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PROJECT PROFILE

ATLANTIC ROLL FORMING

PROJECT BACKGROUND

Atlantic Roll Forming, a Moncton-based company, recently acquired a cutting-edge roll forming machine, signaling its entry into the prefabrication market for light-gauge steel (LGS) components. In collaboration with the University of New Brunswick's Off-site Construction Research Centre (UNB OCRC), Atlantic Roll Forming embarked on a project to design a comprehensive workflow for LGS prefabrication. The project aimed to explore software options, evaluate their suitability, and establish an efficient workflow from design to production.

METHODOLOGY

The exploration of software options involved a systematic approach, including literature reviews, industry consultations, and product demonstrations. Among the various solutions considered, FrameBuilder-MRD and StrucSoft's MWF Pro Metal emerged as top contenders, offering robust features tailored for LGS prefabrication. FrameBuilder-MRD excelled in automated design tools and material optimization, while MWF Pro Metal stood out for its integration with Building Information Modeling (BIM) workflows and extensive customization options.

RESULTS

FrameBuilder-MRD is a powerful CAD software designed specifically for the design and detailing of LGS structures. It offers a comprehensive suite of tools for the creation of detailed shop drawings, material lists, and production files necessary for manufacturing LGS components. Key features that make FrameBuilder-MRD particularly suitable for Atlantic Roll Forming include:

1. Integration with CAM: FrameBuilder-MRD has capabilities to export data directly to roll forming machines, facilitating a streamlined transition from design to production.
2. Automated Design Tools: The software automates the creation of framing layouts, significantly reducing manual drafting time and minimizing errors.
3. Material Optimization: It includes features for material optimization, which can help in reducing waste and controlling costs during the manufacturing process.

StrucSoft's MWF Pro Metal is another leading CAD/CAM solution tailored for the prefabrication of LGS components. It operates within Autodesk Revit, providing a familiar environment for those already acquainted with this popular BIM (Building Information Modeling) platform. MWF Pro Metal's advantages include:

1.BIM Integration: By working within Revit, MWF Pro Metal allows for seamless integration with BIM workflows, enhancing collaboration and coordination among different project stakeholders.
2. Automated Production Drawings and Reports: The software generates detailed shop drawings, cutting lists, and bills of materials directly from the BIM model, ensuring accuracy and efficiency.
3. Customization and Flexibility: MWF Pro Metal offers extensive customization options for framing rules, enabling it to meet the specific production requirements of Atlantic Roll Forming.

RECOMMENDATIONS

Based on the findings of the exploration of software options and the evaluation of software solutions for the prefabrication of light-gauge steel (LGS) components, several key recommendations emerge to optimize the workflow and enhance the efficiency of operations at Atlantic Roll Forming.

1. **Workflow Implementation:** The workflow, described by Figure, is the recommended application of software discovered for operating the machinery.
2. **Optimize Integration:** Optimize the integration of software systems to streamline the workflow from design to production. The selected software should facilitate seamless data transfer to the roll forming machines, minimizing manual intervention and the potential for errors.
3. **Customized Software Training:** Develop a customized training program for staff that focuses on the specific features and workflows of the selected software. This training should include best practices for designing LGS components and optimizing material usage.
4. **Continuous Improvement through Feedback Loops:** Establish continuous feedback loops between design and production teams to capture insights and challenges encountered during the fabrication process.
5. **Expand Software Capabilities with Plugins or Custom Dvelopment:** Consider the adoption of additional software plugins or the development of custom solutions to address any limitations encountered with existing software, especially for complex geometries like roof trusses and based on their needs.

If you are interested in getting involved in this initiative or other research and development projects, please contact the Off-site Construction Research Centre at: **offsiteconstruction@unb.ca**

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