

**DEPARTMENT OF VETERANS AFFAIRS
NATIONAL CEMETERY ADMINISTRATION**

2006 WHITE HOUSE CLOSING THE CIRCLE AWARDS NOMINATION

AWARD CATEGORY: Green Purchasing

NOMINATION TITLE: Recycled Plastic Lumber Use at Rock Island National Cemetery

PROJECT SUMMARY: Rock Island National Cemetery (RINC) traditionally has used wood and metal products for various purposes at the cemetery. These products include dual trash and floral cone receptacles, protective headstone covers, directional street signs, and “stone plugs” to facilitate headstone removal and replacement during second burials (interments). Mr. Kenneth Nussear and Mr. W. Scott Lamb evaluated, purchased, and, in some cases, built replacements for these items out of recycled plastic lumber items. These items would normally require the use of non-environmentally preferable materials. All of the products were evaluated or built and then tested by Mr. Nussear and Mr. Lamb at Rock Island National Cemetery (RINC).

Following their successful testing at RINC, they were approved for use at the satellite cemeteries to RINC. These locations included the Confederate cemetery adjacent to RINC, and RINC’s other satellite facilities, Quincy National Cemetery and Keokuk National Cemetery. The result was a significant reduction in the use of non-recyclable material at the cemetery through the use of environmentally preferable items constructed for their unique use at a national cemetery.

This project met the purchase and use requirements for Green Purchasing. The RINC desire to follow the Department of Veterans Affairs’ (VA) and Federal Affirmative Procurement requirements and provide environmental benefits was motivation for this project.

Background

This nomination reflects Calendar Year 2005 green purchasing activities. It demonstrates that the use of recycled plastic lumber is a process that can be used throughout the National Cemetery system and highlights the cost-effectiveness and practicality of using recycled plastic lumber in cemetery operations. Mr. Nussear and Mr. Lamb set a new standard for use of recycled plastic lumber for all of the national cemeteries. They continue to seek out new ways to replace existing furnishings and equipment with these recycled plastic alternatives. Their leadership efforts have resulted in an ideal combination of efficient cemetery operation, effective service for veterans and their families, and environmental protection.

The recycled plastic lumber and pre-fabricated items are purchased from the Plastic Lumber Company based in Akron, Ohio. The plastic lumber contains 97% post-consumer recycled materials and meets all Department of Veterans Affairs (VA) green purchasing requirements relating to the U.S. Environmental Protection Agency’s (EPA) Comprehensive Procurement Guideline¹. They also meet EPA’s Recommended Recovered Materials Content Levels for Plastic Lumber Landscaping Timbers and Posts². RINC follows the VA guidance on Affirmative Procurement detailed in Handbook 0052 and its Directive, which cover recycled content, as well as biobased and other environmentally preferable products. All

¹ VA guidelines for recycled plastic lumber are included in paragraph 3, Comprehensive Procurement Guideline (CPG) items, in VA Handbook 0052, Affirmative Procurement, Recycling, and Waste/Pollution Prevention Programs.

² EPA product specifications for plastic lumber landscaping timbers and posts are found at <http://www.epa.gov/cpg/products/timbers.htm>

RINC personnel with purchasing authority have completed EPA's Environmentally Preferable Purchasing online training.

EVALUATION CRITERIA

1. Does the project involve the use of innovative approaches, techniques, and technologies?

This project uses recycled plastic lumber to replace wood and metal products. Some of the items were built out of the recycled plastic lumber at the cemetery as they were not available already constructed, reflecting an innovative use of the material at a national cemetery.

National cemeteries have several highly specific requirements for furnishings and equipment that are not met by commercially manufactured recycled plastic lumber products. Mr. Nussear and Mr. Lamb viewed the lack of readily available recycled plastic lumber equipment as an opportunity to customize products for these needs, eliminate the use of non-recyclable materials, and reduce labor to maintain non-recyclable items. They built innovative recycled plastic lumber equipment specifically for use at RINC and its satellite cemeteries, including trash/floral cone receptacles, protective headstone covers, and headstone "plugs."

Combined trash receptacle and floral cone storage containers are a common feature at National Cemeteries. Visitors and staff use these facilities to dispose of wilted floral arrangements and to store and retrieve reusable containers for fresh cut flowers. Several commercially produced recycled plastic lumber trash/recycling receptacles were available for purchase. RINC's visitors needed a combination container that allowed: 1) old flowers to be disposed of/recycled, 2) provided space for new floral cones, 3) provided trash receptacles, and 4) provided a convenient holder for gravesite locator guidebooks. Mr. Nussear and Mr. Lamb developed an innovative design that met those needs of a national cemetery customer and complements the appearance of the cemetery.

Periodically, headstones must be removed if a grave needs to be reopened for a second interment. Mr. Nussear and Mr. Lamb developed a recycled plastic "stone plug" that is inserted into the hole left by the removed headstone. The plug makes it easier to replace the headstone once the grave has been closed saving time and effort. Recycled plastic lumber is an ideal material for this use because it is rot-resistant and can withstand heavy use.

To prevent damage during interments and associated activities, maintenance workers at National cemeteries cover headstones with plywood boxes. Mr. Nussear and Mr. Lamb developed a recycled plastic lumber protective headstone cover to replace the standard plywood model. The recycled plastic is sturdier than plywood and does not splinter and break during use, and has a more attractive appearance. The new environmentally preferable covers are also rot resistant and do not have to be replaced as frequently as their wooden counterparts.

Uniform appearance is an important driving force behind site furnishing selection for all national cemeteries. RINC has demonstrated the use of several pre-fabricated recycled plastic signs that are appropriate for use in a national cemetery and have set an important standard for facilities across NCA. Although Mr. Nussear and Mr. Lamb did not design and build all of the recycled plastic lumber signs, as good stewards of the environment, they have demonstrated that there is a place for innovative applications of "green" products in the national cemeteries.

2. Is the project cost effective when considering life cycle costs?

The use of the recycled plastic lumber to replace convention wood has proven to be very cost effective. The recycled plastic lumber trash and floral cone receptacles at RINC replaced similar wooden containers as part of the standard cemetery maintenance schedule. The recycled plastic lumber has proven to be

more durable than plywood and easier to maintain, requiring no repainting and refinishing. The wood products would need to be replaced every 5 years. The recycled lumber has an expected life of 20 or more years, as it is guaranteed for that time period. Life Cycle Analysis documented the cost savings.

Plastic lumber typically has a higher initial cost than plywood. This difference is offset by lower maintenance and replacement costs over the life of the product. The simple Life Cycle analysis below demonstrates total cost savings accrued by Mr. Nussear and Mr. Lamb's use of each recycled plastic trash/floral cone receptacle over the past 5 years, and used as the basis for the 20 year expected life of the products. The recycled plastic lumber has a guarantee by the manufacturer for a life of 20 years, typical for its common use as a decking material. The Life Cycle Costs were figured for the life of the Recycled Plastic Lumber.

LIFE CYCLE COST ANALYSIS

Initial Cost –

Wood - \$100 materials + \$750 labor = \$850

Recycled plastic lumber - \$350 materials + \$750 Labor = \$1100

Operation/maintenance Cost (O/M)–

Wood - 2 hours per year @ \$20/hour = \$40 x 20 YEARS = \$800

Recycled plastic lumber – no/minimal operation/maintenance cost

Other Costs –

Wood replacement cost, every 5 years- \$100 materials + \$750 labor = \$850

Recycled plastic lumber – no other cost, 20 year guarantee on product

Disposal Costs –

Disposal of the wood products is included in regular solid waste disposal

Total Cost for the 20-year Life of the Wood vs. Recycled Plastic Lumber –

Wood –

\$850 initial + \$200 O/M for the first year, and each 5 years thereafter:

$\$850 + \$200 + \$850 + \$200 + \$850 + \$200 + \$850 + \$200 + \$850 + \$200 = \$5250$

Recycled plastic lumber –

$\$1100 \text{ initial} + \$0 \text{ O/M} + \$0 \text{ other} = \1100

Life Cycle Cost Savings - Recycled Plastic Lumber Receptacle vs. Wood Receptacle

$\$5250 - \$1100 = \$4150 \text{ over 20 years, or } \275 per year.

The 4th year is the breakeven point for the Recycled Plastic Lumber Receptacle, i.e., the plastic lumber receptacle has cost the same as the wood receptacle. For the next 16 years there are increased savings for labor and materials. This does not take into account increased wood costs and increased labor cost, which would result in additional cost savings.

The lack of operations/maintenance costs associated with recycled plastic lumber signs and equipment, and replacement every 5 years of the wood products, are the major advantage of this material over wood. Mr. Nussear estimated that RINC will save over \$250 per year or over \$4000 over the life of the receptacle, as a direct result of using recycled plastic lumber signs and equipment.

Green purchasing literature developed by various state and federal government agencies indicates that recycled plastic lumber has the added benefits of saving landfill space by diverting recyclable plastics to a specific reuse and reducing environmental impacts related to chemicals applied to pressure-treated lumber. These two factors are not included in the RINC life-cycle cost accounting scheme, but certainly support the use of recycled plastic lumber to protect the environment.

3. Does the project have an internal education or outreach component designed to promote the goals of your project at the facility or within VA or to promote partnerships with the local community, another Government agency, a non-Governmental agency, private industry, or other entity outside your facility?

The data collected from this initial use of the recycled plastic lumber has been provided to NCA organizations, as well as the local community, especially the local fire department.

Data collected from the innovative use of recycled plastic lumber at RINC was provided to all other NCA national cemeteries through their regional offices (Memorial Service Network offices – MSNs), in support of green purchasing. Supervisory staff at NCA MSN 4 reviewed RINC’s use of plastic lumber and is recommending its use, where practical.

RINC has also indirectly encouraged use of recycled plastic lumber in the local community. Impressed by recycled plastic lumber boxes designed to protect outdoor fire extinguishers, representatives from the local fire department have started encouraging other facilities to build similar boxes.

4. Were performance measures or goals identified to determine the success of the project? If so, describe them and indicate if they were met or exceeded.

Preliminary estimates of the use of the use of the recycled plastic lumber, based on the plastic lumber manufacturer’s data, indicated that there could be substantial maintenance and wood purchase savings on the use of the material. These proved to be true, with little or no maintenance required of the material, during the past years, other than periodic cleaning.

Most maintenance decisions at National Cemeteries are driven by NCA’s exacting appearance standards. NCA’s recent commitment to achieving national shrine status at each cemetery requires each facility to maintain the grounds meticulously. By cutting maintenance requirements for signs and trash receptacles, Mr. Nussear and Mr. Lamb have freed up more time for other maintenance duties.

Another concern for cemetery maintenance and the national shrine commitment is headstone appearance. NCA’s National Shrine Commitment Operational Standards and Measures require fewer than 0.01% headstones be replaced annually due to damage caused by cemetery operations. Although the recycled plastic lumber covers cannot protect headstones from catastrophic damage caused by collisions with heavy equipment, they are able to withstand heavier blows than plywood and do not leave paint marks on the headstones if bumped during burial operations. At RINC, this goal was met through a reduction of replacement of damaged headstones, in addition to cost savings related to the other items.

The use of recycled plastic lumber at RINC is a cost-effective and efficient way to improve NCA’s environmental performance while supporting NCA’s National Shrine Commitment.

Rock Island National Cemetery - Project Photos

Mr. Nussear and Mr. Lamb designed several **original recycled plastic lumber products** for use at RINC. These items outperform and require less maintenance than their wooden counterparts.

RINC innovations include:

1. Stone plugs
2. Protective headstone covers
3. Combined trash/floral cone container and gravesite locator stands
4. Combined trash/floral cone containers



Rock Island National Cemetery purchased **pre-fabricated recycled plastic signs** to assist cemetery visitors and funeral attendees.

The signs, which meet EPA's environmentally preferable product guidelines, are attractive and need little maintenance.