## E. EXECUTIVE SUMMARY

The Mattress Recycling Council (MRC) is a 501(c)(3) organization formed by the mattress industry to operate legislatively mandated recycling programs in several states. MRC contracts with qualified mattress recyclers, who are required to achieve a 75 percent (by weight) recycling rate. Mattress recyclers do this by breaking down inbound mattresses and box springs (together called units), separating out the constituent metals, foams, and other recyclable materials, before baling and transporting them to buyers. However, not all materials that make up a mattress are currently recyclable. This non-recyclable "residue" material is the remaining fraction of the mattress recycling process that is landfilled. It is reported that recyclers in California dispose of over 23 million pounds of residue material each year[1]. Figure E-1 shows a collection of several piles of this residue material.

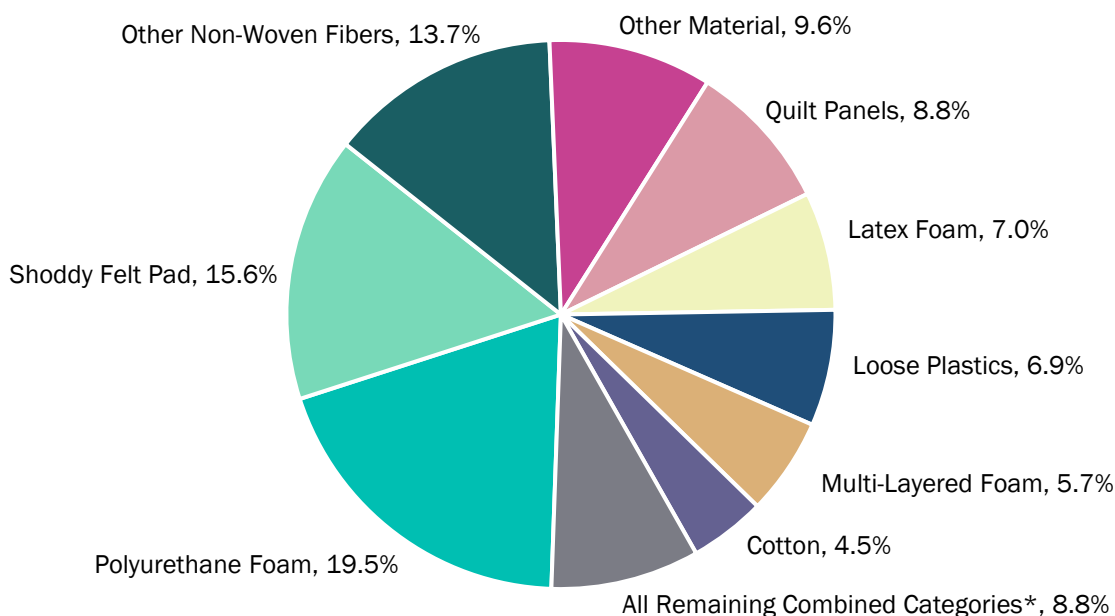**Figure E-1 Mattress Recycling Residue Pile**
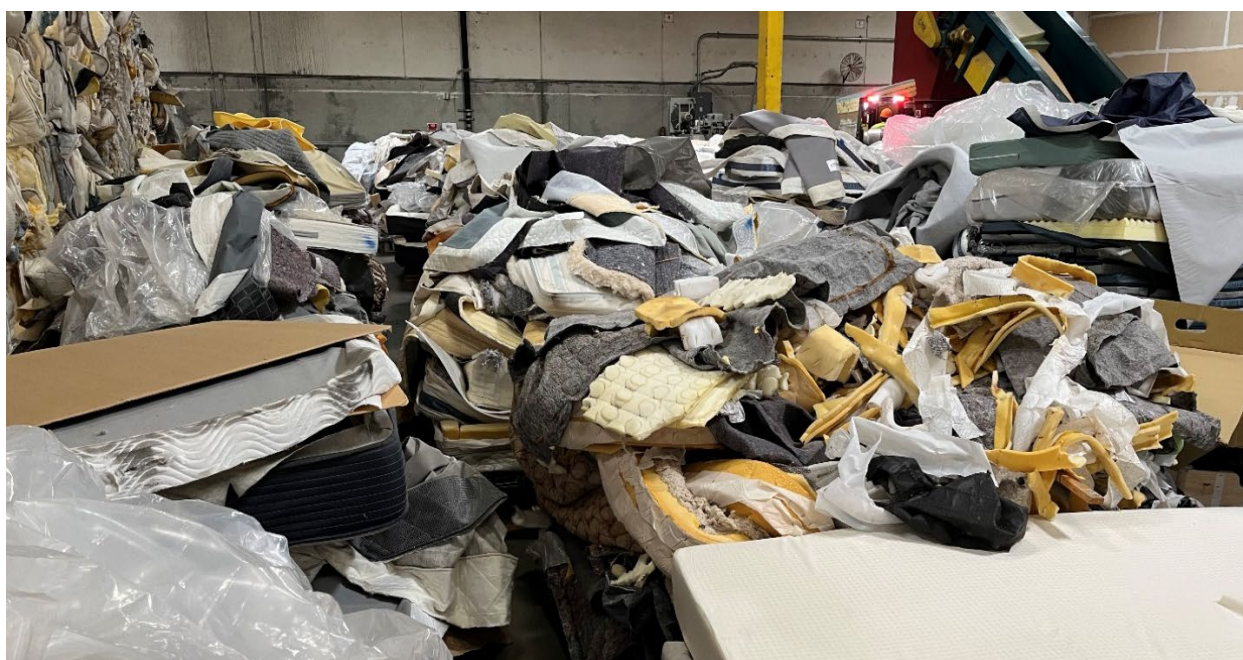
MRC seeks to understand the composition of this residue and opportunities for increased materials recovery. In 2020, MRC contracted with MSW Consultants to perform their first composition analysis of this residue material. In that study, residue from two recyclers collected over two days was sorted and weighed to identify the mass of each material residue category. This data was extrapolated based on MRC's annual report data to provide statewide estimates of the amount landfilled for each residue category. In the current study, MRC and MSW Consultants intend to build on the success of the initial Residue Composition Study, with an updated study designed with the following objectives in mind:

- Refining the previous methodology to acquire higher-fidelity data collection on categories of interest
- Collecting additional data to understand how mattress recycling residues have changed since the previous study

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[1] Mattress Recycling Council California Annual Report 2024

MSW CONSULTANTS

MSW reproduced the methodology of the previous study by sorting 14,465 pounds of residuals at two participating recyclers. Figure E-2 summarizes the residual composition as found in the study. The pie chart is divided into ten slices, nine representing the most prevalent material categories, and a tenth slice, which combines all remaining categories. The top three most prevalent waste categories as a percentage of total waste were polyurethane foam (19.5 percent), shoddy felt pad (15.6 percent), and other non-woven fibers (13.7 percent). Recyclers are disposing of these materials primarily because of a lack of end markets, contamination, or manufacturing methods that impair recycling.

Figure E-2 Composition of Mattress Recycling Residuals

Other Non-Woven Fibers, 13.7%
Other Material, 9.6%
Quilt Panels, 8.8%
Latex Foam, 7.0%
Shoddy Felt Pad, 15.6%
Loose Plastics, 6.9%
Multi-Layered Foam, 5.7%
Cotton, 4.5%
Polyurethane Foam, 19.5%
All Remaining Combined Categories*, 8.8%

*All Remaining Combined Categories is a combination of several material categories, which provide little contribution individually. These categories have been combined here to improve readability of the figure. This includes Cardboard, Fabric Scraps, Polypropylene Fabric, Coconut/Sisal/Plant Fibers, Scrap Metal, Wood, Pocketed Coils and Fines. See Table 2-2 for additional details.

The observed residual composition percentages were then applied to commodity types that were recycled statewide by all MRC contracted recyclers to estimate the capture rate of each commodity. Figure E-3 summarizes these estimated capture rates[2]. It is observed that the current mattress recycling processes are highly successful at capturing steel, wood, quilt & toppers and foam.

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[2]This study uses a different list of material categories than the MRC annual report commodity data, requiring a mapping exercise to allow for the calculation of commodity capture rates (detailed in Section 5 of this report). As a result, all capture rates are reported using MRC annual report categories.

Figure E-3 Implied Commodity Capture Rates in California (2024)

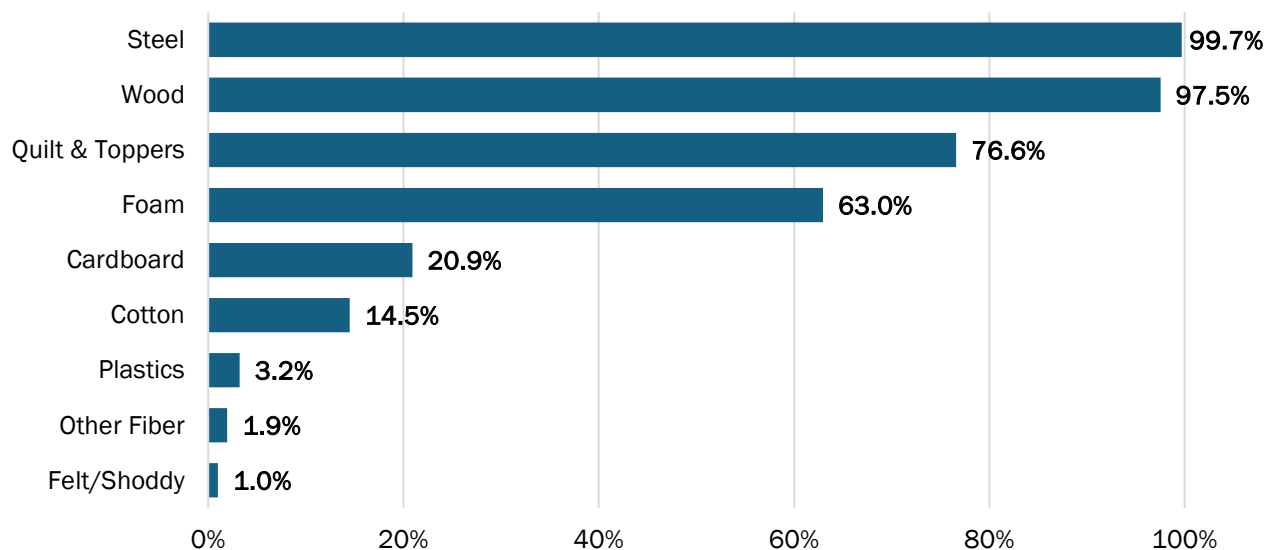| Material	Capture Rate
Steel	99.7%
Wood	97.5%
Quilt & Toppers	76.6%
Foam	63.0%
Cardboard	20.9%
Cotton	14.5%
Plastics	3.2%
Other Fiber	1.9%
Felt/Shoddy	1.0%

Table E-1 illustrates the change between mattress recycling residues found in the 2020 study and the results from those of this latest update. The 2020 study did not have "Polypropylene Fabric" and "Other Non-Woven Fibers" as categories, but instead combined both into "Mixed Non-Woven Fibers". For comparison, the two categories in the 2025 study have been combined into "Mixed Non-Woven Fibers" again in this figure.

Table E-1 Comparison between 2020 Composition Results and 2025 Composition Results

Material Category	2020	2025	Absolute Change	% Change
Polyurethane Foam	10.0%	19.5%	9.5%	95.0%
Shoddy Felt Pad	22.0%	15.6%	-6.3%	-28.9%
Mixed Non-Woven Fibers	19.8%	14.7%	-5.1%	-25.7%
Other Material	2.0%	9.6%	7.6%	375.6%
Quilt Panels	17.3%	8.8%	-8.5%	-49.1%
Latex Foam	3.0%	7.0%	3.9%	130.0%
Loose Plastics	4.8%	6.9%	2.0%	42.1%
Multi-Layered Foam	1.6%	5.7%	4.1%	256.7%
Cotton	6.5%	4.5%	-2.0%	-31.2%
Fines	4.7%	2.3%	-2.4%	-51.8%
Fabric Scraps	3.8%	1.9%	-2.0%	-51.0%
Cardboard	0.1%	1.7%	1.6%	1116.7%
Wood	1.2%	1.1%	-0.1%	-9.3%
Pocketed Coils	0.3%	0.4%	0.0%	2.9%
Coconut/Sisal/Plant Fibers	2.7%	0.3%	-2.4%	-87.9%
Scrap Metal	0.0%	0.1%	0.1%	235.1%
Total	**100.0%**	**100.0%**		