TECHNICAL REFERENCE · PRINT & KEEP

Casters Damaging Floors: Causes, Fixes & Wheel

One-page quick reference · Full engineering guide + live tools at the QR codes below

Quick answer. Casters damage floors for four reasons: chemical transfer from rubber compounds, abrasive wear from grit embedded in soft treads, contact stress that dents or cracks coatings, and scrub during turns. The fix combines floor cleanliness, non-marking wheel compounds, larger diameters (6 inch or more), and real load sharing. Embedded debris is the top hidden driver, turning floor-safe wheels into sandpaper.

Identify your damage mode (streaks vs dents vs marring)

Damage you see	Usually caused by	Fast field check	Primary fix direction
Black streaks / scuff marks	Transfer from rubber, additives, or oxidation + scrub	Try solvent-clean: if it lifts like residue, it's transfer	Non-marking compound + reduce scrub + floor cleanliness
Gray haze / sanded look	Abrasion from embedded grit or hard tread on soft coating	Inspect tread for embedded debris; check floor for grit	Cleanliness + appropriate tread + larger diameter
Dents / divots / crushed coating	High contact stress (load per wheel too high)	Measure wheel load; look for concentrated contact patch	More wheels, larger diameter/width, proper load sharing
Gouges / chips / cracking	Hard wheel + debris + shock; coating brittle or thin	Look for impact points near joints/transitions	Wheel compound + shock control + route/floor upgrades
Spiral scratches	Swivel bearing failure or seized wheel skidding	Spin wheels; check swivels for roughness/lockup	Repair casters; improve bearings/seals/PM

Wheel material selection (and what "non-marking" really means)

Wheel material	Transfer mark risk	Dent risk on coatings	Abrasion/scrub risk	Best use case
Black rubber	High	Moderate	Moderate	Vibration control where marks are acceptable
Non-marking rubber (gray)	Low	Moderate	Moderate	Clean areas; moderate loads
TPR / soft elastomer	Low–moderate	High if small diameter or high load	Moderate–high	Light/medium carts; quiet ride
Industrial polyurethane on metal core	Low	Low–moderate	Low–moderate	Industrial default: load + durability + floor care
Nylon / polypropylene	Very low	High on fragile coatings	Moderate	Clean robust floors; avoid fragile coatings

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Wheel material	Transfer mark risk	Dent risk on coatings	Abrasion/scrub risk	Best use case
Phenolic	Very low	High on brittle coatings	Moderate	High loads on robust floors; some chemicals