DOME TECHNOLOGY®

Wood-Pellet Storage

Albioma | Fort-de-France, Martinique

The dome maximizes storage and withstands severe wind and seismic activity.

Steel-reinforced concrete is essential for providing brute strength needed on an island where extreme weather is common.

The dome features round explosion panels that protect the storage structure in the event of an explosion.

Scope of Work

- ○ FEED Study
- ◒ Value Engineering
- ◒ Geotechnical Analysis
- ◒ Material-Handling Systems Engineering
- ◒ Structural Engineering
- ◒ Mechanical Engineering
- ◒ Electrical Engineering
- ◒ Procurement & Subcontract Management
- ● Dome Construction
- ● Tunnels Construction
- ○ Material-Handling Systems Installation
- ● Explosion Relief Installation
- ◒ Additional Steel & Concrete Construction

○ None ◒ Some ● All

Storage & Reclaim

1 Dome: 35m (114ft) Wide × 33m (108ft) Tall

13,000 Metric Tons, Wood Pellets

1 Tunnel, 75% Live Reclaim

Overview

Independent energy producer Albioma wanted to construct the first 100 percent biomass power plant on a small island in the Caribbean and contracted Dome Technology to build a DomeSilo™ to store imported wood pellets.

The self-emptying ability for a large portion of the volume was one of the factors that led Albioma to select a dome, said Albioma project director Claude Décamp.

Construction began with soils remediation and deep-piled foundations. Much of the "ground" had been placed there years before and was filled with coral and dumped material. The Dome Technology team dug out two meters of soil and replaced it with crushed stone. Five hundred stone columns were then installed.

Establishing a solid foundation met the demands of local conditions, where cyclonic and seismic events are common and poor soil is the norm; in fact, Hurricane Matthew hit the island right before construction, and two earthquakes also took place during construction. "The structure can withstand over 200 mph (322 km/h) winds, and being the structure it is, the dome can withstand an earthquake as well," Dome Technology lead foreman Eric King said, adding that the island is home to a potential volcano as well.

Though flat storage was an option, the large size as well as anticyclonic and anti-seismic accommodations and soil remediation would have required a very high investment cost. The dome was selected for its smaller footprint, less-expensive foundation, lower overall cost, and higher storage capacity, Décamp said.

"For nearly four decades we've relied on a collaborative approach with companies—they're in the driver seat, and we help navigate. In every project Dome Technology incorporates innovative technology to maximize storage capacity and system performance with an economical solution," Bradley Bateman, CEO, Dome Technology.

Read more about this project at link.dometechnology.com/11977