

Ocean City Performing Arts Stage and Comfort Station

Ocean City, MD



Team

Owner:

Town of Ocean City, Ocean City, MD

Architect:

David D. Quillin Architecture, Berlin, MD

Structural Engineer:

George Miles & Buhr

General Contractor:

Black Diamond Construction

Reinforcing Bar Fabricator:

Pacific Coast Steel, San Diego, CA

Total Project Cost:

\$980,000.00

Total Project Size:

1,320 sq ft

Floor System:

Cast-in-place concrete slab on pilings

Framing System:

Cast-in-place walls and ceiling deck

Award:

2013 CRSI Award Winner –
Cultural & Entertainment Facilities Category

Photography:

David D. Quillin Architecture, Berlin, MD

STRUCTURAL FRAMING SYSTEM

The town of Ocean City had a crumbling public restroom facility which it needed to replace. As a part of the project it also wanted to add an outdoor performing arts stage which would be used to host concerts most nights of the summer. The town initially envisioned building a copy of other boardwalk restrooms that it had constructed recently, a relatively modest design.

Together with the City Engineer, Terry McGean, the team was able to get approval for a much more innovative type of building. The goals for the building were extreme energy efficiency, durability, and ease of maintenance, all while maintaining a similar budget to the other restrooms.

It was decided early on that a material that could be both the structure and the finish material would be an ideal solution. Cast-in-place concrete became the obvious choice for several reasons, including durability, strength, thermal mass, and ease of maintenance. Also, we enjoyed the relationship of building on the sand with a material that contains sand.

The design centered on solar chimneys. The chimneys provide a passive ventilation system which draws air under the ground, where it is cooled and dehumidified, into the restrooms, and is then exhausted out the chimneys. Concrete is central to this passive ventilation system, from the concrete boardwalk which moderates temperatures below it, to the concrete structure of the building itself with its high thermal mass that minimizes temperature swings inside the building to the high density and heat retaining capacity of the concrete cylinder in the towers.

REASONS FOR CHOOSING REINFORCED CONCRETE

Key Material Properties of Concrete:

- Concrete's high strength and mass allowed the structure to resist the extreme wind and wave loads possible in this hurricane-prone location.
- Concrete's high thermal mass allowed for the cooling of intake air run beneath the slab, the moderation of temperatures inside the building, and the retention of heat in the solar chimneys.
- Concrete's ability to be finished in a variety of ways allowed a single material to be both the structural system and the finish material.
- Concrete's durability and impermeability (when polished and hardened or coated with an anti-graffiti clear silicone) provide exceptional ease of maintenance.
- Concrete's local availability and relatively benign energy footprint make it a sustainable material.
- Concrete is particularly appropriate on the beach – "building on the sand, from the sand".