

The ACEC logo features the acronym "ACEC" in a large, bold, black serif font. Above the letters is a thin, curved yellow line that arches over the top of the text.

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AMERICAN COUNCIL OF ENGINEERING COMPANIES

A red ribbon banner with the text "100 Years of Excellence" in white serif font.

100 Years of Excellence

QUALIFICATIONS-BASED SELECTION

WHY QUALITY OUTWEIGHS COST IN
THE SELECTION OF DESIGN
SERVICES

What is QBS?

- A nationally endorsed procedure for selecting and retaining design professionals (Architects and Engineers) that will provide the best value to the owner in terms of quality and total project cost.
- A competitive procurement approach that emphasizes quality attributes.



History

- Prior to 1939
 - Most design done by federal employees
- 1939 A/E Selection Provision
- 1947 Armed Services Procurement Act and 1949 Federal Property and Administrative Procedures Act
- 1972 – The Federal “Brooks” Law (P.L. 92-582) signed
 - Codified into federal law the qualifications-based selection process for A/E services
- 1984 Competition in Contracting Act



Who Uses QBS?

- Local, state and federal governmental agencies that procure A/E services
- Private industry
- Other public and private institutions
- Design professionals when hiring other design professionals
- Other users of services/products who place quality first (“The doctor example”)



Engineering Services

- Are services; not commodities
- Engineers provide:
 - Technical Expertise
 - Innovation
 - Latest Technology
 - High Degree of Professional Competence



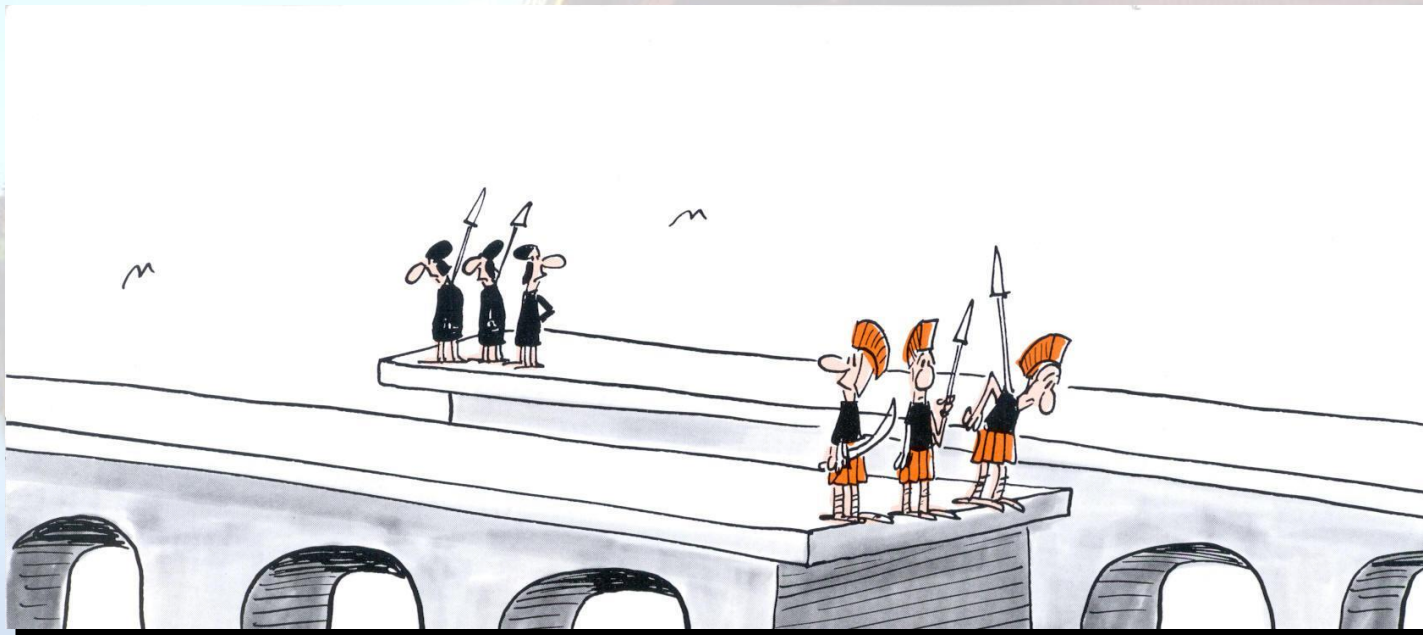
Why not use low-bid?

- To those not familiar with our industry low-bid may seem logical



The Reality of Bidding

- Low-bidding leads to inferior results and actually increases overall project costs



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The cost of A/E services is typically less than 1% of the project life-cycle costs.



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Choose Quality First and Then Decide If You Can Afford It

Everyday decisions are based on this principal.



\$500

Vs.



\$80,000

Or?



\$25,000



What Does the Owner Really Want?

- ☐ Lowest Construction Cost
- ☐ Lowest A/E Cost
- ☐ Lowest Life-Cycle Cost
- ☒ Performance and Long-Term Value



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QBS: The Process

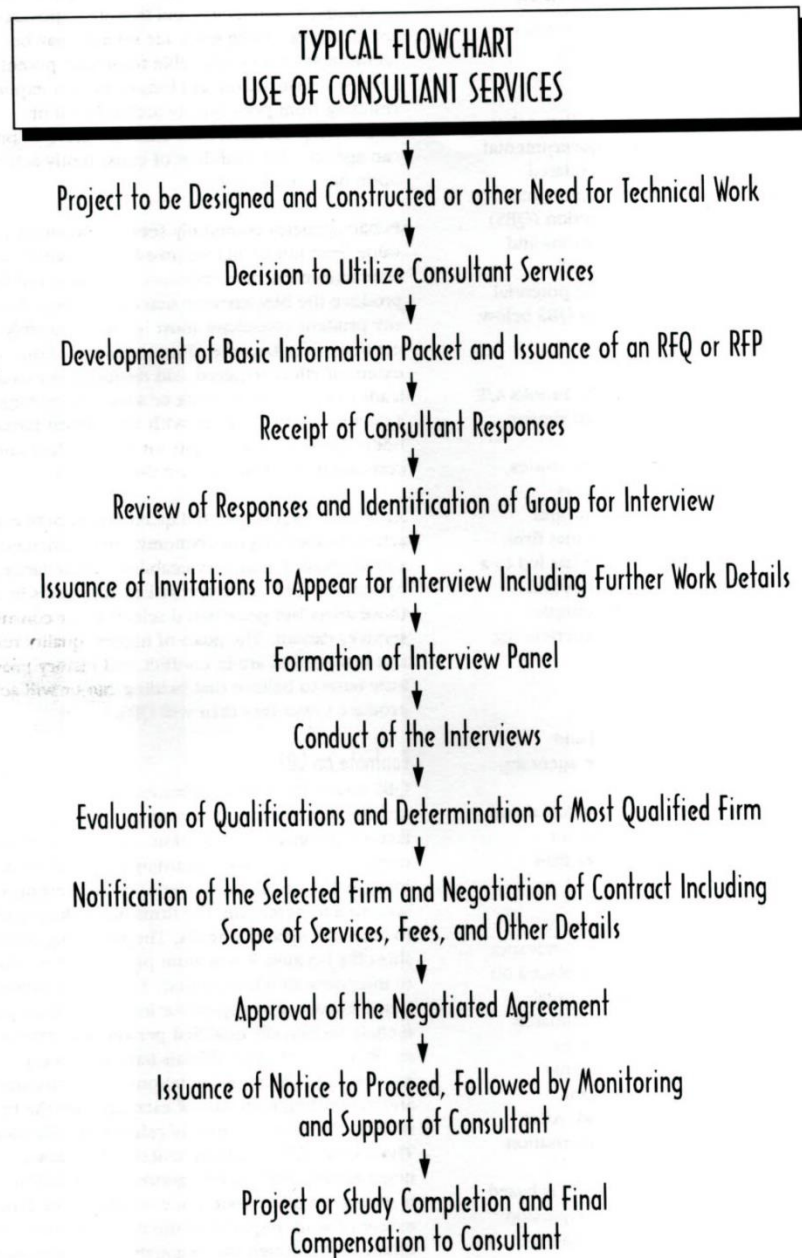
- Selecting a Design Firm
 1. An owner identifies the general scope of work and develops a selection schedule.
 2. A request for qualifications is issued.
 3. Statements of qualifications are evaluated.
 4. A short-list of qualified firms to be interviewed is determined.
 5. Interviews are conducted and the firms are ranked.

QBS: The Process

- Negotiating a Contract

6. The owner invites the highest ranked firm to assist in defining a detailed scope of work.
7. The design firm develops and submits to the owner a detailed fee proposal, based on the agreed upon scope of work.
8. If the proposed fee is not acceptable to the owner, the owner and designer work together to modify the scope of work, schedule and budget to determine if an agreement on fee can be achieved.
9. If an agreement cannot be reached with the top ranked firm, those negotiations are ended and negotiations begin with the next most qualified firm.
10. An agreement covering the above is executed.
11. Firms involved in the selection process are given post-selection feedback, when requested.

APWA Flow-Chart



Evaluating Qualifications

Training

Expertise

References

Experience

Availability

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Why QBS?

- Life Cycle Cost Considerations
- Team Building
- Technology/Innovation
- Reduced Changes
- Flexible Contract Approaches
- Competition Among Best Performers; Not Low Bidders



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Questions?

- What happens if the Owner and A/E can not agree on the fee for the services?
 - The Owner terminates negotiations with the first ranked firm and begins negotiation with the second ranked firm. The Owner is always in control of the process. This happens only rarely, since the A/E has invested significant resources to arrive at this point.

Questions?

- Why not ask for prices from three qualified firms?
 - Each firm will offer a price based on its own interpretation of the scope and not necessarily that of the owner. Each price therefore, represents a unique and unilateral scope.
 - Since most equally qualified firms have similar labor cost, overhead, and profit structures, they will cut scope first to be price competitive.

Questions?

- Does QBS encourage competition?
 - Absolutely. The A/E will make a serious investment in the preparation of qualifications packages and the interview process at minimal expense to the Owner. This investment will also ensure that the A/E – Owner negotiations are successful.

Questions?

- Does QBS result in higher A/E fees?
 - Not when you consider the final project costs. The Maryland experience between 1976 and 1982 showed that fee bidding or two envelope bidding (technical and price proposals) may offer a lower initial price but the “savings” are lost in change orders and time delays.

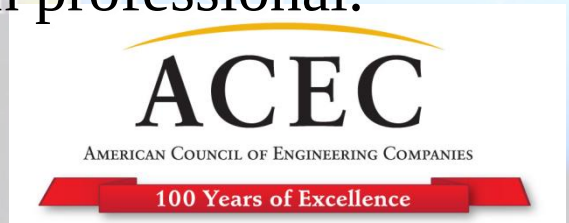
Questions?

- How does the owner know that he is getting a fair price in the negotiation?
 - A/E's typically get about 85% of their business from repeat clients. Client satisfaction ranks second only to the A/E's public safety professional responsibility. A reputation of inflated fees without commensurate high quality (value) is a sure formula for losing clients and not in the best business interest of the A/E.
 - If the owner can not be convinced that the fees are fair, he does not have to buy the A/E's services.



Common Misconceptions

- QBS takes longer – False: QBS fosters teamwork between the client and engineering and facilitates construction, leading to faster project delivery
- QBS is a waste of taxpayer money – False: In fact, low-bid is more expensive because it leads to increased change orders and high project maintenance costs. Furthermore, QBS ensures the public gets a high quality and safe design.
- QBS eliminates price as a selection criteria – False: Price is a factor! Price becomes a factor only after the most qualified firm has been identified and a detailed scope of work has been jointly developed by the owner and design professional.



QBS Case Study #1

- You are one of three engineers that an owner has asked for a price proposal for a site plan for a business park. Your work will include permitting and stormwater management.
- You have determined that the site is suitable for an innovative bio-filtration stormwater management facility. This innovative design may allow more parking and office floor space when compared to a conventional stormwater management basin. However, the design and permitting effort (scope) for the innovative design is about 1.5 times the cost of the conventional basin design.

QBS Case Study #1

Here are your choices of action:

1. Call the owner and ask to explain the opportunities of innovative design in the hope that he will accept your higher price.
2. Ask the owner to tell the other engineers to base their fee on the bio-filtration design so that everyone's fees are comparable.
3. Give the owner two fees, one for the conventional design and one for the innovative design and let him decide.
4. Base your fee on the conventional design so your fee is low and hope you get the job.

QBS Case Study #1

Who Chose Option #1? (Call the owner to explain the opportunities of innovative design...hope he accepts your higher price.)

- The owner says that it is a great idea. So you give him your higher fee based on the innovative approach.
- But the owner calls a week later to thank you for your effort but he just had to take the engineer whose fees were 65% less than yours. But he will invite you to bid next time.



QBS Case Study #1

Who Chose Option #2 (Owner tells other engineers to base their fee on the bio-filtration design.)

- The owner says, fine. Just write a scope so he can hand it to the other engineers.
- One of the other engineers calls you to ask what a bio-filtration facility is.
- The owner calls a week later and says that he chose the engineer whose price was 65% lower than yours. Without telling you, he thinks that you price gouge and will not call you again.
- The selected engineer later talks the owner out of the risky bio-something design and goes ahead and designs the big ugly hole. Yes, he was the one with the low fee.

QBS Case Study #1

Who Chose Option #3 (Give the owner two fees, one for the conventional design and one for the innovative design.

- The owner calls and says that he really likes the innovative option but the low conventional design fee looks really tempting. Even though you were not the lowest fee among the three engineers, he would be happy to give you the job if you would go with the innovative option for the conventional option fee. If you can't, he will have to go with the lowest fee of one of the other engineers.

QBS Case Study #1

Who Chose Option #4 (Base your fee on the conventional design so your fee is low)

- Congratulations, you got the job. Your price was 65% lower than the next engineer. This client thinks you're a great guy.
- Three months later your multiplier is 1.4 and the project is behind schedule. You and the owner are barely speaking since you have submitted seven change orders for out-of-scope work. The owner says, "How can this be? You said that this is a conventional design! Don't you know your own business!"



QBS Case Study #1

Moral of the Story

- When price is on the table it trumps other considerations, even quality and innovation. However, in many cases, the difference in quality outweighs the apparent savings in fees when considering the life cycle costs.
- Had the owner used QBS he would have worked with the innovative engineer to develop a layout that would have generated more rentable office space and a higher rate of return on his development investment.



Case Study #2

- Three engineers were invited to submit technical and price proposals for a wastewater treatment plant upgrade project.

- The price proposals and technical scores were:

1. \$ 349,000	88
2. \$ 388,000	85
3. \$ 325,000	84

- You are the Director of Public Works and have to recommend a firm for the project.
- Here are your choices:
 1. Choose the firm with the highest ranked technical proposal for \$349,000.
 2. Choose the firm with the low price.

Case Study #2

Who Chose Option #1 (the firm with the highest ranked technical proposal for \$349,000.)

- After you have notified the winning firm, the President of the County Council calls and asks you to attend the next Council meeting to explain why you agreed to pay an additional \$24,000 when the technical scores of “equally qualified firms” were so close.

Case Study #2

Who Chose Option #2 (the firm with the low price.)

- You have made the Council and the County Procurement Agent happy.
- At the 50% submission, you realize that an important item of scope was not included in your Request of Proposal or in the A/E's original fee. To be fair you ask the A/E for a change order. It amounts to \$30,000.
- The County Council President calls and asks you to explain why you didn't select the most qualified firm who "would have known about this" and would have charged \$6,000 less considering the change order that you now ask for.



Case Study #2

Moral of the Story

- When the owner writes the scope without the A/E's input, he is exposed to a greater risk of change orders.
- When multiple prices are on the table, the owner is not in control; the price is.
- Had the Director used QBS, he would have been able to identify contingencies and have a contract means to handle them. He would also have been able to tell the Council that the procurement method he used is widely endorsed by governmental and professional organizations.

Case Study #3

- What the City Wants...
 - Consultants are requested by a City to submit price proposals for providing complete engineering services for a Water Transmission Line Replacement Project.
 - The advertisement states that the City wishes to replace 5,000 feet of an existing 8-inch transit line with a new 12-inch asphalt dipped and wrapped steel transmission line. The City has a policy of using steel pipe on all transmissions lines, and the Council has determined that they can afford only a 12-inch diameter line.
 - The city desires a lump sum “bid” for all of the engineering, including surveying, design, contract administration, and inspection.



Case Study #3

- Problems....
 - If a consultant wants to be competitive on this job he must first accept the fact that the line size must be 12 inches, and the material used must be asphalt dipped and wrapped steel pipe.
 - Several assumptions could cause the engineer to price himself out of the job. For example...
 - He includes costs for soil testing to see if corrosive soils may exist on the route, this making steel pipe unsuitable.
 - He includes the cost to evaluate the City's overall water supply and transmission facilities beyond the limits of this project to see if a 12-inch line will fit the long-range needs of the City.
 - Several stream crossings are involved in the project, and if the engineer assumes the responsibility for securing the necessary crossing permits as a part of his work.

Case Study #3

- The City thinks it is getting a valuable product for the least engineering cost.
- In fact...
 - The choice material maybe wrong for the type of soil.
 - The size of the line maybe too small for the long-range needs of the City.
 - Additional work (securing steam crossing permits) may have to be done by the City themselves.
- These problems are likely to lead to change orders, time delays, higher life-cycle project costs, and contention between the engineer and City.

Case Study #3

- What if the City had used QBS instead...
 - After the selection of the most qualified engineer, the engineer could meet with the City to discuss the various items of work to be done.
 - The engineer could explain the various elements of the project, from a technical standpoint, and point out potential problems.
 - The engineer and City collaborate to develop a detailed scope of work so that both parties are fully aware of what is to be done during the project.
 - The engineer and City negotiate a fair and reasonable price based on the scope of work.
- The City receives the best value for its buck.

Case Study #4

- The community of Knob Hill's main water transmission line which bring drinking water to the citizens was exposed by winter floods. Anxious to get the problem resolved the community asked for bids from consultants.
- Needing the work, and despite the fact that their engineers were mainly trained in designing roads and highways, Firm XYZ successfully submitted the lowest bid and proceeded to complete the project design.
- Soon after construction began a stop work order was issued by the Dept. of Fish and Wildlife because Knob Hill had obtained neither a "Dredge and Fill Permit" or a "Stream Crossing Permit" from the Department. In addition, work in the flowing stream was not allowed for another six weeks, after the native salmon had hatched and moved downstream. By contract, Firm XYZ was not responsible for obtaining the necessary permits, having made it Knob Hill's responsibility in order to keep their "bid" low. Having never done this type of project before, however, the firm's staff was unaware that in-stream work was only allowed for a six week period late in the summer.

Case Study #4

- Claim letters began to arrive weekly from the contractor, claiming damages for delays on the contract. The same contractor had already bid and had been awarded other construction work during the late summer. They had only bid on this job because of the early timing of the work in the construction season.
- Whether or not Firm XYZ knew the permits were required it did not concern them because they were not responsible for this task. .
- In the end, Knob Hill paid more than double the stream crossing transmission line cost to another contractor whom they hired under force contract. Firm XYZ was blamed by the Council members for their failures to point out the seriousness of having the necessary permits and not scheduling the construction during the proper time frame.

Case Study #4

- Had Knob Hill used QBS...
 - They probably would have selected a firm with experience in water line crossings of streams and would have been familiar with the permitting process and Dept. of Fish and Wildlife in-stream construction regulations.
 - By working with the consultant to develop a proper scope of work coupled with appropriate fees that were enough to cover some of the “extra services”, such as the permitting, instead of simply bidding the design work out, Knob Hill would have been able to save time and money in the long run.

Federal Initiatives

- ACEC secured QBS language in new federal procurement regulations and pending water legislation.
- Ongoing defense of QBS with federal agencies.
- TEA-21 Reauthorization language



State Initiatives

- Forty-five states currently have QBS (mini-Brooks”) laws
- Hundreds of municipalities use QBS
- QBS is prone to attack by state administrations and legislators unfamiliar with the process
 - Alabama situation
 - Reverse auctions in Minnesota & Kentucky
 - Louisiana attempts to use the “two-envelope” system
- The key is education!



State Initiatives

- The Good News

- The list of QBS states continues to grow
 - Alabama, Michigan, Georgia, and Hawaii all in the past 4 years
- Many states are successfully promoting QBS at the local level.
 - Oregon: Amended QBS law to include local agencies using state money for projects. Twenty-one states have similar law.
 - New York: Was able to expand their QBS law to include public benefic corporation and authorities.
 - Colorado & others: Currently trying to expand QBS to the local level.

- The Bad News

- Attempts to skirt the QBS process still arise – usually by contracting officers unaware of the law.
- Again, the key is education!



Who Endorsed QBS?

- The American Council of Engineering Companies (ACEC)
- The American Public Works Association
- The American Bar Association in their model municipal code.
- The American Institute of Architects
- The National Society of Professional Engineers
- Numerous Engineering Technical Societies such as the American Society of Civil Engineers, etc.



Testimonials

- "QBS is an invaluable tool for us. It consistently delivers high-quality, on-time infrastructure projects for the citizens of New York." - **William F. O'Connor, Deputy Commissioner, New York State Office of General Services.**
- "The public interest is best served when government agencies select engineers, architects and related professional services and technical consultants for projects and studies through QBS." - **Marty Manning, Former President, American Public Works Association.**
- "In general, QBS has allowed us greater flexibility, placed minimal financial burden on prospective consulting firms, initiated greater understanding of the scope of work, and facilitated the development of contracts that are based on common understanding and sound fiscal principles associated with the expected work." - **Harry Judd, Manager of TMDL, Utah State Division of Water Quality.**
- "The whole QBS process was very helpful. My only regret is that I wish we would have adopted it sooner." - **Rick Manchester, Parks and Recreation Director, City of Two Rivers, WI.**
- "QBS means that the owner gets a qualified, competent engineer who is known to have the qualifications for a specific project. And the taxpayer receives a quality infrastructure system that is well-designed and meets the required service life." - **Paul Kinshella, Superintendent for the City of Phoenix Water Services Department.**

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Resources

- ACEC's Online QBS Resource Center
 - <http://www.acec.org/advocacy/qbs.cfm>

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