

TECHNICAL REFERENCE · PRINT & KEEP

# Stop Casters Damaging Floors: Wheel Picks That Protect

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

**Quick answer.** Casters damage floors through point-load PSI exceeding surface strength, soft compounds streaking pigment, and hard compounds transmitting impact to the substrate. The default safe spec is a 95A polyurethane tread on an iron core at 6 inch minimum diameter, which protects epoxy and VCT, the two most vulnerable surfaces. Sealed concrete is the most forgiving floor.

## Wheel Compound by Floor Type

Floor Type	Safe Compound	Max Load per Caster	Diameter Min	Fail Mode if Wrong
Sealed concrete (healthy)	Any non-marking	4,000 lb	4 inch	None typical
Epoxy (10 mil, standard)	95A PU on iron	1,500 lb	6 inch	Chips at contact patch
Epoxy (60 mil, industrial)	95A PU or phenolic	3,500 lb	6 inch	None typical
VCT (vinyl composite tile)	95A PU, 6 inch min	800 lb	6 inch	Gouges, seam lift
Hardwood (3/4 inch T&G)	95A PU on load plate	600 lb	6 inch	Compresses, dents
Polished concrete (diamond-ground)	95A PU, no steel	2,500 lb	6 inch	Scratches, haze
Quarry tile	95A PU or phenolic	2,000 lb	5 inch	Seam damage

## Six Floor-Damage Mistakes

Mistake	Why It Fails	Correction
Buying "non-marking" without checking compound	Many TPR wheels are non-marking but cold-flow under static load	Spec Shore 95A polyurethane on iron core; verify compound and core material on spec sheet
Matching diameter to cart size, not load	4-inch wheels under heavy carts exceed floor PSI regardless of compound	Size diameter to load per caster, not cart footprint; 6-inch minimum over 1,500 lb per caster
Mixing old and new wheels on same cart	Different diameters cause cart to rock; concentrated load on high wheels damages floor	Replace all 4 casters per cart; do not mix diameters or compounds
Ignoring tread runout	Eccentric wheel rocks and creates ridge/furrow pattern on any floor	Specify tread runout under 0.005 inch; precision-ground tread on 95A PU wheels
Skipping load-spreading plates on polished or wood floors	Point-load PSI exceeds floor surface strength even with correct compound	12-inch x 12-inch x 1/4-inch steel plates standard under permanent static equipment



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Mistake	Why It Fails	Correction
Leaving debris on floor	Wheels embed grit and grind it into the floor, cutting scratch patterns	Daily sweep; inspect wheels for embedded debris at PM



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