

# REQUEST FOR PROPOSAL (RFP)

Scott and Sons

## PROJECT OVERVIEW

Name: Tech McClurechester Facility Upgrade

Type: Facility Upgrade

Location: McClurechester, MN (Refinery Zone)

Industry: Manufacturing

Value: \$1,550,306

Complexity: 2/5

Date: April 09, 2025

Disciplines: Process Engineering, Mechanical Engineering, Industrial Automation

Regulations: OSHA Regulations

## SCOPE OF WORK

### Scope of Work: Automated Packaging Line Upgrade for Canned Goods

**Project Goal: Upgrade an existing canned goods packaging line to increase throughput by 25% and improve packaging consistency, while adhering to relevant OSHA safety regulations.**

#### I. Process Engineering:

- Process Optimization:** Analyze the existing canning line's bottleneck points using time and motion studies and process mapping software (e.g., Arena). Develop a revised process flow diagram (PFD) incorporating modifications for improved efficiency and reduced downtime, identifying specific areas for speed improvements and waste reduction. The deliverable will be a revised PFD with a detailed justification report outlining expected throughput increases.
- Capacity Analysis:** Conduct a capacity analysis of the upgraded packaging line using simulation software to validate the predicted throughput increase of 25%. This analysis should include detailed considerations for machine speeds, buffer sizes, and operator interventions, resulting in a capacity analysis report with detailed simulation models and projected output statistics.
- Waste Reduction Strategy:** Develop and document a strategy to reduce packaging waste by at least 10% focusing on optimized packaging materials and waste recycling procedures. This will include a comprehensive waste audit of the current process, proposed solutions for material reduction, and a detailed cost-benefit analysis illustrating the financial advantages of the proposed solution, in compliance with OSHA guidelines for handling waste materials.

#### II. Mechanical Engineering:

- Conveyor System Upgrade:** Design and specify a new conveyor system to replace the existing outdated system, increasing the speed to 150 cans/minute. The system will utilize stainless steel (304 grade) conveyors with a 1-meter wide belt, conforming to ASME B20.1 safety standards. Detailed engineering drawings, including material specifications and bill of materials, will be provided.
- Packaging Machine Integration:** Integrate a new high-speed labeling machine (capable of 180 labels/minute) into the existing line. This will involve designing and fabricating custom mounting brackets and safety guarding to ensure proper alignment and worker safety, all documented with detailed CAD models and accompanying safety assessments compliant with relevant OSHA machine guarding requirements.
- Material Handling System Improvements:** Design and implement improvements to the existing palletizing system to increase efficiency and reduce manual handling. This will involve the selection and integration of a new automated palletizer (with a capacity of 12 pallets/hour), incorporating appropriate safety features and safeguards to minimize human intervention and meet OSHA requirements for safe material handling.

#### III. Industrial Automation:

- PLC Programming:** Program a new Programmable Logic Controller (PLC) to control the upgraded packaging line, integrating all new and existing equipment. This will involve creating a ladder logic program to manage machine sequencing, safety interlocks, and data acquisition, delivered as a fully documented PLC program with comments and detailed I/O mappings.
- HMI Development:** Develop a user-friendly Human Machine Interface (HMI) for monitoring and controlling the automated packaging line. This will provide real-time performance data, alarm management, and remote diagnostics capabilities, delivered as a fully functional HMI application with comprehensive user documentation.
- Safety System Integration:** Integrate a safety system including emergency stop buttons, light curtains, and interlocks into the automated packaging line design, ensuring adherence to all relevant OSHA safety standards. This will involve a detailed risk assessment, safety system design, and comprehensive testing and documentation, culminating in an updated safety plan and a completed safety system installation report.

#### IV. Cross-Disciplinary Tasks:

- System Integration Testing:** Conduct comprehensive testing of the integrated system, verifying the functionality of all components and meeting the performance requirements (throughput increase, waste reduction). This includes collaborative testing by all disciplines to ensure seamless integration of the process, mechanical, and automation components. The deliverable is a detailed test report outlining results and any necessary adjustments.
- Training and Documentation:** Develop comprehensive training materials and documentation for operators and maintenance personnel on the operation and maintenance of the upgraded packaging line. This requires collaboration between Process, Mechanical, and Automation teams to produce clear, concise training manuals and visual aids explaining all aspects of the system, from operation to troubleshooting.

**Complexity Impact: The project is of moderate complexity (2/5) due to the integration of multiple systems requiring careful coordination and testing.**

REQUEST FOR QUOTATION

Request for Quotation (RFQ): Tech McClurechester Facility Upgrade

Project Title: Tech McClurechester Facility Upgrade - Automated Packaging Line Upgrade

Issued By: Procurement Department, McClurechester Refinery Zone, MN

Date Issued: April 9, 2025

Project Description: This project involves a comprehensive upgrade of an existing canned goods packaging line at our McClurechester, MN refinery. The goal is to increase throughput by 25%, improve packaging consistency, and reduce waste by at least 10%, all while maintaining strict adherence to OSHA safety regulations. The project scope encompasses process engineering, mechanical engineering, industrial automation, and comprehensive system integration testing and training. Detailed scope of work is attached.

Scope of Work Summary: Automated Packaging Line Upgrade for Canned Goods. This includes process optimization, capacity analysis, waste reduction strategy, conveyor system upgrade, packaging machine integration, material handling improvements, PLC programming, HMI development, safety system integration, system integration testing, and training documentation.

Deliverables: Revised PFD with justification report; capacity analysis report; waste reduction strategy document; detailed engineering drawings; CAD models; PLC program; HMI application; safety plan; safety system installation report; test report; training materials.

Qualifications: Minimum 3 years of experience in manufacturing facility upgrades, proven track record of successful project delivery, and demonstrated regulatory compliance (OSHA).

Proposal Requirements: Your proposal should include:

- 1. A concise technical design summary (1-2 pages) addressing all aspects of the project scope.
- 2. A detailed cost breakdown.

Evaluation Criteria: Proposals will be evaluated based on the following weighted criteria:

- \* Technical Approach (50%)
- \* Cost (30%)
- \* Experience and Qualifications (20%)

Timeline:

- \* RFQ Release Date: April 9, 2025
- \* Questions Due: April 26, 2025
- \* Proposals Due: May 19, 2025
- \* Project Start Date: May 15, 2025
- \* Project Duration: 4 months

Contract Type: Fixed Price

Contact: Submit proposals electronically to [procurement@manufacturing.com](mailto:procurement@manufacturing.com)

Attachment: Detailed Scope of Work (as provided above)

CONTACT

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TIMELINE

Include key dates such as submission deadlines, inquiry deadlines, and project start dates.