Environmental Stewardship Program

Nucor Building Systems

Success Story

Non-Hazardous Waste Reduction

Background

Nucor Building Systems began in 1987 as a single location in Waterloo, Indiana. They are a steel building manufacturer with full-service plants across the country. Following that facility's success, they built locations in South Carolina, Texas, and Utah. Nucor Building Systems then acquired Kirby Building Systems, American Building Systems and CBC Building Systems which formed Nucor Buildings Group (NBG). NBG operates in eight states and have become one of North America's largest and most experienced manufacturers of metal building systems, insulated metal panels, and elevated solar structures

Nucor Building Systems 300,000 ft^2 facility in Waterloo, IN employs 500+ teammates and is collocated with another Nucor facility, TrueCore on their 80-acre campus. Nucor Building Systems joined the ESP on February 6th, 2018; however, they achieved their ISO 14001 certification in 2006, first at the 2006 standard and later at the 2015 standard. The facility is also a part of the following programs and alliances:

a. IAS AC472 Accreditation for Metal Buildings
b. CAN/CSA A660 Certification for Manufacture of Metal Buildings
c. Canadian Sheet Steel Building Institute Member
d. Metal Building Manufacturers Association Member
e. CWB W47.1 Certified

Project Implementation

As good stewards of the environment, Nucor Building Systems believes it is vital to decrease the amount of waste being sent to landfills. The waste reduction was achieved through efficiency gains in the spray coating operations. Nucor Building Systems conducted studies to see what type of paint sprayer would be most suitable for their operations. They tested air assisted spray guns vs airless spray guns and found that airless spray guns had a higher transfer efficiency rate than air assisted spray guns. The airless spray guns higher transfer efficiency rate led to a reduction in the amount of paint that is needed to be used while maintaining the company's quality standards.

Operators also received additional training on different spraying techniques, equipment operations, and maintenance. They tested different pressure settings, spray tip types and sizes to find the ideal settings that allowed for maximum efficiency. Actual coating usage per ton remained consistent with quality standards, indicating that efficiency gains were directly contributing to a reduction in overspray and, therefore, coating waste sent to landfill.

Results

The main result of this project is the reduction of non-hazardous waste being sent to landfills. It can be seen in Table 1 that the project was successful. Even though the pounds of spray coating used almost doubled; the amount of waste per pound of spray coating used decreased. As such, the overspray reduction yielded a significant reduction in the amount of coating used, and also, greatly reduced the facility's total VOC emissions. Nucor has chosen not to report on VOC reductions with this project. They are working on a separate project in 2022 targeting VOC and PM emissions.

Year	2018	2021	Units
Waste Quantity	67.1	81.16	tons
Production Quantity	197559	387090	Pounds of Spray coating used
Waste Quantity/ Production Quantity	0.00034	0.0002	tons/Pound
Normalization Factor	1.96		NA
Normalized quantity	27.55		tons

Table 1. Nucor Building Systems waste quantity from 2018 to 2021.

Cost Savings

This project saves money on a variety of fronts, including shipping to the landfill, spray guns, and on paint. The most significant cost saving came from the reduction in paint coating used. This saving came to the amount of $201,791 for the year 2021.

Facility Contact

Tyler Lucas, Environmental Coordinator
(260) 235-1447
tyler.lucas@nucor.com
www.nucorbuildingsystems.com