



Comptroller General
of the United States

Washington, D.C. 20548

Decision

Matter of: Moore Heating & Plumbing, Inc.

File: B-254024

Date: November 16, 1993

Raymond Moore for the protester,
Timothy A. Beyland, Department of the Air Force, for the
agency.
Roger H. Ayer, Esq., and James A. Spangenberg, Esq., Office
of the General Counsel, GAO, participated in the preparation
of the decision.

DIGEST

Protest that agency's drawings and specifications for an underground piping system are unreasonable and overly restrictive--because their specification of numbers and locations for some system components (expansion loops and anchors) allegedly precludes the protester from offering the products of some prequalified system suppliers--is denied where the agency's system configuration requirements, based on its successful existing system, are designed to achieve a long, maintenance-free life and do not overly restrict competition.

DECISION

Moore Heating & Plumbing, Inc. protests the drawings and specifications of invitation for bids (IFB) F28609-93-BA018, issued by the Department of the Air Force, McGuire Air Force Base (AFB), New Jersey, for installation of an Underground Heat Distribution System (UHDS).

We deny the protest.

The protested drawings and specifications are for the replacement of approximately 5,000 linear feet of underground pipe of various diameters at McGuire AFB.

UHDS projects are often procured on a "systems approach."¹ Under this approach, the project specifications include the general pipe layout, site ground water conditions, operating temperature, and soil classification and bidders are required to provide prequalified systems.² In this IFB, the project drawings and specifications are based upon certain characteristics of the system that is being replaced. Specifically, the agency's engineers have included in the IFB drawings and specifications specific

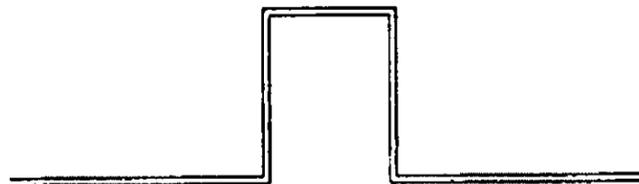
¹The "systems approach" allows the government to competitively procure proprietary pre-engineered systems. It seeks to accommodate the product-imposed limitations inherent in proprietary products (i.e., the products have unique features that dictate how they are used and what they can be used with) by prequalifying a number of proprietary products for use in specific underground environments. Generally, the agency design role is limited to describing the environment, the required level of system performance in that environment, and any special factors to be considered. The system supplier is then held responsible for both system design and installation, and consequently for the design and fabrication of the system components.

²By requiring contractors to use approved system suppliers, the suppliers are made responsible for the application and installation of their products. Contractors establish that they are offering the system of an approved system supplier by furnishing the particular supplier's brochure containing a letter of acceptability signed by a representative of a participating federal agency. To be approved, suppliers are required to develop methods of demonstrating the acceptability of their products in various underground environments (site ground water conditions, operating temperatures, and soil classifications). The supplier generally certifies that the system supplied on an agency project will be designed, fabricated, and installed in accordance with the supplier's brochure--which sets forth hardware specifications, application engineering, installation specifications, quality control, maintenance and repair information, along with a statement as to the specific environments for which the system is designed--unless contract documents for a project specifically require otherwise.

numbers and locations for expansion loops³ and anchors⁴ to duplicate where they are in the existing system. In this regard, the existing system has enjoyed a long, trouble free life that Air Force engineers attributes to the fact that the existing system's particular design limits "the movement of the carrier pipe caused by expansion/contraction."⁵ The agency has found such proven durability and low maintenance costs for the UHDS constitute its actual requirements.

Moore objects to the specified expansion loop and anchor system components, contending that the agency is not authorized by government publications, which govern UHDS procurements, to specify such detailed design considerations for a prequalified system. Moore basically contends that the government's use of a "system approach" in the procurement of UHDS projects as described in these publications precludes such agency component-level design because it is the system supplier's obligation, on any particular project, to provide a design unique to its own system in accordance with its government approved brochure.

³Viewed from above expansion loops are basically rectangles formed by four elbows in the pipe, routing the pipe around three sides (of the rectangle).



The loop reduces the stress on the pipe when it expands (due to temperatures increasing when the hot water passes through it) by absorbing the expansion in an accordion-like fashion. This is accomplished by virtue of the fact that the pipe makes four 90 degree changes in direction in a short span, such that the elbows at each 90 degree turn allow some movement within the casing relieving stress. Without the loop, the pipe expands and pushes against itself. For example, the agency reports that on one part of the project a 610-foot run of pipe experiences an expansion of approximately 18 inches that may increase to 27 inches, but the use of loops in the system's configuration reduces the pipe's movement to less than 3 inches.

⁴Pipe anchors are used to ensure that the expansion and contraction of the piping occur in a predictable manner.

⁵The existing UHDS is over 40 years old. The system has functioned "with excellent dependability and virtually no maintenance problems" and is only being renovated because it is now "well beyond its [30-year] designed life expectancy."

In arguing that the Air Force is not authorized to specify component elements of a UHDS as it did here, Moore cites two government publications: (1) the National Academy of Sciences' Technical Report No. 66 (Report No. 66) on Criteria for Underground Heat Distribution Systems (1975);⁶ and (2) the Federal Construction Guide Specification No. 15705, Underground Heat Distribution Systems (Prefabricated or Pre-engineered type) (1976) (Specification No. 15705). Both documents generally describe the "systems approach" to UHDS projects. Report No. 66 generally states that an agency's design efforts should be geared toward providing a potential bidder with sufficient information in the contract documents to determine whether the system the bidder is proposing "to supply is generally suitable for the application and, if it is, what specific combination of system components must be supplied and what special precautions must be taken during installation." Report No. 66 recommends that agency engineers: (1) define site conditions; (2) determine the system's general layout and essential characteristics; (3) design special elements of the system; and (4) review the awardee's detailed plans for carrying out the project. Moore emphasizes that Report No. 66 states that the agency engineer "need not (and in fact should not) design or specify items that are to be selected by the supplier and are covered in the supplier's brochure." Moore reads Specification No. 15705 as also requiring agency non-interference with the system supplier's component design responsibility.

The protester exaggerates the legal significance of these documents. While it is true that the government published both documents, the 1975 technical report and the 1976 guide specification only purport to be guidance for federal agencies. For example, Report No. 66 is written in terms of what agencies "should" do (e.g., "[i]n procuring underground heat distribution systems, agencies should use the systems approach"), and discusses model guide specifications as items to be "prepared by the headquarters of an agency to serve as a guide in the preparation of project specifications." Similarly, Specification No. 15705 states that "[u]se of this guide specification, in whole or in part, by federal agencies is encouraged." These clearly are not regulations binding on a contracting agency's procurement activities. See Loral Fairchild Corp.--Recon., B-242927.3, Dec. 9, 1991, 91-2 CPD ¶ 524. Moore has not cited any regulation, and we are unaware of any regulation, that supports Moore's position that procuring agencies are

⁶The Academy's National Research Council, Building Research Advisory Board, Federal Construction Council, Standing Committee on Mechanical Engineering prepared Report No. 66.

prohibited from specifying component elements of the system.⁷

In addition, these publications do not prohibit agency engineers from specifying system components, but reserve to the agency engineer the option of determining the general layout and essential characteristics of the system for the contract documents. For example, Report No. 66 states:

"[i]f . . . expansion/contraction devices, and piping anchors must be in a particular location and/or of a particular size for the system to function properly, the project designer should indicate their location and/or size; otherwise, these and other components of the system should be sized and located by the system supplier in accordance with his approved brochure."

Further, Specification No. 15705 allows the agency engineer to incorporate and make binding on the system supplier any "pertinent general information as noted," and emphasizes that the system supplier must furnish a system that is in "strict accordance" with both the supplier's brochure and the agency-prepared project drawings.

The Air Force also obtained the views of the Chairman, Federal Agency Committee on Underground Heat Distribution System, the organization responsible for approving system suppliers' brochures. That individual states that "[a]n acceptable method of contracting for an installation of a UHDS is for the government designer to prepare contract drawings indicating exact layout and location of the UHDS, including "the design for expansion compensation and indicate the location and size of expansion loops, Z-bends and L-bends." This individual also states that "the contractor is required to submit a detailed design layout prepared by an . . . approved system supplier which reflects

⁷Moore also contends that approving agency's issuance of letters of acceptability for suppliers' brochures in some manner transforms the recommendations of Report No. 66 and Specification No. 15705 into a contractual obligation on the government's part, and that issuance of a solicitation contrary to Report No. 66 and Specification No. 15705 is therefore a breach of contract. We see no merit in this argument. We agree with the Air Force that the letters of acceptability are nothing more than "a prequalification of contractors wishing to bid on heating systems to be installed on Federal projects" and are "not a contract with any branch of the government, or any federal agency." (Emphasis in original.)

the layout of the project drawings" and that "when contract drawings include the exact pipe layout, location and size of expansion loops . . . it does not restrict or compromise the competitiveness or design of any supplier with an approved brochure."

Finally, we note that the Corps of Engineers, in March of 1989, published its own widely followed Guide Specification for Military Construction that expressly allows the agency engineer the discretion to provide the level of specification detail that Moore objects to by providing for either (1) "[p]roject drawings that indicate general pipe route only," or (2) "[p]roject drawings indicate exact layout and location of pipe system, including location and size of expansion loops." The second option is the one that the Air Force has elected to follow here.

In sum, contrary to Moore's assertions, the publications addressing the acquisition of UHDS are guidance, not regulations. Further, this guidance does not prohibit, but specifically envisions, the agency's specification of component elements of the UHDS where it is appropriate to meet the government's needs.

Agencies are required to specify their needs in a manner designed to promote full and open competition and to include restrictive requirements only to the extent necessary to satisfy their minimum needs. Johnson Controls, Inc., B-243605, Aug. 1, 1991, 91-2 CPD ¶ 112. The contracting agency, which is most familiar with its needs and how best to fulfill them, must make the determination as to what its minimum needs are in the first instance, and we will not question that determination unless it has no reasonable basis. Id.

Here, the agency decided to copy the layout of the existing system because of its exemplary performance (long life and low maintenance cost). As conceded by Moore, the use of expansion loops and anchors minimizes carrier pipe movement, which will have the effect of increasing system life by preventing damage to welds, bends or the pipe itself as a result of bending or abrasion of the pipe against the insulation.

Moore argues, however, that the permissible amount of expansion is specific to each approved system, as designated in each supplier's approved brochure, and the agency improperly restricts competition when it designs a general system layout that in effect forces a supplier to provide a level of expansion that is not optimal or "efficient" for its particular system. As an example, Moore cites Sigma Piping's approved brochure that includes a table showing that Sigma's system can tolerate as much as 16 inches of

expansion. Moore advises that according to Sigma "[t]he greater amount of expansion that can be accommodated by a single expansion loop in its system, the more efficient the layout and the longer will be the system life."

Moore's arguments do not give proper weight to the exemplary performance of the existing system, which the agency attributes to the particular locations of the expansion loops and anchors--there is no evidence that the agency placed undue weight on this experience in designing the UHDS. Moreover, a supplier's definition of "efficient" may not properly account for the government's future maintenance costs. In this regard, the agency reports that maintenance problems resulting from gradual deterioration of the carrier pipe caused by excessive movement, stress or bending, take a few years to surface, and that the approved supplier's liability for its system commonly expires before then. Thus, the supplier, wanting to submit the low bid for a prequalified system, may find it efficient to reduce the number of expansion loops and anchors because that allows the bidder to lower its price by reducing the number of welds, joints that have to be sealed, pipe tests, concrete thrust blocks that have to be installed, and x-rays that have to be performed.

The agency notes that the items being specified (carrier pipe expansion loops and anchors) are common components in all approved suppliers' systems⁸ and that the number of expansion loops has a significant impact on project installation costs. The agency observes that "there is an almost endless combination of pipe runs and expansion loop sizes that fall within the limits of the ANSI [American National Standards Institute] table,"⁹ and states that the agency's concern was to narrow the possible choices--by showing the exact locations and sizes of loops--hoping to avoid a situation where:

⁸The proprietary aspects of the competing systems--areas where agency specification of a specific approach could possibly hinder competition--concern the type of insulation and type of encasement around the carrier pipe. The agency reports that under the protested drawings and specifications "[a]ll systems, regardless of the type of materials used to construct the encasement (steel or fiberglass laminate), are acceptable . . . provided they have received their letter of acceptability."

⁹The referenced ANSI table shows for particular piping what is, based on the industry standard, a safe amount (safety envelope) of expansion.

"less ethical suppliers could push the expansion parameters to the very edge of the ANSI safety envelope, and the government would receive a system which would have a significantly reduced life span."

We think the agency's decision to specify the locations and sizes of the expansion loops and anchors to achieve durability and a long, maintenance-free system life is reasonable and supported by this record.

Finally, while Moore asserts that some suppliers will not be able to comply with their approved brochures if they must design to account for the specified expansion loops and anchors, the brochures submitted for our review generally recognize that the supplier will defer to the agency's drawings and specifications. Even the brochure of Sigma-- which Moore identifies as a supplier who cannot supply the required loops and anchors under its brochure--recognizes that an agency may specify other requirements "if considered critical by the Design Organization." In any event, as we have concluded, the requirement of specified expansion loops and anchors reasonably reflects the Air Force's needs and is not improper merely because it may prevent an approved supplier from competing. Pittcon Preinsulated Pipes Corp., B-209940.2, July 11, 1983, 83-2 CPD ¶ 70.

The protest is denied.



for James F. Hinchman
General Counsel