

Construction & Demolition Materials

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How Much C&D Is Out There?

- Original 1997 EPA Estimate of Building-Related C&D Was 136 Million Tons
- Left Out Road and Bridge
- 2004 EPA Estimate was 170 Million Tons
- Tried To Update And Include A Road and Bridge Estimate, Failed
- WBJ estimated 143.5 Million Tons in 2008
- CMRA Estimates More Than 350 Million Tons
- New Methodology, 600 Million+

How Much C&D Is Recycled?

- GOK
- CMRA 2004 Survey Showed 140 Million Tons of Concrete Recycled
- 28 Million Tons of Mixed C&D
- WBJ Estimated 40.2 Million Tons in 2008
- USGS Tracking Producers' Recycled Aggregate
- Asphalt 150 Million Tons

Who is Recycling It?

- Mixed C&D
 - Almost Exclusively Privately Held
- Concrete/Asphalt
 - Contractor: Road, Demolition, Excavating
 - Natural Aggregate Producers

How Is It Recycled?









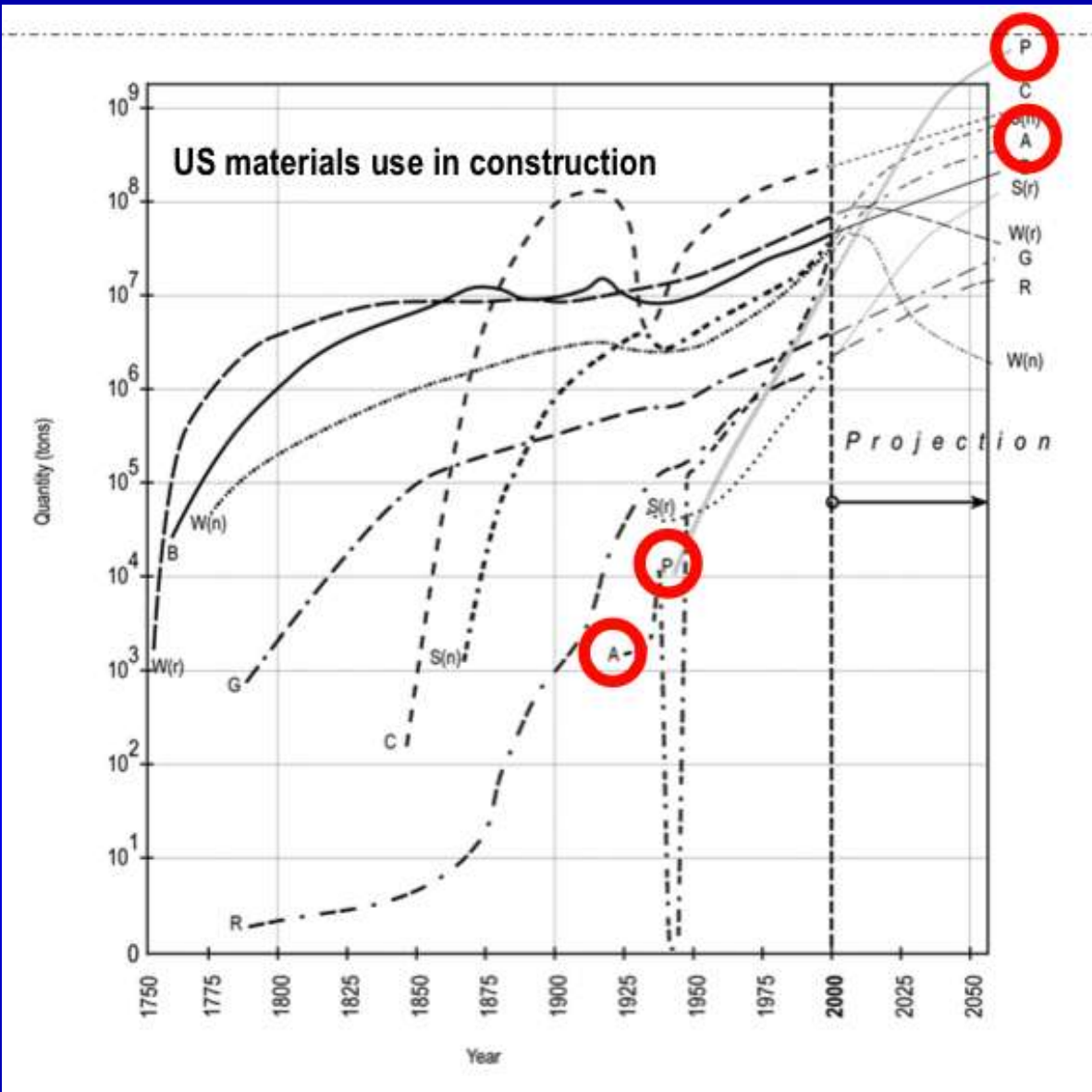


Markets

- Concrete/Asphalt
- Gypsum
- Asphalt Shingles
- Wood
- C&D Fines
- Metals
- OCC
- Plastics

- A: aluminum
- B: brick
- C: concrete
- G: glass
- P: polymers
- R: copper
- S(n): steel, non residential
- S(r): steel
- W(n): wood, non-residential
- W(r): wood, residential

Sources: various



US materials use in construction

www.concreterecycling.org



Barriers To Use

- Constituent Questions
- Economics
- Stubbornness
- pH Runoff
- 140 Million Tons Annually

www.drywallrecycling.org



Barriers To Use

- Economics/FGD
- Plentiful
- Regulator Reluctance
- Contaminants
- Difficult Material To Recycle

www.shinglerecycling.org



Barriers To Use

- Questions On Contaminants
- Asbestos, PAHs
- Regulator Reluctance/Overkill
- Difficult Material To Process
- Economics Can Be Very Favorable

Wood Recycling



Barriers To Use

- Lack Of Value-Added Outlets
- Regional Markets
- Regulations and Legislation
- Contaminants
- GHG, Stack Emissions

Carbon Neutral Fuel

- **C&D derived biomass as a fuel and alternative energy source is recommended because wood is carbon neutral**
 - Wood, as a biogenic source of carbon takes in carbon dioxide during its growth, making it a carbon neutral energy source when combusted
 - For greenhouse gas counting purposes, the carbon dioxide emissions from wood are not counted (as compared with non biogenic sources such as fossil fuels)

Metals

- Of Course
- Ferrous and Non-ferrous
- Seen A Drop Off From Demolition Material
- Where The Money Is

C&D Fines

- Unavoidable Part of Demolition and Transportation
- Usually 20% to 30%
- Almost All Used As ADC
- Is It Recycling?
- Issues

Pro-Recycling Regulations

- Massachusetts Disposal Ban
 - Asphalt, Concrete, Brick, Metals, OCC, Wood
 - Considering Adding Gypsum, Shingles
 - At Least 12 Mechanized Facilities
 - Concern About Enforcement, Regulations
- California AB 939
 - SB 1374
 - Considers ADC Recycling
 - Counts Green Waste As ADC

Pro-Recycling Regulations

- B.C. Gypsum Disposal Ban
- Permitting Crusher, Not Site
- Chicago Ordinance
- San Jose SCCD Program
- Use Recycled Incentives
 - California
 - Florida Solid Waste Definition

Anti-Recycling Regulations

- AQMDs/Taxes
- New Hampshire C&D Wood Fuel Ban
- New Jersey Soil Cleanliness Requirements
- Paint on Concrete--Washington, Missouri
- Flow Control/Franchises
 - Florida
 - Illinois
 - Washington State

Trends

- Tighter Regulations and Permitting, Including Required C&D Programs
- More Facilities, Big and Small
- Green Highways Program
- Abatement For Drywall

Green Building/LEED

- Recycling Credits One Of Most Used
- 1 Point 50%, 2 Points 75%, 3 possible
- ADC, Wood Fuel Count Toward Recycling
- Lots of Fraud
- Reuse One of Least Used Points
- Move Toward Tightening Recycling Credits
- Plan To Increase Reuse Points

Increasing C&D Recycling Rates

- Market Development: Wood, Drywall
- Municipality Road Specifications
- Remove Recyclable C&D From Solid Waste Definitions
- Common Sense



CMRA

Construction Materials Recycling Association

CMRA

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