Myths and reality of 'strong' specs

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Attn. Mechanical Design Engineers:
You Can Not Afford to Write a Generic Controls Instrument Specification!

INTRODUCTION

Many myths are created by those who gain some advantage from substitutions for products used as Basis of Design. The ones that were part of the design process and likely budgeted prior to bid time. Many "Value Engineering" exercises are thinly veiled attempts to influence decisions by owners and designers into accepting lesser products for a lower first cost, without exchanging any real 'value' in maintenance or energy savings. Owners tend to get what they pay for, which in this specific area is not very much, except for future headaches and utility bills.

Remember, your expensive BMS is just another computer and a distributed network, having the same strengths and susceptibilities as any data processing system: "Garbage In => Garbage Out". The quality of the input determines the effectiveness of your control system and therefore the performance of your building's mechanical system, assuming everything else is held equal. So, if you have any concerns about your project's design integrity, the quality of the building end-product and the reputation of your design firm for the operational performance of your HVAC projects, then please read on.

BACKGROUND

In the U.S., federal, state and most local governments have established competitive bid laws for public projects in an effort to maintain an equitable business climate. The intent is to eliminate price fixing or gouging by equalizing the competition at the level of the prime contractor (the firm directly contracted by the government or client) by requiring bids from a minimum of three prime contractors. Correspondingly, most business and not-for-profit organizations have mandated similar competitive bid procedures. The term "competitive bid," however, often is misinterpreted and applied erroneously to everything purchased.

This philosophy does help to minimize the acquisition costs for commodities and items that are very similar. However, the low-bidder seldomly provides a product of a quality higher than others that are bid. The process reduces everything to its lowest common denomination and assumes that low cost is the highest priority and the only objective. Unfortunately, improving the performance of complex assemblies, like buildings, requires some higher quality components – namely, HVAC instrumentation. Products within relatively small market segments do not have truly competitive equals at all levels of performance.

To achieve higher performance levels usually requires higher quality, superior technologies and specialized manufacturing processes. This costs more than those products that claim to provide only a function, but cannot tell you how well they do it, or put their performance in terms that make it difficult to compare to others or the data published cannot be understood by non-technical decision-makers.

The big assumption you have to make for competitive bid policies to work close to their original intent, is that all products of a particular "type" must be generic commodities, without significant distinguishing characteristics or performance differences.

MYTH: Using a proprietary spec discourages competition.

Proprietary developments in technology are the result of competition. Not using them actually devalues competitiveness. For example: a company can invest years and risk millions of dollars developing a unique technology. Without a strong performance-based or proprietary specification, that investment is largely wasted because the technological leader will be pressured to compete at a lower level of quality and performance.

The designer that uses a 'strong' specification is really arguing for their own reputation in the products they specify. Should you give up superior technology and your reputation--that easily?

If you are only looking for a low price, and have no consideration for:

- field performance,
- air system controls reliability and repeatability
- coordination effort and timing requirements at installation,
- installation labor costs and requirements,
- field placement restrictions and the cost of relocations,
- regular, mandatory maintenance,
- periodic recalibrations or
- availability of a native network-ready interface at no additional cost

…..then, why not make every technology, all configurations and all vendors equal in your specification with no references to design requirements, performance or capabilities?

MYTH: You have to name three sources on government projects.

Naming three sources could easily defeat the concept of doing what is best for a building, its occupants or the design requirements and presumably the owner's best interest. The manufacturer with a superior technology is automatically penalized because other companies do not want to invest in product design changes or improvements to match the technology leader. Some engineers will fight for superior technology and the integrity of their design. If they don't; who will?

Most owners are not motivated enough to distinguish between so-called "minor" components needed for control. They appear to be persuaded to accept anything that is presented as costing less and recognize differences only after the low-cost device develops problems. At that point, it's your problem.

The U.S. Supreme Court (Whitten Corp. vs. Paddock, Inc.) stated that a proprietary specification is "not a violation of anti-trust law."

> On December 14, 1974, the Federal 1st Circuit Court affirmed a very important decision handed down by the United States District Court, Massachusetts in the case of Whitten Corp. vs. Paddock, Inc. (4/12/74). The U.S. Supreme Court rejected further appeals and review, thus supporting the final decision of the Federal Circuit Court. The decision is unique in that it defines the Specifying Engineer's clear authority at the Federal level where relevant previous decisions have been at lower court levels.
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> Four major judgments regarding the specifications develop from this landmark decision:
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> 1) The court ruled that a proprietary specification (one brand only) is not a violation of anti-trust law. Further, the court stated that trained professionals – specifiers – make informed judgments on the systems which best serve their clients' needs.
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> *Comment: Technically, few brands of M/E equipment are exactly alike ... If the engineer decides to limit his specification to one source, he has the responsibility to do so and to enforce it.*
>
> 2) The court ruled that other suppliers can qualify as "or equal" only when the specifier chooses to waive specifications or permits the supplier to also bid.
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> *Comment: It is clearly stated here that the contractor cannot decide that another supplier is "equal" to the brand specified – that the specifier is charged with this responsibility and judgment. Where "or equal" is stated in the specification it is the engineer's and not the contractor's decision as to what brands or suppliers qualify as equal or don't qualify as equal.*

3) The court stated that the specifier ... "will waive specifications in order to obtain a better product for his client ...".

Comment: The implication is that the contractor cannot make a specification substitution judgment. It states that only the specifier (from start to finish – in the construction process) can ultimately decide that a better product is available and change the brand originally specified in his client's best interests.

4) The court concluded ... "The burden is on the supplier (manufacturer) who has not been specified to convince (the specifier) that his product is equal for the purposes of a particular project."

This is one of the most powerful court judgments in engineering construction law history.

Quoted from "The Designer" October, 1975, the official publication of the Detroit Chapter-CSI (The Construction Specifications Institute).

Federal agencies in compliance with FAR provisions can also use the concept of "directed source", which is effectively the same as a proprietary specification. However, convincing the Procurement Officer, the Owners Representative and several levels of government employees, who may not be well informed on HVAC controls and the importance of quality data inputs, may not be an easy task.

Sole source or directed source procurements in the public sector must ***always*** be justified. The amount of justification depends on the organization and the value of the contract. In most organizations, a non-competitive procurement must be supported by market research to show that there is only one supplier that can meet the documented requirements. Obviously, the size of the search should be commensurate with the contract value. Large contracts awarded without a competitive process demand extensive market research or full scale testing; smaller contracts, less.

Justification requires that the Procurement Officer seek companies capable of satisfying a set of requirements. As a "best practice", these requirements should be written down. Recognize that if the award is challenged, the documented requirements will be closely scrutinized. Solid, well-defined, non-restrictive requirements can support the award better than poorly written ones.

In years past, the Commonwealth of Massachusetts defined Proprietary Specifications for public construction:

M.G.L. c.30, §39M(b) requires that proprietary specifications for public construction projects, including buildings, shall only be used "... for sound reasons in the public interest stated in writing in the public records of the awarding authority ... such writing to be prepared after reasonable investigation." A governmental body must document the reasons and provide them in writing to anyone making a written request for the information.

If after a reasonable investigation, the governmental body determines that the project requires use of proprietary specifications, the specifications must include an "or equal" clause. An "or equal" clause is a provision allowing bidders to furnish items that are equal to the specified items. Under the (MA) law, an item is considered equal if it satisfies ALL of these requirements:

- Is at least equal in quality, durability, appearance, strength, and design;
- Will perform the intended function at least equally; and
- Conforms substantially, even with deviations, to the detailed requirements contained in the specifications.

The governmental body, through its designer, determines whether a bid item is equal to the item specified.

Request for Proposal (RFP), pursuant to FAR 6.302-1 or for the Navy in this instance:

2.3 Proprietary Specifications: (FAR 10.002 and 36.202)

Proprietary or restrictive requirements shall not be used unless it is established conclusively that no substitute will serve the purpose. Specifications shall be written to permit bidding by any supplier whose equipment provides the functional, technical, and physical requirements of the project. Proprietary requirements shall not be included in specifications without PACNAVFACENGCOM Level I

Contracting Officer approval. The Project Design Engineer (PDE) and the Contracting Officer for the construction project shall be notified and a copy of the approval document furnished for their use. If a proprietary item is authorized, the specification must state: "Notwithstanding any other provision of this contract. No other product will be acceptable.'

2.3.1 Qualified Products. (FAR 9.2) The limitations pertaining to proprietary specifications do not apply to items on a qualified products list. However, such lists must be established and used in strict accordance with FAR 9.2 provisions.

2.3.2 The A-E shall submit the following information, in writing to the Project Design Engineer (PDE), for authority to include proprietary specifications in a construction contract.

a. Manufacturer, model number, address of manufacturer, cost of the proprietary item, each, and total in the-project. Total cost of the project.

b. Justification for the proprietary item:

c. (1) Cite the salient characteristics required.

(2) Cite laws, regulations, or Navy instructions requiring the necessary salient characteristics.

(3) Cite reasons of commercial availability.

6.302-1 Only one responsible source and no other supplies or services will satisfy agency requirements.

(a) Authority.

(1) Citations: 10 U.S.C. 2304(c)(1) or 41 U.S.C. 253(c)(1).

(2) When the supplies or services required by the agency are available from only one responsible source, or, for DoD, NASA, and the Coast Guard, from only one or a limited number of responsible sources, and no other type of supplies or services will satisfy agency requirements, full and open competition need not be provided for.

Subpart 11.1—Selecting and Developing Requirements Documents

11.104 Use of brand name or equal purchase descriptions.

(a) While the use of performance specifications is preferred to encourage offerors to propose innovative solutions, the use of brand name or equal purchase descriptions may be advantageous under certain circumstances.

(b) Brand name or equal purchase descriptions must include, in addition to the brand name, a general description of those salient physical, functional, or performance characteristics of the brand name item that an "equal" item must meet to be acceptable for award. Use brand name or equal descriptions when the salient characteristics are firm requirements.

11.105 Items peculiar to one manufacturer.

Agency requirements shall not be written so as to require a particular brand name, product, or a feature of a product, peculiar to one manufacturer, thereby precluding consideration of a product manufactured by another company, unless—

(a)(1) The particular brand name, product, or feature is essential to the Government's requirements, and market research indicates other companies' similar products, or products lacking the particular feature, do not meet, or cannot be modified to meet, the agency's needs;

(2)(i) The authority to contract without providing for full and open competition is supported by the required justifications and approvals (see 6.302-1); or

(ii) The basis for not providing for maximum practicable competition is documented in the file (see 13.106-1(b)) or justified (see 13.501) when the acquisition is awarded using simplified acquisition procedures.

(3) The documentation or justification is posted for acquisitions over $25,000. (See 5.102(a)(6).)

(b) For multiple award schedule orders, see 8.405-6.

MYTH: Too many arguments are started by using proprietary specifications.

Without debate, important issues come to a grinding halt. When you argue in support of a particular product, you are really arguing in support of your own reputation.

The U.S. Supreme Court has ruled that only the specifier can change specifications. It is, therefore, the specifier who must maintain the integrity of the building's concept in terms of the products to be used.

Anyone can write an "or equal" specification or destroy the integrity of an otherwise strong specification by adding the name of a generic commodity as an unqualified "equal," allowing substitution for the product used as basis of design. It takes knowledge and experience for an engineer to protect his firm's reputation and investment by writing a strong specification. Did your client hire your knowledge, expertise and experience? or just your manpower?

Specification strength boils down to a simple question: Does the building you are designing deserve the best HVAC control instrumentation available? Do you have the fortitude to make a stand and defend that choice? When answering, you should also consider that all technologies cannot be equally:

- superior in performance
- first cost-comparable to others available
- provide many thousands of dollars per unit in savings for maintenance and recalibration over the life of the equipment
- eliminate temperature measurement devices already budgeted
- greater temperature measurement accuracy and functional performance
- easier to install and setup than any other – regardless of price

Only one technology can. If you believe it is worthy, then consider writing and maintaining a proprietary specification.

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There are many duct velocity-averaging devices available, from a long list of manufacturers. Most claim some type of advantage in their design, construction or method of measurement. Some even claim to be "just like" ones with proven performance and reliability having many more years of experience.

- Only one brand is installed and commissioned consistently without problems.
- Only one manufacturer extends its obligations to insure that field-damaged products are replaced without delay. (The program is called "Advanced Replacement.")
- Only one manufacturer targets production lead-times systematically at 3 - 4 weeks ARO, adjusting capacity when necessary – not delivery dates.
- Only one brand can provide a technology to overcome most of the difficulties historically found in selecting, applying, placing, installing and using these types of products.

That manufacturer is ***EBTRON***.

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If you must allow multiple bidders, you should

- **INSIST that all vendors must prove that they meet the same performance provisions of your specification**;
- make the commitment to understand ALL the differences between them, so that submittals can be evaluated fairly and properly; and,
- do not lower the requirements supporting the performance of products you specified.

Do not accept another manufacturer's standard product as an "equal". Make all bidders supply the same level of quality and performance. That is the only way to make all potential vendors compete on the same level. Raise the bar. Don't lower your project's performance capability.

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Reducing measurement instrument performance to the lowest common denominator (first cost) is not the way to avoid problems, justify the expense of a superior and expensive BMS control system and ensure reliable air system performance. It's just not a very smart way to save money.

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Acknowledgement and Disclaimer

The structure and many of the features of this article were inspired by a paper written about 10 years ago by an author in another industry. Some of the information may be based on publications that are upwards of 20-30 years old. The message is similar, the structure is extended and customized, but the content is very different.

Because of the age of some of the references, the author disclaims any representation that those citations are still valid, although many of the FAR regs were checked and are current or materially very similar. The author offers this historical information as examples and likely representations of current policy. However, it is not intended to be legal advice and no claim is made that it is. If you have questions and concerns about federal, state or local government bidding regulations, please contact your attorney.

Finally, thanks to that unknown author for the inspiration.