

MassDEP C&D Subcommittee Fall-2023 Webinar Series (3 of 3) Gypsum Wallboard Markets

Via Zoom Webinar

December 14, 2023

9:00 AM to 11:00 AM



Welcome to the Fall-2023 Webinar Series on C&D Materials Market Development (Wood, Shingles, Gypsum)

- Today's webinar is the third in a series of three monthly meetings of the MassDEP C&D Subcommittee Stakeholder Group focused on C&D Materials Market Development.
- Each meeting explores optimization of existing markets and development of potential future markets.
- **October 31 re: Wood Markets:** [Meeting Materials](#)
- **November 16 re: Asphalt Shingle Markets:** [Meeting Materials](#)
- **December 14 re: Gypsum Wallboard Markets:** [Meeting Materials Forthcoming](#)
 - Sequel to Jan-2023 NEWMOA/NERC gypsum webinar series: [Recordings of Gypsum Wallboard Webinars #1 \(1/09\) and #2 \(1/24\)](#)

67 Registrants as of 12/14/2023

C&D Processors	Recyclers/Brokers	Construction/Svc.	Transporters	Consultants/Architects
Casella	ASR Systems	Columbia Const.	Albreada Refuse	JTC
Cavossa	Beneficial Reuse	Costello Dismantl.	All State Waste	South Mountain
Republic Services	Boston Building Resources	STO Group	Commonwealth Waste	TetraTech
ReSource Waste Serv.	New West Gypsum	Turner Const.		
Waste Mgt./RSR	USA Gypsum			
WIN Waste Innov.				
Manufacturers	Trade Assoc.	Municipalities	State Agencies	NGOs/Academia
Armstrong Ceiling	CDRA	Augusta	CT	Circular Colorado
Certainteed/Saint-Gobin	Gypsum Assoc.	Boston	MA	Northeast Recycling Council (NERC)
National Gypsum		Bourne	ME	Northeast Waste Mgt. Offs. Assoc. (NEWMOA)
USG		NYC	NH	Recycling Works/CET
			RI	WSU Sch. Design & Construction
			VT	

Agenda



Welcome

MassDEP C&D Annual Report and Waste Characterization Data (Mike Elliott, MassDEP)

Overview of existing and future gypsum recycling markets (Ms. Susan Hines, Gypsum Association)

USG Gypsum Panel Take-Back Recycle Program (Mr. Kyle Flondor, Wallboard Product Manager, USG)

Existing recycling market serving Massachusetts (Mr. Terry Weaver, President of USA Gypsum)

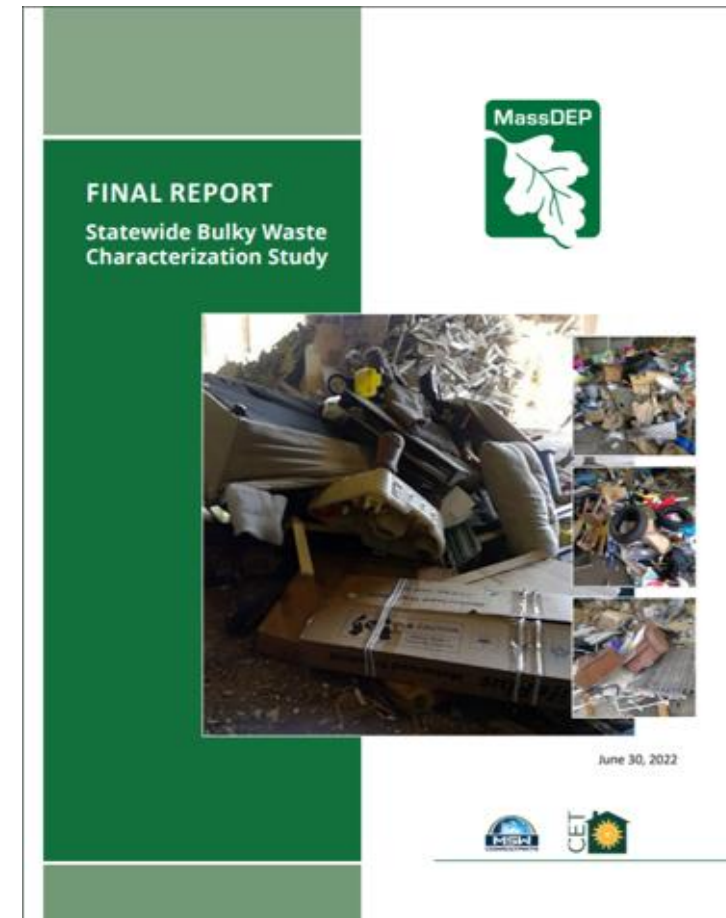
Product development using waste gypsum (Mr. David Drake, Washington State University, School of Design and Construction)

Commercial Clean Gypsum Wallboard Waste Diversion: The First Step Towards Circular C&D Decarbonization (Mr. Michael Orbank, Sustainability Manager at STO-Group)

Announcements

Estimated Potential Gypsum Wallboard Quantities using the 2022 Bulky Waste Study

- 2022 Statewide Bulky Waste Characterization Study (June 2022)
- Surveyed 5 facilities across the state in May 2022
- Applied waste characterization data to C&D Facility Annual Report data to estimate potentially available gypsum wallboard (GWB) quantities



<https://www.mass.gov/doc/statewide-bulky-waste-characterization-study-june-2022/download>

C&D and Bulky Waste Composition Analysis: Results of 2022 BW Characterization Study

Table 4-4 Detailed C&D Composition

Material Category	Mean Percent	Margin of Error	Material Category	Mean Percent	Margin of Error
Paper	1.4%	0.7%	C&D Debris	52.8%	6.8%
Uncoated OCC	0.5%	0.2%	Asphalt Pavement	0.0%	0.0%
Other Recyclable Paper	0.3%	0.2%	Brick/Block	2.6%	2.3%
Non-Recoverable Paper	0.6%	0.4%	Concrete	0.6%	1.0%
Plastic	1.2%	0.3%	Gypsum wallboard - CLEAN	1.0%	1.2%
Recyclable Plastic Containers	0.0%	0.0%	Gypsum wallboard - USED	6.6%	3.0%
Clean Film Plastic	0.1%	0.0%	Asphalt Shingles	13.4%	8.1%
5-gal Buckets and Plastic Toters	0.2%	0.1%	Carpet & Carpet Padding	1.6%	1.6%
Durable Plastics (Not Furniture)	0.1%	0.1%	Rock/Gravel/Dirt/Sand	0.4%	0.6%
Non-Recoverable Plastics	0.7%	0.3%	Porcelain/Plumbing Fixtures	5.8%	3.4%
Metal	6.1%	2.4%	Other C&D Materials	20.7%	5.0%
Recyclable Metal Containers	0.0%	0.0%	Furniture	0.3%	0.3%
Large Appliances (white goods)	0.0%	0.0%	Predominantly Wood	0.1%	0.2%
Ferrous/Non Ferrous Scrap	6.1%	2.4%	Predominantly Plastic	0.0%	0.0%
Glass	0.7%	0.5%	Predominantly Metal	0.0%	0.0%
Recyclable Glass Containers	0.0%	0.1%	Predominantly Upholstered	0.0%	0.0%
Non-Recoverable Glass	0.6%	0.4%	Predominantly Mixed	0.2%	0.2%
Organics	1.0%	1.3%	Mattresses	0.0%	0.0%
Land Clearing	0.0%	0.0%	Box Springs	0.0%	0.0%
Yard Waste/Green Waste	0.6%	0.7%	Other Bulky	0.9%	0.6%
Other Organics	0.4%	0.7%	CRTs	0.0%	0.0%
Wood	31.3%	5.1%	Vehicle Batteries	0.0%	0.0%
Untreated Dimensional Lumber	4.9%	1.9%	Tires	0.0%	0.0%
Engineered Wood	9.3%	2.1%	Textiles	0.3%	0.2%
Wood Pallets/Crates/Spools	2.4%	1.3%	E-Waste	0.0%	0.1%
Painted/Stained Wood	5.0%	1.2%	Other Bulky Materials	0.6%	0.5%
Treated Wood	7.5%	3.0%	Mixed MSW	4.3%	2.1%
Cabinetry/Countertops/Doors	2.2%	1.1%	Bagged and Loose MSW	4.2%	2.0%
			HHW/Universal Waste	0.1%	0.1%
Grand Total				100%	
No. of Samples				45	

Table 4-2 Detailed Bulky Waste Composition

Material Category	Mean Percent	Margin of Error	Est. Annual Tons	Material Category	Mean Percent	Margin of Error	Est. Annual Tons
Paper	3.1%	0.5%	9,608	C&D Debris	10.0%	3.0%	30,943
Uncoated OCC	1.4%	0.2%	4,328	Asphalt Pavement		Not Found	0
Other Recyclable Paper	0.8%	0.2%	2,374	Brick/Block	0.1%	0.2%	336
Non-Recoverable Paper	0.9%	0.2%	2,905	Concrete		Not Found	0
Plastic	3.3%	0.4%	10,182	Gypsum wallboard - CLEAN	0.1%	0.1%	205
Recyclable Plastic Containers	0.2%	0.0%	571	Gypsum wallboard - USED	1.1%	0.7%	3,431
Clean Film Plastic	0.0%	0.0%	152	Asphalt Shingles	0.6%	0.6%	1,880
5-gal Buckets and Plastic Toters	0.3%	0.1%	815	Carpet & Carpet Padding	3.6%	1.0%	11,134
Durable Plastics (Not Furniture)	1.2%	0.2%	3,671	Rock/Gravel/Dirt/Sand	1.0%	1.6%	2,961
Non-Recoverable Plastics	1.6%	0.2%	4,973	Porcelain/Plumbing Fixtures	1.5%	1.0%	4,501
Metal	8.2%	1.5%	25,144	Other C&D Materials	2.1%	1.2%	6,495
Recyclable Metal Containers	0.0%	0.0%	140	Furniture	34.1%	5.3%	105,131
Large Appliances (white goods)	0.3%	0.2%	876	Predominantly Wood	17.2%	3.3%	53,050
Ferrous/Non Ferrous Scrap	7.8%	1.4%	24,127	Predominantly Plastic	0.7%	0.2%	2,133
Glass	1.3%	0.5%	3,908	Predominantly Metal	3.5%	1.6%	10,732
Recyclable Glass Containers	0.1%	0.1%	214	Predominantly Upholstered	1.3%	0.4%	4,029
Non-Recoverable Glass	1.2%	0.5%	3,694	Predominantly Mixed	9.4%	4.0%	28,877
Organics	3.6%	2.7%	10,974	Mattresses	1.2%	0.3%	3,555
Land Clearing	0.0%	0.0%	75	Box Springs	0.9%	0.3%	2,755
Yard Waste/Green Waste	1.6%	1.4%	4,951	Other Bulky	5.4%	1.3%	16,731
Other Organics	1.9%	1.9%	5,948	CRTs	0.3%	0.3%	920
Wood	18.6%	2.4%	57,308	Vehicle Batteries		Not Found	0
Untreated Dimensional Lumber	1.8%	0.3%	5,667	Tires	0.3%	0.2%	803
Engineered Wood	6.3%	1.3%	19,344	Textiles	3.7%	1.1%	11,366
Wood Pallets/Crates/Spools	1.7%	0.7%	5,346	E-Waste	0.4%	0.4%	1,334
Painted/Stained Wood	2.8%	0.7%	8,756	Other Bulky Materials	0.7%	0.3%	2,308
Treated Wood	3.1%	0.6%	9,610	Mixed MSW	12.4%	1.9%	38,198
Cabinetry/Countertops/Doors	2.8%	0.7%	8,585	Bagged and Loose MSW	12.4%	1.9%	38,152
				HHW/Universal Waste	0.0%	0.0%	46
Grand Total				100%			308,127
				No. of Samples	116		

Note: Est. Annual Tons shown in Table 4-2 are based on CY2021 AR Data

C&D and Bulky Waste Compositional Analysis: Conversion of Mean % to Weight (for CY2022)

	CY2022 AR Data (tons)	Clean GWB %Mean 2022 BW Study	Estimated Potential Available Clean GWB (tons)	Used GWB %Mean 2022 BW Study	Estimated Potential Available Used GWB (tons)
C&D Waste Loads	1,207,641	1.0%	12,076	6.6%	79,704
Bulky Waste Loads	177,097	0.1%	177	1.1%	1,948
Sum Total			12,254		81,652

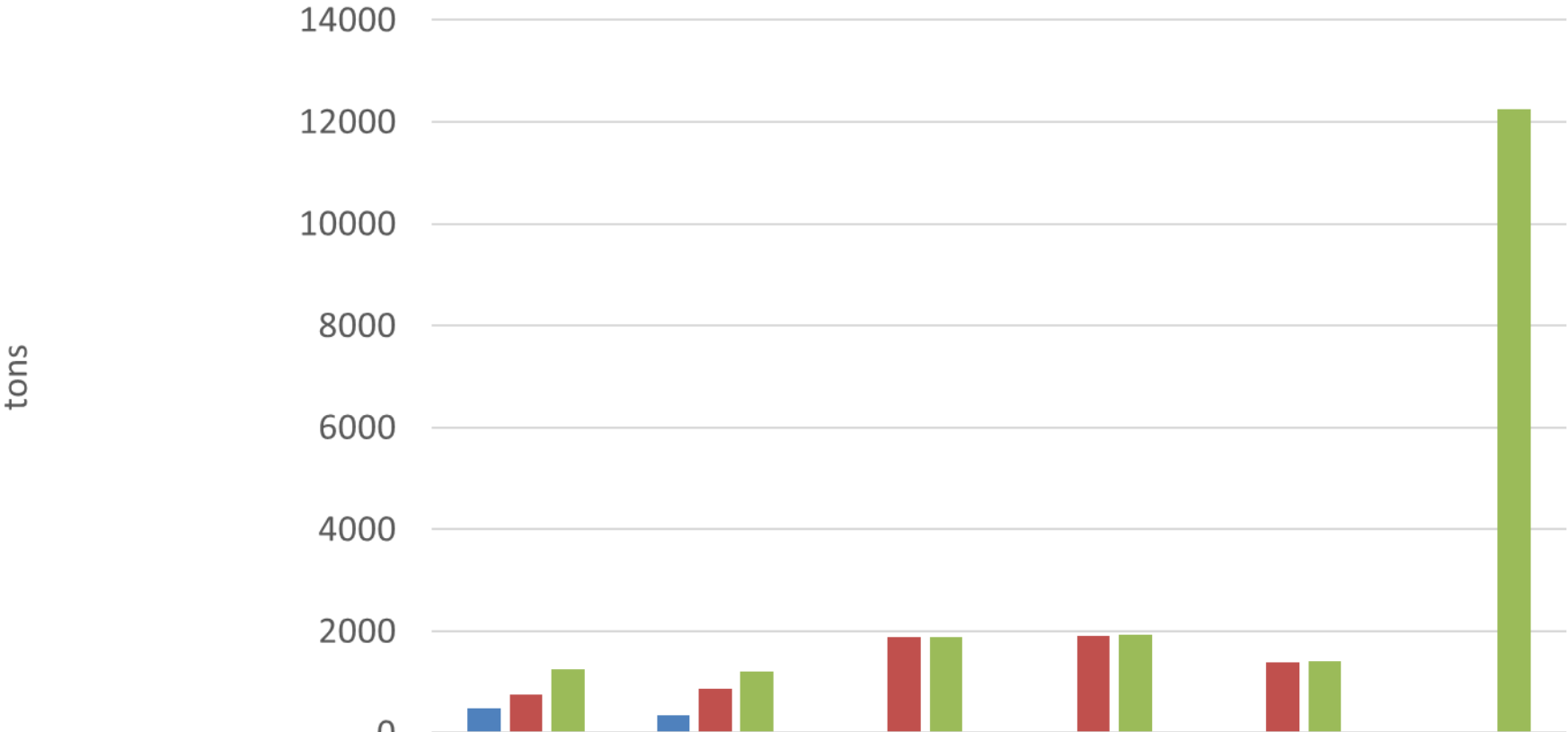
CY2022 C&D Annual Report Summary Data: <https://www.mass.gov/doc/2022-annual-cd-report-data-summary/download>

CY2022 Total C&D Waste Loads Processed = C&D Accepted – Transferred = 1,545,305t – 337,663t = 1,207,641t

CY2022 Total Bulky Waste Loads Accepted = 177,097t

Estimated potential available gypsum wallboard only considers loads accepted at 29 C&D Handling Facilities, not all solid waste facilities (e.g., excludes MSW Transfer Stations, MSW Combustors, and MSW Landfills); therefore, potentially available gypsum wallboard is likely a conservatively low estimate.

Clean Gypsum Wallboard Recycling Trend Chart 2018-2022



	CY2018	CY2019	CY2020	CY2021	CY2022	CY2022 Potential
Other	494	344	7	19	29	
Agricultural Applications	755	868	1886	1902	1377	
Total	1249	1212	1893	1921	1406	12,254

Other Agricultural Applications Total

Overview of existing and future gypsum recycling markets

Ms. Susan Hines, Gypsum Association

USG Gypsum Panel Take-Back Recycle Program

Mr. Kyle Flondor, Wallboard Product Manager, USG

Existing recycling market serving Massachusetts and Northeast

Mr. Terry Weaver, President of USA Gypsum

Product development using waste gypsum

Mr. David Drake, Washington State University, School of Design and Construction

Growing construction industry desire for decarbonization and waste diversion

Mr. Michael Orbank, Sustainability Manager at STO-Group

Announcements

EBC 18th Annual C&D Materials Management Summit

- Doubletree Hotel, Westborough, MA
- In-person
- **Friday, Jan. 26, 2024**
- 9:00 am – 3:00 pm



<https://ebcne.org/event/ebc-18th-annual-construction-and-demolition-materials-management-summit/>

Biden-Harris Administration Announces \$100 Million in Grants to Support Manufacturers of Cleaner Construction Materials as Part of Investing in America Agenda

<https://www.epa.gov/newsreleases/biden-harris-administration-announces-100-million-grants-support-manufacturers-cleaner>

- This [new grant program](#)—Reducing Embodied Greenhouse Gas Emissions for Construction Materials and Products—will **help businesses develop robust Environmental Product Declarations (EPDs)** which disclose environmental impacts across the life of a product. Embodied greenhouse gas (GHG) emissions—also called embodied carbon—refers to the amount of GHG emissions associated with the extraction, production, transport, and manufacturing stages of a product's life. EPDs facilitate the reliable tracking of emissions associated with construction materials and products to inform procurement decisions.
- EPA will **provide grants to businesses that manufacture, remanufacture, and refurbish construction materials** and products for developing and verifying EPDs, and to states, Tribes, and nonprofit organizations that will support such businesses. The EPDs generated through this grant program will make it easier for state and local governments—and other institutional buyers—to ensure the construction projects they fund are using low carbon construction materials.
- The deadline to apply to this grant competition is January 8, 2024. EPA requests the submittal of an optional Notice of Intent to apply by October 27, 2023, by sending an email to embodiedcarbon@epa.gov.
- Eligible entities include:
 - Businesses that manufacture, remanufacture, and refurbish construction materials and products, and
 - States, Tribes, and nonprofit organizations that will support such businesses.

MassDEP is hiring!

- Consistent with a campaign pledge, the Healey-Driscoll Administration has allocated 1% of the state's operating budget for climate and the environment.
- This translates to about 80 new vacancies at MassDEP across all programs
- Follow the MassCareers webpage if you are interested in starting a new career at MassDEP:
<https://massanf.taleo.net/careersection/ex/jobsearch.ftl>

Any other business to
discuss?

For More Information:

Point of Contact:

Mike Elliott

Asbestos/C&D Program Coordinator

MassDEP – Bureau of Air & Waste

100 Cambridge Street, Suite 900

Boston, MA 02114

michael.elliott@mass.gov

617-571-0824 (work cell)