

A stack of several sheets of drywall, some of which are broken and layered, showing the internal structure. The sheets are light-colored with a slightly textured surface.

# Recycling Gypsum Wallboard

*NEWMOA / NERC States*



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# U.S. Gypsum Supply 2021

Domestic supply down  
imports up

Source USGS

Source (metric tons)	2020	2021	%
Mined	21,200,000	22,400,000	+6%
Imported	6,030,000	6,520,000	+8%
Synthetic (FGD)	14,400,000	13,000,000	-10%
Total Supply	41,600,000	41,900,000	+0.8%

# Recycled Gypsum Market Drivers



- ▶ Coal Fired Energy Production
- ▶ Transportation to Market
- ▶ Waste Disposal Cost & Regulation





U.S. Generates 13.5 Million  
Tons of New & Demo Drywall  
Scraps

(source CDRA 2014)



# Gypsum Drywall sold New England and Mid Atlantic

3.23 million ton (USGS) - PA = 2.58 ? Million ton estimated

**15% waste =  
387,000 ton**



**Demolition?  
(Deconstruction)  
No reliable data**



# NEWMOA States Estimated Board Sales & Scrap Generated

- ▶ Recycled 1.3% ?  
2022 YTD 11/30



State	Population	Population %	Tons board	15% scrap
Ct	3,565,000	8%	204,518	30,678
MA	7,126,000	16%	408,806	61,321
ME	1,372,000	3%	78,709	11,806
NH	1,390,000	3%	79,742	11,961
NJ	9,388,000	21%	538,573	80,786
NY	20,366,000	45%	1,168,362	175,254
RI	1,106,000	2%	63,449	9,517
VT	647,000	1%	37,117	5,568
Total	44,960,000	100%	2,579,276.00	386,891

NEWMOA 2010 estimate for Northeast 720,000



## Drywall Scrap Outlets Since 2010

- ▶ Gypsum Recycling America  
2006-2010
- ▶ USA Gypsum since 1998 Serving  
NEWMOA states since 2010
- ▶ Washington State population 7.9  
million gypsum recovered 54,980  
tons 2018 (*State of Washington*)





# 98.7%? Disposal Options



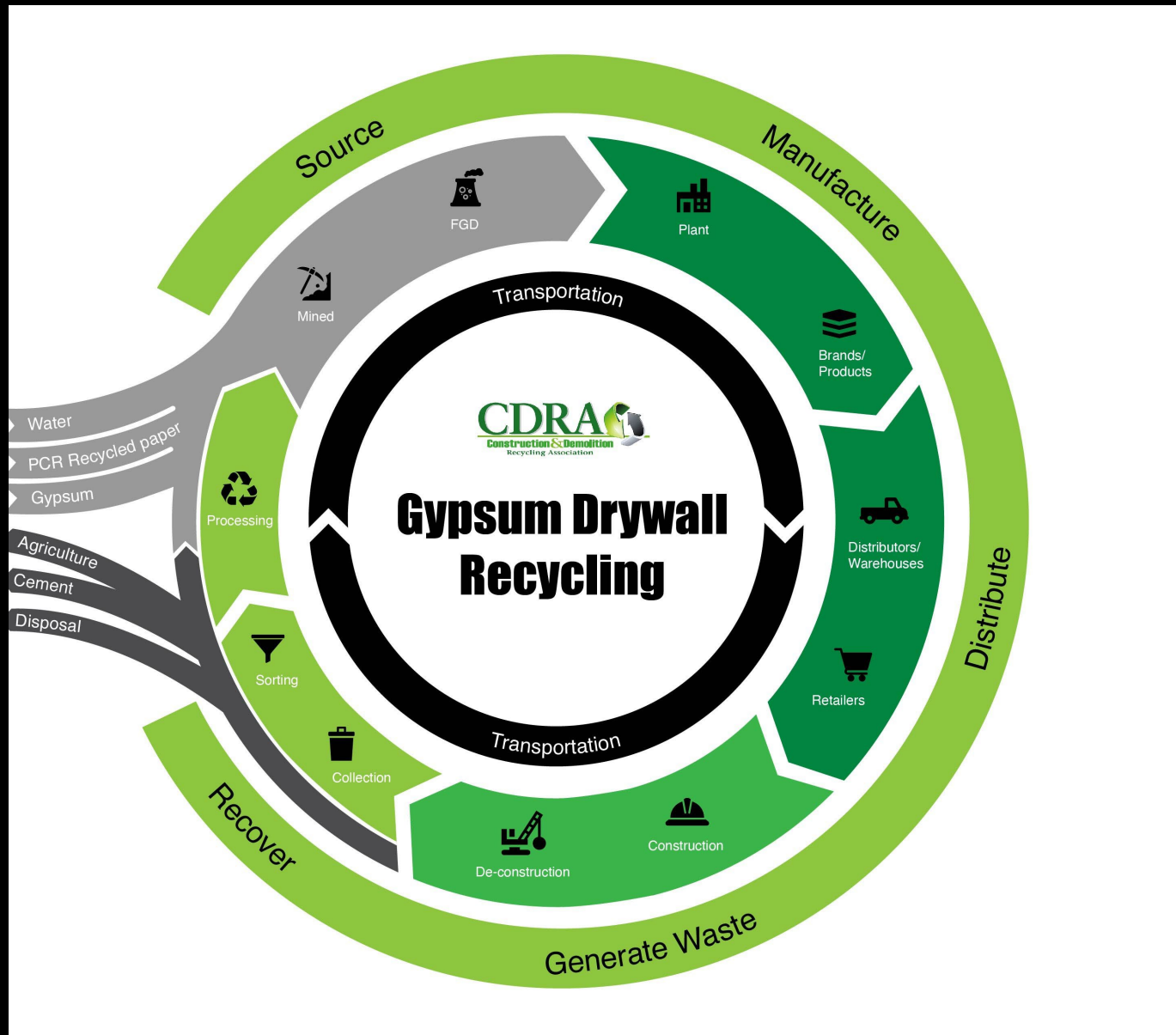


# NEWMOA 2010 “Policy Options White Paper Promoting Greater Recycling of Gypsum Wallboard from Construction and Demolition (C&D) Projects in the Northeast”



Reinventing the wheel?

- ▶ Ban disposal
- ▶ Require recycling in state financed projects
- ▶ Require waste management planning
- ▶ Common terminology & reporting
- ▶ Implement extended producer responsibility





**THE BEST MANAGEMENT PRACTICES FOR THE  
RECYCLING OF GYPSUM WASTE FROM  
DECONSTRUCTION TO MANUFACTURING**

January 3, 2023

Prepared for:  
The Construction and Demolition Recycling Association (CDRA)  
Gypsum Recycling Committee

Prepared by:  
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# BMP for Recycling Gypsum Waste

CDRA Gypsum Recycling Committee  
releases comprehensive guideline

# New Board Type and Volume Sold



Regular	Type X	Other	Total
15,500	8,130	3,670	27,300

Source USGS 2021 - Per thousand Sq.ft.

Other = 13.44%

## Specialty Board Recycling Challenges

- Anti microbial ingredients
- Fiberglass facing and mesh





## Demolition Gypsum Drywall *Deconstruction Methods Required*

### ▶ **Concerns**

- ▶ Asbestos in joint compounds
- ▶ Lead based paints
- ▶ Contamination
- ▶ Market / Regulatory

## Mixed C&D Processing & Transfer

- ▶ Drywall gets crushed & cannot be picked on sort belts
- ▶ Requires Positive Sort before processing
- ▶ Need space & labor
- ▶ Safety Issues





# Source Separation to Transfer Options





## U.S. Gypsum Market *mmt*

Cement	4.4
Agriculture & Misc.	15.5
New Drywall	22.8

*Supply is adequate but unevenly distributed. (USGS 2021)*



# Processing for Closed Loop

- ▶ Considerations
  - ▶ Paper Content
  - ▶ Particle size
  - ▶ Specialty board
  - ▶ Analytical data
  - ▶ Demo material generally not accepted





# Agricultural & Misc. Markets

## ▶ Considerations

▶ Particle size

▶ Moisture

▶ Analytic data

▶ Regulatory

▶ License

▶ Seasonal



# Cement & Masonry

- ▶ Considerations
  - ▶ Paper content
  - ▶ Particle size
  - ▶ Moisture
  - ▶ Analytics







# Paper Facing

## *Gypsum & Starch Residual*

### ▶ Markets

- ▶ Bedding
- ▶ Composting
- ▶ Solidification
- ▶ Ceiling tile
- ▶ Cellulose insulation

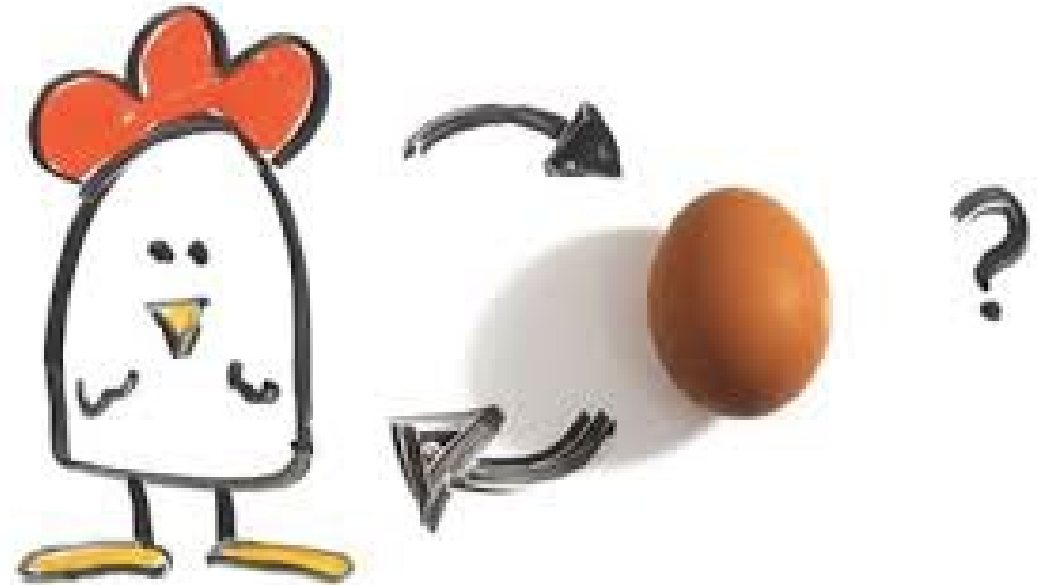
### ▶ Considerations

- ▶ Contamination
- ▶ Specialty board facing
- ▶ Demo board paint
- ▶ Particle sizing

# Market Challenges

## *Recycling Volume vs Market requirements*

- ▶ Steady volume
- ▶ Consistent material
- ▶ Drywall manufacturers typical 500k ton
- ▶ Cement plants typical 45k ton
- ▶ Agriculture small but seasonal



# The Next Decade?

“The years just **pass like trains**, I wave but they don't slow down”

....*Steve Wilson*

