

**PART I – TECHNICAL PROPOSAL**

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**PROFESSIONAL SERVICES FOR  
DEPARTMENT OF TECHNOLOGY, MANAGEMENT AND BUDGET**

**2013  
Indefinite Scope, Indefinite Delivery  
General Professional Design Services**

**VARIOUS LOCATIONS (MICHIGAN)**

**FILE NO. Various**

**INDEX NO. Various**

**ORION** ENGINEERING CO., INC.

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May 16, 2013  
ORION Proposal No. 051613-1

Department of Technology, Management & Budget  
Facilities and Business Services Administration  
Design and Construction Division  
530 W. Allegan Street  
Second Floor, Steven T. Mason Building  
(P.O. Box 30026)  
Lansing, Michigan 48933

**SUBJECT: 2013 ISID General Professional Design Services**

ATTN: Ms. Melissa Sambiagio

Orion Engineering Company, Inc. (ORION) is pleased to present the attached Parts I and II Proposal for your consideration. This proposal is in response to the above subject DTMB Request for Proposal.

We appreciate this opportunity to present this proposal to the Department of Technology, Management & Budget. Please call me at (517) 782-7777 if you have any questions.

Sincerely,



William E. Urquhart, P.E.

Co-signed by:



Raymond Javier, P.E.

**PROPOSAL – SECTION II**

**PART I – TECHNICAL**

**Section II-1: Understanding of Project and Tasks**

Orion Engineering has provided Professional Engineering Services to the State of Michigan for more than twenty (20) years including several Correctional Facilities and Office Buildings. The majority of our assignments have been in the area of mechanical and electrical systems upgrade as well as forensic investigations with explicit recommendations. In addition to these services, Orion also performs civil and structural engineering consulting services for industrial, commercial, educational and institutional facilities.

We are known to be relentless defenders of our clients’ best interests (financially and technically). We have worked tirelessly and sacrificially and have brought to bear technical expertise to thwart inappropriately motivated self-interests in this regard.

Our remedial design approach during a recent electrical renovation at Van Wagoner, Williams, and Austin Office Buildings saved an estimated \$1 Million from the original program design. Our close attention to construction issues prevented unnecessary parts replacement in association with equipment renovations on the same project.

Such performance is not atypical for ORION, it is the norm.

**Section II-2: Personnel**

Personnel available to undertake assignments issued under the ISID Contract are tabulated below:

Refer to Exhibit A1-2a for Orion Engineering Co. Organization Chart

Refer to Exhibit A1-2b for Orion Engineering Co. Project Organization Chart

<b>Name</b>	<b>Position</b>	<b>Key Personnel</b>	<b>Resume Included</b>
Raymond Javier	Senior Consultant, Project Engineer	√	√
William E. Urquhart	Senior Consultant, Project Engineer	√	√
Danny O’Bannon III	Supervising Engineer – Structural	√	√
Mutie A. Khatib	Supervising Engineer – Mechanical	√	√
James D. Etters	Senior Engineer – Electrical	√	√
Christopher Brundage	Electrical Engineering	√	√
James R. Travis	Engineering Specialist – Electrical		
John P. Wahtola	Engineering Specialist - Electrical		
Russ Maynard	Engineering Specialist - Electrical		
Richard H. Jennings, Jr.	Engineering Specialist - Electrical		
Kip C. Jones	Designer – Electrical		
Brian Wahtola	Designer - Electrical		
Dale E. Warren	Senior Designer – Mechanical		

### **Section II-3: Management Summary, Work Plan, and Schedule**

ORION's approach to assignments anticipated under the ISID Contract will not differ from any other project. On notification of the potential assignment, ORION's management will determine the required expertise and resource demand for successful project implementation. This will be accomplished by initiating a dialog between the DTMB Project Manager, ORION's Project Manager, and appropriate ORION staff. Once appropriate resources are confirmed, ORION will visit the proposed project site to further define the scope by speaking to responsible agency staff and touring the proposed project site.

Presuming a good match between project scope demands, ORION's expertise and staff availability, a technical and cost proposal will be submitted.

Field investigations will commence immediately on authorization to proceed. Reference drawings will be requested, subject to field verification by ORION. Field data will be utilized for developing calculations, and (depending on the nature of the assignment), prepare a technical report/concept development with budget estimates, drawings and specifications for preliminary through final design as required. During the above process, close collaboration is expected between ORION's Project Manager and the DTMB Project Manager – especially important due to the anticipated "fast track" nature of expected assignment so that ORION's efforts remain properly focused.

Cost estimates are expected at least for the initial stage and at regular intervals normally coinciding with design progress reviews at 25% - 50% - 90% completion status when drawings and specifications are submitted for technical review.

Again, depending on the project specific requirements, ORION would normally prepare sealed submissions to DELEG, issue Bid Documents, participate in Contractor "Pre-Bid" Meetings, maintain project communications during the bidding process, formally address bidder inquiries, issue Addenda as required, respond to any DELEG comments, review bids, participate in pre-award meeting(s) with the apparent low bidder and provide recommendations for award.

During construction, ORION would normally participate in construction progress meetings, respond to Contractor inquiries, make periodic inspections of the construction, witness tests, recommend progress payments and issue bulletins as may be required. ORION would normally participate in project close-out procedures including As-Built preparation and approval of Operation and Maintenance Manuals.

Constructability is a concept that requires significant professional experience with construction oversight. All of ORION's engineers and design staff are required to interface with project implementation during construction and provide direct remediation assistance to constructability issues. ORION practices avoid constructability issues by requiring rigorous QA/QC reviews during design involving "construction wise" staff as well as full dissemination of any new "lessons learned" among all staff.

# QUESTIONNAIRE

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Questionnaire for Professional Services
Department of Technology, Management and Budget
2013 Indefinite-Scope Indefinite-Delivery – Request for Qualifications
Architecture, Engineering, and Landscape Architecture Services
Various Locations, Michigan

INSTRUCTIONS: Firms shall complete the following information in the form provided. A separate sheet may be used if additional space is needed; please key the continuation paragraphs to the questionnaire. Answer questions completely and concisely to streamline the review process.

ARTICLE 1: BUSINESS ORGANIZATION

1. Full Name: Orion Engineering Company, Inc.
Address: 245 W. Michigan Avenue, Ste 300 Jackson, Michigan 49201
Telephone and Fax: 517-782-7777 517-782-9900
Website: www.orion-us.com E-Mail: wurquhart@orion-us.com
Professional(s) federal I.D. number(s): 38-2613744

If applicable, state the branch office(s), partnering organization or other subordinate element(s) that will perform, or assist in performing, the work:

2. Check the appropriate status:

Individual firm Association Partnership Corporation, or Combination – Explain:

If you operate as a corporation, include the state in which you are incorporated and the date of incorporation: Michigan July 8, 1985

Include a brief history of the Professional’s firm:

Organized in 1985 by three (3) founding electrical engineers, the firm expanded to include Mechanical Engineering services in 1986. Full-time Structural Engineering Services were added in 1988. ORION maintains staff between 15-20 persons.

Provide an organization chart depicting all personnel and their roles/responsibilities.

(Refer to Exhibit A1-2a)

Provide an organization chart depicting key personnel and their roles for a typical assigned project. Include generic supporting staff positions.

(Refer to Exhibit A1-2b)

**ARTICLE 2: PROJECT TYPES AND SERVICES OFFERED**

Identify the project types and professional services for which your firm is exceptionally qualified and experienced. Provide attachments illustrating a minimum of three examples, with references, of successful projects performed in the last five years for each item checked. Identification of specialties will not exclude selected firms from project types, but will assist the DCD Project Directors in matching firms with projects.

- ADA facility assessment and remodeling
- Boilers and steam systems
- Bridges – pedestrian and vehicular
- Building and structure additions
- Building envelope investigation, repair, upgrade
- Correctional facilities
- Door and window replacement
- Fire and security alarm systems
- Fish passage structures
- General architectural and/or engineering design
- HVAC equipment replacement, upgrade, selection
- HVAC controls replacement, upgrade, selection
- Interior remodeling and renovation
- Laboratory facilities
- Landscape architecture
- Land Planning
- Locks and dams
- Maintenance and facility preservation
- Marine work - boat launch facilities, docks, harbors
- Parking and paving
- Roof repair, restoration and/or replacement design
- Site surveying
- Stormwater management and drainage plans
- Structural investigation and assessment
- Toilet and/or shower room remodeling or design
- Trail design and development
- Wastewater systems
- Water supply systems
- Water diking systems, water control structures

**ARTICLE 3: PROJECT LOCATION**

Identify the regions where your firm can most efficiently provide services. Assignments may vary from the regions checked, depending on the specialties and services required.

- Western Upper Peninsula (west of Marquette)
- Eastern Upper Peninsula (east of Marquette)
- Northern Lower Peninsula (north of Grayling)
- Saginaw Bay area (east of 127, north of I-69 and M 57, south of Grayling)
- Western Lower Peninsula (west of 127, north of Muskegon, south of Grayling)
- Central Lower Peninsula (east of Battle Creek, west of Chelsea, south of M 46 and M 57)
- Southwestern Lower Peninsula (west of Battle Creek, south of Muskegon)
- Southeastern Lower Peninsula (east of Chelsea, south of I-69)

**ARTICLE 4: CONTRACT UNDERSTANDING:** The following items should be addressed on the assumption that your firm is awarded an Indefinite-Scope, Indefinite-Delivery contract. (See attached sample contract).

- 4.1 Is it understood that your firm is required to respond to small projects (less than \$25,000) as well as large projects?  
Yes  No
- 4.2 Is it understood that there is no guarantee of any work under this contract?  
Yes  No
- 4.3 Is it understood that your firm will be required to execute the attached standard State of Michigan contract language for professional services?  
Yes  No
- 4.4 Is it clearly understood that professional liability insurance is required at the time of execution of the ISID contract? (See Article 5 of the attached Sample Contract.)  
Yes  No
- 4.5 Is it understood that your firm must comply with State of Michigan law as it applies to your services?  
Yes  No
- 4.6 It is understood that your firm must obtain a State of Michigan, Department of Civil Rights Certificate of Awardability (see RFP for information regarding the Certificate of Awardability)? If your firm currently has a Certificate of Awardability, provide its expiration date. \_\_\_\_\_  
Yes  No

**ARTICLE 5: CAPACITY AND QUALITY**

- 5.1 Briefly describe your firm's methods and procedures for quality control for your deliverables and services.
1. **Important project directions, received verbally are reduced to writing and distributed to all involved project team members. "AVO" is strongly encouraged.**
  2. **We strive to select the most clear location to indicate and specify a design feature, to include clear and concise description, but only once. Repeating design features and specification entries is the single best way to create design "exceptions".**
  3. **Multiple detailed internal reviews involving all disciplines are performed prior to transmittal of any documents to the State. Standard design practices govern the basis for the project specific issues – modifications are made only with supervising approval. Standard details are developed to cover standard construction issues – modifications require supervisory approval. Our "Base" specifications incorporate decades of project experience.**
  4. **All documents are periodically reviewed and checked by equally competent staff – uninvolved with the project (especially at final stages). Design reviews include evaluation of constructability from appropriately experienced staff members.**
  5. **Error-free design teams are rewarded openly and advanced accordingly.**
  6. **"Lessons Learned" are widely disseminated to avoid repeat issues.**

5.2 Has your firm been involved in claims or suits associated with professional services errors and/or omissions?

Yes  No

If yes, explain: \_\_\_\_\_

5.3 Will there be a key person who is assigned to a project for its duration?

Yes  No

5.4 Please present your understanding of the relationship between your firm, the DTMB Design and Construction Division, and the State Agency for whom a project will be completed.

**ORION, as the Professional Service Contractor (PSC) interfaces with the Owner as the ultimate client through DTMB which serves as the overall Project Manager with discretionary authority and budget control. The DTMB serves as the overall Project Manager and coordinating interface between all members of the Project Team.**

**PSC serves as the Owner's representative for the Contract period with authority to interpret the Contract Documents, has the responsibility to guard the Owner from defective work with authority to disapprove or reject work believed to be defective. The PSC may authorize minor variations that do not impact cost and introduce only minor delay. The PSC exercises significant influence over Contract price adjustments and payment requests.**

**The PSC serves as the Design Professional, has ultimate responsibility for technical merit of the project and is the authority of record regarding design integrity as well as for construction materials and practices, completion status and completion values.**

**The State Agency is often referred to as the "Owner" or "Client". Project efforts are directed to satisfying the operational needs and performance expectations of the State Agency. The State Agency is included among the State of Michigan entities to be treated as the "Owner" for contractual purposes with the project Contractor as expanded by Section 00500 Agreement. The State of Michigan includes its departments, agencies, boards, commissions, officers, employers and agents.**

5.5 Describe your approach if a bidder proposes a substitution of a specified material during bidding.

**Presuming that a single source requirement does not exist, and presuming that the request is timely, the proposed substitution would be evaluated for equivalence and if deemed so, an addendum issued to all bidders expanding the list of acceptable material.**

**Requests must be accompanied by sufficient product data, and comparisons to the specified products or materials.**

**The specification intends to establish a standard for function, necessary design features, general style, type, materials of construction, character and quality, serviceability and other essential characteristics. Frequently this is accomplished by naming a brand, make, supplier, manufacturer and model number without the intention for exclusion.**

**If submitted within up to fourteen (14) days before bid opening, ORION would accept written proposals from non-named manufacturers or suppliers seeking to be added to Section 1.6.**

**Presuming that sufficient information, data, and certifications are presented and presuming sufficient time for evaluation, if deemed acceptable by ORION, the proposed addition would be made to Section 1.6 and an Addendum issued.**

**The Bidder is required to inform ORION if any associated changes in the Work are to be expected by approval of the proposed addition.**

- 5.6 Describe your approach if a contractor proposes a substitution of a specified material or detail with shop drawing submittals or in construction.

**Substitutions require careful evaluation against the standards of quality specified or indicated on the Drawings. Comparative items include size, durability, efficiency, compatibility and performance. Independent test agency reports may be required to substantiate equivalence.**

**In the case of a specified single source supply requirement, the product will be not approved. This is a rare situation such as a specialty repair/replacement part, expansion board or an extreme size restriction.**

**Consideration of substitute material or equipment by the apparent low bidder, after date of contract award would normally be made presuming:**

- 1. The specification does not establish “no equal” or “no substitution is permitted”.**
- 2. The request allows timely evaluation by the PSC.**
- 3. Sufficient information is submitted to allow the PSC to establish equivalence.**
- 4. The apparent low bidder assumes responsibility for achieving compliance with the Contract Documents if the substitution is approved including drawing changes, testing requirements and additional work required by others.**
- 5. The apparent low bidder assumes responsibility for reimbursement to the Owner for additional expenses incurred by the PSC for the evaluation.**

- 5.7 How will your firm provide consistent and continuous communication pertaining to project activities and project status to the State of Michigan during the progress of projects?

**ORION’s project engineer communicates regularly with the State on every project, in particular, generating meeting notes, construction site visit reports, and telephone records throughout the project. ORION recognizes that open and timely communication between the Engineer, State, and contractor results in optimized project implementation.**

**Verbal communications require hard/electronic record back-up based on the project organization chart and approved distribution list. Regular update of project design/ construction schedule is especially vital to projects involving upgrade or replacement of essential building utilities, systems and infrastructure**

**Regular, periodic design/construction review meetings are also essential to effective project communication – the frequency to be determined jointly between DTMB and ORION based on the anticipated complexity of the project and extent of agency interfaces. Moreover, and supplemental to**

**regularly scheduled meetings, any development perceived to effect schedule, engineering effort or construction cost is immediately summarized and emailed to the DTMB Project Engineer or Project Manager for further consideration, discussion and/or action.**

- 5.8 Does your company have an FTP or similar site for quick posting and distribution of information, drawings, field inspection reports, and other communications?  
Yes  No

- 5.9 Describe your method of estimating construction costs and demonstrate the validity of that method.

**ORION subscribes to a full array of RS Means – Estimating Resource Books including:**

- 1. Building Construction Cost Data**
- 2. Electrical Cost Data**
- 3. Maintenance Cost Data**
- 4. Plumbing Cost Data**
- 5. Square Foot Costs**

**Material and equipment costs are further verified where their costs are highly volatile (i.e. Copper and Copper based equipment). Labor rates are periodically verified by directly contacting contractors known to be successful on comparable projects – especially for the State of Michigan. All of our estimates are prepared utilizing proprietary Excel spreadsheet forms. Final results are compared to ORION’s proprietary database of recently bid projects. Our methods are validated against the results of each bidding – our goal to be at the mean between high and low bids. This is the typical result. Results outside of typical are analyzed and resolved.**

- 5.10 Describe your approach to minimizing construction cost over-runs.

**Construction cost over-runs may be attributable to many factors including:**

- 1. Poor or inaccurate conceptual budget estimating.**
- 2. Recognition of previously unknown field conditions.**
- 3. Unanticipated price volatility of major components.**
- 4. Unanticipated restrictions on work access or work rules.**
- 5. Poorly controlled scope.**

**Presuming that conservative, sound practices and judicious use of appropriate contingencies were utilized at the programming phase, schematic design phase, and preliminary design stage, strict scope control is the best defense against construction cost overrun.**

**Accurate, perceptive estimating at early (no later than 50%) design status will bring potential cost overruns to light as early as possible.**

**ORION makes strong expenditures for early field investigations and multiple discipline internal reviews to minimize the potential for cost over-runs.**

- 5.11 What percentage of construction cost should be devoted to construction administration (office and field)  
**5% - 6%**

- 5.12 What portion of the assigned work will be performed with your staff and what portion will be provided by sub-consultants?  
**100% by ORION staff. The only anticipated need for sub-consultants is for geotechnical and surveying services.**

5.13 On a typical project, what would be your response time, from the time receive a project assignment to starting investigation and design work? A typical project might be one involving several disciplines and in the neighborhood of a \$25,000 fee.)

**2 Days: Notice of assignment to quote Submission.**

**1 Week: Notice of award to Project Initiation**

5.14 How do you assess whether a construction bidder is responsive and responsible?

**The ORION project engineer will review each bid and compare both price and content against the other bids as well as the engineers estimate. Would likely ask other agencies and DTMB project manager concerning their recent experience with specific bidder(s) regarding quality of work, timeliness, etc.**

5.15 Describe your firm's understanding of Sustainable Design and LEED Certification.

**Sustainable design and LEED certification involve analysis and implementation of whole systems with energy conservation, long-term energy use and environmental impact fully integrated into system design. ORION personnel are currently working to obtain LEED certification. Two (2) ORION engineers are in final stages of LEED Green Associate certification with completion expected by August 2013.**

**The main precepts include the following:**

- **To implement new systems with low carbon and high resource efficiency technologies.**
- **To generate "Green designs" that goes beyond the traditional "single minded, end result". Evaluations such as attractiveness, timeliness, and initial cost and efficiency, but also include such considerations as the means by which goals are achieved, the effect on the environment, and the effect on individuals. It is increasingly viewed as "smart business practice" and is the fastest growing segment of the engineering community.**
- **To reduce negative impact on the environment and enhance health and comfort of building occupants.**
- **To use energy, land and material in such a way as to improve productivity and to reduce waste and pollution.**

5.16 Describe your experience with similar open-ended contracts.

**ORION has several long standing, ongoing open-ended "discretionary" contracts with clients such as GM, Detroit Diesel and Michigan State University. By putting the needs of the project first and keeping the client's best interest in mind, regardless of the task, these contracts continue to be renewed year after year.**

5.17 Describe your methodology for obtaining information about the existence and condition of an existing, facility's components and systems.

**The typical first step performed by the ORION project engineer will be to request the contact information of the appropriate facility staff to request relevant documentation associated with the project's scope of work. Once the existing documents have been reviewed for content, the ORION project team will conduct necessary on-site field investigations to document and compile the information required to perform the defined scope of work.**

5.18 Describe your approach to securing permits/approvals for the following: campgrounds, critical dunes, coastal zone management, projects adjacent to Michigan lakes and rivers.

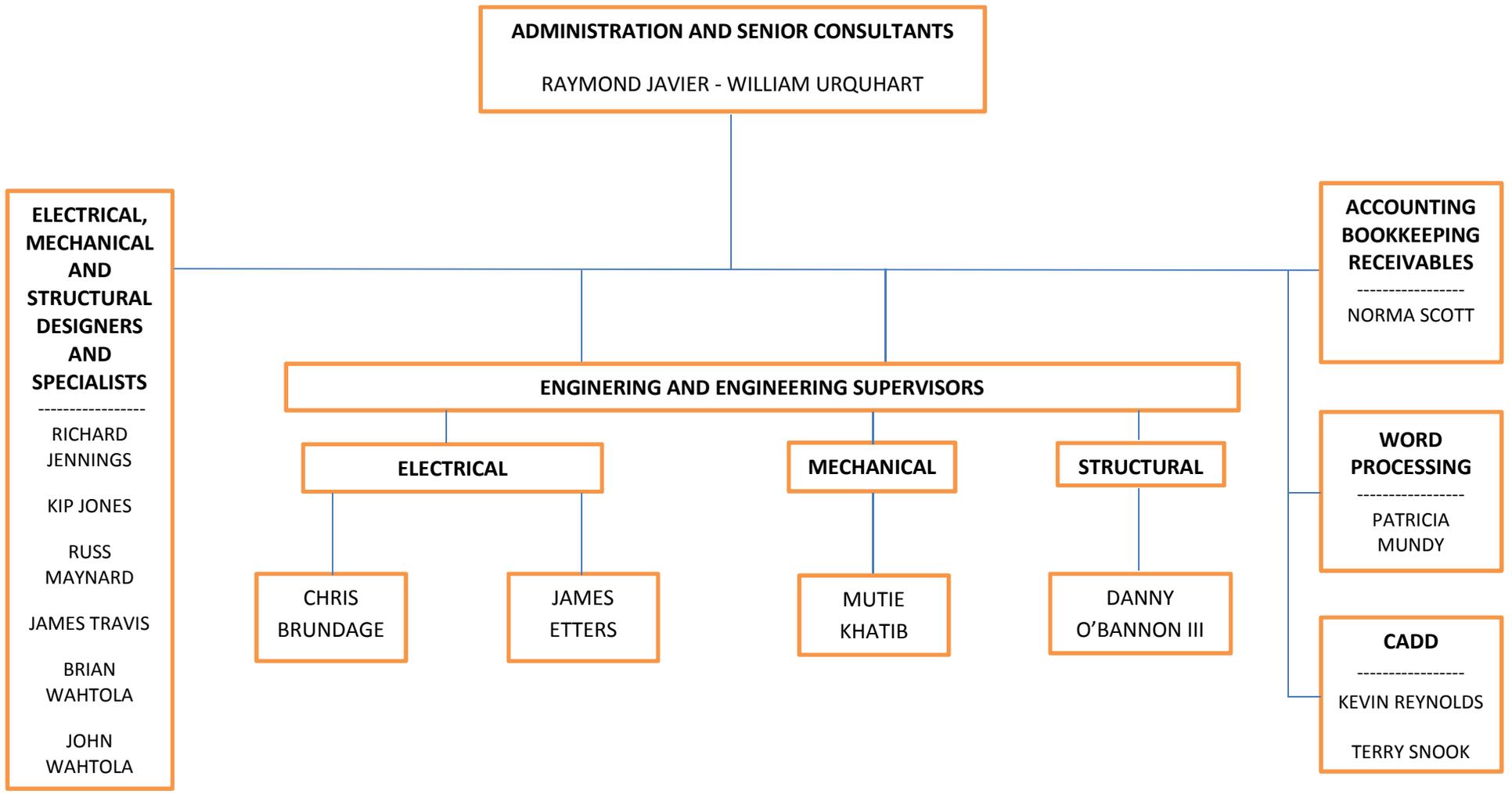
**Outside of ORION's expertise.**

5.19 Describe your approach to a construction contractor's request for additional compensation for a change in the project scope.

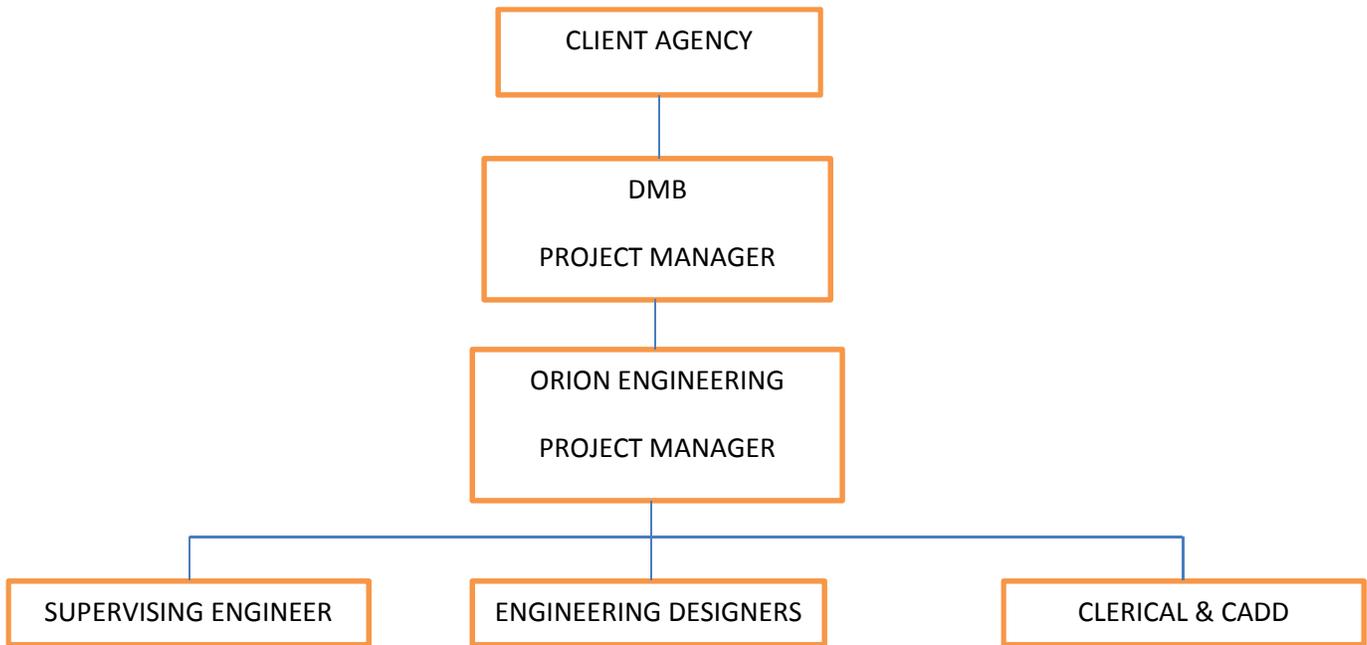
**ORION's staff would aid the State in documenting, reviewing and helping determine the root cause of the change order, verify the validity of the request, prepare construction cost estimates to verify that the requested additional compensation is reasonable, and to evaluate the impact of the change on schedule.**

## **EXHIBITS**

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**ORION ENGINEERING CO. ORGANIZATIONAL CHART**  
QUESTIONNAIRE, ARTICLE 1, ITEM 2



**PROJECT ORGANIZATIONAL CHART**  
**RFP SECTION II-2**  
QUESTIONNAIRE, ARTICLE 1, ITEM 2

## **RESUMES**

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# RAYMOND JAVIER, P.E.

## Systems and Consulting Engineer

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### **SUMMARY:**

*Over 39 years of experience in power systems engineering for industry and electric utilities with emphasis on project feasibility, engineering analysis and equipment application ranging from low voltage distribution to extra high voltage AC and DC transmission systems.*

### **EXPERIENCE:**

- **ORION ENGINEERING COMPANY, INC. — Jackson, Michigan**

Mr. Javier is responsible for all analytical, conceptual and feasibility studies relating to electric power systems including studies involving load flow, short circuit, stability, transient phenomena, harmonics, power factor improvement, protective device coordination and other related applications. His experience includes application of these analysis techniques on varied assignments for several General Motors, Ford and Chrysler Plants, Doehler-Jarvis, Kellogg Company, Rockwell International, The Upjohn Company, etc.

- **GILBERT/COMMONWEALTH — Jackson, Michigan**

- Project Engineer responsible for conducting planning studies for industrial power supply systems, including large scale welding and thyristor-controlled dc drive press loads at several General Motors plants. Also responsible for developing means for improving plant power factor while suppressing harmonics. Specified equipment requirements, protection schemes and operating procedures for such systems.
- Project Engineer responsible for the technical aspects of generation, transmission and economic studies for the Jacksonville Electric Authority pertaining to the installation of the St. Johns River Power Park. Participated in the preparation and delivery of testimony before the Florida Public Service Commission and the Jacksonville City Council in support of this project. Also participated in the preparation of the Engineer's Reports utilized in connection with project funding. Responsible for studies to determine the need and optimum amount of power purchases for oil back-out prior to the installation of the project.
- Project Engineer responsible for performing studies assessing the lightning and surge performance of a proposed  $\pm 400\text{kV}$  dc line for Central Power and Light Company.
- Project Engineer responsible for conducting transmission planning studies for East Kentucky Power Cooperative, Inc. Studies were conducted to determine the transmission facilities required for a new 480MW coal-fired unit added to an existing plant. Also prepared a short- and long-range subtransmission expansion plan.
- Senior Electrical Engineer with responsibility for conducting analyses of systems engineering problems related to planning and operation of interconnected systems and power pools. Also participated in the development of a model to define and compare alternative high energy ac and dc transmission systems for the U.S. Department of Energy.
- Performed overvoltage studies of transmission lines including investigation of transient overvoltages caused by three-phase and single-pole switching and radial load rejection. Analyzed results to determine circuit breaker and surge arrester requirements, equipment BILs, switching procedures, and transmission line design parameters through probabilistic methods. Additional assignments included studies (encompassing voltages through 765kV) on transmission system behavior and generator response involving system stability analysis to determine effect of three-phase and single-pole

# RAYMOND JAVIER, P.E.

(Continued)

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switching, machine excitation, and governor response characteristics. Also determined system compliance with reliability criteria and performed studies on effect of series and shunt compensation on system operation. Additional studies included interconnection studies, bulk power transmission planning studies, overvoltage and dc simulator studies, and transmission line insulation performance studies.

- **MANILA ELECTRIC COMPANY — Manila, Philippines**

- Electrical Engineer participating in system planning, project administration, and computer application activities to determine system faults and failures and methods for their connection. Prepared general design specifications for materials, equipment and systems, and processes; forecasted system load and equipment performance; and prepared construction and operation budgets. Also provided material and equipment quality requirements and technical evaluation of electrical apparatus and equipment.
- Cadet Engineer in a training program covering all aspects of electric utility operations such as system planning, power plant relays, electrical construction and maintenance, line construction and maintenance, and load dispatching.

## **EDUCATION:**

B.S., Electrical Engineering – Mapua Institute of Technology (Philippines) 1965

*Additional Coursework:*

AC-DC System Interactions – IREQ (1982)

Utility System Expansion Planning – GE (1981)

Power Circuit Breaker Applications – IEEE (1977)

Probability and Insulation Coordination – WH (1977)

HVdc Transmission – ASEA (1974)

Graduate Courses in Electrical Engineering – Michigan State University (1974-75)

Generation Reserve Planning – GE (1972)

Power System Overvoltages – GE (1972)

Advanced Courses in Electrical Engineering – University of the Philippines (1969)

## **REGISTRATION:**

Professional Engineer in Michigan (1975)

## **SOCIETIES:**

National Society of Professional Engineers

## **PUBLICATIONS:**

- With W. H. Coste and M. C. Maire, "MicroCOSM: A Micro-Computer-Based Capacity Option Screening Model" presented at the 27th Annual American Public Power Association Engineering and Operations Workshop – San Antonio, Texas (February 1983).
- With R. D. Camburn, "A Model to Define and Compare Alternative AC and DC Transmission Systems" presented at the Symposium on Incorporating HVdc Power Transmission into System Planning – Phoenix, Arizona (March 1980).

**WILLIAM E. URQUHART, P.E.**  
**Principal Electrical Engineer**

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**ORION ENGINEERING COMPANY, INC. SUMMARY:**

*Background of over 33 years of experience in the inspection, evaluation, reporting, design and specification of electrical power systems. Experience also includes the design of lighting, fire and intrusion protection systems. Technical expertise with emphasis on power distribution systems, relay protection and control systems including medium voltage and low voltage power class switchgear.*

**EXPERIENCE:**

Mr. Urquhart is responsible for all design activities relating to electrical systems including inspection, reporting, evaluation, conceptual and detailed design implementation, estimating, specifications and management of diverse electrical projects involving primary and secondary power distribution systems, intrusion protection system, proprietary fire alarm and communication systems. Mr. Urquhart has been project manager with technical responsibility on assignments for numerous divisions of General Motors Corporation, Rockwell International, Kellogg Company, and Brown-Boveri. Electrical project engineer responsible for design implementation of emergency and standby power generation systems for GM, Jacobson's Corporate Headquarters, Pfizer, and numerous State of Michigan Correctional Facilities.

Section Manager, Electrical Engineering, Power & Industrial Systems Division, responsible for electrical design and personnel administration for industrial projects. Served as Project Manager/Electrical Engineer on study and design assignments. Design responsibilities include plans and specifications for the installation of new load center substations for Rockwell International, including 15kV modifications and 480V bus duct routings.

Project Manager/Electrical Engineer responsible for the electrical power system evaluation and modernization report, and the associated design and protective device coordination project for GMC's Hydra-matic Division in Warren, Michigan.

Electrical Engineer/Project Manager on a study to determine the feasibility of installing a redundant UPS and standby generator system for the Kansas Nebraska Natural Gas Company computer complex in Colorado. Project included power system analysis, preliminary design and comparative construction costs for four alternate schemes.

Project Engineer responsible for developing a complete plant electrical power system protective device coordination study, including primary substation 15kV switchgear, load center substations and downstream devices for a large GMC industrial complex in Limestone County, Alabama.

Responsible for equipment purchase, installation and protective relay settings of 15kV, 5,000 HP compressor motors for GMC's Fairfax Plant. Electrical Engineer on GMC's Central Foundry Division Grey Iron, Casting Plant, Hydra-matic Division's Constantine Plant and New Departure Hyatt Bearing Division's Sandusky Plant. Prepared coordinated relay settings at main power supply substations.

# WILLIAM E. URQUHART, P.E.

(Continued)

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Evaluated existing load conditions for GMC's Grey Iron Casting Plant in Saginaw, Michigan and prepared system diagrams and capital cost estimates. Prepared protective device settings and coordination reports for Chevrolet, Saginaw Steering Gear and Oldsmobile Divisions of GMC. Project Manager/Electrical Engineer on a breaker coordination study of Defense Logistics Computer Center's computer room electrical supply system. Directed a study of existing conditions and recommended improvements to the UPS equipment.

Electrical Engineer assigned to Ohio Edison Company's Erie Nuclear Plant Training Building. Involved in the planning and specification of energy efficient lighting, power and fire alarm systems. Prepared conceptual drawings and conducted a chilled water study of plant air conditioning systems for GMC's Hydra-matic Division in Ypsilanti, Michigan.

Involved in the report on the electrical system expansion and plant modernization for GMC's New Departure Hyatt Bearings Division. Duties included evaluating existing conditions and proposing modifications; planned and specified circuitry design and control of a triplex pumping system for Ford Motor Company's Stormwater Pumping Station; and a 480V welder network investigation project and power flow and short-circuit study for existing and future conditions for GMC's Assembly Division at Willow Run. Assisted in short circuit study and prepared device settings for Saginaw Steering Gear Division Protective Device Coordination Data Book.

Responsible for design of normal and emergency electrical systems for industrial, institutional and commercial buildings. Assignments included planning and specifying primary and secondary power distribution systems; power and control circuitry for switchgear, motor control centers and emergency generators; and interior and exterior lighting systems. Power system design included primary 15kV substations with switchgear, transformers, grounding and secondary switchboards. Secondary distribution included all feeder sizing, voltage calculations, transformer sizing and short circuit versus duty analysis. Also coordinated power system protection systems between the client, other consultants and the serving utility.

Designed lighting and power distribution systems for interstate roadway lighting systems, using low and high mast luminaries, lighting calculations, fixture layout, power distribution, control and details; prepared panel wiring diagrams and inspected power generating plants, substations, overhead and underground primary and secondary distribution systems and industrial and residential service equipment for various utility clients.

## **EDUCATION:**

B.S., Electrical Engineering – University of Maryland (1972)

*Additional Coursework:*

Basic Lighting, Advanced Lighting, and Industrial and Commercial Power Distribution, Baltimore Gas and Electric Company (1973-75)

## **REGISTRATION:**

Professional Engineer in Michigan (1978); and Ohio (1979)

# DANIEL E. O'BANNON III, P.E.

## Senior Structural Engineer

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### **SUMMARY:**

*Experienced in industrial, commercial, educational, healthcare, single and multi-family residential housing, and institutional project design. Experience is based on working with architects, engineers, and contractors with demonstrated success in integrated project delivery by providing resourceful problem solving skills and the ability to conceptualize rational, cost-effective engineering design solutions to complex and challenging projects. The experience includes the design of concrete, structural steel, light gauge steel, wood and masonry gravity and lateral systems as well as the overall coordinated building design.*

### **SIGNIFICANT PROJECTS:**

- LAUSD High School #15 Theatre Building – 16,000gsf Masonry bearing/shear walls, structural steel roof framing with conventional continuous footing foundations.
- MonteCedro Senior Housing – 400,000gsf (4) story multi-family residential building with light gauge steel bearing/shear walls, roof and floor framing over a subterranean concrete parking garage with a two-way concrete podium slab.
- Pacoima Entrepreneur and Training Center – 12,000gsf (4) story commercial office building with wood framed bearing/shear walls with I-Joist roof and floor framing.
- Alliance Charter School – 60,000gsf (2) story building with light gauge steel bearing/shear walls, roof and floor framing over a subterranean concrete parking garage with a two-way concrete podium slab.

### **EXPERIENCE:**

- **ORION ENGINEERING COMPANY, INC. — Jackson, Michigan**

Mr. O'Bannon is responsible for client contact, establishment of fees and schedules, supervision of engineering and drafting personnel, project design, and analysis activities including conceptual, feasibility and detailed design implementation, overall project coordination, production and construction administration.

- **KPFF Consulting Engineers — Los Angeles, California (2007-2012)**

- Project management and structural design of gravity and lateral systems for a wide array of project types with construction budgets ranging from \$3M to \$105M.
- Design-Build and Design-Bid-Build project delivery.
- Strategic planning for RFP pursuits.
- Led inter-disciplinary project coordination during early project development phases in order to eliminate 'scope holes' and produce drawings with the highest level of clarity.
- Responsible for successfully developing new and strengthening current client relationships that have directly led to new consulting opportunities.

# DANIEL E. O'BANNON III, P.E.

(Continued)

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- Mentored junior engineering staff by leading lessons-learned and design seminars, and by providing on-the-job training.
  - Performed on-site structural observations and construction administration services for a wide array of project types with a proven track record of developing constructible, cost effective RFI solutions without adversely affecting construction schedule.
  - Performed the review of shop drawings for conformance with construction documents to avoid the risk of construction cost and schedule impacts.
  - Responded to other construction related activities as requested by the client and/or contractor above and beyond the typical standard of practice.
- **CB&I — The Woodlands, Texas (2006-2007)**
    - Performed the structural design and analysis of large steel plate API and AWWA storage tanks and their secondary support structures.
    - Coordinated and satisfied project requirements above and beyond owner's expectations.
    - Preparation of calculations and construction documents.
  - **HKS Inc. — Dallas, Texas (2004-2005)**
    - Supported the architectural design team in the development of construction documents for a large-scale healthcare facility.

## **EDUCATION:**

- Bachelor of Science in Civil Engineering – Texas Tech University (2005)
- Bachelor of Science in Architecture – Texas Tech University (2005)

## **REGISTRATION:**

Professional Engineer in Michigan, California, Maryland – Civil

## **ASSOCIATIONS:**

American Society of Civil Engineers (ASCE), American Institute of Steel Construction (AISC), Safety Assessment Program (SAP)

## **PROFICIENCIES:**

Analysis Software: RISA-3D, SAFE, Etabs, Enercalc, Retain Pro, RAM, LG Beamer, AISI Win, Excel  
Modeling Software: AutoCAD, Revit, MWF Framer, Bluebeam

# MUTIE KHATIB

## MSME

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### **ORION ENGINEERING COMPANY, INC. SUMMARY:**

*Utilizing years plus of diversified technical expertise in Manufacturing Facilities, Mechanical Engineering /Architectural Engineering & Consulting industry for local and/or international industrial Facilities as well as Industrial, commercial and general buildings projects. switchgear.*

### **EXPERIENCE:**

(10/03 – 08/11) **U.S. Manufacturing Corp. – Warren, Michigan**

Position: Facilities Engineering Manager “IMMEDIATE SUPERVISOR: Sr. EXECUTIVE VICE PRESEDENT & COO”

Duties and Responsibilities:

- *Providing directions and leadership for Facilities Engineers & salaried Facilities Supervisors.*
- *Evaluate plant processes for optimum energy efficiency through USM energy consumption records at DTE Energy Monitoring system.*
- *Analyze Energy consumption data, prepare statistical records, evaluate utility bills “Power, N. Gas, City Water and perform energy audits to identify areas in need to be improved.*
- Generate or obtain design and specifications for facilities and building projects.
- *Develop and implement energy projects that lead to energy consumption reduction to achieve Executive Management goals and budgets.*
- Determine facilities requirements, design and specify compressed air, steam, and process cooling water, HVAC, lighting, air quality, fire protection and waste treatment systems.
- *Design and install machine utilities and foundations, coolant and chip handling system.*
- *Maintain knowledge of current local, state and federal codes, environmental, emergency planning, and community right-to-know laws and regulations.*
- *Achieve “HSSE” health, safety, security & environmental goals for Facilities.*
- *Reduce Facility maintenance cost and facilities conformance to environmental regulations and manage compliance and remediation actions.*
- Determine requirements for all utilities & production support equipments including boilers, chillers, power, natural and/or propane gas, City and process water, cooling towers, RO/DI water systems, machine cutting tool coolant, coolant filtration, & labeling and packaging lines and *Ensure utilities are purchased and/or installed as required.*
- Inspect facilities and recommend improvements or needed maintenance including supporting manufacturing and/or reduce operating costs.
- *Manage & Direct plant Facility equipment maintenance* “planned & preventive”, monitor and study utility usage and continuously research methods to improve efficiencies and reduce cost.
- Direct contractors and oversee plant personnel during implementation of facilities projects to ensure conformance to specifications, budgets and schedules.
- Prepare work orders and budgets for obtaining approval for facilities improvements, new expansion and major maintenance and capital projects.
- *Lead improvements in Energy Reduction* and work with material/purchase department to obtain bids and select contractors for facilities and building projects.
- *Continuously research methods to reduce Energy Consumption, the size and cost of waste streams at all USM facilities in United States and abroad.*
- Obtain all permits, inspections and licenses required by regulatory agencies, building inspection, pressurized vessels inspection, and fire and police departments.
- **Represent Company at City, State and Federal regulatory meetings dealing with variety of property, building and environmental issues “EMS ISO 14001 representative”.**

# MUTIE KHATIB, MSME

(Continued)

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- Inspect possible buildings for occupancy, considering such factors as air circulation, lighting, location and size. *Calculate cost effectiveness and feasibility.*
- Assist in the preparation of capital project approval forms. Specify and order new or replacement of Facilities equipment and *Energy saving equipment* as needed. Provide cost estimates for new systems, Facilities equipment or modifications.
- *Manage design projects* and assist in design and technical work associated with Facilities Engineering projects.
- Lead & contribute to risk analyses, investigations and troubleshooting of Facilities equipment as required.
- Chemical management for coating line, heated and ambient temperature parts washers, natural, mechanical and gravity ventilation and smoke and fire vents, **Waste management for solid and industrial liquid waste.**

## Specific duties included:

- Work with & direct General & sub-contractors on construction projects & supporting skilled trades on all Facilities projects.
- Provide Engineering Support for problem resolution for *electro-mechanical building system.*
- Plan & implement construction activities, relocation & office rearrangement.
- Develop and maintain Corporate Facilities procedures and Standards for maintenance of all Company properties.
- *Maintain a professional working relationship with plant personnel, his peers & upper Management.*
- Supervise all aspects, design fluid management of machine cutting tools coolant, parts washers fluids, oils & lubricants “*Chemical Management*”, waste treatment, *HVAC Optimization*, Environmental Management System & ISO 14001 audits, *Energy Management, dust and mist collection systems, Power Distribution, Fire Protection* systems, *Induction hardeners, heat treat equipment & induction Furnaces*, lighting, elevators, as well as *design of machine utilities*, boilers, compressed air system and C.A. distribution system, reverse osmosis unit, cooling towers, weld gas distribution, process cooling water and City water systems, supervise *Facilities Security Systems* and maintain safety and housekeeping standards.
- Order material and equipment for protective & corrective or predictive maintenance work, and *develop work packages, studies & analyses for electro-mechanical & Utility building systems.*
- Assist in building a team of professionals to provide engineering service to manufacturing support equipment, and collaborate, leveraging and building upon relationships with several business departments.
- *Comply with other assignments and projects that might not necessarily be within my field of responsibility.*
- *Provide technical guidance for Maintenance & Operations departments, for energy efficiency, conservation and optimization.*
- Manage work loads with program managers for electromechanical utilities, concrete foundations, wet-decks and coolant pits for new programs, projects and/or Bldg. modifications.
- *Provide direction on all Facility related functions, construction schedules & layouts.*
- Coordinate & execute Facilities Engineering development efforts, including supervision of Facilities Engineers, Designers, and Design Change Management.
- *Provide weekly procurement status reports and Monthly Management Review report to Upper and Executive Management.*
- Support system start-up, validation, troubleshooting, and ongoing optimization.
- Process invoice approval and have wide financial authority.
- Provide Engineering support for projects budgets, and cost reduction activities.
- *Develop estimates & written descriptions of energy conservation measures in support of proposals and technical audits.*
- Evaluate processes and procedures within areas of responsibility.
- *Provide direction and technical assistance to all U.S. manufacturing facilities in United States and abroad for all construction related items and projects.*
- Participate in the selection of new associates, train, develop and evaluate associates.  
Ready to travel Domestic and International locations as needed.

# MUTIE KHATIB, MSME

(Continued)

(05/96 –10/03)

## **HES Engineering, Inc. - Detroit, Michigan**

Position: Project Manager & Consultant

### Duties and Responsibilities:

- Participated in the mechanical design development, and preparation of bid/construction documents for numerous A/E design-*bid-build* projects for the following construction project types and activities:
- Automotive manufacturing plants building facilities; new expansions & renovation including all supporting infrastructures; Manufacturing processes and equipment installation and integration.
- Plan and design plant layouts and facilities design layout of equipment, generate comprehensive project layouts and solving techniques for equipment.
- Research and analyze data, such as customer design proposal, specification, and manuals to determine feasibility of design or application, and obtain data from existing plant and manufacturer's equipment to be included in layouts.
- Conducted calculation and Design for HVAC, Make-up air, Energy Recovery Ventilation, Piping and Plumbing system for industrial plants and commercial buildings (churches, schools, fire stations, and old people community buildings, Libraries, Laboratories and multi story buildings.
- Designed Low-level tempered air system for a 960,000 sq. ft. manufacturing facility. General ventilation for sub-stations, truck maintenance, dynamometers and service garages. Cooling towers, Boilers, chillers and air conditioning, process cooling water for heat-treat & induction hardeners equipment and quench water filtration systems.
- Prepared design development of Central Compressed air and chilled water systems. Production machines, Dust and mist collection, central and self contained systems, Machine tool Central coolant and Filtration systems, Flumes and Chip handling systems and Pump Stations. Tank Farms and Salvage Water systems.
- Participated in the mechanical Design development and specification for the design build and design bid build Industrial and Commercial projects. Updated plant layouts, and prepared construction documents, using manuals, computer and specialized software programs and selection equipment.
- Attended weekly construction meetings, issued bulletins, evaluate quotes, monitored construction progress, issued change orders, and reviewed payment applications and P.O's
- Conducted experiments to test and analyze existing design and equipment to obtain data on performance on product and prepared reports.
- Conducted studies of the reliability & performance of plant facilities & production systems.
- Participated in the construction management of several industrial & commercial (New and Renovation projects).

### Specific duties included:

- Field surveys of existing to ascertain as-built conditions of mechanical and piping systems.
- Evaluate and arrange field installations and recommend Design modifications to eliminate system or machine malfunction.
- **HVAC**, Plumbing and Fire Protection Design, calculation and specifications for industrial and commercial projects.
- Manufacturing process equipment installation design including process cooling water, (cooling towers and chilled water systems), coolant filtration, chip handling, compressed air, make-up air, city water, fire suppression, dust and mist collection systems, exhaust, natural gas, steam, condensate and PRV stations, flumes, pump stations, industrial waste and interconnecting pipeline networks.
- Attend pre-bid meetings and respond to bidders RFI's.
- Coordination and meetings with process equipment suppliers.
- Follow up during construction including responding to contractors RFI's and issuance of field and design and/or construction change orders.
- In house reviews for quality controls, safety and environmental improvements.
- Supervise other Engineers and review and approve Designs, shop drawings, calculation, cost estimate, contractor's submittals and tender bid document.
- Follow up construction projects progress, and review progress payments.
- **Design** above and below ground **Oil Storage Tanks**, **Fuel oil system**, emergency power generation and Tank farms.

Project locations: Metropolitan Detroit, MI- Three Rivers, MI- Oxford, MI- Buffalo N.Y. and Mexico

Project clients: American Axle & Manufacturing and others.

# MUTIE KHATIB, MSME

(Continued)

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## EDUCATION:

- Bachelor of Science of mechanical Engineering/power “BSME” from Assiut University. Bachelor Degree was completed under the supervision of American Professors.
- Master of Science Postgraduate Degree of Mechanical Engineering/Production from University of Tripoli.  
British professor from Manchester University- U.K supervised thesis.

## SIGNIFICANT ACHIEVEMENT:

- Developed an instrument *to protect dust and fume collectors from expected fire* risks.
- Developed coolant pre-mix units that saved the corporate an annual cost of more than \$150,000.00 Dollars.
- Prepared design, specifications and tender documents, contracted and supervised plant expansions and all machines installation and utilities in Mexico; and saved the Company \$1,000,000.00 Dollars plus.
- Developed and implemented Facility Security System that saved the Corporate 50% of the security guards annual cost.
- Up-graded the Company’s sub-station, natural gas, city water, compressed air, process cooling water and cooling towers in Mexico and saved several Hundreds Thousands of Dollar.
- Worked hard as a team leader and got USM facilities to be ISO 14001 certified.
- Cost saving of approximately \$ 2,000,000.00 supervising a Steel Foundry project.
- Extensive knowledge & experience in construction and general contracting for wide range of project types “local and International”.
- Developed an instrument for sample testing to measure the effect of strain rate on the mechanical properties for some selected materials under dynamic torsion loading.
- Have setup, managed and built a new Facilities Engineering Department into a profitable & well-run division within the Corporation.
- Demonstrated successful performance with independent and team problem solving.

## SPECIAL SKILLS & LICENSES:

- *Proven record of experience in Facilities maintenance “Planned & Preventive”.*
- *Strong Knowledge in Power Distribution, HVAC optimization & Energy cost saving and Management.*
- Wide finance principals and supervisory experience.
- Proven strong analytical and problem solving abilities.
- Ability to work in a team oriented environment “Innovation Team Work”.
- Ability to direct skilled trades, as well as maintenance, and has well winning attitude.
- *Ability to establish priorities among conflicting requests and work under pressure.*
- Proven written, oral and personal communications skills.
- Has experience that can lead the implementation of Global Facilities design/operational standards.
- Fluent in AutoCAD and Extensive experience in Local and International Projects and Codes.
- Successfully completed the Design Build Contracting Course-Excellence Alliance University
- Successfully completed the HVAC TRACE Load 700 (TRANE - MI)
- Successfully completed Load Design to input building & air handling systems.
- Conduct Detailed Load Designs, Energy Analysis and Economic Calculations (TRANE - MI).
- *Fluent in reading, writing and speaking other foreign language.*

*Additional information will be furnished upon request*

# JAMES ETTERS, P.E.

## Electrical Engineer

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### **SUMMARY:**

Over eight (8) years experience with a main focus on Power System Studies between 120V-15kV. Experienced with Short Circuit, Protective Device Coordination, Arc Flash Hazard, Load Studies, and Resistance Welder Power Supply Systems Studies.

### **EXPERIENCE:**

- **ORION ENGINEERING COMPANY, INC. — Jackson, Michigan (2004 – Present)**

Responsible for preparing Short Circuit, Protective Device Coordination, Arc Flash Hazard Load Studies, and Resistance Welder Power Supply System Studies

  - ◇ Significant Short Circuit and Protective Device Coordination Projects
    - GMVO Fort Wayne Assembly
    - GMVM Spring Hill
    - GM de Mexico – Ramos Arizpe
  - ◇ Significant Arc Flash Hazard Projects
    - GM Flint MFD
    - GM Pontiac North Campus
    - Honda Transmission Manufacturing – Russells Point, Ohio
    - Instructed three (3) day Arc Flash Seminar
  - ◇ Significant Resistance Welder Power Supply Systems Studies
    - GM Lordstown Assembly Global Delta Body Shop Program (Cruze)
    - Volt Vehicle at GM Detroit-Hamtramck Assembly
  - ◇ Significant Load Studies
    - GM Orion Assembly Data Center
    - GM Lordstown Press Addition
  
- **MOYLAN ENGINEERING ASSOCIATES INC. — Livonia, MI (May 2003-June 2004)**
  - ◇ Collected and analyzed power system data utilizing Electrical Transient Analyzer Program (ETAP) software to determine if equipment was properly rated for the application
  - ◇ Reliable Power Meter (RPM) Implementation
    - Recorded electrical power flows at a commercial site
    - Analyzed output reports
    - Investigated solutions for undesirable results

### **EDUCATION:**

Bachelor of Science in Engineering – April 2003  
Western Michigan University – Kalamazoo, MI

### **PROFESSIONAL DEVELOPMENT:**

**2005 National Electric Code Class** – Fall 2004  
Jackson Community College – Jackson, MI

**Institute of Electrical and Electronics Engineers (IEEE)**  
I & CPS Conference on Arc Flash and Overcurrent Protection – May 2003

### **REGISTRATION:**

Professional Engineer in Michigan (2007)

# CHRISTOPHER T. BRUNDAGE, E.I.T.

## Electrical Engineer

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### **SUMMARY:**

Participated in Arc Flash Hazard, Resistance Welder Power Supply Systems Studies, and Electric Power Distribution Load Studies.

### **EXPERIENCE:**

- **ORION ENGINEERING COMPANY, INC. — Jackson, Michigan (February 2009 – Present)**
  - ◇ Arc Flash Hazard Studies
    - GM MFD Flint Metal Center Presses (over 25 Presses)
    - GM MFD Marion Metal Center Presses (over 20 Presses)
    - GM Pontiac North Campus
    - GM Lake Orion Assembly (Substation Equipment)
    - GM Arlington Assembly (Substation Equipment)
    - GM Wentzville (Substation Equipment)
    - GM Flint Engine South (Substation Equipment)
  - ◇ Resistance Welder Power Supply System Studies
    - Volt Vehicle at GM Detroit-Hamtramck Assembly
    - GMT-561 Program at GM Lansing Delta Township Assembly
    - Small Car Program (Delta and Gamma) at GM Orion Assembly Center
    - G1UC Program at GM San Luis Potosi Assembly
    - GMT-900 Pickup Box at GM Silao Assembly
    - Y1XX Program at GM Bowling Green Assembly
    - Volt Production Update at GM Detroit-Hamtramck Assembly
  - ◇ Electric Power Distribution Load Studies
    - COMAU Body Shop Equipment
    - GM St. Catharines CETC GF6 Engine Program
    - GM Bedford CETC Gen V Engine Program
  - ◇ Short Circuit and Protective Device Coordination Projects
    - GM St. Catharines CETC Update
    - GM Bedford CETC Update
    - GM Pontiac North Campus Update
  
- **KELLOGG CORPORATION — Battle Creek, Michigan (December 2006 – February 2009)**
  - Control Systems Engineering Intern**
  - ◇ PLC Network & HMI Software Communications
    - Utilized RS Logix 5 & 500 to communicate and program PLC's on the network
    - Experience with Wonderware software and HMI implementation
    - Upgraded servers to improve communication with PLC's using Asset Center
    - Constructed an equipment calibration system with procedures and proper setup

# CHRISTOPHER T. BRUNDAGE

(Continued)

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## **EDUCATION:**

Bachelor of Science in Electrical Engineering – December 2008  
Western Michigan University – Kalamazoo, MI

## **PROFESSIONAL DEVELOPMENT:**

**2008 National Electric Code Class** – Spring 2010  
Jackson Community College – Jackson, MI

## **REGISTRATION:**

Engineer In Training – Michigan 2008

**PART II – COST PROPOSAL**

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**PROFESSIONAL SERVICES FOR  
DEPARTMENT OF TECHNOLOGY, MANAGEMENT AND BUDGET**

**2013  
Indefinite Scope, Indefinite Delivery  
General Professional Design Services**

**VARIOUS LOCATIONS (MICHIGAN)**

**FILE NO. Various**

**INDEX NO. Various**

**ORION** ENGINEERING CO., INC.

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**III-2-A POSITION, CLASSIFICATION AND EMPLOYEE BILLING RATE INFORMATION**

2013 Indefinite-Scope Indefinite Delivery - Request for Proposal  
 General Professional Design Services  
 (Architectural, Engineering, Landscape Architecture)

**Firm Name:**

**Orion Engineering Company, Inc.**

**Yearly Hourly Billing Rate Increase**

0%                      0%                      0%

Employee(s) Name	Position / Classification		Year 1	Year 2	Year 3	Year 4
Raymond Javier	Senior Consultant / Project Engineer **		\$100.51	\$100.51	\$100.51	N/A
William E. Urquhart	Senior Consultant / Project Engineer **		\$100.51	\$100.51	\$100.51	N/A
Danny O'Bannon III	Supervising Engineer - Structural **		\$100.51	\$100.51	\$100.51	N/A
Mutie A. Khatib	Supervising Engineer - Mechanical **		\$100.51	\$100.51	\$100.51	N/A
James D. Etters	Senior Engineer-Electrical **		\$97.93	\$97.93	\$97.93	N/A
Christopher T. Brundage	Junior Engineer-Electrical **		\$77.68	\$77.68	\$77.68	N/A
James R. Travis	Engineering Specialist - Electrical		\$77.68	\$77.68	\$77.68	N/A
John P. Wahtola	Engineering Specialist - Electrical		\$77.68	\$77.68	\$77.68	N/A
Richard H. Jennings, Jr.	Engineering Specialist - Electrical **		\$77.68	\$77.68	\$77.68	N/A
Dale E. Warren	Senior Designer - Mechanical		\$63.78	\$63.78	\$63.78	N/A
Kip C. Jones	Senior Designer - Electrical **		\$63.78	\$63.78	\$63.78	N/A
Brian E. Wahtola	Designer - Electrical		\$51.03	\$51.03	\$51.03	N/A
Patricia J. Mundy	Technical Support		\$35.00	\$35.00	\$35.00	N/A
Norma J. Scott	Technical Support		\$35.00	\$35.00	\$35.00	N/A
Kevin J. Reynolds	CADD		\$49.06	\$49.06	\$49.06	N/A
Terry L. Snook	CADD		\$49.06	\$49.06	\$49.06	N/A
				\$0.00	\$0.00	

Billing Rates will be in accordance with the attached guideline page for instructions regarding the "Overhead Items used for Professional Billing Rate Calculation," and the attached "Sample Standard Contract for Professional Services," Article 5, Compensation Text.

\*\* Key Project Personnel

Mr. William Urquhart  
Orion Engineering Company  
Page 2  
January 17, 2014

If your company is interested in participating in the MiDEAL program, please sign below and return to this letter to the letterhead address, Attention: Melissa Sambaglio

**FOR THE STATE OF MICHIGAN**



Robert C. Hall, RA, NCARB, Director  
Design and Construction Division  
Facilities Administration

**FOR THE PROFESSIONAL**

Orion Engineering Company agrees to extend the terms, conditions, and pricing of our 2013 General ISID Architectural/Engineering Services contract, No. 00442, to MiDEAL members and will remit the one percent (.01) administrative payment fee along with the quarterly report as outlined.

  
Signature

1/27/2014  
Date

William E. Urquhart  
Print Name/Title