break (NiS-related; documentation)

Thermal stress / material inclusion - post-fracture condition; out of in-place scope

Diagnosis summary

A spontaneous tempered break is a sudden fracture of fully tempered glass with no evident external impact, commonly associated with nickel sulfide (NiS) inclusions or residual/internal stresses. Result is the characteristic fine “dice” fragmentation. Any fractured lite is an integrity condition and is out of in-place restoration scope (CAT-5 by condition/location).

Field identification cues

- Safety / MSRT.
- Treat as unstable; do not perform MSRT. Secure area per site protocol before close documentation.
- Visual signature
- Fine, uniform dice pattern across the pane (distinct from heat-strengthened fracture, which shows larger islands/longer ligaments).

Classification, severity and scope

- CAT-5 (default): Any fractured tempered lite → Non-Repairable / Out of In-Place Scope. Document and refer per project protocol (replacement; manufacturer/engineer review).
- Reassign only if unbroken: If re-inspection shows no fragmentation (e.g., only a crack system), classify under M.07.02 (through-thickness crack) or M.04.02 (impact star) as appropriate-still integrity.
- CAT is governed by integrity/location; acceptance is evaluated separately under VIS-A §6.

Distinguishing criteria

- vs. Impact star/bullseye (M.04.02): Impact presents a central nucleus with radial/annular arms; spontaneous break lacks a clear impact origin.
- vs. Heat-strengthened fracture: Heat-strengthened glass forms larger, irregular fragments and longer crack ligaments-dice size is a key discriminator.
- vs. Patterned/etched glass: Decorative patterns lack polygonal, fractured boundaries and loose granules; raking light and gentle observation (no touch) confirm.

Documentation and inspection

- Safety & stabilization. Confirm barricades/support before close approach; avoid loading the fractured lite.
- Photo set (VIS):
- Overall: 72 in and 36 in, normal incidence, full pane + framing.

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-03-02-spontaneous-tempered-break-nis-related-documentation/>