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Planetarium design standards pdf

Planetarium design standards. Solar design standards.

The planetarium experience is a unique blend of art and science. It's an immersive environment where people gather to explore the cosmos, making it a communal virtual space like no other. While virtual reality gets a lot of attention, planetariums offer a more interactive and engaging way to learn about the universe. Designing a planetarium requires a deep understanding of both architecture and audiovisual technology. In the past, planetarium design was relatively simple, relying on pinhole projectors to create a night sky effect. However, with the advent of computational power and Computer-Aided Design (CAD), it became possible to create full-color spherical experiences that can be viewed from any angle. A key innovation in planetarium design came in 1997 when Myles Gordon and Carter Emmart decided to integrate digital technology into their projectors at the Hayden Planetarium. This allowed for a more dynamic simulation of the cosmos, bringing the audience closer to the experience. When designing immersive audiovisual technology, it's essential to start from the viewer's perspective. Designers must consider the geometry of the space and how it will affect the integration of technology, airflow, seating, and exits. The goal is to create an environment that feels like a seamless journey through the cosmos. To achieve this, architects and engineers must work together, building models to visualize the space. This collaborative approach ensures that every detail, from entrance to exit, is carefully considered to provide the best possible experience for the audience. The design of a planetarium is unique and tailored to the specific content it will display. It's not about finding the most successful tilt angle but rather creating an optimum shape, tilt, and dimension that complements the space and its purpose. In essence, designing a planetarium requires a multidisciplinary approach that balances artistic vision with scientific accuracy, aiming to transport audiences on an immersive journey through the universe. Planetarium design requires careful consideration of several key elements to create an immersive experience. Acoustics and lighting are crucial in spherical spaces, where sound and light can be refocused by the dome shape. To mitigate this effect, we use perforated aluminum screens with acoustic material and position exit signs carefully to avoid distracting glare. Fire sprinklers also present a challenge, as overhead installations can ruin the visual effect; we work with fire consultants to specify suitable solutions. Air movement is another critical aspect, as ventilation grilles cannot be placed in the middle of the screen without causing damage or compromising airflow. We collaborate with mechanical/electrical engineers to design airflows that roll over viewers' heads for optimal comfort and reduce motion conflict. Finally, dome tilt is an important consideration. Older planetariums were modeled on the celestial sphere, but this created a narrow field of view and broke the illusion of total immersion. By tilting the dome slightly, we can create a wider field of view without sacrificing immersion. As you gaze into the planetarium's tilted dome, the horizon merges seamlessly with the audience, creating an immersive experience like no other. The combination of cutting-edge technology and clever architecture enables this seamless fusion, drawing viewers in and rendering them nearly oblivious to their surroundings. At the California Academy of Morrison Planetarium, for instance, a 30-degree angle seating arrangement faces a massive 165-degree dome screen, making it one of the most immersive experiences globally. In the realm of immersive environments, both virtual reality headsets and planetariums have their unique strengths. The former excels at providing an intimate, detailed look at specific spaces or objects, while the latter thrives on creating shared, communal experiences. When immersed in a space, you can genuinely feel depth and distance without being encumbered - it's a more natural experience.