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FEATURE ARTICLE

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TEMCOR ALUMINUM DOME SYSTEMS FOR CEMENT INDUSTRY PROVEN BY MORE THAN 40 YEARS IN THE FIELD

Since 1964, Temcor has been designing, engineering, manufacturing, erecting and perfecting bulk storage systems for the storage of cement, coal, and more. In the more than 40 years since their entry into the bulk storage arena, Temcor has risen above their competitors to become the world's largest Aluminum Dome builder.

Temcor has viewed research and development as one of the most important aspects of their success. In their years in business, Temcor has developed bulk storage dome systems that are durable, cost-effective, and perhaps most importantly, reliable. The company has more than 7,000 installations world wide, yet no Temcor dome has ever failed. That reliability has earned Temcor their sterling reputation and the loyal customers that come with that reputation.

The cost-effectiveness of a Temcor Aluminum Dome starts before construction even begins. A dome structure has a greater storage capacity than a traditional rectangular facility - a circular pile has a smaller footprint requiring less land. With available land at a premium, that translates to smaller land requirements.

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A Temcor Dome, made entirely of aluminum is strong, but weighs a fraction of what a steel structure weighs, so foundation costs are reduced. Since Temcor Aluminum Domes are clear-span, no supporting columns are required adding to the storage capacity and further keeping construction costs in line.

Temcor has developed a unique Center Tower Erection Method in which a dome is built on the ground from the center-out while attached to a center tower. As each ring is assembled, the dome is raised until assembly is complete and the dome is then attached to its foundation or retaining wall. This method requires a relatively small crew that works safely on the ground. A typical 300-foot diameter dome can be erected by an average crew of 12 in approximately 12 weeks – much more economical than the process for a typical building.

The inherent corrosion-resistant properties of aluminum add to the value of a Temcor Aluminum Dome by keeping the facility virtually maintenance-free for the life of the structure. Temcor domes will not rust like steel, rot like wood, spall like cement, or solar degrade. And, Temcor domes won't react to the caustic environments caused by their contents – the aluminum can also withstand temperature swings common to some contents such as clinker. Further, the aluminum is not affected by environmental conditions such as high salinity or humidity. The savings in maintenance costs is significant, especially considering the facility is designed to last for decades.

Temcor Aluminum Domes are in place throughout the world, and are individually engineered to withstand local conditions. The domes are built to weather hurricane-force winds, earthquake activity in seismically active regions and heavy snow loads.

Stacker/reclaimer systems, truck doors skylights and other features are common to Temcor bulk storage systems and are designed in depending on each facility's needs.

Temcor Aluminum Domes are not used solely for cement storage. Virtually any bulk storage need can be met with a Temcor dome. Coal, various ores and salt are all stored securely and efficiently.

The most important aspect of a Temcor Aluminum Dome is the company itself. Decades of experience and steadfast attention to detail contribute to the company's success. Company headquarters, sales, design and engineering departments have been in Southern California since the company's beginnings. Temcor's state-of-the-art manufacturing facilities are near Savannah, Georgia.

Some of the company's recent examples of excellence in the bulk storage industry:

Temcor, recently completed a 93m diameter aluminum limestone storage dome for Italcementi. The dome was built at the new **Essroc Cement Corporation** plant in Martinsburg, West Virginia.

The dome, which has a rise of 33.6m is attached to a 2.25m high concrete wall. Twenty-three skylight panels, a conveyor opening, man doors, truck doors and more were designed into the dome.

A new plant being built in Festus, Missouri by **Buzzi Unicem, USA** now includes an 88m diameter Temcor Aluminum Dome to handle the plant's limestone storage. Two truck openings, a conveyor opening, skylights and other features will be designed into the dome. Construction began in August, 2007 and was complete by that fall.

Temcor also completed construction of a 90.5m clinker storage dome at **Riverside Cement Company's** Oro Grande, California plant in early 2007. The plant uses an Aumund MOLE clinker reclaim system in which the storage area is filled via a stacking tube in the center of the building. To accommodate this tube, Temcor modified its Center Tower erection method by attaching winches to the top of the tube and then using lift lines to raise the dome as it is assembled. The dome was designed to withstand the 150° F above ambient processed clinker temperature.

Temcor has replaced a typhoon-destroyed dome for the **Taiwan Cement Corporation** at their Ho-Ping, Taiwan cement plant. The original dome, built by another manufacturer, was less than 10 years old when it was destroyed by a seasonal typhoon. Temcor developed a custom erection system for the dome so that the limestone handling system could stay partially in service during construction. The resulting Temcor Aluminum dome has a diameter of 135m and has been engineered to withstand wind speeds of 65m/s, 3-second average.

Hyundai Steel Co. Ltd has awarded Temcor one of the largest contracts in its history. Five Temcor domes will be part of the new steel plant being built in Dangjin, South Korea - three 120m diameter domes will be used for iron ore storage and two 130m domes for iron ore blending facilities.

The domes will be an important part of Hyundai's new integrated mill. Hyundai is investing \$5.7 billion in the plant, which is expected to be complete in 2010. When fully operational, the plant is expected to produce eight million tons of steel per year. Dangjin is approximately 123 km south of Seoul.

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The three iron ore storage domes will have a rise of 40m above their 20m-high concrete walls, and the two 130m blending domes will have a rise of 30.23m on concrete walls 7m high. The span-to-rise ratio of each dome was determined by the clearance requirements of the stacker /reclaimer under each dome which will handle the iron ore. The addition of the three storage domes will give the plant a storage capacity of 900,000 tons of iron ore and an additional 180,000 tons in the two blending facilities.

Temcor's experience is not limited to the bulk storage industry. The company's reputation extends other industrial applications such as water/wastewater treatment and storage, and petroleum storage. Domes and roof systems for architectural applications are in place as sports arenas, cruise terminals, planetariums, churches, and more. For more information, write 879 W. 190th St., Gardena, CA 90248, e-mail info@temcor.com or call (310) 353-5100...or find Temcor online at www.temcor.com.