

**New York State
Environmental Investment Program
Research Project Summary**

Andela Tool & Machine Inc.

Project Background

Andela Tool & Machine Inc. in Richfield Springs was founded in 1982 to design and manufacture special purpose tools and machinery. Over the last 12 years, Andela has focused on the fabrication of custom designed turn-key glass recycling systems. Andela operates out of a facility in Herkimer County that employs 13 people.

Project Description

Demand for processing machinery has been slow to develop because of the inability to establish value-added end markets for recycled glass. In response, Andela proposed researching the viability of creating a new line of unique, low-cost modular equipment with the flexibility to generate several products in a single pass. Besides cullet meeting New York State Department of Transportation and Thruway Authority specifications for a number of applications, the equipment would make colored glass mulch for landscaping and decorative uses.

In order to move forward with this project, Andela needed to know: 1) Can glass gravel be produced that is safe for use by the general public and be aesthetically pleasing? 2) Are there ways to economically and permanently color glass to provide the diversity and longevity sought by landscapers and architects? 3) What coatings will adhere to glass and withstand weathering? 4) Is it necessary to wash cullet to assure adherence of the coating, and does washing enhance the commercial viability of the glass? 5) If washing is required, what else will be needed to assure proper wastewater management and sludge disposal? 6) Will the mulch market create

large-enough demand to absorb the mixed-color, container glass generated in New York?

Project Results

This project enabled Andela to design and build a modular glass coloring system that easily retrofits to its existing pulverizers and generates usable products. Analyses of Andela's pulverized glass found the material to be safe to use and handle. Low-cost, environmentally safe coatings were selected that will allow the company's glass mulch to be made in a variety of colors that look good and perform well for at least ten years. Wastewater from washing and coating processes can be cleaned using a pulverized glass filter and then reused. The outcomes of this investigation were so positive that Andela hired an employee to assist with marketing, and intends to hire 3-7 additional employees when the company continues using its prototype equipment to make colored glass mulch for sale. Andela has contracted with a local Material Recovery Facility for at least 600 tons of glass/year. A *Handbook on the Alternative Uses for Recycled Glass* was compiled and distributed.

Future Implications

Andela is pursuing financing to expand its business to manufacture the modular equipment. Once it begins making the new components, Andela will hire up to seven more employees. The firm estimates colored glass mulch markets could absorb at least 56,000 tons of recycled glass/year. Municipalities can use the glass mulch in place of aggregate it presently buys.

Contractor: Andela Tool & Machine, Inc.
County: Herkimer
ESD Region: Mohawk Valley
ESD Contact: 518/292-5340

NYS EIP Investment: \$180,300
Contractor Match: \$163,684
Total: \$343,984
Completion Date: April, 2004