

## Museum and Visitor Center Exhibit Planning, Design, and Fabrication Process

**Flowchart** (For full requirements see NPS museum interpretive exhibit planning, design, and fabrication contracts and specifications)

#### **Production** The planning and design firm may provide creative and technical ment of specific exhibit elements, and review and direction to insure **Production Pre-Design** Schematic Design support during production, including follow-ons to complete developadherence to the original design intent. **Documents Support** Design **Development** Pre-Design focuses on Technical drawings and preparing a solid foun-Alternative schemes are All major details of the dation for all work that specifications are comproject are accounted for. explored for organizing pleted, communicating follows, insuring that the both the interpretive con-Design and content are details necessary for poproject is logically structent and physical layout integrated into coherent Acquisition of specialized exhibit content may occur in different ways contractors, requiring other contractors or client staff involvement. **Content** tential exhibit fabricators tured and its goals are of the exhibits. By the end media presentations. to meet the project's requirements. Some of these tasks may be beyond The work is time consuming, so it should begin as soon as specific **Specialties** to understand, price, and understood and realistiof Schematic Design, a Complex media elethe capabilities of the primary planning, design, and production requirements have been finalized. begin work on the project. cally attainable. Project preferred alternative has ments requiring further Pre-production planteam members and stakedevelopment are fully been selected and major ning and design tasks are holders are identified and **Original Art** AV **Artifact** stories, exhibit elements described. The exhibit's initiated and coordinated their roles defined. and presentation techphysical structure and **Programs Preparation** Original illustrations, with the exhibit production niques are illustrated and operational characterisschedule. maps, and photographs Audiovisual and interactive For organizations with the described. tics are established. may be produced under multimedia programs are capability, this work is ofa separate contract or often produced under a ten performed by in-house subcontracted through staff. It may be contracted separate contract. the planning and design if necessary. Close coordination between the exhibit contractor and the architect is required **Building Design** or fabrication contracts. during design phases to insure that the design of the exhibit space and the exhibits are compatible. Decisions must be made regarding space configuration, lighting, power, and other exhibit/architectural interface issues. **Image Custom Acquisition Elements** Fabrication Reproducible images Items like models, sculpure, Contract and their use rights may taxidermy, and spe-**Award** be acquired directly cialty electronics are often by client staff or by the subcontracted through planning and design the exhibit fabricator but contractor. may also be contracted for separately. Installation **Closeout & Submittals Production** Post-Award Warranty Meeting Shop drawings, proofs, and Exhibit structures are Exhibit elements are Shop fabricated, graphics are delivered to the site in as samples are submitted by Important media resources Inspection the contractor for approval. complete a state as possible printed and mounted, acquired to create exhibit Regular communication equipment is purchased, to minimize the amount of elements are archived durbetween the contractor and and all elements of the on-site work. Since installa-The postaward meeting and ing the closeout period. client is critical as details exhibition are integrated tions are costly and laborsite visit provide important in-New exhibits typically for most exhibit elements in preparation for instalintensive, the contractor All work that can be completed formation and direction to the include a one-year contracmust be agreed upon prior must carefully coordinate off-site is finished and set up exhibit fabrication contractor tor's warranty for defects to shop fabrication to avoid the sequence of work so in the fabricator's shop for to supplement the information in materials, and workmanthat delays are minimized. costly rework later. inspection prior to shipment to in their contract documents. the installation site. **Building Construction, Rehab, or Preparation Work** However, close communication regarding construction Most construction work involving the building structure, finishes, and utilities falls outside the scope of the details and completion schedules is required between typical exhibit production contract. all parties to insure a successful installation.

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## **Museum and Visitor Center Exhibit Planning and Design Process**

**Summary Description** (For full requirements see NPS museum interpretive exhibit planning, design, and fabrication contracts and specifications)

### **Pre-Design**

Pre-Design focuses on preparing a solid foundation for all work that follows, insuring that the project is logically structured and its goals are understood and realistically attainable. Project team members and stakeholders are identified and their roles defined. Pre-Design includes pre- and post- contract award phases:

#### **Pre-Contract**

- Scoping study at site (if required)
- In-house team reviews project status :
  - Planning documents
  - Goals and objectives
  - Budget, schedule, admin. requirements
- Project scope of work developed
- P&D contract is awarded

#### **Post-Award**

- Contractor reviews gov. furnished materials
- On-site orientation and planning workshop
- · Identify existing media resources
  - Prepare resource package abstract.
- Develop project brief:
  - Project overview, including updated information and understandings
  - Identify interpretive themes and objectives
  - Analize project goals, media budget, schedule, and all other known issues affecting the development and successful completion of the project
- Front-end evaluation (if required)

## **Schematic Design**

Alternative schemes are explored for organizing both the interpretive content and physical layout of the exhibits. By the end of Schematic Design, a preferred alternative has been selected and major stories, exhibit elements and presentation techniques are illustrated and described. Schematic Design includes two sub-phases:

#### Schematic I

- Content research
- Resource package I (organized by themes)
- SDI report with design alternatives:
  - Bubble diagrams
  - Written description of exhibit scenes
  - Preliminary sketches
  - Class B cost estimates and life-cycle cost goals
- NPS value analysis process (if required)

#### Schematic II

- SDII report developing preferred alternative:
  - Content outline consisting of scenes and content groups
- Floor plan with scenes and content groups identified
- Conceptual elevations/renderings/ visualizations
- Universal design and accessibility approaches
- Resource package level II organized according to scenes
- Updated class B and life-cycle cost estimates for preferred alternative

## **Design Development**

All major details of the project are accounted for. Design and content are integrated into coherent media presentations. Complex media elements requiring further development are fully described. The exhibit's physical structure and operational characteristics are established. Design Development includes two sub-phases:

#### **Design Development I**

- Draft DDI content outline (by content group)
  - Text titles and descriptions
  - Graphic layout drafts
  - Graphic style, typography, color, finishes
  - Major exhibit elements documented
- Draft DDI exhibit drawings
- Detailed exhibit plan; arch. requirements
- Content group elevations / visualizations
- DDI comprehensive report
  - Updated content outline with draft script
  - Updated exhibit drawing package
  - Material, color, finish sample board

### Design Development II

- Draft DDII content & specification package
  - Content schedules
  - AV media treatments and equip specs
  - Specialty element reference packages
- Draft DDII graphic layout package with text
- Draft DDII exhibit drawings (plan elev. detail)
- Draft DDII class B and life-cycle cost estimates
- Update DDII documents per comments
- Formative evaluation if required

### **Production Documents**

Technical drawings and specifications are completed, communicating details necessary for potential exhibit fabricators to understand, price, and begin work on the project. Pre-Production planning and design tasks are initiated and coordinated with the exhibit fabrication schedule. This phase includes these major tasks:

#### **Production Documents I**

- PD exhibit drawings
- PD content & specification package
  - Content Schedules and supporting material
- Technical Specs/cut sheets for AV equip, lighting, exhibit specialties
- PDI graphic layout package
- Revised material and finish samples
- Class A production estimate and updated lifecycle cost estimate

#### **Production Documents II**

- Develop completion schedule
- Acquire/prepare production scans
- Proofread/correct production text
- Prepare production-ready files
- Revise exhibit drawings/content & specifications package as necessary
- Provide content data in database readable format
- Prepare Use-Rights Documentation Package with signed original content licenses

## **Production Support**

Work in this phase includes creative and technical support during fabrication of the project, including Planning and Design Follow-ons required to complete development of specific exhibit elements, and Fabrication Support to insure adherence to the project's design intent. Specific tasks vary by project and may include:

#### **Planning and Design Follow-ons**

- Prepare all design and content revisions required for production.
- Create original graphic content including:
  - Original illustrations
  - Original photography
  - Original and adapted maps
- Provide creative direction to specialty contractors including:
  - Illustrators
- Photographers
- Model makers
- AV and interactive producers

### **Fabrication/Installation Support**

- Review and comment on exhibit fabricator's submittals including:
  - Shop drawings
  - Samples
- Participate in shop inspections
- Installation support including:
  - On-site art direction
  - Focusing of lighting fixtures
- Update content schedules/data fields
- Support summative/remedial evaluation

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**Summary Description** (For full requirements see NPS museum interpretive exhibit planning, design, and fabrication contracts and specifications)

### **Postaward**

The Postaward Meeting and Site Visit provide important information and direction to the exhibit fabrication contractor to supplement the information in their contract documents. It is usually accomplished in one work day.

### Typical Agenda for Postaward Meeting

- Conduct a general review of the project, including schedule.
- Review exhibit design. Discuss contractor concerns or questions.
- Provide government-furnished reference materials to contractor.
   Conduct a review of these references
- Contractor documents exhibit space by taking measurements, reference photographs, and notes on existing conditions. Potential problems are identified.
- Contractor inspects, measures, and takes reference photographs of artifacts to be mounted by the contractor.

### **Submittals**

Shop drawings, proofs, and samples are submitted by the contractor for approval. Regular communication between the contractor and client is critical as details for most exhibit elements must be agreed upon prior to shop fabrication to avoid costly rework later.

## Typical Submittals

- Fabrication details (shop drawings):
   These add required construction detailing not included in the original design drawings.
- Color and materials samples: There may be slight changes in colors and materials from the original design, associated with the fabrication drawings.
- Catalog Cuts: Manufacturer's information from printed or on-line catalogs.
- Graphic Proofs: Print-outs of digital graphics for review of text and visual effect of colors, photos and art.
   Proofs may be in a different output than the final media, or at a smaller scale. Consequently, other samples may be needed to check actual colors or other characteristics.
- Audiovisual technical drawings: Requirements for power and signal wiring and other technical details for AV equipment installation.

## **Fabrication**

Most exhibit elements are fabricated either in the contractor's shop or by specialty subcontractors.

Complex project management skills are required to coordinate production of graphics, 3-D structures, electronic media, lighting, and curatorial elements.

#### Typical Elements to be Fabricated or Purchased

- Preparation of production digital graphic files and output of digital graphics.
- Fabrication of structures, including artifact cases, panels, walls, platforms, information desks, benches, audiovisual kiosks, etc.
- Models, including scale models, sculpted or cast human figures, natural history models, taxidermy or freeze dried animals, architectural models, mechanical interactive exhibits.
- Fabrication of custom artifact mounting hardware.
- The contractor acquires audiovisual hardware and tests it in their shop, prior to installation.

## **Building Prep**

Most changes to the building structure, finishes, and utilities fall outside the scope of the typical exhibit fabrication contract. However, detailed coordination between the exhibit contractor and those responsible for building prep work is required to insure a successful installation.

## Typical Building Preparation Elements

- Demolition/removal of old exhibits or other furnishings.
- New finishes for walls, floors, ceilings, and trim work as required.
- Changes or additions to electrical circuits, outlets, conduit, fire alarms, emergency exit lights, security system, and other work requiring a licensed electrician.
- Changes or additions to room lighting, such as installation of track lighting for the exhibits.
- Preparation of space for audiovisual equipment closet; installation of conduit for audiovisual equipment wiring.
- Changes to HVAC system to increase capacity when needed, and to move vents, ducts, or thermostats to accommodate new exhibit structures.

## Installation

During this phase, the goal is to deliver the exhibit elements in as complete a state as possible and minimize the amount of on-site work to be done. Installations are costly and labor-intensive. The contractor must carefully coordinate the sequence of installation so that delays are minimized.

## Typical Work During the Exhibit Installation

- Minor building prep work not previously completed by others.
- Delivery of exhibits. Set up staging area for unloaded exhibit elements.
- Install large structures, such as platforms, walls, cases, etc.
- Install large graphic panels and murals.
- Install smaller graphics, AV equipment, models, interactive exhibits.
- Clean work site of debris and dust, clean artifact cases, install artifacts, perform all other conservation requirements, and seal cases.
- Aim and adjust lighting fixtures.
- Walk-through inspection of completed exhibits. Develop punchlist.
- Supply maintenance manual and train staff in exhibit operation and maintenance.
- Correct punch-list items.
- Photograph completed exhibition.

## **Closeout/Warranty**

New exhibits typically include a oneyear contractor's warranty for defects in materials and workmanship. A contingency fund may be established to resolve latent design defects. Important media resources acquired to create exhibit elements are archived during the closeout period.

# Typical Work in the Closeout, Warranty Period

- Contractor submits a closeout package including all Governmentfurnished materials, and materials generated by the contractor to create the exhibits, such as digital layouts, and "as-built" fabrication drawings. A duplicate copy of the maintenance manual is included in the closeout package.
- Graphic source material is checked to verify completeness, and filed for future exhibit rehabilitation.
- Quality issues with the exhibits are addressed under warranty. Other exhibit enhancements may be accomplished through a contract modification.
- A project inventory, including technical and cost data, is prepared to facilitate entry of the new asset into the Facility Management Software System database.

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