

# WOOD UTILIZATION BEST MANAGEMENT PRACTICES

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### **About Delta Institute**

*Delta Institute is a catalyst for environmental sustainability and economic development throughout the Great Lakes region. Delta works in partnership with business, government and communities in the Great Lakes region to create and implement innovative, market-driven solutions that build environmental resilience, economic vitality and healthy communities. Visit online at <http://www.delta-institute.org>.*

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# WOOD UTILIZATION BEST MANAGEMENT PRACTICES



From tree-lined streets to parks and forest preserves, urban forests add great value to our quality of life as city dwellers. Unfortunately, storm damage and invasive species are threatening the vitality of many trees throughout our urban forests. While these damaged trees need to be removed and can no longer provide environmental benefit to the community, there are a number of opportunities for these trees to continue to add value to our communities.

## INTRODUCTION

Urban wood is a term used to describe all wood harvested from trees in urban and suburban areas and small towns rather than from forests. Reclaiming and using urban wood is known as wood utilization. Wood utilization includes any wood reuse from mulch to firewood to lumber. Infestation from invasive species, such as emerald borer (EAB), Asian long-horned beetles, gypsy moths, and thousand canker disease has required the removal of millions of infested trees each year in the Great Lakes region.<sup>(1)</sup> Though many of the infested trees are currently discarded and sent to landfill, the opportunities for acquiring value from infested, felled, or damaged trees are diverse and plentiful.

Benefits of wood utilization include:

- Recovering the costs of the removal of damaged trees
- Reducing tree waste disposal volumes and avoiding tipping fees
- Reducing harvesting pressures on natural forests
- Supporting local economies
- Reducing carbon emissions
- Educating the public about the value of their trees
- Contributing to global and local community sustainability

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<sup>1</sup> Wood Utilization Options for Urban Trees Infested by Invasive Species, [http://www.fs.fed.us/research/publications/fpl/fpl\\_2012\\_brashaw001.pdf](http://www.fs.fed.us/research/publications/fpl/fpl_2012_brashaw001.pdf)

This guide to Urban Wood Utilization Best Management Practices (BMPs) aims to provide guidance to those groups engaged in wood utilization, including tree care companies, practicing arborists, foresters, local governments (municipalities, counties, park districts), land managers, homeowners, and anyone who may need to specify tree management standards for plans or contracts.

The BMPs presented complement the draft ANSI A300 Part 11 standard -- Urban Forest Products produced by the American National Standards Institute (ANSI) secretariat, the Tree Care Industry Association (TCIA). For more information on TCIA and ANSI standards, please visit <http://tcia.org/business/ansi-a300-standards>.

Urban wood BMPs and industry standards are intended to support quality tree care practices, while promoting the use of urban wood products with adequate guidance. This BMP language applies to trees being harvested in urban and suburban landscapes. The included BMP Q&A can be used as a guide when considering urban wood management contracts and specifications -- see sample contract language on page 5.

## LAND MANAGERS, FORESTERS, & HOMEOWNERS

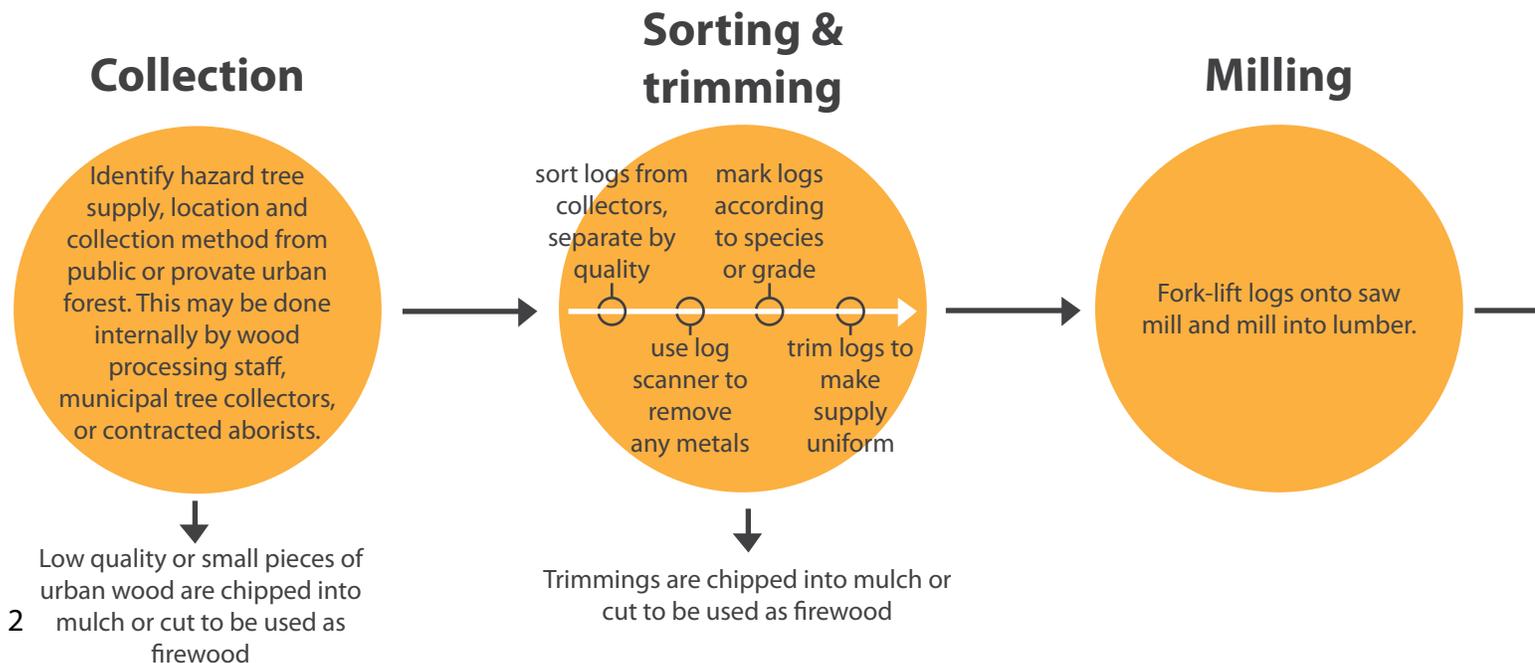
### STEPS INVOLVED: COLLECTION

Municipal land managers, including public foresters, have full decision power over all trees located within a city's right-of-way, parks and public places. Private land managers, including homeowners, have full power over all trees located on their property. For both public and private land managers the process for supplying trees for urban wood utilization is similar.

#### Identify trees for removal

The best way to determine size, quality, and species of your trees for identifying potential end uses is to conduct a tree inventory. Tree care companies offer inventory services to help gather and manage your tree information. Inventory data should be evaluated to identify factors that could support or limit options for desired and preferred use of urban and community forest products. The preliminary evaluation of tree inventory data should include, but is not limited to, one or more of the following:

- Ownership responsibility
- Species
- Size



- Condition
- Tree and forest health
- Contaminants
- Accessibility
- Hazards
- Mortality
- Utilities

- Private/sentimental significance
- Unique character/novelty

Evaluate your trees to determine the uses for the urban and community wood products by doing a basic assessment. Generally, trees in good quality condition that are greater than 12" diameter at breast height (DBH) can be used for value-added lumber products, such as flooring. Smaller, lower-quality trees can be used for roundwood and lower-value and industrial uses, such as firewood, mulch or pellets. Product distinction will also depend on your own capacity to collect, transport, and process the wood. For example, you may have a large, high-quality tree with no ability to transport it, therefore turning it into roundwood may be the only available or economical option. If your tree poses as a safety hazard or nuisance, contact your village or municipal forester for immediate assistance.

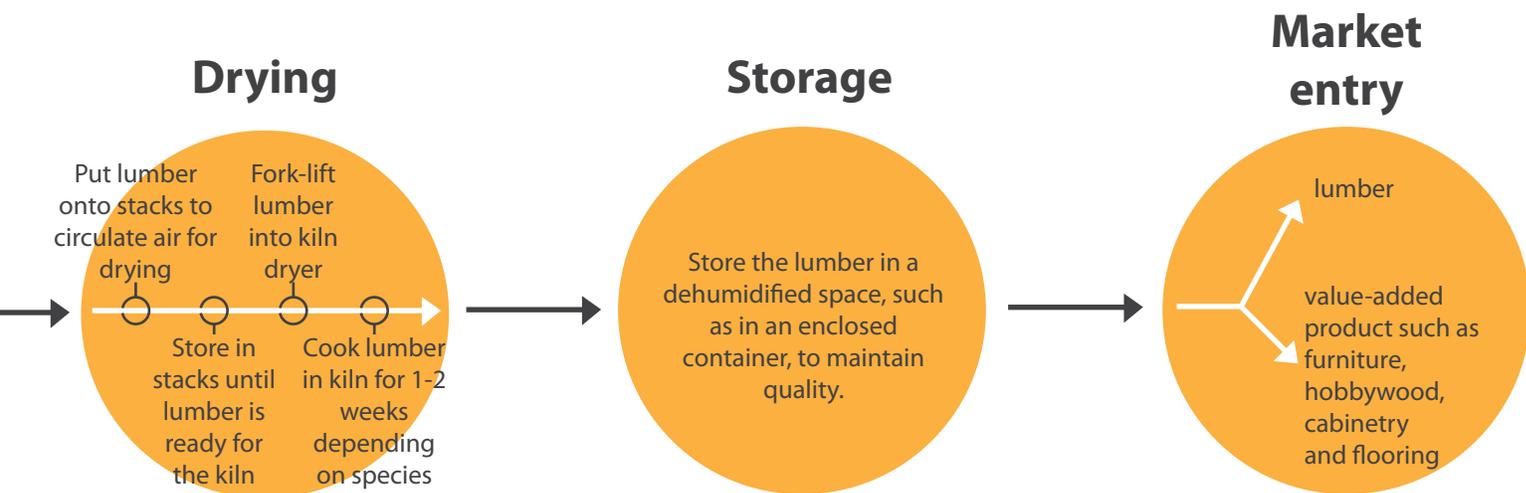
**Research tree removal contractors**

If you are a municipal or private **land manager**, to determine whether you need a contractor to help you remove and recover your tree, you should perform an internal/organizational removal and recovery capacity evaluation. The capacity evaluation should be a review of internal and external removal and recovery options and their

**Evaluate & communicate characteristics of trees**

Once you have your tree inventory data gathered, you can determine your trees' suitability for transport and processing for products. You can share this information with your contractor and potential end users. The description of the tree should include, but is not limited to, the following items:

- Species
- Diameter at breast height (DBH)
- Distance from the ground to the first branches
- Tree life cycle stage
- Quarantine status
- General condition
- Number of logs
- Accessibility
- Custody
- Physical factors that may complicate removal
- Historical/community significance



costs. The evaluation should include, but is not limited to, the following items:

- Tree owner expertise
- Current staffing and expertise
- Potential to train staff for removal and recovery processes
- Removal and recovery equipment availability and capability
- Transportation equipment and routing
- By-product collection and sorting capability
- Disposal of by-products that are hazardous or do not have viable uses
- Ability and willingness to:
  - Use some or all by-product for desired and preferred use
  - Contract with other users to obtain desired and preferred use for some or all by-product
  - Prepare or set aside some or all by-product for desired and preferred use
  - Sort by-product by value
- Ability to handle volume
- Staging and storage area availability and accessibility
- Willingness to disclose use and users

If you are a **homeowner** in need of help with tree removal, transport, and processing, contact local tree care and wood manufacturing companies to identify your options for removal based on price and quality of service. If you need help identifying local tree care and wood processing companies, contact your local economic development or conservation organization who may be able to identify resources for you. You may also consult collaborative resources, such as the Illinois Wood Utilization Team<sup>2</sup> and the Southeast Michigan Resource Conservation and Development Council<sup>3</sup>, which share important information and local services for wood utilization.

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<sup>2</sup> Visit: [www.illinoisurbanwood.org/index.html#resources](http://www.illinoisurbanwood.org/index.html#resources)

<sup>3</sup> Visit: [www.semircd.org/ash/education/resources.php](http://www.semircd.org/ash/education/resources.php)

### **Draft a tree removal contract**

When developing a tree removal contract, it is important to include the following specifications that have legal implications:

- Tree ownership (including municipal bid or auction requirements) should be specified according to:
  - Requirements
  - Legal obligation
  - Chain of custody
  - Public notice
  - Quarantines
  - Fees and taxes
  - Insurance
- Local government plans that prohibit the transport of infested urban wood outside regional borders (quarantine restrictions) could affect your tree removal and should be considered. Examples of such plans include:
  - Urban forest management plans
  - Natural areas management plans
  - Land use and development plans
  - Sustainability plans and goals
- Natural factors may affect your tree removal plans, such as:
  - Seasonal concerns
  - Forest and tree health
- Public relations and outreach to local organizations, such as the Wood Utilization Team, may help with your urban wood product branding and marketability, and a communication plan should be specified if desired.

*Find sample contract language on the following page.*

### **Solicit an official bid for a contractor**

In order to solicit bids from contractors for procurement of tree care services, you can perform open bids, reverse auctions, or online auctions depending on your needs. You may also need to have different bids for some or all by-products of the tree. Procurement of services will vary between municipalities and residents.

Residents should consider collaborating with neighbors to explore options for joint-service agreements, where a contractor may be able to perform tree care services for a group of residents at a reduced cost.

### Select a tree removal contractor

You should choose the contractor that you believe will best accomplish your goals at a fair price. Depending on your purchasing procedures, you could run a formal RFP process or informally ask for proposals. In order to get the best services for urban wood utilization, you should consider evaluating the following:

Number and types of contractors and subcontractors for services you need:

- Removal contractors
- Recovery contractors
- Transportation contractors
- Processing contractors
- Contractors and subcontractors for all or portions of removals

Contractor or Sub-contractor reliability:

- Management
- Credit rating
- Past Contracts

Six important questions you should ask your contractor before you hire them include, but are not limited to, the following:

- Are you certified by TCIA (Tree Care Industry Association) or ISA (International Society of Arboriculture)?
- Do you carry liability insurance?
- Have you harvested trees or performed tree operations for urban wood utilization before?
- Do you offer joint-purchasing options for residents, neighbors, etc. to share services at a discounted rate?
- What are all of the services you offer (i.e. removal, transport, processing)?
- What is the minimum cost of your service and what do these costs entail?

### Sample Contract Language

There are two major specifications that you can include in your contracts to support wood utilization: 1) your wood debris is not to be given as waste; and 2) your wood is to be processed into specific end use/product. The first specification allows for the wood to reach a potential market for valuable wood product, while the second specification ensures that your desired and preferred product will be made from the wood.

#### REMOVAL OF TREE & DEBRIS

Contractor must perform tree removal service according to ANSI A300 standards.

Contractor shall have an ISA Certified Arborist on staff.

Contractor shall remove all debris (logs, limbs, stumps, etc.) and legally transport the debris to the specified locations in compliance with state quarantine regulations.

Contractor shall not allow any debris from tree removal on this property to be disposed of, given as waste, or allowed to be harvested by the general public for any purpose.

At no time shall the Contractor bring debris onto property from an outside job.

All debris and material generated on this job are to be properly collected and transported to the specified locations.

All debris and material generated by the work must be cleaned up and removed from the site by the end of each work day.

Site is to be kept continually clean during removal operations; limbs and branches are to be stacked as generated and chipped material contained as required.

All logs generated are to be neatly piled, not dumped, at to the specified locations, unless authorized by the specified Tree Owner. The Tree Owner will direct the contractor on placement of debris at these locations:

1. Location X end user 1
2. Location Y end user 2
3. Location Z end user 3

If site damage has occurred arising from contractor's removal operations, Contractor shall repair or restore the site as directed by the District project manager, at no additional cost to the Tree Owner.

All work must be performed with a minimum of disruption to existing vegetation.

Upon completion of the work (or portions thereof) the Contractor shall remove all equipment, surplus materials and debris leaving the site clean to the satisfaction of the Tree Owner.

### **Post-removal follow up**

After tree removal is complete, site cleanup, stump grinding, and, if suitable for replanting, site preparation for replanting should be done. When specified, re-planting should be done in accordance with ANSI A300 Part 6 – Planting and Transplanting standards.

It is important to consider verifying that your desired end use for the tree is achieved in your contracts. You may include requirements to disclose, declare and/or verify end use of tree by-products. You may also want to consider options for exchange of tree by-products (logs, etc.) for tree care services.

### **Spread the word about urban wood utilization in your community**

Using this document or any other supporting material, encourage widespread awareness of urban wood utilization in your community. As mentioned previously, when possible, work with your neighbors to coordinate tree care efforts.

## **TREE CARE COMPANIES**

**STEPS INVOLVED: COLLECTION. SORTING & TRIMMING**

### **Review the current state of urban wood utilization in the community**

Whether you are an established tree care company or just starting out, there are some questions that you can use to improve your understanding of the current state of local wood utilization efforts and the feasibility of entering the industry:

- What programs are already in place?
- What are the area's needs?
- Can the local municipalities and residents afford our services?
- Are there different purchasing options we can offer, such as shared services models?
- Can urban wood utilization save us money or bring new revenues that may reduce the cost of our services?
- Are vital resources, such as sawmills, available?



## Identify your role in the industry

Based on the capabilities of your staff, available resources, and available facilities, determine what services you can provide:

- Removal services
- Recovery services
- Transportation services
- Processing services

Be prepared to answer the following questions from homeowners and land managers supplying trees:

- Are you certified by TCIA (Tree Care Industry Association) or ISA (International Society of Arboriculture)?
- Do you carry liability insurance?
- Have you harvested trees or performed tree operations for urban wood utilization before?
- Do you offer joint-purchasing options for residents, neighbors, etc. to share services at a discounted rate?
- What are all of the services you offer (i.e. removal, transport, processing)?
- What is the minimum cost of your service and what do these costs entail?

## Plan for partnerships

Establishing meaningful partnerships is important to wood utilization since there are many stakeholders involved. In order to establish these relationships, consider:

- Identify which community entities could help connect you to wood utilization opportunities.
- Assess the capacity of partners and establish financial protocol.

## Use removal processes that consider potential end uses

Perform tree removal and tree care work according to industry standards and BMPs. Determine your end use or product type for the wood prior to removal in order to ensure that the desired wood value is maintained. Different end

uses will require different standards for removal. For example, wood that is planned for lower end use, such as firewood or mulch, will not require the same removal standards as wood designated for lumber and higher end products. Higher end uses will require more detailed specifications and careful planning of transport logistics and storage.

## Identify wood manufactures or wood users

The identification and evaluation of wood users and manufacturers can save you time and money in your planning process. The wood user evaluation should include the following considerations:

- Where is this wood user located? What is the accessibility/convenience?
- What is the wood user's demand for wood and what types and quantities of wood they can they process?
  - Types
  - Proportion of types
  - Sizes
  - Species
  - Quantities
  - Quality
  - Consistency
  - Seasonality
- What is the wood user's capacity to process wood?
  - Processing services and equipment
  - Transportation services and equipment to handle various wood by-products
- What are the wood user's requirements to process wood?
  - Delivery or pick up
  - Load size and frequency
  - Payment or exchange
- Is the wood user reliable? Will they produce quality product?
  - Management considerations
  - Credit rating
  - Long term contracts

## WOOD MANUFACTURES AND USERS

STEPS INVOLVED: MILLING, DRYING, STORAGE,  
MARKET ENTRY

### Evaluate capacity and feasibility to process urban wood

Determine your capacity for taking in and processing urban wood by addressing the following questions:

What is your capacity to process wood?

- Equipment capabilities
- Staff service capabilities
- Transportation capabilities or needs

What types of wood can I process and how much?

- Types
- Proportion of types
- Sizes
- Species
- Quantities
- Quality
- Consistency
- Seasonality

Determine whether there is ample demand for urban processing services and/or urban wood end use products by addressing the following questions:

- Does my shop have an ongoing demand for high- or low-quality urban wood?
- Will there be a reliable supply of urban wood?
- Can I offer products at a rate that is affordable to the community?
- Will my wood processing be profitable?

Determine the feasibility of processing urban wood in the local political context by addressing the following questions:

- What municipal plans and ordinances impact an urban wood utilization endeavor?

- Is community support in place or will education and outreach be required?

### Plan for partnerships

Begin the process of establishing community partnerships by addressing the following questions:

- Which community entities could connect me to wood sources?
- Are vital resources, such as collection yards, transportation, or sawmills, available?
- Assess the capacity of partners and establish financial protocol.

### Learn from and share with other wood utilizers

Review the case studies provided in the next section of this document for BMPs for wood users throughout the Great Lakes region. Share your urban wood utilization strategies with your community.

## URBAN WOOD UTILIZATION 101: CASE STUDIES

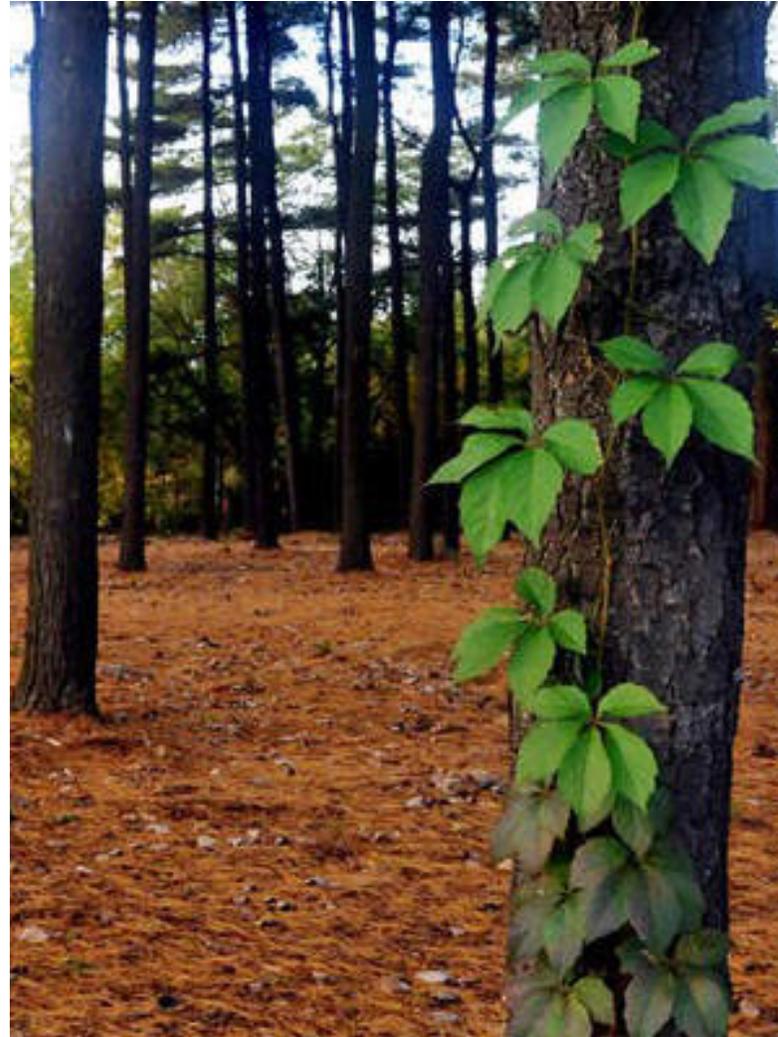
What does urban wood utilization look like? From mulch to high end furniture, wood utilization is transforming urban wood waste into valuable assets throughout the Great Lakes.

### **Case Study 1: Mulch Utilization at the Forest Preserve District of DuPage County**

The Forest Preserve District of DuPage County owns and manages 25,000 acres of prairies, woodlands and wetlands. The District makes its own mulch from trimming and clearing damaged trees and brush for use along its trails and within landscaping throughout their forests. When it has more mulch than it needs, it makes the wood chips available to the public for free wood-chip pickup days. For more information, please visit <http://www.dupageforest.com>, or contact Bonnie Olszewski, Office of Public Affairs, at (630) 871-6402.

### **Case Study 2: Retailing Firewood in Evanston, Illinois**

According to Evanston's Superintendent of Parks/Forestry and Facilities Management, Paul D'Agostino, the city has been struggling with the spread of the Emerald Ash Borer since 2006. Before this insect was discovered within Evanston, the public Ash tree population stood at just over 4,200 trees. As of today, most of those Ash trees have already been removed. D'Agostino views this as a benefit, saying, "Our supply of firewood has never been better." D'Agostino sees dual benefit in selling firewood, as it generates about \$35,000 in revenue for the City, while saving the City money in avoided wood waste management costs. The 2013 sale of firewood began on Saturday, November 9 and continues through March 2014. For more information, contact Paul D'Agostino at the City of Evanston.



### **Case Study 3: A Model for Urban Wood Markets in Southeast Michigan**

The Southeast Michigan Research Conservation and Development (RC&D) Ash Utilization Options Project also provides a successful example of urban wood utilization in the Great Lakes region. The program has helped Michigan communities and businesses develop products and utilization options for urban trees removed due to EAB. Specifically, the effort has helped fund demonstration projects using EAB wood, such as in the Ann Arbor District Library where some of the harvested trees were used as support beams and columns. In the Urbanwood Project, small businesses recovered serviceable logs from land-scape tree removals and manufactured them as lumber and flooring for the Southeast Michigan Reclaimed Wood Marketplace ([www.urbanwood.org](http://www.urbanwood.org)), a retail store in Ann Arbor, Michigan. The Southeast Michigan RC&D Council has also provided training on wood utilization to numerous city forest-ers, tree service companies, city maintenance staff, park superintendents, road commission tree crews, arborists, city planners, economic developers, wood processors, and entrepreneurs in Michigan.<sup>1</sup> For more information, contact Jessica Simons at the Southeast Michigan Resource Conservation & Development Council.

### **Case Study 4: Creative Urban Wood Utilization in Art Class at the Illinois Institute of Technology (IIT)**

IIT offers its students an innovative class that provides them with real-world experience in utilizing urban wood for art projects. The Illinois Wood Utilization Team supports this Architecture and Furniture Design class, Environmental Wood Reclamation via Creative Arts & Crafts Products. The class has made furniture and gift items from Emerald Ash Borer-affected wood, which are now on display at various locations. The Team also exhibited at the National Cabinet Conference & Woodworking Expo and the Illinois Valley Woodcarvers Show. This project researches and

organizes possible production methods and uses for urban wood to help create business opportunities and jump-start the urban wood market in Chicago. For more information, contact Edith Makra, chair of the Illinois Emerald Ash Borer Wood Utilization Team.



### **Case Study 5: Homewood, IL Donates Wood to High School for Creative Design and Reuse**

Homewood's Public Works manager, Jim Tresouthick, is passionate about trees, and his Village was very proactive on wood utilization from EAB. The Village established a plan to utilize as much reclaimed wood as possible for the highest and best end uses. Jim said that it was important to communicate the value of the wood to his community, so the Village set up a sawmill demonstration with GH Woodworking & Sawmill to mill ash wood for the public. The Village donated approximately 700 board feet of ash wood product to Homewood Flossmoor High School for use in their industrial arts programs. By receiving the wood by donation, the High School saved money in supplies and put that money towards the design and construction of a solar-powered kiln. Students at the High School constructed the solar kiln and used it to dry wood for various projects around the school such as signage, tables, and Adirondack chairs. This project allowed students to think outside of the box, while raising awareness of urban wood utilization in the community. For more information, contact Jim Tresouthick at the Village of Homewood.



### **Case Study 6: Rebuilding Exchange, a Materials Reuse Warehouse in Chicago**

Founded in 2009 by Delta Institute, the Rebuilding Exchange (RX) is a materials reuse warehouse with a mission to create a market for reclaimed building materials. RX evolved out of what was originally a job training program to create skilled workers in the growing field of building deconstruction and materials reuse. In 2011, the RX launched its RX Made product line in partnership with Strand Design. RX Made is a line of simple and functional furniture made from reclaimed and locally-sourced materials, like urban wood. Since its inception, RX has diverted thousands of tons of valuable building materials from landfill and created over \$2 million worth of quality reuse materials available to the public.

## CONCLUSION

The Wood Utilization Best Management Practices apply to homeowners and professionals who provide for or supervise the management of trees. These BMPs were developed to support informed decision-making by public and industry professionals, such as foresters, arborists and tree maintenance managers, and they will also help urban tree owners and managers more easily write work specifications that follow accepted tree care industry practices. However, these BMPs are not to be used as specifications in and of themselves.

Industry standards and BMPs may also help local governments and businesses to become more sustainable and competitive by reducing costs, such as tipping fees, and increasing market opportunities for urban wood products with quality tree care management. In addition, specifying that tree care maintenance should be performed according to BMPs and ANSI A300 standards ensures safe, high-quality work on behalf of the communities where trees have been damaged.

From the perspective of the growing urban forest products industry, the development of BMPs and the draft ANSI A300 Part 11 Wood Products Standard is a significant advancement toward making urban wood utilization a commonly accepted and expected tree care practice. The BMPs are not intended to be prescriptive, but should provide a framework for informed decision-making as communities plan for harvesting, manage tree removals, and recover the maximum value in the available wood resources.

Delta Institute invites all communities who are practicing urban wood utilization to share feedback on how your community used these BMPs and/or ANSI Tree Care Industry Association standards to support your work. Please let us know if these BMPs were helpful to you and how

they can be improved. We would also like to hear about specific wood utilization projects in your community. Please share your unique story with us by contacting Brittany Gifford of Delta Institute at [bgifford@delta-institute.org](mailto:bgifford@delta-institute.org).

## CREDITS

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Bob Rouse  
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The Illinois Emerald Ash Borer Wood Utilization Team

Robert Benjamin  
Laureen T. Blissard  
Jeffrey Coath  
Paul Deizman  
Tom Dilley  
Tom Gargrave  
Jay Hayek  
Juli Heminghous  
Edward Kalebich  
Dick Little  
Edith Makra, Chair  
Matt Seiler  
Randy Timmons  
Jim Tresouthick  
Todd Degner, Davey  
Scott Schirmer, IL Dept of Agriculture