



Policy Title: Directive 1C-2 Specification of Materials

Responsible Office: Design & Construction

Last Revised Date: June 2019

Summary:

This Directive provides guidance and direction for preparing the Specifications for the Project(s).

Overview:

The Consultant's Specifications shall conform to all applicable codes and be concisely edited to describe the actual work of the Project, to list current products and standards, and to coordinate between all sections/disciplines. See Directive 1A-6 Construction Document (Pre-Bid) Phase for the setup and organization of the Project Manual.

Responsibility:

The Consultant is responsible for the completeness of the Specifications, as required in Article I, Section B, Paragraph (5)b of the Consultant's Agreement. This Directive describes the Fund's requirements, based on past experience, for how the Consultant prepares the Specifications. Complete Specifications should enable successful bidding and construction of the Project, and mitigate changes to the work during the construction of the Project.

Procedures

I. General

- A. Specifications must be written to be consistent with the role of the Consultant in the Fund's Construction Agreement.
 - 1) Do not require the Fund (as the Owner, or an Owner's representative, or the Campus) to approve submittals, accept work or provide directions to the Contractor since these duties are the Consultant's responsibility in the Construction Agreement.
 - 2) The Consultant must have working knowledge of Fund's Construction Agreement when preparing the Specifications.
- B. Materials, finishes and colors must reflect the decisions made by the Campus in accordance with Directive 1C-3 Material and Color Selections.
- C. Specifications must reflect the single bid approach used by the Fund. Delete all reference to separate electrical, communications, mechanical, plumbing, etc. contracts, unless there is another contract number, which must be clearly designated. Do not say who does the work (i.e. by Electrical Contractor), but say where work is shown and specified (i.e., Division 26, Section 26 xx xx).
- D. Perform a global word search of the Specifications for the term "by others" and replace it with either the Drawings or Specifications section where trade work is found, or, if the work will actually be done by another bid package, list the name/number of the package.
- E. In the Specifications, do not require submission of qualifications or other information from installers with the bid.

- F. Refer to the other Fund Directives related to a specific Specifications Section for additional preferences that must be considered by the Consultant.
- G. As needed to complete the Specifications, the Consultant must check for interdisciplinary coordination between the Drawings and Specifications, between Specifications and General Conditions, and between the Contract Documents of each phase of construction if more than one construction phase.
 - 1) The Consultant may have Specifications prepared by subconsultants, but the Consultant has the responsibility to coordinate all sections, link related sections by reference, and eliminate redundancy.
 - a) If a Specifications section is based on a manufacturer provided document, edit it to allow other sources per the “Material and Product Sources” section below and delete all proprietary features or restrictive or exclusive performance criteria.
 - 2) Do not include redundant General Requirements in Mechanical, Electrical or other Divisions.
 - a) There must be only one Division 01 00 00 General Requirements and it must be based on the most current Fund standard Division 01 00 00 General Requirements provide by the Coordinator to the Consultant.
 - b) There may be “Common Work Results” or “Basic Mechanical Requirements” in the MEP Divisions, but these must be coordinated with the Fund’s General Requirements to eliminate redundancy or conflict with the Fund’s General Requirements, as directed by the Fund Coordinator.
 - 3) In accordance with Section 1.06 of the Construction Agreement, Specifications have preference over the Drawings.
 - a) All material and products listed in Part 2 of the Specifications must be shown and described on the Drawings, and Specifications must be edited to complete the description of what is shown on the Drawings.
 - b) Terms used in the Specifications to identify materials and equipment shall precisely match terms used on the Drawings. The Consultant must use consistent terminology in the Drawings and Specifications.

II. Testing

- A. In addition to Code required testing required in Directive 1B-1 Building Codes, the Specifications should include other reasonable testing of materials, products, equipment and other work of the Project. See Section 2.17 of the Construction Agreement.
- B. The Contractor may be required to provide testing when such testing can be performed by a qualified third party firm and when approved by the Fund Coordinator.
- C. The Specifications must be specific about the experience, credentials and other qualifications required by the third party testing firm.

- D. The Specifications must be clear that the Consultant selects work for testing not the Contractor, and that all testing occurs in the presence of the Consultant. The Consultant will have a site representative present in the field to observe all testing, either under the Consultant Agreement, or provided by the Campus or the Fund's Construction Manager.
- E. The Specifications must be clear about the timing of tests so testing begins when it can be most effective in identifying defective or non-compliant work and allowing for corrective work to occur before a substantial amount of work has been progressed or completed.

Example: Prior to installing more than x% of the units/system, perform the specified performance testing and submit the results to the Consultant. Choose a percentage in consultation with the Fund Coordinator.

- F. The Specifications must be clear about the timing and extent of retesting when testing identifies work that is defective or non-compliant work, or when additional testing may be triggered by a specific level or rate of defective or non-compliant work.

Example: For every test that fails, provide a retest of the non-compliant work after the corrective work is performed, and in addition, provide one additional test of another, different unit to be selected by the Consultant. Choose a retesting requirement in consultation with the Fund Coordinator.

III. Other Quality Assurance requirements (in addition to Testing)

- A. Specify industry standard manufacturer warranties unless otherwise approved by the Fund Coordinator.
 - 1) Section 2.25 of the Construction Agreement requires a one-year guarantee of all the work and this guarantee must not be repeated or changed in the Specifications sections unless required in a Fund Directive. Coordinate warranties with Fund standard Section 01 78 36 Warranties.
 - 2) Where the Project is phased or may have some work possessed or accepted prior to completion, the Specifications sections describing such work must refer to providing the extended warranties required in Section 01 78 36.
 - 3) Do not include service contracts or the option for service contracts, unless there is a specific exception in a Fund Directive, or when approved by the Coordinator before the Pre-Bid submission is made. To enable the Campus maintenance work, attic stock may be included as noted below.
- B. Specify qualifications for workers, installers and companies in the Specifications, but such qualifications must not restrict competition.
- C. Require mock ups of work, systems and/or portions of the building in the Specifications to demonstrate, to the satisfaction of the Consultant, the ability of installers to complete work, and to establish a benchmark standard of care that the remaining work will be compared to when ready for acceptance. Coordinate with the requirements of the Fund's standard Section 01 31 19 10 Mock ups in the General Requirements.

- D. Require Pre-Installations Meetings with the Contractor and it's workers, installers and companies. Where multiple Specifications sections are used to describe the work, repeat the meeting requirements as needed to get all the stakeholders at the meeting. Coordinate with the requirements of the Fund's standard Section 01 31 19 33 Pre-Installations Meetings
- E. Require a common manufacturer for products listed in multiple Specifications sections when it doesn't restrict competition.
Example: Storefronts and Curtainwalls systems shall be from the same manufacturer.
- F. Require a sequence for submittals where the submittal required in one Specifications section must be approved prior to review of the submittal of another Specifications section.
Example: Door Hardware submittals shall be approved prior to approval of submittals for Hollow Metal Doors and Frames
- G. Require the services of a manufacturer's expert or other technical expert such as an Architectural Hardware Consultant, or the Building Management System programmer, or other specialty installer. This requirement must be quantifiable, such as: attend the pre-installation meeting, inspect the mock up with the Consultant, be present on the first eight-hour day of work and for a specific number of eight-hour days thereafter, inspect the completed work with the Consultant, provide demonstration and training to the Campus for a specific number of eight-hour days (prior to completion and/or during the guarantee period), return for a specific number of eight-hour days for system programming services, etc.
- H. Require submission of operating instructions, manuals and other manufacturer data that the Campus may need to operate and maintain the work of the Project. Coordinate with the requirements of the Fund's standard Section 01 78 23 Operating Instructions and Manuals.
- I. Require demonstration to and training of Campus maintenance staff. This requirement must be quantifiable as described above. Coordinate with the requirements of the Fund's standard Section 01 79 00 Training of Campus Personnel

IV. Material and Product Sources

- A. The Specifications shall name a minimum of three manufacturers or suppliers for all materials and products. See "Single or Sole Source Products" below for exceptions.
 - 1) The intent is to promote open competition and establish a standard of quality which the Consultant has determined to be necessary and available for the project. Three listed sources, including contact information, allows bidders to quickly get competitive pricing from acceptable manufacturers during the time available to them prior to the bid date.
 - 2) A "basis of design" product may be used, but the other two manufacturers listed must be able to supply acceptable equivalent products. Confirm that manufacturers and model numbers shown do not conflict with performance requirements set forth in the Specifications

- 3) Listing three manufacturers in the Specification does not prevent the Contractor from submitting a proposed Equivalent product for review and approval. See the Equivalent and 'Or Equal' section below.
- 4) Do not use performance Specifications that may limit the source of the material or product to a single manufacturer through technical language describing restrictive or unique material and performance characteristics. See "Performance Specifications" below.
- 5) Manufacturer's often have optional items that will not be provided unless specified, so the Consultant must specify any optional items that may be needed to complete the work.

B. In addition to naming the manufacturer and showing contact information, for all significant materials, products, equipment and systems, specify the model and/or system numbers for each specified manufacturer.

- 1) For materials, products, equipment and systems that are the essence of the project, each listed manufacturer should be contacted prior to submitting Pre-Bid documents to confirm that their products are available as specified and can be installed as intended on the documents.
- 2) The intent is to have the manufacturer confirm that the draft Specifications are consistent with the manufacturer's recommendations and requirements. It may be prudent for the Consultant to ask each manufacturer to submit written confirmation that they will be able to comply with the Consultant's Specifications, performance characteristics, and design intent.
- 3) Sources listed by the Consultant must be truly competitive and independent of each other, although a listed source may use common third-party suppliers for some of the material.
- 4) Where significant differences exist between the available manufacturers of materials, products, equipment and systems, such that different design documentation is required to show the different options, the Consultant shall provide the Drawings and Specifications for at least two complete design options as part of the basic fee. The Contractor then has the option to select one design or the other as part of the competitive bidding process. For example, if a single source method/product/system is specified (when approved as noted in Single or Sole Source Products below), provide a separate Specifications for the acceptable equivalent method/product/system.

V. Campus provided, Contractor installed materials

A. Use Section 01 64 00 Campus-Furnished Products in the Fund's standard General Requirements where Campus is supplying fire alarm devices, fume hoods and built-in laboratory equipment, carpet and/or all the material for a Section. Supplement Section 01 64 00 as needed to describe the Contractor's work.

- B. Do not use Section 01 64 00 for nominal materials provided by the Campus, such as toilet accessories, where the applicable Specifications section provides a more suitable Specifications.

VI. Single or Sole Source Products

- A. If the Specifications include any proprietary items, provide an explanation as to why multiple manufacturers cannot be listed in each case. This is required for mechanical/electrical items as well as architectural trades.
 - 1) There may be times when a Campus may seek to specify a single or sole manufacturer or supplier for a product. In this situation the Campus may make a request of the Fund to consider a single or sole source approval. The Coordinator will be able to assist the Campus representative in this matter directly.
 - 2) The Consultant will assist the Campus in getting quotes and may be tasked to provide supporting documentation to describe the cost and consequences to the project if this request were not approved by the Fund. If manufacturer quotes are obtained, do not include them as a reference document in the Specifications.
- B. If the Campus does receive single or sole source approval, guidance will be given to the Consultant regarding modifications to the Specifications. Also, insert an amendment in Section 01 26 43 Amendments (Section E) restricting the application of the Equivalents clause to the Construction Agreement.

VII. Equivalent and 'Or Equal'

- A. Do not use the phrase "or equal" in the Specifications since this is addressed in the Fund's Construction Agreement.
- B. The Fund's Construction Agreement, Section 2.20, contains clear guidance regarding Equivalents or Approved Equal products. The Consultant must have working knowledge of Section 2.20 when preparing the Specifications.
- C. The language in the Specifications must be carefully crafted. The Consultant must consider the potential for a Contractor to offer up a fourth product not previously considered. The Specifications shall articulate the specific functional objective or appearance criteria that will be used as a benchmark if it becomes necessary to consider a product not specified as an equivalent.
- D. The Consultant shall not use the phrase "Approved Manufacturers" in the Specifications. The use of this phrase implies pre-qualification which is not the intent of the Fund.

VIII. Performance Specifications

- A. Performance Specifications, where no manufacturer or supplier is listed, shall not be used to avoid compliance with the above requirements. If there are good reasons to rely on performance Specifications, the Consultant shall document those reasons in a letter to the Fund in advance of advertising the project. That letter shall list three manufacturers or suppliers who are capable of complying with the performance Specifications. The

Consultant shall verify each manufacturer would be capable of providing the product as specified.

- B. Where materials and colors have been identified as the basis for the design, they shall be clearly identified as such. Other potential sources for such materials shall also be listed.

IX. Attic Stock (Extra Materials)

- A. Do not provide attic stock unless approved by the Coordinator. Attic stock in amounts needed for minor repairs and touch up may be desirable on phased projects or where Campus may take possession of work early and where identifying who is responsible for damage will be difficult.
- B. If attic stock is requested by the Campus, the request should explain where the material will be stored. Usually high quantities of attic stock must be accounted for in the Final Cost estimate provided with the Prebid Phase submission.
- C. Add 01 78 46 Extra Stock Materials to the General requirements and include delivery of the attic stock to the location identified by the Campus. Describe how material must be palletized or boxed as desired by the Campus.
- D. In lieu of a generic percentage, identify a specific quantity, ideally amounts that translate in the original manufacturer's standard packaging, carton, box or shipping container size. For example, in lieu of stating 2% of Vinyl Composition Tile installed, state the number of tiles or the square footage coverage in a standard carton and the number of cartons required.

X. Tolerances

- A. For compliance with Americans with Disabilities Act (ADA), follow the suggested best practices for architects and other design professionals in the "Dimensional Tolerances in Construction and for Surface Accessibility" report published by the United States Access Board.
- B. Enhance the standard Fund General Requirement Section 01 71 23 Field Engineering to require survey of as built ADA ramps, parking spaces and other elements prior to final acceptance.
- C. Require a pre-installation meeting to discuss tolerances and the related quality control required to verify compliance with the specified requirements.

XI. Delegation of Design - See Directive 1C-13
