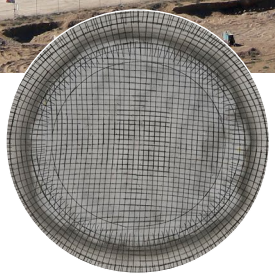
DOME TECHNOLOGY®

Sugar Storage

Oman Sugar Refinery Company | Sohar, Oman



This image shows the grid of rebar placed at the roof apex atop insulation.

Multiple hoppers in the dome floor feed sugar onto at-grade conveyor belts.

Cleanliness is of utmost importance inside the dome and within conveyance tunnels too, like the one pictured above.

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
- ○ Additional Steel & Concrete Construction

○ None ◒ Some ● All

Storage & Reclaim

1 dome: 37.8m (124ft) wide × 46m (151ft) tall

30,000 metric tons, sugar

Gravity reclaim

Overview

Oman Sugar Refinery Company wanted to build a large facility in Sohar, Oman, for importing raw sugar and refining it at the site. To make that possible, a substantial storage structure for white sugar was necessary. But Oman Sugar wasn't simply looking for a structure to contain product—they wanted sophistication too.

"The idea of the dome was to have a state-of-the-art maturation and storage facility, which could keep the product in bulk and packed as and when needed," said Dr. M. Reza Laulloo, Oman Sugar Refinery technical manager. Also essential was flexibility in planning according to market demand, he said, with the ability to pack bags of any size or even a 22-ton truck on the spot.

Other storage models were considered, but because the customer's main concern was maintaining the sugar's quality, they chose a dome, said Dome Technology sales manager Victor Ruiz. The project progressed slowly with Oman Sugar and Dome Technology preparing the ideal plan over several years.

"For them, ensuring that the refined sugar—their final product—is stored securely and that its properties remain unchanged is crucial," Ruiz said. "This is key for the sugar industry, as the refined sugar dome is like the vault of a bank—it's where the entire value of the process is stored."

Dome Technology constructed a DomeSilo 124 feet (37.8m) in diameter and 151 feet (46m) tall with a maximum storage capacity of 30,000 metric tons.

The process at the Oman dome works like this: After sugar is refined, it passes through a drier to remove moisture. Then the sugar is conveyed to a distributor that loads it into the dome. Reclaim is clean and simple with gravity doing the work; multiple hoppers feed sugar onto conveyor belts in the cellar below. Sugar is then conveyed onto a single main conveyor that transports it to the packaging area, where it can be shipped in containers or on flatbed trucks.

The new facility cut down on required infrastructure, allowing Oman Sugar to "plan our packaging according to demand, and we don't need to have a huge bagged storage facility," Laulloo said. Another major benefit was acquiring greater storage capacity on a smaller footprint—a critical feature at a high-occupancy port where land comes at a premium. Read more about this project at this link.