



Position Description

POSITION TITLE: STRUCTURAL ENGINEER

Reporting to: Principals

General Responsibilities

1. Marketing
 - a. Develop new clients through professional activities and involvement with other clients.
 - b. Participate in developing and implementing BTC marketing strategies.
 - c. Prepare professional service proposals and follow-up on each proposal.
 - d. Maintain client relationships.
2. Project Management and Ongoing Responsibilities
 - a. Perform project related tasks including field investigations, report preparation, preparation of repair documents including technical specifications and drawings, bidding assistance, and construction phase services.
 - b. Provide litigation support services to clients and Principals.
 - c. Coordinate technical and administrative activities of each project.
 - d. Maintain client contact and communicate on an ongoing basis with client.
 - e. Coordinate and oversee activities by other staff members.
3. Mentoring
 - a. Mentor other BTC staff in areas of competency.
4. Professional Development
 - a. Maintain active involvement in at least 2 professional organizations.
 - b. Maintain active involvement in at least 1 professional/technical committees.
 - c. Attend seminars relating to field of practice for 12 to 20 hours each year.
 - d. Author a minimum of 1 technical article per year.

- e. Co-author a minimum of 1 technical article per year.
 - f. Give a minimum of 1 technical presentation per year (excluding presentations to clients).
 - g. Conduct internal training presentations a minimum of 3 hours per year.
 - h. Pursue relevant certifications on an ongoing basis.
 - i. Develop areas of competency.
5. Qualifications
- a. Professional degree in engineering.
 - b. Licensed structural engineer in the State of Illinois.
 - c. Proficient in Microsoft Word, Outlook, and Excel.
 - d. Knowledge of Microsoft PowerPoint.
 - e. Excellent written and oral communication skills.
 - f. Proficiency in evaluation and repair of building/structural systems with an emphasis in a particular BTC practice area.
 - g. Ability to become thoroughly familiar with BTC procedures and formats within 3 months.

Performance Expectations

A Structural Engineer is expected to perform the following tasks with minimal input from Principals/Project Managers, unless noted otherwise.

- 1. General
 - a. Effectively manage own time and discharge responsibilities in a timely manner. When delays in meeting client expectations/deadlines are unavoidable due to workload, provide Principals ample advance notice, and be able to properly prioritize tasks/projects.
 - b. Manage multiple tasks and projects.
 - c. Effectively plan various tasks and anticipate potential delays/critical path items.
 - d. Effectively and quickly respond to problems and resolve conflicts.
 - e. Effectively listen to others, processing information and direction.

- f. Be thoroughly familiar with and consistently use proper technical terminology used by BTC in written communication.
- g. Prepare grammatically correct written work, consistent with BTC writing policies, free of spelling errors, free of formatting errors, and written using proper BTC templates.
- h. Prepare clear, complete, and concise written work, accurately conveying the desired information such that any individual with little knowledge of the subject matter can clearly understand the written communication.
- i. Prepare technically accurate written work.
- j. Properly organize all written communication, and when applicable follow BTC template outlines.
- k. Exhibit good judgment with regard to identifying potential conflicts with contractors, clients and co-workers; and develop strategies to avoid/resolve such conflicts.
- l. Exhibit good judgment in identifying potential risks to BTC and BTC interests; or to client and client interests.
- m. Verbally communicate complex issues to co-workers, clients, and contractors in a clear and professional manner.
- n. Make technical and marketing presentations.
- o. Exhibit reasonable efficiency in performing all project related and marketing tasks.
- p. Represent BTC in a technically competent and professional manner, including personal and physical office appearance.
- q. Exhibit thorough proficiency in at least 2 of the following areas of expertise, and have reasonable level of knowledge in 2 additional areas:
 - 1) Roofing
 - 2) Waterproofing
 - 3) Windows/curtain walls
 - 4) Masonry/Terra Cotta
 - 5) Concrete
 - 6) Building Science
 - 7) Stucco EIFS
 - 8) Structural Systems and Structural Analysis

9) Parking Garages

10) Building Codes

- r. Research technical issues, standards, and literature regarding complicated technical issues.
- s. Be thoroughly familiar with and knowledgeable in industry resources and standards in areas of competency.
- t. Be familiar with industry standards and resources available in areas of practice, or be able to research same.
- u. Analyze various situations and develop opinions regarding same.
- v. Exhibit thorough proficiency in any tasks that he/she delegates to others (except use of AutoCAD, complex word processing tasks, and other similar specialized tasks).
- w. Be thoroughly familiar with BTC policies and standard operating procedures for various project phases.
- x. Exhibit leadership and team building qualities.
- y. Exhibit creativity and innovation.
- z. Exhibit good work ethic and follow through with his/her commitments.

2. Project Management

- a. Manage routine projects.
- b. Assist in managing complex and non-routine projects with limited input from Principals.
- c. Effectively manage other team members' work for assigned projects.
- d. Take responsibility for project deliverables, and work product produced by self and other team members.
- e. Handle all routine project related communications with clients, BTC assigned personnel, and contractors.
- f. Maintain and follow appropriate communication protocols at all times.
- g. Properly initiate a project and set up proper filing system (file tree).
- h. Verify proper execution of BTC agreements.

- i. Effectively manage project cost through routine monitoring of project fees and progress of work.
 - j. Prepare order-of-magnitude cost estimates for routine projects.
 - k. Prepare order-of-magnitude cost estimates for complex projects with input from Principals and/or contractors.
 - l. Assist Director of Finance and Administration in collection of outstanding invoices, and communicate effectively with clients regarding same.
3. Proposal Phase Services
- a. Receive and handle inquiry calls when assigned by Principals; and promptly contact client to discuss client's needs and obtain all critical information regarding project including project objectives.
 - b. With input from Principals, determine if the project objectives fit BTC expertise.
 - c. Arrange and perform pre-proposal site visit.
 - d. Determine the need for subcontractors/owner-retained contractors. If needed, develop a brief Scope of Work for contractors and coordinate obtaining proposals for such services.
 - e. Coordinate obtaining required documents for proposal preparation (i.e., prior reports, drawings, etc.).
 - f. Develop appropriate scope of BTC services to address project objectives.
 - g. Develop fee estimates for project.
 - h. Analyze value of BTC services to the client and recommend adjustments to the calculated fee to Principals.
 - i. Discuss project approach for complex projects with Principals.
 - j. Prepare proposal for review by Principals. Proposals should clearly and accurately reflect background information, project approach and Scope of Work. Principals should be able to focus their review on the Scope of Work, and fees only.
 - k. Assemble proposal and other appropriate submittals and transmit to client.
 - l. Follow-up with clients regarding proposals.

4. Evaluation Phase of Projects

- a. Take primary responsibility in coordination of all pre-field investigation tasks.
- b. Analyze required field logistics and coordinate all such requirements with other team members, client, and contractors.
- c. Ensure all parties receive proper notice of BTC's field investigation work.
- d. Make final decisions regarding cancellations due to unfavorable weather or other causes, and promptly communicate such cancellations to all parties involved.
- e. Assemble proper team and ensure each team member has a clear understanding of his/her responsibilities.
- f. Neatly, accurately, and completely document all field observations (photographic, written, etc.).
- g. Recognize and note all relevant issues and observations in the field that relate to project objectives.
- h. Analyze field observations and adjust field investigation protocol as needed to obtain sufficient information to accomplish project objectives.
- i. Note and document all discrepancies with construction/design documents and prior reports.
- j. Recognize and document observed patterns.
- k. Recognize and note other observations that may affect project objective, or may be of significance to BTC or the client.
- l. Coordinate, manage, and direct BTC team members and contractors in the field.
- m. Assist in, or conduct field testing.
- n. Handle communication with other parties at the site, and recognize when such communication is inappropriate.
- o. Present a calm, confident, and professional demeanor at site.
- p. Ensure that sufficient information is obtained to analyze and develop opinions, and meet project objectives.
- q. Neatly organize all field data.
- r. Coordinate any required laboratory testing.

- s. For routine projects, analyze field data, and form opinions and recommendations.
 - t. For complex projects, analyze field data, and form preliminary opinions and recommendations for review by Principals.
 - u. Evaluate reporting needs and develop appropriate report outline.
 - v. For routine projects, prepare accurate technical reports such that a final review by Principals would yield minor comments on technical content. If work is in areas of competency, no input from Principals should be required.
 - w. For complex projects, prepare accurate technical reports with some input from Principals such that a final review by Principals would yield minor comments on technical content.
5. Design Phase
- a. Understand organization of project manual and relationship with drawings.
 - b. Understand industry standards for development of project manuals and specifications.
 - c. For routine projects, develop appropriate Scope of Work that is consistent with project objectives.
 - d. For complex projects, develop appropriate Scope of Work with some input from Principals that is consistent with project objectives.
 - e. For routine projects, develop appropriate list of required technical specifications.
 - f. For complex projects, develop appropriate list of required technical specifications with some input from Principals.
 - g. For routine projects, develop appropriate list of required drawings and details.
 - h. For complex projects, develop appropriate list of required drawings and details with some input from Principals.
 - i. Develop project kickoff agenda, and conduct project kickoff meetings.
 - j. Determine project logistical and contractual requirements.
 - k. Be thoroughly familiar with various contract forms used by BTC and client.
 - l. Develop front-end documents (Divisions 00 and 01) such that review by Principals would yield only minor comments on organization of bid forms and Scope of Work.

- m. Research materials and proper application methods.
 - n. Develop technical specifications that are consistent with BTC and industry formats such that review by Principals would only yield comments on materials used.
 - o. Clearly sketch all required details and drawings for drafting staff (including isometrics), so that drafting staff can draft the details and drawings with little input from others.
 - p. Develop proper details and drawings for the work, and oversee production of drawings.
 - q. Review drawings produced for projects and ensure proper formatting, consistency in notations, and adherence with BTC formats.
 - r. Coordinate project manual and drawings.
 - s. Assemble design documents that properly address all project objectives, communicate repair/construction requirements, are technically accurate, are consistent, and include proper level of details to communicate construction requirements to contractors.
 - t. Coordinate and handle review of design documents by product manufacturers, and ensure documentation of their acceptance.
 - u. Understand and specify warranty requirements.
 - v. Properly record design presumptions, and instructions and directions by client.
 - w. Prepare design cover letters.
6. Bidding Phase of Projects
- a. Qualify bidders and develop bidders list.
 - b. Prepare bid invitation memos, and assist client in preparation of public bidding advertisement.
 - c. Develop an appropriate pre-bid conference agenda and sign-in sheet.
 - d. Coordinate pre-bid conference time, location, and other requirements with all parties.
 - e. Conduct pre-bid conference and properly answer all questions raised by client and contractors. Project confidence during meeting and be thoroughly familiar with design documents, presumptions made during design phase, and project objectives.

- f. Prepare accurate, concise, complete, and clear pre-bid conference minutes such that review by Principals would only be required for complex projects.
- g. Develop simple addenda with no input from Principals.
- h. Develop complex addenda with little input from Principals.
- i. Respond to RFIs.
- j. Evaluate submitted bids and prepare bid analysis spreadsheet.
- k. Assist Owner in interviewing bidders to confirm qualifications and resolve discrepancies in bids.

7. Construction Phase of Projects

- a. Prepare standard AIA contract forms, with specific changes requested by client. Contract forms should include proper alternates, Scope of Work, Contract Sum, Substantial Completion dates, and all other required information.
- b. Develop appropriate pre-construction conference and progress meeting agenda and sign-in sheets.
- c. Coordinate conference and meeting time, location and other requirements with all parties.
- d. Conduct pre-construction conference and progress meetings, and properly answer all questions raised by client and contractors. Project confidence during meetings and be thoroughly familiar with design documents, presumptions made during design phase, submittals, change orders, payment applications, project status, outstanding issues, and project objectives.
- e. Prepare accurate, concise, complete, and clear conference and meeting minutes such that review by Principals would only be required for complex projects.
- f. Handle all submittal reviews without input from Principals.
- g. Evaluate substitution requests for compliance with design intent, and compatibility with specified materials. Ensure that substitutions do not pose any inferior warranty, performance, or other attributes.
- h. Perform site visits, properly document observations and prepare field reports. Field reports should be accurate enough such that review by Principals is not required unless requested for special reasons.
- i. Analyze requests for change orders for accuracy, justification, and costs.
- j. Issue change orders.

- k. Track project costs, and prepare cost projections.
- l. Review payment applications, analyze them, and verify their accuracy.
- m. Review lien waivers for accuracy.
- n. Prepare recommendations for payment applications and process same.
- o. Review and respond to RFIs.
- p. Assemble, review, and process close-out documents for client use.