



*designers of electronic media*

7999 East 88<sup>th</sup> Street • Indianapolis, IN • 46256 • 317-863-0525  
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## **Planetarium & Immersive Theater Design Services**

### **Company Background**

Since 1985 Bowen Technovation has specialized in theater and exhibit design for planetarium, immersive theater, museum, science center, nature center, and giant screen projects.

Bowen clients include over 600 satisfied world-wide sites and BT remains well known for integrating reliable modern technologies that enhance your visitor experience. We work with all major planetarium projection systems and keep the CAD dwgs and specs in our files. We are trained/approved/certified by nearly all equipment manufacturers.



Photo courtesy BurtHill.

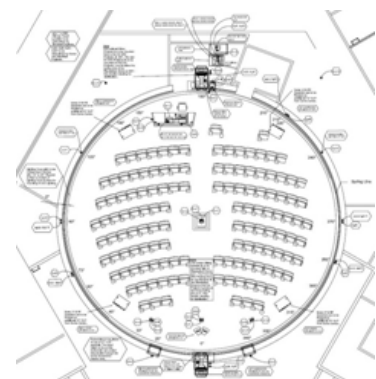
We specialize in designing multi-use facilities that support experiences in space science, all earth sciences, math, physics, music and art history.

Our company staff includes full-time former planetarium directors and managers with over 40 years of combined experience, plus other Bowen personnel with extensive experience in designing, installing and supporting planetarium projects.

Bowen Technovation is a financial supporter of the International Planetarium Society, regional planetarium associations, various regional museum associations, the AAM and ASTC.

### **Project Approach**

We are contracted by Architects, as well as by Owners. So standards are important. Our design work utilizes standards set up by the American Institute of Architects (AIA) with our drawings created in AIA AutoCad formats (DWG and PDF), our narrative specs are in AIA three-part formats (MSWord) and our project phases follow typical AIA phasing.



The following serves as a "menu" of options. You select which services you need And when then quote the fee structure.

## Phase 1: Project Review, Outline of Project

The assignments included in this phase Scope of Work are to review and address the following topics;

- Discuss and review the activities and presentations that will take place.
- Discuss and review the type of construction needed to support these.
- Discuss sound isolation, noise control and acoustic tuning.
- Generate a general description of the equipment that will be needed for the desired activities. Including:
  - Domed Projection Screen
  - Astronomy and other projection systems
  - Instructional/Event Presentation systems including, Bluray, computer inputs, HDTV, PowerPoint presentation, specimen cameras etc.
  - 5.1, 6.1, 7.1 and 8.2 Digital Audio systems
  - Domed Projection Screen
  - Cove and Theatrical Lighting systems
  - Control system
  - Operator's Console
  - Control/Equipment Room and Racks
  - Seat Selection
  - Content production suite structure and technologies
  - Base building lighting control
  - Interfacing with Lobby Exhibits.
- Discuss how shows/content would be developed and presented, both from internal and external sources.
- Estimate a budget that describes the various systems that are needed, their initial purchase and installation costs of the equipment; a standard cost for annual maintenance and the typical cost for production of shows/content, both that are purchased and developed in-house



## Phase 2: Schematic Design (SD)

Using the concepts developed in “Phase 1: Project Review, Outline of Project”, we will assist the Architect in developing an Architectural shell that will accommodate the dome and required equipment. Work during this phase will generally be to;

- Provide plan view Theater and Production Suite equipment layouts in CAD format. These will be provided as separate layers on the Architect provided backgrounds.
- Provide acoustic and noise control initial specifications .
- Provide lighting specifications and lighting control specifications related to the Theater and Production Suite.



- Provide equipment heat loads and electrical requirements (complete with circuit and wireway locations) so that the building engineering may be developed to support the Theater. These will be provided as separate CAD layers on the Architect provided backgrounds with keyed conduit/wireway sizing.
- Provide an estimated budget estimate for the Theater Technology Package.

### Phase 3: Design Development (DD)

Using the concepts developed in “Phase 2: SD, continue to assist the Architect in developing an Architectural shell that will accommodate the dome and required equipment. Work during this phase will generally be to;

- Provide plan view Theater and Production Suite equipment layouts in CAD format. These will be provided as separate layers on the Architect provided backgrounds.
- Review and markup Architect’s schematic dome and theater geometry layouts.
- Review and markup Architect’s proposed seating installation elevation and floor plan views.
- Review and markup Architect’s proposed Production Suite elevation and floor plan views.
- Provide acoustic and noise control specifications related to the Theater and Production Suite.
- Provide lighting specifications and lighting control specifications related to the Theater and Production Suite
- Provide equipment heat loads and electrical requirements (complete with circuit and wireway locations) so that the building engineering may be developed to support the Theater. These will be provided as separate CAD layers on the Architect provided backgrounds with keyed conduit/wireway sizing.
- Provide an estimated budget estimate for the Theater Technology Package including the projection dome screen.



### Phase 4: Final CD Design and Documentation

This phase will concern the development of additional documents that will allow Owner to bid the project. Work during this phase will be to;

- Provide final plan and elevation view CAD illustrations that depict locations and size of all Planetarium/Immersive Theater Technology Package system components. These will be provided as separate layers on the Architect provided backgrounds. These will be used by the Architect and other consultants to create a Construction Bid Drawing and Specifications Package.
- Include design of all system integration and



control systems for complete and usable systems.

- Provide equipment/system wiring diagrams.
- Provide narrative specifications in the Architect's CSI format template that detail the requirements for all of the Planetarium/Immersive Theater equipment, lighting, etc.
- Provide specifications for pre-installation submittals to be part of the work of the successful bidder.
- Provide specifications for training of personnel and list training requirements to be part of the work of the successful bidder.
- Provide specifications for required as-built documentation to be part of the work of the successful bidder.

A trip to client site is typical in this phase.

#### **Phase 4: Optional Construction Administration**

This phase will consist of activities needed to oversee the final selection of the Planetarium/Immersive Theater technology package contractor and their activities to provide and install all of the equipment. This work will occur over the span of Construction. General activities at this point will include;

- Respond to general Owner and construction questions during Construction.
- Perform coordination meetings with the Planetarium/Immersive Theater Technology provider and facilities staff prior to beginning their work.
- Perform a punch list and final review of the work.
- Conduct review 11 months after the final completion to verify any warranty repair work needed.



A trip to client site is typical in this phase.

#### **Considerations & Comments**

We believe we have described all necessary design elements as described in the program for this project but the possibility exists for additional scope such as, but not limited to:

- Lobby messaging and display systems announcing current science events, program times, etc.
- Interactive lobby exhibits or space science interactives.
- Distance learning and/or audio video conferencing.
- Telescope storage.

