



Construction Material Source Separation Case Study

Structure Tone

Structure Tone is a commercial construction manager operating in Boston that demonstrates strong construction preparation and material collection practices. In 2022, [Structure Tone](#) embarked on an interior renovation project for Schrödinger, a life sciences research company with offices in Cambridge. Schrödinger aimed to create a new space for their Boston-based team, and the renovation is an example of typical tenant interior projects around the City of Boston.

The Massachusetts Department of Environmental Protection (MassDEP) [2030 Solid Waste Master Plan](#) establishes a goal to reduce disposal of construction and demolition (C&D) materials in the state by 260,000 tons annually by 2030, more than double the current C&D recycling tonnage. Structure Tone aims to support this goal by modeling waste diversion processes that can be replicated at other construction projects to keep C&D materials from going for disposal, reduce carbon emissions, and save money.

At A Glance

- Structure Tone applied best practices for on-site source separation of construction and demolition materials during an office space renovation project in Cambridge.
- Keys to success included careful planning, thorough staff training, creative on-site material collection strategies, and close coordination with their recycling hauler.
- This project resulted in the collection of 6.78 tons of source separated material for recycling.



CONTACT US to make an impact at your organization:

info@recyclingworksma.com | www.recyclingworksma.com | (888) 254-5525

RecyclingWorks in Massachusetts is a recycling assistance program funded by the Massachusetts Department of Environmental Protection and delivered under contract by the Center for EcoTechnology that helps businesses and institutions reduce waste and maximize recycling, reuse, and food recovery opportunities.

Waste Management Planning

When Structure Tone was awarded the Schrödinger project, they immediately began to develop a construction waste management plan, outlining potential material streams for reuse and recycling and establishing on-site handling strategies. Waste management plans can help determine in advance what materials will be generated and identify specific waste diversion opportunities for those materials, be it through reuse, source separation, or mixed C&D recycling.

For this interior renovation project, Structure Tone recognized that gypsum wallboard would be a significant material stream and planned accordingly. To maximize waste diversion, and manage disposal costs, Structure Tone decided to collect gypsum wallboard, cardboard, and metal (studs) separately rather than in a mixed container. They also considered collecting carpet and ceiling tiles

separately for recycling, but this was ultimately not feasible due to a lack of appropriate recycling outlets.

Staff Training

“We’ve found that with proper training, signage, and communication, we’re able to lose no efficiency.”

– Michael Orbank, Sustainability Manager, Structure Tone

On all projects, including the one at Schrödinger, Structure Tone staff training begins almost immediately upon arriving at the job site. Any others coming onto the job site, including staff and vendors, are given a tour and overview by the foreman to illustrate how materials will be collected on-site, how to move this material to the dumpster, and when. A clear understanding of the process and timing is important to ensure efficiency and proper sorting.

For inspiration, download an [Example Waste Management Plan Template \(xlsx\)](#) developed by RecyclingWorks in Massachusetts (RecyclingWorks)



Project Challenges

As with many similar tenant interior projects, the Schrödinger renovation presented several challenges. Construction took place in a high-rise building, which required movement of materials to the loading dock in a freight elevator. On sites with more space available, multiple dumpsters can often be staged at once; however, on this project they had access to the loading dock only at certain times and could not leave dumpsters staged overnight. As such, careful coordination between the construction team moving materials and the hauler bringing a dumpster for live loading was critical.

On-Site Logistics

“Logistics is oftentimes the lynchpin for program acceptance, and by making it work for the space and the people, field staff embrace it.”

–Michael Orbank, Sustainability Manager, Structure Tone

The accompanying video case study shows staff collecting clean streams of cardboard, gypsum wallboard, and metal. Structure Tone labeled the hampers clearly, indicating different material streams with color-coded signage attached directly to the hamper using binder clips. This method allowed the signage to be moved to different hampers as needed. To maximize space in hampers and minimize time moving more material, staff used two pieces of wallboard inserted vertically on two sides of the cart to fit even more material when moving to the dumpster on-site at scheduled times. Structure Tone coordinated closely with their hauler about timing and which material they needed picked up that day. Using just-in-time waste hauling and coordination, the field team worked with the building owner to quickly and efficiently use tight loading dock schedules, and staff were prepared to live load materials straight from the hampers within the allocated timeframe.

Examples of alternative signage/methods of labeling collection containers include:

- 1) Color coding the hampers themselves
- 2) Using a flag system similarly to a golf flag that is color coded
- 3) Labeling the open top/frontload containers with signage

Mixed C&D Debris



YES

Wood
Metal
Cardboard
Shingles



NO

Appliances
Furniture
Batteries
Fluorescent light bulbs



RecyclingWorks developed signage templates for mixed C&D and source separated materials (shown above), which can be modified to include your organization's logo, the materials you encounter on-site, and specifications for materials accepted by your recycler. These signs can also be translated into additional languages upon request.

Contact RecyclingWorks at (888) 254-5525 or info@recyclingworksma.com



Project Outcomes

Through this project, Structure Tone reaffirmed the importance of their staff training to ensure successful source separation. Additionally, staff recognized that source separation ultimately does not require additional time or labor.

“We’re not seeing additional costs come from [source separation]. We’re seeing it as another way to increase efficiency on site and work towards a better construction site.” – Michael Orbank, Sustainability Manager, Structure Tone

Structure Tone diverted 6.78 tons of source separated C&D material from disposal during this renovation project, including:

- 2.78 tons of gypsum wallboard
- 3.45 tons of metal
- 0.55 tons of cardboard

The source separated gypsum wallboard and approximately 17 tons of mixed C&D material was sent to Republic Services’ Transfer Stations in Howard and Peabody for processing, and source separated metal was sent to Mattuchio Scrap Metal. Structure Tone was also able to recover wooden pallets for reuse.

Building Up Deconstruction

Structure Tone observes that interior tenant spaces in the Boston area are renovated every 5 years on average. With many of the existing materials in very good condition, there is ample opportunity for deconstruction and furniture or building material reuse.

While this renovation project presented limited opportunities for deconstruction, looking to the future, Structure Tone envisions a mindset shift where demolition contractors start to consider themselves as deconstruction contractors. See this [RecyclingWorks blog post](#) for tips to seamlessly incorporate deconstruction into your next project and check out these RecyclingWorks Resources:

[C&D Materials Guidance](#) | [Waste Bans & Compliance](#) | [Construction and Building Materials Pages](#) | [Find-A-Recycler Database](#)

Connect With RecyclingWorks:

Contact RecyclingWorks to learn more about [free technical assistance](#) opportunities.

info@recyclingworksma.com | recyclingworksma.com | (888) 254-5525

