



**Smithsonian Institution**  
**Office of Facilities Engineering and Operations**

**ARCHITECT / ENGINEER**  
**CONTRACTS, FEE**  
**ESTIMATION, AND**  
**REQUESTS FOR PAYMENT**

December 06, 2001

**ARCHITECT/ENGINEER CONTRACTS, FEE ESTIMATION,  
AND REQUESTS FOR PAYMENT**

## Overview

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**Introduction** This document supplements the Smithsonian Institution Office of Facilities Engineering & Operations Special Conditions for Architect/Engineer Services. It describes the background, policies and procedures for estimating Architect/Engineer (A/E) fees.

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**Goal** The goal of this document is to facilitate the contracting process by establishing standard guidelines and formats for fee estimating. Negotiation is aided when the A/E follows standard guidelines in preparing their fee proposals.

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**Objectives** This document will help the reader to:

- understand the basic A/E Contracting process
- understand basic cost terms
- differentiate between the classes of A/E Services
- prepare estimates of fees for A/E Services
- prepare Requests for Payment

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**Contents** The following topics are covered in this document.

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## Background on A/E Contracting

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### Introduction

This section provides background information on the A/E contracting process at the Smithsonian Institution (SI).

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### Professional A/E Services

A/E's provide a variety of professional services, including, but not limited to: pre-design, design, post-design and other supplemental services. Detailed descriptions of A/E services can be found in the Smithsonian Institution Office of Facilities Engineering & Operations Special Conditions for Architect/Engineer Services. These services, as performed to accomplish a particular project, shall be herein referred to as "the Work."

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### A/E Contracting Process

This table outlines the solicitation and contracting process for Architect/Engineer services, prescribed by the Federal Acquisition Regulation (FAR), as appropriate to the SI.

Stage	Description
1.	SI establishes project Scope of Work and Budget and secures funding.
2.	An A/E is selected one of two ways: <ul style="list-style-type: none"> <li>• qualified term A/E with current contract is selected</li> <li>• Request for Qualifications for A/E Services is advertised in the Commerce Business Daily; respondents are evaluated according to FAR procedures; the top team is approved by the Director of the Office of Engineering Design &amp; Construction (OEDC) and recommended to the SI Contracting Officer</li> </ul>
3.	The SI Contracting Officer or OEDC sends a Request for Proposal letter to the selected A/E firm.
4.	The A/E firm prepares and submits a fee proposal based on the Scope of Work for the project and the instructions set forth herein.
5.	The SI evaluates the A/E fee proposal on the basis of level of effort (in comparison to the Smithsonian Estimate) and cost accounting principles.
6.	If necessary, the A/E and the SI enter into negotiations and a revised proposal is requested. Once the fee proposal (either the original or a revised version) is found acceptable, an A/E contract (or contract amendment or work order) is issued by the SI Office of Contracting (OCon) and signed by both the SI Contracting Officer and the Principal of the A/E firm.

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## Background on Architect/Engineer Contracts, Continued

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**Smithsonian  
A/E Contracts**

The Smithsonian generally issues one or more of the following contract types for A/E Services contracts, A/E Indefinite Quantity/Indefinite Delivery ["Term"] contracts, contract modifications and/or work orders:

<b>Type</b>	<b>Description</b>
Firm Fixed Price	provides for a price that is not subject to any adjustment on the basis of the contractor's cost experience in performing the contract
Fixed Price (labor) + Reimbursables	same as above for labor costs; however, some other direct costs may be reimbursed, as allowed, up to a pre-established, not-to-exceed limit
Time and Material (T&M)	provides for reimbursement based on the actual cost of labor and/or materials up to a pre-established not-to-exceed limit; often used for testing and inspection services or for A/E construction phase services

## Cost Principles

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**Introduction** This section defines cost items and principles that must be consistently applied in the preparation of fee estimates. The definitions (in italics) are from the Federal Acquisition Regulations (FAR).

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**Total Cost** Composition of Total Cost (FAR 31.201): *The total cost of a contract is the sum of the allowable direct and indirect costs allocable to the contract, incurred or to be incurred, less any allocable credits, plus any allocable costs.... In ascertaining what constitutes a cost, any generally accepted method of determining or estimating costs that is equitable and is consistently applied may be used....*

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**Allowability** Allowability of costs is determined by establishing reasonableness and allocation.

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**Direct Costs** FAR 31.202: *A Direct Cost is any cost that can be identified specifically with a particular final cost objective.* Types and examples of direct costs are described in the table below:

<b>Type</b>	<b>Description</b>
Direct LABOR Costs	Salaries paid for regular time or overtime (if authorized) to architects, engineers, designers, project managers, estimators, consultants, draftspersons and others who will actually perform technical services under the contract, including appropriate salaries of principals/partners directly engaged in the contracted technical or professional services
OTHER Direct Costs	Costs for the following as required in connection with the performance of the Work and not included in the firm's indirect costs as determined by their accounting system: transportation, travel, per diem (in accordance with Federal Travel Regulations); long distance telephone and telefax; postage and courier costs; commercial printing, reproduction, binding; renderings, art work, models; photographic services; CADD plotting; topographic surveys; laboratory testing; permit fees; investigative demolition, test cores; certain lump sum consultant fees; any other costs deemed allowable.

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## Cost Principles, Continued

**Indirect Costs** FAR 31.203: *An Indirect Cost is any cost not directly identified with a single, final cost objective, but identified with two or more final cost object is or an intermediate cost objective. The A/E's method for allocating indirect costs shall be in accordance with generally accepted accounting principles which are consistently applied. Types and examples of indirect costs are described in the table below:*

<b>Type</b>	<b>Description</b>
Overhead	Business expenses not directly allocable to the particulars of the Work, such as: taxes or payments on direct labor required by law under Federal and State Social Security Acts or by any state / local Unemployment Compensation Law; bona fide pension, retirement, group health, accident and life insurance plans and incentive payment plans in operation as an established firm policy, vacation, holiday and severance pay, sick leave and military leave; general/administrative costs such as overall supervision of all technical work, clerical work, drafting room supplies, depreciation of drafting furniture and equipment, office supplies, local telephone calls, rental of office space, taxes and insurance; salaries of executives or partners for time devoted to general supervision (NOT to duplicate principals direct cost); nonallocable time of technical staff, which under efficient administration would be directly and profitably employed on specific projects; professional liability insurance costs, subject to test for allowability.
General and Administrative Mark-ups	G & A mark-ups for other items not included in the firm's overhead rate; the allowability of these mark-ups depends upon the firm's cost accounting system.

**Nonallowable Costs** Examples: commissions or bonuses in connection with obtaining or negotiating a Government contract; contingency reserves; contributions or donations; dividend payments; entertainment; interest on borrowings; bid and proposal costs; certain taxes; etc.

**Profit** FAR 15.901: *Profit represents that element of the potential total remuneration that A/E's may receive for contract performance over and above allowable costs.*

## Classification of A/E Services

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**Introduction** All costs, direct and indirect, incurred by the A/E in the performance of professional services can be classified as either Title I or Non-Title I.

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**Statutory Limitation** **FAR 15.903(d) (1) (ii):** *For architect-engineering services for public works or utilities, the contract price or the estimated cost and fee for production and delivery of designs, plans, drawings, and specifications shall not exceed 6 percent of the estimated cost of construction of the public work or utility, excluding fees. A Guide for Applying the 6 Percent Limit on Design Fee is attached.*

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**Title I Services** All direct labor costs, indirect costs, profit and other direct costs (as appropriate) that are associated with the portion of the total fee allocable to the production of "designs, plans, drawings, specifications," construction estimates, and supporting documents, which form the basis for bidding and for the award of a construction contract. These services span the Design Development and Construction Documents phases of the Contract (excluding any supplemental services that may be rendered during these project phases that are considered Non-Title I services).

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**Non-Title I Services** All direct labor costs, indirect costs, profit and other direct costs (as appropriate) that are associated with portions of the total fee other than those included in Title I Services. These services include planning, pre-design, construction phase services, post-construction services, specialized consultants, surveys and testing, and other supplemental services, as described in the attached Guide for Applying the 6 Percent Limit on Design Fee.

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**A note on Other Direct Costs** Most Other Direct Costs are considered Non-Title I; however, in a few cases (as determined by the GAO), some Other Direct Costs may be allocable to Title I expenses and are subject to the statutory limitation described above. Questions on the Title I or Non-Title I status of Other Direct Costs should be directed to OFEO and OCon.

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## Preparation of A/E Fee Proposals - GENERAL

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**Preparation of the A/E Fee Estimate** Instructions are given here for the estimation of A/E Fees utilizing a standard OFEO fee format for A/E Term Contracts (where loaded labor rates may be audited by the SI), and a slightly different standard OFEO fee format for Other A/E Services Contracts (where the entire fee proposal may be audited by the SI). These formats were prepared with Microsoft Excel.

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**DISCLAIMER** *OFEO does not guarantee the integrity of the files, graphic, or formulas. Calculations should be manually spot checked. The accuracy of calculations is the responsibility of the spreadsheet user.*

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**Level of Effort** Level of effort is determined by estimating the amount of person-hours required to accomplish the Work. The estimate shall be broken down into project phases or specific tasks, per the Scope of Work. In addition, Title I, Non-Title I and Other Direct Costs must be clearly differentiated. In order for the contracting process to continue, OFEO recommends to OCon that the level of effort proposed by the A/E is fair, reasonable and acceptable in fulfillment of the Scope of Work. This assessment may be given after review of the initial A/E proposal or after a period of negotiations and acceptance of a revised proposal. In cases where agreement cannot be reached, the contracting process may be terminated.

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**Determination of Person-hours** The number of person-hours required for the project may be determined by any method preferred by the A/E. Major tasks may be broken down into several sub-tasks (*SAMPLE* attached is only one example, it is NOT a requirement); an "hours per sheet" method may be employed; or any other method for projecting staff hours required for the Work may be used.

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**Modification of the Standard Formats** OFEO's standard fee estimate formats are based on the traditional design phase progression as well as a traditional project team organization, where the Architecture/Planning firm acts as the Prime with various subcontractors or consultants divided along discipline lines. The A/E fee sheets should be modified when the project departs from this baseline.<sup>1</sup> Phase/Task headings shall be modified to correspond with the phases/tasks outlined in the Scope of Work. All modifications shall be coordinated with the COTR-A/E.

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<sup>1</sup> For example: Multi-disciplinary prime firms should maintain the breakout of disciplines on the Worksheets; however, a total for all disciplines of the Prime should be transferred to the Summary Sheets. Similarly, joint ventures have two or more "primes." Joint Ventures may also require duplicative discipline "boxes" on the Worksheets to distinguish hours proposed by identical disciplines from different firms.

## Preparation of Fee Proposals - A/E TERM Contracts

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### Submission of Direct Labor Rates and Indirect Cost Information

Prior to the establishment of a new Term Contract with the Smithsonian, the A/E shall submit calculations for proposed **loaded labor rates** for all staff categories involved in the Work, for the prime firm and all subcontractors and consultants. Loaded labor rates are calculated by applying appropriate overhead and profit multipliers to base labor rates, as shown below. The standard form for proposing loaded labor rates is called: Loaded Labor Rate Calculations (Labor Rates Work Sheet.xls).

The A/E may be required to submit detailed financial backup for established base labor rates for individual staff categories, breakdown of indirect costs included in the overhead percentage, justification of the proposed profit margin and any recent correspondence with other government agencies about review of their cost accounting procedures, labor rates and/or government audit results. This information will be reviewed by OCon, who will determine whether the proposal is to be audited.

Once approved, these loaded labor rates remain in effect for the length of the Contract and any Modifications, subject to adjustment under the terms and conditions set by the Contract.

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### Calculation of "Loaded" Labor Rates

Loaded labor rates are calculated as illustrated below. The example shown here utilizes financial data from a fictitious firm, XYZ Designers, Inc. The base labor rate for a Project Architect is **\$21.00/hour**; the firm's overhead rate is **116%**; the profit proposed is **10%**. The loaded labor rate per hour for the Project Architect is calculated by multiplying the base rate times the "overhead multiplier" times the "profit multiplier", thus:

loaded rate/hr	=	base rate	X	"Overhead Multiplier"	+	100%	X	"Profit Multiplier"	+	100%
	=	\$21.00/hr	X	( 116%	+	100%)	X	( 10%	+	100%)
	=	\$21.00/hr	X			216%	X			110%
	=	\$21.00/hr	X			2.16	X			1.10
loaded rate/hr	=	\$49.90/hr								

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## Preparation of Fee Proposals - A/E TERM Contracts, Continued

**OFEO EXCEL spreadsheets** The spreadsheets for fee estimates for Term Contract A/E's are described in the table below. Copies of these files are available from the COTR-A/E. [NOTE: Previous versions of estimating forms are still valid and may be used at the discretion of the COTR-A/E.]

File Name	Sheet Name(s)	Length
Term Fee Summary.xls	Summary of Total Proposed Fee	one page
Term labor Worksheet.xls	Labor Worksheet	three pages long
Term OCD Worksheet.xls	Other Direct Costs Worksheet	one page

**Spreadsheet Procedures** The following table summarizes the procedure for preparing a fee estimate on the OFEO forms for a typical project by a term A/E:

Step	Action
1	If loaded labor rates have already been submitted and approved, then proceed directly to Step 2.  If new or revised rates are being proposed, insert relevant information in the <i>Loaded Labor Rate Calculations</i> sheets and then proceed with Step 2.
2	On <i>Summary of Total Proposed Fee</i> sheet: Enter project name, facility, and project number where indicated. Enter Estimated Construction Cost, if applicable, as identified in the Scope of Work.  Edit phase/task columns to match phases/tasks outlined in Scope of Work.  Enter Subcontractor firm names next to the appropriate disciplines.
3	For <i>Labor Worksheets</i> : Enter project identification information where indicated in the Header. Modify phase/task columns to match those of the Summary Sheet. Enter prime and sub firm names, staff categories, and loaded labor rates for each firm/discipline.  Enter number of person-hours estimated to complete the Work for the phase/task for each staff category.
4	On <i>Other Direct Costs Worksheets</i> : Enter project name, project number, and firm name identification at the top. Modify phase/task columns to match those of the Summary Sheet. Estimate Other Direct Costs required for each task/phase and enter costs in appropriate columns. Transfer subtotals to the appropriate cells in the <i>Labor Worksheets</i> .  REPEAT for each firm.

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## Preparation of Fee Proposals - A/E TERM Contracts, Continued

5	<p>Transfer labor and other direct cost subtotals from <i>Labor Worksheets</i> for each phase/task to the appropriate cells in <i>Summary of Total Proposed Fee</i> spreadsheet:</p> <ul style="list-style-type: none"> <li>• Subtotal Subcontractor Loaded Labor Costs.</li> <li>• Enter prime's profit percentage in highlighted cell. Apply Prime's Profit on Subcontractor Labor.</li> <li>• Calculate total burdened LABOR cost (+ profit) per phase.</li> <li>• Subtotal Subcontractor Other Direct Costs.</li> <li>• Calculate Total Other Direct Costs.</li> <li>• Enter mark-up percentage (if allowed) in highlighted cell. Apply Prime's mark-up (if allowed) on Other Direct Costs total.</li> <li>• Calculate Total Other Direct Costs + mark-up.</li> <li>• Calculate TOTAL Labor + Other Direct Costs + Profit/Mark-up per phase.</li> <li>• Calculate GRAND TOTAL (Total Proposed Contract Cost).</li> </ul>
6	<p>Manually spot-check calculations. <b>Make sure the total for Title I Services does not exceed the statutory limitation of 6% of the estimated construction cost.</b></p>
7	<p>Print preview. If spreadsheet does not fit on one sheet, go to Page Set-up Menu &gt; Page &gt; Scaling &gt; Adjust to +75% normal size.</p>
8	<p>Print and attach all Summary Sheets, Worksheets, and any other additional back-up materials. Initial each sheet next to the date in the footer.</p>
9	<p>Submit with a signed and dated cover letter on A/E letterhead that specifically identifies the Total Proposed Contract Cost and any limitations and/or exclusions.</p>

## Preparation of Fee Proposals - Other (Non-"Term") A/E Services Contracts

### OFEO Excel spreadsheets

The spreadsheets for fees estimates for A/E Services Contracts other than A/E Term Contracts are organized as described in the table below. Copies of these files are available from the COTR-A/E.

File Name	Sheet Name(s)	Length
Summary of Total Costs.xls	Summary of Total Proposed Costs	2 pages wide
Direct Costs - Prime.xls	Prime Offeror's Proposed Direct Costs	2 pages wide
Direct Costs - Sub.xls	Sub-Offeror's Proposed Costs	2 pages wide
ODC Work Sheet.xls	Proposed Other Direct Costs Worksheet	1 page
ODC Summary.xls	Summary of Total Estimated Other Direct Costs	2 pages wide

### Spreadsheet Procedures

The following table summarizes the procedure for preparing a fee estimate on the OFEO forms for a project by a non-term A/E:

Step	Action
1	On <i>Summary of Total Proposed Costs</i> sheet(s): Enter project name, facility, and project number where indicated. Enter Estimated Construction Cost, if applicable, as identified in the Scope of Work. Edit phase/task columns to match phases/tasks outlined in Scope of Work. Enter Prime Contractor firm name and discipline(s). Enter Subcontractor firm names and corresponding disciplines.
2	For <i>Sub-Offeror's Proposed Costs</i> worksheet(s): Enter project identification information where indicated. Modify phase/task columns to match those of the Summary Sheets. Enter firm name, staff categories, base labor rates, overhead percentage, and profit, where indicated.  Enter number of person-hours estimated to complete the Work for the phase/task for each staff category. Calculate subtotals for each phase.  REPEAT for each Sub-Offeror.

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## Preparation of Fee Proposals - Other (Non-"Term") A/E Services Contracts, Continued

3	<p>For <i>Prime Offeror's Proposed Direct Costs</i> worksheet(s): Enter project identification information where indicated. Modify phase/task columns to match those of the Summary Sheets. Enter firm name, staff categories, and base labor rates.</p> <p>Enter number of person-hours estimated to complete the Work for the phase/task for each staff category. Calculate subtotals for each phase</p>
4	<p>Complete a <i>Proposed Other Direct Costs Worksheet</i> for each firm as necessary. Enter project name, project number, and firm name identification at the top. Modify phase/task columns to match those of the Summary Sheets.</p> <p>Estimate Other Direct Costs required for each task/phase and enter costs in appropriate columns. Attach back-up calculations as necessary, i.e. travel cost breakdowns per trip and traveler; assumptions for reproduction costs, etc.</p>
5	<p>Transfer Other Direct Costs subtotals to the appropriate cells on the <i>Sub-Offeror's Proposed Costs</i> worksheets. Calculate subtotals per phase. Calculate TOTAL Combined Proposed Costs for the Sub-Offeror. REPEAT for each Sub-Offeror.</p>
6	<p>Transfer Other Direct Costs subtotals to the appropriate cells on the <i>Prime Offeror's Proposed Direct Costs</i> worksheets.</p>
7	<p>Transfer Cost Elements to <i>Summary of Total Proposed Costs</i> sheet:</p> <ul style="list-style-type: none"> <li>• Transfer Prime's Direct Labor total from the <i>Prime Offeror's Proposed Direct Costs</i> worksheets.</li> <li>• Insert Prime's Overhead (OH) percentage in highlighted cell. Calculate overhead on direct labor.</li> <li>• Calculate Subtotal (Prime's Direct Labor + OH).</li> <li>• Insert Prime's Profit percentage in highlighted cell. Calculate profit on prime's labor and overhead.</li> <li>• Calculate Subtotal Prime's Burdened Labor.</li> <li>• Transfer Prime's Other Direct Costs subtotals from the <i>Prime Offeror's Proposed Direct Costs</i> worksheets.</li> <li>• Transfer TOTAL combined proposed costs from each <i>Sub-Offeror's Proposed Costs</i> worksheet. Subtotal all Sub-Offeror costs.</li> <li>• Calculate Subtotal Prime's ODC's + Sub-Offeror costs.</li> <li>• Insert mark-up percentage (if allowed) in highlighted cell. Calculate mark-up on sub-offeror and Other Direct Costs.</li> <li>• Calculate TOTAL COST per phase (Prime's Burdened Labor + ODC's + Sub-Offeror Costs + mark-up)</li> <li>• Calculate GRAND TOTAL (Total Proposed Contract Cost).</li> </ul>

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## Preparation of Fee Proposals - Other (Non-"Term") A/E Services Contracts, Continued

8	<p>If Other Direct Costs are to be compensated on a REIMBURSABLE basis, complete the <i>Summary of Total Estimated Other Direct Costs</i> sheet. Modify phase/task columns to match those of the <i>Summary of Total Proposed Costs</i> sheets. Enter each firm's estimated Other Direct Costs totals; apply Prime's profit; calculate Total Estimated Other Direct Costs (+ profit) per phase; calculate Total Estimated ODC's for the project. This total becomes the Contract's Not-To-Exceed reimbursable limit.</p> <p><b>**NOTE:</b> If Other Direct Costs are to be <u>included</u> in a total FIRM FIXED PRICE (and not "reimbursed"), the <i>Summary of Total Estimated Other Direct Costs</i> need not be prepared.</p>
9	<p>Manually spot-check calculations. <b>Make sure the total for Title I Services does not exceed the statutory limitation of 6% of the estimated construction cost.</b></p>
10	<p>Print preview. Adjust scaling as necessary.</p>
11	<p>Print and attach all Summary Sheets, Worksheets, and any other back-up materials. Initial each sheet next to the date in the footer.</p>
12	<p>Submit with a signed and dated cover letter on A/E letterhead that specifically identifies the Total Proposed Contract Cost and any limitations and/or exclusions.</p>

## Requests for Payment

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**Smithsonian Institution Request for Payment**

Once the A/E Contract is executed, the A/E may submit periodic Requests for Payment under the terms of that contract. The standard SI Request for Payment format is fairly self-explanatory and is available on diskette or in hard copy format from OFEO. The value of Work completed is generally differentiated by Title I Services, Non-Title I Services and reimbursable Other Direct Costs. This may be modified to match the exact terms specified in the A/E Contract, if necessary.

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**Back-up Material**

A more detailed task breakdown, such as invoices from subcontractors and/or other back-up materials, may be required to assist the OFEO Manager in reviewing the Request for Payment. If required by the A/E Contract, the A/E shall submit original receipts or bills for reimbursable items, along with the total for reimbursable expenses claimed for the invoice period.

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**Submission of Request for Payment**

Unless specified otherwise in the Contract, the following procedure shall be followed in submitting Requests for Payment. An original Request for Payment, with ink signature of the prime firm's Principal, shall be submitted to the COTR-A/E, Office of Planning, Design & Construction (OPDC), Smithsonian Institution, PO Box 37012, Victor Building, Suite 5200, MRC 908, Washington, DC 20013-7012. A copy of the Request for Payment, along with all original back-up materials and a Periodic Progress Report (see Special Conditions for Architect/Engineer Services) on firm letterhead shall also be submitted.

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## Final Notes

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**Attachments**

Guide for Applying the 6 Percent Limit on Design Fee (1 page)  
Sample Labor-Hour Worksheet matrix (1 page)  
Standard Loaded Labor Rate Calculations Sheets (3 pages)  
Standard Estimating format for Term Contracts (5 pages)  
Standard Estimating format for A/E Services (Non-Term) Contracts (5 pages)  
- pages have been reduced approximately 50%  
Standard Request for Payment format (1 page)

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**Questions**

Contact your SF Design Manager, the COTR-Architect-Engineer.

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