

# **FE302**

## **Advanced Facility Engineering**

### **Lesson F5**

#### ***SELECTING ARCHITECT and ENGINEERS***



# TLO/ELO

Given the need for architect-engineer design services, follow Brooks Act (Selection of A/E Statute) requirements to evaluate and select firms to secure a negotiated contract agreement.

- Identify the members of the team and their roles involved in the architect-engineer contracting process
- Define “professional architect-engineer firm”
- Distinguish between “architect-engineer” services and other professional services
- List the steps necessary to award and manage an architect-engineer contract



# A-E Services (Per FAR 2.101)

**Professional Services** of an engineering or architectural nature...

- ...defined by state law, that are required to be performed or approved by a person licensed, registered, or certified to provide those services;
- ...services performed or approved by contract that are associated with research, planning, development, design, construction, alteration or repair of real property, and
- ...incidental services that members of an architectural or engineering professions may logically or justifiably perform including studies, investigations, surveying and mapping, tests, evaluations, consultations, comprehensive planning, program management, conceptual designs, plans and specifications, value engineering, construction phase services, soils engineering, drawing reviews, preparation of O&M manuals, and related services



# “Building” or “Work” Defined

The regulations also call out the term “building” or “work” to further discriminate between construction and manufacturing:

***Building or work means construction activity as distinguished from manufacturing, furnishing of materials, or servicing and maintenance work.***

*The terms include, without limitation, buildings, structures, and improvements of all types, such as bridges, dams, plants, highways, parkways, streets, subways, tunnels, sewers, mains, power lines, pumping stations, heavy generators, railways, airports, terminals, docks, piers, wharves, ways, lighthouses, buoys, jetties, breakwaters, levees, canals, dredging, shoring, rehabilitation and reactivation of plants, scaffolding, drilling, blasting, excavating, clearing, and landscaping.*



# Facility Related Terms

- Real Estate: A contract involving the license, lease, purchase or disposal of Class 1 (Land) or Class 2 (Improvements to the Land) Real Property.
- Planning: Professional services responsible for urban design, asset management and forecasting future demands to ensure efficient use of federal facilities and the efficient connections to commercial utilities and local municipal interface.
- Design: Professional services contract involved in the development of technical plans, project specifications, and engineering details for construction, environmental studies, or facilities planning.
- Construction: “Construction, alteration, or repair (includes dredging, excavating, and painting) of buildings, structures, or other real property”.



## Facility Related Terms 2

Variations on a theme - Within the FAR definition of construction, there are a variety of terms each of which has a dramatic implication on the design actions required and the funding source to be utilized.

- Construction: New capability or footprint
- Alteration: Changing existing facility to meet a new mission Potentially new footprint when done
- Renovation: Changing existing facility to meet new codes, e.g., recapitalization, sustainment, restoration, modernization



## Facility Related Terms 3

- Repair: The restoration for use for a designated purpose by overhauling, reprocessing, or replacing parts or materials that have deteriorated by action of the elements or by wear and tear in use, and which have not been corrected through maintenance.
- Implication: Failure has occurred or is immanent. FAR calls this construction. DOD FMR directs funding as O&M
- Maintenance: Recurring work to prevent deterioration. FAR 37.101 defines this as service contract work required to preserve or maintain a facility in such a condition that it may be used for its designated purpose.



# Architect-Engineering History

- In-house designs through 1930s
- Laws enacted in 1939 to contract out for A&E services
  - Contracting authority was provided, but...
  - No A/E selection procedures
- Brooks Act passed in 1972 – mandated:
  - Technical competition similar to source selection procedures
  - Cost not used as an evaluation factor in initial selection
  - Contractor submits priced proposal
  - Negotiations ensue (If no reasonable price is agreed, go to the next AE firm)
  - If you cannot determine reasonable price among the first 3 firms, go to the next 3, etc.



# Applicable Laws

## The Selection of Architects and Engineers Statute (Public Law 92-582 Brooks Act)

- Title 10 U.S.C. Section 4540 (Army Authorization)
- Title 10 U.S.C. Section 7212 (Navy Authorization)
- Title 10 U.S.C. Section 9540 (Air Force Authorization)
- Title 10 U.S.C. Section 2807 (Notification to Congress)
- Title 10 U.S.C. Section 2855 (Set-asides)
- Title 41 U.S.C. Section 254 (6% Statutory Fee Limitation)

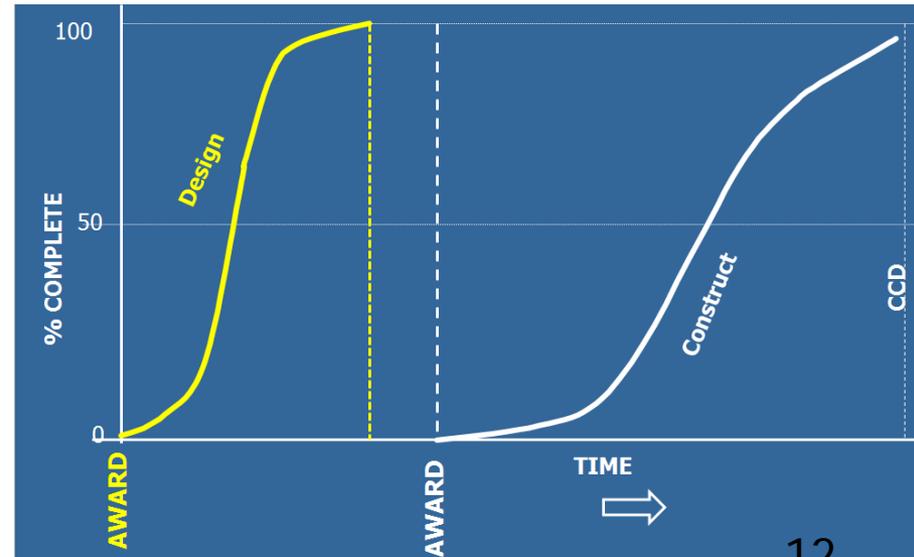
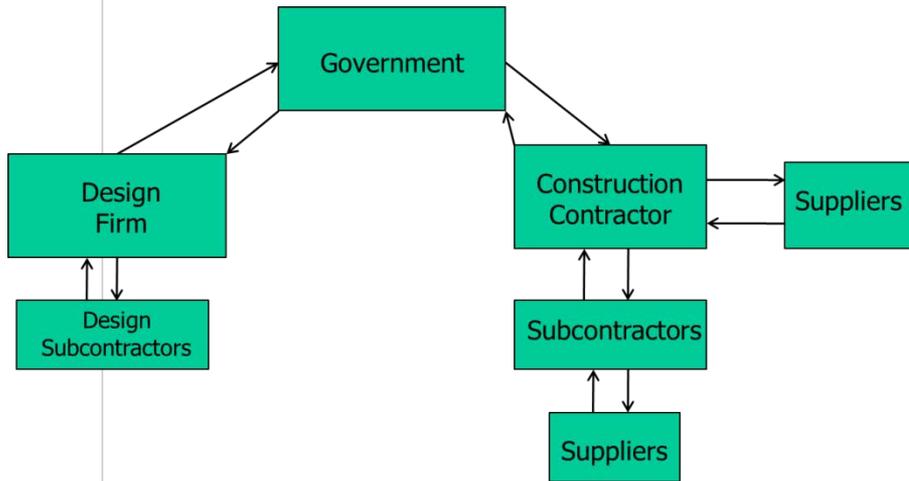
- Purpose of the design
  - Requires a state-licensed professional engineer
  - Protect public safety
  - Site specific requirements
  - Structural, fire protection, high voltage electrical...
- Limited technical design
  - Incidental or cosmetic construction work
  - Renovation
  - Maintenance and repair



# Three Methods of Design/Construction

- Design-Bid-Build
  - Design Contract: FAR 36.6 and,
  - Construction Contract FAR 36.2
- Design-Build
  - Construction contract: FAR 36.3
  - Awarded using FAR Part 15 procedures (with the design as a “submittal” item)
- Design Competition
  - Special case of contracting for a design: FAR 36.602-1(b)
  - Example: national monuments

- **Design-Bid-Build** –  
Traditional approach
  - Design Contract: FAR 36.6
  - Plus a
  - Construction Contract FAR 36.2

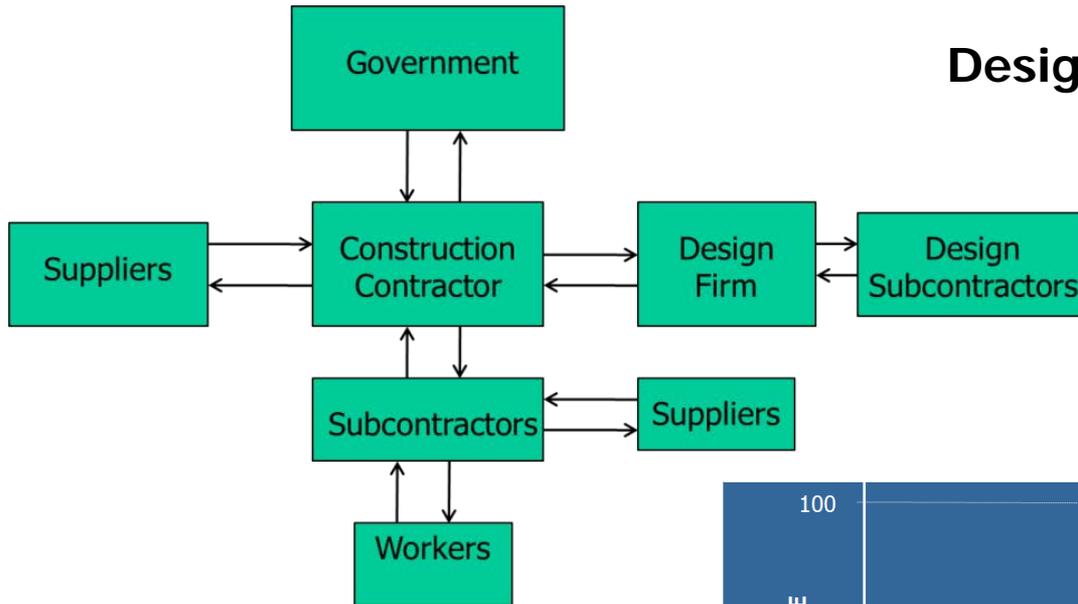




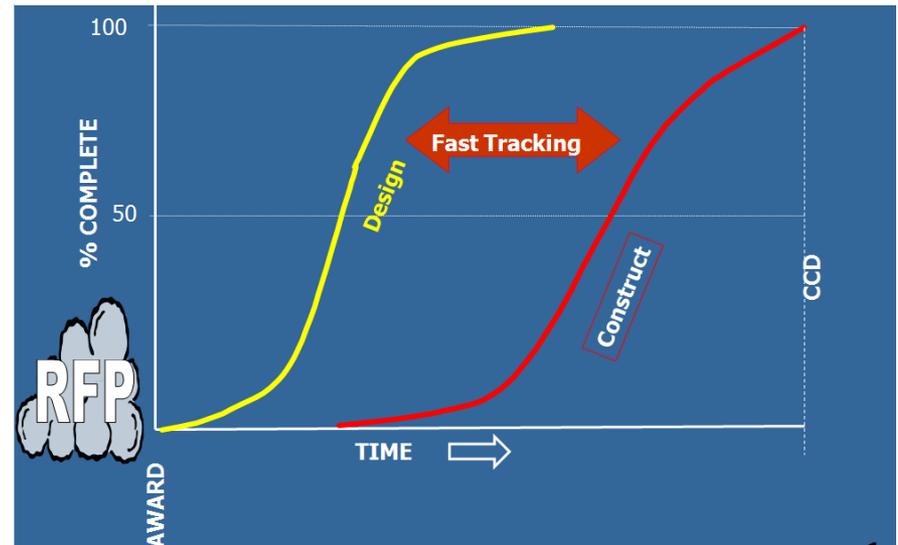
# Methods of Design/Construction 3

- **Design-Build** – Special Act (10 U.S.C. 2305a and 41 U.S.C. 3309)
  - Requires Contracting Officer determination of appropriate method (FAR 36.301)
  - Result is a Construction Contract - See FAR 36.209 Designer cannot bid on their own work; FAR 9.501 Organizational Conflict of Interest
  - Selection: Two Phase Source Selection FAR 36.301(b)
  - Awarded using FAR Part 15 procedures
    - the design is a “submittal” item;
    - Designer of record is the agent of the construction firm

# Design-Build Example



## Design-Build Method



## Design Competition (FAR 36.602-1)

- May be used when agency head approves and:
  - Unique situations involve prestige projects
  - Sufficient time is available
  - Design competition with it costs - benefit the project
  - Discussions with at least 3 highly qualified firms





## Why are Design and Construction Different?

- Every building is a prototype, with a unique design, developed to meet the specific needs of the client by licensed professionals
- Each is assembled in-place by a project specific team of tradesmen from the laborer to the master craftsmen
- Each project has a long life, but only gets built once. Must be right the first time through.
- Materials include both generic, commercially available items and custom-built (and custom-designed) items.



# A-E Selection Process

- Public announcement for all architectural and engineering services
- Firms submit qualifications statements annually
- Firms selection based on demonstrated competence and qualifications
- Discussion with and a ranking of at least three firms in order of preference
- Negotiation with the highest qualified firm
- If a satisfactory agreement cannot be reached with firm number one, negotiate with firm number two in descending order until agreement
- Negotiate contracts for fair and reasonable prices
- Errors and omission – not an allowable cost Part 31 FAR



# A-E Pre-Award Actions

- Develop the performance work statement (PWS)
- Advertise the project
- Select the firm
- Prepare the government estimate
- Negotiate the contract



ARCHITECT-ENGINEER QUALIFICATIONS		OMB No.: 9000-0157 Expires: 11/30/2017
<small>PAPERWORK REDUCTION ACT STATEMENT: Public reporting burden for this collection of information is estimated to average 29 hours (25 hours for part 1 and 4 hours for Part 2) per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspects of this collection of information, including suggestions for reducing this burden, to U.S. General Services Administration, Regulatory Secretariat (MVCB)/IC 9000-0157, Office of Governmentwide Acquisition Policy, 1800 F Street, NW, Washington, DC 20405.</small>		
<b>PURPOSE</b>	<p>Federal agencies use this form to obtain information from architect-engineer (A-E) firms about their professional qualifications. Federal agencies select firms for A-E contracts on the basis of professional qualifications as required by 40 U.S.C. chapter 11, Selection of Architects Engineers, and Part 36 of the Federal Acquisition Regulation (FAR).</p> <p>The Selection of Architects and Engineers statute requires the public announcement of requirements for A-E services (with some exceptions provided by other statutes), and the selection of at least three of the most highly qualified firms based on demonstrated competence and professional qualifications according to specific criteria published in the announcement. The Act then requires the negotiation of a contract at a fair and reasonable price starting first with the most highly qualified firm.</p> <p>The information used to evaluate firms is from this form and other sources, including performance evaluations, any additional data requested by the agency, and interviews with the most highly qualified firms and their references.</p>	<p>pages submitted in Part I in response to a public announcement for a particular project. Carefully comply with any agency instructions when preparing and submitting this form. Be as concise as possible and provide only the information requested by the agency.</p> <p><b>DEFINITIONS</b></p> <p><b>Architect-Engineer Services:</b> Defined in FAR 2.101.</p> <p><b>Branch Office:</b> A geographically distinct place of business or subsidiary office of a firm that has a key role on the team.</p> <p><b>Discipline:</b> Primary technical capabilities of key personnel, as evidenced by academic degree, professional registration, certification, and/or extensive experience.</p> <p><b>Firm:</b> Defined in FAR 36.102.</p> <p><b>Key Personnel:</b> Individuals who will have major contract responsibilities and/or provide unusual or critical expertise.</p>



# Developing the PWS

- What do you want the A-E to do?
- What level of quality control provisions to you want?
  - Number of reviews (35%, 65%, 100%, etc)
  - Independent technical review
- Do you want A-E support after construction contract award?
  - RFI's
  - Contract Modifications
    - Fixed price area of interest (plumbing, structural)
    - Meetings
    - Submittal review, technical reviews, construction rev.

- Highlight important aspects of the performance work statement in the advertisement
  - Contractor quality control
  - Evaluation criteria
- How are you going to determine the best firm?
  - Quality control
  - Experience on similar type/complexity of work
  - Past performance (CPARS evaluations)

## Government Estimates

- Quality costs
- Reviews
- Level of experience

## Negotiations

- Negotiate experience
- Additional hours during reviews
- Post award support



## Post Award

- Post Award/Partnering Conference
- Clear Communications
- Be Proactive
  - A-E Guide
    - USACE A&E Contracting Manual (EP 715-1-7)
    - NAVFAC A&E Guide
  - Design Criteria
  - Local Regulations
  - Site Access
- Responsibility as the “Most-Highly Qualified”

- During Design
  - Communications
  - Review of submittals
  - Monitoring and feedback
  - File Documentation
- Design Completion
  - Specifications Review
    - Unified Facilities Guide Specifications (UFGS)
  - Design constructability

## Short Selection Process

- Less than simplified acquisition threshold (\$200,000)
- Two Methods:
  - Selection by the Board
    - Approves own report
  - Selection by Chairperson
    - Report approved by a selection authority



# What does the A-E need?

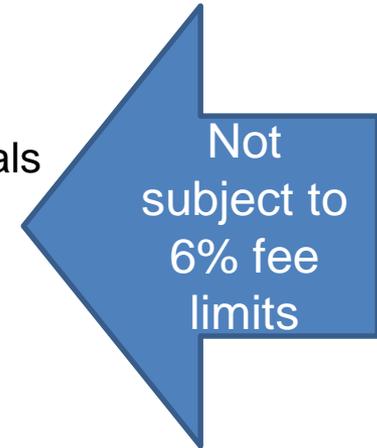
- Provide access for the A/E to government data sources:
  - Installation Design Criteria/Master Plans
  - As-built drawings
  - Unified Facility Criteria (UFC)
  - Guide Specifications
  - DoD Index of Specifications and Standards (if applicable)
- Site Access
- A-E Responsibility: Errors and Omissions are responsibility of the A-E.



# A-E Fee - Preparing Estimates

- Separate design services from engineering services. For **design services**:
  - Title I: the fee “for production and delivery of designs, plans, drawings and specifications ***shall not exceed 6%*** of the estimated cost of construction...”
  - Includes designs, plans, drawings and specifications
  - “Putting ink to the paper” in actual plans
- Engineering services are NOT subject to the 6% limitation

- Engineering services include:
  - Site investigations
  - Surveys
  - Preparation of Operation and Maintenance Manuals
  - Subsurface investigations
  - Investigations of an existing facility
  - Preparation of As-built drawings
  - Per Diem
  - Presentation materials
  - Testing
- What to look for in the estimate or proposal:
  - Claiming “design services” are engineering services (thereby possibly gaining more fee on design services)





# Estimating Tools



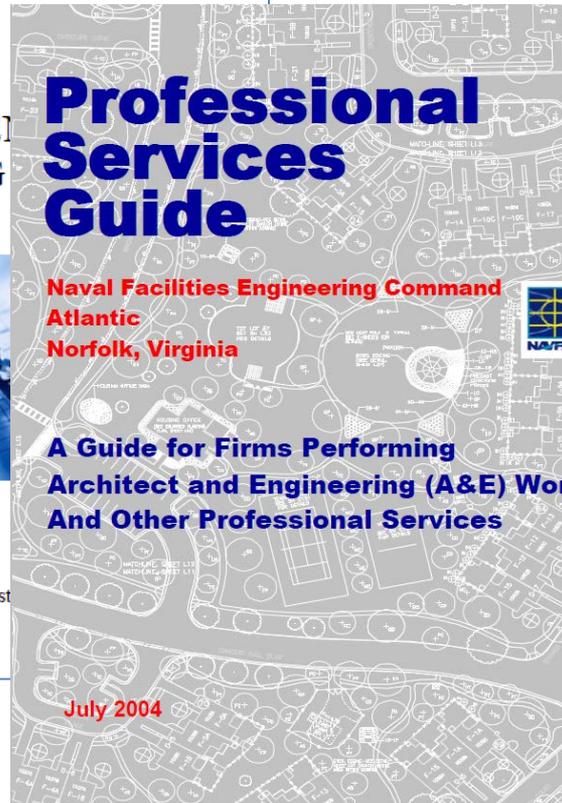
US Army Corps  
of Engineers.

EP 715-1-7  
30 August 2011

ARCHITECT-ENGINEERING  
CONTRACTING



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Cost Engineering Policy and Procedures

Version 07/2013

7/12/2013

NAVFAC uses SuccessEstimator™ as the detailed Cost Estimating Tool. For approved NAVFAC users, licenses and related databases are available from the NAVFAC Chief Cost Engineer's office. AE firms should contact USCost directly for pricing and procurement information on the software and any accompanying databases. NAVFAC does not provide SuccessEstimator to its AE contractors.

- **Part I, General**
  - Applicable references for the specifications
  - General project description of the project
  - Submittals, drawings or matters of safety
- **Part II, Products, Materials**
  - Required descriptive information of products or material
- **Part III, Execution**
  - All information concerning installation, testing, inspection required by each discipline

The official site: Whole Building Design Guide

FAR 36.104 ([http>www.wbdg.org](http://www.wbdg.org))

- Gateway for official information regarding design and constructing facilities
- Valuable resource for “design objectives”
  - Accessibility, aesthetics, cost effective design, functional requirements, historical preservation, productivity, security and sustainable design
- Contains information on “building types”
  - Armories, aviation facilities, educational facilities, libraries, office buildings, parking facilities, warehouses and building products
- Online access to all Construction Criteria Base (CCB)
  - Unified Facilities Criteria (UFC), Unified Facilities Guide Specifications (UFGS); Performance Technical Specifications (PTS); and, design manuals, criteria, standards and codes

- Clarity of contract documents
  - Completeness
    - Do drawings match existing conditions?
  - Availability of:
    - Labor force with required skills?
    - Required equipment and materials?
    - Adequate work space?
    - Sufficient time?
  - Typically conducted by the construction administration office

- Many sample constructability review checklists are available:

2013

## BCOES Checklist – D-B-B Method

Project Title & Location:

Project Review Phase:

Date of Documents Reviewed:

Reviewer Name & Phone:

Review Date:

	Item Number		Section for Review	Y	N	NA
DENT OFFICE	1	Do plans and specs incorporate the customer's stated needs and objectives?	R			
	2	Does the acquisition strategy and method of delivery appear appropriate for the project?	R			
	3	Is scope of construction clear in the project plans and specs?	R*			
	4	Are special installation requirements for the Government and/or the Contractor appropriately addressed?	R*			
	5	Is construction phasing clear, feasible, and appropriate?	R			
	6	Is the size and configuration of proposed facilities expected to function as intended and meet stated project requirements? Mission goals?	R			
	7	Can the quantity of all items be estimated and verified?	R*			
	8	Are the CLINs consistent in the Bid Schedule?	R			
	9	Are the CLINs appropriately linked to specification sections and definable features of work in the contract?	R			
	10	If options are included, are limits of work associated with each bid option clearly defined?	R*			



US Army Corps of Engineers



JBLM BCOES CHECKLIST



# Design Quality Control

- Contractor is responsible for quality control of their design
- Government provides quality assurance
  - Checklists are typically used by NAVFAC/USACE offices for design reviews.

- Review of the construction contractor's submittals, such as shop drawings, catalog cuts, manufacturers' certificates, samples and literature
- Consultations during construction
- Preparation of operation and maintenance manuals
- Preparation of as-built or record drawings
- Evaluation of value engineering change proposals (VECPs) proposed by the construction contractor
- Construction surveillance and inspection services



# Contract Clauses

## A-E Payments Clause, FAR 52.232-10

- Estimates for work accomplished monthly (based on voucher)
- COR/COTR reviewed/supported
- Pay 90% approved amount
  - Or 100% if justified
- FFP contract
  - No payment on milestones (e.g., 35%, etc.)  
it is payment for progress (earned value)

- Design Within Funding Limitations, FAR 52.236-22
  - Design must allow award at price not exceeding estimated construction cost
  - If over ECC, KTR redesigns at no cost
  - We state estimated construction cost



## Contract Clauses 3

- Responsibility of the A-E KTR, FAR 52.236-23
  - (1) Professional Quality
  - (2) Technical Accuracy
  - (3) Coordination
  - For all designs, drawings, specifications, and services
  - A-E Liability – 6 years (FAR 33.206(b))



# Contract Clauses 4

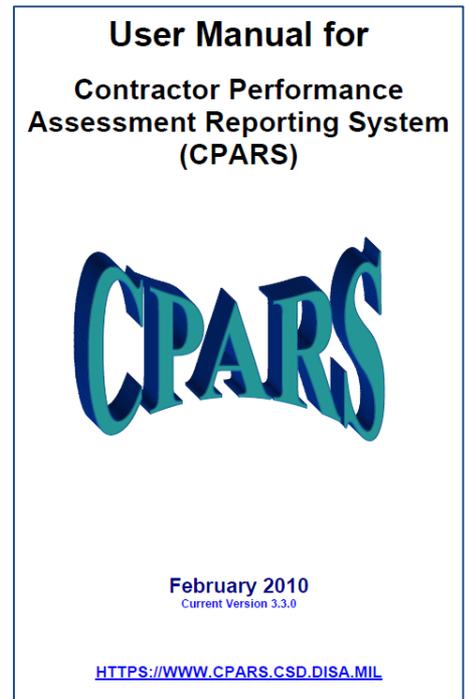
- Subcontractors and Outside Associates and Consultants, FAR 52.244-4
  - Must have KO written consent to change
  - What about A-E firm personnel?



# Contract Clauses 5

- Government Rights (Unlimited), DFARS 252.227-7022
  - Unlimited rights in dwgs, design, specs, notes, etc... for project
  - Gov't may use for any other project with no additional A-E compensation
  - Gov't has paid-up license throughout world

- Honest evaluation of an Architect Engineer firms performance is critical
  - Recognize outstanding work
  - Document poor performance to prevent under performing firms from obtaining additional government work
- All designs are great before construction begins – post construction evaluation is critical



End