

REQUEST FOR PROPOSAL (RFP)

Russell and Sons

PROJECT OVERVIEW

Name: Tech Vaughanborough Facility Upgrade

Type: Facility Upgrade

Location: Vaughanborough, TN (Refinery Zone)

Industry: Manufacturing

Value: \$15,192,050

Complexity: 3/5

Date: April 09, 2025

Disciplines: Electrical Engineering, Industrial Automation, Mechanical Engineering

Regulations: ASME Standards

SCOPE OF WORK

Scope of Work: Automated Pallet Handling System for a Food Processing Facility

Project Goal: Design, build, and implement an automated pallet handling system to improve efficiency and reduce manual labor in a food processing facility. The system will include automated guided vehicles (AGVs), a palletizing robot, and a conveyor system.

Discipline: Electrical Engineering

1. Design and Implement PLC Control System: Design a Programmable Logic Controller (PLC) system using Allen-Bradley PLC 5000 series to control the AGVs, palletizer robot, and conveyor system. This includes programming the PLC using ladder logic, creating HMI screens for operator interface, and implementing safety interlocks to meet OSHA standards and prevent accidents during operation. The system should incorporate remote monitoring capabilities via Ethernet/IP.

2. Power Distribution System Design: Design and implement a 480V three-phase power distribution system for the entire automated system, including power calculations, circuit breaker sizing, and proper grounding and bonding to meet NEC standards. This requires detailed schematics, bill of materials, and wiring diagrams for all power components.

Discipline: Industrial Automation

1. AGV Navigation and Control: Implement a navigation system for two AGVs using laser scanners and RFID tags for precise positioning and path planning within the facility (approx. 50m x 30m area). The system should utilize a centralized control system to manage AGV traffic and optimize pallet movement, minimizing congestion. Detailed system simulation and testing will be required before implementation.

2. Palletizing Robot Programming and Integration: Program a FANUC R-2000iB industrial robot for palletizing operations. This involves creating and testing robot programs for various pallet configurations, integrating the robot with the conveyor system and PLC control system, and implementing error handling routines for efficient and reliable palletizing operations. The robotic system will need to handle boxes with dimensions varying within a range of (40cm x 30cm x 25cm to 60cm x 50cm x 40cm)

Discipline: Mechanical Engineering

1. Conveyor System Design and Fabrication: Design and fabricate a roller conveyor system (approximately 50 meters total length) using stainless steel (304 grade) to transport pallets between the AGVs, palletizer, and storage area. The design should consider the load capacity (1500 kg per pallet), required speed, and incorporate safety features like emergency stops. Detailed CAD drawings and material specifications are required.

2. Pallet Support Structure Design: Design and fabricate a support structure for the palletizing robot, ensuring stability and compliance with OSHA standards. This includes detailed structural calculations to withstand dynamic loads during operation. The structure should be constructed from steel (A36) and comply with relevant ASME standards for industrial structures.

Cross-Disciplinary Tasks:

1. System Integration and Testing: All teams will collaborate on the integration of the electrical, automation, and mechanical systems. This will involve rigorous testing of the entire system, including functional testing, safety testing, and performance testing to ensure all components work together seamlessly and meet project requirements.

2. Documentation and Handover: All teams will collaborate on creating comprehensive documentation for the completed system, including operation manuals, maintenance procedures, schematics, and as-built drawings. This will be vital for ongoing operation and maintenance of the system.

Complexity Impact Note: The project's complexity is rated as a 3/5 due to the integration of multiple sophisticated systems and the need for careful coordination between different engineering disciplines.

REQUEST FOR QUOTATION

Request for Quotation (RFQ): Tech Vaughanborough Facility Upgrade

Project: Tech Vaughanborough Facility Upgrade - Automated Pallet Handling System

Location: Refinery Zone, Vaughanborough, TN

Industry: Manufacturing (Food Processing)

Date: April 9, 2025

Due Date: May 9, 2025

Project Overview: This RFQ seeks proposals for the design, build, and implementation of an automated pallet handling system for a food processing facility in Vaughanborough, TN. The system will include automated guided vehicles (AGVs), a FANUC R-2000iB palletizing robot, a stainless steel roller conveyor system, and an Allen-Bradley PLC 5000 series control system. The approximate facility area is 50m x 30m. Pallet dimensions range from 40cm x 30cm x 25cm to 60cm x 50cm x 40cm, with a maximum weight of 1500 kg.

Scope of Work (detailed description attached): The scope encompasses electrical engineering (PLC control, power distribution), industrial automation (AGV navigation, robot programming), and mechanical engineering (conveyor system, support structure design and fabrication). System integration and comprehensive documentation are crucial. (See attached detailed scope of work for complete specifications).

Qualifications: Bidders must demonstrate 3+ years of experience in manufacturing automation projects, with a proven track record of regulatory compliance (OSHA, NEC, ASME).

Proposal Requirements:

- 1. **Technical Proposal (1-2 pages):** Include a high-level design overview, addressing all aspects of the scope of work.
- 2. **Cost Breakdown:** Detailed cost breakdown, including all materials, labor, and contingency.
- 3. **Project Timeline:** Proposed project schedule, aligning with the project start date of May 12, 2025, and a 7-month duration.

Evaluation Criteria:

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

Contract Type: Time & Materials

Timeline:

- * RFQ Release: April 9, 2025
- * Questions Due: April 29, 2025
- * Proposals Due: May 9, 2025
- * Project Start: May 12, 2025
- * Project Duration: 7 Months

Contact: Submit proposals electronically to procurement@manufacturing.com

(Detailed Scope of Work attached)

CONTACT

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TIMELINE

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