

4-20-2018

# Cardinal Glass Take up Masking Rolls

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## Recommended Citation

Blane, Kyle; Myers, Dnate; Rodriguez, David; Vanstrom, Joseph R.; and Koziel, Jacek A., "Cardinal Glass Take up Masking Rolls" (2018). *TSM 416 Technology Capstone Projects*. 24.  
<https://lib.dr.iastate.edu/tsm416/24>

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# Cardinal Glass Take up Masking Rolls

## **Problem Statement**

Our company is Cardinal Glass Corporation where they specialize in the development of residential glass windows and doors. The company is around 6,000 employees and has 37 manufacturing locations across the country. The company is privately owned but sells glass to companies like Pella Windows and others. There is currently only one location in Iowa, and the main focus of the work done there is the manufacturing of insulated glass windows.

In this location after the product is prepared and being ready to ship, it goes through a process of having plastic film applied to the glass. The function of this plastic film on the glass is for when installation is being done and contractors are having the area around the window painted, it is protected. Once the construction process is complete the film is removed and the glass should be in a clean condition. The problem the company has is that employees are using utility knives to hand cut masking film from a butt-roll which is exposing employees to potential injuries. Current methods are inconsistent and putting employee's safety at risk. Employee safety is always the highest priority and improving this process will help minimize potential injuries. The company does not want any incidents to come up from this in the future. The cost associated with this can vary from Workers Compensations, loss of productivity, and even potential OSHA violations/fines. Other sister plants have had this problem arise and could be looking for a similar solution.

## **Disciplines**

Bioresource and Agricultural Engineering | Industrial Technology

Department of Agricultural and Biosystems Engineering (ABE)

TSM 416 Technology Capstone Project

# Cardinal Glass Take up Masking Rolls

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**Client:** Cardinal Glass Corp, 716 NE 6<sup>th</sup> St, Greenfield, Iowa, 50849, <http://www.cardinalcorp.com/>

- Contact(s): Bret Skellenger, Safety Director, [beskelle@cardinalcorp.com](mailto:beskelle@cardinalcorp.com)

## 1 PROBLEM STATEMENT

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Our company is Cardinal Glass Corporation where they specialize in the development of residential glass windows and doors. The company is around 6,000 employees and has 37 manufacturing locations across the country. The company is privately owned but sells glass to companies like Pella Windows and others. There is currently only one location in Iowa, and the main focus of the work done there is the manufacturing of insulated glass windows.

In this location after the product is prepared and being ready to ship, it goes through a process of having plastic film applied to the glass. The function of this plastic film on the glass is for when installation is being done and contractors are having the area around the window painted, it is protected. Once the construction process is complete the film is removed and the glass should be in a clean condition. The problem the company has is that employees are using utility knives to hand cut masking film from a butt-roll which is exposing employees to potential injuries. Current methods are inconsistent and putting employee's safety at risk. Employee safety is always the highest priority and improving this process will help minimize potential injuries. The company does not want any incidents to come up from this in the future. The cost associated with this can vary from Workers Compensations, loss of productivity, and even potential OSHA violations/fines. Other sister plants have had this problem arise and could be looking for a similar solution.

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## 2 GOAL STATEMENT

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The fundamental improvement we are looking to complete our project:

- Eliminate the cutting process from the plastic removal.

We plan to measure the improvement by:

- Amount of money saved from recycling
- Potential injury costs
- Labor cost per hour to cut

- **Main Objective(s) and Specific Objectives**

**The main objective is to:** develop and design the knife cutting process to improve product flow and reduce the risk of injuries.

**Specific objectives include:**

- *Design a new process that meets all client criteria and constraints:*
  - *Reduction in costs*

**Constraint:**

- *Removing hazard of “hands-on” cutting.*
- *Safety Analysis*
- *Reduction in time away from job duty*
- **Rationale**
  - *Eliminate injuries resulting from the cutting process*
  - *Employee sticks to job assigned*

## 3 PROJECT PLAN/OUTLINE

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### A. Methods/Approach

- **Reference Materials**
  - Cuts and lacerations data recorded from OSHA. 29.CRF 1910
- **Data collection**
  - *Information gathered from:*
    - *Professors*
    - *Online Sources*
    - *Client*
- **Skills**
  - *Classes useful for this project:*
    - *TSM 210 Fundamentals of Technology*
    - *TSM 214 Managing Technology Projects*
    - *TSM 370 Occupational Safety*
    - *TSM 371 Occupational Safety Management*
    - *TSM 477 Risk Analysis and Management*
- **Solutions**
  - *We conducted a risk analysis as well as a hazard analysis to set the bar of what the current hazards and risks are.*
  - *The solution was evaluated by three major factors; cost, hazard reduction, time.*
  - *The solution effectively hits all three of the major factors.*

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- **Organization**

- Our team met at least once a week until the completion of the project.
- We communicated with our project contact for major milestones, problems and questions that arise.
- 4 hours minimum of work expected, per person outside of meetings.

**B. Results/Deliverables**

- *Our recommendation is to remove the process completely.*
- *The next steps for the company are to phase out the process to improve safety.*

## 4 PROJECT SCOPE

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Implement a system that removes the cutting hazard, improves safety and reduces cost. At this point, if there are changes needed in the future process, they will be minor.

## 5 GRAPHICAL ABSTRACT

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## 6 REFERENCES

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