APPENDIX E

ACQUISITION LIFE CYCLE PHASE AND PRODUCT DESIGN MATURITY STAGE REVIEW

E.1. SCOPE.

E.1.1 Scope.

This appendix reviews the acquisition cycle phases and the product design maturity stages. This appendix is not a mandatory part of this standard. The information contained herein is intended for guidance only.

E.1.2 Applicability.

For reference purposes.

E.2. APPLICABLE DOCUMENTS.

This section is not applicable to this appendix.

E.3. DEFINITIONS

The acronyms and definitions in section 3 of this standard apply to this appendix.

E.4. LIFE-CYCLE PHASES AND STAGES OF DESIGN MATURITY.

During each phase of the acquisition life cycle and stage of design maturity of the product (see Figure E-1), product and configuration management information products should be chosen using the tailoring guidelines in Table A-I, Appendix A. The headings in Figure E-1 are utilized as the primary header information in Table A-I. The following paragraphs briefly describe the activities typically attributable to each of the phases/stages.

Acquisition Life Cycle Phase:	Program Definition & Risk Reduction		Engineering & Manufacturing Development	Production, Fielding/Deployment, & Operational Support and Demilitarization & Disposal	
Product Design Maturity Stage:	System Definition	Allocated Performance Definition	Design Definition	Production, Operations & Support	Post Production Operations & Support

Figure E-1. **Correlation of Acquisition Life Cycle Phases and Product Design Maturity Stages**

E.4.1 Program Definition And Risk Reduction (PD&RR) Phase [System Definition Stage And Part Of Allocated Performance Definition Stage].

During the System Definition stage in PD&RR, the draft system performance documentation is usually finalized into a System Specification that is approved and placed under Government control at the end of the phase. Also during this stage, important top-level elements of the system are selected as Configuration Items (CIs), and the system requirements are allocated and expanded into draft CI performance documentation for each of these CIs. Most of the information requirements during this phase relate to the system documentation. [Modification/update projects and small, non-system development programs may have little or no System Definition activity and may not include a PD&RR phase. Their development effort will more likely begin with Engineering and Manufacturing Development (EMD) phase/Allocated Performance Definition stage activities.]

E.4.2 EMD Phase [Completion Of Allocated Performance Definition Stage And Of Design Definition Stage].

During the Allocated Performance Definition stage in EMD, the draft top-level hardware and software CI Performance Specifications are approved and placed under Government control while draft performance specifications for the lower-level CIs are generated and placed under contractor control. After the Government-controlled Allocated baselines for the top-level items are established, the product enters the Detail Design stage. During this stage, the design is finalized, hardware and software products are generated, and exhaustive verifications are conducted to ensure that the CI design has achieved the requirements in its Performance Specification. The lower-level CI performance specifications are usually left under contractor control until after the Functional Configuration Audit for the hosting CI has been completed. For Design-based acquisitions, the approval/baselining of the detail design documents (product baseline) by the Government, and the delivery of the detail design documentation to the Government, are usually accomplished as the closing activities of the EMD phase or the entry activities in the production phase. Most of the information requirements during this phase relate to the performance and design documentation for the CIs and the related verification testing procedures and results.

E.4.3 Production, Fielding/Deployment, And Operational Support And Demilitarization And Disposal Phase [Production, Operations And Support Stage And Post-Production, Operations And Support Stage].

During the Production, Operations and Support stage of the Production, Fielding/Deployment, and Operational Support and Demilitarization and Disposal phase, products and their support systems are produced and delivered to user activities. During this stage, the Government usually maintains a continuing contractual relationship with the contractor, which, over a period of years, continues to manufacture units for the operational inventory. This relationship provides a ready source for change/modification information and a ready channel for updates to data previously obtained from the contractor. On the other hand, when the product enters the Post-Production Operations and Support stage, this continuing contractual relationship usually disappears. During this phase, many design changes (updates and modifications to the existing design) will be examined, documented, and approved. These updates and modifications will result in projects for the development of new design elements that will undergo a life cycle process similar to the development of the original product. The CM information required will be basically the same as that required for a new development. Recommendations for Government CM information needs in this appendix assume that the modifications/ updates are treated as new developments and that the CM information will be obtained based on that premise. Changes/ modifications (and the related data) may be obtained from many different commercial or Government sources. Most of the information requirements directly resulting from production/operation/support activities during this phase relate to the configuration of the units as they are delivered and as they go through various maintenance and modification actions.

E.5. CONCEPTS.

E.5.1 Logistics Concepts.

The role that the buying organization will play in the logistics support of the product being bought will be a major factor in determining the amount and type of information that must be acquired. However, these logistics support considerations primarily affect information purchases that occur during the EMD phase and later. There are two basic approaches that are utilized in Table A-II in making recommendations about the buying activity's information needs.

E.5.1.1 Manufacturer Repair/Throw-Away (MR/TA).

Under acquisition reform, the Government expects that a considerable amount of the support will be provided by the manufacturing organization that delivered the units for the inventory. Under those circumstances, the buying and using organizations in order to maintain the units need little information; they are returned to the manufacturer, or thrown out, when they malfunction. (However, it is essential that the manufacturer maintain such information in order to accomplish various repair activities and to maintain traceability of components being removed and replaced.)

E.5.1.2 Customer/Contracted Repair (C/CR).

It is likely that there will be many cases where Government personnel will have a role in the checkout and repair of at least some of the malfunctioning units/subassemblies. Or, the Government plans may call for "contracting-out" the maintenance of at least some malfunctioning units to an organization other than the original manufacturer of the units. In both of these cases, it will be necessary for the Government to acquire considerably more information than in the MR/TA situation in order for the support to be effective.

E.5.2 Acquisition Concept.

Under acquisition reform, the preferred approach to acquisition is for the Government to control the performance documentation for the product while the contractor controls the design documentation for the product. Understandably, the Government will need to obtain much more information when it will control the detail design than when it will control the performance documentation. These differences are reflected by the recommendations in Table A-I for the two different situations.

E.5.2.1 Performance-Based (P-B) Acquisition.

The currently preferred approach to buying products is for the Government to define and control the essential performance and interface requirements for the product in performance specifications and to use those performance specifications to buy the production units. The Government may also purchase and control Source Control Drawings (which cite the Government-controlled performance specification for the product) as a means of facilitating competitive purchase of the product by qualifying sources. The detail design documents defining the design that meets those requirements remain under the contractor's control. However, once the program enters the Production, Fielding/Deployment, and Operational Support, and Demilitarization and Disposal phase, the Government may buy copies of the design documents for the elements of the product that it purchases as spares for its logistics support activities, along with the right to review changes approved by the contractor, to determine whether the Government desires/rejects the use of the changed design in production/spare units it purchases.

E.5.2.2 Design-Based (D-B) Acquisition.

Although not the currently preferred method under acquisition reform, many legacy programs are design-based (otherwise known as build to print) procurements and will remain so. Also, design-based procurements may be authorized for items where identical copies are essential. Design-based procurements always include some customer control over changes to the design of the product during the Production, Fielding/Deployment, and Operational Support, and Demilitarization and Disposal phase. This normally requires that the Government acquire the rights to the design upon the completion of development/Functional Configuration Audit (FCA) (or at some later program milestone) and be responsible for final approval of changes to the design documents from that point on. The "masters" become the property of the DoD, although the contractor is often paid to act as the custodian.

E.6. NOTES.

This section is not applicable to this standard.

APPENDIX E

CONCLUDING MATERIAL

Custodian
Army – AR

Preparing activity
Army-AM

Review Activities:
Army CMAG