

Dismantling an American Mill

Daniel Costello

KHL World Demolition:
Demolition Conference Turkey
March 7, 2013



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The Plan



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Anatomy of the Structure

Plymouth Cordage Mill #2

Built: 1899

Area: 300,000 sqft

Location: Plymouth, MA

Construction: Wood structural beams and decking, brick walls, concrete slabs, silos and equipment pedestals

Challenges: Antique lumber required special handling, some was extremely oil saturated



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History



For 100 years, Plymouth Cordage Co. was one of the premier ropemakers in the world



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History



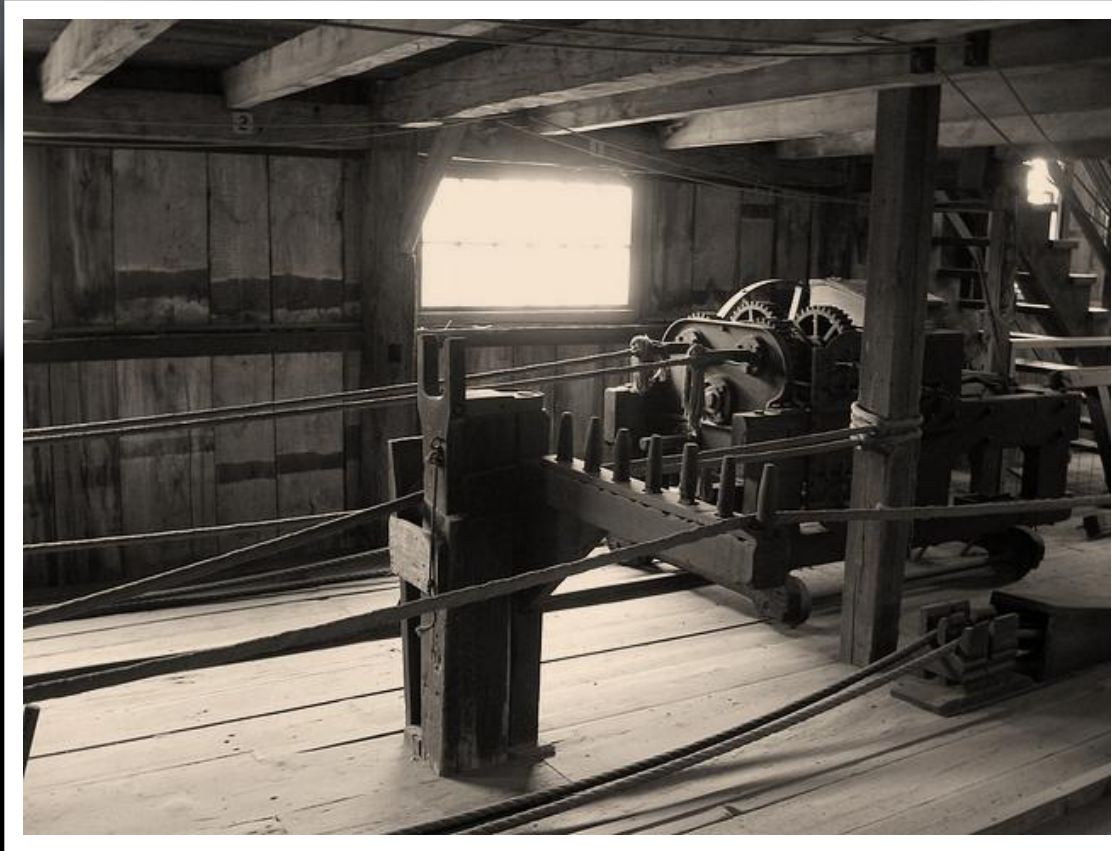
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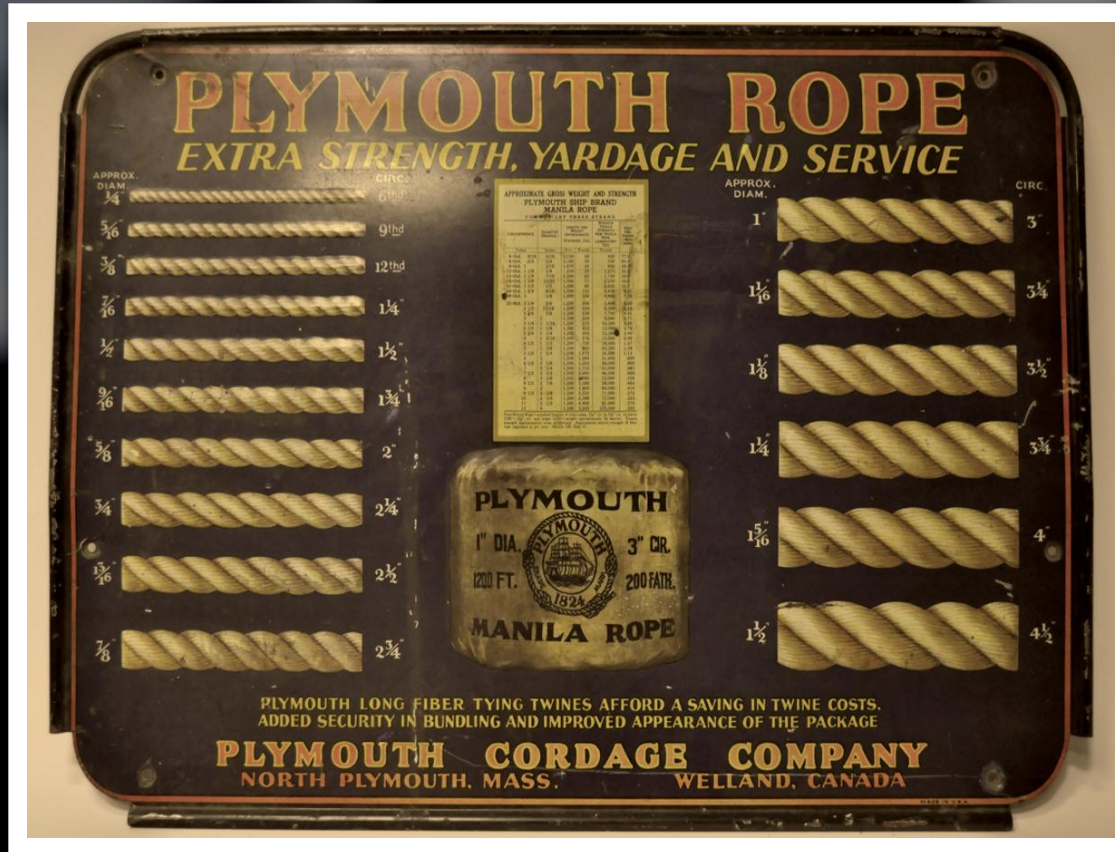
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When the brick walls started to fail, the ownership group looked to demolition as a way to recycle the valuable components of the property – including the underlying land



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Antique Lumber



Antique lumber enjoys a high value on the international market. If it is high quality and handled properly it can be worth nearly as much as steel

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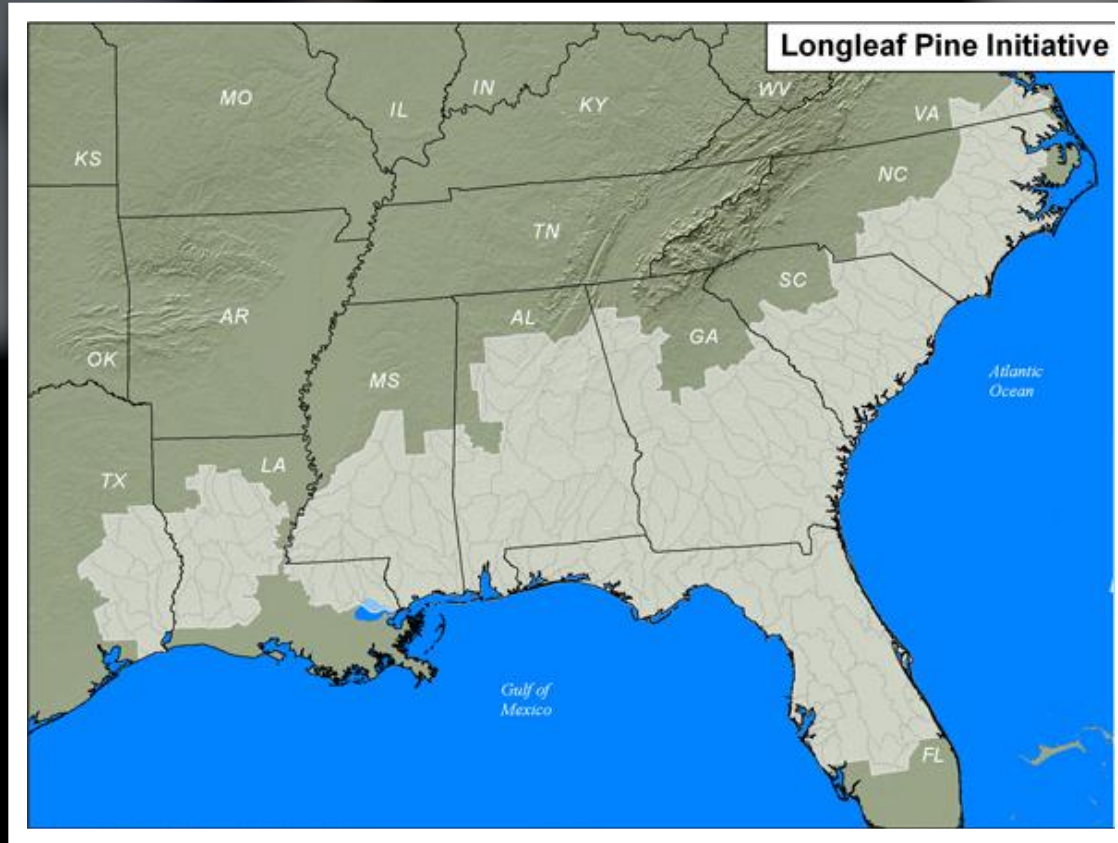
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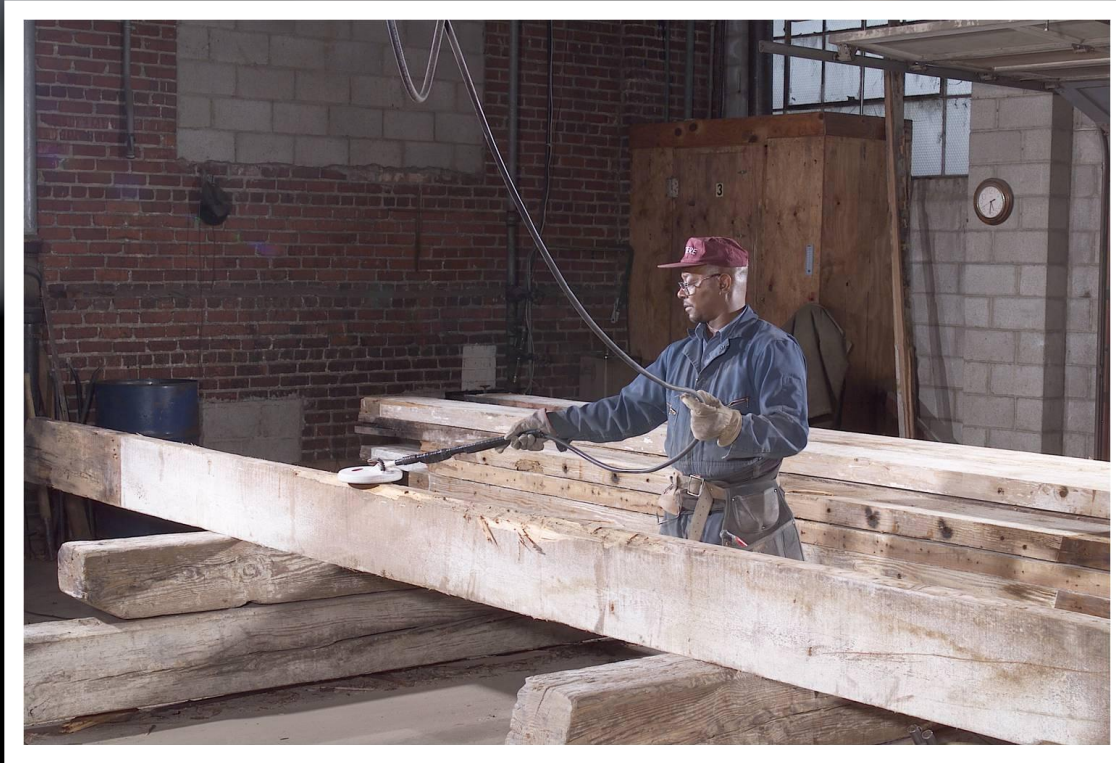
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Challenges



The major economic challenge for this project was finding a disposal alternative for the large quantity of excessively oil stained, and thus un-reclaimable, structural timber



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Challenges



The solution proved to be on-site manufacturing of a boiler-ready biomass fuel created from otherwise unsalable lumber



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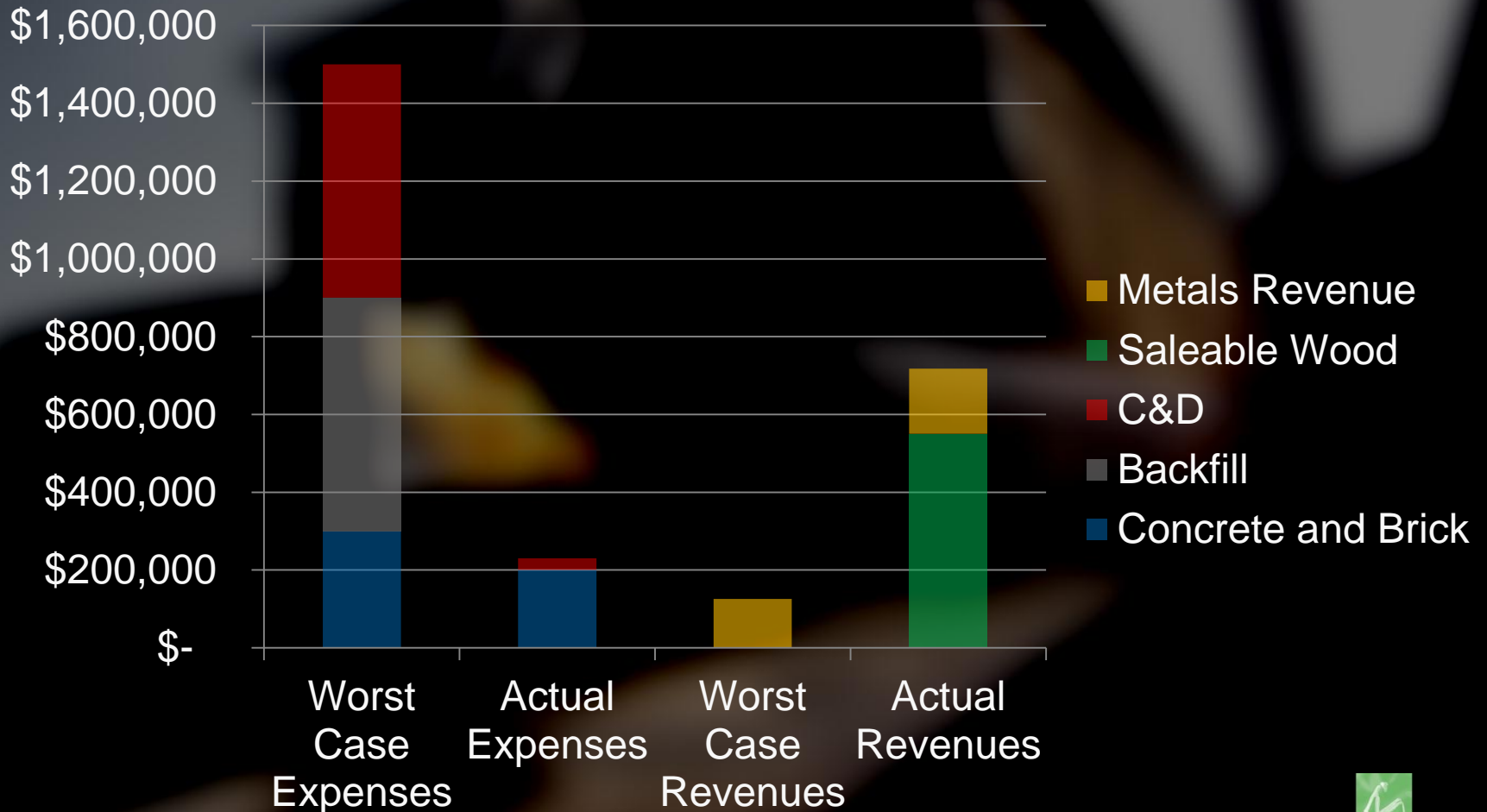
Material Evaluation

Material	Mass
Concrete	5,000 tons
Brick	15,000 tons
Steel	1,150 tons
Reclaimed Lumber	4,500 tons
Wood derived biomass fuel	3,000 tons
C&D	400 tons



The Plan

Expenses vs. Revenues



Tools



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Tools

Equipment Selection



- Equipment and attachment selection is important
- Mechanization removes personnel from dangerous situations



Equipment Selection

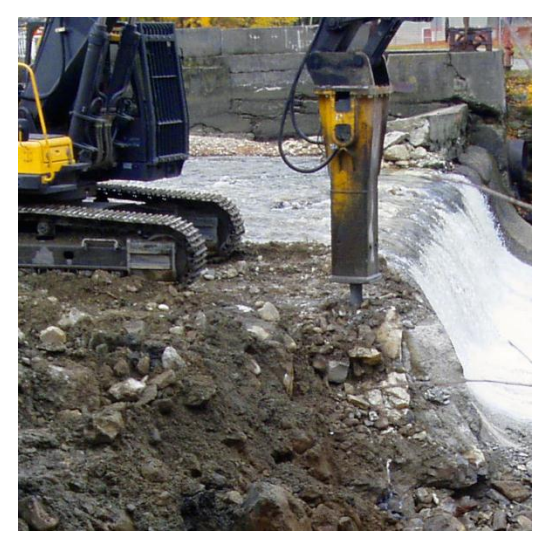
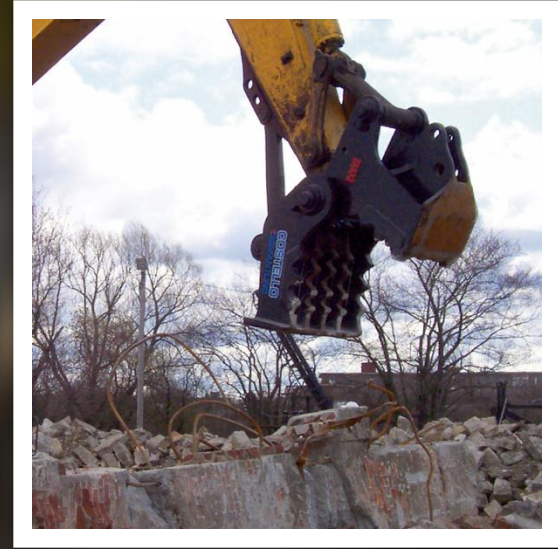
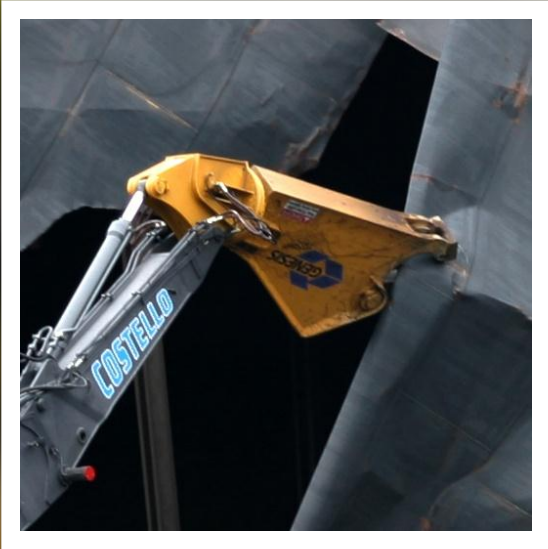
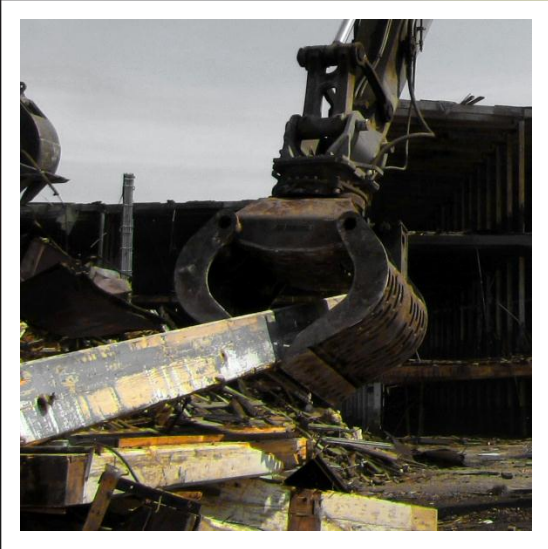
Tools



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Attachments

Tools



Salvage

Tools

- Knowledge of your material stream
- Understanding of consumer needs
- Know how to be a better provider of quality product that is easy and beneficial for your consumer to buy



Tools

Source Separation

- The key to cost effective recycling is demolition with source separation and material upgrading in mind
- When economical, remove difficult to manage materials prior to full demolition: carpet, fiberglass insulation, gypsum products, treated wood
- These materials can contaminate recycling streams



Specifications



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Specifications

Metals

- Specifications provide the rules and language of commodity trading
- Commodity specifications have their roots in the Bronze and Iron Age
- Buyers and sellers universally conduct their business using this system



Specifications



- Many specifications have not been developed to address a wide variety of feedstocks



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Specifications



Institute of
Scrap Recycling
Industries, Inc.

Voice of the Recycling Industry

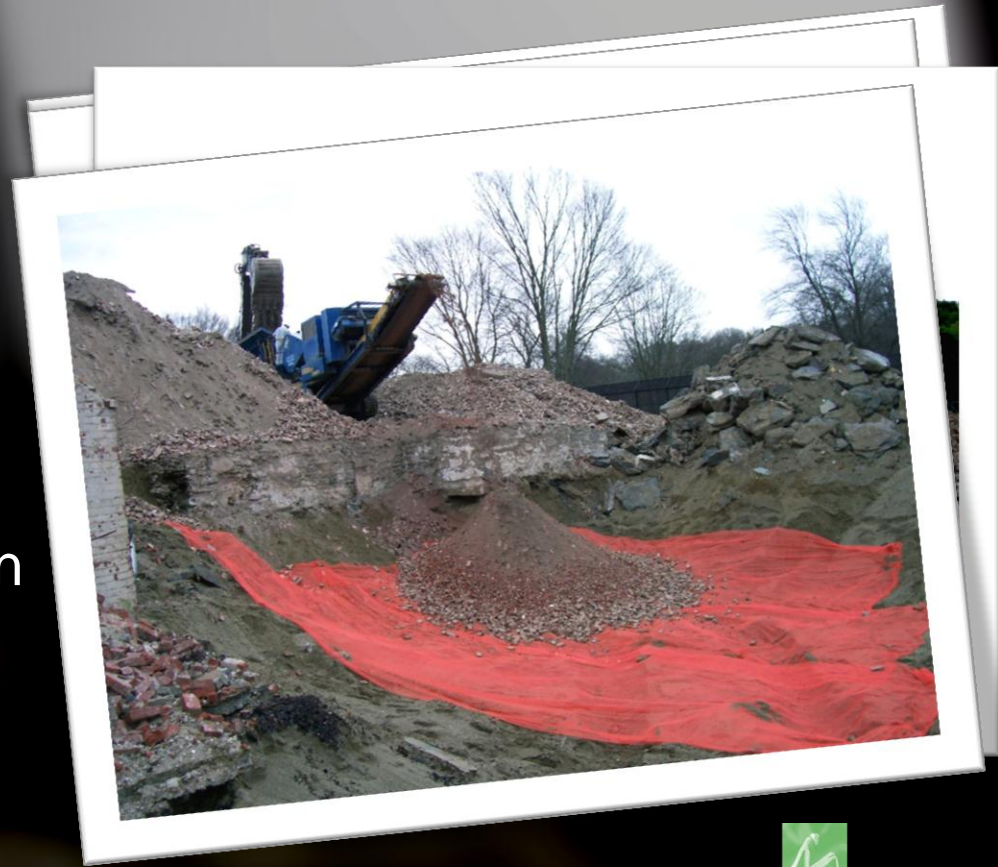
Voice of the Recycling Industry



**TURKISH
IRON & STEEL
PRODUCERS
ASSOCIATION**

Brick and Concrete Specifications

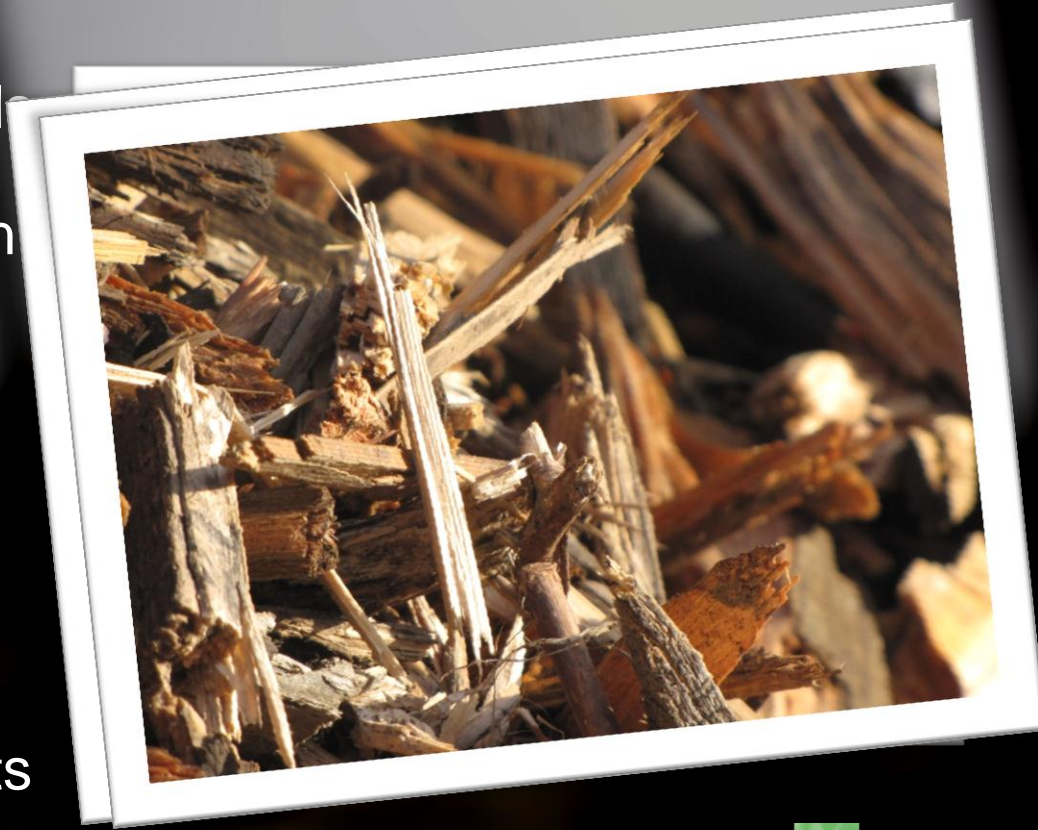
- Processed concrete or brick can replace virgin stone or gravel in the right applications
- Positive environmental impact of onsite beneficial use is significant
- Size and characteristics of finished product is based on project applications



C and D Material

Specifications

- When economical, remove difficult to manage material prior to full demolition: carpet, fiberglass insulation, gypsum products, treated wood
- These materials can contaminate recycling streams
- In a wood heavy building, design the demolition plan to isolate wood components



Specifications



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Conclusion



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Conclusion

Before



- Become students of the demolition industry



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Conclusion

During



- Become students of the demolition industry
- Create and participate in trade associations



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Conclusion

After



- Become students of the demolition industry
- Create and participate in trade associations
- The most valuable commodity recovered by demolition products is the land underneath the building to be demolished



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