



Company Information

Company Name	<i>Windsor Windows and Doors</i>	Date Submitted	<i>05/01/2026</i>
Project Title	<i>Design of a Nailfin-Cardboard Slitting Machine (WINDSOR_SLIT)</i>	Planned Starting Semester	<i>Fall 2026</i>

Senior Design Project Description

Personnel

Typical teams will have 4-6 students, with engineering disciplines assigned based on the anticipated Scope of the Project.

Please provide your estimate of staffing in the below table. The Senior Design Committee will adjust as appropriate based on scope and discipline skills.

Discipline	Number	Discipline	Number
Mechanical	4	Electrical	1-2
Computer	1-2	Systems	0

Company and Project Overview:

Windsor Windows and Doors is a national brand of windows that is focused on aluminum clad wood windows. Windsor has many product lines from lower cost vinyl windows to large custom windows and doors used in multimillion-dollar homes. We are vertically integrated with our parent company, Woodgrain, who supplies Windsor with the raw moldings used to make the window. Windsor has four manufacturing facilities, totaling over a million square feet of floorspace.

This project is focused on our most custom products, arch and circle windows. The packaging cardboard used on these products must be formed to the shape of the unit, which is accomplished by manually cutting relief cuts on a band saw. The goal of the project is to design and build a machine to make a relief cut, automatically index, make the next cut and continue down the length of the cardboard.



**INDUSTRIAL SOLUTIONS
LABORATORY**

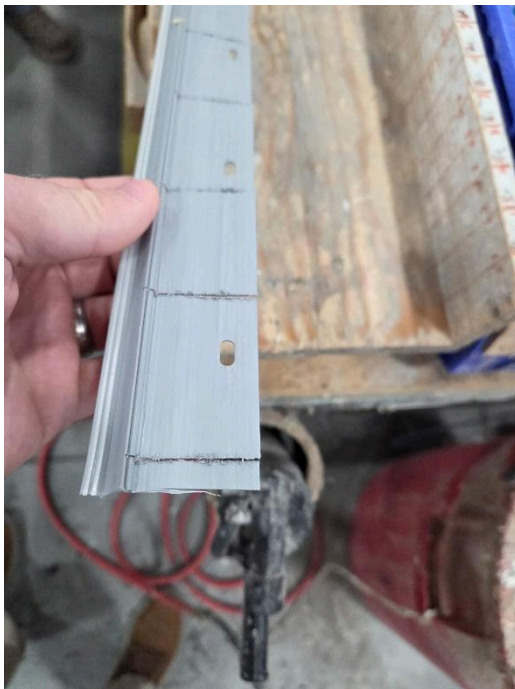


This project is partially supported by a grant from the NC Manufacturing Extension partnership, an organization that helps to support business and job growth for NC companies. To learn more about the NC MEP, click on this link:

<https://www.ncmep.org/>.

Project Requirements:

May use 110v or pneumatic power. Machine should be designed to accommodate our two packaging profiles. Machine should be able to automatically cut lineal and be foot pedal or push button operated. Cutting tools or pinch points should be inaccessible by the operator. The machine should have an adjustable spacing for the relief cuts. The target feed rate of the lineal is 2-4 ft/s





Expected Deliverables/Results:

- Drawing Package including schematics
- Operating machine capable of providing relief cuts on our two profiles at the desired speed
- List of maintenance periods and consumable parts
- Operator Instructions and Lockout procedure

Disposition of Deliverables at the End of the Project:

Students are graded based on their display and presentation of their team's work product. It is mandatory that they exhibit at the Expo, so if the work product was tested at the supporter's location, it must be returned to campus for the Expo. After the expo, the team and supporter should arrange the handover of the work product to the industry supporter. This handover must be concluded within 7 days of the Expo.

List here any specific skills, requirements, specific courses, knowledge needed or suggested (If none please state none):

- Interest in machine design and automation