

Beyond Weight.

Rethinking what makes high-risk furniture safe.

Why mass alone is not a safety strategy, why it can quietly increase liability, and why the sector needs a better standard than kilograms.



For architects, specifiers, and
procurement teams in mental health,
corrections, and healthcare environments

Weight has become a shorthand for safety. It shouldn't be.

Across mental health, corrections, and healthcare procurement, it's increasingly common to see furniture specifications lead with a weight figure: heavier is read as safer, and safer is read as heavier.

We understand why. It's an easy number to put in a tender. It's also the wrong number.

A kilogram figure is simple to specify, simple to compare across suppliers, and feels reassuringly objective. But it answers the wrong question. The question that actually matters in a high-risk environment isn't "how much does this weigh?" It's "what happens to the person in the room, and the staff around them, in the worst thirty seconds this piece of furniture will ever see?"

We've watched weight thresholds become a default proxy for safety in specifications and tenders, sometimes at the expense of manufacturers whose furniture is safer by design but doesn't chase the heaviest number on the page. This paper sets out why we think that's a problem worth addressing directly, and what we'd propose instead.

"Heavier" is not a safety feature. It's a bet: a bet that the people in the room will never be strong enough, motivated enough, or desperate enough to move it. That is not a bet any of us should be making with someone's safety.

We want to be clear about what we're not saying. We're not saying mass is irrelevant, or that a lighter product is automatically safer. Abecca's own Armadillo® range has genuine substance to it: it's solid foam, seam to seam, with no internal metal or timber frame, and that construction naturally carries real weight. What we're questioning is the idea that mass should be the primary safety mechanism, engineered specifically to make furniture unliftable, with everything else treated as secondary.

The assumption that fails: calm state strength versus crisis state strength

Weight thresholds are almost always set against an implicit assumption: that the person attempting to move the furniture is behaving, physically, the way they would on an ordinary day. In a genuine crisis, that assumption doesn't hold.

When a person moves into acute distress, whether that's fear, rage, panic, or a mental health crisis, the body's stress response releases a surge of adrenaline and related stress hormones. This isn't folklore. It's a well-documented physiological mechanism: the stress response redirects blood flow to major muscle groups, increases glucose availability, and measurably increases the short-term power output of skeletal muscle. At the same time, the body's stress response suppresses pain signalling, which means the usual physical feedback that would normally stop someone from over-exerting is significantly dulled.

What changes under acute stress

Blood is redirected to major muscle groups, glucose and oxygen availability increases, and short-term muscular power output rises measurably above resting capacity.

Why this matters for furniture

Stress-induced pain suppression means the natural limiter that stops someone lifting or throwing something under normal conditions is significantly reduced in exactly the moment furniture weight is meant to matter most.

In practical terms: the person a weighted chair is designed to stop is precisely the person whose physical capability, in that moment, is least predictable and potentially most elevated. A weight threshold calculated against average, calm-state strength is being asked to hold in exactly the state where that calculation is least reliable. Add leverage, more than one person, or a chair with a favourable grip point, and a "safe" weight figure can be overcome in ways a specification sheet doesn't account for.

This is also why staff training in de-escalation consistently treats crisis behaviour as physically unpredictable rather than physically constrained. Furniture design should proceed from the same premise.

If it can be moved, a heavier object is a more dangerous one

This is the argument we think deserves the most attention from anyone specifying or approving a weight based safety strategy, **weight is not a one way safety dial**, it cuts both ways and the downside case is rarely priced into the decision

IF WEIGHT SUCCEEDS

The furniture stays put. It performs exactly as specified, and the incident it was meant to prevent doesn't happen.

IF WEIGHT FAILS

The same mass that was meant to prevent the incident now increases the force, momentum, and severity of it. A heavier object thrown or swung causes materially more harm than a lighter one would have.

A weight-based strategy has no middle outcome. It either holds completely, or it fails in a way that is worse than if the furniture had never relied on mass in the first place. That's a significant liability exposure for a facility to carry, particularly given the physiological reality set out on the previous page: the conditions under which weight is meant to matter most are the same conditions under which it's least reliable.

There's a second, quieter cost too: staff. Furniture that relies on substantial mass for safety still needs to be repositioned for cleaning, room changes, maintenance, and reconfiguration. Every one of those routine tasks becomes a manual handling risk for the people who work in the facility every day, not just an occasional risk in a crisis.

It's also worth noting that even manufacturers whose furniture leans heavily on mass as a safety mechanism typically still pair it with floor-fixing kits and anti-concealment base plates. That's a tacit admission that weight alone isn't treated as sufficient, even by the products built around it. We'd simply argue for putting the primary safety budget where it actually holds: in the design, not the scale.

Safe by design, not safe by scale

This is why Abecca builds the way we do. We're not chasing a weight number, and we're not going to start. Our safety case rests on eliminating risk at the level of construction, not on betting that risk will never generate enough force to overcome mass.

Solid foam construction, no internal frame

No metal or timber components means no rigid elements that can be broken free, snapped off, or turned into a separate object.

Seam-free surfaces

Eliminates the attachment and concealment points that seams and joins create, rather than managing them after the fact.

Rounded form, no sharp edges or protrusions

Reduces the harm a piece can cause even if it is moved, rather than relying entirely on it staying still.

Genuine mass as a by-product, not a strategy

Solid foam construction naturally carries real weight. We don't disguise that, and we don't market Armadillo® as light. But we also don't engineer for maximum mass as the primary safety mechanism, and we don't ask a facility to rely on it as one.

This is also why our language is deliberate: we describe Armadillo® as **Easy to Reposition**, not lightweight, and not unliftable. It's an honest middle position, and it reflects how we think about safety generally: design out the risk first, and treat everything else, including mass, as a secondary characteristic rather than the headline claim.

There's no real standard here, and that's the actual problem

Weight thresholds haven't become the default because they're the best available measure. They've become the default because, for furniture-specific misuse and weaponisation risk, there isn't a proper measure at all.

Fire performance is well covered: standards like BS 5852 and BS 7177 give the sector a genuine, testable benchmark. Ligature risk has guidance too, from sources such as the NHS's Health Building Notes, the Australasian Health Facilities Guidelines, and Joint Commission expectations in the US. Even that guidance is explicit that anti-ligature is not a binary pass or fail, but a spectrum of risk to be managed. What's missing is the equivalent for furniture as a potential weapon: a consistent, testable methodology that looks at seam integrity, edge and projection risk, fracture and splinter behaviour under force, ligature-point elimination, and controlled mass and leverage, rather than a single kilogram figure treated as a stand-in for all of it.

In the absence of that standard, procurement teams default to the one number every supplier can quote: weight. It's understandable. It's also, we'd argue, measuring the wrong thing well instead of the right thing at all.

A Call to Action

We'd like to help build the standard that doesn't exist yet.

Abecca is proposing to work with clinical leads, corrections and justice stakeholders, architects, and industry bodies across New Zealand and Australia to develop a genuine testing framework for high-risk furniture: one that assesses actual misuse and weaponisation risk (seam integrity, edge behaviour, fracture and splinter resistance, ligature-point elimination, and controlled mass and leverage) rather than defaulting to raw weight as a proxy. We believe the sector deserves a standard as considered as the ones that already exist for fire safety, and we'd rather help build it than keep working around its absence. We're open to starting that conversation with any facility, specifier, or industry body who shares the concern.

Questions worth asking, beyond "how much does it weigh?"

If you're writing or evaluating a tender for high-risk furniture, this is the checklist we'd suggest using instead of, or alongside, a weight threshold.

- Does the construction eliminate internal metal or timber components that could be exposed, broken free, or removed?
- Are surfaces genuinely seam-free, or are seams present and simply reinforced?
- What testing has been done on fracture and splinter behaviour under force, not just static load?
- If this piece were successfully moved or lifted during a crisis, what is the realistic severity of harm it could cause, given its mass and edge profile?
- What is the manual handling burden on staff for routine repositioning, cleaning, and reconfiguration?
- Does the supplier rely on weight as the primary safety claim, or as one characteristic among several design-led safety features?
- Is the product still supplied with floor-fixing or anti-concealment hardware, and if so, what does that imply about how much the supplier trusts weight alone?

None of these questions are difficult to ask in a tender document, and none of them require a new standard to exist first. They simply shift the specification conversation from a single number to the things that actually determine what happens in the room.

Why this matters

Weight thresholds are calculated against calm-state strength, but acute stress measurably increases short-term muscular output and suppresses the pain response that would normally limit exertion. A safety strategy built on immovability is least reliable in exactly the moment it's meant to matter most, and if it fails, the same mass that was meant to protect the room increases the severity of what follows. Design-led safety, seam-free surfaces, no rigid internal components, controlled edge and fracture behaviour, doesn't carry that failure mode.

"Not the only option. Just the best one."

Abecca by Design — Fourth-generation New Zealand and Australian manufacturer since 1952

abeccadesign.com | abeccadesign.com.au
customerservice@abeccadesign.com

