

**ELECTRIC CONTROLS  
AND  
SYSTEMS, INC.**

**5639 MILLER INDUSTRIAL BLVD.  
BIRMINGHAM, AL 35210**

**QUALIFICATION DOCUMENT**

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**A. INTRODUCTION**

Electric Controls and Systems, Inc. ("EC&S") was formed over 25 years ago. The present management took over the company in 1980 and we have enjoyed sustained growth ever since. We are a company, which has the capability to deliver turnkey electrical and instrumentation services, namely: Engineering, Complete Installation, Programming and Start-up for a variety of Industrial Projects.

Our dedicated and qualified engineering and construction personnel have enabled us to build an excellent track record for on schedule, on budget, quality projects and effective and timely start-ups.

EC&S is a company, which specializes in the Electrical, Instrumentation, Process Control and Power Distribution for Industrial Projects. Additionally, EC&S has successfully provided many turn-key projects within the foundry, cement and paper industries.

**B. ENGINEERING**

EC&S maintains a permanent staff of qualified engineering personnel. Our permanent group of engineers is supplemented by qualified contract personnel, as required to meet project workload and demands. The majority of our engineering staff has extensive field experience and several have direct operating experience in heavy industry.

EC&S has found, that by having a small but effective engineering nucleus and well-trained C.A.D. personnel, in conjunction with state of the art equipment, we can utilize the skills of known contract personnel and design associates to produce quality engineering and avoid the hiring/firing syndrome of traditional engineering groups.

## **C. INDUSTRIAL EXPERIENCE**

### **GENERAL**

EC&S has worked exclusively in the heavy industrial sector. EC&S' Engineers, Project Managers, Superintendents and Foremen have all had in-depth experience on a variety of projects and are thoroughly experienced in all phases of design/construct work.

### **SPECIFIC**

Direct experience in various areas of steel manufacturing including new rolling mills, furnaces, bag houses, casters, material handling etc. Have worked for such companies as:

- \*SMI Steel
- \*Republic Steel
- \*U.S. Steel
- \*Atlantic Steel
- \*J. Pitt Steel
- \*Arkansas Steel
- \*Auburn Steel
- \*Birmingham Steel
- \*Florida Steel

### **Foundries**

Direct experience in the designing and building of new foundries, additions to existing and modernization of existing foundries. Have worked for such companies as:

- \*Urick Foundry
- \*Addico Foundry
- \*Union Foundry
- \*Neenah Foundry
- \*Fort Wayne Foundry
- \*Pontiac Foundry
- \*Southern Aluminum Castings
- \*Berman Brothers
- \*Ford Motor Company
- \*Westinghouse Foundry
- \*Crouse Hinds Foundry
- \*U.S. Pipe and Foundry (6)
- \*Chrysler
- \*Honda
- \*Ford
- \*Georgia Ductile

- \*Columbus Foundry
- \*Rochester Products
- \*Intat
- \*Central Foundry
- \*Newriver Foundry
- \*International Truck and Engine
- \*Central Sprinkler (Tyco International)
- \*East Jordan Iron Works (Ardmore)
- \*Intermet (4)
- \*American Cast Iron Pipe Co.(ACIPCO)
- \*Ward Manufacturing

### **Mining Operations**

Direct experience in primary, secondary, tertiary crushing, conveying, tunnel feed systems, storage, distribution and finishing. Have worked for such companies as:

- \*McCullough Industries
- \*LeHigh Cement
- \*Citadel Cement
- \*National Cement
- \*Allied Products
- \*Southern Stone
- \*S. I. Lime
- \*Black Diamond Coal Company
- \*Lost Mountain Mining

### **Cement**

Direct experience in all phases of cement manufacturing from quarry operations to finishing and shipping. Have worked for such companies as:

- \*Blue Circle Cement
- \*Citadel Cement
- \*LeHigh Cement
- \*National Cement
- \*Mississippi Lime

### **Wood Products/Pulp & Paper**

Direct experience in a variety of projects in all areas of wood products/pulp & paper. Have worked for such companies as:

- \*Dixon Lumber
- \*Lester Sawmill
- \*Weyerhaeuser
- \*St. Joe Paper
- \*Kimberly Clark
- \*Hammermill
- \*Clinch River
- \*Champion
- \*Mead
- \*Georgia-Pacific
- \*Great Northern
- \*Potlatch
- \*Shelby Tissue
- \*International Paper
- \*Bowater

### **Secondary Lead Acid Battery Recycling**

- \*Interstate Lead (Savannah, IL Plant)
- \*Interstate Leac (Birmingham, AL Plant)
- \*RSR
- \*Sitezinger
- \*National Lead
- \*PBX
- \*Duracel

**D. OFFICE LOCATION**

EC&S maintains its head office in Birmingham, Alabama. Additionally, EC&S is contracted with regional representation within the states of :

Wisconsin  
Michigan  
Minnesota  
Illinois  
Pennsylvania  
Delaware  
New Jersey  
New York  
Maryland

Birmingham is centrally located with easy access to the majority of our clients. On long-term projects, we establish a local office on the job site. In this way, engineering can be properly coordinated and controlled to ensure quality performance in the field.

**E. Construction Organization**

EC&S is a merit or open shop contractor. On all EC&S projects, the project superintendent (s) and foremen, are permanent EC&S employees and we frequently supplement this core group, with specially qualified individuals who are also permanent personnel. The numbers of permanent personnel assigned will vary depending upon the size of the project. The balance of the manpower required is hired on a project-by-project basis. EC&S maintains a current listing of personnel hired by area, so that, should we return to a given area in which we have previously worked, we have access to proven personnel.

## F. PROJECT AND QUALITY CONTROL

### Project Controls

**Schedule:** EC&S' home office, involving management, the project manager and the project superintendent, etc., produce an overall schedule for all work, which meets with the clients overall project schedule. Our schedule will reflect owner supplied equipment, delivery dates and completion dates of any other suppliers and trades. The overall schedule will cover all EC&S work responsibilities and then sub-schedules shall be produced to reflect area requirements. These sub-schedules would be utilized by supervisors and foremen to control areas for which they have responsibilities. Sub-schedules are up-dated weekly and the overall schedule is up-dated monthly, with an attendant report produced by the general superintendent for review with EC&S' project manager and client representative. This up-date and report shows actual progress, areas where there are problems and recommended solutions to the problems. Our scheduling system is Prima-Vera.

**Cost Reporting/Control:** On firm price projects, EC&S internally maintains up-to-date records of all equipment and materials purchased, labor and labor associated costs and job-site overhead costs. The cost report going to the client would simply reflect percentage completion and billing information. In addition, EC&S' general superintendent and foreman maintain records for all additions and deletions or reductions, to the original scope. The changes are detailed on change order authorization forms, by the foreman, and reviewed daily with general superintendent, who in turn reviews these changes daily, or as required, with the client representative, to achieve approval. Once the scope of additions or reductions is approved, they are then priced, using the method contained in the contract and submitted to the client for approval and action. No work will be done on the additions, until client approval of the scope and cost is received. This is the standard procedure unless we are directed to proceed by the client, in order to avoid project delay.

Project cost controls are maintained against a firm project budget in order for EC&S to measure productivity, cost of labor, materials, indirect costs, etc.

**Quality Controls:** EC&S has established quality control procedures relating to all phases of work. The quality control is achieved via the lead or general foreman, ensuring that our standards relating to equipment installation, electrical and instrumentation installation and system check-out are adhered to. The general superintendent will also inspect work for adherence to quality control standards and the project manager and EC&S' management, also visit the job-site periodically, to check quality, progress etc. Adherence and attention to strict quality control procedures, has enabled EC&S to achieve extremely successful start-ups on past projects.

**Man-Power Control and Evaluation:** EC&S' general superintendent has the responsibility to evaluate the overall performance, productivity, quality, safety, etc. of the entire work-force. He directly evaluates the general foreman, foreman, etc. on their performance and relies on the foremen to evaluate their specific crew members. Anyone not following established EC&S procedures will be given an initial warning and if ignored or repeated, would be terminated. On-site and home office training programs are encouraged and those hired who demonstrate a willingness to learn can advance within our company structure.

#### **G. Safety During Construction**

Safety orientation meetings are conducted on a weekly basis, on site. Prior to the start of any project, basic safety requirements are reviewed, and also any added client safety rules which would apply to the given project.

In addition we address

- \* Proper unloading and loading techniques
- \* Qualified personnel using equipment
- \* Proper grounding of electrical equipment
- \* No smoking requirement
- \* Flammable liquid/gas storage and handling
- \* Refueling operations
- \* Ladder tips
- \* Small tool usage, cleaning, storing
- \* Weather hazards awareness
- \* Job-site first aid availability
- \* Warning sirens, blasting etc., awareness
- \* Accident reporting
- \* Chemical awareness

When employees are hired, the superintendent conducts, with the foremen, an initial safety meeting and employees who have received orientation are logged-in. All personnel must observe posted safety rules, signs, and procedures. For any violation, the employee is warned (minor in nature), but further or repeat violations require dismissal. Employee safety records, covering all levels of EC&S personnel are maintained and reviewed by management. Those employees, who show disregard for safety, will be warned and subsequently dismissed, if safety records are not acceptable. If an accident occurs, the superintendent fills out an accident report form and gives copy to client and to home office, for record purposes.

EC&S has worked diligently to produce an effective safety policy and our lost time accident rate is, as a result, kept to a minimum. Our insurance multiplier reflects our dedication to a safe working environment.

**H.****REFERENCES**

Mr. Marty Schreiber  
SMI Steel  
Birmingham, AL  
(205) 599-7947

Mr. Doug Smith  
(219) 223-0419  
Mr. Ken Conley  
(219) 223-0410  
Rochester Metal Products  
Rochester, IN

Mr. Dan Shrader  
International Truck & Engine  
Waukesha, Wisconsin  
(262) 548-1647

Mr. Zane Owens  
Columbus Foundries, Inc.  
Columbus, Georgia  
(706) 596-2292

Mr. Richard Ennis  
Duracell U.S.A.  
LaGrange, GA  
(706) 883-2763

Mr. John Woods VP Eng.  
American Cast Iron Pipe Co  
(ACIPCO)  
(205)325-7906

Mr. George Mathews  
Mathews Industries  
Atlanta, Ga.  
(770)437-5480

Mr. Bruce Hogeland  
Chaney Lime  
(205) 663-3591

Mr. Dan Shield  
Irondale Industrial Contractors  
Birmingham, AL 35210  
(205) 956-4509

Mr. Tracy K. Malpass  
Executive Vice President  
East Jordan Iron Works  
P.O. Box 439  
East Jordan, MI 49727  
(231) 536-2261

Mr. Steven Boyd  
Corporate Engineering Mgr.  
US Pipe and Foundry Co.  
(205)254-7407

Mr. Jeff Burk  
Osco Industries, Inc.  
Portsmouth, Ohio  
(614) 354-3183

Mr. John Hummel  
Ward Manufacturing  
Blossburg, Pa  
(570)638-2131

Mr. Bill Martin VP  
Neenah Foundry  
Neenah, Wisconsin  
(920)729-3868

Mr. Steven Boyd  
Corporate Engineering Mgr.  
US Pipe and Foundry Co.  
(205)254-7407

**Trade**

Wesco Distribution Inc.  
125 32<sup>nd</sup> Street, South  
Birmingham, AL 35233  
Contact: Jim Reed  
Tel: (205) 322-4461

Mayer Electric Supply Co.  
3405 4<sup>th</sup> Avenue South  
P.O. Box 1328  
Birmingham, AL 35210  
Tel: (205) 585-3500

M & R Pipe & Supply, Inc.  
40 Sayreton Drive  
Birmingham, AL 35246  
Contact: Joann Henson  
Tel: (205) 251-3771

Graybar Electric Company  
709 1<sup>st</sup> Avenue North  
Birmingham, AL 35203  
Contact: Dave Gifford  
Tel: (205) 244-2605

**BANK**

Mr. John P. North, III  
Vice President  
National Bank of Commerce  
1927 First Avenue North  
Birmingham, AL 35202  
Tel: (205) 583-3704

I. **KEY COMPANY PERSONNEL**

**Gregory R. Bray** - President

Mr. Bray attended St. Norbert College and Marquette University School of Engineering and is an Electrical Engineer.

Mr. Bray has managed the electrical construction for projects, from ground breaking through equipment installation, startup, hiring, training, and supervising of the staff and instituting the necessary operational procedures and controls to operate those projects.

Mr. Bray's career includes working for:

Leeds and Northrup from 1971 - 1973

Southern Engineering and Equipment Co. (Previous owners of EC&S)  
1973 - 1980

EC&S 1980 - Present

Mr. Bray is responsible for the day-to-day management of EC&S and its projects.

## **Gregory K. Lummis - Chief Engineer**

Mr. Lummis attended Auburn University and majored in Electrical Engineering.

Mr. Lummis has taken direct leadership roles in the design and construction of state of the art industrial projects, including: steel mills and foundries. He has managed construction, from ground breaking through equipment installation and customer training.

Mr. Lummis' career includes working for:

Rust Engineering from 1986 - 1988

EC&S from 1988 - to present

### **Sample Projects**

SMI Steel - Mr. Lummis was project engineer responsible for the electrical and control system for (3) major expansions at this mill. The three expansions were: a new rolling mill, a new (4) strand caster and a new DC arc furnace.

New River Casting - Mr. Lummis was project engineer responsible for the electrical and control system for a complete new sand molding system and melt facility.

Central Castings - Mr. Lummis is project manager responsible for the complete foundry addition, including all process equipment, installation and engineering of the equipment for this plant expansion.

Ward Mfg. – Mr. Lummis was project manager on this turnkey 38 ton per hour cupola melt center and emission control project.

**John D. Promer**

John's undergraduate degree in Structural Engineering is from the University of Wisconsin

Prior to joining EC&S John was with the Vulcan Engineering Company for 27 years as the Corporate Vice President

John's involvement in process and system design includes many facilities throughout the U.S., Europe and Asia. With this background and construction experience in the foundry industry, John also acts as the executive sponsor for turnkey projects and as such is responsible and accountable to the client's management through out the project.

At EC&S, John's responsibilities also include Sales and Marketing. As a 35 year member of the American Foundry Society, John has also been a frequent speaker and active board member as well as the chairman of the educational committee.

## **Charles Graves - Project Superintendent**

Mr. Graves, who holds a Master Electrician license, has over 30 years experience in all phases of electrical, instrumentation and process control and is a superintendent / lead foreman with EC&S. He has successfully managed a variety of projects for EC&S, including cement plants, quarries, foundries, grain handling and chemical projects.

### **Sample Projects**

Citadel Cement - Lead foreman quarry operation and finishing mill projects, including extensive material handling.

Allied Projects - Lead foreman quarry operation and finishing projects including extensive material handling.

Southern Stone - Lead foreman quarry operations projects including extensive material handling.

Addico Foundry - Project superintendent on new foundry operations, including extensive material handling and new substation, plus PC control.

S. I. Lime - Project superintendent on expansion to lime production plant, including extensive material handling.

Chrysler Foundry - Project superintendent on new foundry for Chrysler in Indiana.

Rochester Metal Products - Project superintendent for the electrical installation of a new Disa foundry & project superintendent for a turn-key melt facility.

## **Jerry Hocutt - Project Manager**

### **General**

Mr. Hocutt joined EC&S as a journeyman electrician and has risen to superintendent / project management status with multiple Master Electrician licenses throughout the United States. He has over 20 years experience in all phases of electrical, instrumentation and project construction. He has successfully managed a variety of projects for EC&S, including cement, coal handling, saw mills, foundries and steel mills.

### **Sample Projects**

Lost Mountain Mining - Lead electrician on coal handling system, including crushing, conveying, tunnel system and load-out.

SMI Steel - Superintendent for new rolling mill addition and new (DC) EAF furnace.

Tennol Ethanol Plant - Superintendent on grass roots plant, including grain handling, processing, distributed control network.

Union Foundry - Superintendent on new foundry, including extensive materials handling and PC control.

Neenah Foundry - Lead foreman on new foundry, including extensive materials handling and PC control.

Central Castings - Superintendent of all construction for a new foundry.

Duracell U.S.A. - Superintendent for new spun zinc system and corresponding utility package.

## **Wayne Estes - Project Superintendent**

### **General**

Mr. Estes joined EC&S as a journeyman electrician and has risen to superintendent / lead foreman status.

He has over 20 years experience in all phases of electrical, instrumentation and project construction. He has successfully managed a variety of projects for EC&S, including steel mills, cement, coal handling, foundries, and saw mills.

### **Sample Projects**

Arkansas Steel - Superintendent for caster upgrade.

J Pitt Steel - Superintendent for new caster upgrade.

Mississippi Steel - Superintendent for new caster and arc furnace project.

Ft. Wayne Foundry - Superintendent on new foundry, including extensive materials handling and PC control.

Auburn Steel - Superintendent for baghouse project for arc furnace.

Sanders Lead Co. - Superintendent for Battery Decaser project.

## **Conrad B. Smith – Project Manager**

Mr. Smith attended Auburn University, where he received a bachelor's degree in chemical engineering, and University of Florida and University of Houston, where he received graduate degrees in chemical engineering. Graduate work emphasized process dynamics and control.

Mr. Smith has designed and built two automated factories from the ground up as well as taught process control, applied mathematics, and numerical methods at the university level.

### **Sample Projects**

Radford Foundry - Mr. Smith developed and implemented a control system for a continuous blaster with product dependent process menus and Panelmate operator interface.

Advanced Cast Products - Mr. Smith was responsible for PLC and HMI programming for control of the sand system on a new Disa line. He remained on site throughout the debug and startup phases of the project.

Amex International - Mr. Smith developed a high-speed automated factory for manufacture of wooden handles. The project included refurbishing second hand equipment, both mechanically and electronically, as well as design and construction of new equipment. The factory achieved production levels of 50,000 units per shift with minimal labor. A second major project for which Mr. Smith was responsible was building a factory for the production of powder painted metal tubing for metal handle applications. This project involved factory layout design, new equipment purchase, and in-house design of the powder painting system. The factory currently produces in excess of 40,000 units per day with 4 operators.

Louisiana State University - Mr. Smith was a faculty member in the Department of Chemical Engineering. He supervised the thesis projects of three graduate students, hosted a postdoctoral fellow, and taught undergraduate and graduate classes in applied mathematics and numerical methods. His research projects included development of an adaptive extension of Shell's dynamic matrix control system and devising and simulating a new model based nonlinear feedback control strategy.

## **J. Allen Hocutt – Project Manager**

Mr. Hocutt joined EC&S as an apprentice electrician and has risen through the ranks to become a system programmer.

He has over 10 years of experience in all phases of the electrical, instrumentation and project construction. He has been instrumental to the completion of a variety of projects including foundries, steel mills, coal handling, cement and other process systems.

### **Sample Projects**

Duracell U.S.A. - Mr. Hocutt was the system programmer for the spun zinc system and the depolarized powder system of which both included PC and HMI systems.

Ford Motor Company - Mr. Hocutt was the system programmer for the return sand system at the Cleveland Aluminum Casting Plant.

Intat Precision, Inc. - Mr. Hocutt was the system programmer for the entire foundry, including the integration of all systems to one local HMI.

Post Cereal - Mr. Hocutt was the lead foreman on the construction of a new cereal line.

SMI Steel, Inc. - Mr. Hocutt was the foreman over the LMS portion of the project.

## **D. Keith Phillips – Project Manager**

Keith Phillips has over 25 years of experience in industrial electrical and instrumentation construction throughout the United States and the Caribbean including Project Management responsibility in the following industries: cement, foundries, pulp and paper, food and beverage, chemical, wood products, aluminum production and extrusion and power distribution. He has demonstrated a range of skills including scheduling, planning and estimating, which enabled him to assist owners with successful completion of projects ranging from incoming service, motor control, process control and information systems (fiber and LAN Networks). For all projects which he has served as Project Manager, there have been zero accidents.

### **Sample Projects**

Suwannee American Cement – Manager of Electrical and Instrumentation for green-field construction of a 2400 ton per day cement plant.

Lafarge Cement (formerly Blue Circle) – Manager of Electrical and Instrumentation for a 4500 ton per day line addition.

Cemex – Manager of Electrical and Instrumentation for a 5400 ton per day line addition.

Holcim Cement (formerly Holnam) – Site Project Manager for a design/build 3200 ton per day cement plant. Responsible for Engineering, Mechanical, Civil, Structural, Electrical and Instrumentation.

Farmland Industries – Electrical and Instrumentation Project Manager for a coal to ammonia process.

Weyerhaeuser – Project Manager for the Electrical portion of the installation of a Coe Plywood Drying System.

Burndy Foundry – Project Manager for the installation of a DISAmatic automated moulding line.

Mid-East Aluminum – Project Manager for the relocation and expansion of aluminum extrusion anodizing plant.

U.S.Pipe – Project Manager for the installation of Electric Arc Furnace for cast iron pipe facility.

U.S.Pipe – Project Manager for the installation of cement lining equipment for cast iron pipe.

## **J. EC&S, Robotics Division**

The Robotics Division of EC&S was established in July of 2000. EC&S Robotics manufactures gantry based material handling and arc welding robots suitable for industrial service. Our pre-engineered line of products include,

TITAN II Gantry Handling Robots  
RoboTram Gantry Welding Robots  
TW5L Robotic Lathe Welders

The TITAN II is capable of handling loads of up to 500 pounds and maximum travel speeds of 60 in/sec at positioning repeatability of +/-0.03 in. Machines are available in 2, 3, and 4 axis configurations. The standard working envelope for a three axis system is 240" x 96" x 54". All axis are servo driven and operate within single coordinate system for consistent feedrate control of multi-axis moves. End effectors are designed to suit the application.

Our RoboTram and TW5L are welding robots are available in 3, 5 and 6 axis designs. They fill application needs not easily addressed by articulate arm machine such as large working envelope, and cooperative lathe axis motion. The TW5L is especially useful when welding parts that are turned on center.

These machines all utilize the AMAX robot control, designed and produced by EC&S. The AMAX control features advanced DSP computer control of all machine motion with PC host for operator interface, data storage, and interface with other process equipment.

EC&S Robotics Division also provides in house integration of articulated arm robots for material handling and welding applications. Our intimate knowledge of robotic control and application enables us to evaluate difficult applications and provide suitable solutions.

You will find equipment now available through EC&S Robotics Division at:

Alcoa Aluminum	Lancaster, PA
Dover Elevator	Middleton, TN
Int. Paper	Hampton, SC
DANA, Spicer Div.	Montgomery, AL
Hycos Int'l	St Wenceslas Quebec
UNARCO Material Handling	Springfield, TN
Continental Conv. & Equip.	Winfield, AL

Rheem Mfg.  
Ohio Brass Company  
Marlite Products

Montgomery, AL  
Wadsworth, OH  
Dover, OH