Waste Not

Recycling Our Way to Zero Waste

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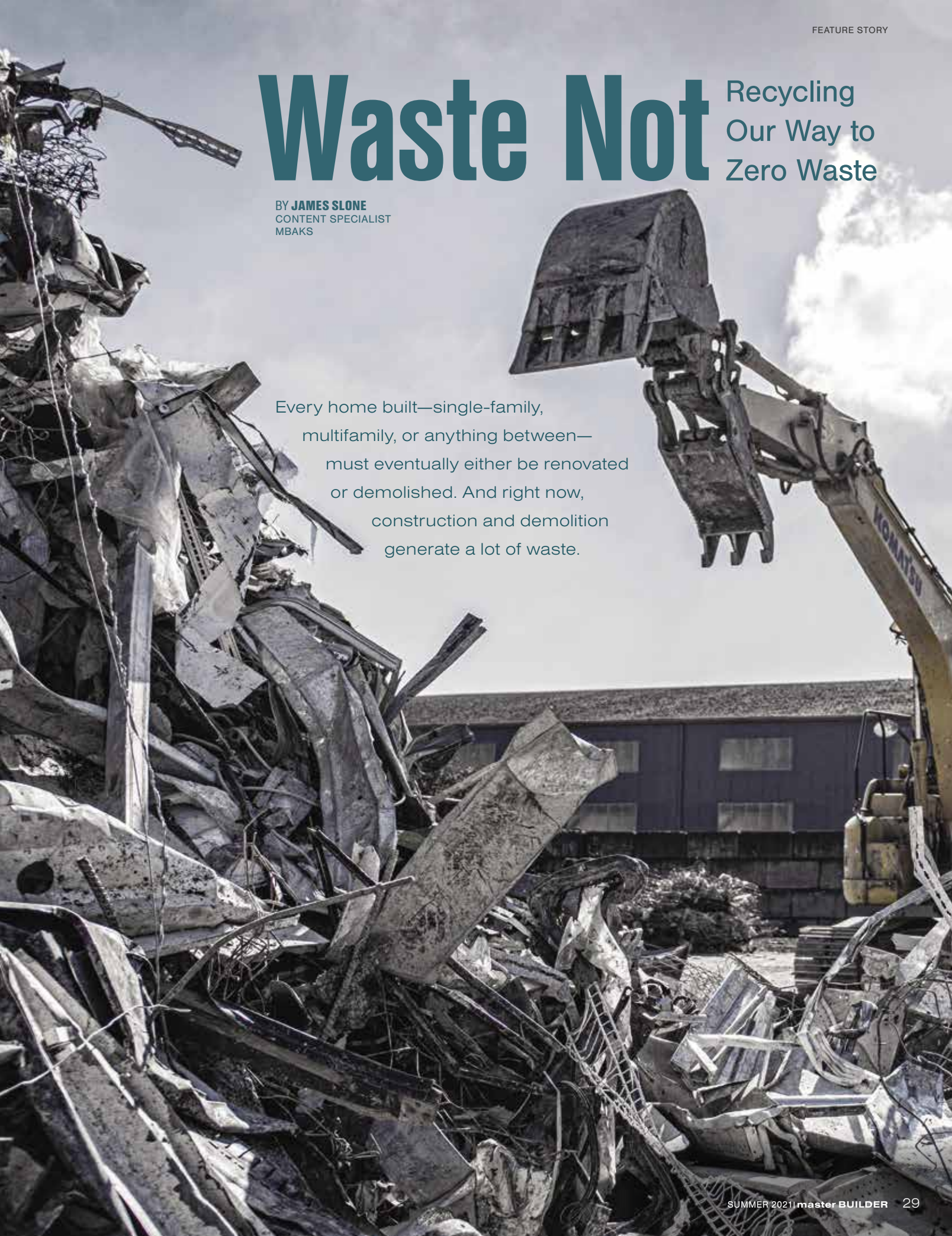

Every home built—single-family, multifamily, or anything between—must eventually either be renovated or demolished. And right now, construction and demolition generate a lot of waste.

According to the EPA, demolition generates 90% of all construction waste in the United States. In 2018, construction and demolition (C&D) materials accounted for 600 million tons of waste in the United States—more than twice the amount of municipal solid waste—with 143 million tons going to landfills. That's a lot of garbage.

Which brings us to what happens to the rest. To reduce the amount of C&D material headed to the landfill or the incinerator, your alternatives are source reduction, salvaging, reusing, or recycling. Ah, recycling. It sounds so simple, but it's a complex and expensive process for a homebuilder of any size to take on.

What you need is a C&D recycler.

DTG Recycle and the Quest for Zero Landfill

To find out more about what goes into C&D recycling, I got in touch with the experts at DTG, the largest commercial recycler of C&D, industrial, and manufacturing waste in the Pacific Northwest. CEO Tom Vaughn is straight to the point. "I've never met a ton of debris that I didn't want to recycle."

He explains DTG's approach by comparing waste streams to watersheds. "The origination points of waste are small tributaries that make their way to larger branches, which all flow to a common outlet. Our goal is to become that outlet. … People can recycle a lot more material than they may realize, and our goal is to capture as much of that as we can."

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TOM VAUGHN, DTG Recycle

Hannah Hemingson, DTG's sustainability manger, tells me that aiming for a zero-waste future is the only way to achieve true sustainability in a consumer culture. "We're in constant pursuit of keeping recyclable materials out of our landfills and recycling or repurposing whatever we can."

Where Materials Go to Live Again

The journey begins at the jobsite, where customers sort materials into specific containers (multi-stream) or mix them in a single container (single stream). Ryan Jackman, director of marketing, says the company works with thousands of customers each year on the collection and hauling side of the business.

"While we get a fair share of one-off customers, most are repeat customers, either with ongoing services or as frequent visitors. We've diversified our transportation fleet to offer as many methods for collection to our customers as possible." DTG customers can choose from 10–55 cubic yard roll-off dumpsters, 3-yard "Big Blue Bags" collected with a grapple truck, or hauling their materials to one of DTG's nine facilities themselves or with the help of a third-party hauler.

When materials arrive, they're pre-sorted on the floor with heavy equipment before being loaded onto a conveyor belt where staff pick through it all by hand. Wood, metal, cardboard, drywall, plastic, concrete, asphalt, and carpet. They're all recyclable.

DTG works closely with vendors to redistribute materials to builders, manufacturers, and agribusiness. They partner with paper mills to turn recovered wood and cardboard into more paper products. Scrap metal and wire are sorted and shipped to local scrap metal companies who convert it to new metal products like rebar. When it comes to drywall, once the metal and paper backing are removed, what remains is processed into gypsum powder for manufacturing and fertilizer in local agriculture.

Built Green and the Lifecycle of Materials

Built Green, MBAKS' green home certification program, offers several new credits under the Materials Efficiency section of the 2021 Built Green handbook to encourage builders to consider the full lifecycle of materials. This highlights an increased awareness that the materials a company sources—and what happens to them at the end of their lifecycle—is just as important as sustainable building practices. Learn more on page 36 or at **builtgreen.net/certification**

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Plastic products are sent out to be similarly transformed. Most of the carpet DTG recovers is made from nylon and polyethylene terephthalate (PET), a low-cost polyester fiber made from recycled plastic containers and bottles. The nylon is sorted, baled, and shipped to vendors to create new nylon products. PET is shredded and used as an absorbent at stormwater decant and petroleum reclaiming facilities.

Harder-to-recycle plastics are processed into GigaFuel, a low-carbon alternative fuel used by local cement manufacturers. Recovered wood is also sold as fuel to paper mills and biomass operations, reducing their dependence on the power grid; a byproduct of that fuel can be used to filter zinc and copper out of stormwater runoff.

Crushed asphalt and concrete are used as an alternative to crushed rock in residential and commercial applications such as

DTG has been working with Washington State University on a patent-pending process for turning gypsum into building blocks called Drywall Waste Blocks that can be reemployed in construction projects. The blocks are fireproof, offer ten times more insulation than standard concrete blocks, and are half as heavy.

road bases, site stabilization, and backfill material. With similar specifications to virgin material, recycled asphalt and concrete can cut construction costs.

Zero Waste Starts at the Source

Tom Vaughn explains that while some jurisdictions have regulatory frameworks to support recycling building materials, a lot of support comes from companies and investors. "It's important to stakeholders and owners to know they're occupying a building constructed in the most sustainable way possible."

The scale of DTG's work is already enormous, typically processing more than 2,000 tons per day, and demand for such services is only growing. But even with companies like DTG working at epic scales to zero out waste, the biggest hurdle remains original materials.

Sustainably sourced building products have their own drawbacks, John Martin, associate general counsel for DTG, points out. Many recycled products are themselves unrecyclable.

"The challenge with new materials," he explains, "is finding end markets for them. Sometimes green building products cannot be economically recycled due to the materials used or the fact that multiple types of materials are bonded together, making it extremely difficult to find a second use for them."

Martin argues that the construction, manufacturing, and retail industries need to use materials and packaging that are more readily recyclable. "The biggest problem that recycling has is that everyone uses whatever they want, then expect the recyclers to figure out how to turn it into something new."

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TOM VAUGHN, DTG Recycle

The key to zero waste? "More thought needs to go into designing products for recycling and reuse on the front end, instead of waiting until they're disposed of to figure out how to recycle them."

As with most solutions, it starts at the source.

A Builder's Perspective

DTG is an industrial-scale operation working with many vendors and processing a staggering amount of material. But what does a focus on recycled materials look like to a builder or remodeler at the project scale?

Award-winning Seattle-based company Model Remodel focuses on high-quality renovations, additions, and new single-family homes. Owner Jason Legat is as focused on materials as DTG. His team works with local businesses to find vintage items to salvage for clients, as well as stores specializing in sustainable materials like cork flooring.

Acknowledging the environmental impact of building, Model Remodel reduces waste and uses green products whenever possible. Legat explains, "At the beginning of a project, we ask: What will we reuse? What can be repurposed? What recycling companies will provide the most benefit to the planet?"

For Legat, sustainable building materials and style go hand in hand. "Think about a fireplace mantle. You can easily buy new lumber to create it, or you could source a unique mantle made from an old structural support beam. It's functional, but it also has character and a story."

The same goes for materials like reclaimed tiles or tiles with recycled content. "Between those two choices there are many, many options to find something that works best for your design." Using green materials effectively requires research and working with local craftspeople, but it's worth it to build something amazing.

The line separating form and function, Legat argues, has become blurred. "Many sustainable design elements are inherently beautiful because they're natural. Green design can influence the livability and attractiveness of a space." And recycling and salvaging is a big part of it.

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>
> **JASON LEGAT,** Model Remodel

PHOTO: CINDY APPLE

A recent Built-Green 4-Star home renovation by Model Remodel in Kirkland. Designer Cat Schmidt incorporated several sustainable design elements, including salvaged, Sustainable Forestry Initiative certified Douglas fir floors.