

FOREWORD

The Unified Facilities Criteria (UFC) system is prescribed by MIL-STD 3007F and provides planning, design, construction, sustainment, restoration, and modernization criteria, and applies to the Military Departments, the Defense Agencies, and the DoD Field Activities in accordance with USD (AT&L) Memorandum dated 29 May 2002. This UFC is to be used for DoD projects and work for other customers where appropriate. All construction outside of the United States is also governed by Status of forces Agreements (SOFA), Host Nation Funded Construction Agreements (HNFA), and in some instances, Bilateral Infrastructure Agreements (BIA.) Therefore, the acquisition team must ensure compliance with the more stringent of the UFC, the SOFA, the HNFA, and the BIA, as applicable.

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CHAPTER 1 INTRODUCTION

1-1 PURPOSE AND SCOPE

This (UFC) provides guidance on the preparation of design/build (D/B) alternate procurement contracts for airfield pavement construction projects. D/B is a method of project delivery in which the design and construction phases of a project are combined into one contract and awarded on either a low bid or best-value basis. Procurement is achieved through a single process by integration of design and construction into one overall project team. The methodology requires only one procurement phase, the guaranteed maximum price of the project is known, and fast tracking is accomplished by performing design and construction activities in parallel. D/B projects also allow for greater private sector participation in the delivery of transportation projects.

1-2 APPLICABILITY

This UFC establishes guidelines for the use of D/B for procurement and applies to all service elements and contractors preparing D/B contract documents.

However, the technical requirements recommended for inclusion in an airfield D/B project may not be applicable for projects outside the United States. Request for Proposal (RFP) preparers for such projects should base the technical requirements in the RFP on the appropriate International Civil Aviation Organization (ICAO), North Atlantic Treaty Organization (NATO), Air Standardization Coordinating Committee (ASCC), and national criteria to assure a project that can be constructed using local materials and techniques. However, the overall objectives described herein should guide overseas RFP preparers to produce a D/B RFP that reduces risks for both the Government and Contractor. When the Air Force constructs an airfield in a foreign country, the United States obtains a base rights agreement. This is an agreement of the foreign state, but not by the Air Force. The provisions of the base rights agreement must be observed, and they may require that the construction be done according to the standards of the host country. Under such an agreement, and regardless of the conformity of the international standards with the standards of the host country, the host country must approve all plans.

1-3 REFERENCES

Appendix A contains a list of references used in this UFC.

1-4 CONTENT AND FORMAT

D/B is a method of project delivery in which the design and construction phases of a project are combined into one contract and awarded on either a low bid or best-value basis. D/B projects allow for greater collaboration between the designer and contractor in the delivery of airfield pavement projects.

The intent of this document is not to discuss the D/B process but to provide guidance for the preparation of an RFP and ultimate contract award for an airfield D/B project. Discussion of the D/B contracting process is included in TI 800-03 and *Guidance for Firm Fixed-Price Design-Build Construction Contracts*. The first two chapters of TI 800-03 provide information regarding D/B contracting.

The technical portions of *Guidance for Firm Fixed-Price Design-Build Construction Contracts* are based on building projects (vertical construction) more than site work (horizontal construction). However, there are parts that address contractual, proposal evaluation, and award criteria that are pertinent to D/B contracts for airfields.

1-4.1 Advantages of D/B methodology

- Single point accountability for agency
- Opportunities for increased efficiency in procurement and construction
- Reduction in construction time
- Access to private sector experience
- Opportunities for innovation and cost savings
- Transfer of delivery risk to the private sector
- Fewer construction claims

1-4.2 Disadvantages of D/B methodology

- Best value and qualification-based selection is not conventional for most construction contracts
- Agency does not have a direct relationship with the designer
- Not all projects are suitable for D/B
- Lack of understanding of risk transfer between the agency and D/B contractor could lead to higher project costs
- Due to reduced agency quality assurance (QA), a longer warranty may be appropriate
- Compressed schedule may require quick agency approval of submittals

D/B projects move from conception to commission much faster than the traditional design/bid/build (D/B/B) process. Procurement is achieved through a single process by integrating design and construction into one overall project team.

This UFC presents guidelines for the use of D/B procurement for airfield construction in a 6 step process to carry a project from conception to completion. The UFC allows sufficient flexibility to permit modifications to suit local materials, methods, and requirements. Agencies contemplating D/B should ensure that the appropriate modifications are identified as part of the RFP design criteria to ensure that appropriate methods and materials are identified.

The most prevalent procurement practice for selecting design firms and contractors for airfield (and highway) projects have been the sequential design/bid/build (D/B/B) process. The D/B/B method requires that agencies design the project, either in-house or by contract, and then advertise the project to potential construction contractors. Once the design is approved, the agency enters into another contract with the lowest bidder for the construction of the project. Under the traditional D/B/B method, the design must be completed before the project is advertised.

CHAPTER 2 DESIGN-BUILD GUIDELINES

2-1 INTRODUCTION

This UFC is a guideline for airport agencies considering D/B procurement for airfield pavement rehabilitation and construction. Figure 1 is a project flow chart that outlines the various steps in developing D/B procurement, and each step is defined with action items and supporting reference documents. The steps are described in the subsequent sections.

2-2 SUITABILITY OF THE PROJECT FOR D/B PROCUREMENT

Large airfield projects may be up to 3 years in the planning and funding stages, particularly due to the preparation of environmental documentation. Agencies should not move forward with design until all environmental related approvals are in place.

To determine the suitability of a project for D/B, the key factors specific to the project should be considered. Typically, these factors are divided into primary, secondary, and other considerations which may impact the decision to use D/B for a particular project.

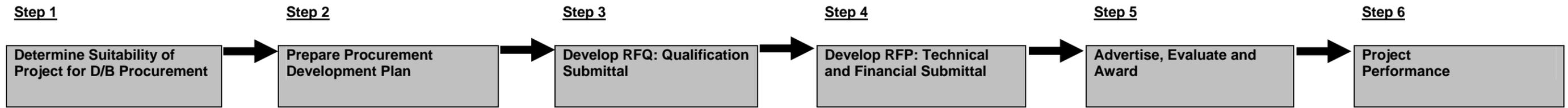
2-2.1 Primary Considerations (Deal Breakers)

- Time constraints for project delivery
- Status of environmental approval
- Availability of funding
- Well defined scope

2-2.2 Secondary Considerations (Advantages of Design/Build)

- Overall project complexity
- Complexity of performance requirements
- Project size
- Availability of qualified teams
- Agency experience and resources
- Cost of the project
- Degree of team collaboration
- Number of contracts
- Allocation of risks
- Interest in innovation

Figure 1. The Six-Step D/B Methodology



ACTION ITEMS										
1. Define/establish project requirements and scope 2. Evaluate deal breakers 3. Complete suitability matrix		1. Complete strategic planning 2. Develop project description 3. Assess risk 4. Choose selection method 5. Agency's team 6. Create knowledgeable selection panel 7. Develop schedule and planning budget		1. Establish Prequalification requirements 2. Disclose selection criteria and weighting scheme 3. Determine requirements for financial capacity 4. Shortlist qualified firms		1. Balance responsibility/risk in contract language 2. Disclose project budget 3. Consider a stipend and guidelines for use of intellectual property 4. Establish design guidelines 5. Confirm subcontracting and disadvantaged business requirements 6. Define operational requirements 7. Prepare performance based criteria/specifications 8. Provide background information 9. Limit design direction 10. Confirm financial guarantees 11. Consider management plans including quality management 12. Define bonding and insurance 13. Establish and disclose warranty and performance measures		1. Arrange bidder meetings and answer questions 2. Evaluate proposal submissions 3. Separate evaluation of price and qualitative issues 4. Hold bidder presentations 5. Use of documents or design concepts from unsuccessful proposers 6. Award contract		1. Hold chartering sessions 2. Review documents and approval procedures 3. Undertake auditing/monitoring 4. Final acceptance 5. Dispute resolution
GUIDANCE										
IPRF Report 01-G-002-06-1		IPRF Report 01-G-002-06-1 UFC 3-26-11FA FAR Part 36 49 USC 47142		IPRF Report 01-G-002-06-1 FAA AC 150/5370-10 UFC 3-26-11FA FAR Part 36		IPRF Report 01-G-002-06-1 UFC 3-26-11FA UFC 3-260-02 FAA AC 150/5320-6D FAR Part 36 UFC 1-300-07A		IPRF Report 01-G-002-06-1 UFC 3-26-11FA FAR Part 36		IPRF Report 01-G-002-06-1 UFC 3-250 Series UFGS Master Series

2-2.3 Other Considerations (Risk Transfer)

- Airside security
- Operational constraints
- Utility relocations
- QA/QC responsibilities
- Weather conditions
- Performance guarantees/warranties
- Design reviews/approvals
- Impact of unknown site conditions
- Ability to pay stipend
- Ownership of intellectual property

The primary considerations are those that would have an overriding influence on the decision to move forward with the project. The secondary considerations have a lesser influence and usually are taken into account when there are no overriding considerations or one type of contracting mechanism is not clearly superior for the particular project. Other considerations may have some influence on the procurement type decision but would not preclude the use of D/B. The primary considerations are weighted the highest to reflect their importance in moving forward with the project and the D/B procurement method. This is not an exhaustive list, but rather reflects a sampling of needs and expectations. Other constraints and project-specific considerations should be added or deleted as necessary. The individual weighting of the considerations should be modified to reflect local agency needs and expectations. In order to assist in evaluating the suitability of projects for the D/B procurement method, a project suitability matrix (template) was developed. The matrix includes the considerations outlined above with appropriate weighting factors for each group. Within each group, the individual consideration items also are given weighting factors. Each factor is assessed using specific criteria of the agency's needs and expectations for the project. Once the factor is rated, the total scores are summed on a scale of 0 to 100. If the score totals less than 50, the project is not considered a good candidate for D/B procurement. Between 50 and 65, the project can be considered for D/B. Scores over 65 indicate that the project is well suited for D/B.

2-2.4 Example Screening Matrix

An example of a screening matrix is shown in Table 1. The primary considerations have been given a category weighting of 50 points; the secondary considerations are weighted at 35, and other considerations are weighted at 15. When considering the primary factors, there was a preference to accelerate the project delivery. To accelerate project delivery, this example considered that the record of decision and environmental approvals were in place, the funding was committed, and the scope of the project was generally defined. These items were selected as primary considerations because this project could not proceed in a timely manner without them.

Table 1. Example D/B Screening Matrix

A. Primary Considerations

Part A Weighting: 50

(Deal Breakers)

Consideration	Rating	Weighting	Weighted Value	Weighting Guidelines		
				Low	Medium	High
Time constraints for project delivery	Medium	25.0	15.0	Sufficient time for standard procurement	Need to accelerate project delivery	Insufficient time for standard delivery
Status of environmental approvals	High	25.0	25.0	Not started	Underway	Complete
Availability of funding	High	25.0	25.0	Unknown	Multiple funding periods/sources	Funding in place and available
Well defined scope	Medium	25.0	15.0	Concept only	Scope needs refinement	Clearly defined scope
Total		100.0	80.0			
		Weighted Total:	40.0			

B. Secondary Considerations

Part B Weighting: 35

(Advantages of Design/Build)

Consideration	Rating	Weighting	Weighted Value	Weighting Guidelines		
				Low	Medium	High
Overall project complexity	High	10.0	10.0	Simple project	Moderate complexity	Significant complexity
Complexity of performance requirements	High	10.0	10.0	Performance requirements unknown	Performance requirements established	Performance requirements known
Project size	High	10.0	10.0	< \$ 1 million	\$1 to \$ 5 million	> \$5 million
Availability of qualified teams	Medium	10.0	6.0	< 3 possible bidders	3 to 5 possible bidders	> 5 bidders
Owner experience and resources	Medium	10.0	6.0	First design/build project	Some experience	Significant experience
Cost of project	Medium	10.0	6.0	No fixed budget	Some budget flexibility	Fixed budget
Degree of team collaboration	High	10.0	10.0	Unknown teaming arrangements	May know some team members	Owner familiar with the teams
Number of contracts	High	10.0	10.0	Many separate small contracts	Several contracts but manageable	One overall contract
Allocation of risks	Medium	10.0	6.0	Owner retains majority of risk	Risks shared between owner and D/E	Transfer majority of risk to D/B team
Interest in innovation	High	10.0	10.0	Low	Medium	High
Total		100.0	84.0			
		Weighted Total:	29.4			

C. Other Considerations

Part C Weighting: 15

(Risk Transfer)

Consideration	Rating	Weighting	Weighted Value	Weighting Guidelines		
				Low	Medium	High
Airside security	Medium	10.0	6.0	Airfield operations area work	Some airfield operations area work	Non airfield operations area work
Operational constraints	Low	10.0	2.0	Significant operational constraints	Some operational constraints	No operational constraints
Utility relocations	Low	10.0	2.0	Significant utility relocations	Some utility relocations	Minimal utility relocations
QC/QA responsibilities	Medium	10.0	6.0	Owner's responsibility	Shared responsibility	Design/build entity responsibility
Weather conditions	Low	10.0	2.0	Owner takes all weather related risk	Some weather risk transfer	Weather risk transferred to D/B team
Performance guarantees/warranties	Medium	10.0	6.0	Short term coverage	Medium term coverage	Long term warranties
Design reviews/approvals	Low	10.0	2.0	Significant design review required	Moderate owner review required	Short turn around/minimal review
Impact of unknown site conditions	Low	10.0	2.0	Owner's risk (geotech by owner)	Risk shared	D/B team risk (geotech by D/B)
Ability to pay stipend	Medium	10.0	6.0	Cannot pay stipend	Unknown	Can pay stipend
Ownership of intellectual property	Low	10.0	2.0	Significant intellectual property	Some intellectual property	No intellectual property
Total		100.0	36.0			
		Weighted Total:	5.4			

Sub Totals

A. Primary Considerations	50	40.0
B. Secondary Considerations	35	29.4
C. Other Considerations	15	5.4
Grand Total	100	74.8
Decision		Yes

Decision Range		
From	To	D/B Applicability
0	50	No
50	65	Can Consider
65	100	Yes

The secondary considerations are items that can define the benefits of D/B procurement, such as a single contract, agency experience with D/B, overall project complexity, and the like. The other considerations are largely risk-related items that the agency would consider as risk transfer elements.

2-3 PREPARE PROCUREMENT DEVELOPMENT PLAN

The procurement development plan includes a variety of information that ensures the agency has prepared a blueprint for the project and establishes core guidelines for the delivery of the project.

2-3.1 Strategic Planning

Current and future airside requirements are assessed to determine the general facility development for the agency. Inputs for the strategic planning may include the facility master plan, airfield pavement management system reports, structural evaluation reports, maintenance data, airfield operations input, and traffic forecast. For specific projects, the relevant environmental documents should be completed and approved.

2-3.2 Project Description

The agency establishes the project requirements in terms of project limits, design and performance criteria, quality standards, applicable codes, regulatory standards, and other such factors. The project description outlines the agency's expectations of key physical aspects. The project description also identifies the available funding, expected design work, construction work, prospective schedule, technical criteria, project constraints (environmental, third party involvement, etc.), and warranty considerations, and summarizes the selection process and scoring. The project description also should identify important project issues that are not readily apparent through the technical requirements.

2-3.3 Risk Management

The D/B concept shares risk between the agency and the D/B team. The areas of risk should be well defined so that the D/B team understands their responsibility for risk. The agency normally maintains responsibility for high-risk areas throughout the duration of the contract. If differing site conditions pose increased risk due to such issues as unforeseen ground conditions, hazardous materials, underground utilities, archeological sites, endangered species, or other environmental concerns, the agency should accept responsibility unless specified otherwise in the contract. The D/B team may or may not be asked to perform the associated work under a change order.

An effective way to identify and allocate the risks associated with a project is through the use of a risk allocation matrix, such as the one shown in Table 2. (Table 2 is for illustration purposes only; each project should have its own detailed risk assessment.)

Table 2. Example Project Risk Allocation Matrix¹

RISK ²	Design/Build	
	Agency	D/B Team
Design Issues		
Definition of Scope	X	
Project Definition	X	
Establishing Performance Requirement	X	
Preliminary Survey/Base Map	X	
Geotechnical Investigation - Initial Borings based on Initial Design	X	
Geotechnical Investigation - Initial Borings based on Proposal		X
Establish/Define Initial Subsurface Conditions	X	
Initial Geotechnical Analysis Report based on Preliminary Design	X	
Proposal-specific Geotechnical Analysis/Report		X
Plan Conformance with Regulations/Guidelines/RFP		X
Plan Accuracy		X
Design Criteria	X	
Conformance to Design Criteria		X
Design Review Process		X
Design QC		X
Design QA		X
Agency Review Time	X	
Changes in Scope	X	
Constructability of Design		X
Contaminated Materials	X	
Local Agency and Utility Issues		
Identification of Initial Local Agency Impacts	X	
Obtaining Initial Local Agency Permits	X	
Establishing Local Agency Requirements	X	
Establishing Final/Actual Local Agency Impacts		X
Modifications to Existing Local Agency Permits		X
Identification of Initial Utility Impacts	X	
Establish Initial Utility Locations/Conditions	X	
Defining Required Utility Relocations	X	
Relocation of Utilities Prior to Contract	X	
Relocation of Utilities Under Agreement During Contract		X
Modified Agreement With Private Utility		X

Table 2. Example Project Risk Allocation Matrix¹

RISK ²	Design/Build	
	Agency	D/B Team
Damage to Utilities Under Construction		X
Verification of Utility Locations/Conditions		X
Coordination with Utility Relocation Efforts during Contract		X
Unforeseen Delays - Utility/Third Party	X	
Utility/Third Party Delays resulting from Proposal Modification		X
Other Work/Coordination		X
Third Party Agreements (Fed, Local, Private, etc.)	X	
Coordinating with Third Parties under Agreement		X
Coordination/Collection for Third Party Betterments		X
Coordination with Other Projects		X
Coordination with Adjacent Properties		X
Construction		
DBE Compliance		X
Safety/Safety QA		X
Construction Quality/Workmanship		X
Schedule		X
Materials Quality		X
Materials Documentation		X
Material Availability		X
Initial Performance Requirements of QA Plan	X	
Final Construction/Materials QA/QC Plan		X
Construction/Materials QA		X
Construction QC		X
Construction QA Procedural Compliance Auditing	X	
Construction IE Testing/Inspection	X	
Construction Layout		X
Erosion Control		X
Spill Prevention		X
Accidents within Work Zone/Liability		X
Third Party Damage		X
Operations and Maintenance During Construction		X
Maintenance under Construction		X
Airside Operations		X
Damage to Utilities under Construction		X
Falsework		X

Table 2. Example Project Risk Allocation Matrix¹

RISK ²	Design/Build	
	Agency	D/B Team
Construction		
Shop Drawings		X
Equipment Failure/Breakdown		X
Work Methods		X
Early Construction/At Risk Construction		X
Community Relations	X	
Performance of Defined Mitigation Measures		X
Warranty		X
Force Majeure/Acts of God		
Strikes/Labor Disputes – On-site Labor		X
Tornado/Earthquake/Hurricanes	X	
Epidemic, Terrorism, Rebellion, War, Riot, Sabotage	X	
Archaeological Discovery	X	
Suspension of any Environmental Approval	X	
Changes in Law	X	
Lawsuit against Project	X	
Storm/Flooding	X	
Fire or Other Physical Damage	X	
Differing Site Conditions/Changed Conditions		
Changed Conditions	X	
Differing Site Conditions	X	
Completion and Warranty		
Establishment/Definition of any Risk Pool	X	
Long term Ownership/Final Responsibility	X	
Insurance		X

1. For illustration purposes only; each project should have its own detailed risk assessment. Light shaded items are typically high risk/high cost and should be defined as well as possible.

2-4 SELECTION METHOD

Three common approaches to selecting a D/B entity are:

- Low bid – selection based on the lowest construction bid
- Best value – combination of a weighted technical approach and low bid
- Qualifications-based – the construction bid is not a factor in the final selection

The two-step best value bid has become the preferred approach, where the first step consists of an evaluation of bidder qualifications and the second step involves the evaluation of the technical and financial submissions of a shortlisted group of bidders. Some agencies may not be able to use best value or qualifications-based selection because of legislatively mandated low bids only.

2-4.1 Bid Evaluation

A number of different methods can be used to evaluate best value and qualifications-based bids:

- Pass/fail
- Modified pass/fail
- Qualitative rating
- Direct points scoring

The pass/fail method uses a list of evaluation criteria that the proposers either meet or do not. If they do not meet the criteria, the bid may be disqualified. The modified pass/fail method allows some “gray area” where a reviewer may pass a bid if the majority of the criteria are met and the others are close to being met. The qualitative rating uses a system such as good, fair, poor to rank the submissions. The direct points scoring method assigns points to each rating criterion, with a minimum number of points considered acceptable to move forward in the bidding process. Each method has advantages and disadvantages, and the agency needs to determine which method best suits its needs for a given D/B project.

2-4.2 Project Optimization

D/B presents a unique opportunity to optimize price and other issues. The most effective selection results from a competitive process that balances first cost with life cycle costs, design aesthetics, maintenance/operational costs, and other project-specific qualitative and efficiency factors. Information published by the Design-Build Institute of America indicated that D/B selection is based more on the technical submission than on price, typically weighted 60/40 toward the technical submission. Current trends indicate this continues to be the case.

2-5 AGENCY TEAM

Depending on the selection method, the agency will need to identify both internal resources and any external supplemental resources used for its project management team.

2-6 ROLES OF GOVERNMENT AGENCY AND D/B TEAM

In the development stage, the agency oversees the development of the design criteria, the contract documents, and the procurement process. During the design and construction phase, the agency is responsible for controlling the process through design review, notices to proceed, monitoring contract compliance and schedules, processing progress payments, performing QA overview, negotiating contract amendments, and resolving disputes. Technical submittals will require review by the agency for conformance to the technical criteria and contract terms. The agency needs to verify progress payment submissions by the D/B team. With respect to QA, the agency needs to monitor compliance with the contract documents and verify the contractor's compliance with the project quality control plan.

The agency's team must be developed to ensure rapid review and processing to avoid schedule impacts to the D/B team.

There are no inherent "design/build" roles and responsibilities simply because a contract is called design/build. To increase the probability of a successful D/B contract, it is necessary that both the Agency and D/B contractor have a clear understanding of their respective roles, responsibilities, and risks. The general descriptions of the D/B roles in paragraphs 2-6.1 and 2-6.2 may change to meet the requirements of individual projects.

2-6.1 Agency Role

The role of the agency is to:

- Clearly establish the roles of the Agency and D/B Contractor in the RFP.
- Express the intent of the design and provide an adequate and complete facility design/construction scope and criteria in the RFP.
- Establish execution requirements (e.g., customer schedule, customer operations, and any constraints on Contractor work, Contractor submittals, permits, special work acceptance requirements) and identify appropriate requirements in the RFP.
- Monitor design and construction during the project implementation for contract compliance.
- Respond quickly to the design and construction needs of the Contractor to avoid slowing down or otherwise impeding the Contractor's schedule.
- The Agency must not assume responsibility for the design adequacy by "approving" design or construction submittals, except to approve requested deviations from the contract when acceptable and appropriate. The Agency's role changes from reviewing designs and submittals for technical adequacy for D/B/B projects to reviewing for conformance with the contract on D/B contracts.

2-6.2 D/B Contractor Role

Whether the prime is the designer or contractor, or both (joint venture), its role in a D/B contract is expanded from the conventional D/B/B to include the following:

- Project management
- Integrated schedule for design and construction
- Extensions of designs
- Permit preparation (sometimes application)
- Cost control
- Material and equipment acquisition
- Construction
- Inspection and quality control
- As-built survey for acceptance and record purposes
- Training for operation and maintenance
- Turnover, warranty and record drawings.

The D/B Contractor employs the designer(s) of record (DOR). The DOR must personally ensure the integrity of all extensions of the designs and ensure that all equipment and materials meet the design criteria requirements. This is a D/B Contractor function, not a Government function, which is a significant role reversal from D/B/B contracting.

2-7 AGENCY D/B CONSULTANT

A qualified consultant/firm with adequate experience and expertise in airfield pavement and airside electrical design and construction may be engaged to assist in-house experience with defining, procuring, or administrating D/B projects. This role typically is called a D/B consultant or program manager. The agency's D/B consultant should be excluded from availability for any work with the D/B teams.

2-8 SUPPLEMENTAL TECHNICAL EXPERTS

Some agencies have sufficient expertise within their organizations to prepare the necessary documents and administer a D/B contract, but those without sufficient internal resources may need to use external consultants to provide specific subject matter expertise. These external consultants may be responsible for developing the request for proposals (RFP) technical documents, performance specifications, monitoring contract compliance, processing progress payments, performing QA activities, and assisting with the negotiation of contract amendments and disputes. Typically, technical submittals would be reviewed by the external consultants for conformance to the technical criteria and contract terms.

2-9 SCHEDULE AND PLANNING BUDGET

Many agencies choose the D/B procurement methodology because it can help to expedite the overall project delivery schedule. To realize this benefit, the agency needs to establish major procurement and construction milestone dates. In addition, the agency needs to have an understanding of the overall cost of the project for budget allocation.

2-10 DEVELOP REQUEST FOR QUALIFICATIONS

The professional, financial, and experience requirements for D/B teams and the general project parameters are articulated in a Request for Qualifications (RFQ) prepared by the agency, either in-house or by the agency's consultant or program manager. The RFQ should include an information session where the agency presents the general requirements of the project and their expectations.

2-10.1 Prequalification Requirements

The project is advertised and qualification statements are received in response to the RFQ. The qualifications of the D/B team are critical to success. The selection criteria needs to be well defined, and an evaluation method or rating system needs to be established for items such as experience, management, and so on. Large projects require bonding, and this may limit the number of firms that can qualify.

The two-stage process for D/B procurement is used to shortlist qualified D/B entities for receipt of RFPs and the opportunity to prepare a detailed proposal for the project. The key considerations of the RFQ are to establish the team's ability to complete the design and construction, the experience and past performance of the team and of key individuals, and the financial capacity of the team to undertake the project.

Below are some considerations that can be included when reviewing RFQ submissions:

- Team's understanding of the project
- Individual and corporate team members and experience with design/build
- Previous experience of team members working together
- Relevant design capabilities
- Specialized construction capabilities
- Experience with complex construction staging, airport operations, site conditions
- Safety record
- Key project team member availability and time commitment (project director, design manager, construction manager, quality manager, etc.)
- Quality control organization and performance
- Bonding record or proof of bonding ability

- Past contract performance (completion, liquidated damages, quality, claims, fines, schedule)
- Financial capability
- Understanding the local and political environment of the work location
- Project management and schedule control
- Risk management

Overly extensive proposal requirements are financially burdensome to the proposers, serve to discourage the participation of quality firms, and add unnecessarily to the agency's proposal review process. The quantity of proposal deliverables should be limited to the information necessary to judge competing proposals and to protect the agency's interest in the subsequent contract.

Care must be taken when establishing acceptable qualifications and experience. Raising the bar too high may preclude qualified individuals and firms that normally would be well qualified to undertake the assignment.

The RFQ submissions should be evaluated by a qualified evaluation committee. To ensure consistency in the evaluation process, some agencies have held training sessions for the committee members in advance of the review process.

The Federal Acquisition Regulation (FAR) suggests that the maximum number of firms shortlisted should be limited to five. However, in consideration of the effort required to respond to the RFP, consideration should be given to shortlisting no more than three.

2-10.2 Selection Criteria and Weighting

The basis for evaluating the proposal should be identified clearly in the RFQ/RFP documents. Specific evaluation criteria, or a fully defined point award system, will allow proposers to provide submissions that maximize benefits and optimize solutions to the agency's needs.

2-10.3 Requirements for Financial Capability

The RFQ should require submitters to provide some form of financial capability information. This may include a list of similar projects completed, bonding capacity backlog, equipment and staffing, and other information. This will help to ensure that the firms are capable of undertaking the project.

2-10.4 Shortlist Qualified Firms

The first stage of a two-step procurement process should limit the final competitors to a field of three best qualified D/B firms. Shortlisting more teams undermines the credibility of the process and discourages high-quality proposals.

The number of prospective bidders can impact the suitability of a project for D/B. If the agency anticipates fewer than three bids, alternative procurement should be considered if this would increase the number of bidders. If the number of proposers are five or less, then shortlisting is not necessary.

2-11 DEVELOP REQUEST FOR PROPOSALS

The RFP establishes the requirements, standards, and expectations for the project, and it should outline the agency's organization structure and how it integrates with the D/B team. Section 2-3 of TI 800-03 states that an RFP for a D/B contract should include proposal submission requirements, project requirements, criteria, and evaluation factors. The RFP should provide the framework and requirements necessary for offerors to submit proposals. The major parts of an RFP include:

- Instructions to Proposers
- Solicitation/Contract Form 1442
- Bidding Schedule
- Contract Clauses
- Special Contract Requirements
- Contract Completion Schedule and Phasing
- Contract Forms
- Proposal Submission Requirements
- Evaluation Factors for Award
- Design Criteria
- Specification Criteria
- Design After Award
- Review Process
- Construction

The extent of criteria in an RFP can range from minimal to full project definition. Each D/B project has unique features that will result in the use of different levels of detail in the RFP. Three general levels of RFP criteria can be used in the preparation of an RFP and are discussed in more detail in TI 800-03.

2-11.1 Nominal Criteria

The Agency states the purpose, function, and characteristics of the project and provides pavement designs. The D/B Contractor is then responsible to determine design parameters and detailed project definition which are submitted with the initial proposal. The Nominal Criteria option is not for airfield projects unless specifically approved by the Air Force major command (MAJCOM), Navy Engineering Field Division (EFD), or USACE Transportation Systems Center (USACE-TSC).

2-11.2 Partial Criteria

The Agency states the purpose, function, and characteristics of the project and also provides conceptual layouts and design parameters, pavement designs, and critical details. Partial Criteria includes sufficient detail for a general quantity take off. (The Partial Criteria option is the preferred option for airfield projects.)

2-11.3 Full Criteria

The Agency provides full project definitions, including a more comprehensive set of RFP drawings and project implementation requirements than is prepared for a Partial Criteria project. Full Criteria includes sufficient detail for a quantity take off. The Full Criteria option should be used only for special circumstances where Government preferences are extensive and mandatory and allow little or no flexibility for the D/B Contractor.

2-11.4 Balance Responsibility/Risk in Contract Language

D/B inherently imposes additional risk and responsibility upon the D/B entity. Contract language should not needlessly exacerbate this situation by attempting to pass the agency's legal risks and responsibilities on to the proposers. Examples of such unbalanced risk transfer include making the D/B entity responsible for certain types of zoning or environmental permits, concealed conditions, differing site conditions, third party delays over which it has no control, and other similar clauses. On the other hand, D/B may quite properly assign responsibility to the contractor for compliance with performance criteria, compliance with codes, design approvals and certain permits (except those under control of the agency), and adequacy of designs to meet expressed purposes.

The information that the agency provides in the RFP also will impact the allocation of risk. The agency should be aware that risk allocation may impact the cost of the project, as well as affecting the D/B entities' cost of developing technical submissions. For example, if the agency provides only limited or no geotechnical information, it may be necessary for the proposers to undertake their own geotechnical investigations in order to complete technical submissions. This not only impacts the costs to the proposers but also likely will impact operations and security at the facility.

2-11.5 Disclose the Project Budget

The D/B process can be useful for achieving budgetary goals. If there is a budget amount above which an award absolutely will not be made, this should be stated. Proposers have the right to know that funding is available for the project before investing the considerable resources that a D/B proposal requires.

2-11.6 Create Knowledgeable Selection Panel

The panel responsible for evaluating proposals should include individuals knowledgeable in the D/B process and the technical issues related to the project. The panel should consist of sufficient members with representative expertise reflecting the requirements of the RFP to ensure that a full and detailed technical evaluation of the selection criteria can be completed.

2-11.7 Consider Applicability of a Stipend

On large or complex projects, or where the quantity of documents required for submission of a proposal is relatively great, the agency should consider paying a stipend to unsuccessful proposers. While many firms may compete in the absence of such payments, excessive submittal requirements and preliminary design effort may discourage quality teams from participating. A stipend also is an indication that the agency is serious about awarding and receiving a quality project. A stipend in the order of 0.01 to 0.2 percent is considered typical. The value of the stipend should be commensurate with the work required to prepare the bid. Typically, smaller projects use a higher stipend percentage.

2-11.8 D/B Team Organization

One of the chief benefits of D/B is that the agency will deal with a single entity for both the design and the construction of the project. There is often a misconception that this means that the agency has relinquished control of the project. This is not the case, as agencies are still responsible for developing the project, contract administration, and quality assurance.

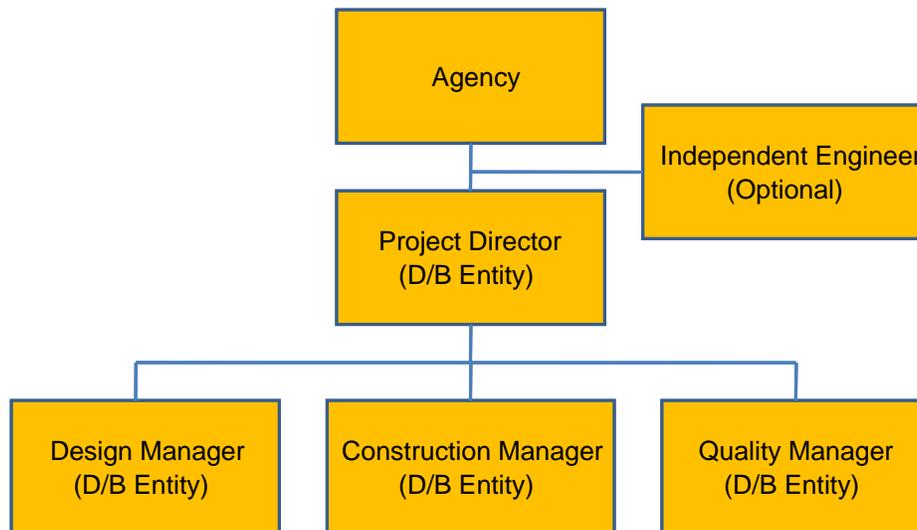
The D/B entity should be required to submit a management plan as part of the technical submission. The management plan should include details on the organization of the team, internal and external lines of communication, and levels of responsibility.

The internal structure of a D/B team generally takes one of two forms: designer-led or contractor-led. Project-specific joint ventures between a design firm and contractor have been used on some large projects. The distinction is in which entity assumes the greatest risk and liability. Many would argue that the risks typically associated in construction of a facility are higher than the design of a project, and therefore are best dealt with by a contractor-led team. A typical D/B organizational chart is provided in Figure 2. Typical Organization and Project Roles for D/B Projects.

The D/B entity assumes the combined risk of both the design and the construction of the project. Within the D/B team, roles and responsibilities must be clearly defined. Typically, professional liability insurances do not offer coverage for construction-related claims. This also would include indemnification and dispute resolution.

Many agencies have found that independent engineers (IE), retained by mutual agreement between the agency and the contractor, can fill the gap as the agency's agent. The IE can act as reviewer, provide overview, certify work completion and payment, mediate dispute resolution, etc. The IE's mandate should be defined clearly in the D/B contract. It is also very important to choose an IE who understands the D/B process and is willing to work with the D/B team to ensure that the technical requirements are met, and not to dictate design. Often, the cost of the IE is shared between the D/B entity and the agency, and it can be included in the D/B contract.

Figure 2. Typical Organization and Project Roles for D/B Projects



2-11.9 Design-Construction Team Experience

The RFP typically includes a section on construction team experience. D/B contracts should require information to be submitted in the proposal that addresses the experience of the D/B team. References and information relative to experience should be provided by the RFP offerors for those specific types of design and construction pertinent to the project, such as:

- Airfield pavement
- Airfield lighting and visual NAVAIDS
- Electronic NAVAIDS
- Aircraft fueling system

The specific different types of airfield design/construction for which information is needed should be stated in the RFP. The forms to be completed by the D/B Contractor outlining the D/B Team's experience as well as the experience records of key personnel should also be included.

2-11.10 General Design Guidelines and Mandatory Design Requirements

The project documents should outline general design guidelines and mandatory design requirements. General design guidelines would include the UFC design manuals, special agency design criteria, and any appropriate local and state design criteria. Mandatory design requirements would include aircraft design group requirements, aircraft traffic mix and frequency, design life, lighting and navigational aids requirements, etc. Appendix B provides some guidance on specification and drawing details for the RFP.

2-11.11 Subcontracting Requirements

The perception in the contracting community is that a small business cannot compete with larger companies on D/B projects. However, experience has shown that many large firms tend to subcontract to local companies. Further, in the acquisition process, many RFPs award points to technical proposals that have a balanced approach to subcontracting. Agencies that encourage, or have mandated, participation of disadvantaged business enterprises (DBE) should include these requirements in the RFQ/RFP process. Depending on agency preference, points may be awarded to proposers that commit to the minimum requirements.

2-11.12 Operational Requirements

The RFP documents must outline operational requirements for the project. This includes access to the site, available working times, security requirements, restrictions on proximity to live surfaces, height restrictions, noise, etc.

2-11.13 Use of Performance-Based Criteria/Specifications

The technical requirements listed in the RFP should, as far as possible, be defined in performance terms. They should be sufficiently comprehensive to ensure that the intended result is achieved, but not restrictive in a way that would inhibit creative solutions and best value.

The agency should identify the specifications and standards that are to be followed for the project and the limitations for changes to the specifications that would be accepted. The standard project specifications should be of sufficient detail to ensure that the agency's requirements for construction quality are met. The specifications should not be modified without the express approval of the agency.

2-11.14 Agency Provided Information

The agency needs to provide adequate information to the bidders to permit the completion of a preliminary design and costing. This information may include:

- Topographical survey
- Geotechnical investigation (including laboratory testing)
- As-built plans (existing electrical, underground utilities)
- Performance documentation
- Design criteria
- Airside layout
- Design requirements (life, aircraft mix, drainage, electrical, lighting, nav aids)
- Operational requirements
- Master plan
- Staging areas
- Access and security

There are two philosophies regarding the level of information that should be provided to the D/B team. One is to provide preliminary design-level information to define minimum requirements such as geometry, pavement type, minimum thicknesses, etc. The advantage of this approach is that the agency can dictate part or all of the design. The disadvantage is that the agency takes on more risk and limits innovation.

Alternatively, the agency can provide only base data from which the bidders must develop their own design to meet the project requirements. Typical base data would include a topographical survey, raw geotechnical information, as-built plans, and historical performance information. The advantage of this approach is that the agency minimizes risk through transferring the design liability to the D/B, but the disadvantage is that the agency has less control over the design.

There is a minimum amount of information that must be provided irrespective of the option chosen. This would include performance specifications, environmental approvals, geotechnical information, and topographical survey. To minimize the amount of disruption to airside operations, it is often impractical to allow each D/B team to undertake its own geotechnical investigation and topographical survey. Therefore, the agency may elect, schedule permitting, to solicit scope from the teams and consolidate this information into one overall information gathering plan. The resultant data from this investigation are then shared with all bidders. This is one option to transfer the risk from the agency to the prospective D/B teams.

Typically, information is provided to the preliminary (30 percent) design level. This information should state the purpose, function and characteristics of the project. This typically would include a project site plan, facility layout, geotechnical information, topographical information, performance specifications, pavement sections and critical details, airport master plans, and utility plans. An example of RFP content for drawings is provided in Table 3.

Guidelines for geotechnical investigations, including test types and frequencies for airside pavements, are provided in UFC 3-260-02 Pavement Design for Airfields dated 30 June 2001.

Table 3. Suggested RFP Content for Drawings

Drawing Description	Information Provided		
	Minimal	Partial	Full
Cover Sheet		X	X
Location Plan/Project Site Plan	X	X	X
Contractor Access, Storage, and Haul Routes	X	X	X
Horizontal and Vertical Control		X	X
Existing Topography (if available)		X	X
Existing Utilities		X	X
Demolition Plans		X	X
Runway Geometry w/Key Elevations		X	X
Taxiway Geometry w/Key Elevations		X	X
Apron Geometry w/Key Elevations		X	X
Typical Pavement Sections	X	X	X
Phasing Plans		X	X
Conceptual Drainage Plans			X
Conceptual Grading Plans			X
Conceptual Jointing Plan			X
Joint/Sealant Detail			X
Grounding Point Locations			X
Mooring Point Locations			X
Pavement Marking Plans			X
Visual Navigation Aids Location			X
Electronic Navigation Aids Location			X
Apron Lighting Plan			X
Electric Vault Location			X

If insufficient information is provided in the bid phase, the inherent risk of the D/B team increases significantly, and this risk is reflected in the bid price.

2-11.15 Limit Design Direction in RFP

Certain specific areas of design that are critically important to the agency—and that should not be compromised under any circumstances—should be stipulated in detail without reducing opportunities for full creativity elsewhere throughout the project. In general, limiting direction in design/construction will lessen the potential for D/B teams to achieve innovative solutions.

2-11.16 Use Lump Sum Contracts When Selection is Competitive

The contract for D/B services obtained competitively generally should be made on the basis of a lump sum fixed price. The use of guaranteed maximum or cost plus contracts when price was a factor in the initial award is inappropriate and fails to recognize the special risk position imposed on the competitors.

2-11.17 Requirements for Financial Guarantee

A requirement for proposers to submit bid bonds or other forms of financial guarantee assures the agency that the selected D/B team is financially capable of performing the work and reduces the possibility that unrealistic designs are submitted without financial risk for later withdrawing.

2-11.18 Project Management Plans

As part of the RFP submission, the D/B team typically is required to submit an outline of its project management plans. Once selected as the preferred bidder, detailed project management plans that govern all aspects of the delivery of the project must be delivered. The plans typically include:

- Mandatory Project Management Plans
 - Overall Management Plan
 - Design Management Plan
 - Construction Management Plan
 - Quality Management Plan
- Optional Project Management Plans
 - Environmental Management Plan
 - Safety Management Plan
 - Airfield Traffic Management Plan

Typically, these plans would follow the basic framework of the ISO guidelines. In essence, the plans establish the procedures to be followed, how they will be followed, and documentation that they have been followed. These are living documents that may be updated regularly during the course of the project. An example table of contents of a typical quality management plan is presented in Table 4.

2-11.19 Bonding and Insurance

Basic comprehensive liability coverage is typical in the construction industry and would include auto, employers, workers compensation, builder's risk, and excess liability. These policies typically exclude liability arising from design errors and omissions.

Table 4. Example Table of Contents for Quality Management Plan

PART 1 QUALITY MANAGEMENT SYSTEM

- 1.1 Quality Management System
- 1.2 D/B Team Responsibilities
- 1.3 Quality Management System Requirements
- 1.4 Certification
- 1.5 Documentation Deliverables
- 1.6 Timing of Implementation
- 1.7 Compliance with Quality Management System
- 1.8 Continuous Improvement in Quality Management System

PART 2 QUALITY DIRECTOR

- 2.1 Appointment and General Responsibilities
- 2.2 Specific Responsibilities

PART 3 TESTING

- 3.1 Testing Requirements
- 3.2 Accreditation Standards
- 3.3 Remedial Work

PART 4 QUALITY AUDITS AND MONITORING

- 4.1 Quality Audit Plans
- 4.2 Agency's Quality Audits
- 4.3 Agency's Monitoring
- 4.4 Deficient Quality Audits
- 4.5 Third Party Audits

PART 5 QUALITY DOCUMENTATION

- 5.1 Principles
- 5.2 Quality Plan Reference Documents
- 5.3 Quality Documentation Requirements
- 5.4 Submission of Quality Documentation
- 5.5 D/B Team Obligation to Update
- 5.6 Changes to Quality Documentation
- 5.7 Amendment of Quality Documentation
- 5.8 Quality Records
- 5.9 Quality Management System Reports
- 5.10 Additional Information

PART 6 NONCONFORMITIES

- 6.1 Nonconformity Reporting Process
- 6.2 Nonconformity Report Tracking System
- 6.3 Unresolved Nonconformity
- 6.4 Nonconformity Records

As D/B teams often are contractor-led, many take the form of limited liability companies, joint ventures, or similar entities that customarily carry general liability coverage that would be considered typical for contractors. As a result of policy endorsements and exclusions, there can be gaps in coverage, or insufficient coverage, for professional liability.

D/B agreements should consider project-specific liability insurance with limits commensurate with the size of the project. These policies have terms that continue through construction to upwards of 10 years after construction. These types of policies would insure both the design professionals (and subconsultants) and the constructor (and subcontractors).

Contract surety bonds provide financial security and construction assurance on construction projects by assuring the project agency that the contractor will perform the work and pay certain subcontractors, laborers, and material suppliers. Traditionally, surety bonds excluded coverage for errors and omissions.

The bonding and insurance coverage should be commensurate with the project size and in accordance with specific agency requirements.

2-11.20 Warranty and Performance Measures

The D/B team is responsible for QC and process control. The agency relies on the team's quality management plan to identify and correct non-conformities in the project. As the agency is not directly involved in the quality management of the project, many defects may not be readily identifiable.

Warranties should require repair or replacement of defective work, or work that does not conform to the contract requirements during the warranty period. The warranty should reference the specific performance measures for the item in question over the term of the warranty. Often, warranties will have extensions for remedial work completed during the warranty period.

Warranty terms typically range from 1 to 5 years. One year may be too short, considering that the agency is limited to an oversight role during the construction process. On the other hand, beyond 5 years can raise surety issues and is thought to be excessive. Two to 3 years is reasonable for the initial progression of pavement distress due to design, materials, and construction deficiencies. The length of the warranty should be tied to the amount of QA inspection and testing conducted by the agency; extensive testing by the agency should provide a high degree of confidence in the quality of the construction work and therefore require a shorter warranty period. It also should be recognized that unlike highways, access to the areas to be repaired may be more difficult for airports/airfields.

2-11.21 Construction Phasing

Construction operations in, adjacent to, or requiring construction traffic through an airfield's air operations area (AOA) will require a phasing plan. The purpose of the plan is to establish guidelines and constraints the Contractor must follow during construction in these areas. This basic information for the phasing plan must be included in the RFP:

- AOA facilities that will be closed or partially closed for construction
- Phasing required to maintain minimum aircraft operation with those airfield facilities that will be opened and closed during each phase identified
- Maximum duration of each phase (or closure)
- Time allowance between phases for preparation to redirect air traffic
- Requirements for temporary marking and lighting
- Liquidated damages for each phase if closure and construction extend beyond the time limit for each phase

The Contractor shall submit the phasing plan with the first design submittal and include Contractor-furnished drawings showing phasing details and notes.

2-11.22 Safety and Security Plan

Safety and site security during construction is a primary consideration. The RFP should require Contractors to submit a safety program as part of their management plan which includes guidelines for accident prevention. On airfield projects, a safety plan is also necessary to acquaint construction personnel with airfield operations and provide a safe environment for aircraft operations and personnel during construction. A security plan is required to assure security at the construction site and the air base.

2-12 EVALUATE AND AWARD

Evaluation and award will include answering bidder questions and possibly individual bidder meetings. Once the proposals are submitted, the agency would evaluate the bidder submissions based on the established selection criteria and weighting factors and award the contract.

2-12.1 Answers to Questions and Individual Bidder Meetings

Some agencies allow meetings with individual bidders during the bid phase to assist in clarifying specific points of the design and procurement process.

2-12.2 Proposal Submission and Evaluation

Once received, proposals are evaluated on the basis of quality of design, price, and other predetermined factors (best value).

2-12.3 Conduct Separate Evaluation of Price and Qualitative Issues

Qualitative issues are best evaluated before prices are revealed. This prevents the tendency of allowing knowledge of price to short-circuit a thorough review of qualitative issues. Agencies should request that qualitative and cost sections of a proposal be submitted in separate sealed envelopes, with the price envelope opened only after the qualitative evaluation has been concluded.

2-12.4 Shortlisted Bidder Presentations

Typically, shortlisted bidders are asked to present their technical bids at a meeting in front of the evaluation panel. This gives the panel an opportunity to gain a better understanding of the bidder's proposal and evaluate their team qualifications and the technical concepts of the bid.

2-12.5 Promptly Award the Contract

Once a selection has been made, the project should be awarded in a prompt and straightforward manner without on-going adjustments to the proposer's submission. Review meetings with the agency for the purpose of design modification should be conducted following selection and prior to award, not while proposers are in a competitive posture. This principle also applies to price, which should not be subject to negotiation or modification between formal submission and selection.

2-12.6 Use of Documents/Design Concepts from Unsuccessful Proposers

The winning design proposal submitted in a D/B competition is the design that ultimately should be constructed. Use of design concepts from unsuccessful proposers without compensation (stipend) is considered inappropriate and unethical.

2-13 CONTRACT AWARD

Prior to the award of the contract, the contents of both the technical and financial proposal must be reviewed to ensure that the proposer is meeting the expectations of the agency. The selected proposer enters into a contract with the agency that incorporates both the agency's requirements and the D/B entity's proposal.

2-14 EXECUTE CONTRACT

The contract should incorporate both the agency's requirements and the D/B entity's proposal.

2-15 PROJECT PERFORMANCE

The final step in the D/B procurement is the administration of the contract. This would include monitoring of compliance with management plans including documents and submittals. This may also include the agency's right to complete independent QA inspection and testing.

2-16 DOCUMENTS/APPROVALS/CONSTRUCTION

Upon completion of the design documents for all elements (or for specific phases) of the project, construction commences. The contract may call for fast track methods, allowing for construction to commence after logical phases of design and permitting are completed, but prior to completion of the entire body of construction documents.

2-17 AUDITING/MONITORING

Although the contractor is fully responsible for the quality of all work, D/B agreements should provide for the agency's right of access at any time to all records produced in the performance of the work, including inspection records and test results, and to conduct sampling, to ensure the contractor is adhering to all requirements of the agreement. Weekly progress meetings should be held with the D/B team to monitor performance. Meetings should be well documented, including follow-up of action items.

D/B agreements also should include provisions confirming the agency's right to audit the contractor's work to ensure that the agency's requirements are being achieved. Such review may consist of random or milestone inspections or audits, continuous inspection, sampling and testing for audit purposes, or any combination thereof.

2-18 FINAL ACCEPTANCE

Prior to final acceptance of the work, all systems being inspected shall be completed and approved for acceptance by the quality management plan. A final inspection should be completed by the quality manager and agency. The inspection will verify that the facility is complete and ready to be accepted. A "punch list" should be developed as a result of this inspection, and the quality manager will ensure that all items on this list are addressed prior to final acceptance.

2-19 DISPUTE RESOLUTION

The D/B contract should outline a method for dispute resolution. One way to minimize dispute is through partnering, which fosters cooperation between the agency and the contractor to resolve their disputes. Many agencies and contractors have established dispute resolution boards to diffuse issues before they become formal disputes. Typically, the board consists of three respected, experienced individuals: one appointed by the agency, one appointed by the contractor, and a third appointed jointly. Arbitration is another frequently used method for dispute resolution.

APPENDIX A - REFERENCES

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Headquarters, Air Force Center for
Environmental Excellence
Technical Directorate
HQ AFCEE/TD 3300 Sidney Brooks
Brooks City-Base TX 78235 Phone:
(210) 536-4191 DSN: 240-4191

Headquarters, Air Force Civil Engineer
Support Agency
Engineering Support Directorate
HQ AFCEA/CES 139 Barnes Drive,
Suite 1 Tyndall AFB FL 32403-5319
Phone: (850) 283-6263 DSN 523-6263

Headquarters, Air Force Safety Center
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HQ AFSC/SEP
9700 Avenue G, SE Kirtland AFB, NM
87117-5670
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Headquarters

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Washington, DC 20310-0200

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Engineering and Construction Division

Directorate of Military Programs

Washington, DC 20314-1000

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3. Department of the Navy

Standardization Documents Order Desk

700 Robbins Avenue, Bldg. 4D

Philadelphia, PA 19111-5094

ITG, Skid Resistance Criteria for Airfield
Pavements, 24 March 1999

ITG 02-04, Airfield/Heliports Surface
Drainage Design, 30 September 2002

<http://www.ccb.org/docs/INTCRIT/fy0204.pdf>

MIL-HDBK 1005/3, Drainage Systems

NAVAIR 51-50AAA-2, General
Requirements for Shore Based Airfield
Marking and Lighting

NAVFAC P-80.3, Airfield Safety
Clearances

NAVSEA OP-5, Ammunition and
Explosives Ashore, Safety Regulations
for Handling, Storing, Production,
Renovation, and Shipping

4. Tri-Service Publications

HQ AFCEA/CES
39 Barnes Drive, Suite 1 Tyndall AFB FL
32403-5319 Phone: (850) 283-6263 DSN
523-6263

and

USACE
Engineering and Construction Division
Directorate of Military Programs
Washington, DC 20314-1000
USACE
Engineering and Construction Division
Directorate of Military Programs

TM 5-809-12/AFM 88-3, Chapter 15,
Concrete Floor Slabs on Grade Subjected
to Heavy Loads [http://www.e-
publishing.af.mil/](http://www.e-publishing.af.mil/)

TM 5-820-3/AFM 88-5, Chapter 3,
Drainage and Erosion Control Structures
for Airfields and Heliports
[http://www.usace.army.mil/inet/usace-
docs/armytm/](http://www.usace.army.mil/inet/usace-docs/armytm/)

FM 5-430-00-2/AFJPAM 32-8013 Volume
II, Planning and Design of Roads,
Airfields, and Heliports in the Theater of
Operations – Airfield and Heliport Design
<http://www.army.mil/usapa/doctrine/>

TM 5-822-10/AFM 88-6, Chapter 6,
Standard Practice for Pavement
Recycling [http://www.usace.army.mil/inet/
usace-docs/armytm/tm5-822-10/](http://www.usace.army.mil/inet/usace-docs/armytm/tm5-822-10/)

UFC 3-230-06A, Design: Subsurface
Drainage

UFC 3-230-15FA, Design: Surface
Drainage Facilities for Airfields and
Heliports

UFC 3-250-03, Standard Practice Manual
for Flexible Pavements UFC 3-250-04FA,
Standard Practice for Concrete
Pavements

UFC 3-250-08FA, Design: Standard
Practice for Sealing Cracks and Joints in
Rigid and Flexible Pavements

UFC 3-250-09FA, Design: Aggregate
Surfaced Roads and Airfields

UFC 3-250-11, Soil Stabilization for
Pavements

UFC 3-260-02, Pavement Design for
Airfields

UFC 3-260-03, Airfield Pavement
Evaluation

UFC 3-260-05FA, Design: Marking of
Army Airfield-Heliport Operational and
Maintenance Facilities

HQ AFCESA/CES
139 Barnes Drive, Suite 1 Tyndall AFB FL
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Philadelphia, PA 19111-5094

UFC 3-260-01, Airfield and Heliport
Planning and Design

UFC 3-535-01, Design Standards for Visual
Air Navigation Facilities

UFC 3-535-02, Visual Air Navigation
Facilities and Design Drawings

UFC 4-133-01N, Design: Air Traffic Control
Facilities

UFC 4-141-10N, Design: Aviation
Operation and Support Facilities

UFC 4-211-01, Design: Aircraft
Maintenance Hangars: Type I and Type II
All UFC available at

http://65.204.17.188/report/doc_ufc.html

UFGS, Divisions 1 through 16
available at <http://www.ccb.org/>
AC 150/5300-13, Airport Design

5. Federal Aviation Administration (FAA)

AC 150/5320-5B, Airport Drainage

AC 150/5320-6D, Airport Pavement Design
and Evaluation

AC 150/5340-1H, Standards for Airport
Markings

AC 150/5390-2B, Heliport Design

Order 6750.16C, Siting Criteria for
Instrument Landing Systems

All FAA publications available at
<http://www.faa.gov/regulations/>

NON-GOVERNMENT PUBLICATIONS:

1. American Concrete Pavement
Association (ACPA)

Washington Office 1010 Massachusetts
Avenue, N.W. Suite 200 Washington, DC
20001

Phone: 202-842-1010 Fax: 202-842-2022

IPRF-01-G-002-1 (ACPA JP007P), Best
Practices for Airport Portland Cement
Concrete Pavement Construction

<http://www.pavement.com/> or
<http://www.iprf.org/products/main.html>

2. Illuminating Engineering Society of
North America (IES)
120 Wall Street, Floor 17 New York, NY
10005 212-248-5000, ext. 112 fax: 212-248-
5017/18 email: iesna@iesna.org

IES-RP-14-1987, Recommended Practice
for Airport Service Area Lighting

3. National Fire Protection Association
(NFPA)
1 Batterymarch Park Quincy, Massachusetts
USA 02169-7471 Tel: +1 617 770-3000 Fax:
+1 617 770-0700

Standard 415, Standard on Airport
Terminal Buildings, Fueling Ramp
Drainage, and Loading Walkways
<http://www.nfpa.org/>

APPENDIX B RFP SPECIFICATIONS AND DRAWINGS

B-1 SPECIFICATIONS

The UFGS should be edited to show all Government preferences and should be included in the RFP document. It is important that the edited UFGS are detailed enough so that the required construction quality is met and not reduced with cost reduction efforts. Each project will have some variation that results in the use of different UFGS sections.

B-1.2 DIVISION 01 SPECIFICATIONS

Division 01 UFGS that are unique to airfield D/B projects include:

- Section 01010, Statement of Work for Airfield Design-Build
- Section 01016, Detailed Technical Requirements for Airfield Design-Build
- Section 01018, Design After Award for Airfield Design-Build

Additional Division 01 specifications can be included in the RFP after editing standard UFGS.

B-1.3 DIVISION 02 THROUGH 16 UFGS

The Division 02 through 16 specifications to be included in an RFP will vary to meet the requirements of each project. These guide specifications provide various design preferences to be selected by the specifier. Some preferences listed as optional in the UFGS are mandatory for some airfield developments. A tabulation of construction preferences to be specified in each UFGS used for airfield construction is included as Appendix D. The RFP preparer should edit the appropriate UFGS in accordance with Appendix D to assure that Government preferences will be included in the project. The edited UFGS should be included in the RFP.

B-1.4 STATE SPECIFICATIONS

State specifications are not allowed as a basis for material quality or construction practices for most airfield facilities. Only state specifications listed as allowable in the RFP can be used by the D/B Contractor. The RFP preparer may consider the use of a state specification for such items as airfield shoulders, overrun pavements, roadways, and seeding. State specifications whose use is allowed should be listed in the RFP. RFP preparers should list a state specification for use only if there is a history of successful use of the specification at the project location. Consult with USACE-TSC, Air Force MAJCOM, or Navy EFD before using any state specifications.

B-2 DRAWINGS

All drawings, both Government- and Contractor-furnished, shall be prepared in an electronic format selected by the project owner. Appendix 01018-B of Section 01018, Design After Award for Airfield Contracts, is a suggested outline for both Government- and Contractor-prepared drawings. The RFP preparer should edit Appendix 01018-B to meet the requirements of the project.

B-2.1 GOVERNMENT-FURNISHED DRAWINGS

Paragraph 2-5 provides a suggested list of drawings to be included in the RFP. Drawings should be provided in both hard copy and electronic format. The D/B Contractor can then use these drawings to further the design and include in the final documents. Government-prepared drawings should conform to the guidelines in Appendix 01018-B where applicable.

B-2.2 CONTRACTOR-FURNISHED DRAWINGS

The Contractor should be required to develop a complete set of project construction drawings in conformance with the suggested drawing list in Appendix 01018-B. The Contractor will be required to furnish some drawings with the design analysis that will not be included in the construction plans, such as obstruction profiles and drawings needed to support the design development. These design analysis drawings should be in the same size and format as the construction drawings.