

STANDARD

Specifications define precise requirements of commodities (i.e., goods and services) sought through a solicitation process. To understand the context in which the commodity will be used and with clear knowledge of statutes, regulations, policies, market availability, budget, and the strategic plan of the entity, procurement professionals collaborate with end users to translate a particular need into detailed requirements. Written with an intent to maximize competition, specifications should use language that is relevant to and understood by potential offerors.

Definition

Specification:

A precise description of the physical characteristics, quality, or desired outcomes of a commodity to be procured, which a supplier must be able to produce or deliver to be considered for award of a contract.

There are two types of specifications, Design and Performance.

Element 1: Specifications should be written using attributes of design and performance, as required by the procurement.

A design specification details physical characteristics, materials, and product features, as well as details of the manufacturing methodology for the commodity. A performance specification describes the desired end result or outcome for the commodity.

A specification may incorporate features of both design and performance. Specifications may be viewed on a continuum with pure performance on one end and pure design on the other. Each requirement in a specification falls somewhere on this continuum.

Element 1.1: Design specification

A design specification establishes the characteristics a commodity must possess, including details of how the commodity will be manufactured; engineering plans, drawings, or blueprints may be included. The design specification states in prescriptive terms what the potential offeror must provide to the buyer.

The objective of a design specification is to meet a custom or unique requirement. A design specification is complete and limits the options of the contractor or manufacturer, placing high risk on the buying entity for design errors or omissions within the specification. For example, if the desired outcomes from a solicitation are not achieved, the supplier may argue that any poor performance is due to the design that was specified and not the supplier's assembly.



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Element 1.1.1: Design specifications may include any or all of the following:

- Drawings (e.g., engineering plans, blueprints)
- Dimensions that allow for tolerance levels and ranges
- Definition of terms
- Description of materials for cost determination, process of construction, delivery, and implementation of requirements by supplier
- Minimum requirements
- Detailed test, sample, and inspection methods to ensure compliance with the specification
- Industry standards
- Alternatives that may be considered

Technical specifications are a subset of design specifications, often used when precise shapes, dimensions, close tolerances, and a high degree of manufacturing precision are required (e.g., construction and heavy equipment).

Element 1.1.1a: Advantages of design specifications

- Provide the end user with increased certainty about the commodity
- Allow for objective evaluation of offers
- Award is based on compliance with the specification and made to the lowest responsive offer and responsible offeror

Element 1.1.1b: Disadvantage of design specifications

- Prescriptive, may limit competition
- Increased risk to entity
- Loss of innovation
- Expensive and time consuming to prepare, may require the services of engineers, architects, and other technical resources, as well as multiple levels of review and approval
- Implementation may be expensive and time consuming. The entity is responsible for inspections, testing processes and associated costs, as well as prototype costs

Element 1.2: Performance specification

A performance specification describes the desired outcome or intended use of a commodity and how the commodity will perform (e.g., number of items, distance to travel, time required). Performance metrics¹ are essential to define acceptance testing and successful achievement of outcomes. The metrics may be linked to incentives or disincentives.

Performance specifications:

- Allow offerors to use their expertise, creativity, and innovation to provide a solution. The offeror chooses the method of achieving the outcome.
- Are used when the method and means of achieving the outcome are unknown.
- Place a higher degree of risk on the awarded supplier, who is responsible for achievement of the outcome and will be evaluated based on defined criteria.
- May describe a commodity that will be integrated into existing systems and be interchangeable with parts, services, or other basic elements.

¹ Supply Chain Process Improvement, Inc. (2003-2008). SCOR Metrics. <http://www.scpitem.com/SCOR%20Metrics.htm>

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Element 1.2a: Advantages of performance specifications

- Provide opportunity for innovation; allow offerors to put forth unique solutions to defined needs
- Allow end user to benefit from the latest products and technologies
- Corrective action may be applied if service levels are not achieved

Element 1.2b: Disadvantages of performance specifications

- Well-defined performance metrics are needed to ensure that the specified performance will achieve the desired outcome
- Require reliable, practical, economical tests of performance
- Evaluations are subjective and require additional time and effort to complete

Performance specifications may include functional; brand name; or brand name or equivalent descriptions.

Element 1.2.1: Functional descriptions

A performance specification may utilize a functional description to define the task or desired result of the commodity. Functional descriptions are commonly used for technology-related commodities, and focus on observations or experiences during system usage (e.g., the program, computer peripherals, or other computers).

Example:

Upon landing on the website home page, the user is prompted to enter their password and confirm their status using Captcha.

Element 1.2.1a: Advantages of functional descriptions

- Well suited for information technology products
- Well suited when the options available in the marketplace are unknown
- Provide clarity to offerors on the desired results from the commodity

Element 1.2.1b: Disadvantages of functional descriptions

- May result in a wide range of offers that are not necessarily comparable
- Take more time and effort to develop and to evaluate

Element 1.2.2: Brand name descriptions

A brand name description is a title, term, symbol, design, or any combination thereof used to describe a product by a unique identifier and its producer. Performance specifications may use brand names to describe the desired output and quality levels of a commodity.

Element 1.2.2a: Advantages of brand name descriptions

- Allow for agency standardization (e.g., fleet standardization for purposes of training and maintenance)
- Meet the expectations of the end user by providing the exact commodity needed
- Reduce the time required to develop the specification



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Element 1.2.2b: Disadvantages of brand name descriptions

- Very restrictive; limit competition
 - Potentially equivalent products are not considered for award; alternative brands would be excluded from consideration
 - May result in increased price
 - May lead to a sole source procurement and create dependency on a specific supplier
- Requires significant justification (e.g., maintenance, compatibility of parts)

Element 1.2.3: Brand name or equivalent descriptions (also referred to as “brand name or equal”)

- A brand name or equivalent description provides one or more manufacturers’ brand names with identifying model numbers. In a performance specification, a brand name or equivalent description states the standards of quality, performance, and characteristics needed to meet the requirements of the end user.² To meet the standard of performance of “or equivalent,” the commodity must be functionally equivalent to the brand name product but not necessarily the same in every detail.³ A checklist may be included for suppliers to identify how their commodity meets or could be modified to meet the specification requirements. When appropriate, the description should include at least two acceptable brand name products.

Example:

Comparable pickup trucks might be the Ford F150, Chevrolet Silverado, Ram 1500, or Toyota Tundra.

Element 1.2.3a: Advantages of brand name or equivalent descriptions

- Aid in communicating the desired quality and performance levels to potential offerors
- Reduce the time required to develop the specifications

² Federal Acquisition Regulation (FAR) 52.211-6 Brand Name or Equal.

As prescribed in FAR 11.107(a), insert the following provision: Brand Name or Equal (Aug 1999)

(a) If an item in this solicitation is identified as “brand name or equal,” the purchase description reflects the characteristics and level of quality that will satisfy the Government’s needs. The salient physical, functional, or performance characteristics that “equal” products must meet are specified in the solicitation.

(b) To be considered for award, offers of “equal” products, including “equal” products of the brand name manufacturer, must-

- (i) Meet the salient physical, functional, or performance characteristic specified in this solicitation;
- (2) Clearly identify the item by-
 - (i) Brand name, if any; and
 - (ii) Make or model number;
- (3) Include descriptive literature such as illustrations, drawings, or a clear reference to previously furnished descriptive data or information available to the Contracting Officer; and
- (4) Clearly describe any modifications the offeror plans to make in a product to make it conform to the solicitation requirements. Mark any descriptive material to clearly show the modifications.

(c) The Contracting Officer will evaluate “equal” products on the basis of information furnished by the offeror or identified in the offer and reasonably available to the Contracting Officer. The Contracting Officer is not responsible for locating or obtaining any information not identified in the offer.

(d) Unless the offeror clearly indicates in its offer that the product being offered is an “equal” product, the offeror shall provide the brand name product referenced in the solicitation.

³ The Court of Claims has specifically rejected the Government defense that it is entitled to get exactly what it specifies. The substitute does not have to comply with every detail of the specification, but only function as well as the specified product. *Aerodex, Inc. v. United States*, 417 F.2d 1361 (Ct.Cl.1969); *Jack Stone Co. v. United States*, 344 F.2d 370 (Ct.Cl.1965). See also *Ocean Elec. Corp., NASA BCA No. 371-8, 73-2 BCA p 10,355*.

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Element 1.2.3b: Disadvantages of brand name or equivalent descriptions

- Considered to be restrictive
- Require justification
- May deter competition, which may increase price
- Must define criteria to determine responsiveness to “or equivalent”
- Risk of litigation by brand name manufacturer
- Brand name must be well known throughout a particular industry

Element 2: When procuring commodities, procurement professionals must provide the needed context to achieve the expected and desired outcomes of the end user.

Context refers to how the commodity will be used and conform to an existing environment. Providing context should result in:

- Specification requirements that will accurately define, represent, and fully express end user needs.
- Potential offerors who can provide responsive solutions.
- Full and open competition, which allows for unbiased decision-making.
- The ability of the purchasing entity to monitor the procurement and achieve the desired end results.

Element 3: Specifications should be written clearly, concisely, consistently, and precisely, using plain language.

Well-written specifications allow potential suppliers to easily read and understand the requirements. Well-written specifications encourage suppliers to make offers, thereby maximizing competition and increasing the likelihood of receiving a commodity that achieves the objectives of the procurement.

- Use language that is consistent, concise, plain, and precise.
 - Avoid ambiguous language
 - Choose simple words over complex ones
 - Avoid use of acronyms and clichés
- Use proper grammar and punctuation.
- Use consistent style and formatting.
- Categorize or group similar items for ease of readability.
- Organize specification content with a consistent numbering system.
- Maximize full and open competition.
 - Provide allowable variation in measurement or other characteristics of the commodity
 - Avoid suggestions of bias
- Ensure specifications are current and relevant.
- Identify physical, functional, environmental, and quality characteristics of the commodity (e.g., design, size, weight, power capacity, output, grade).
- Identify minimum requirements.
- State the required/optional outcomes.
- Clearly convey to potential offerors and other relevant stakeholders the application or intended use of the commodity.
- Identify acceptable commercial standards (e.g., Underwriters Laboratory (UL), Military Specifications (MILSPEC), National Electrical Manufacturers Association (NEMA), International Organization for Standardization (ISO), British Pharmacopoeia (BPUK), United States Pharmacopoeia (USP)).
- Include acceptance criteria.
- Detail how the commodity will be tested or evaluated for conformance.



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- Provide reproducible test methods.
- Include performance metrics for assessing the achievement of performance outcomes.
- Include a mechanism allowing for specification revision during the course of the contract.
- If using a brand name or equivalent, cite the specific brand name of the manufacturer to establish the standards of quality and required performance.
 - Include details on how the comparison of an “equivalent” or better is to be manufactured
 - When possible, specify at least two acceptable brand name products

Poorly written specifications may result in:

- Less competition; potential offerors may choose not to submit offers.
- A commodity that does not meet expectations.
- Additional costs due to subsequent changes made to the specification.
- Poor relationships with the supplier, end user, and others involved.
- Inappropriate contract awards and potential unfair competitive advantages.
- Protests.

Avoid the following when writing specifications:

- Conjunctions (e.g., and, or, also, with)
- Escape clauses (e.g., if, when, but, except, unless, although)
- Mixing different types of requirements (e.g., combining system, business, and design requirements in the same section of a specification)
- Run-on sentences
- Speculative language (e.g., usually, generally, often, normally, and typically)
- Unverifiable or vague terms (e.g., flexible, proper, suitable, reasonable, appropriately, user-friendly, approximately, as possible)
- Absolute terminology (e.g., 100% safe, totally reliable, runs on all platforms, functioning 100% of time, fully compatible)
- Ambiguous punctuation (e.g., use of slash “/”)
- Assumptions
- Over or understating the desired quality, output, or function

Steps for developing specifications

1. Meet with end users, clients, other stakeholders, and the evaluation committee to understand needs.
2. Seek external assistance, when needed, to provide expertise to clearly and correctly state what is required in terms of capability and capacity.
3. Conduct thorough research of market and trends.
4. Understand the capability and capacity of the supply chain, as well as potential influences (e.g., energy availability, storage for contaminated material).
5. Choose the type of specification based on the identified needs.
6. Conduct analyses (e.g. life cycle cost (LCC), value analysis, value engineering, best value).
7. Clearly identify the supplier’s obligations (e.g., risk and responsibility) according to the type of specification chosen.
8. Explain, clarify, and define all compliance obligations.
9. Include essential characteristics and a clear statement of intended use.
10. Include a clear and consistent methodology for determining if all the requirements have been met by offerors.
11. Ensure there is an internal review process by members of the solicitation team to help identify inconsistencies and ambiguities.

Specification Checklist

Consider the following list when developing specifications, only including the items that are applicable and relevant to the commodity being procured, as well as the chosen specification type.

- Intended use/purpose
- Detailed good/service requirements
- Performance requirements
- Traceability
- Inspections - Acceptance
- Compliance (e.g., safety, environmental, industry standards)
- Any restrictions that a local agency might impose
- Delivery locations
- Installation
- Available facilities and utilities
- Entity-provided items or services
- Guarantees/Warranty
- Training requirements
- Delivery/Completion
- Quantity
- Key deliverables
- Responsibilities
- Packaging
- Quality control
- Contract transition
- Services provided by third parties

Background

This public procurement practice provides entities with guidelines that should be considered when preparing specifications for solicitations and contract documents. Since the specifications will be read and interpreted by multiple persons of various skill levels and backgrounds, specifications must be written in a manner that minimizes multiple interpretations and gives all parties a clear understanding of what is to be produced or delivered.

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