

JOB DESCRIPTION

JOB TITLE: Project Engineer

DEPARTMENT: Engineering

REPORTS TO: Chief Engineer

DIRECTLY SUPERVISES: Staff Engineer(s)

JOB SUMMARY:

Responsible for sales support, design, presentation of design in proper drafting format, and testing of all products associated with an assigned project(s), and the accomplishment of this within the specified budget.

PRINCIPAL DUTIES AND RESPONSIBILITIES:

1. Assist Sales Department with proposal preparation, including engineering calculations, sketches and system operating procedure descriptions.
2. Help the Sales Department with proper gathering and interpreting of data and specifications, in order to assure that the customer's needs and expectations are addressed by the proposal within the guidelines of proper engineering design.
3. Aid the Sales Department upon request with sales presentations.
4. Support the Sales Department during proposal presentation and evaluation in order to assure that good engineering principles and proper component selection continue to be the basis for final project definition.
5. Upon purchase order receipt, obtain from the Sales Department all available information to assure proper project design, in agreement with the purchase order, achieved within the established budget and in adherence to the specified delivery schedule.
6. Initiate and maintain a project working file in accordance with the Engineering and Manufacturing Standards of System Controls, Inc.
7. Discuss the primary scope of design, delivery schedule and associated design schedule with the Chief Engineer, in order to receive an assignment of the necessary resources to complete the design as scheduled.
8. Coordinate the projected finished drawing schedule with the Vice President of Manufacturing in order to properly plan for procurement and manufacturing, discussing the main component requirements during this process to discover and/or accommodate any unique procurement necessary to support the established delivery schedule.
9. Make all design calculations necessary to determine and/or define the various control system/panel divisions, segments or components.
10. Prepare design sketches of schematic diagrams for all control system/panel divisions, segments, components or equipment.

11. Prepare design sketches of layouts for all control system/panel divisions, components or equipment.
12. Compile necessary information for the preparation of bills of material for all control system/panel divisions or components. Inform the Vice President of Manufacturing of these results in order to continue the opportunity to implement any required unique procurement action necessary to achieve the delivery schedule.
13. Prepare design criteria necessary to support preparation of the required wiring diagrams for all control system/panel divisions, segments, components or equipment.
14. Prepare design sketches of interconnection diagrams (if required) showing the proper interconnection of associated and related control system/panel divisions, segments, components or equipment.
15. Incrementally and/or collectively present the above listed sketches, criteria and information to the Chief Engineer for review, and upon receipt of approval, transfer same to the Chief Draftsman along with the desired and/or necessary schedule of completed finished drawings required to meet the specified delivery schedule.
16. Communicate with, advise and supervise the assigned designer(s) during preparation of finished drawings to insure the intended design is followed and achieved.
17. Check all drawings upon their completion by the designer(s) indicating any necessary corrections or changes and return these "marked-up" drawings to the designer(s) for correction. Verify that all comments and/or corrections are accurately transferred to the finished drawings.
18. Prepare software programs where applicable and supervise preparation of proper documentation.
19. Assure that an accurate, complete set of drawings is submitted to the customer for approval, if appropriate, and after responding to their comments assure that said drawings are placed in the hands of the Vice President of Manufacturing, complete with the proper stamp - "released for manufacturing".
20. Periodically inspect the arriving parts, components, etc. to assure consistency with design expectations and final drawing definition.
21. Monitor, communicate with, and answer the questions of the manufacturing technician or team during the manufacturing of the control system/panel components and/or equipment.
22. Define and coordinate in a timely manner, consistent with proper support of the shipping schedule, the desired testing procedure of the control system/panel components and equipment, assuring that all related segments properly function together as designed and that all design is fully consistent with project criteria and customer expectations.
23. Gather all drawings used for manufacturing and assure that any and all modifications and/or revisions made during manufacturing are properly reflected in a final "As-Built"

set of drawings and that a finished result is included with the equipment for shipment. Review this completed result with the Chief Engineer prior to shipment, and after receipt of approval, make sure that the appropriate drawings and documents are properly filed.

24. Review the completed project from the viewpoint of profitability and repeatability with the Chief Engineer. Compile the ideas and possibilities for improvement that result into a set of notes or report and place in the project file for future reference.
25. Coordinate and supervise start-up of the equipment when appropriate.
26. Travel as required. (Trips to all parts of the United States are common. Overseas trips are not frequent but do occur. Most trips require a week or less away from Birmingham, but longer trips are occasionally necessary).
27. The position of Project Engineer requires the ability to work with minimum supervision. On most projects the project engineer has knowledge not readily available to others, and therefore must be in the office as much as possible to answer questions and supervise work on the project. Regular or excessive absences would prevent proper discharge of the duties of the position and therefore cannot be allowed.

PERSONAL SKILLS, AND ABILITIES:

1. Good oral/written communication and interpersonal skills.
2. Proven ability to evaluate equipment and services required by a customer from written descriptions, specifications, on-site inspections and verbal instructions. Must be able to read, understand and originate engineering drawings which use various types of standard symbols and formats.
3. Demonstrated ability to effectively prepare and present technical documents such as proposals, specifications and reports as well as complete design and documentation of a project.
4. Established ability to coordinate a high level of activity under a variety of conditions and constraints.
5. Confirmed ability to be self-motivated while maintaining good communication with, accountability and progress reporting to, designated parties.

EDUCATION, KNOWLEDGE AND EXPERIENCE:

1. Requires at least a Bachelor of Science Degree in Electrical Engineering from a recognized university. Much of the work in this position will be designing new products and applications, requiring an understanding of electrical and electronic theory and procedures.
2. Basic practical working knowledge of:
 - a. OSHA, MSHA, JIC and National Electrical Code standards and requirements as

- applicable to SCI products and design interests.
- b. Enclosures for both Power and/or Control equipment necessary for proper application and location in the established surrounding environment.
 - c. 600 volt - 5 KV Power distribution equipment.
 - d. Various types of AC and DC motors, their proper circuit protection, overload protection, thermal monitoring, thermal protection, starting and running characteristics and applications.
 - e. Different kinds of AC and DC motor control such as Motor Control Centers, Motor Starters and Variable Speed Drives.
 - f. Lighting fixture selection and layout to accommodate proper illumination of different areas and/or applications along with proper branch circuit load distribution and protection for a complete lighting system.
 - g. Grounding system design, including proper equipment grounding, ground monitoring, and ground detection, that utilizes proper equipment and/or devices.
 - h. Control components and equipment such as relays, timers, counters, meters, potential transformers, current transformers as well as various electrical and mechanical transducers such as load cells etc.
- 3. Requires the ability to specify and utilize Programmable Logic Controller hardware and software from various manufacturers. Must be familiar with control logic techniques including PID loops, file handling and digital ladder logic diagrams.
 - 4. Must be familiar with personal computers, particularly MS-DOS and WINDOWS applications. A working knowledge of various computer languages is also desirable.
 - 5. Sufficient customer interface experience.

PERSONAL ATTRIBUTES:

- 1. High moral and professional standards.
- 2. Alcohol and drug addiction free.
- 3. Flexible and adaptable to different work environments and dress requirements such as; underground mining and all sorts of manufacturing facilities along with field safety equipment like; steel toed boots, safety glasses, etc.
- 4. This position requires the ability to work in physically demanding situations. Field work may require carrying equipment up stairs, carrying equipment over rough terrain and working in cramped quarters in underground mines. Field work may also be required outdoors in all seasons.
- 5. Neat and professional looking in dress and general over-all appearance is necessary. The

project engineer will be representing System Controls as one professional to other professionals. The equipment we build is recognized as high quality, and our employees are required to exhibit high moral and professional standards in both appearance and actions at all times. Hair should be trimmed and neat for safety purposes.(long hair can be dangerous around machinery with moving parts). Professional business attire is suggested and preferred during office hours and when interfacing with the customer. Casual sports clothes and comfortable shoes are acceptable on days when working in the shop. The appropriate attire for field work will depend on the work involved. Steel toed boots, hard hat, and safety glasses with side shields are commonly required when working in the field.