

# REQUEST FOR PROPOSAL (RFP)

Schwartz-King

## PROJECT OVERVIEW

Name: Tech Amandaborough Automation Retrofit

Type: Automation Retrofit

Location: Amandaborough, MA (Industrial Park)

Industry: Manufacturing

Value: \$12,163,164

Complexity: 3/5

Date: April 09, 2025

Disciplines: Industrial Automation, Electrical Engineering

Regulations: ISO 9001, OSHA Regulations

## SCOPE OF WORK

### Scope of Work: Generic Automation Retrofit Project ? Industrial Park

**Project Goal:** To retrofit existing industrial machinery within a designated area of an industrial park with updated automation systems, improving efficiency, safety, and production output. The project scope is limited to [Specify Area/Machines - e.g., three assembly lines in Building C].

#### I. Industrial Automation Discipline:

**Task 1: PLC System Upgrade and Programming:** Replace the existing PLC (Programmable Logic Controller) system (currently using a [Specify PLC Brand and Model]) with a new Allen-Bradley CompactLogix 5370 system. Develop and implement a new PLC program incorporating improved safety features (e.g., emergency stop circuits conforming to IEC 61508 standards) and enhanced production monitoring capabilities. All programming will be documented according to company standards, including ladder logic diagrams and comments.

**Task 2: HMI Development and Integration:** Design and implement a new Human Machine Interface (HMI) using FactoryTalk View SE. The HMI will provide real-time monitoring of production parameters, including speed, temperature, and pressure from all relevant sensors (Specify types and number of sensors). The HMI will also allow for remote control and diagnostics of the automated systems. Screen layouts will be ergonomically designed and user-friendly, with clear visual representations of machine status.

**Task 3: Robotic Cell Integration (if applicable):** Integrate a new collaborative robot (cobot) with the upgraded automation system. The cobot (e.g., UR5 model) will be programmed to perform [Specific Task, e.g., pick-and-place operation on assembly line 2], using URCap software and following a predefined trajectory within a safety zone of 2m x 2m, ensuring adherence to safety standards for collaborative robots. The system will include appropriate safety features such as light curtains and emergency stops.

#### II. Electrical Engineering Discipline:

**Task 1: Power Distribution System Upgrade:** Upgrade the existing electrical power distribution system to handle the increased load from the new automation equipment. This includes replacing outdated 480V panels with new ABB panels with at least 100A capacity for each machine. Ensure all wiring is properly sized according to NEC codes, with proper grounding and bonding. Comprehensive documentation including electrical schematics and panel layouts will be delivered.

**Task 2: Motor Control Center (MCC) Retrofit:** Replace the existing MCC with a new MCC incorporating variable frequency drives (VFDs) for improved motor control and energy efficiency. The VFDs (Specify Brand and Model, e.g., ABB ACS580) will be selected to match the existing motor specifications (Specify motor types and power ratings). All wiring and connections will be carefully labelled and documented in accordance with industry best practices. Include relevant safety devices like circuit breakers and fuses.

**Task 3: Safety System Design and Implementation:** Design and implement a comprehensive safety system compliant with OSHA regulations, including emergency stop circuits, light curtains, and interlocks. Develop and implement safety relays (e.g., Pilz PNOZmulti) to monitor safety functions. All safety components will be chosen and designed in accordance with IEC 62061 standards and meticulously documented, including safety functional requirements specification (SFRS).

#### III. Cross-Disciplinary Tasks:

**Task 1: System Integration and Testing:** Collaborate to ensure seamless integration between the automation and electrical systems. This involves coordinating the installation and commissioning of all equipment, performing rigorous testing to validate functionality, and troubleshooting any issues that arise. Detailed test procedures and test results will be documented.

**Task 2: Project Documentation and Handover:** Both disciplines will collaborate to create comprehensive documentation of the entire retrofit project, including as-built drawings, PLC programs, HMI screens, electrical schematics, and operational manuals. The final documentation package will be handed over to the client upon successful completion and acceptance testing.

**Complexity Impact:** The complexity level (3/5) reflects the need for integration of multiple systems and components.

REQUEST FOR QUOTATION

Request for Quotation (RFQ): Tech Amandaborough Automation Retrofit

Project Name: Tech Amandaborough Automation Retrofit

Location: Amandaborough Industrial Park, MA

Industry: Manufacturing

Issued Date: April 09, 2025

Due Date: May 09, 2025

Project Goal: Retrofit existing industrial machinery (three assembly lines in Building C) with updated automation systems, improving efficiency, safety, and output.

Scope of Work: This project involves a comprehensive automation retrofit encompassing PLC system upgrade, HMI development, robotic cell integration (if applicable), power distribution upgrade, MCC retrofit, and safety system implementation. Specific details are outlined below:

I. Automation (PLC & HMI):

- \* **PLC Upgrade:** Replace existing [Specify PLC Brand and Model] with Allen-Bradley CompactLogix 5370. Develop and implement new PLC program with improved safety (IEC 61508 compliant) and production monitoring.
- \* **HMI Development:** Design and implement FactoryTalk View SE HMI for real-time monitoring and control (specify sensor types/numbers).
- \* **Robotic Cell Integration (Optional):** Integrate UR5 cobot for [Specific Task] within a 2m x 2m safety zone, using URCap software (include safety features).

II. Electrical:

- \* **Power Distribution Upgrade:** Upgrade 480V panels (ABB, 100A min. per machine) and wiring to NEC codes.
- \* **MCC Retrofit:** Replace existing MCC with new MCC including ABB ACS580 VFDs (specify motor types/power ratings).
- \* **Safety System:** Implement OSHA and IEC 62061 compliant safety system (emergency stops, light curtains, interlocks, Pilz PNOZmulti safety relays).

III. Cross-Disciplinary:

- \* **System Integration & Testing:** Seamless integration and rigorous testing of all systems.
- \* **Documentation & Handover:** Comprehensive documentation (as-built drawings, PLC programs, HMI screens, electrical schematics, operational manuals).

Requirements:

- \* Minimum 3 years' experience in manufacturing automation retrofits.
- \* Proven regulatory compliance (OSHA, NEC, IEC 61508, IEC 62061).

Proposal: Include detailed technical designs (1-2 pages) and a comprehensive cost breakdown.

Evaluation Criteria: Technical (50%), Cost (30%), Experience (20%).

Contract Type: Time & Materials

Timeline:

- \* Question Deadline: April 29, 2025
- \* **Project Start: June 02, 2025**
- \* Project Duration: 11 months

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CONTACT

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TIMELINE

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