

SPECIAL CONDITIONS
for
ARCHITECT / ENGINEER SERVICES

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SMITHSONIAN INSTITUTION
Office of Facilities Engineering & Operations
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These Special Conditions for Architect/Engineer Services supplement the Smithsonian Institution Architect/Engineer Contract, Form 252.

Throughout this document, numerous references are made to other sources of information and requirements. They can be obtained from professional organizations, public libraries, state and local governmental agencies and/or the Government Printing Office. These resources are also available for reference in the Office of Facilities Engineering & Operations, 600 Maryland Avenue SW, Suite 5001, Washington, DC 20024.

COMMON ABBREVIATIONS

ACHP	Advisory Council on Historic Preservation
A/E	Architect/Engineer
AHHP	Architectural History and Historic Preservation
CAD	Computer-Aided Design
CADD	Computer-Aided Design/Drafting
CAFM	Computer-Aided Facilities Management
CFA	Commission of Fine Arts
COTR-A/E	Contracting Officer's Technical Representative for A/E Contract
COTR-C	Contracting Officer's Technical Representative for Construction
CSI	Construction Specifications Institute
DCWASA	District of Columbia Water and Sewer Authority
DM	Design Manager
ISO	International Standards Organization
FAR	Federal Acquisition Regulations
GBCI	Green Building Certification Institute
GIS	Geographic Information System
GSA	General Services Administration
LEED	Leadership in Energy and Environmental Design™
NCPC	National Capital Planning Commission
NPS	National Park Service
OC	Office of the Comptroller
OCIO	Office of the Chief Information Officer
OCon	Office of Contracting
OEDC	Office of Engineering, Design and Construction
OFEO	Office of Facilities Engineering and Operations
OFM&R	Office of Facilities Management and Reliability
OSHEM	Office of Safety, Health and Environmental Management
OPS	Office of Protection Services
OPPM	Office of Planning and Project Management
PEPCO	Potomac Electric Power Company
P.L.	Public Law
PM	Project Manager
RFI	Request for Information
RFP	Request for Proposal

SHPO	State Historic Preservation Officer
SI	Smithsonian Institution
SI[m]	System International (metric)
SOW	Scope of Work / Statement of Work
USGBC	United States Green Building Council
WMATA	Washington Metropolitan Area Transportation Authority
WSSC	Washington Suburban Sanitary Commission

SPECIAL CONDITIONS FOR ARCHITECT/ENGINEER SERVICES

1. SCOPE OF ARCHITECT/ENGINEER SERVICES

1.1. GENERAL SCOPE OF ARCHITECT/ENGINEER SERVICES

The Architect/Engineer (A/E) shall perform all the professional architectural and engineering services necessary for the Work, which may be comprised of PRE-DESIGN, DESIGN, POST-DESIGN and/or OTHER SUPPLEMENTAL SERVICES for various planning, alteration, maintenance, repair, renovation, major capital renewal, preservation, new work and other projects at Smithsonian Institution (SI) facilities in accordance with the Contract and as described in the Scope of Work.

The A/E shall be responsible for the professional quality, technical accuracy and the coordination of the Work; construction documents shall be signed and “sealed” by the responsible registered professional architect(s) and engineer(s).

The Work shall comply with all applicable Smithsonian, industry, Local, State and Federal codes, regulations, standards and guidelines. These are accessible at http://www.ofeo.si.edu/ae_center/index.asp

The Work shall conform to the established project budget and scope throughout planning, design and construction.

The A/E shall make site visits, attend meetings, make presentations, utilize the services of consultants and submit required deliverables, as necessary, to execute specific parts of the Work described herein and in the Contract and the Scope of Work for the project. The A/E shall perform optional construction phase services if so directed by the Smithsonian.

1.2. THE SCOPE OF WORK

The Scope of Work (SOW) prepared by the Office of Facilities Engineering & Operations (OFEO) identifies the project, provides background and budget information and describes the extent of the Work. General requirements for every project are described in these “Special Conditions for Architect/Engineer Services;” specific requirements and variations from the general requirements are described in the SOW for each individual project. Questions as to whether a certain item in the “Special Conditions for Architect/Engineer Services” applied to an individual project should be directed to the Contracting Officer’s Technical Representative for the A/E Contract (COTR-A/E) for clarification prior to submission of a fee proposal.

1.3. THE A/E FEE PROPOSAL – WORK ORDERS AND CONTRACT MODIFICATIONS

Following receipt of the Request for Proposal letter and SOW, the A/E shall visit the site with the COTR-A/E and the Museum or Office Representative. The A/E shall document clarifications to the SOW made during this meeting and submit a written fee proposal that indicates his/her concurrence with the SOW and notes mutually agreed upon clarifications to the SOW. The A/E shall include a task list with labor effort hours in compliance with minimum designated services required to complete the project. The requirements of the minimum Designated Services is accessible at http://www.ofeo.si.edu/ae_center/index.asp

The A/E shall use the standard SI-OFEO Architect/Engineer Fee proposal format Architect/Engineer Contracts, Fee Estimation and Requests for Payment accessible at http://www.ofeo.si.edu/ae_center/index.asp

- 1.3.1. Statutory Limit of Title I Fees - FAR 15.404-(4)(i)(B): 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.
- 1.3.2. Title I Services include all direct labor costs, indirect costs, profit and other direct costs that are associated with the portion of the total fee allocable to the production of “designs, plans, drawings, specifications,” a detailed construction estimate and supporting documents. Further information on the classification of Title I and Non-Title I Services is found in the format Architect/Engineer Contracts, Fee Estimation and Requests for Payment accessible at http://www.ofeo.si.edu/ae_center/index.asp
- 1.3.3. Unless otherwise noted in the Request for Proposal, the fee shall be of the firm fixed price type.
- 1.3.4. For Design projects, the A/E's proposal shall include, if so directed, a fee and/or labor rates for optional Construction Phase Services. The Construction Phase Services option may be firm fixed price or reimbursable on a time/materials basis, as agreed upon with the Contracting Officer. This option will be exercised only upon the written authorization of the Contracting Officer.
- 1.3.5. The Smithsonian's review of the A/E proposal will be followed by an acceptance, Notice to Proceed and issuance of a formal Contract/Contract Modification or a period of negotiation.

1.4. SUBMISSIONS

The A/E shall make preliminary, incremental and final submissions as directed in these “Special Conditions for Architect/Engineer Services” and in accordance with the SOW. These submissions may include, but are not necessarily limited to: pre-design studies, planning reports, programming documents, site selection recommendations, environmental impact studies, zoning analyses, surveys, mapping, feasibility studies, value engineering studies, concept studies, sustainability assessments, schematic design, design development, construction

documents, final bid/record documents, Leadership in Energy and Environmental Design (LEED™) documentation, submittal lists, bid addenda, cost estimates, back-up materials, calculations, analyses, construction schedules, coordination and phasing documents, construction site observation reports, other construction administration documents, exhibition design and support documents, furniture, signage and equipment schedules and specifications, miscellaneous studies, sketches, models, renderings, reports, meeting agenda and minutes, presentation materials, Project Deliverables Format, response to SI comments and other deliverables in various formats. Content and format of deliverables are described in subsequent sections of this document and are modified as appropriate in the SOW for the project.

Any submission that does not meet the requirements of the Contract, the Special Conditions for Architect/Engineer Services, including appendices and associated documents accessible at http://www.ofeo.si.edu/ae_center/index.asp and in accordance with the SOW will be rejected and the A/E shall resubmit acceptable documents at no additional cost to the SI.

1.5. PAYMENT

The A/E shall submit Periodic Requests for Payment (invoices) to the COTR-A/E in accordance with the A/E Contract, representing the A/E's fair estimate of the amount and value of the work accomplished and services performed under the Contract that meet the standards of quality described herein and in the SOW. The Request for Payment will be reviewed by the COTR-A/E and other appropriate OFEO staff and, if found satisfactory, approved and forwarded to the Office of the Comptroller (OC) for payment. The A/E shall utilize the Smithsonian Institution Request for Payment format, accompanied by a signed cover letter on the A/E firm's letterhead describing the specific services rendered (see paragraph 6.2.2) and back-up documentation as necessary. Back-up documentation may include: original receipts and invoices for other direct costs, sub-contractor/consultant invoices and other items as required. See Architect/Engineer Contracts, Fee Estimation and Requests for Payment format accessible at http://www.ofeo.si.edu/ae_center/index.asp

1.6. A/E LIABILITY FOR DESIGN DEFICIENCIES

Responsibility of the Architect-Engineer Contractor FAR 5.2.236-22. The A/E will be held pecuniarily liable for all design deficiency change orders resulting from inaccurate or incomplete data shown on existing conditions drawings or from lack of information about existing conditions at the site. Change order documents for drawings and specifications, including cost estimates, required during construction because of A/E errors, omissions or failure to comply with design requirements shall be prepared under the A/E's design phase contract at no additional expense to the Smithsonian, when requested by the Contracting Officer.

1.7. CONFIDENTIALITY OF DATA

See Project Deliverables format at http://www.ofeo.si.edu/ae_center/index.asp

2. PHASES/TASKS OF THE WORK - DESCRIPTION OF A/E SERVICES

The following descriptions represent the range of services the Smithsonian may request of an A/E. The SOW identifies which phases/tasks are required for an individual project and provides supplemental requirements and instructions.

Exhibition and other Interior Design projects shall comply with these architectural, engineering and submission requirements unless stated otherwise in the Contract.

Work on each phase shall not commence until issuance of authorization to proceed. Work on a phase shall be based on documents, if any, from the prior phase approved by the COTR-A/E in writing, any written directives by the SI with respect thereto, any and all corrections and revisions requested by the COTR-A/E and any adjustments authorized by the COTR-A/E in the Project Program or Construction Budget.

2.1. PRE-DESIGN

The intent of Pre-Design Services is to assist the Smithsonian in establishing a project's program, budget, time and systems commissioning requirements and/or other limitations prior to beginning Design. Projects of this nature are generally termed 'planning' projects by OFEO, although some pre-design services are required of A/E's on 'design' projects as well. Brief descriptions of various planning and pre-design services that an A/E shall perform are described below. Generic formats for deliverables are found in Section 6, Preparation and Submission of Deliverables. Detailed descriptions and specific requirements are itemized in the SOW for the project.

2.1.1. Master Plans: The A/E shall include site and/or facility, site and /or site vicinity studies and inventories, collection of existing data, preparation of maps, land use plans, circulation plans, site/facility development plans, visitor and staff counts, landscape plans, utility plans, transportation management plans, implementation plans, accessibility planning, engineering and energy analyses, stormwater management plans, waste disposal procedures, topographic surveys, geotechnical analyses, archeological surveys and reports, preservation planning, environmental analyses, flood analyses, habitat analyses, project budget estimates, recommendations for development, life safety and code analysis and other studies as required. Other specific requirements for submissions and presentations may be further defined in the SOW.

2.1.2. Commissioning Documents: Please refer to Section 3.10, Commissioning of Building Systems, for general Smithsonian commissioning requirements. The documents listed below are required at the Pre-Design phase for any project that will include commissioning of building systems.

a. Owner's Project Requirements (OPR): The OPR is to include the functional requirements of a project and expectations of the building's use and operation as they relate to systems to be commissioned. The OPR should address the owner's use and requirements, environmental and sustainability goals, energy efficiency goals, indoor environmental quality requirements, equipment and system expectations, building occupant and operations and maintenance personnel requirements. The Smithsonian or the Commissioning Provider may develop the OPR. For small projects, the Smithsonian will develop the OPR and

issue it to the A/E with the project A/E SOW. For larger projects in which the A/E is to provide space programming services, the Commissioning Provider will conduct an OPR workshop to elicit requirements from Smithsonian project stakeholders and develop the OPR during the programming phase of the project. The OPR will be updated by the Smithsonian or the A/E at subsequent design submissions.

- b. Basis of Design (BOD): The A/E is responsible for developing the BOD. Development of the BOD is a pre-design task and must be completed and submitted before the schematic design phase of the project. This document will include a narrative description of the design of any systems to be commissioned and any design assumptions. The BOD is expected to reflect consistency with the OPR and should address the following as applicable: primary design assumptions, standards, narrative descriptions of major end use systems such as HVAC&R, lighting systems, hot water systems, on site power and other systems to be commissioned. If there is no schematic design phase, the BOD must be completed and submitted before work on the 35% Design phase begins. The A/E will update this document and submit it at subsequent design submissions.

- 2.1.3. Project Prospectus for Major New Construction: The A/E shall prepare and include the budget estimates based on detailed building systems costs, first year program expenses and annual operating costs for use in the Smithsonian's long-range planning and funding requests. Specific format requirements will be described in the SOW for the planning project.
- 2.1.4. Feasibility Studies: The A/E shall include research of current economic, market, real estate, public need, visitation, transportation, traffic and other trends. They may include preparing trend and cost projections, evaluating current plans, proposing recommendations and implementation strategies. Other specific requirements for submissions and presentations may be further defined in the SOW.
- 2.1.5. Site Analysis Services: The A/E shall include site analysis and selection, site development planning, site utilization studies, landscaping concept studies, traffic and parking analyses and projections, on site and off site utilities studies, geotechnical and planimetric/topographic surveys, environmental studies, flood analyses, habitat analyses, accessibility studies, zoning analysis, market projections and recommendations. Other specific requirements for submissions and presentations may be further defined in the SOW.
- 2.1.6. Environmental Evaluations: The A/E shall prepare and include, as required, the Environmental Assessments (EA) and/or Environmental Impact Statements (EIS) consistent with procedures outlined in the National Environmental Policy Act (NEPA), as amended and Council of Environmental Quality (CEQ) Regulations, Leadership for Energy and Environmental Design (LEED™) Building Design and Construction requirements and the Institution's *Codes, Standards and Guidelines* document. Specific procedures and requirements will be outlined in the SOW for the project.

- 2.1.7. Geotechnical Services, Topographic and Planimetric Surveys may be required prior to design. If so, the A/E will be directed in writing to obtain these surveys. The SI will reimburse the A/E with the net cost thereof (as an Other Direct Cost). The A/E shall include design effort for preparation of drawings and/or specifications necessary for obtaining surveys, soil borings or laboratory information in the A/E fee proposal. If directed to do so, the A/E shall attach geotechnical information to the specifications.
- 2.1.8. Existing Conditions Survey: The A/E shall carry out a survey of existing conditions that will require researching, assembling, reviewing and supplementing existing documentation, as well as field verification. The survey shall include archival research, accessibility analyses, field measurements, analyses of functional and administrative uses, indoor environmental quality, building architecture, historic fabric, structural, mechanical, plumbing, fire protection, security and communications, electrical systems, materials, equipment, furnishings and preparation of measured drawings, as required for each project. Photography, videography and selective demolition may also be required.

Investigation of existing conditions is a required task for every design project. The A/E shall submit existing conditions drawings as a separate deliverable prior to commencement of construction documents effort, (see SOW and also paragraph 1.6.). The existing conditions drawings shall become the background for demolition drawings in the construction documents, if applicable. The A/E shall update existing conditions notes when known changes take place between the initial survey and the final submission of construction documents.

- 2.1.9. Programming and Space Planning: The A/E shall collect detailed technical, spatial and programmatic requirements for interior and exterior facility spaces, including architectural and engineering needs; analyze program functions, access/circulation, security; provide a life safety and code analysis; project budget estimates; sustainability goals assessment, preliminary assessment for LEED certification (checklist); presentation of findings and recommendations; providing and evaluating spatial relationships of program elements with block diagrams, stacking diagrams, circulation/space flow diagrams, adjacency diagrams, space plans and other analyses prior to design. Other specific requirements for submissions and presentations may be further defined in the SOW.
- 2.1.10. Concept Design Studies: The concept design studies shall be architectural and engineering responses to the project program. The A/E's response shall usually consist of two or more feasible and distinctly different alternative concepts, from which the Smithsonian will select a design direction in which to proceed in the Schematic Design phase. These studies shall describe organizational concepts, sustainable design features and benefits, themes and/or the architectural "parti," as well as major building or engineering systems concepts. Graphic and narrative submissions shall include conceptual site plans, floor plans, building sections, elevations, perspective sketches, massing models and concept evaluation reports with proposed engineering requirements, life safety and code analysis, preliminary cost estimates and life cycle savings and a Table of Contents for Specification Sections corresponding to CSI's MasterFormat 2004™. Level of detail and format of deliverables will be determined by the COTR-A/E and described in the SOW of the project.

2.1.11. Schematic Design Documents: The A/E shall prepare schematic design documents to illustrate the general scope of the project and the relationship between project components. Drawings shall be schematic in character, based on the programmatic and conceptual requirements developed in the Concept Design phase, as directed by the COTR-A/E. The documents shall include outline specifications for the mainsystems, as directed by the COTR-A/E. If alternative concept studies were produced, the subsequent advancement of the project to schematics shall rest upon the SI's decision to pursue a single concept for further development. The Schematic Design phase submission shall consist of drawings and sketches, a narrative report that addresses major site and building systems, life safety and code analysis, gross and net area calculations (in both square meters and square feet), a massing model (as appropriate) and a cost estimate. For projects with commissioning requirements, updates of commissioning documents previously initiated (as described in section 2.1.2) are required at the schematic design phase. Other specific requirements for submissions and presentations may be further defined in the SOW.

2.1.12. Designated Services: The A/E shall include, in the submissions minimum design services in compliance with requirements of Designated Services accessible at http://www.ofeo.si.edu/ae_center/index.asp

2.2. DESIGN

The design of new work, alterations, maintenance and repair of SI facilities shall include all changes to existing facilities, utility systems and site improvements required to provide for satisfactory connection between the old and new work to make the facility completely operable for its intended use. All designs shall consider security and protection for any existing artifacts, specimens, building operations, contents and occupants. Where necessary, existing exterior and interior utility services and building systems shall be re-sized to provide for loads imposed by the changes. New construction shall match and/or complement existing work. All drawings shall clearly differentiate between existing conditions to remain, existing construction to be demolished and new construction. At each design submission, the A/E shall ensure that the design does not exceed the established "design to" budget.

In accordance with the content, format and quantity requirements described Section 6, Preparation and Submission of Deliverables, Design phase services shall include the submission of deliverables in the following sequence: 35% Design Development, 65% Construction Documents (or other interim submission, if required in the SOW), 95% Construction Documents and 100% Final Documents. Any deviation from these design phase submissions will be noted in the SOW.

Brief descriptions of Design phases that an A/E shall perform and include in submissions follow:

2.2.1. 35% Design Development: The 35% Design Development (DD) phase documents shall reflect accurate existing conditions at the project site as well as proposed new work identified in the SOW. Design Development documents should be a mock-up or "outline" of the working drawing set

and are prepared at the scale(s) and sheet size needed for Construction Documents. All disciplines shall exhibit generally equivalent levels of completeness and coordination and display approximately 35% development of the information required for construction.

- a. Commissioning Plan: The Commissioning Provider shall provide a Commissioning Plan based on the OPR and the BOD at the 35% submission. The Commissioning Plan will serve as a reference to identify the strategies, aspects and responsibilities within the commissioning process for each phase of the project. The document shall outline the overall project schedule, organization, responsibilities and documentation requirements of the design process. The A/E shall coordinate with the Commissioning Provider to continually update the plan to reflect project changes. Additional details are contained within the LEED NC and CI Fundamental Commissioning and Enhanced Commissioning credit descriptions.
- 2.2.2. 65% Design Development: The 65% Construction Documents Submission (or other interim submission, if required by the SOW) shall be a complete submission of construction documents and supporting materials that clearly demonstrate project design progress, adherence to project scope and design criteria and coordination between disciplines. All disciplines shall exhibit equivalent levels of completeness.
 - 2.2.3. 95% Design Development: The 95% Construction Documents shall be complete and biddable in every aspect. Only very minor revisions should be required after review. All previous comments made by the SI shall be accounted for. The documents shall be submitted in quantities and formats according to requirements found in Section 6, Preparation and Submission of Deliverables.
 - 2.2.4. Final Record Documents: The 100% final drawings, specifications and other documents shall be acceptable to the SI for its solicitation of construction bids/offers wherein full and open competition may be obtained. All prior submission documents shall be revised/corrected to incorporate SI review comments and shall be resubmitted as final documents. The final submission of documents shall include the following completed items in the formats and quantities indicated under Section 6, Preparation and Submission of Deliverables.
 - a. Record Drawings with professional seals and signatures of the registered architect(s) and engineer(s)
 - b. Record Specifications
 - c. Construction Cost Estimate(s)
 - d. Construction Time Schedule
 - e. Construction Submittal and Sample Schedule/Log
 - f. Supporting Materials (analyses and calculations)
 - g. Electronic file copies of the Specifications
 - h. Electronic file copies of the Drawings
 - i. Final procurement/bid packages for items outside of the construction package
 - j. Responses to 95% review comments (if not submitted earlier)

2.3. POST-DESIGN

- 2.3.1. Design Services Responsibilities:The A/E design services responsibilities do not terminate after submission of the 100% Final Documents. The A/E shall provide the following services at no additional cost to the SI during the bidding and construction phases:
- a. Other Bid/Offer Documents: During the construction bid/offer period, the A/E shall provide addenda for revised drawings, specifications and other documents as may be necessary to clarify or correct any design deficiencies in the construction documents. These may include written clarification memos, narrative and/or graphic addenda, revisions to drawings and specifications, etc. This provision is at no additional cost to the Smithsonian and applies to any part of the construction bid documents advertised by Smithsonian within one year of completion of the A/E Contract or Work Order, whichever is later.
 - b. Bid/Offer Analysis: If bids or offers exceed the “design to” budget, (as amended by any subsequent change of scope by the Smithsonian Institution), the A/E shall be required to redesign to within the budget limitation at his own expense in accordance with FAR clause 52.236.22. The A/E will be held accountable for keeping the design within the budget. To aid this process, the A/E will ensure that his sub-consultants review each estimate submission for accuracy of inherent design assumptions. Coordination between the design and the cost estimate is essential to the financial management of the project and any lack thereof will be reflected in the Smithsonian evaluation of the A/E project performance. A reasonable time for coordination should be allotted at each stage of design.
 - c. Response to Contractor Requests for Information: During the construction phase, the A/E shall respond quickly and promptly to any RFI’s arising from design deficiencies, errors and/or omissions in the construction documents. These RFI’s will be forwarded to the A/E by the COTR-A/E. Responses shall be written (and graphic, if necessary) and shall be prepared at no cost to the Smithsonian.
- 2.3.2. Additional Bidding/Offer Phase Services:The additional bidding/offer phase services may be requested of the A/E in the SOW. These optional services may include assisting the SI by drafting technical proposal evaluation criteria for a Request for Proposal (RFP); reviewing technical proposals submitted by offerors; evaluating offeror requests for product substitutions; and/or participating in pre-bid or pre-proposal site visits and/or conferences.
- 2.3.3. Construction Phase Services:The A/E shall provide construction phase services at the completion of construction document services unless otherwise noted in the SOW. The A/E Fee Proposal shall include costs for services as outlined below or as stipulated in the SOW. This phase is optional and shall only be exercised upon written notification from the Contracting Officer. The A/E's point of contact with OFEO shall remain the COTR-A/E. The A/E shall keep the COTR-A/E fully informed of his/her actions, transmitting copies of all pertinent correspondence and documents to the Office of Facilities Engineering & Operations.

Construction Phase Services shall include, but are not limited to:

- a. Attending the Pre-Construction meeting with the SI and Contractor.
- b. Consulting with OFEO staff and with the Construction Contractor, as authorized, on design-related, sustainability-related and technical issues.
- c. Attending periodic construction progress meetings or other coordination meetings called by the Contracting Officer's Technical Representative for Construction (COTR-C). The frequency of these meetings shall be as indicated in the SOW.
- d. Reviewing shop drawings, calculations and similar data, catalog cut-sheets, manufacturer's data sheets, equipment lists, materials or product samples, product certifications, laboratory reports, test data and other construction submittals:
 - (1) When the submittal conforms fully to the contract drawings and specifications, the A/E shall approve it.
 - (2) When the submittal clearly does not conform to the contract drawings and specifications, the A/E shall either disapprove it or refer it, along with his/her recommendations, to the COTR-A/E and COTR-C for disapproval or resubmittal.
 - (3) When the submittal has only minor deviations from the contract drawings and specifications, the A/E shall note the deviations and omissions as may be appropriate and approve the submittal subject to the notations.

Optional Construction Phase Services may include (see SOW):

- a. Performing periodic construction site visits and submitting Field Observation reports (with photographs and/or slides, if required by the SOW).
- b. Observing building systems tests and balancing, reviewing on site mock-ups, participating in punch-list walk-throughs.
- c. Reviewing warranty information, Operating and Maintenance Manuals or other items submitted by the construction contractor.
- d. As an optional service, the A/E may be contracted to prepare Operating and Maintenance Manuals and/or coordinate the instruction of SI personnel in the operation and maintenance of building components or systems.
- e. Providing signed and sealed engineer certifications if required by Federal, State or Local authorities or utility companies (for example: stormwater management as-built certifications; water utility certifications).

2.3.4. Construction Contract Changes: Amendments to the A/E Contract may be

negotiated with fee adjustments for the preparation of working drawings, specifications and change order cost estimates to meet changed requirements or conditions, which were not included under the A/E's original SOW or area of responsibility.

- 2.3.5. Post Construction Services: The post construction services may include the preparation of coordinated as-built drawings and data (CADD/CAFM), Post Construction Evaluation, Warranty Review, Measurement & Verification Plan or other services as described in the SOW.
- 2.3.6. Post Construction Commissioning Report: The A/E or designated commissioning provider shall compile a report to confirm completion of the project requirements as outlined in the OPR. The report shall also identify the history of any system deficiencies, resolutions and remaining outstanding issues. After substantial completion the report shall, for all major building systems, document performance tests and evaluations of the systems and also document a contract and plan to resolve any identified final issues. The report shall also contain a summary of the design review process, submittal review process, operations and maintenance documentation and training processes.

2.4. OTHER SUPPLEMENTAL SERVICES

The A/E may be contracted to provide other supplemental services, often in conjunction with design services. They may include, but are not limited to:

- 2.4.1. Special Consulting Services: The special consulting services may include assisting the Smithsonian in selecting other consultants; reviewing the work of other Smithsonian consultants; inspection services; cost estimating services.
- 2.4.2. Special Studies and Services: The special studies and services may include investigation, research, analysis and/or participation in workshops to assess, develop and/or perform energy analysis, life cycle cost analysis, value engineering, Total Building Commissioning (TBC), Project Definition Rating Index (PDRI), environmental monitoring and/or hazardous materials testing and removal.
- 2.4.3. Measurement and Verification Plan (M&V Plan): The measurement and verification plan shall provide for the ongoing accountability of building energy consumption over time and is expected to be drafted with the requirements outlined in the Leadership for Energy and Environmental Design (LEEDTM) Building Design and Construction: Energy and Atmosphere (EA) Credit 5: Measurement and Verification.
- 2.4.4. Presentations: The A/E shall make available personnel knowledgeable in the areas of work for presentations to the Smithsonian as well as to outside regulatory and advisory entities. The Smithsonian shall provide specific formats and requirements for presentation unless otherwise noted. The A/E shall prepare and present materials, in specified formats, required to secure the approval of all regulatory, advisory commissions and/or client offices associated with proposed design and/or modifications.

- 2.4.5. Furniture, Furnishings and Equipment (FF&E): The A/E shall provide design of various furniture, furnishings and special equipment items, including but not limited to:
- a. Preparation of plans and specifications, "color" boards indicating finish materials, fabrics and colors, cost estimates, sustainable characteristics, collection of vendor or fabricator quotes, procurement/bidding documents, fit-out schedules for fabrication and installation, review and administration services during fabrication, delivery and installation.
 - b. Design of custom or special furniture, furnishings and equipment for lobby, conference, retail, gallery and other areas; selection of furniture finishes, colors and fabrics. Examples include, but are not limited to: information desks, museum shop checkout counters and display units, gallery seating.
 - c. Selection of furniture systems, furniture items, office equipment and other products on the General Services Administration (GSA) Schedule/Contract. The SI purchases furniture and equipment on the GSA Schedule, unless previous agreement is made with OCon. The A/E shall evaluate GSA vendors of comparable quality before selecting a specific product. Any items not on GSA Schedule must be competitively bid. If the SI approves the specification of non-GSA Schedule items, the A/E shall prepare a written purchase justification that explains the special needs met by the product, a cost analysis that shows the price is "fair and reasonable" and any other information required by the Contracting Officer.
 - d. Selection of specialized equipment for laboratories, collections storage, libraries, workshops, art/graphics studios, photography and audio-visual and other spaces.
 - e. Design of project signage, interior and/or exterior, for room identification, building identification and directory, directional signage, special plaques, accessible signage and others.
- 2.4.6. Exhibition Design: The A/E shall provide design of museum exhibitions, which may include artifact vitrines, exhibit casework, interior floor, partition and ceiling systems, lighting systems, audio-visual systems, signage and special finishes. All exhibit designs must comply with the codes, regulations, standards and guidelines set forth in Section 3, Criteria Governing Planning and Design. The services of registered professional architects and engineers must be employed in conjunction with exhibit designers when deemed necessary by the Office of Facilities Engineering & Operations.
- 2.4.7. Other Services: The A/E shall provide design of logos, symbols or other special graphics; promotional and informational brochures; preparation of full-size mock-ups of certain design features; other professional services.

3. CRITERIA GOVERNING PLANNING AND DESIGN

3.1. DESIGN CRITERIA CONSIDERATIONS

The planning and design of each project shall be the most economical and shall be consistent with both the expected use and life of the facility. Designs shall be consistent with established master plan and programming documents. Life safety, accessible design for persons with disabilities, historic preservation (if applicable), security, fire protection, energy conservation, preliminary life cycle cost benefits, constructability, durability, reliability, maintainability and sustainability shall be essential considerations.

3.2. CODES, REGULATIONS, STANDARDS AND GUIDELINES FOR DESIGN

All work shall comply with the latest revisions (and metric versions) of Local, State and Federal legislation, codes, regulations, standards and guidelines documents in use at the time Construction Documents Phase (95%) documents are submitted. Any and all Local, City, County, State, Regional and Federal codes or regulations, including utility company requirements, relating to design, construction and occupancy or for obtaining inspections or permits, are applicable. It is the A/E's responsibility to research and comply with these regulations and inform the COTR-A/E of any requirements for reviews, inspections, approvals, fees and/or permits. In the event of conflict or inconsistency between the local codes and reference standards, those, which are more stringent, if determinable, shall govern. If stringency is not applicable, the most recent standard shall govern. All requests for waivers or interpretation of codes and regulations shall be made in writing and submitted to the COTR-A/E for decision. A list of applicable Codes, Regulations, Standards and Guidelines is accessible at http://www.ofeo.si.edu/ae_center/index.asp. This list is updated periodically by OFEO.

3.2.1. Smithsonian Standards and Guidelines: Individual SI offices and museums may have specific standards and guidelines applicable to the project. Project-applicable guidelines and standards will be provided to the A/E through OFEO, when necessary. Examples include: accessibility guidelines (Accessibility Program), utility (per local jurisdiction) rebate procedures (OFEO, OFR); security standards and requirements (OPS); sample guide specifications, particularly asbestos abatement, sprinkler systems, fire alarms, fire stopping and others (OFEO, OSHM). Where SI requests, standards, specs or guidelines conflict with current codes and/or industry standards, the A/E shall so inform the COTR-A/E. The most stringent requirement will govern, unless notified otherwise. The A/E must verify that information contained in any SI-supplied guide specifications is up-to-date and accurate. Ultimately, the A/E is responsible for all information provided on the drawings and in the specifications.

3.2.2. Mall Streetscape Manual: For exterior work on projects on the National Mall, the A/E shall conform with the Mall Streetscape Manual design guidelines as applicable to the Smithsonian. The Mall Streetscape Manual is available for reference in the OFEO Library.

3.2.3. Facilities Master Plans: New projects shall observe all applicable guidelines set forth in the individual sites or facility's current approved master plan. The A/E shall make submissions to required Federal, State and Local authorities to obtain necessary approvals and permits. Any requests for deviations from the master plan guidelines shall be made in writing with adequate background information, reason(s) for the request (i.e. new codes, change in existing conditions, program revisions, etc.) and professional recommendations. The appropriate Smithsonian staff will review the request and an official decision rendered. The following master plans are available for reference in OFEO:

- a. Suitland Collections Center (SCC) Master Development Plan
- b. Smithsonian Environmental Research Center (SERC) Facilities Master Plan
- c. Smithsonian Tropical Research Institute (STRI) Facilities Master Plan
- d. National Museum of Natural History Space Utilization Plan
- e. Hirshhorn Museum and Sculpture Garden Master Facilities Development Plan.
- f. Individual building master plans for system replacements, etc.

3.3. HISTORIC PRESERVATION

The Smithsonian Institution is committed to the preservation of our cultural resources, including our historically significant structures. Maintenance, repair and rehabilitation work in these structures shall be designed in accordance with the Secretary of the Interior's Standards for Rehabilitation. Utilization of historic preservation specialists, building materials conservators and other consultants may be necessary. Designs are subject to SD 418 review as described in paragraph 4.6 – Coordination with Historic Preservation and Planning Authorities and sub paragraph 4.6.1 – Historic Preservation.

3.4. ACCESSIBILITY FOR INDIVIDUALS WITH DISABILITIES

- 3.4.1. Commitment: The Smithsonian Institution is committed to providing facilities that are readily accessible to all members of its staff and visitor populations, including persons with disabilities. The ultimate goal is to provide safe, convenient and dignified access/egress, which often means exceeding the minimum requirements.
- 3.4.2. Standards and Guidelines: The A/E shall refer to the Smithsonian Guidelines for Accessible Design, dated March 2011, always meeting the minimum requirements and exceeding them where common sense dictates. These are accessible at http://www.ofeo.si.edu/ae_center/index.asp
- 3.4.3. Design of Exhibition Projects: The A/E and/or exhibition designers shall utilize the Smithsonian Guidelines for Accessible Exhibition Design for exhibition projects and the SI checklist for Accessible Information Desks. These documents are available through the Smithsonian Institution Accessibility Program.

- 3.4.4. Conflicts in Standards and Guidelines: Where these standards conflict with each other, building codes and/or the Life Safety Code, the requirement providing the greatest accessibility and/or safety to people with disabilities shall govern.
- 3.4.5. Design Reviews: All designs are subject to review by the Smithsonian Institution's Accessibility Coordinator. The Smithsonian Guidelines for Accessible Design refer to the General Services Administration (GSA) Architectural Barriers Act Accessibility Standards (ABAAS) and the Department of Justice (DOJ) Americans with Disabilities Act (ADA) Standards for Accessible Design. Where compliance with minimum GSA ABAAS and DOJ ADA Standards for Accessible Design requirements may be structurally impractical, exceeds budgetary constraints or conflicts with Life Safety or Historic Preservation regulations and standards, the A/E shall so inform the COTR-A/E in writing as soon as possible. This notification shall give detailed information and specifically describe the existing conditions and other considerations, which appear to preclude compliance with the governing standards. The A/E shall assist the SI in resolving conflicts by making recommendations supported by background documentation and by making presentations to governing authorities.
- 3.4.6. The A/E shall note that GSA ABAAS and DOJ ADA Standards for Accessible Design are design standards and guidelines, not building codes. The construction contractor's responsibility is to build what is detailed and specified. It is the A/E's responsibility to ensure that design details and specifications are in compliance with accessibility requirements. Notes on drawings and in specifications instructing the construction contractor to "build or provide in compliance with accessibility codes" are NOT acceptable; the A/E shall provide the appropriate details and specifications in the construction documents.

3.5. PUBLIC RESTROOM DESIGN CRITERIA

The SI has identified certain design criteria for public restrooms to help alleviate the problems associated with large volume visitor use. The A/E shall address the following in new designs and renovations:

- 3.5.1. Plumbing Fixtures: Fixture counts shall exceed code minimum counts where possible, especially in women's restrooms.
- 3.5.2. Family Toilet Room: In addition to multi-stall men and women's restrooms, a separate, unisex, accessible, "family" toilet room shall be provided, where possible. It shall be outfitted to accommodate the needs of children, families, persons with disabilities and their escorts.
- 3.5.3. Baby Changing Station: An accessible baby-changing station shall be provided in at least one public men's and one public women's restroom in every SI building.

3.6. HAZARDOUS MATERIALS

- 3.6.1. Asbestos-Containing Materials: The A/E shall consult the Asbestos Abatement Survey of Smithsonian Institution Facilities before beginning

work on any project in an existing SI facility. The A/E shall retain a certified hazardous materials specialist/industrial hygienist, approved by the SI, to perform any reconnaissance, inspection, testing or other services during design if hazardous materials are thought or known to be present. In conjunction with the SI Office of Safety, Health and Environmental Management (OSHEM), OFEO has developed standard guide specifications for asbestos abatement for all SI facilities. The A/E may, in consultation with OSHEM, edit these specifications as necessary for projects requiring asbestos abatement prior to or during construction. The A/E may provide his/her own specification if he/she can demonstrate that it meets or exceeds the Smithsonian guide specification.

- 3.6.2. Polychlorinated Biphenyl's (PCB's): Ballasts or other electrical fixtures that are known or suspected to contain PCBs must be removed, packaged, stored, transported, treated and disposed of according to Environmental Protection Agency (EPA) and Code of Federal Regulations. The list is accessible at http://www.ofeo.si.edu/ae_center/index.asp. The A/E, in consultation with OSHEM, shall include provisions in the project specifications for the construction contractor's management and disposal of PCB's.
- 3.6.3. Lead-Based Paint: Collection, testing, removal and disposal of lead-based paint shall be performed in accordance with Local, State and Federal procedures and under the advisement of OSHEM. In conjunction with the SI Office of Safety, Health and Environmental Management (OSHEM), OFEO has developed standard guide specifications for lead abatement for all SI facilities. The A/E may, in consultation with OSHEM, edit these specifications as necessary for projects requiring lead abatement prior to or during construction. The A/E may provide his/her own specification if he/she can demonstrate that it meets or exceeds the Smithsonian guide specification.
- 3.6.4. Underground/Aboveground Storage Tanks (USTs/ASTs): Work involving the installation, removal, modification, etc. of USTs/ASTs shall be conducted in accordance with all USEPA regulations specified in 40CFR Part 280 and all applicable State and Local regulatory requirements.
- 3.6.5. Other Hazardous Materials: Management and disposal of other hazardous materials in SI facilities not specified in this section shall be accomplished in accordance with Local, State and Federal procedures under the advisement of OSHEM.

3.7. SEISMIC DESIGN

Consistent with Executive Order 12699 (new buildings) and Executive Order 12941 (existing buildings), the Smithsonian requires new buildings and major renovations to be designed and constructed to resist the effects of earthquake motions. This applies to all structural, non-structural, geologic and adjacency compliance categories. Except for welded steel moment frame structures (WSMF), the A/E shall follow the governing design criteria in the latest edition of the applicable building code. (For compliance see http://www.ofeo.si.edu/ae_center/index.asp for List of Codes, Regulations, Standards and Guidelines.)

3.8. SUSTAINABILITY

SI is committed to incorporating principles of sustainable design and energy efficiency into all of its building projects. The result is an optimal balance of cost, environmental, societal and human benefits while meeting the mission and function of the intended facility. It is SI's intent that sustainable design will be integrated as seamlessly as possible into the existing design and construction process.

Sustainable design seeks to reduce negative impacts on the environment and the health and comfort of building occupants, thereby improving building performance. The basic objectives of sustainability are to reduce consumption of non-renewable resources, minimize waste and create healthy, productive environments. Sustainable design principles include the ability to:

- Optimize site potential
- .Minimize non-renewable energy consumption
- .Use environmentally preferable products
- .Protect and conserve water
- .Enhance indoor environmental quality
- Optimize operational and maintenance practices
- .Provide measurement and verification strategies

Utilizing a sustainable design philosophy encourages decisions at each phase of the design process that will reduce negative impacts on the environment and the health of the occupants, without compromising the bottom line. It is an integrated, holistic approach that encourages compromise and tradeoffs. Such an integrated approach positively impacts all phases of a building's life cycle including design, construction, operation and decommissioning.

When indicated in the Scope of Work, the A/E's design shall result in a project eligible for LEED certification under the appropriate rating system at the level indicated. For projects pursuing LEED certification, the A/E shall be responsible for the following.

- 3.8.1. A LEED AP on the A/E project team shall meet with SI at the beginning of the Project to discuss the LEED goals, review LEED checklists and submit a narrative, for SI approval, describing the credits to be pursued and recommendations for achieving the goals. The goal for projects with construction budgets of less than \$2.5 million is LEED basic certification. The goal for projects with construction budgets greater than or equal to \$2.5 million, but less than \$5 million, is LEED Silver certification. The goal for projects with construction budgets greater than or equal to \$5 million is LEED Gold certification. More than one LEED checklist may be referenced before deciding the LEED rating system to be used. Only design work required to obtain credits beyond those achievable through compliance with the Federal Energy Management Guidelines (See the Codes, Standards and Guidelines document) shall be priced under this task. The narratives and checklists shall be updated with each design phase submission.

- 3.8.2. The A/E must register projects pursuing LEED certification on the LEED Online system no later than at the 35% design milestone submission date. The Smithsonian will directly pay all GBCI fees related to LEED registration, reviews and certification. The A/E shall be responsible for registration and management of the LEED process, as well as documentation of design credits necessary to achieve the LEED certification goal for the project. At the completion of 95% construction documents, the A/E shall submit all LEED documentation intended for submission to GBCI to the COTR-A/E. Documentation for LEED design credits, including those achievable through compliance of the Federal mandates, shall be submitted to GBCI for review upon approval of the COTR-A/E. Final documentation of all credits shall be submitted for certification upon completion of the Project and as required by GBCI.

3.9. ENERGY CONSERVATION AND MANAGEMENT

- 3.9.1. The Smithsonian Institution is a trust instrumentality of the United States (recognized as a tax-exempt organization under Section 501(c)(3) of the Internal Revenue Code) and although not an Executive Branch of the U.S. Government, is committed to planning, designing, constructing, maintaining and operating its owned and leased buildings and facilities consistent with Federal environmental and energy management requirements to the maximum extent practical. See the SI OFEO's Codes, Standards and Guidelines latest edition for a list of Federal Energy Management Guidelines: http://www.ofeo.si.edu/ae_center/index.asp If specified in the SOW, the A/E shall complete a life cycle cost analysis and energy analysis and make recommendations for implementation.
- 3.9.2. The Smithsonian participates in utility rebate programs, when available. These programs are coordinated by OFEO Energy Management Branch, which reviews A/E designs for utility rebate potentiality. The A/E will be required to incorporate incentive rebate programs in the design.

3.10. COMMISSIONING OF BUILDING SYSTEMS

The Smithsonian requires Fundamental Building Commissioning (as defined by the LEED NC and CI rating systems) of all design and construction projects, even if the project is not eligible to pursue LEED certification. The Smithsonian additionally requires Enhanced Commissioning (as defined by the LEED NC and CI rating systems) for larger projects and projects pursuing LEED certification based on the size and complexity of the project. For most projects requiring Enhanced Commissioning, the Smithsonian will contract directly with a third party Commissioning Provider. In some cases, the third party Commissioning Provider may be a sub-consultant to the A/E, in accordance with the Enhanced Commissioning requirements (as defined by the LEED NC and CI rating systems).

3.11. STORMWATER MANAGEMENT AND SEDIMENT EROSION CONTROL

For projects requiring site work, all applicable Federal, State and Local guidelines shall be followed in preparing stormwater management and sediment erosion control (SWM/SEC) design. The A/E shall prepare submissions for appropriate authorities on behalf of the Smithsonian and shall revise designs, as necessary, to obtain required approvals and permits. The submission must conform to the erosion and sedimentation requirements of the most recent EPA Construction General Permit.

3.12. ENVIRONMENTAL DESIGN

The A/E shall research and observe all design guidelines and requirements addressing environmental concerns, including but not limited to wetlands protection, tree conservation, endangered species protection and others. For project development in sensitive environmental areas, such as wetlands, the A/E shall calculate disturbance and propose mitigation measures, if necessary, in accordance with all applicable Federal, State and Local laws and regulations. The A/E shall prepare designs and submissions (and resubmissions, if necessary) to secure required approvals and permits.

3.13. FOOD SERVICE DESIGN

The A/E shall design food service facilities in compliance with all applicable Federal, State, and Local health and sanitation regulations. The A/E shall advise COTR-A/E when reviews, approvals, inspections, permits or other items are required from outside agencies and shall prepare the necessary documents. Food service facilities shall have submeters for steam, gas and electricity.

3.14. PUBLIC UTILITIES

For projects that require connection to site utilities, such as water, sewer, electric, gas, telephone and/or other services, the A/E shall coordinate with the appropriate public utility companies and commissions to prepare connection designs according to the applicable guidelines. Submissions shall be prepared (and revised and resubmitted, if necessary) on behalf of the Smithsonian for securing approvals, class of service, permits and service hook-ups. In the Washington, DC metropolitan area, DCWASA, WSSC, PEPCO, Dominion Power, Washington Gas and Verizon are the major utility companies that must be coordinated with. The A/E shall field verify all site utilities and submit documentation to COTR-A/E.

3.15. TELECOMMUNICATIONS

The A/E shall design empty conduit runs for telephone and data cable, based on the requirements of the Office of the Chief Information Officer (OCIO) and the client/user. The A/E's design shall provide the infrastructure for bringing service to the building from a designated outside source, if not already in place and for internal distribution.

3.16. ELECTRONIC SECURITY

The A/E shall design a fully functioning and programmed electronic security system, based on the Smithsonian Institution Security Design Criteria, revised January 1, 2010 and from meetings with the Office of Protective Services. These design standards and criteria are accessible at http://www.ofeo.si.edu/AE_Center/AE_Center_Home.htm

The A/E shall survey and design an appropriate level of electronic security from the standards that interfaces with existing security management systems in place or which may add an entirely new security management system. The A/E must acquire the services of professionals with firsthand knowledge and certification on the security management system, its field equipment and programming requirements to provide a turnkey system. Complete drawings and specifications shall be developed for the selection and installation of security equipment, conduit and wire/fiber optic riser diagrams, security cabinets, interface equipment and ancillary equipment to supplement or add to existing data gathering panels, CCTV switchers, Digital Recording Systems and an alarm matrix must be provided. The A/E shall undertake all programming of new panels, alarms, etc. into the security management system following guidelines provided by the Office of Protection Services. Changes and/or removals may be required to existing systems, to accommodate the new design.

The A/E shall provide onsite staff as needed throughout the design process to meet with the Office of Protection Services when issues arise requiring resolution. The A/E shall provide onsite staff to answer, inspect and resolve all issues concerning installation with contractors, to review installation compliance with specifications and to conduct system equipment acceptance testing and punch list generation and resolution.

4. COORDINATION AND PERFORMANCE OF THE WORK

4.1. COORDINATION WITH THE COTR-A/E

During the performance of the work under each project work assignment, the A/E shall keep in close liaison with the COTR-A/E designated as their primary contact. This person's title will most likely be Project, Planning or Design Manager and he/she will coordinate the work with the SI "Client" (SI Museum or Office representative). All requests by the SI Client will be referred, with comments or recommendations, to the COTR-A/E in writing for decision and direction. The COTR-A/E will in turn inform the A/E of decisions affecting the direction of the Work.

4.2. COORDINATION WITH THE COST ENGINEERING BRANCH OF THE OEDC TECHNICAL SERVICES DIVISION

The A/E shall meet with a representative of the Cost Engineering Branch of the OEDC Technical Services Division Associate Director, Cost Engineering and the COTR-A/E prior to the preparation of construction cost estimates in order to become informed with the most recent estimating requirements, formats and criteria available.

4.3. COORDINATION WITH THE COMMISSIONING PROVIDER

The A/E shall meet with the designated Commissioning Provider after the schematic design phase has been initiated to ensure consistency with the project requirements, optimization of building systems and amelioration of any identified system deficiencies throughout the design and construction process.

4.4. COORDINATION WITH THE GEOSPATIAL ENGINEERING BRANCH OF THE OEDC TECHNICAL SERVICES DIVISION

The A/E shall meet with a representative of the Geospatial Engineering Branch of the OEDC Technical Services Division, COTR-A/E and CADD Manager prior to start of project work in order to become familiar with the most recent CADD/CAFM guidelines and standards.

4.5. A/E COORDINATION AND SITE VISITS

The A/E shall make, at his own expense, all visits to the site, the Client's office and the Office of Facilities Engineering & Operations, as may be required to accomplish the Work, except as may be otherwise specifically provided for in the SOW. All site and Client visits and all communication with the Client, shall be previously authorized by the COTR-A/E. The A/E fee shall also provide for reasonable coordination with and support for other consultants hired by the Smithsonian to design specialized work forming part of the same project.

4.6. COORDINATION WITH GOVERNMENTAL AGENCIES

The A/E shall comply with the regulations of and coordinate with all governmental agencies of the United States, foreign governments, State and Local agencies having jurisdiction for planning, design, construction, utilities, land management and environmental protection.

4.7. COORDINATION WITH HISTORIC PRESERVATION AND PLANNING AUTHORITIES

The A/E shall comply with the guidelines and standards of all applicable Federal, State and Local historic preservation and planning authorities including, but not limited to the following: the Advisory Council on Historic Preservation (ACHP), the State Historic Preservation Office (SHPO), the National Capital Planning Commission (NCPC), the Commission of Fine Arts (CFA), the National Landmarks Program of the National Park Service and any local, county, city and/or neighborhood groups. The Office of Facilities Engineering & Operations will coordinate presentations and submissions to these groups.

Within the District of Columbia, projects may fall under as many as four (4) separate external review processes. These are: the National Capital Planning Commission (NCPC) and Commission of Fine Arts (CFA) submission and review processes; the Historic Preservation Review process; and the environmental documentation consistent with the National Environmental Protection Act (NEPA) and Council of Environmental Quality (CEQ) regulations. Although all the processes and their associated review groups have separate statutory

authorities and submission requirements, the processes often touch and intermingle, but never truly meld. Often part of one is a prerequisite to another. As a result, a review and submission strategy should be developed for each project proposal. A thorough understanding of these processes is essential for the satisfactory completion of projects. Further detail can be found in OFEO's "Four External Review Processes" document, available from the OFEO Design Manager.

The A/E shall assume responsibility for preparing submissions, attending working meetings with the staffs of these authorities, preparing any required presentation materials and making presentations. The A/E shall be responsive to those agency requests for modifications to the design with which the Smithsonian concurs and shall be responsible for making reasonable changes to the design and presentation materials. Detailed information about preservation and planning authority requirements will be provided to the A/E by the COTR-A/E in the SOW for the project prior to fee negotiation. Fees and costs for these submission and presentation tasks should be itemized separately in the A/E fee proposal. Additional information follows below:

- 4.7.1. Historic Preservation: Many of the Smithsonian Institution facilities and sites are historically significant. Repairs, renovations and new work in these structures are subject to review in accordance with Smithsonian Directive 418 accessible at www.si.edu/oahp. Further, projects in the District of Columbia that are submitted to the National Capital Planning Commission (Section 4.6.2.) must comply with the National Historic Preservation Act, Section 106, as amended. Ultimately, OFEO will determine when a design is subject to review by applicable Federal, State and/or Local authorities. The responsibility of the A/E for submissions and presentations will be described in the SOW. A 30-day or longer review period generally follows submissions to Historic Preservation authorities. The A/E should note that the Section 106 process needs to have been initiated before submitting a project for preliminary review to NCPC and needs to have been completed before submitting for final review. For additional information, refer to the Advisory Council on Historic Preservation web page: www.achp.gov
- 4.7.2. National Capital Planning Commission: NCPC has review authority over planning and design projects on federal land in the National Capital Region. Intermittent working sessions, submissions and presentations are required in various phases of a project's development according to NCPC formats. Formal submissions must include the results of the Section 106 Review, if it was required. The A/E is responsible for preparing submissions and presentation materials and for attending meetings and presentations. Typically, projects are reviewed at the concept, preliminary and final stages of design development. For less complex project sometimes only one (1) submission may be necessary. For more complex projects several reviews may be necessary. The required number of submissions will be detailed in the SOW. A 30-day or longer review period is generally required for each submission to NCPC, prior to the Commission meeting. Environmental documentation, consistent with NEPA and CEQ regulations, needs to be completed before preliminary submissions to NCPC. NCPC's National Historic Preservation Act, Section 106 requirements are outlined in Section 4.6.1. For additional information see the "Four External Processes" document indicated in Section 4.6 and the NCPC web page: www.ncpc.gov

- 4.7.3. Commission of Fine Arts: CFA has review authority over projects in the District of Columbia. The emphasis of the Commission is on aesthetics and design. Submission and presentation to the CFA is accomplished independently of Historic Preservation and NCPC reviews, although NCPC in particular takes note of the CFA review outcome in their review. CFA generally requires that review material be submitted a minimum of two (2) weeks prior to the Commission meeting scheduled for presentation of the project. Specific requirements will be detailed in the SOW for the project. For additional information see the “Four External Processes” document indicated in Section 4.6. and the CFA web page: www.cfa.gov
- 4.7.4. National Landmarks Program of the National Park Service: Formal submissions and presentations to NPS are normally not required; however, the Smithsonian often makes courtesy briefings to the NPS as they may comment through the Secretary of the Interior to the US Congress on the status of National Historic Landmarks. Requirements for such briefings will be detailed in the SOW.
- 4.7.5. Courtesy Briefings for Other Groups: Occasionally, other groups and SI “neighbors” are extended the courtesy of a briefing on a particular SI project. The A/E will be compensated if required to attend. Some of the groups may include: The General Services Administration (GSA), Metro, the National Park Service, the Architect of the Capitol, other federal, foreign, state, local or private groups.

4.8. EXISTING CONDITIONS AND SI DATA FILES

The COTR-A/E will provide access to the available SI/OFEO drawing, data and computer files to assist the A/E in determining existing conditions. The A/E shall schedule a time with the OFEO Librarian to do research. Files are not warranted to show present existing conditions at the site. Review of record prints should occur on the premises. No originals or record prints may be removed from OFEO under any circumstance by the A/E; the A/E is permitted digital copies, microfilm copies and blue line or photocopy prints only. For electronic files, the A/E shall provide his/her own media onto which certain data and drawing files may be copied. The A/E shall verify, in the field, all data shown on drawings that is necessary for the accomplishment of the Work and shall obtain all other data required to insure the complete and adequate design of the project. It is the A/E's responsibility to perform research, interview SI personnel such as the building manager, maintenance, safety and security personnel and gather all information necessary to develop an accurate survey of existing conditions prior to design development.

4.9. HISTORIC AND ARCHAEOLOGICAL RIGHTS

- 4.9.1 Historic/Archaeological Significance: If during the existing conditions survey, soil borings, geotechnical testing or other investigative procedures, items of suspected historic and/or archaeological significance are uncovered, the A/E shall stop work and notify the COTR-A/E immediately. Subsequent work shall proceed as directed by the COTR-A/E.

- 4.9.2 Property Rights: All items considered by SI to have historic or archaeological significance are the property of the Smithsonian Institution.

4.10. LANGUAGE USE AND TRANSLATION

The A/E shall use the English language on all planning, design and construction documents for submission to Smithsonian. All numerical figures must be shown using current metric standards for dimensions and measurements and United States currency values unless directed otherwise in the SOW.

4.11. TEMPORARY CONSTRUCTION ITEMS

The A/E shall design and specify temporary fences or other barriers, protected walkways and safety and directional signage for use during construction activities, both inside and outside the building. The design and specification of these items shall be included in the construction documents in order that the prospective construction bidders/offerors can price them. The goal is to protect staff, visitors, artifacts and other property, to visually screen cluttered and unsightly construction areas and to provide interesting information about the project. The standard construction fence design for SI facilities on the National Mall is accessible at http://www.ofeo.si.edu/ae_center/index.asp

4.12. METRIC MEASUREMENT

- 4.12.1. Systeme Internationale: All projects shall be designed and built in the International System of Units (SI[m], also "Systeme Internationale d'Unites"), hereinafter called the "metric system."

- 4.12.2. Weights and Measures: Weights and measures of any type, on all drawing and specification submissions shall be shown in SI[m] units exclusively. This includes, but is not limited to: linear measurement, area measurements, survey elevations, topographic contours, volumetric measurements, climate measurements, temperature, waterflows, airflows, pressure requirements, noise requirements, lighting requirements, structural ratings, electrical characteristics, equipment capacities, conveyance system ratings and all power and energy units. Customary Inch-Pound measurements shall not appear in drawings, specifications or cost estimates.

- 4.12.3. Specification of Domestic Products Sizes: Domestically available products in hard metric sizes shall be specified to the extent feasible in the current construction market. Items unavailable in hard metric sizes at the time of design shall be specified by "soft" conversion from Customary Inch-Pound measurements to equivalent metric dimensions. The specification of hard metric concrete masonry units (CMU) and recessed lay-in light fixtures may be limited by the Savings in Construction Act of 1996. The A/E may be requested to perform the cost analysis necessary for the justification of the exclusive use of hard metric CMU and/or light fixtures.

- 4.12.4. Presentations And Meetings: All meeting and presentation discussion of measurements or units should be conducted using the metric system.

- 4.12.5. Smithsonian Directive 111, Metrification: SD 111, Metrication, is accessible at http://www.ofeo.si.edu/ae_center/index.asp and shall be used for guidance in the preparation of drawings, specifications and other documents.
- 4.12.6. Review by Outside Agencies: Occasionally, design documents must be reviewed by outside authorities that are as yet unfamiliar with the metric system of measurement. If a required approval hinges on the ability of the reviewing agent to review the submission, dual-dimensioned documents may be submitted to the agency, if the agency so requests in writing. The A/E shall consult with the COTR-A/E on the best approach and prepare the necessary documents for the authority's review in compliance with applicable standards and formats.
- 4.12.7. Dual Dimensions: Planning reports and certain executive summaries may utilize dual dimensions (metric first, followed by parenthetical inch-pound equivalents), when the anticipated audience warrants it. The A/E shall check on the appropriateness of dual dimensioning with the COTR-A/E or OFEO Metric Coordinator.
- 4.13. CADD/CAFM
- 4.13.1. CAD/CAFM Drawing Files: CADD/CAFM files including Standard OFEO Drawing Sheets, Standard OFEO Graphic Symbols shall be created in strict accordance with OFEO CADD Guidelines accessible at http://www.ofeo.si.edu/ae_center/index.asp. These standards ensure consistency in creating and formatting new A/E CADD work in order to assimilate it into the OFEO database. OFEO standards for graphic symbols, including title blocks, doors and windows are also to be used by the A/E. The COTR-A/E and the OFEO CADD Managers will enforce these standards.
- 4.13.2. Additional Graphic Symbols: If the A/E utilizes additional graphic symbols from his/her own library, all such A/E defined symbols must be approved in writing by the COTR prior to their use to ensure that drawings may be plotted by OFEO or by a commercial plotting service without additional files or setup.
- 4.13.3. CAD/CAFM Work Agreement: The A/E and OFEO shall reach agreement on the submission of CADD/CAFM work prior to preparation of the A/E fee proposal. The COTR-A/E will provide to the A/E all backgrounds, formats, templates and symbols required by the OFEO CADD Guidelines with the project SOW.
- 4.13.4. CADD Services: In some cases, the A/E will be requested to provide services for CADD "As-Builts." These services may include: updating construction document CADD files to comply with the requirements of the OFEO CADD Guidelines; incorporating information from shop drawings and contractor "as-built" mark-ups; field verifying site conditions and final "as-built" conditions. The work may be accomplished during construction phase services, so that field conditions may be verified during the progress of construction; or the work may be undertaken during the post-construction period. The final CADD files, which will reflect the most up-to-date "as-built" information, will be incorporated into OFEO's

facilities database. The scope of the work, level of detail and time schedule for each discipline will be described in the SOW and must be agreed upon before submission of the A/E fee proposal.

5. REVIEW OF SUBMISSIONS BY THE SMITHSONIAN INSTITUTION

5.1. OBJECTIVES OF REVIEW COMMENTS

Comments on the A/E's submissions are provided to aid in the correct interpretation of project requirements, to encourage appropriate creativity in design, to evaluate the architectural and engineering systems and to assess the entire project. The Smithsonian reviews and approvals do not relieve the A/E of professional liability or responsibility for compliance with the requirements of the Contract. The A/E is totally responsible for all facets of the project and for completing his/her own quality review and coordination of the documents BEFORE submission of deliverables to the Smithsonian. Responsibility for technical accuracy and document coordination remains with the A/E until construction is complete and all contractor claims are resolved.

5.2. THE SD 410 REVIEW PROCESS

In accordance with Smithsonian Directive 410, the COTR-A/E coordinates a technical review of planning, design and construction projects by OFEO and other Smithsonian offices as necessary. The customary review period is fourteen (14) calendar days, unless otherwise stated in the SOW (large, complex or projects outside of the Washington, DC area may require twenty-one (21) day review period). The A/E's deliverables will undergo SD 410 review at each submission stage. Review comments will be transmitted to the A/E at the end of the review period for response.

5.3. I-MANAGE- ELECTRONIC MANAGEMENT AND REVIEW SYSTEM

Review comments will be posted by SI reviewers on the I-Manage electronic management and review system. The I-Manage system is accessible from the SI/OFE0 website. The COTR-A/E will facilitate the registration of SI reviewers and the A/E and his/her consultants for site access and project assignment. Once registered, the A/E and consultants will be able to read and respond to review comments electronically and to print out comments and responses. Electronic Design Submissions may be posted to the I-Manage system by the COTR-A/E, in addition to being distributed by other means. In addition, use of the I-Manage system to process RFIs, submittals and other correspondence during the construction phase is encouraged and the A/E is expected to participate accordingly in the use of this system during the construction phase.

5.4. UNCLEAR COMMENTS

If the A/E feels that he/she has received conflicting comments and/or unclear direction, the COTR-A/E shall be notified immediately. The A/E shall identify the comments in question in writing and request clarification/resolution. The COTR-A/E will arrange SI reviewer(s) meeting with the A/E and get clarification/resolution and give the necessary direction with regards to the unclear or conflicting comment(s).

5.5. A/E RESPONSES

5.5.1. Response to I-ManageComments:The A/E shall respond on I-Manage to each and every SD 410 review comment received. The submission of comment responses shall never be later than the next deliverable submission. The A/E's response shall typically identify where in the new submissions documents the Smithsonian comment is addressed or explain why the comment was not incorporated. Responses such as "will comply," "done," "agree," "OK," etc. are not sufficient nor acceptable. Unacceptable responses shall be rewritten and resubmitted.

5.5.2. On Board Review Meeting(s):The A/E may recommend meetings to reconcile and synthesize comments and propose alternative solutions if warranted. Such meetings shall be arranged in coordination with the COTR-A/E.

5.6. 95% SD 410 DESIGN REVIEW

Prior to the SI review period for the 95% Construction Documents, the A/E shall present the submission to the SI at an SD 410 On-Board Review Meeting for a "walk-through" of the documents. Depending on the project, this meeting may take place on the project site. The purpose of this meeting is to familiarize reviewers with the organization and content of the drawings and specifications and to answer any specific questions the reviewers may have. The A/E shall be prepared to discuss previous review comments and show where they have been addressed in the 95% submission. A comparison between the 95% submission and a "red-lined" version of the previous submission is useful in demonstrating the incorporation of comments. SD 410 Reviewers will then be allowed the customary review period to prepare written responses to the submission. A follow-up meeting for final synthesis and reconciliation of comments shall be scheduled, if deemed necessary by the COTR- A/E. The time, location and format of the meeting(s) will be coordinated by the COTR-A/E, who will invite the Client, SD 410 Reviewers and other appropriate SI staff and/or consultants.

5.7. 100% BACKCHECK SD 410 DESIGN REVIEW

Prior to 100% Construction Documents final submission the SI Reviewers may require a 100% Backcheck submission for SD 410 Design Review. The purpose of this review is to check for the resolution of all the previous review comments. The A/E shall incorporate all the review comments prior to this submission. The A/E shall make a half size documents submission with specifications and cost estimate as directed by COTR-A/E. SD 410 Reviewers will then be allowed ten (10) days review period to prepare written responses to the submission. After the Backcheck review and upon all SI reviewers' written concurrence, the COTR – A/E will direct the A/E to make the Final Submission of the Construction Documents.

6. PREPARATION AND SUBMISSION OF DELIVERABLES

6.1. GENERAL

6.1.1. Deliverables: Deliverables shall be provided to the COTR-A/E by the A/E under the terms of the Contract. The submission of deliverables shall

include check list(s) of designated services in compliance with requirements of Designated Services accessible at http://www.ofeo.si.edu/ae_center/index.asp. If the SI chooses not to obtain a specific deliverable, the cost of that deliverable shall be deducted from the A/E's fee, subject to negotiation.

- 6.1.2. Quantities and Instructions: The instructions listed below shall be observed in preparing and submitting deliverables. Any deletions from, modification of or additions to the items listed below shall be indicated in the SOW. Quantities shall be as noted here or as superseded by the SOW. All submissions shall clearly display, at a minimum: title of the project, OFEO project number, A/E firm name, submission status (i.e. "draft," "35%," "95%," etc.) as applicable, identification/title of the document, drawing or sketch and the date.
- 6.1.3. Outside Reviewing Authorities: For submissions to outside reviewing authorities (such as NCPC, CFA, ACHP, SHPO, etc.), state and local agencies, public utilities (such as WSSC, PEPCO, etc.), the A/E shall prepare deliverables according to the requirements of the reviewing authority on behalf of the Smithsonian. It is the responsibility of the A/E to determine these requirements and to inform the COTR-A/E in a timely manner.
- 6.1.4 Paper Sizes: See Project Deliverables Format at http://www.ofeo.si.edu/ae_center/index.asp

6.2. PROJECT MANAGEMENT DOCUMENTS

The following documents are required of all A/E Contracts for planning, pre-design, design, post-design and other services, unless directed otherwise. See also Project Deliverables Format at http://www.ofeo.si.edu/ae_center/index.asp

- 6.2.1. Detailed Time Schedule: Along with the fee proposal submission, the A/E shall submit a MS Project formatted schedule of services, in bar chart format, which identifies project milestones, target dates, A/E activities and required submissions, Smithsonian activities (SD 410 reviews), formal presentations, duration of phases/tasks and concurrent activities. This schedule shall be presented by the A/E at the project start-up meeting and shall be updated periodically.
- 6.2.2. Periodic Progress Report: A brief summary of work accomplished shall be submitted on company letterhead with each Request for Payment. The summary should cover tasks performed during the period for which the A/E is seeking compensation. Without this summary, the terms of the Contract are not being met, assessment of performance is hindered and payment may be delayed.
- 6.2.3. Recording of Minutes: The A/E shall be responsible for recording all meetings attended and telephone conferences made in reference to the project. These shall be submitted to the COTR-A/E for review and approval within five (5) working days of the occurrences. If required, they shall be revised and then submitted in final form to the COTR-A/E for

distribution to appropriate SI staff. Distribution of minutes to A/E team members and consultants is the responsibility of the A/E.

- 6.2.4. Meeting Agenda: The A/E shall prepare an agenda for all meetings and/or presentations. A draft copy shall be submitted to the COTR-A/E for review a minimum of two (2) working days before the scheduled meeting.

6.3. PROJECT SUBMISSION REQUIREMENTS -- CONTENT

The A/E shall prepare construction documents and make following submissions as described:

6.3.1. Content of Schematic Design Submissions:

a. DRAWINGS

- (1) Title/Cover Sheet(s): Drawing sets with five (5) or more sheets shall include a Title/Cover Sheet that displays all project identification information in the standard title block, including project title, location (including complete street address), OFEO project number, submission status and date. A/E and consultant name(s) with addresses, project illustration or other graphics shall also be included. In addition, the Title/Cover Sheet shall also contain the OFEO Approval Block, a drawing index, vicinity map, location map and space for A/E registration stamps/seals. See following section on Format of Design Submission Deliverables for additional information on Title/Cover sheets.
- (2) General Sheet(s): Information such as abbreviations, symbol legends, continuation of the drawing index, general notes and other general information(including life and safety code information)pertaining to the entire project shall be contained on a sheet(s) immediately following the Title/Cover Sheet. See following section on Format of Design Submission Deliverables for additional information on General sheets.
- (3) Coordination/Phasing/Protection Plan: This plan shall be included within the drawing set (on a "General" sheet) if it is in graphic form or within Division One of the Specifications if in written format. It shall indicate: the sequence of phases in which the construction work should progress; bid alternates (if applicable).
- (4) Civil and/or Landscape:Existing conditions/demolition drawings, showing ALL existing site, utility and landscape items plus the extent of removal of utilities, pavement, concrete, vegetation and other site items. New work site plans, showing proposed topography and site grading, major vegetation and landscaping; on and off site utilities systems (water, sewer, gas, electric, telephone and others); fire protection connection locations, sewage control points, benchmarks, drainage systems, stormwater management considerations and both pedestrian and

vehicular circulation systems.

- (5) Architectural: Site plans or key plans showing location and extent of areas affected by the work; existing condition/demolition drawings, showing ALL existing architectural features, finishes and existing conditions, floor plans for each level showing functional layout, room name and number designations, column lines, all major dimensions, all critical dimensions, all columns, walls, partitions, doors, windows, required utility chases, roof plans major equipment and dimensions; exterior elevations showing all openings, type and extent of building finishes and finish grades at the building; building sections indicating relationship of various levels, floor to floor heights, construction systems and major design elements. Indicate on plans any impact to historic fabric. Fixture, fittings and equipment (FF &E) information shall be on separate drawings from the key architectural drawings as above.
- (6) Structural: Existing condition/demolition drawings, if applicable, showing all existing structural items (including floor loading) and the extent of removal of structural items and new work plans, elevations, sections of new structural system(s); dimensions; structural design criteria; critical coordination clearances.
- (7) Mechanical/Electrical/Plumbing/Fire Protection/Fire Alarm: Existing condition/demolition drawings, showing ALL existing MEP/FP/FA items that have an impact on the project and show extent of removal of these items; new work plans showing approximate equipment sizes and capacities; mechanical and electrical rooms/closets; preliminary equipment, piping, ductwork "single-line" only; routing of feeders and risers; required chases and clearances; exhaust systems; smoke/fire detection and suppression systems and energy conservation measures.
- (8) Security: An on-board security meeting must be held with the Office of Protection Services if electronic security is part of the project. A security consultant must be present if required by the project. If the A/E is using their in-house staff for security design they must be present.
- (9) Other Disciplines: Existing condition/demolition drawings showing ALL existing conditions and extent of demolition (if applicable); new work plans, sections, elevations and details for other disciplines or specialties, including, but not limited to: asbestos abatement (AA-), telecommunications (TC-), exhibition design (EX-) and historic preservation.

b. SPECIFICATIONS

- (1) The schematic design specifications may be in outline form, which shall consist of a complete listing of all specifications sections to be included in the project specification, including a Table of Contents. The listing shall be arranged sequentially by

section number in the division format of the Construction Specifications Institute (CSI) MasterFormat™ 2004. The draft specifications shall be provided for architectural, mechanical, electrical, plumbing and fire protection main systems.

- (2) The number, title and date of the guide specification being used in preparing such project specification section shall be listed under the appropriate division heading.
- (3) The major materials or systems selected for each section, whether or not based on a guide specification, shall be listed for each project specifications section; however, detailed specifications are not required for the selected materials or systems.
- (4) All CSI divisions and sections shall be indexed. Where no work is required, a "NOT USED" notation shall be included under the section heading.
- (5) The boilerplate for Division One, Section 01000, Supplementary Conditions for Construction, provided by OFEO, shall also be included.

c. CONSTRUCTION COST ESTIMATE

The estimate based on the schematic design shall reflect current costs as derived from the schematic drawings outline specification and any other relevant information available as directed by the Cost Engineering Branch of the OEDC Technical Services Division. For those elements of the project where status of design does not permit a firm or reasonably accurate take-off of the quantities or firm pricing of individual items of work, lump sum costs based on available data may be included. The basis of these costs, such as cost per square meter of building, per square meter of pavement or per mechanical or electrical fixture shall be given. A reasonable design contingency factor shall be included in the estimate submittal stage. This factor will be directed by the Cost Engineering Branch of the OEDC Technical Services Division and will be dependent on the project. Construction estimates shall be broken down in the format required by the Cost Engineering Branch of the OEDC Technical Services Division. For information about the preparation of estimates, see Project and Construction Cost Estimation format at http://www.ofeo.si.edu/ae_center/index.asp

d. CONSTRUCTION TIME SCHEDULE

The construction time schedule based on the schematic design shall be a bar chart identifying the major tasks of work and the approximate time (number of days, weeks or months) frame in which they should be accomplished. The schedule shall be prepared in MS Project Format and must show Critical Path.

e. SUPPORTING MATERIALS

The data, calculations and analyses based on the schematic design phase shall be neatly organized and bound. As appropriate, the following information shall be submitted:

- (1) Existing Conditions Survey and Documentation
- (2) Sustainability and Commissioning Documents: At the Schematic Design phase, the A/E shall submit an updated Basis of Design (BOD) for commissioning purposes and the LEED checklist, with a narrative describing the credits to be pursued and recommendations for achieving the goals.
- (3) Life Safety and Building Code Analysis shall include type of construction, use group classification, number of stories (see http://www.ofeo.si.edu/ae_center/index.asp); building height in meters, foot print area, gross floor area, fire wall locations and rating information, egress requirements, statement of sprinkler coverage (partially or fully sprinklered), fire department information (such as locations of Siamese connections, hydrants, emergency vehicle access, fire flow calculations) and other information as necessary. Other considerations include: emergency vehicle access and fire hydrant coverage and location. A tabular summary of the Life Safety and Building Code analysis shall be displayed on the General sheet(s) following the Title/Cover Sheet of the drawing set; back-up analyses and calculations shall be submitted in the Supporting Materials binder.
- (4) Utility analysis shall identify proposed sources for gas, electricity, potable water, fire protection water supply, telephone or other utilities, as well as sewage and drainage systems. Regulations and standards of local utilities and governments shall be observed. Identify instances during design and/or construction where either SI or the Construction Contractor must coordinate with Federal, State or Local review/permitting authorities and prepare all submissions according to their requirements.
- (5) Geotechnical and soil boring analysis
- (6) Preliminary calculations performed for the schematic design of engineering systems, including structural, mechanical (HVAC), electrical, plumbing and fire protection shall be submitted. Electrical functional and technical requirements that shall be addressed include:
 - i. Definition of the point of interface between the existing electrical system and the proposed system.
 - ii. Load characteristics, including connected load, demand load, diversity factors, power factor, nonlinear loads and harmonics, load growth provisions.
 - iii. Overhead and underground exterior distribution: voltage

- drop, interrupting requirements, short circuit coordination and calculation.
 - iv. Illumination levels, to include general and task lighting and visual qualities of lighting requirements.
 - v. Electronic security, surveillance and Intrusion Detection System.
 - vi. Emergency power generation and distribution.
 - vii. Transformers, generators, switchboards and feeders indicating all demand, diversity and ambient-temperature or conductor-grouping factors considered in the selection of equipment or conductor sizes. Ground fault and its circuitry protection.
 - viii. Weight, dimensions and electrical characteristics of each major item of equipment supported by manufacturers names and catalog and model numbers.
 - ix. Provision of existing and new one-line diagram and riser diagram.
- (7) The SI shall submit manufacturer's literature (cut sheets) for proposed major equipment or building materials for consideration.
- (8) Existing materials testing and analysis (including, asbestos tests, lead-based paint analysis, other hazardous materials surveys).
- (9) Submit other background research as necessary to document source(s) of design assumptions. For large projects, include a design narrative report.

6.3.2. Content of 35% Design Development Submissions:

a. DRAWINGS

- (1) Title/Cover Sheet(s): Drawing sets with five (5) or more sheets shall include a Title/Cover Sheet that displays all project identification information in the standard title block, including project title, location (including complete street address), OFEO project number, submission status and date. A/E and consultant name(s) with addresses, project illustration or other graphics shall also be included. In addition, the Title/Cover Sheet shall also contain the OFEO Approval Block, a drawing index, vicinity map, location map and space for A/E registration stamps/seals. See following section on Format of Design Submission Deliverables for additional information on Title/Cover sheets.
- (2) General Sheet(s): Information such as building and life safety code analyses, abbreviations, symbol legends, continuation of the drawing index, general notes and other general information pertaining to the entire project shall be contained on a sheet(s) immediately following the Title/Cover Sheet. See following section on Format of Design Submission Deliverables for additional information on General sheets.

- (3) Coordination/Phasing/Protection Plan: This plan shall be included within the drawing set (on a “General” sheet) if it is in graphic form or within Division One of the Specifications if in written format. It shall indicate: the sequence of phases in which the construction work should progress; bid alternates (if applicable); exhibits or areas which require special protection; location of and details for personnel, property and vegetation protection method(s); emergency access/egress routes (for both the building and the site, as applicable) for visitors and staff, which must be maintained during construction; locations of Contractor site offices, trailers, parking, haul routes, staging and storage areas, barrier/fence placement; design and locations of temporary directional signage; any other information necessary to describe conditions affecting the progress of the construction.
- (4) Civil and/or Landscape: Existing conditions/demolition drawings, showing ALL existing site, utility and landscape items plus the extent of removal of utilities, pavement, concrete, vegetation and other site items. New work site plans, sections, elevations, schedules, details, showing existing and proposed new topography and site grading, major vegetation and landscaping; on and off site utilities systems (water, sewer, gas, electric, telephone and others); fire protection connection locations, sewage control points, benchmarks, drainage systems, stormwater management considerations, erosion and sediment control plans; both pedestrian and vehicular circulation systems, including existing and new roads, sidewalks, curbs, curb cuts, parking areas and signage.
- (5) Architectural: Site plans or key plans showing location and extent of areas affected by the work; existing condition/demolition drawings, showing ALL existing architectural features, finishes and existing conditions and the extent of removal of architectural items on each floor; floor plans for each level showing complete functional layout, room name and number designations, column lines, all major dimensions, all critical dimensions, all columns, walls, partitions (including designation of fire-rated partitions), doors, windows, required chases for mechanical/electrical items and built-in equipment; roof plans showing drainage and finish materials, major equipment and dimensions; exterior elevations showing all openings, type and extent of building finishes and finish grades at the building; building sections indicating relationship of various levels, floor to floor heights, construction systems and materials; reflected ceiling plans showing coordination between architectural layout and engineering disciplines; wall sections at typical locations; interior elevations showing ceiling heights and major design elements; partial, “blown-up” floor plans indicating additional detail and construction dimensions; partition types with UL design numbers if fire-rated; preliminary door, window, hardware and finish schedules; typical details, including those showing any impact to historic fabric, including penetrations/modifications required for structural, mechanical, plumbing, electrical, fire protection or security work.

- (6) Structural: Existing condition/demolition drawings, if applicable, showing all existing structural items (including floor loading) and the extent of removal of structural items and temporary shoring and supports, if needed; new work plans, elevations, sections, schedules and details, as necessary, of new structural system(s); dimensions; structural design criteria; critical coordination clearances; preliminary structural member schedules; typical details.
- (7) Mechanical/Electrical/Plumbing/Fire Protection/Fire Alarm: Existing condition/demolition drawings, showing ALL existing MEP/FP/FA items (above and below accessible ceilings), including but not limited to: ductwork, mechanical equipment and devices, electrical equipment and devices, light fixtures, conduit, panel locations (including available spaces and peak load), plumbing and sprinkler lines and all fire protection and alarm devices, schematic building sections indicating heights of existing ducts and utilities in critical areas and show extent of removal of these items; new work plans, sections, elevations, schedules and details showing approximate equipment sizes and capacities; mechanical and electrical rooms/closets; preliminary equipment, piping, ductwork (“double-line” only; single-line delineation of ductwork is unacceptable) and lighting and power layouts; routing of feeders and risers; required chases and clearances; roof penetrations; exhaust systems; acoustical and vibration control; smoke/fire detection and suppression systems (sprinkler layouts) and devices, sprinkler layouts; energy conservation measures.
- (8) Security: An on-board security meeting must be held with the Office of Protection Services if electronic security is part of the project. A security consultant must be present if required by the project. If the A/E is using their in-house staff for security design they must be present.

35% design submittal for review must show security wiring, location of security devices and be supplemented with manufacturer’s cut sheets of proposed equipment.

- (9) Other Disciplines: Existing condition/demolition drawings showing ALL existing conditions and extent of demolition (if applicable); new work plans, sections, elevations, schedules and details for other disciplines or specialties including, but not limited to: asbestos abatement (AA-), telecommunications (TC-), exhibition design (EX-), historic preservation, special furniture, furnishings, signage and equipment. Often, drawings and specifications for specialty disciplines may become individual procurement/bid packages, separate from or included with the construction documents for the project.

b. SPECIFICATIONS

- (1) The 35% design specifications shall consist of a draft of all specifications sections to be included in the project specification, including a Table of Contents, organized by section number in

the division format of the Construction Specifications Institute (CSI), MasterFormat™ 2004

- (2) The number, title and date of the guide specification being used in preparing such project specification section shall be listed under the appropriate division heading.
- (3) The major materials or systems selected for each section, whether or not based on a guide specification, shall be listed for each project specifications section; however, detailed specifications are not required for the selected materials or systems.
- (4) All CSI divisions and sections shall be indexed. Where no work is required, a "NOT USED" notation shall be included under the section heading.
- (5) The boilerplate for Division One, Section 01000, Supplementary Conditions for Construction, provided by OFEO, shall also be included and shall show preliminary editing for the project.

c. CONSTRUCTION COST ESTIMATE

The estimate based on the 35% design shall reflect current costs as derived from the 35% drawings outline specification and any other relevant information available as directed by the Cost Engineering Branch of the OEDC Technical Services Division. For those elements of the project where status of design does not permit a firm or reasonably accurate take-off of the quantities or firm pricing of individual items of work, lump sum costs based on available data may be included. The basis of these costs, such as cost per square meter of building, per square meter of pavement or per mechanical or electrical fixture shall be given. Lump sum cost allowances should be kept to a minimum. A reasonable design contingency factor shall be included in the estimate submittal stage. This factor will be directed by the Cost Engineering Branch of the OEDC Technical Services Division and will be dependent on the project. Construction estimates shall be broken down in the format required by the Cost Engineering Branch of the OEDC Technical Services Division. For information about the preparation of estimates, see Project and Construction Cost Estimation format at http://www.ofeo.si.edu/ae_center/index.asp

d. CONSTRUCTION TIME SCHEDULE

The construction time schedule based on the 35% design shall be a bar chart identifying the major tasks of work and the approximate time (number of days, weeks or months) frame in which they should be accomplished. The schedule shall be prepared in MS Project Format and must show Critical Path.

e. SUPPORTING MATERIALS

The data, calculations and analyses based on the 35% design development phase shall be neatly organized and bound. As appropriate, the following information shall be submitted:

- (1) Existing Conditions Survey and Documentation
- (2) Sustainability and Commissioning Documents: At 35% design development the A/E shall submit an updated BOD and an updated LEED checklist and LEED narrative describing the credits to be pursued and recommendations for achieving the LEED goals, as agreed upon by the COTR. The A/E is responsible for registration, management and documentation for design credits to obtain the pursued LEED certification. The A/E must register the project on the LEED Online system no later than the 35% design milestone submission date. The Commissioning Provider shall submit a draft of the Commissioning Plan, based on the OPR and the BOD.
- (3) Life Safety and Building Code Analysis shall include type of construction, use group classification, number of stories (see http://www.ofeo.si.edu/ae_center/index.asp); building height in meters, foot print area, gross floor area, fire wall locations and rating information, egress requirements, statement of sprinkler coverage (partially or fully sprinklered), fire department information (such as locations of Siamese connections, hydrants, emergency vehicle access, fire flow calculations) and other information as necessary. Other considerations include: emergency vehicle access and fire hydrant coverage and location. A tabular summary of the Life Safety and Building Code analysis shall be displayed on the General sheet(s) following the Title/Cover Sheet of the drawing set; back-up analyses and calculations shall be submitted in the Supporting Materials binder.
- (4) Utility analysis shall identify proposed sources for gas, electricity, potable water, fire protection water supply, telephone or other utilities, as well as sewage and drainage systems. Regulations and standards of local utilities and governments shall be observed. Identify instances during design and/or construction where either SI or the Construction Contractor must coordinate with Federal, State or Local review/permitting authorities and prepare all submissions according to their requirements.
- (5) Geotechnical and soil boring analysis
- (6) Calculations performed for the design of engineering systems, including structural, mechanical (HVAC), electrical, plumbing and fire protection shall be submitted. Electrical, functional and technical requirements that shall be addressed include:
 - i. Definition of the point of interface between the existing electrical system and the proposed system.
 - ii. Load characteristics, including connected load, demand load, diversity factors, power factor, nonlinear loads and harmonics, load growth provisions.

- iii. Overhead and underground exterior distribution: voltage drop, interrupting requirements, short circuit coordination and calculation.
- iv. Illumination levels, to include general and task lighting and visual qualities of lighting requirements.
- v. Electronic security, surveillance and Intrusion Detection System.
- vi. Emergency power generation and distribution.
- vii. Transformers, generators, switchboards and feeders, indicating all demand, diversity and ambient-temperature or conductor-grouping factors considered in the selection of equipment or conductor sizes. Ground fault and its circuitry protection.
- viii. Weight, dimensions and electrical characteristics of each major item of equipment supported by manufacturers names and catalog and model numbers.
- ix. Provision of existing and new one-line diagram and riser diagram.

- (7) Submit cut sheets for proposed major equipment or building materials for consideration by the SI.
- (8) Existing materials testing and analysis (including, asbestos tests, lead-based paint analysis, other hazardous materials surveys).
- (9) Submit other background research as necessary to document source(s) of design assumptions.

f. OTHER PROCUREMENT / BID PACKAGES (as applicable)

The A/E shall also submit drawings, specifications and cost estimates for items designed in conjunction with the building infrastructure, but to be procured/contracted for separate from the building construction. Examples include, but are not limited to: security wiring and devices, furniture, furnishings and equipment (FF&E), signage, collections storage equipment, telecommunications equipment, exhibit design and/or other items, which are not part of the building design package.

6.3.3. Content of Interim CD Progress Set Submissions:

If an interim progress set of Construction Documents is required between the 35% Design Development submission and the 95% Construction Documents submission, it shall demonstrate an equivalent level of completeness of each discipline at the percentage required (50%, 65%, 75%, etc.). Clear progression from the 35% submission will be evaluated on the incorporation of SI comments and the further development of construction details and specifications. For each interim progress set, the A/E shall include an updated BOD and an updated LEED checklist and narrative describing the credits to be pursued and recommendations for achieving the LEED goals. The Commissioning Provider shall submit an updated Commissioning Plan based on the updated OPR and BOD.

- a. Security: If electronic security is part of the project and a 50% or 65% review is not scheduled, then complete security drawings, conduit layout, wiring riser diagrams, manufacturer's cut sheets,

specifications and alarm matrix must be submitted at a timeline equivalent to 75%.

6.3.4. Content of 95% Construction Documents Submissions:

The submission shall include: a complete set of drawings with sufficient detail to clearly interpret the intent of each drawing, plan, section, elevation, schedule and detail; a complete specification with Supplementary Conditions boilerplate appropriately edited; an accurate construction cost estimate (see Project and Construction Cost Estimation at http://www.ofeo.si.edu/ae_center/index.asp; a detailed construction time bar chart schedule; all supporting materials (design data, calculations and analyses).

a. DRAWINGS

The 95% drawing set shall be complete and biddable in every aspect. All drawings shall be provided with graphic and numerical scales, drawing and sheet numbers and date of 95% submission. Coordination between disciplines shall be complete. Locations of and details for temporary construction items, such as staging areas, fences, barriers, signs and other items shall be clearly shown. Construction details and schedules shall be fully developed and complete. All dimensions shall be shown.

- (1) Security: If corrections are necessary when the 95% security drawings are reviewed, a post-95% drawing set shall be submitted for security review, duly marked on the final bid set.

b. SPECIFICATIONS

The 95% construction specifications shall be complete and biddable in every aspect. All products, procedures and other information that does not apply to the project shall be edited out. All references to "Owner" or "Government" shall be revised to "Smithsonian Institution" or "COTR." Only very minor revisions should be required after review. The A/E shall coordinate with the COTR-A/E in editing the Supplementary Conditions.

- (1) General Conditions: The Smithsonian's General Conditions (Contract Clauses) for Construction Contracts will be provided as information to the A/E upon request and at no cost to the A/E. This document will be made part of the advertised bid/offer package by the Contracting Officer in the Smithsonian's solicitation for construction; it is not included in the Specifications.
- (2) Supplementary Conditions: The A/E shall edit and customize the standard OFEO Supplementary Conditions for Construction, Specification Section 01000 series in Division One, for the project. (This document is available from OFEO in both in Microsoft Word and in hardcopy. The A/E should provide a formatted, blank diskette to the COTR-A/E for an electronic copy.) All sections shall be indexed: Where no work is required

in a particular section, a notation "NOT USED" shall be included under the section heading.

- (3) Specification Format: The A/E shall use a current, professionally recognized specification system, such as "MasterSpec" or similar. All specifications shall conform to the CSI division organization, MasterFormat™ 2004.
- (4) Referencing: When utilizing reference documents, standards and specifications to describe materials and equipment, nationally recognized industry and technical society documents shall be used to the maximum extent practicable. If industry documents are unsuitable, applicable Government standards and specifications may be referenced.
- (5) Identification of Construction Submittals: The technical specification sections are to indicate those items for which samples, data sheets, shop drawings, etc. are to be submitted and for which SOMMs (System Operation and Maintenance Manuals) that include general information, system descriptions, sequence of operation(s), trouble shooting analysis, corrective and predictive maintenance and check out procedures shall be provided by the construction contractor. The A/E shall prepare and submit as separate document to include a Construction Submittal/Sample List summarizing all required submittals in a tabular format, it shall identify by name and specification section/paragraph all items, which will require submittals from the Construction Contractor. The type of submittal (i.e. shop drawing, diagram, catalogue cut, sample, certification, mock-up, calculations, maintenance manual or other) shall also be identified. In addition, items shall be noted if they require long-lead times for delivery, sole-source purchase or have other special handling requirements. The A/E shall submit a separate statement regarding availability for major pieces of equipment or critical products.
- (6) Construction Testing: The specifications shall be edited to fit the job of which they are a part. If the specifications call for tests, concrete, soil, fire rating, licensing, etc., the A/E shall make sure that test is current and a requirement for the project. The A/E will furnish OFEO with two separate photocopies of all testing procedures identified in the specifications. In addition, the specifications shall make it clear that testing is the responsibility of the Contractor; the SI does not contract for testing independently. All testing shall be covered under the construction contract.
- (7) Use of Brand Name Products: The use of manufacturers' names or brand names is to be minimized in the specifications and on the drawings. Commercial trade names are permitted under the following conditions: no industry or Government document, standard or specification exists for the product; the product is only a minor part of the construction; the product cannot be otherwise adequately described because of its technically

involved construction or composition; the product must be used to match an existing item. The following format shall be utilized:

[Product or system] shall be *[model, make, etc.]* as manufactured by *[name and address]* or *[model, make, etc.]* as manufactured by *[name and address]* or *[model, make, etc.]* as manufactured by *[name and address]* or Smithsonian Institution approved equal.

Following this, the essential or salient features of the product or system shall be set forth in sufficient detail to establish the basis upon which the quality of non-listed products will be determined. All items should be biddable by three (3) or more manufacturers or vendors who produce like items of comparable quality and fit.

- (8) Sole Source / Proprietary Purchase: Sole source/proprietary items shall not be specified unless it is established conclusively that no substitute serves the purpose. The A/E shall not specify such items unless directed to do so in writing by the COTR-A/E. If a sole source item is proposed, it must be justified early in the design process. The A/E shall submit the following to the COTR-A/E (who in turn forwards the information to the Contracting Officer for decision): (1) Copies of the catalogs/pamphlets used, (2) Product Availability Assurance (see next paragraph) and (3) A justification statement indicating the reasons requiring the use of the sole source item. Generally, such reasons are related to one of the following: safety, health, substantial cost savings, one-of-a-kind product with no equivalents, continued operation of existing vital equipment or systems. If the Contracting Officer authorizes a proprietary or sole source purchase, the A/E will be instructed on how to write the specification.
- (9) Product Availability Assurance: Whenever a major design decision or project implementation impinges upon the availability of a particular product or material, the A/E shall provide a statement from the manufacturer/supplier, to be submitted with the 95% Construction Documents. It shall indicate that the product/material is or can be made available during the scheduled construction time period and that if a contractor elects to use the product/material, the manufacturer will warrant the item(s). In addition, the delivery time from receipt of a purchase order shall also be indicated.
- (10) Colors and Finishes: To the greatest extent possible, all colors and finishes shall be specified by the A/E and not left up to selection in the field.

c. CONSTRUCTION COST ESTIMATE

The construction cost estimate based on the 95% design shall reflect current costs as estimated from the 95% drawings and specifications. Both add and deduct bid alternates, if any, shall be clearly differentiated from the base bid and identified with a total cost per alternate. Since the drawings and specifications are complete and

biddable at this stage, no design contingency is permitted in the construction cost estimate based on the 95% design. For detailed cost estimating information see: Project and Construction Cost Estimation at http://www.ofeo.si.edu/ae_center/index.asp

d. CONSTRUCTION TIME SCHEDULE

The bar-chart format construction time schedule based on the 95% design shall identify major tasks of the major areas of work as outlined in the specifications and the time frame in which they are to be accomplished. The bar chart shall begin with "Notice to Proceed" and shall identify all activities with a duration of three (3) days or greater and all control milestones necessary to ensure the timely conclusion of the construction work. It shall indicate major tasks of the work for which the construction contractor is responsible, including start-up, mobilization, required down-time, demolition, construction, testing, balancing of systems, project close-out, off-gassing and any other activities; show duration of each activity, critical path and major milestones. It shall also indicate special review and/or permitting time-periods and any relevant SI activities, such as work to be accomplished by OFEO, the Museum, staff and equipment relocation, government-furnished equipment, final occupancy and any other factors influencing the critical path. The total duration of the construction contract time specified in the Specifications Division One, Supplementary Conditions for Construction, is based on the A/E's Construction Time Schedule.

e. SUPPORTING MATERIALS

Submit documentation of further analyses, calculations, research and/or revisions from the previous submission phase.

Sustainability and Commissioning Documents: At 95% completion, the A/E shall submit an updated BOD and an updated LEED checklist and narrative, as well as all LEED design credit documentation intended for submission to GBCI. The Commissioning Provider shall submit an updated Commissioning Plan based on the updated OPR and BOD. Upon approval of the COTR-A/E, the A/E shall submit documentation for LEED design credits, including those achievable through compliance with Federal mandates, to GBCI for review.

f. OTHER PROCUREMENT/BID PACKAGES (as applicable)

Drawings, specifications and cost estimates for items designed in conjunction with the building infrastructure, but to be procured separately from the building construction shall be 95% complete and in required procurement format. These items may include, but are not limited to: security wiring and devices, furniture, furnishings and equipment (FF&E), signage, collections storage equipment, telecommunications, equipment, exhibit design and/or other items, which are not part of the building design package.

6.3.5. Content of 100% Construction Documents Submissions:

Final submissions of documents shall contain all corrections necessary to address comments made on the 95% review. All documents shall be marked "Final" and dated. The original cover sheet(s) and all the individual discipline sheet(s) for construction drawings shall display the registration seal and signature of the responsible architect(s) and engineer(s).

6.3.6. Format of Design Submission Deliverables:

The A/E shall use the Format for design submissions as described in Project Deliverables Format. See http://www.ofeo.si.edu/ae_center/index.asp

6.4. PLANNING AND DESIGN REPORT SUBMISSIONS

The A/E shall comply with the requirements of Project Deliverables Format accessible at http://www.ofeo.si.edu/ae_center/index.asp

6.5. PRESENTATION SUBMISSIONS

All presentation boards, drawings, charts, models and other materials shall be the property of the Smithsonian Institution. Specific formats, quantities and other requirements modifying the following generic guidelines below are detailed in the SOW in addition to Project Deliverables Format requirements accessible at http://www.ofeo.si.edu/ae_center/index.asp. The A/E shall specifically identify fees and other direct costs for presentations in the A/E fee proposal.

6.5.1. Professional Renderings: The A/E shall provide graphic, pictorial representations of a proposed project in various media, usually perspective and/or axonometric views. Upon specific request of the Smithsonian, the A/E shall provide two (2) color or black and white professional renderings. Professional renderings may require matte, frame and glass.

6.5.2. Presentation Drawings and Sketches: Upon specific request of the Smithsonian, the A/E shall prepare various design sketches of plans, elevations, sections interior and exterior perspective views or other diagrams, dry-mounted on foam-core or illustration boards, maximum size 914mm x 1219mm (36" x 48") or as otherwise stated in the SOW. All drawings and boards in a presentation should be high quality and consistent in size and format. The graphics should fill the space on the board and should be clearly readable when viewed at a distance of approximately 5 meters (16 feet). See Summary of Submission Guidelines for NCPC and CFA at http://www.ofeo.si.edu/ae_center/index.asp

6.5.3. Models: The A/E shall provide a three-dimensional representation(s) of a proposed project or site in various media, level of detail may range from volumetric study models to complex interior/exterior models. Upon specific request of the Smithsonian, the A/E shall prepare a lightweight, easily transportable scale model. A scale model shall reflect the conditions of the vicinity, site and design criteria. The models may be retained in the A/E office during the course of design, but shall be

available for the Smithsonian's use upon request and delivered to the SI at the close of the project.

- 6.5.4. Photographs and Slides: All color/black & white photographs (including negatives) and slides of presentation items, existing conditions or other subjects used during the course of design shall be provided to the SI. They may be retained in the A/E office throughout the course of design and must be submitted to the SI at the end of the project.

6.6. PROJECT DELIVERABLES FORMAT

The A/E shall provide electronic copies of ALL SUBMISSIONS that shall comply with the requirements of Project DeliverablesFormat accessible at http://www.ofeo.si.edu/ae_center/index.asp

END OF SPECIAL CONDITIONS FOR ARCHITECT/ENGINEER SERVICES