REPLY TO
ATTN OF:  NGB-CP (715)/rottinghaus/703-756-8941 19 June 1992
ANGRC/CE/gordey/301-981-8090/032992/WPCEEPO,4


TO: SEE DISTRIBUTION

1. Purpose:
   a. This joint CPL and ANGETL provides (1) policy for contracting officers in procuring systems furniture, and (2) guidance for base civil engineers and users in planning, designing and maintaining systems furniture for all Air National Guard facilities. It includes a list of regional marketing representatives from the agency, Federal Prison Industries, Inc., FPI's Waiver Request Procedures, FPI's Waiver Guidelines, a guide specification and prototypical workstations. It also includes a sample Request for Quotations for purchases through the GSA Federal Supply Schedule (FSS). This letter supersedes ANGETL 90-7 and all previous NGB/DEE (and ANGSC/DEE) guidance and correspondence addressing systems furniture.
   b. This letter applies to all systems furniture (prewired workstation) installations regardless of funding source.
   c. This ANGETL is authorized in accordance with ANGR 8-7, Air National Guard Engineering Technical Letters (ANGETLs), 29 February 1988.

2. Effective Date: Immediately.

3. References:
   b. Federal Acquisition Regulation (FAR).

4. Description and Implementation. Systems furniture and open office planning shall be used in all new facilities constructed in the Military Construction Program (MCP) in areas that contain at least 500 square feet of contiguous administrative area. Systems furniture should not be used in areas containing less than 500 square feet of contiguous administrative area. Systems furniture workstations shall not be used in individual, hard walled offices. This principle also applies to existing facilities which receive systems furniture as part of a furniture change. Tab D lists the types of facilities where systems furniture will normally be used.
5. Definitions:

a. Space savings is the difference between the amount of space required for conventional furniture based upon the functional requirements and the amount of space required for systems furniture for the same functional requirements. For systems furniture to be cost effective, its use must provide better space utilization than that provided by conventional furniture. Space savings also occur whenever available space is substantially less than would be assigned under government or agency standards and the use of systems furniture alleviates the need to procure additional office space.

b. Systems furniture consists of interconnecting panel assemblies together with work surfaces, storage units, and other major components which are panel supported. It may also include compatible freestanding components. Panels may be acoustical or nonacoustical and are of various heights and widths. Systems furniture is not real property installed equipment (RPIE). Therefore, such items are not the responsibility or function of the Real Estate Management Office and shall not be capitalized, whether or not procured in association with MCP projects.

c. A workstation is composed of systems furniture for the work area of an individual. Workstations comprised of panels that have electrical and communication raceways are referred to as prewired workstations. Since all ANG systems furniture configurations shall use only prewired panels, the terms systems furniture and prewired workstations are used synonymously in this CPL/ANGETL. Systems furniture workstations should be used to the greatest extent possible. The use of private or hard walled offices should be minimized. Hard walled conference rooms can be used for private discussions and meetings or when counseling employees. However, systems furniture installation can incorporate demountable floor-to-ceiling wall panels for hard walled offices.

d. Modular furniture consists of a series of component parts which may or may not interconnect but which are predominately free standing—not panel supported. The ANG does not support the procurement of modular furniture in lieu of systems furniture.

6. Design Considerations. In preparing an MCP project book, the base civil engineer and the using agency (user) shall identify the functional building areas that require systems furniture. During the concept phase of project design, the architect-engineer (A-E) shall provide a schedule indicating the quantity of each type of workstation required and a systems furniture layout using generic, prototypical workstations such as attached to this CPL/ANGETL. All subsequent design submittals shall not show a layout of systems furniture but shall clearly indicate that systems furniture design, purchase and installation, except for hard-wire electrical connection, will be accomplished under a separate contract. This separate contract should normally be solicited at the time the building is advertised for construction. The A-E shall design the electrical and mechanical systems to accommodate future systems furniture reconfigurations.

a. Power and communications (telephone and computer) systems shall not use power poles or pedestals. These services shall be provided by drops via column enclosures, terminating in separate junction boxes one foot beyond the base of the column. Each junction box and all telephone lines shall be labeled and
identified. A sufficient number of power drops shall be installed to accommodate the number of work stations required and to provide flexibility in furniture configuration. The A-E shall coordinate with the base communications officer and the base computer automation officer on the number of phone lines and data lines, respectively, required in the systems furniture area. All lines shall be distributed uniformly in the systems furniture area unless advised otherwise by the base communications officer or the base computer automation officer. Systems furniture power service shall be at least a 3-circuit system (3 separate hots, 3 separate neutrals and 2 separate grounds). One of the separate grounds must be dedicated for the computer and data circuit.

b. The project electrical drawings shall clearly indicate that after installation of the systems furniture by others (the systems furniture contractor), the (facility) contractor shall hard-wire the prewired work stations to the power junction boxes. For new facilities, and inasmuch as possible for existing buildings, the power shall be connected such that phase A in all electrical panels shall be the same phase throughout the building; similarly for phase B and phase C. Indicate whether the telephone and computer lines will be hard-wired by the (building) contractor or by others.

7. Funding:

   a. Systems furniture for MCP projects, where identified on the project DD Form 1391, Military Construction Project Data, shall be purchased and installed using project (program budget 3300) funds. Systems furniture for MCP projects not identified on the DD Form 1391 can be purchased and installed using project funds if funds are available.

   b. All other systems furniture must be budgeted by the user via the annual financial plan (FINPLAN) in budget program 3840 (O&M) under element of expense investment code (EEIC) 61990, Other Supplies & Materials, Non-Air Force Stock Fund--All Others. If the FINPLAN request is not funded, the installation commander may use local O&M funds, if available. There are no funds identified for systems furniture in the ANG O&M budget submissions. Project RPM funds will not be provided to support the purchase of systems furniture. RPM projects must provide complete and usable facilities within total funds available.

8. Procurement:

   a. General. All systems furniture shall be procured in accordance with the provisions of the Federal Acquisition Regulation (FAR) except as noted in subparagraph 8b. FAR 8.6 requires systems furniture to be purchased from Federal Prison Industries, Inc. (FPI), also referred to as UNICOR, unless a waiver is obtained. The contracting officer should send an inquiry to FPI as soon as he or she receives the authorization to advertise a project which contains systems furniture. The inquiry should include the project require- ments including design, the required types and number of each type of worksta- tion required, and the required delivery and installation date (or dates, if a phased project). A list of FPI regional marketing representatives is provided at attachment 1. If FPI cannot provide the systems furniture, it will provide a waiver. However, if the contracting officer desires a waiver even when FPI can provide the required systems furniture, he or she shall follow the waiver request procedures. (See attachments 2 and 3.) In any case, all systems furniture must meet the technical requirements described in paragraph 8c. If not purchased, through FPI, all systems furniture shall be purchased through
GSA Federal Supply Schedule 71, Part II, Section E, Furniture Systems (See subparagraph 8d.), unless it is for an installation or facility located outside the 48 contiguous states or as noted in subparagraph 8b. For these exceptions, the procurement shall require vendors and their proposed product lines to be on the GSA schedule and shall contain the attached, edited guide specification. Procurement by federal agencies outside the contiguous states shall be accomplished by means of a request for quotations (RFQ). In any case, the determination of low offeror shall follow the procedures outlined in the sample request for quotations (RFQ) attached to this CPL/ANGETL.

b. Exception to FAR Procurement. Procurement of systems furniture by a nonfederal agency, such as an airport authority, is not subject to the provisions of the FAR.

c. Technical Requirements. The BCE shall provide the number of each prototypical workstation required and the attached guide specification (which supplements the GSA Schedule Product Information requirements) to the contracting officer for issuance of a separate solicitation package in the form of a request for quotations (RFQ). The attached prototypical workstations and guide specification may be revised to meet user's requirements as determined by the BCE, the user or the contracting officer.

d. Request for Quotations. For purchases using the Federal Supply Schedule, Standard Form 18, Request for Quotations, shall be used to obtain pricing for projects regardless of total estimated cost. The RFQ shall identify the number of each type of prototypical workstation required and shall be sent to all eligible contractors listed on Federal Supply Schedule 71, Part II, Section E. Upon receiving the RFQ, the vendors will review the project specifications and determine which of their product lines will meet the requirements. The vendor will then send its quotation using the prices previously quoted to GSA for the particular product line. The quotation will also include the time and cost for design and the cost for installation using hourly rates previously established in their contract with GSA. The following items should be included with the RFQ:

(1) Standard Form 18.

(2) Prototypical workstations.

(3) Floor plans, without any systems furniture shown.

(4) Any special design or layout requirements.

(5) Installation conditions (e.g., loading dock restrictions, freight elevators required or available, installation time restrictions, storage and staging areas available, etc.).

(6) Place for vendor to indicate design time required and hourly rate established by the vendor's GSA contract.

(7) Place for vendor to indicate delivery time as defined by the GSA contract.

(8) Place for vendor to indicate installation time required.
(9) The attached guide specification edited for the project.

e. Requote Procedure. The requote procedure described in FSS 71, II, E was established for orders exceeding GSA's maximum order limit (MOL) (currently 50 workstations or $125,000). The requote procedure allows the vendors on the GSA schedule to offer a greater discount than reflected in their prices quoted to GSA on the schedule for orders up to the MOL. However, a recent General Accounting Office Decision, File B-246121, 19 Feb 92, regarding another schedule determined that the requote provisions did not satisfy the Competition in Contracting Act competition requirements. As a result, GSA intends to increase the MOL and to revise the requote procedure. Therefore, before procuring any orders estimated to exceed the MOL, contact the individuals listed in the last paragraph of this CPL/ANGEL to determine the value of the MOL at the time and to determine whether or not the requote procedure has been revised. Use the requote procedure after GSA revises it. In addition to the requirements for RFQs described earlier, requote RFQs shall include:

(1) The required delivery and installation schedule.

(2) Any phased delivery requirements.

f. Evaluation of offers. GSA has developed and assigned a technical evaluation score to each vendor who successfully negotiates a Federal Supply Schedule contract. The technical evaluation score is used to weight the pricing of each vendor offering on a project to ensure a vendor is selected based on a combination of low price and technical merit. The RFQ must state whenever the technical evaluation score will be used to determine award. (The technical evaluation score should be used on all offers even though GSA mandates the use of the technical evaluation score only for evaluating offers greater than the maximum order limit (MOL) and makes it optional for orders less than the MOL.) Weight evaluation scores and weighted prices shall be treated confidentially and not released. The contracting officer will determine the successful systems furniture vendor by completion of the evaluation as indicated in FSS 71, II, E. Following the selection and award, the contracting officer will issue a delivery order to design, furnish and install the systems furniture based on the floor plan of the facility. The layout design will be subject to the approval of the BCE and user.

(1) After receiving the proposals, contracting officers may obtain the technical evaluation scores by making a written request to:

GSA/FSS
Furniture Systems Management Division (FCNS-B)
Washington, DC 20406-5000

(2) Technical evaluation score requests shall include the following:

(a) Name of vendor.

(b) Name of individual signing offer.

(c) For requote RFQs, the percent discount from list offered.

(d) Total list price value of offer.
g. Contracting by GSA. If the purchase amount is equal to or greater than the MOL, the General Services Administration (GSA) can be the contracting agent. However, GSA will levy a surcharge of 5% of the systems furniture purchase cost for this service. When MCP funds are used, the BCE must obtain prior written approval from ANGRC/CEE before requesting GSA to become the contracting agent for these purchases. When non-MCP funds are used, the user may approve the use of GSA as the contracting agent. When approved, the stock control individuals in base supply shall prepare a requisition (in the form of a Military Standard Requisitioning and Issue Procedures (MILSTRIP) document), enter it into the MILSTRIP computer system and forward a copy with the technical requirements to: General Services Administration, Federal Supply Service, National Furniture Center (3FN), Washington, DC 20406-5000. The technical requirements include the information normally included in the RFQ (See paragraph 8d.). The acquired furniture is managed and accounted for by the user.

h. Funding of Systems Furniture for MCP Projects. The BCE will normally prepare an AF Form 9, Request for Purchase, as the funding instrument. When the estimated purchase amount is greater than the MOL and the BCE has approval to use GSA as the contracting agent, the BCE shall provide funds to supply via the PFMR (Project Funds Management Record) system for procurement through the MILSTRIP system.

i. Funding of Systems Furniture for Non-MCP Projects. The user will normally prepare an AF Form 9, Request for Purchase, as the funding instrument. When the estimated purchase amount is greater than the MOL and the user has approved the use of GSA as the contracting agent, the user shall provide funds to supply via the PFMR (Project Funds Management Record) system for procurement through the MILSTRIP system.

j. Demountable Wall Systems. If the design calls for the use of demountable floor-to-ceiling wall systems, the RFQ must be modified to prequalify only those GSA systems furniture vendors which can provide demountable wall systems which will be compatible with their systems furniture. It is not necessary that the GSA systems furniture vendor manufacture the wall sections. Compatibility means that the wall system can interconnect with the systems furniture. A separate line item for demountable wall systems will have to be provided on the RFQ. Clarify in the RFQ that a vendor would be able to provide a price for this line item, even if it does not have the demountable wall system included in its GSA contract.

k. Chairs. Only those chairs required for workstations will be considered part of systems furniture for funding purposes. Any additional chairs required must be obtained through normal funding methods. Chairs are not on GSA Federal Supply Schedule 71, Part II, Section E, Systems Furniture, but are on several other schedules. Chairs cannot be purchased on the same procurement vehicle as used for systems furniture; they must be purchased by means of a separate procurement action. Note that since FPI manufactures chairs, FPI must be consulted first for such purchases.

9. Management. The BCE’s responsibilities for managing systems furniture include reviewing all user requests for systems furniture, including acquiring or installing new wall panel sections, and moving or rearranging existing systems furniture configurations. Repair or replacement of existing components is a user responsibility.
a. Following review of all proposed systems furniture procurements, the BCE shall forward the approved request to the comptroller for signature of the funding document, to the chief of supply for coordination, and to the contracting officer for procurement. The request shall include the technical requirements (number of prototypical workstations required and the edited guide specification).

b. Users desiring systems furniture, including reconfiguration of existing systems furniture, shall provide an AF Form 332, BCE Work Request, and a funding document (user's funds) through the building manager to the base civil engineer. The AF Form 332, BCE Work Request, shall include a written justification, including a layout sketch when appropriate, and a listing of all requirements needed to satisfy the installation (e.g., additional power requirements, electrical equipment, connections, etc.). The BCE shall assess the effects on life safety with respect to the National Fire Protection Association's Life Safety Code (NFPA 101) and utility connection changes for all requests.

c. All requests for loose office furnishings (e.g., freestanding tables, chairs, etc.) and replacement items shall be requisitioned by the user through base supply using the Standard Base Supply System (SBSS) procedures.

10. Accountability. The user is responsible for the accountability, maintenance, custody, care and safekeeping of systems furniture items. Accountability of systems furniture shall follow the accountability requirements of freestanding furniture.

11. This CPL/ANGEL is has been coordinated with NGB/FM and NGB/LG. The NGB-CP point of contact is Major Gerald M. Rottinghaus, DSN 289-8941. The ANGRC/CEE point of contact is Mr. Steve Gordey, DSN 858-8090.

FOR THE CHIEF, NATIONAL GUARD BUREAU

MICHAEL G. CARROLL
Lieutenant Colonel, GS
Principal Assistant Responsible for Contracting

GEORGE T. BULLMAN, Colonel, USAF
Director of Engineering and Services

8 Atch
1. FPI Regional Marketing Representatives (1 pg)
2. FPI Waiver Request Procedure (1 pg)
3. FPI Waiver Guidelines (1 pg)
4. Sample Request for Quotations (6 pgs) pg 12
5. Systems Furniture Guide Specification (18 pgs) pg 18
6. Prototypical Workstations (4 Pgs)
7. Tab D Addendum (2 pgs) pg 37
8. ANGETL Index (1 Pg) pg 36

-7-
DISTRIBUTION: Each AG (1)
    Each USPFO (1)
    Each BCE (1)
    Each ANG Flying Base (Contracting Section) (1)
        ANG Training Site/GA (Contracting Section) (1)
        ANG Training Site/MI (Contracting Section) (1)
        ANG Training Site/MS (Contracting Section) (1)
        ANG Training Site/WI (Contracting Section) (1)
    NGB-ARI (10)
    NGB-CP (10)
    NGB-CS (1)
    NGB-JA (1)
    NGB-ZD (1)
    NGB/DE (1)
    ANGRC/CE (30)
This request for quotations is issued pursuant to the procedures established under GSA Federal Supply Schedule 71, Part II, Section E. The US Property and Fiscal Officer for solicits [SELECT quotation of prices or requotation of discounts] under GSA contract terms on the following Special Item Numbers (SINs) under FSS 71, Part II, Section E, modified by the attached specifications and prototypical workstations [SELECT appropriate SINs]: 512-1, Furniture Systems; 512-5, Demountable Walls; 512-6, Design/Layout Services; and 512-7, Installation Services.

This request for quotations is due at the time indicated in block 10 above at the address listed in block 5A above.

Mail proposal to: USPFO for [state]
Address
City, State Zip Code

NOTE: ALL PROPOSALS MUST BE SUBMITTED AND SIGNED BY AN AUTHORIZED INDIVIDUAL AS DESIGNATED IN THE GSA CONTRACT. ANY PROPOSAL SUBMITTED IN THE NAME OF, OR SIGNED BY, ANY OTHER SOURCE WILL BE DISQUALIFIED FROM CONSIDERATION.

[NOTE: In the first paragraph of Section 12 use "quotation of prices" when the total estimated purchase amount is less than the maximum order limit (MOL). Use "requotation of discounts" after GSA revises the requote procedure and when either the total estimated amount will exceed the MOL or the ANG installation is outside the 48 contiguous states.]
SUPPLIES AND SERVICES:

<table>
<thead>
<tr>
<th>Workstation</th>
<th>Quantity</th>
<th>EA</th>
<th>Unit Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>&quot;1&quot;</td>
<td>12</td>
<td>$</td>
<td>$</td>
</tr>
<tr>
<td>&quot;2&quot;</td>
<td>17</td>
<td>$</td>
<td>$</td>
</tr>
<tr>
<td>&quot;3&quot;</td>
<td>8</td>
<td>$</td>
<td>$</td>
</tr>
<tr>
<td>&quot;4&quot;</td>
<td>11</td>
<td>$</td>
<td>$</td>
</tr>
<tr>
<td>&quot;5&quot;</td>
<td>16</td>
<td>$</td>
<td>$</td>
</tr>
<tr>
<td>&quot;6&quot;</td>
<td>4</td>
<td>$</td>
<td>$</td>
</tr>
</tbody>
</table>

Subtotal $ 

[Only use this line & its subtotal for requotes.]

Less Discount $ 

Subtotal $ 

Design Cost: (Hourly rate is not to exceed hourly rate of GSA contract unless outside 48 contiguous states or a requote.) $ 

Installation Cost: $ 

Delivery Time (per GSA contract): ____ Days 

Installation Time: ____ Days 

SPECIAL PROVISIONS:

Installation Conditions. Installation is at [Building ___, ____, City, State. Include additional information regarding availability of loading docks, availability of storage space and any special or restrictive installation requirements (e.g. special hours, etc.).] 

[The following paragraph may only be used for requote RFQs or if the ANG installation is outside the 48 contiguous states.] 

Delivery Schedule Requirements. The following schedule shows the delivery date requirements:

<table>
<thead>
<tr>
<th>Delivery by ____</th>
<th>Delivery by ____</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quantity</td>
<td>Quantity</td>
</tr>
</tbody>
</table>
Interested companies may obtain floor plans at a prequotation visit in the vicinity of the installation area on [date]. Building No. and location.

The on-site project manager is ________, at telephone No. ________.

Responding companies shall furnish a parts list complete with list pricing for all products accepted under GSA contract which will make up each workstation.

Method of Evaluation of Offers.

The successful offeror will be the vendor with the lowest TOTAL WEIGHTED PRICE. The TOTAL WEIGHTED PRICE will be calculated using the following formulas:

1. Total Discounted Price x Technical Evaluation Score Factor\(^1\) = Weight Amount;
2. Total Discounted Price + Weight Amount = Weighted Price for Supplies;
3. Design Cost x Design Experience Factor\(^2\) = Design Weight Amount;
4. Design Cost + Design Weight Amount = Weighted Price for Design;
5. Installation Cost x Installation Experience Factor\(^3\) = Installation Weight Amount;
6. Installation Cost + Installation Weight Amount = Weighted Price for Installation;
7. Weighted Price for Supplies + Weighted Price for Design + Weighted Price for Installation = TOTAL WEIGHTED PRICE.

\(^1\) The Technical Evaluation Score Factor is the Technical Evaluation Score provided by GSA for a vendor's particular product line divided by 100.

\(^2\) The Design Experience Factor is determined by the contracting officer based on the evaluation criteria described hereinafter.

\(^3\) The Installation Experience Factor is determined by the contracting officer based on the evaluation criteria described hereinafter.

[The use of the Design Experience Factor and the Installation Experience Factor is optional. If not used, the above-listed formulas are revised in the RFQ: The third through the sixth formulas are not used, and in the last formula, change the Weighted Price for Design and Weighted Price for Installation to Installation Cost. In addition, the design experience or installation experience which is more important than its relative costs compared to that of supplies indicates, these experience factors may be weighted to reflect this. Example Experience Factor Calculation reflects sample weighting multipliers for both design experience and installation experience.

Evaluation Criteria.

Design and experience elements which are dependent on local conditions will receive an experience-based weighting as described earlier.

Offerors shall provide with their offer 3 references concerning experience of the design organization and the 3 references concerning experience of the installation organization which would work on this project should they be awarded the order. Each reference shall include the following information from projects of similar size and scope to this project (geographic area):
Design Reference Information

Project Title:
Project address:
Number of workstations:
Contractor's representative in charge:
Name of Designer Firm:
Designer Firm's Representative:
Date design was started:
Date design was completed:
Extent of design involved:
Person representing owner
or user who is familiar
with the project details:
Current telephone number:

Elements:

Designer's Project Experience.

0-Designer has significant experience on several projects of similar size.

3-Designer has some experience on a few projects of similar size and some experience on smaller projects.

6-Designer has minimal experience in projects of similar size and some experience on smaller projects.

Installer's Project Experience.

0-Installer has significant experience on several projects of similar size.

3-Installer has some experience on a few projects of similar size and some experience on smaller projects.

6-Installer has minimal experience in projects of similar size and some experience on smaller projects.

Example Experience Factor Calculation.

<table>
<thead>
<tr>
<th>Element</th>
<th>Weighting Multiplier</th>
<th>Evaluation (0 to 6) /100 =</th>
<th>Experience Factor (Evaluation/100)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Designer's Experience</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Installer's Experience</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

GENERAL PROVISIONS:
1. If an offeror's solution to the prototypical workstations results in an offer that falls below the schedule's Maximum Order Level (MOL), the offeror is required to offer discounts applicable to the contract terms. This value is determined by comparing the total schedule discount price (net product value) of the products...
offered in response to this RFQ to the schedule's MOL. Should any offer or offers be received which qualify as below MOL, offers will be evaluated based on the lowest TOTAL WEIGHTED PRICE as described earlier. All other offers received (i.e., those offers submitted above the MOL) will be rejected from further consideration, regardless of overall value of these offers.

2. Offerors are advised that requote proposals must be signed by an authorized individual, as designated in each individual contract. Additionally, all proposals must be submitted in the name of the GSA Federal Supply Schedule vendor. A proposal submitted in the name of, or signed by, any other source will be disqualified from consideration.

3. Contractors may only offer products that are under contract for Federal Supply Schedule 71, Part II, Section E, at time of issuance of the Request for Quotations.

4. Orders may be placed by the USPFO for ______.

5. Companies responding to this request must furnish a parts list for each prototypical workstation complete with schedule pricing and catalog page number for all components of each workstation. Components utilized must be covered by GSA/FSS contract under Schedule 71 II E.

6. Requirements cited are estimates only. No guarantee as to quantity and type of workstations to be ordered is given. The requirement may vary from the estimated quantities.

7. Each offeror shall determine the requirement for union or non-union labor and submit their offer accordingly. The government does not make this determination. Relief for offers not taking this element into consideration will not be given.

8. Offerors shall submit a copy of the applicable bid schedule and shall acknowledge all amendments thereto as a part of the RFQ submission. All items listed on the bid schedule shall be bid as a part of this RFQ. Failure to submit pricing for all items will result in disqualification from consideration. Partial awards or multiple awards will not be made.

9. All deliveries, site preparation, site use, installation work, damage or delays will be coordinated through the project manager and the contracting officer.

10. Any request to modify the installation documents must be negotiated and approved, IN WRITING, by the contracting officer before implementation. Any modification which requires the issuance of a change order must be approved by the contracting officer and shall not become binding until issuance of the written change order.

11. Offerors are cautioned that the prototypicals are not intended to represent the actual and specific workstations which may be ordered. The prototypicals are only intended as generic representations of the government requirement. The specifications of the prototypical workstations may require modification to coordinate with the product line of the successful offeror.
12. No changes or modifications to the provisions of the RFQ shall become binding without written approval of the contracting officer. This includes, but is not limited to, modifications or revisions which result in increased costs to the government, such as changes in product specifications, quantities ordered or to the scope of work.

13. The list prices offered shall be the current GSA contract discounted list price. The expiration date of the price governing this quote submittal is ______. The list prices are not subject to change.

14. No panel sharing factor shall be included in the proposal.

15. Any chairs pictured in the prototypicals are not included in this RFQ. Chairs are not included in Schedule 71 but may be purchased through other schedules.

16. The following procedures will be strictly followed:

   a. Award to the successful offeror will be made by issuance of a purchase order, by the contracting officer, design phase of the project only. The successful offeror will meet with the project manager within five (5) calendar days of notification of award to begin the design and layout phase of the project. Any difficulties in reaching agreement making progress on the design by either party shall be reported to the contracting officer.

   b. When design is finalized, the vendor shall submit to the contracting officer a copy of the design marked "approved" and signed by the project manager.

   c. The bill of materials generated from the design shall be submitted by the vendor to the contracting officer, who will then issue the appropriate delivery orders for the materials and installation. The bill of materials must have a signed certified statement that the bill of materials conforms to the approved final design.

   d. Payment for materials shall be made upon receipt by the government of ALL materials ordered under the delivery order. If the vendor desires a partial payment for less than a complete order, the vendor shall submit through the project manager to the contracting officer a DD Form 250, Material Inspection and Receiving Report, and an itemized invoice of materials delivered and accepted by the government.
# Index

<table>
<thead>
<tr>
<th>Paragraph</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
</tr>
</tbody>
</table>

## Part One--GENERAL

<table>
<thead>
<tr>
<th>References</th>
<th>1.1.</th>
<th>1</th>
</tr>
</thead>
<tbody>
<tr>
<td>Scope of Work</td>
<td>1.2.</td>
<td>2</td>
</tr>
<tr>
<td>Submittals</td>
<td>1.3.</td>
<td>2</td>
</tr>
<tr>
<td>Design Services</td>
<td>1.4.</td>
<td>3</td>
</tr>
<tr>
<td>Services During Installation</td>
<td>1.5.</td>
<td>4</td>
</tr>
<tr>
<td>Delivery, Storage and Handling</td>
<td>1.6.</td>
<td>4</td>
</tr>
<tr>
<td>Quality Control</td>
<td>1.7.</td>
<td>4</td>
</tr>
<tr>
<td>Training</td>
<td>1.8.</td>
<td>5</td>
</tr>
<tr>
<td>Special Tools</td>
<td>1.9.</td>
<td>5</td>
</tr>
</tbody>
</table>

## Part Two--PRODUCT REQUIREMENTS

<table>
<thead>
<tr>
<th>General</th>
<th>2.1.</th>
<th>5</th>
</tr>
</thead>
<tbody>
<tr>
<td>Panel System</td>
<td>2.2.</td>
<td>6</td>
</tr>
<tr>
<td>Leveling and Alignment</td>
<td>2.3.</td>
<td>7</td>
</tr>
<tr>
<td>Panel Connection System</td>
<td>2.4.</td>
<td>7</td>
</tr>
<tr>
<td>Work Surfaces</td>
<td>2.5.</td>
<td>8</td>
</tr>
<tr>
<td>Pedestals</td>
<td>2.6.</td>
<td>9</td>
</tr>
<tr>
<td>Shelf Units and Flipper Door Cabinets</td>
<td>2.7.</td>
<td>10</td>
</tr>
<tr>
<td>Panel-Mounted Lateral Files</td>
<td>2.8.</td>
<td>11</td>
</tr>
<tr>
<td>Finishes and Colors</td>
<td>2.9.</td>
<td>11</td>
</tr>
<tr>
<td>Locks and Keying</td>
<td>2.10.</td>
<td>12</td>
</tr>
<tr>
<td>Other Components and Accessories</td>
<td>2.11.</td>
<td>12</td>
</tr>
<tr>
<td>Electrical</td>
<td>2.12.</td>
<td>13</td>
</tr>
<tr>
<td>Task Lighting</td>
<td>2.13.</td>
<td>14</td>
</tr>
<tr>
<td>Communications</td>
<td>2.14.</td>
<td>15</td>
</tr>
</tbody>
</table>

## Part Three--EXECUTION

<table>
<thead>
<tr>
<th>General</th>
<th>3.1.</th>
<th>15</th>
</tr>
</thead>
<tbody>
<tr>
<td>Installation</td>
<td>3.2.</td>
<td>15</td>
</tr>
<tr>
<td>Wiring</td>
<td>3.3.</td>
<td>16</td>
</tr>
<tr>
<td>Post-Installation Requirements</td>
<td>3.4.</td>
<td>16</td>
</tr>
<tr>
<td>Training Program</td>
<td>3.5.</td>
<td>16</td>
</tr>
</tbody>
</table>
SYSTEMS FURNITURE [GUIDE] SPECIFICATION

Specifier:

1. This guide specification covers systems furniture (prewired workstations) for new construction under the Military Construction Program (MCP) or for an existing facility.

2. Do not issue this guide specification without editing it. Use it as a guide to prepare the specifications to meet project requirements. Where "specify," "as indicated," "as detailed" or words of similar import are used, include all such designated requirements on the prototypical workstations or within these specifications.

3. Where numbers, symbols, words, phrases, clauses, sentences or paragraphs in this guide specification are enclosed in brackets [], a choice or modification must be made: select appropriate sections and delete inapplicable portions. Where blank spaces enclosed in brackets occur, insert appropriate data. Delete inapplicable paragraphs.

*******************************************************************************

*******************************************************************************
1.1. References. The publications listed below, the latest version in effect as of the date of the solicitation, form a part of this specification. Publications may be referred to in the text by the basic designation only. Where conflicts between this specification and referenced specifications occur, the more stringent requirements shall apply.

1.1.1. Government Standards.

1.1.1.1. General Services Administration (GSA), Public Building Services, 18th and F St NW, Washington DC 20405.

1.1.1.1.1. Federal Supply Schedule 71, Part II, Section E, Product Information.


1.1.1.3. Uniform Federal Accessibility Standards, Space Requirements for Handicapped. [See Tab D, Air National Guard Design Policy for applicability of this paragraph, depending on facility type.]

1.1.2. Commercial Standards.

1.1.2.1. American National Standards Institute, 1430 Broadway, New York, NY 10018, and Business and Institutional Furniture Manufacturer's Association, 2335 Burton St SE, Grand Rapids, MI 49506 (ANSI/BIFMA).

1.1.2.1.1. X5.5, Office Furnishings - Desk Products.

1.1.2.1.2. X5.6, Office Furnishings - Panel Systems.


1.1.2.2.1. C423, Standard Test Method for Sound Absorption and Sound Absorption Coefficients by the Reverberation Room Method.


1.1.2.2.3. E795, Standard Practices for Mounting Test Specimens During Sound Absorption Tests.

1.1.2.3. National Fire Protection Association (NFPA), One Batterymarch Park, P.O. Box 9101, Quincy, MA 02269-9101.


1.1.2.3.2. NFPA 255, Standard Method of Test of Surface Burning Characteristics of Building Materials.
1.1.2.3. NFPA 701, Standards Methods of Fire Tests for Flame-Retardant Textiles and Film.

1.1.2.4. Underwriters' Laboratories, Inc (UL), 333 Pfingston Road, Northbrook, IL  60062).

1.1.2.4.1. UL-723, Test for Surface Burning Characteristics of Building Materials.

1.1.2.4.2. UL-1286, Office Furnishings.

1.2. Scope of Work.

1.2.1. This specification establishes the minimum requirements for the acquisition of all labor and materials required for the installation of a complete and usable (including power, communications and computer wiring) system of demountable and relocatable workstations composed of interconnecting prewired panels, electrical hardware, panel-supported components and freestanding components. Panels shall be acoustical and prewired and shall include raceways. Connection of power, communications and computer utilities between the building and workstations will be accomplished by others.

1.2.2. The installation shall include all items and labor required to assemble and interconnect the individual and aggregate workstations to provide a complete and functioning work environment including, but not limited to, all work surfaces, panels, components, shelves, bins, pedestals, hardware, wire management and utility components. The government or its (other) designated contractor is responsible for all labor and connections between the building and the workstations for power, communications and computer.

1.2.3. The workstation requirements or attributes shall comply with the furniture prototypical attached. [Note: Select and provide a set of prototypical workstations with this specification.] Because there are differences in dimensions and components between manufacturers, the dimensions of the workstations may vary by +/- [Select a percent, usually in the range of 2% to 5%.] % of the requirements specified.

1.3. Submittals. The contractor shall provide the following items:

1.3.1. Shop Drawings. Submit in sufficient detail to verify installation method and compliance with requirements. Submit scaled workstation plan layouts and power plans.

1.3.2. Product Literature. Submit three complete sets of manufacturer's general catalog or literature which provides data and part numbers for all components and furniture to be furnished under the contract, including:

1.3.2.1. Manufacturer's complete catalog and price list.

1.3.2.2. Manufacturer's latest installation instructions for all components and furniture to be furnished under the contract.
1.3.3. Samples. Three sets of the samples listed hereinafter are required for the project. No work shall proceed without sample approval in writing from the contracting officer. The government reserves the right to reject any samples that do not satisfy the construction or color requirements. If any samples are rejected, additional samples shall be submitted to obtain final approval.

1.3.3.1. All fabric types and colors. Samples shall measure a minimum of 6 x 6 inches and shall have labels on the back designating the manufacturer, color, fiber content, fabric weight and fire rating.

1.3.3.2. All work surface types. Samples shall measure a minimum of 2 x 2 inches and shall have labels on the back designating the manufacturer, material composition and thickness, color and finish.

1.3.3.3. All panel and component trim. Samples shall have labels designating the materials and the colors or stains.

1.3.3.4. Metal components with factory baked enamel or painted finishes. Samples shall be a minimum of 2 x 2 inches and have labels designating the materials and the colors.

1.3.4. As-Built Drawings. The contractor shall provide as-built drawings of the installation showing all changes and revisions made up to the time equipment installation is completed and accepted. As-built drawings shall include an overall systems layout and, either 1) perspectives, or 2) elevations and plan layouts, for each type of workstation. Data and parts lists shall be provided. The as-built drawings shall include all electrical circuits, including routing identification and point of power pickup. As-built drawings shall be at a scale of 1/4" = 1'-0". One mylar or sepia and three copies per drawing shall be submitted within three weeks after completion of installation.

1.3.5. Warranty. Products shall have a minimum of five-year warranty and written warranties shall be submitted. Manufacturer shall guarantee for a period of eight years, availability of components, fabrics and finishes compatible with original installation.

1.4. Design Services.

1.4.1. The contractor shall provide the services of a professional designer who shall develop a furniture layout which meets all functional and special requirements. Satisfactory completion of this effort will require comprehensive design services, including but not limited to, the following:

1.4.1.1. Inspect user's current work locations and user's new work locations. Observe work and use conditions and pedestrian traffic patterns. Verify building dimensions shown on provided floor plans.

1.4.1.2. Determine wiring and cabling requirements within the systems furniture.
1.4.1.3. Develop, coordinate and provide a furniture layout to support personnel. Coordination shall include participation in developing a project completion schedule and obtaining layout approval from the project manager.

1.4.1.4. Develop a parts list for ordering, with scheduling to coincide with project installation phases.

1.4.1.5. Floor plan coding for installation including electrical components.

1.4.2. Layouts shall be vendor-specific (installation drawings).

1.4.3. The latest version of AutoCAD shall be used for developing furniture and wire management layout plans. This information shall be provided to the government in the form of a disk.

1.5. Services During Installation. The contractor shall provide authorized company-trained installation and service personnel who shall be available at the time of systems furniture installation and during the first year thereafter. The names of the factory-trained installers or dealers to provide installation and service for this project must be furnished with the offer.

1.5.1. The contractor shall have overnight parts shipment providing critical installation parts to ensure complete and on-time work.

1.5.2. The contractor shall have a five-day shipment program to provide selection of primary products in standard colors and finishes to fill unforeseen needs quickly.

1.5.3. The contractor shall have accelerated shipment for all other products for arrival within 20 working days after placing an order.

1.6. Delivery, Storage and Handling.

1.6.1. All systems furniture products shall be new and shall be delivered in the manufacturer's original and unopened packaging or crating. Products shall be packaged to prevent damage during transit and storage. The contractor shall be responsible for the receipt, storage and handling of all products and supplies necessary to provide a complete installation. The contractor shall comply with manufacturer's requirements for handling and shall take all necessary precautions to prevent damage.

1.6.2. The contractor shall confine all apparatus, storage of materials and the operation of the work force to areas specified.

1.7. Quality Control.

1.7.1. The installation firm shall have at least five year's of experience installing systems furniture similar to that required by this project.

1.7.2. The contractor shall establish and maintain quality control to ensure compliance with contract requirements and shall maintain records of quality control for all materials, equipment and construction operations, including but not limited to the following:
1.7.2.1. Preparatory Inspection (To be conducted prior to commencing work):

1.7.2.1.1. Review shop drawings and material requirements.

1.7.2.1.2. Submit shop drawings, samples or material certification as required for approval.

1.7.2.2. Initial Inspection (To be conducted after a representative sample of the work is complete):

1.7.2.2.1. Check installation to ensure proper anchorages and alignment are met.

1.7.2.2.2. Check finishes to ensure color and texture are as approved.

1.7.2.3. Follow-Up Inspection (To be conducted daily to assure compliance with results of initial inspection):

1.7.2.3.1. Check all items mentioned in preparatory and initial inspections.

1.8. Training.

1.8.1. The contractor shall provide a training program for training personnel on site in the actual installation and reconfiguration of the furniture. Training shall be in the form of presentations, demonstrations and handout material. In addition, a user orientation program shall involve lectures, discussions and demonstrations of the systems furniture, product features, functions usage and maintenance.

1.8.2. Training shall be provided at times mutually agreed upon between the contractor and government, but within 30 days after completion of installation.

1.9. Special Tools. For every 150 workstations, the contractor shall provide one set of special tools and equipment necessary for assembly and disassembly.

Part Two--PRODUCT REQUIREMENTS

2.1. General. All product lines and their components shall meet the specification requirements listed under Product Information of Federal Supply Schedule 71, Part II, Section E. In addition, all product lines and their components must be under the Schedule's contract.

2.1.1. The manufacturer shall be a company specializing in the manufacture of commercial systems office furniture for a minimum of five years.

2.1.2. Station configurations shall conform to standard manufactured components. All panels, components, hardware, etc. shall be standard products as shown in the most recent published price lists or amendments and shall be of same manufacturer unless otherwise specified and approved through the contracting officer prior to ordering.

2.1.3. All finished, exposed surfaces shall be free of sharp edges, burrs or other defects which compromise the operation or are harmful to persons or
materials in contact with them. Leading edge of work surfaces shall have a bullnose. Maintain a 3/4” thickness of edge elements throughout, unless otherwise indicated.

2.1.4. The dimensions noted on the prototypical workstations are nominal dimensions. However, aisle widths must meet NFPA 101 requirements. [See Tab D, ANG Design Policy, for applicability of the following sentence, depending on facility type: The completed installation shall also comply with the current edition of the Uniform Federal Accessibility Standards.]

2.1.5. All panels used along main means of egress shall meet Class A require- ments and have a maximum smoke development rating of 50, as specified by the NFPA 225 or ASTM E 84. All other panels shall have a Class B rating not to exceed a smoke development rating of 100.

2.1.6. Technical Assembly.

2.1.6.1. Assembly of equipment shall be possible with conventional tools locally available. If special tools are required they shall be furnished. See Part One--GENERAL of these specifications for quantities of special tools required.

2.1.6.2. All workstations shall permit easy assembly and disassembly by government personnel. Back to back workstations shall be assembled in such a manner so that components (bins, shelves, work surfaces, etc.) may be com- pletely removed from one side without disturbing the other workstation.

2.1.6.3. The system shall be capable of being installed on top of finished flooring regardless of type, without penetrating the finished floor or using floor fasteners.

2.2. Panel System.

2.2.1. The panel system shall be capable of structurally supporting cantilevered work surfaces, shelves, files and other components in the configurations shown on the prototypicals, without special modifications to the panels.

2.2.2. The panel system shall be capable of structurally supporting more than two fully-loaded components per panel per side and at vertical mounting intervals of approximately one inch.

2.2.3. Panel support legs shall be provided where panel configuration does not provide sufficient support or where load conditions dictate. Legs shall be of an abrasion and stain resistant coated surface on metal and shall be capable of attaching into panel-slotted side rail before or after panel erection. Glides shall be provided for adjustment and support.

2.2.4. The panel system shall be available in nominal widths of 12 inches to 60 inches. Variations to these widths shall require the contracting officer's approval.

2.2.5. The panel system shall be available in nominal heights of 30 inches to 86 inches, and measured from the finished floor to the top of the panel. Variations to heights shall require contracting officer approval.
2.2.6. Panels shall have the capability of assembly and disassembly in a vertical position and shall be nonprogressive (a centrally located panel can be removed without disassembly of the entire panel run).

2.2.7. Panels shall be available in the following surface options: [SPECIFY REQUIREMENTS: acoustical, glazed, open frame, metal, vinyl or any other required surfaces].

2.2.8. All exposed panel frames, trim and hardware shall have [SPECIFY REQUIREMENTS: factory baked enamel, wood, plastic, vinyl, fabric, etc.] finishes.

2.2.9. All glazed inserts shall be safety or tempered glass.

2.2.10. The acoustical panels offered shall have a minimum noise-reduction coefficient (NRC) of 0.85 for the speech frequency range of 1000, 2000 and 4000 Hertz. The minimum sound-transmission coefficient (STC) shall be 20.

2.2.11. Each face of fabric-faced panels shall have a seamless piece of fabric covering stretched over the entire face of the panel. The fabric shall be attached securely and continuously along the entire perimeter of the panel and shall be capable of easy removal and replacement in the field.

2.2.12. Fabric shall be made of [SPECIFY polyester, nylon, wool, blends, or other composition as required]. Fabric shall have a minimum weight of [___] per square yard.

2.2.13. All panels shall be capable of accommodating fabric-covered tackboards. The fabric material and color shall be coordinated with the panel fabric.

2.2.14. Base raceways shall be an integral part of each panel.

2.2.15. Base covers held on by magnets will not be acceptable.

2.3. Leveling and Alignment. The system shall provide precise alignment of adjacent panels and shall include leveling glides to compensate for uneven floors. A minimum one inch adjustment range is required. When placed on a level surface with the glides fully retracted the maximum distance between the panel and the floor shall be one and one half inch.

2.4. Panel Connection System.

2.4.1. The panel system shall be capable of connection in a variety of configurations, including connection of panels of differing heights and connection of two, three or four panels from a single point.

2.4.2. The panel system shall have connectors which accommodate a variety of panel configurations.

2.4.3. The connector system shall provide tight connections which provide continuous visual and acoustical seals.
2.4.4. The finish of all filler posts shall match the finish and the color of the panel trim.

2.4.5. Each filler post shall have a top cover that shall match finish and color of the panel trim and shall be level with the panel top rail.

2.4.6. The connector system shall allow removal of a single panel within a typical workstation configuration, without requiring disassembly of the workstation or removal of adjacent panels.

2.4.7. Right angle connections shall not interfere with the capability to hang work surfaces and other components on any adjacent panel.

2.4.8. Connectors shall withstand forces generated when typical fully assembled workstation configurations are relocated by sliding on a carpeted floor.

2.4.9. The connector system shall provide, as required, for the continuation of electrical and communications wiring within workstations and from workstation to workstation.

2.5. Work Surfaces.

2.5.1. Work surfaces shall be available in nominal depths of [SPECIFY 20 or 24] inches.

2.5.2. Work surfaces shall be available in nominal lengths from 24 to [SPECIFY 48, 60 or 72] inches and in nominal thickness from 1 1/8 to 1 3/4 inches. Variations to these lengths shall require contracting officer approval.

2.5.3. Work surfaces shall have a finished top surface of high pressure plastic laminate, wood veneer or composite wood grain and shall have a smoothly finished underside. Pre-drilled holes for mounting components are allowed.

2.5.4. The work surface shall not be adversely affected by ordinary household solvents, acids, alcohols or salt solutions and shall be capable of being cleaned with ordinary household cleaning solutions.

2.5.5. All work surfaces shall be either fully supported from the panels or supported jointly by the panels and supplemental legs, pedestals or furniture end panels. Supplemental end supports should only be used under work surfaces when the work station configuration does not permit full support by the panels.

2.5.6. Metal support brackets, in colors and finishes to match or coordinate with panel trim or work surfaces shall be used to support work surfaces from the panels. These brackets shall provide metal-to-metal fitting to the vertical uprights of the panels and shall lock the work surfaces in place without any panel modifications.

2.5.7. Work surfaces shall be height adjustable in 1 to 1 1/2 inch increments from 25 to 41 inches above the finished floor.
2.5.8. Supports for peninsula work surfaces shall accommodate [SPECIFY writing or (and?) typing] heights. Provide all hardware necessary to attach peninsula work surfaces to a panel or to other work surfaces of varying heights.

2.5.9. Abutting work surfaces shall meet at equal heights when used in side-by-side or side-to-end configurations in order to provide a continuous and level work surface unless otherwise specified. If abutting surfaces are of different heights, provide caps enclosing open gaps between surfaces.

2.5.10. Work surfaces shall be capable of accepting an attached articulating adjustable keyboard pad. The attached keyboard pad shall have the capability to be fully recessed under the work surface and extend to give the user full access to the keyboard (approximately 10 inches). Side travel rotation shall be a 180 degree swing or a minimum of 15 inches in each direction.

2.5.11. If mobile keyboard pads are specified in lieu of attached keyboards, mobile units must be able to fit under the normal height of a work surface.

2.5.12. Computer turntables shall be provided where required. Turntables shall have a minimum rotation of 240 degrees.

2.5.13. Work surfaces shall have pre-drilled holes to accommodate pedestals.

2.5.14. The underside of cantilevered work surfaces shall have pre-drilled holes to accommodate additional supports.

2.5.15. Provide front modesty panels for all work surfaces where the knee area is exposed.

2.6. Pedestals.

2.6.1. Pedestals shall mount to the underside of work surfaces, be free- standing or mobile.

2.6.2. Drawers and drawer pedestals shall be of plastic construction or steel with a factory baked enamel finish. Color shall match panel trim. Drawer faces shall be of plastic or wood construction and shall be integral with the remainder of the drawer or shall be securely attached with screws to the drawer front. Drawer faces shall match panel trim.

2.6.3. All file drawers shall have full extension ball bearing suspensions.

2.6.4. All 12-inch file drawers shall have cradle type suspension and shall operate smoothly and shall not open accidentally. Hanging files or a paper compression system are acceptable. Adapters shall be furnished with each file drawer to accommodate hanging folders front-to-back or side-to-side for legal or letter folders.

2.6.5. All 15-inch high electronic data processing (EDP) file drawers shall accommodate EDP printout sheets and have cradle type suspension and shall operate smoothly and have a positive stop in the closed position.
2.6.6. All drawers within the pedestal shall be lockable either by a central lock that controls all pedestals under one work surface or individual keyed lock in each pedestal.

2.6.7. All drawer pedestals shall be field interchangeable from left to right or right to left and shall retain the pedestal locking system capability.

2.6.8. Pedestals shall have the capability to protect wires from being damaged by drawer opening and closing when wire management runs behind or along the side of the drawers.

2.6.9. Box drawers shall have available pencil or convenience trays and be able to accept more than one divider. Magnets are unacceptable methods to be used to hold dividers and other devices in place.

2.6.10. Casters on mobile units must conform to the test requirements as stated GSA Schedule 71, II, E.

2.7. Shelf Units and Flipper Door Cabinets.

2.7.1. Shelves shall be of metal construction with formed edges and a factory baked enamel.

2.7.2. All shelves shall have a depth to accommodate a standard 3-inch ring binder (8 1/2 x 11 inch filler) and shall span the full length of the supporting panel.

2.7.3. [SPECIFY only if required:] Shelves shall accommodate computer components storage.

2.7.4. Shelf-supporting end panels shall be of metal construction with formed edges and a factory baked enamel finish or shall be high density particle board, minimum 1/2” thickness, covered with high pressure plastic laminate or vinyl "T" molding edge.

2.7.5. Shelves shall be attached to metal supporting end panels with metal screws or lock clips and to particle board supporting end panels with wood screws or lock clips. Shelves shall be capable of supporting a uniform load of 36 pounds per linear foot.

2.7.6. All shelf supporting end panels shall provide metal-to-metal connections to the supporting wall panels.

2.7.7. The underside of all shelf units shall have the same finish and color as the end support panels and shall accommodate the attachment of task lights.

2.7.8. All shelf units shall have relocatable shelf dividers at a minimum of 9 inches on center horizontally. Magnetic dividers are acceptable. The dividers shall be of metal construction with a factory baked enamel finish matching or compatible to the shelf unit.

2.7.9. Shelf and door units shall have mechanical safety catches or other devices to prevent accidental disengagement.
2.7.10. Flipper doors shall have an interior construction of metal with formed edges, wood frame or particle board.

2.7.10.1. Metal doors shall have an exterior finish of factory baked enamel or a fabric covering and an interior finish of factory baked enamel.

2.7.10.2. Wood frame on particle board doors shall have an exterior finish of high pressure plastic laminate, textured vinyl covering or fabric covering and an interior finish of high pressure plastic laminate, textured vinyl covering or epoxy paint. A vinyl "T" molding edge shall be provided where appropriate.

2.7.11. Flipper door units (bins) shall be available with locks. Units must remain securely fastened to the panel when in the locked position.

2.7.12. All flipper doors should be able to be operated by a seated person when flipper doors are mounted at 64 inches height (+/- 2 inches). Equalizers that prevent doors from pinching when operated from other than center balance points is desired.

2.7.13. All locks or handles on flipper doors shall be flush, recessed or protrude no more than 1/4".


2.8.1. All lateral file drawers shall be panel-supported.

2.8.2. Lateral file drawers shall be of steel construction with a factory baked enamel finish. File fronts and end support panels shall be of equal construction to flipper door shelving units, as specified earlier.

2.8.3. All hardware shall be flush, recessed or protrude no more than 1/4".

2.8.4. All lateral file drawers shall have full extension, ball bearing drawer slides and shall operate smoothly, but shall not open accidentally.

2.8.5. Lateral files shall accommodate hanging file folders for letter size, and legal files.

2.8.6. All lateral file drawers shall be available with individual key-operated locks.

2.9. Finishes and Colors.

2.9.1. All systems furniture panels and components shall be supplied in the finishes and range of neutral and accent colors as selected by the contracting officer from manufacturer's standard finishes and colors. All variations shall require the contracting officer's approval. Finishes and colors shall be selected for fabrics, metal finishes, trim, bases, hardware, connectors, power poles, work surfaces, etc.

2.9.2. The manufacturer shall have at least four different color selections for laminates and fabrics.
2.10. Locks and Keying.

2.10.1. All drawers, flipper door cabinets, lateral files and file bins shall have keyed locks, unless otherwise noted.

2.10.2. Field changeable lock cylinders shall be provided with a minimum of 150 different key operations.

2.10.3. All workstations shall be individually keyed. All locks within a workstation shall be keyed alike.

2.10.4. All central file and storage units which are grouped together but are not part of a workstation shall be keyed alike, unless noted otherwise.

2.10.5. Two keys shall be provided for each lock and three duplicate master keys shall be provided to the contracting officer. Keys and lock cylinders shall be numbered for ease of replacement. A key schedule shall be submitted to the contracting officer at project completion.

2.10.6. All locking equipment must be clearly labeled/tagged as to the workstation, key number and its location.

2.10.7. Combination locks may be used in lieu of key locks. Instructions on changing combinations must be furnished for each lock and attached to the inside area (drawer) that is to be locked.

2.11. Other Components and Accessories.

2.11.1. The contractor shall provide all brackets, supports, hangers, clips, panel-supported legs, connectors, adjustable feet, cover plates, stabilizers and other miscellaneous hardware required to provide a completed assembly.

2.11.2. Wall tracks should not be used unless absolutely necessary. If they are provided they must be in pairs where components are required. Tracks shall be of heavy-duty extruded metal finish and color to match panel trim and shall be slotted on 1" centers in heights required. Slot spacing should match slot spacing for wall panels. [SPECIFY required heights.]

2.11.3. Wall mount kits shall be provided as required for securing panel ends to building walls at 90 degree angles. Kit shall match panel height and trim.

2.11.4. One panel-mounted coat hook per workstation occupant shall be provided at each manned workstation or workstation group.

2.11.5. Paper management units shall be provided as indicated on the prototypicals. [INDICATE on prototypicals if required.] These units shall consist of paper storage units constructed of coated steel inserts with tabbed label holders, shall be capable of right or left hand orientation and shall accommodate legal or letter size lengths. Unit shall be freestanding or mounted to rear of shelf/bin or mounted to the support panels by means of a mounting rail. Mounting rails shall be equal in length to the wall panel and constructed of metal and finished to match panel trim. A latch-lock mechanism shall be an integral part of the rail.
2.11.6. Tackboards. The fabric and color shall be coordinated with the panel fabric and color. Location and size shall be as indicated on the prototypicals. [INDICATE on prototypicals.]

2.11.7. Erasable marker boards shall have a [SPECIFY color] porcelain writing surface and shall include [SPECIFY quantity per board] erasable liquid markers, [SPECIFY quantity per board] chart hooks, storage tray, tack strip and end support panels to match the panel trim. Size and location shall be as determined by the systems furniture designer.

2.11.8. Counter caps and transaction counters shall be provided in accordance with the sizes shown on the prototypicals. [SHOW on the prototypicals.] The finish shall match the finish of the work surfaces unless noted otherwise. Locations shall be as determined by the systems furniture designer.

2.11.9. [DETERMINE AND SPECIFY other requirements: paper management accessories, compressions systems, drafting surfaces, special lab requirements (special chemical resistant surfaces, wet sinks, etc.), special tilting requirements of surfaces, telephone stands, Personal Computer (PC) stands, pass through windows, lazy susans, angled shelves, drawer inserts, etc.]

2.12. Electrical.

2.12.1. The entire system shall use copper wiring and shall meet the applicable requirements of Underwriters Laboratory (UL) Standard 1286 and the National Electrical Code. The label or listing of Underwriters Laboratories, Inc. will be accepted as evidence that the materials or equipment conform to the applicable standards of that agency.

2.12.2. All panels shall have raceways capable of distributing at least three circuits, utilizing all 3 phases. The power system shall be an 8 wire system (3 hots, 3 neutrals and 2 grounds) for all workstation configurations. Minimum requirement is for 20-amp power circuits and the equivalent of six 25-pair communication cables with required connectors. Unused access points shall be covered to prevent unsightly holes. Covers shall be replaceable or the raceway cover shall be easily replaced without disassembly of the panel. Each workstation shall have at least one phase A circuit receptacle, one phase B circuit receptacle and one phase C circuit receptacle. One phase (e.g., Phase C) shall be used for computer and data equipment only, with one of the grounds being dedicated to that computer and data circuit. All plug-in receptacles shall be clearly labeled with circuit designation A, B or C.

2.12.3. All panels shall have base raceways for power and communications (telephone and computer data). All panel bases shall have a minimum of one knockout per panel, per side, for every four feet for electrical access and a minimum of two additional knockouts per workstation for telephone and local area network wiring and electrical outlets.

2.12.4. Base covers shall be securely mounted to panels but permit easy access to the raceway. Accidental dislodgment is not acceptable.

2.12.5. Panel base covers shall not be secured by magnets.

2.12.6. The panel bases shall not extend past either panel face by more than one-half inch.
2.12.7. Metal or plastic end covers which attach securely to the panel base shall be provided and shall match the finish and color of the panel base.

2.12.8. All panels shall be powered. Each panel shall be capable of having a minimum of two single, duplex 20 amp grounded electrical receptacles per side, per 4-foot length (one receptacle per side for a section 2 feet or less).

2.12.9. All receptacles shall be commercial grade and identified easily by line or circuit identification number (or letter) and phase identification.

2.12.10. Internal panel-to-panel power connections shall be straight or flexible plug-in and plug-out grounded connections and shall be installed to provide the panel configurations required.

2.12.11. Power and communication wiring shall be supplied to the panels by base modules.

2.12.12. Base-feed modules shall supply power to the base panels by plugging into either side of or into the end of the raceway through receptacle doors and shall provide access doors for routing the communication cables.

2.12.13. Actual wire management capacity shall allow for wire twist and right angle corner radius loss.


2.12.14.1. Horizontal wire managers shall be supplied for mounting under all work surfaces, where required. The wire managers shall be attached either to the underside of the work surface or to the vertical panel without damage to the face of the vertical panel. Exposed or loose wiring shall not be acceptable.

2.12.14.2. Wire managers shall be prefinished and shall secure, conceal and accommodate outlet cords as well as electrical and communication wiring.

2.12.14.3. Wire channels shall match color of panel trim, attach to panel or rail by means of self adhesive backing strip or clip-in attachment and shall conceal wire routed vertically.

2.13. Task Lighting.

2.13.1. Task lights shall be provided as indicated on the prototypicals. Such lights shall be a standard component of the manufacturer's system furniture products.

2.13.2. Task lights shall be available in colors to match that of the shelves and bins. The reflector shall be painted white or have a reflective lens finish for maximum light. Using the same color as the outer housing is not acceptable.

2.13.3. Task lights shall have structurally sound mounting devices which can be easily removed and replaced but will prevent accidental removal or dislodgment.
2.13.4. All fixtures shall be Underwriters Laboratory (UL) approved.

2.13.5. All fixtures shall have prismatic lenses, baffles or reflector systems necessary to provide a glare-free light which is shielded at eye level in a seated position and shall provide a minimum of 75 footcandles of light without veiling reflections on the work surface directly below the fixture. Energy efficient lamps shall be used whenever possible.

2.13.6. Each fixture shall have an easily accessible on-off switch and one rapid-start ballast. Ganged fixtures with shared ballasts shall not be used.

2.13.7. All fixture diffusers, grilles or other coverings shall be easily removable to permit cleaning and relamping.

2.13.8. Each fixture shall have a minimum of a six-foot factory-installed, heavy duty electrical cord set with a grounded plug and be UL approved and have left or right exit capability. [SPECIFY if longer lengths are required.]

2.13.9. A vertical, panel-mounted wire manager shall be installed with each task light. This wire manager shall be prefinished and cut to size and shall have the capability of being field cut to size. The wire manager shall be attached to the panel edge or connector strip without damaging panel surfaces.

2.14. Communications. Workstations shall provide appropriate cable management for telephone and computer data cables. All instrument connections and wiring through the raceways shall be accomplished by others. The government will be responsible for telephone installation.

Part Three--EXECUTION

3.1. General. The contractor shall be responsible for verification of all site dimensions and facility conditions. The contractor shall notify the contracting officer if installation cannot be successfully completed because of existing conditions prior to installation.

3.2. Installation.

3.2.1. The contractor shall have a full time installation crew. Each member of the crew shall be a manufacturer authorized systems furniture handler and technical installer capable of performing the job requirements outlined on the final government-approved workstation layout drawings.

3.2.2. Installation shall be in accordance with the manufacturer's installation procedures.

3.2.3. All systems furniture panels and components shall be installed level, plumb, square, and with proper alignment with adjoining furniture. The furniture shall be securely interconnected and shall be securely attached to the building where required.

3.2.4. The contractor shall clean, polish and inspect all panels and components to ensure that the installation is complete and that the furniture is free of defects and ready for use. The contractor shall repair all defects or replace damaged components.
3.2.5. Phasing. [If applicable, specify any phasing requirements.]

3.2.6. Coordination. [If applicable, specify any concurrent actions requiring government access to the furniture during installation. (e.g., if communications wiring must be put into place during systems furniture installation because it cannot wait until after systems furniture installation is complete.)

3.3. Wiring.

3.3.1. The contractor is responsible for all electrical wiring for the workstations and between workstations. The government will make all hard-wire connections to the building electrical distribution system.

3.3.2. All electrical wiring shall be in accordance with the approved layout, the systems furniture manufacturer's installation procedures and the National Electrical Code.

3.4. Post-Installation Requirements.

3.4.1. The contractor shall provide drawings of the final installation showing all changes and revisions made up to the time equipment installation is completed and accepted. As-built drawings shall include an overall workstation plan layout and dimensioned isometrics or elevations of each type of workstation with all components identified by the manufacturer's catalog numbers. Drawings shall include all electrical circuits including routing identification and point of power pick up. As-builts shall be in a scale of 1/4 inch = 1 foot-0 inches or other scale mutually agreed upon by the contractor and the contracting officer.

3.4.2. Panel plans shall be dimensioned from finished face of walls, columns and partitions and keyed to a panel schedule describing colors, finishes, sizes and types. Panel drawings shall include all power poles, base panel feeds and all activated panel outlets.

3.4.3. Inventory Listing. Data and parts lists shall be provided. The contractor shall provide two complete listings of all installed components to the contracting officer. One copy will be for the users (Non-MCP) and one copy will be for the contract file.

3.4.4. Manufacturer's Literature.

3.4.4.1. Three sets of product assembly manuals which describe assembly and reconfiguration procedures shall be provided to the contracting officer.

3.4.4.2. Three sets of product maintenance manuals which describe proper cleaning and minor repair procedures shall be provided to the contracting officer.

3.5. Training Program. The contractor shall provide [specify number] hours of training to user's [if applicable, add: and base civil engineer's] personnel on installing, reconfiguring and maintaining the prewired workstations. This training shall be provided on site as part of the contract cost to the government and at times mutually agreed upon by the contractor, the contracting officer [if applicable, add: , base civil engineer] and the user.
# INDEXES

## AIR NATIONAL GUARD ENGINEERING TECHNICAL LETTERS (ANGETLs)

### SECTION A - CURRENT ANGETLs

<table>
<thead>
<tr>
<th>ANGETL #</th>
<th>Title</th>
<th>Date Issued</th>
</tr>
</thead>
<tbody>
<tr>
<td>88-1</td>
<td>Polychlorinated Biphenyls Spills Cleanup Policy</td>
<td>23 Feb 88</td>
</tr>
<tr>
<td>88-2</td>
<td>Built-Up Roof Repair/Replacement Guide Specification</td>
<td>8 Apr 88</td>
</tr>
<tr>
<td>88-3</td>
<td>Built-Up Roof Repair/Replacement Guide Specification Update</td>
<td>26 Oct 88</td>
</tr>
<tr>
<td>89-1</td>
<td>Chlorofluorocarbon (CFC) Limitation in Heating,</td>
<td>16 Feb 89</td>
</tr>
<tr>
<td></td>
<td>Ventilating, and Air Conditioning (HVAC) Systems</td>
<td></td>
</tr>
<tr>
<td>89-2</td>
<td>Energy Program Management Goals</td>
<td>14 Mar 89</td>
</tr>
<tr>
<td>90-1</td>
<td>Managing Execution of the Military Construction Program (MCP) and</td>
<td>2 Feb 90</td>
</tr>
<tr>
<td></td>
<td>Real Property Maintenance (RPM) Program</td>
<td></td>
</tr>
<tr>
<td>90-2</td>
<td>Minimum Clearances for Jet Fuel, Special Fuel, and LOX Storage</td>
<td>2 Feb 90</td>
</tr>
<tr>
<td></td>
<td>Systems</td>
<td></td>
</tr>
<tr>
<td>90-3</td>
<td>Preventive Maintenance for Liquid Fuels Facilities</td>
<td>14 Feb 90</td>
</tr>
<tr>
<td>90-4</td>
<td>Engineering &amp; Services Reorganization</td>
<td>23 May 90</td>
</tr>
<tr>
<td>90-5</td>
<td>Aqueous Film Forming Foam (AFFF) Waste Discharge Retention and</td>
<td>23 Aug 90</td>
</tr>
<tr>
<td></td>
<td>Disposal</td>
<td></td>
</tr>
<tr>
<td>90-6</td>
<td>Project and Program Management Handbook</td>
<td>10 Jul 90</td>
</tr>
<tr>
<td>90-8</td>
<td>Project and Program Management Handbook Update</td>
<td>10 Oct 90</td>
</tr>
<tr>
<td>90-9</td>
<td>Compliance with Buildings Codes</td>
<td>26 Nov 90</td>
</tr>
<tr>
<td>91-1</td>
<td>Managing the JOC/SABER Program</td>
<td>14 Jan 91</td>
</tr>
<tr>
<td>91-2</td>
<td>Compliance with EPA Regulations Governing Underground Jet Fuel</td>
<td>30 Jan 91</td>
</tr>
<tr>
<td></td>
<td>Piping</td>
<td></td>
</tr>
<tr>
<td>91-3</td>
<td>Facility Energy Program Reporting</td>
<td>20 Feb 91</td>
</tr>
<tr>
<td>91-4</td>
<td>Not Used</td>
<td></td>
</tr>
<tr>
<td>91-5</td>
<td>Shattering of Aged Unreinforced Polyvinyl Chloride (PVC) Roof</td>
<td>11 Apr 91</td>
</tr>
<tr>
<td></td>
<td>Membranes</td>
<td></td>
</tr>
<tr>
<td>91-6</td>
<td>Facility Energy 2000 Goals</td>
<td>30 May 91</td>
</tr>
<tr>
<td>91-8</td>
<td>Use of Unit Pricing Procedures for Pavements Contracts</td>
<td>18 Jun 91</td>
</tr>
<tr>
<td>91-9</td>
<td>Criteria for Testing Halon Fire Suppression Systems</td>
<td>19 Jun 91</td>
</tr>
<tr>
<td>91-10</td>
<td>Centralized Purchase of Source Supply Natural Gas</td>
<td>19 Jun 91</td>
</tr>
<tr>
<td>91-11</td>
<td>Not Used</td>
<td></td>
</tr>
<tr>
<td>91-12</td>
<td>Not Used</td>
<td></td>
</tr>
<tr>
<td>91-13</td>
<td>Not Used</td>
<td></td>
</tr>
<tr>
<td>91-14</td>
<td>Not Used</td>
<td></td>
</tr>
<tr>
<td>91-16</td>
<td>Accuracy of Real Property Records</td>
<td>20 Sep 91</td>
</tr>
<tr>
<td>92-2</td>
<td>Managing Asbestos-Containing Material (ACM) in Air National Guard (ANG) Facilities</td>
<td>24 Jan 92</td>
</tr>
<tr>
<td>92-3</td>
<td>Systems Furniture Management</td>
<td>18 Jun 92</td>
</tr>
</tbody>
</table>
# SECTION B - OBSOLETE ANGETLs

<table>
<thead>
<tr>
<th>ANGETL #</th>
<th>Date</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>90-7</td>
<td>20 Jul 90</td>
<td>Superseded by ANGETL 92-3</td>
</tr>
</tbody>
</table>

Attachment 8
SECTION 1
DESIGN CODES AND REFERENCES

1.1. DESIGN CODES: The following provides a list of design codes and standards applicable to ANG construction. It is the BCE's responsibility to furnish the A/E those codes having an Air Force (AF) or Air National Guard (ANG) designation. It is the A/E's responsibility to have or procure all other applicable codes and standards.

<table>
<thead>
<tr>
<th>DESIGNATION</th>
<th>TOPIC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Uniform Bldg Code</td>
<td>Seismic Criteria</td>
</tr>
<tr>
<td>UBC, Standard, Southern, BOCA</td>
<td>Model Building Code (Use same as county requires when not on an AF base)</td>
</tr>
<tr>
<td>AFR 88-15</td>
<td>AF Design Regulation (Use whenever on an AF base)</td>
</tr>
<tr>
<td>Nat'l Assoc of Plumbing Heating Cooling Contractors</td>
<td>Plumbing</td>
</tr>
<tr>
<td>Nat'l Fire Code</td>
<td>Fire Protection</td>
</tr>
<tr>
<td>AFOSH Std 161-2</td>
<td>Industrial Ventilation</td>
</tr>
<tr>
<td>ANSI/ASCE 7-88</td>
<td>Wind Loads Using 50-Year Mean Recurrence Exposure C</td>
</tr>
<tr>
<td>ACI 302.1 (Latest Edition)</td>
<td>Concrete Floor Slabs on Grade</td>
</tr>
</tbody>
</table>

1.2. DESIGN REFERENCES: The following provides a list of the most frequently used military design references used in ANG construction. It is the BCE's responsibility to furnish the A/E those references which are applicable to a particular project.

<table>
<thead>
<tr>
<th>DESIGNATION</th>
<th>TOPIC</th>
</tr>
</thead>
<tbody>
<tr>
<td>ANGETL 88-2 (-3)</td>
<td>Built-Up Roof Repair/Replacement Guide Specification (and Update)</td>
</tr>
<tr>
<td>ANGETL 89-1</td>
<td>Chlorofluorocarbon Limitation in HVAC Systems</td>
</tr>
<tr>
<td>ANGETL 90-9</td>
<td>Compliance with Building Codes</td>
</tr>
<tr>
<td>ANGETL 92-3 (w/Atch 6-8)</td>
<td>Systems Furniture Management</td>
</tr>
</tbody>
</table>
2.10. Prewired Workstations.

2.10.1. If identified on government DD Form 1391, workstations will be purchased using construction funds and their cost is included in the MCC.

2.10.2. Prewired workstations will be used in:
   a. Operations and Training, Wing or Group Headquarters
   b. Squadron Operations
   c. Base Supply
   d. Base Civil Engineering
   e. Contiguous administrative areas of 500 SF or more.

2.10.3. Facility designs shall provide for the inclusion of a separate, follow-on procurement contract for the design and installation of prewired workstations solicited at the time of the basic facility construction.

2.10.4. The height of dividers and acoustic partitions should be limited to no more than 5-1/2 feet to allow for quickly identifying problems that may arise from a fire in the areas or routes opening to the exits. Six-foot partitions should only be used if they do not obstruct exit markings. Higher partitions should be limited to the periphery.

2.10.5. See ANGETL 92-3 for additional electrical and mechanical requirements.
Attachment