SPECIFICATIONS PREPARATION GUIDELINES

The following requirements incorporate key policies from the University’s Facilities Manual and standard specification formatting guidelines from the Construction Specifications Institute (CSI).

DEFINITIONS
1. Use “University”, not “Owner” because the University does not always own the property.
2. Use “University’s Representative,” not “Owner’s Representative”, because the duties may be performed by the Architect, a Construction Manager or University personnel.
3. See the University’s standard Division 1 Specifications for terms and their meanings to be used in writing the Specifications.

COORDINATION OF GENERAL CONDITIONS, DIVISION 1 SPECIFICATIONS & TECHNICAL SPECIFICATIONS
The Design Professional and Consultants shall coordinate the Technical Specifications with the General Conditions and Division 1 Specifications provided by the University.

1. The requirements of the Specifications must be consistent with terms of the Agreement and the General Conditions. Additions may be included in the Supplemental Conditions. Requested changes shall be submitted to the University’s Representative for review and approval.

2. Administrative requirements, procedural requirements, and temporary facilities (General Requirements) applying to all the work are to be covered in Division 1 General Requirements. Do not rewrite or duplicate in a technical section or drawings any requirement specified, or information already provided in the General Conditions or Division 1 General Requirements (i.e., soils report, testing, clean-up, repair of existing work, etc.). Provide only a reference to Division 1 to the corresponding section, “For... refer to Section 01 xx xx Section Title”.

3. Any general requirements in the Technical Specifications should apply only to the work of that Division and serve as extensions of Division 1 General Requirements. A method of incorporating Division 1 requirements would be “In addition to requirements of Section 01 xx xx Section Title.” If the general requirement is applicable to the entire project, it should be included in Division 1. The following are exceptions:
   a. Those portions of the Technical Specifications containing general requirements that are unique to specific work, such as mechanical or electrical require particular coordination of content to avoid repetition, omissions or conflict with Division 1.
   b. Requirements for strength and physical characteristics of materials and components or standards of workmanship for manufacture and field installation are to be located in appropriate sections of the Technical Specifications.

4. Do not reference paragraph numbers within a section. When referencing other sections use the following example: Section 01 78 00 Close-Out Submittals.

5. References to City or County building codes and regulations must be made carefully. University work (in Davis) is not normally subject to these laws and regulations. The University may choose to build to these standards, but is not subject to their inspection or requirements.
SPECIFICATIONS FOR 2-PARTY CONTRACT
1. Write sections for “Traditional University-Contractor Contract.”
2. The contract is with the Contractor and not the subcontractors. Do not assign responsibility for work to the various subcontractors or require the subcontractors to perform tasks. Do not write statements such as “The Mechanical Contractor shall be responsible for”. Use statements such as “shall be part of mechanical work”. Always direct comments to the Contractor, such as “Contractor shall provide manufacturer's inspection or testing” or “Contractor shall obtain written certification from manufacturer.” Do not make reference to subcontractors or trades, but do reference requirements of the Work.
3. Do not give instructions or assign responsibility to a third party (i.e., inspectors, manufacturers, material vendors, or suppliers).
4. Use University's Representative in place of “Inspector” as “Inspector” is not defined by the General Conditions.
5. Only the Contractor shall supervise the work. “Continuous” inspection is difficult to achieve and subjects the University to possible damages from the Contractor if something is missed. Use the term only when required by code.

UNIVERSITY’S REPRESENTATIVE APPROVAL
1. The University’s Representative may “approve”, “select” or “request” but may not “direct” or “instruct” Contractor unless it is intended that University’s Representative will be on-site directing or instructing the Contractor exactly how to perform the work.
   a. Do not make reference to consulting engineers, landscape architects, etc. for approval. The University's Representative is the only entity who may accept, reject, approve or disapprove the Work of the Contract.
   b. Soils engineers, testing labs and others involved in the construction process shall make “recommendations” to the University's Representative.

SUBMITTALS
1. The Contractor shall make all drawing submittals to the University's Representative.
2. Do not require the Contractor, subcontractor or other entity to submit Drawings to a regulatory agency or other University entity.
3. Incorporate a list of all required submittals such as shop drawings, materials lists, samples, and certifications within Part 1 of each specification section. Do not specify format, number of copies and submittal procedures unless there are requirements in addition to those specified in Division 1.

SPECIAL CONDITIONS/REQUIREMENTS
1. Provide a list of any special conditions and requirements that should be brought to the attention of the bidders and the technical section where requirements are specified. Examples of these would be if a Contractor is required to have a special license, extensive experience in installing equipment or systems, or to submit proof of their qualifications. These requirements must be added to the Supplementary Instructions to Bidders section of the Bidding Documents so that the bidders are informed of any special requirements they need to possess in order to have their bids considered responsive.
LISTING OF PRODUCTS/ MANUFACTURERS

1. The University Policy and State law prohibits the use of closed Specifications. A “closed” specification limits a product to a single manufacturer or group of manufacturers. An “open” specification allows products of any manufacturer to be used if the manufacturer’s product meets the specified requirements. Common closed specification errors are:
   a. Not using the phrase “or equal” after every product listing in the Specifications and on the Drawings.
   b. Limiting competition by listing only one product followed by “or equal” when there are other known equal products manufactured in California.
   c. Using the term “approved equal” instead of “or equal”. Also, do not use “approved substitution” or “approved manufacturer.” The term “or equal” is defined in the University’s contract documents and is required by State Public Contract Code, whereas “or approved equal” is not.

2. The methods of specifying construction products are: descriptive, performance, reference standards, proprietary, and a combination of the methods. The University’s Campus Standard and Design Guide (CS&DG) is a resource for the Design Professional and shall not to be used as a standard of reference for Contractors. Where performance or descriptive specifications are used they shall be made nonrestrictive and shall not use requirements of a single manufacturer or be copied from product literature.

3. When the proprietary method of specifying is used, manufacturers shall be listed in the following order: the first listed is the basis of design (name and model or product number listed) and sets the standard, followed by those considered to be equals. Incorrectly using an alphabetical listing of manufacturers may cause the product desired by the University, which is the basis of design, to be eliminated.

4. Where equal products are available, list in accordance with the University's product options and substitutions section as directed by the University's Representative. Products, material or equipment specified by both brand or trade name and model number are approved for use. The Contractor is responsible for any changes resulting from a product which is not the basis of design. If no manufacturer product name or model number is listed on the second or following products, the Contractor is responsible to determine the suitable product and request a substitution.

5. Examples of correct product listings are:
   a. Paving System Units Manufacturer: Invisible Structures, Inc. Grasspave2, RK Manufacturing Grassy Pavers, or equal. Grasspave is the basis of design and approved for use. Grassy Pavers are approved for use, provided that Contractor complies with all Contract requirements. Contractor shall, at its sole cost, modify such products, material, or equipment so that they comply with all requirements of the Drawings and Specifications.
   b. Manufacturers and products: The Bilco Company model NB-50., J. L. Industries Inc., Dur-Red Products, or equal. The first product is approved for use. All other products listed must be submitted by the Contractor for substitution approval.
   c. Product: Reddy Stake by Screw Tight Post Company, or equal, (no known equal). In this example the University does not know of any other acceptable product that
would be approved. This does allow new products to be submitted for approval and thus keeps the competition open. In addition, include a brief performance specification detailing what is unique or “state-of-the-art” about the item which would preclude or prevent use of a different product.

6. There are two exceptions to the product listing requirements which must be approved for use by the University. Naming brand(s) not followed by the phrase “or equal” is allowed only under the following limited circumstances:
   a. In order to match other products in use at an existing installation, such as, “to match existing” lock cylinders or floor surfaces. Terms such as, “Convenience for maintenance,” “the vendor gives us good service”, etc. should not appear in specifications. Generally speaking, it is acceptable to match existing where a project consists of a remodel or expansion of an existing structure (e.g. new light fixtures could match existing to retain an “art deco” look throughout an existing building, or the expansion of an existing building). Legal advice should be sought from the Office of General Counsel if the Facility seeks to utilize the “match existing” exception to match products in buildings that are not part of the project (e.g. to establish a campus standard for fire alarm systems). The specification of a product using this exception must include the following phrase, "...to match existing {____________}".
   b. In order to obtain a necessary item that is only available from one source. The sole source product must be approved in writing at least one level above the project manager as determined by a Facility's policy and delegations. If approved, the specification of a sole source product using this exception must include the following sentence following the product designation: “This is a necessary item, that is only available from the listed source, and no other product shall be furnished.”

7. Products listed in the CS&DG set the University's requirements to be followed by the Design Professional. Use the CS&DG to determine which product should be the basis of design. Do not refer Contractors to the CS&DG as it is not a reference standard. Placing the words “Campus Standard” after a product listing requires sole source approval by the University and inclusion on the Sole Source List.

8. Listing the name, address, telephone number, etc. of one manufacturer, requires that the like information for all manufacturers listed be included.

9. Delete standard canned specification language that conflicts with University requirements such as: “Available Manufacturers: Subject to compliance with requirements, manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following:"

**PHASING OF WORK**

1. Provide the following information, if applicable, to the University's Representative for coordination with the University's bidding and contract requirements.
   a. Description of Work for each phase.
   b. Number of calendar days to complete the Work.
   c. Number of calendar days separating one phase from the previous.
   d. If one phase has to be completed before next phase can start.
   e. If any of the phases run concurrently.
HAZARDOUS MATERIALS
1. If asbestos, lead, PCBs or mold are present in or around the Project Site; hazardous material remediation technical specification sections must be included in the Specifications.

ALTERNATES
1. Alternates shall be consistently described in the Bid Form, Division 1 and the Drawings.
2. Alternate(s) shall be assigned an individual number (not a letter) to allow their identification in other Sections of the Documents and on the Bid Form. The Drawing(s) and Specification Section(s) shall indicate which alternates apply. The description of alternate(s) in the Specifications and their identification on the Drawings should allow the University to select any one alternate, or combination of alternates.

ADDENDA
1. Addenda are issued by the University to change the bidding documents before acceptance of the bids. Contractor requests for information, clarification or interpretation of the Bidding Documents shall be addressed as follows:
   a. Bidding Process Inquiries shall be addressed to the University's Contracts Office.
   b. Technical Project Inquiries shall be addressed to the person designated on the Project Directory in the Bidding Documents. Typically the Contracts Office will receive and log all questions then distribute to the University's Representative and Design Professionals for review and preparation of appropriate changes to the documents.
2. The University's Representative and Design Professionals may discuss questions with the individual making the request, but are not to issue any verbal statements changing the Bidding Documents or clarifying the meaning or intent of the documents. The intent is to assist the bidder without creating an unfair bid environment where one bidder is given different information from another. If the question is valid, i.e., requiring changes, additions, deletions in the Bidding Documents, it will be addressed in an addendum. Bidders may be given a reference to an existing document that answers their question or told that a question is under advisement.
3. The addendum must be complete so that it may be issued by the University such that it is received by bidders no later than 3 full working days before the bid deadline, or the bid date must be extended.
   a. Contracts Staff will issue a schedule to the Design Professional outlining the time that the final addendum must be received in order to hold the bid date. Coordinate the schedule throughout the process with the University's Representative and Contracts Staff.
   b. Changes shall be submitted to the University in the same format with the same number of copies as the final set of Construction Drawings was submitted. Complete and accurate references to documents being changed are required.
GUARANTEES
1. The General Conditions require all items to be guaranteed for a period of one year. Often, the Specifications require a roof or other item to be guaranteed for more than one year, but the Specifications do not state what feature of the item, for example, leaks, cracks, color, etc., is to be guaranteed. The special conditions must be specified.
2. If extended guarantees are required in the Technical Specifications, the requirement shall be written as follows:
   Furnish to University a written [manufacturer's] guarantee for {name of item} against all defects in materials and workmanship, including without limitation against {list detail, i.e. against warping, twisting, discoloration}, for {fill in number} years from date of acceptance.
3. For Operations & Maintenance projects, list the special guarantees in the Table of Submittals in University's Specification Section on Shop Drawings, Product Data and Samples.
4. The guarantee period begins when the University's Representative accepts Beneficial Occupancy, Substantial Completion (applicable to Long Form Contract), Notice of Completion, or Final Completion; whichever is earliest.

SPECIFICATIONS FORMAT, NUMBERING AND TEXT CONVENTIONS
1. The University's specification format is based on the Construction Specifications Institute (CSI) formatting and Masterformat numbering. Organize, index and number Specifications in accordance with the CSI 3-part and paragraph numbering format for construction Specifications.
2. Do not include copyright language on any of the documents.
3. Abbreviations
   a. Industry Standards may be abbreviated after being written out with abbreviation in parenthesis the first time used in each section. Abbreviations spelled out in General Provisions sections (Mechanical and Electrical Divisions only) may be used in subsequent sections of that Division without being written out again. For example:
      i. Aluminum Association (AA)
      ii. Associated Air Balance Council (AABC)
      iii. American Institute of Steel Construction (AISC)
      iv. American Society for Testing and Materials (ASTM)
   b. Refer to University's Specification Section for Industry Standard Abbreviations. Edit to add any additional standards required by technical Specifications that are not listed in the Section.
   c. Do not abbreviate California Energy Commission (CEC refers to California Electrical Code).
4. Page Layout
   a. Review sets shall be one sided. Final sets shall be original, one sided, unbound Laser printed copy and copies in Word and Adobe. Left and right margins shall be 1 inch on each side; top and bottom margins shall be 1/2 inch. Final bidding documents are issued in binders, therefore a gutter on the inside margin is not desirable.
   b. Headers are required on all pages of Specification Sections and other documents, such as hardware schedules. The Drawings must also have the correct project title.
and number identification on every sheet. Verify information with University's Representative. No other information should appear in the University's header. Example header:

UNIVERSITY'S COMPLETE APPROVED TITLE PROJECT NO: 900000
SUPPLEMENTAL PROJECT TITLE (this is optional and developed by PM)
UNIVERSITY OF CALIFORNIA, DAVIS
DAVIS, CALIFORNIA

c. Specification section titles are flush left as follows:

SECTION 000000 SECTION TITLE

d. Number all paragraphs. Numbers are used as a reference in issuing addenda, field orders and like contract correspondence. Specify section number, page number, paragraph number, etc. Any requests to change this format should be submitted to the University's Representative and the Contracts Office for approval. The following is a sample paragraph numbering:

<table>
<thead>
<tr>
<th>Level 1</th>
<th>PART 1 GENERAL</th>
</tr>
</thead>
</table>
| Level 2 | 1.1 ARTICL
| Level 3 | A. Paragraph |
| Level 4 | 1. Subparagraph |
| Level 5 | a. Subparagraph |
| Level 6 | 1) |
| Level 7 | a) |
| Level 8 | (1) |
| Level 9 | (a) |
| Level 10 | i) |

e. Set the Word Processor options for automatic page breaks to avoid widows and orphans. A widow is the last line of a paragraph that appears alone at the top of a page, an orphan is the first line of a paragraph that appears alone at the bottom of a page. Select text and format to keep text together.

f. Do not add manual page breaks or extra returns to move text to the next page instead block and protect text to remain together.

g. Mark the end of each specification section as follows flush left:

END OF SECTION 000000

h. Footers are required on all pages of Specification sections and shall be consecutively numbered and placed at the bottom right of each page. It is not required to reverse headers and footers on odd and even pages. Footers shall reflect the section title, section number and page number. As an option, the Design Professional may place a small amount of text for identification purposes in the bottom left of the footer.
5. Text and Language Conventions
   a. In accordance with CSI format avoid undue emphasis by not using bold, underline, italics, or capitalization in the body of the text except headings. This excludes Manufacturer or Product Names that are always capitalized.
   b. Use numbers instead of words except when needed for clarity. Use 3 not three (3). Spell out numbers when a sentence begins with a number. For example, “One set of reproducible copies is required.” Spell out numbers when a number follows a number. For example, “Two 8-1/2 by 11 inch sheets of paper.”
   c. Apply the following conventions:

<table>
<thead>
<tr>
<th>USE THIS</th>
<th>NOT THIS</th>
</tr>
</thead>
<tbody>
<tr>
<td>5 inches</td>
<td>5&quot;</td>
</tr>
<tr>
<td>5 feet</td>
<td>5’</td>
</tr>
<tr>
<td>5 degrees</td>
<td>5°</td>
</tr>
<tr>
<td>plus 5</td>
<td>+5</td>
</tr>
<tr>
<td>minus 5</td>
<td>-5</td>
</tr>
<tr>
<td>5 per room</td>
<td>5/room</td>
</tr>
<tr>
<td>5 percent</td>
<td>5%</td>
</tr>
<tr>
<td>By</td>
<td>X</td>
</tr>
<tr>
<td>at</td>
<td>@</td>
</tr>
<tr>
<td>1/4</td>
<td>¼ (Auto format small type)</td>
</tr>
</tbody>
</table>

d. Do not use the term “and/or” because it gives the Contractor the option to do one or the other. If the intent is to allow the Contractor an option, state “at Contractor’s option.”

e. Do not use “New” or “(N)” in describing the work in order to avoid uncertainties. The General Conditions state all products are new unless otherwise stated.