

Techno-Mart 21 Seoul, Korea

Project Description:

- Ice slurry TES system installed to provide 100% of air conditioning for a new 39-story office tower, merchandise mart, theaters, and restaurants

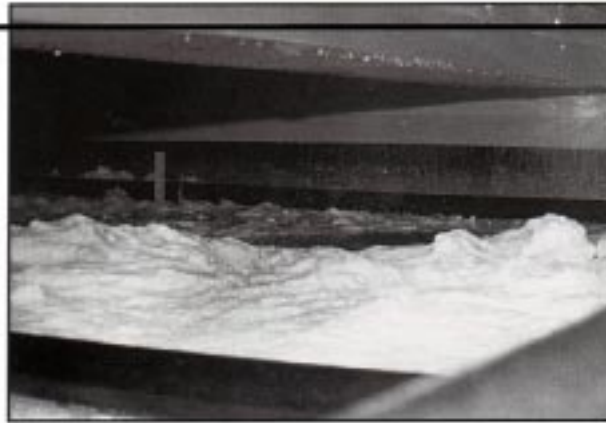
- Installation of eight **Mueller** ice slurry units in a new Korean complex

- Project payback
1.1 years

- Annual energy cost savings
of over \$500,000 dollars



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The ice slurry exiting a generator drops directly into the storage tank. If required, the ice slurry can be pumped to one or more tanks located remotely from the ice generator.



Each ORE-400 ice slurry unit consists of four ice generators. The units sit on top of the storage tank and drop ice slurry directly into the tank. A total of eight ORE-400 units (each capable of producing 500 tons of ice) are in the project for a total of 32 ice generators.



Inside the 36,000-ton-hour storage tank. Spray nozzles are shown along the top of the tank which will hold about 0.9 million gallons of 7% glycol solution.

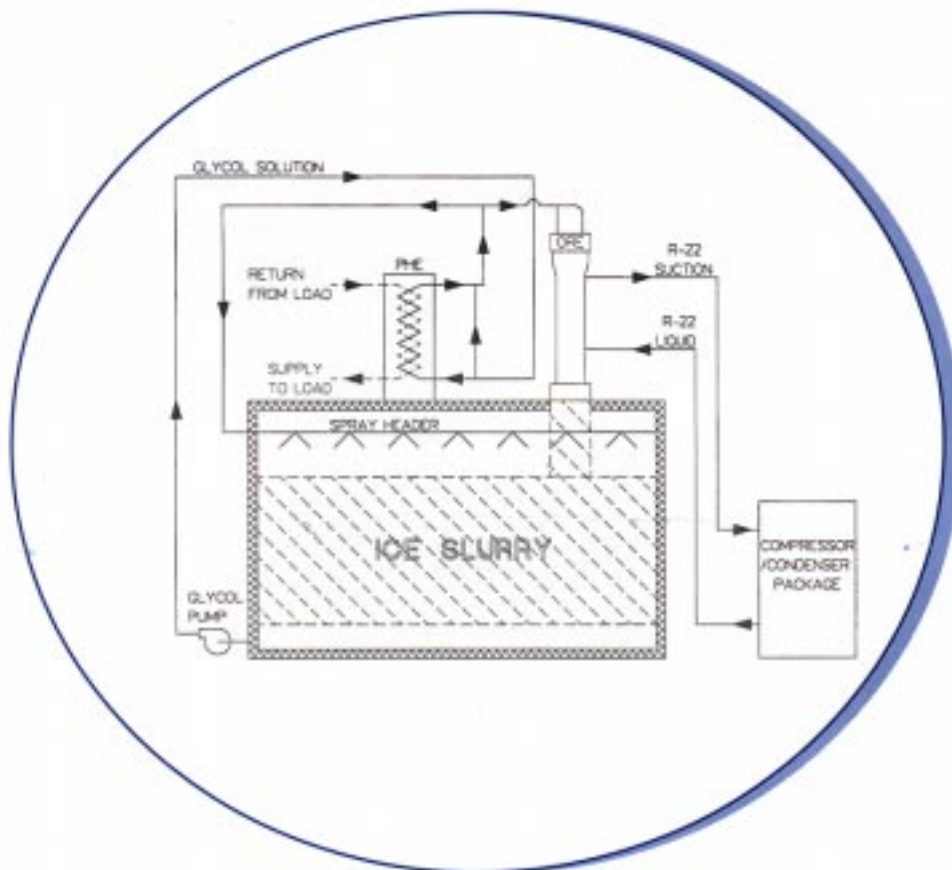


Photograph taken from inside the tank, looking up into an ORE-400 ice slurry generator. Each ORE-400 has a capacity of about 500 tons.

Project Schematic:

The ice generator acts both as a chiller and an ice slurry generator.

The compressor/condenser package consists of four 1,000-ton screw machines with water-cooled condensers. Design engineers use the **Mueller** MaximICE ice slurry generator in many different arrangements.



Techno-Mart 21 Seoul, Korea

Project Scope:

- Generating capacity of 4,000 tons of ice slurry
- Ten-story merchandise mart
- Thirty-nine story office tower
- 2.8 million square feet (total)
- System start-up April 1998

Mid-American Energy Sioux City, Iowa

Project Description:

Replaced an existing swept-surface ice harvester system with a **Mueller** ice slurry system



This is one of two 50-ton screw compressor machines which drive two 50-ton ice slurry machines at Mid-American Energy.



This is one of two 50-ton ice slurry generators installed at Mid-American Energy in 1996.



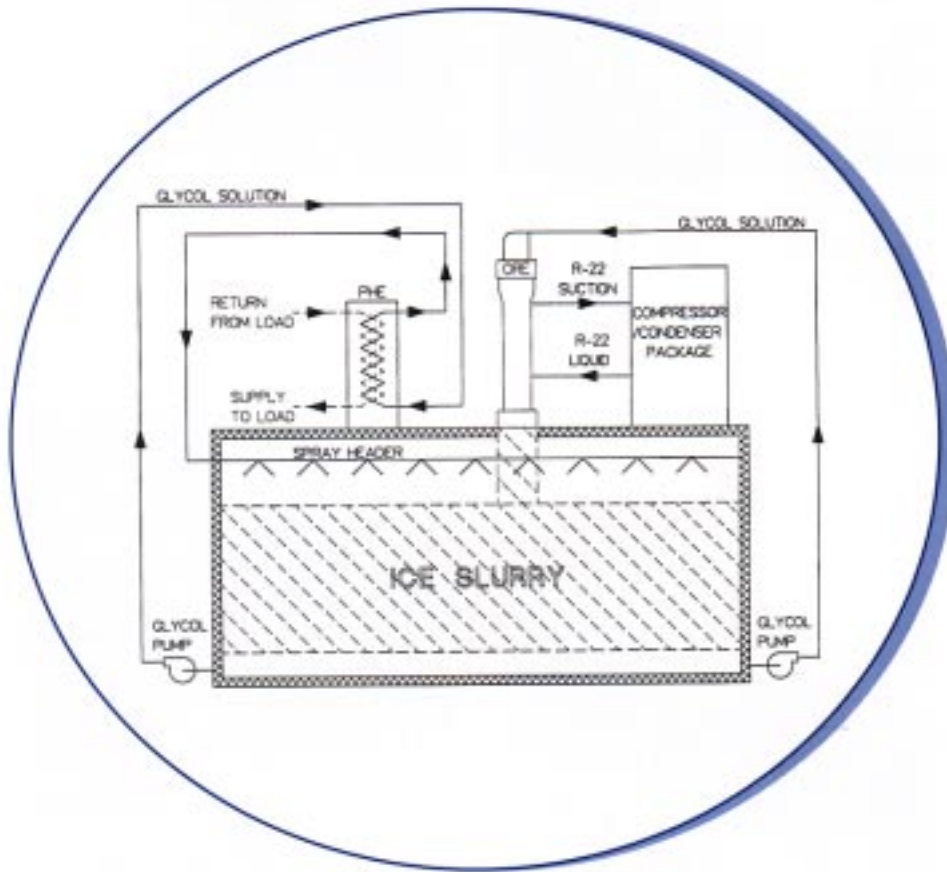
Mr. Rick Book of Mid-American Energy demonstrates the ice slurry system to visitors from China.



The ice slurry exiting a generator drops directly into the storage tank. If required, the ice slurry can be pumped to one or more tanks located remotely from the ice generator.

Project Schematic:

The system makes ice slurry as required by the building load. The system automatically checks the ice level in the tank every hour and generates ice slurry as needed.



Mid-American Energy Sioux City, Iowa

Project Scope:

- Installed two ORE-50 **MaximICE** ice slurry units

- Installed two compressor condenser skids

- Daily TES cycle

- Existing ice storage tank used

- Existing baseload chiller used

- Fully automated, unmanned TES installation

Springfield Brewing Company Springfield, Missouri

Project Description:

- A 3-ton ice slurry generator

- A process cooling application

- Payback in less than two years



This 3-ton ice slurry generator and storage tank is used to cool the wort from about 210°F down to 46°F. A small 3-ton ice slurry generator can produce 504 ton-hours per week (3 tons x 24 hours x 7 days) for applications in process cooling and any short-duration load. These units have been installed in multiples for projects needing 6 tons or 9 tons of ice slurry.



These **Mueller** tanks serve as hot water storage tanks. The hot water is produced by a **Mueller** refrigeration heat recovery system on the building's roof.



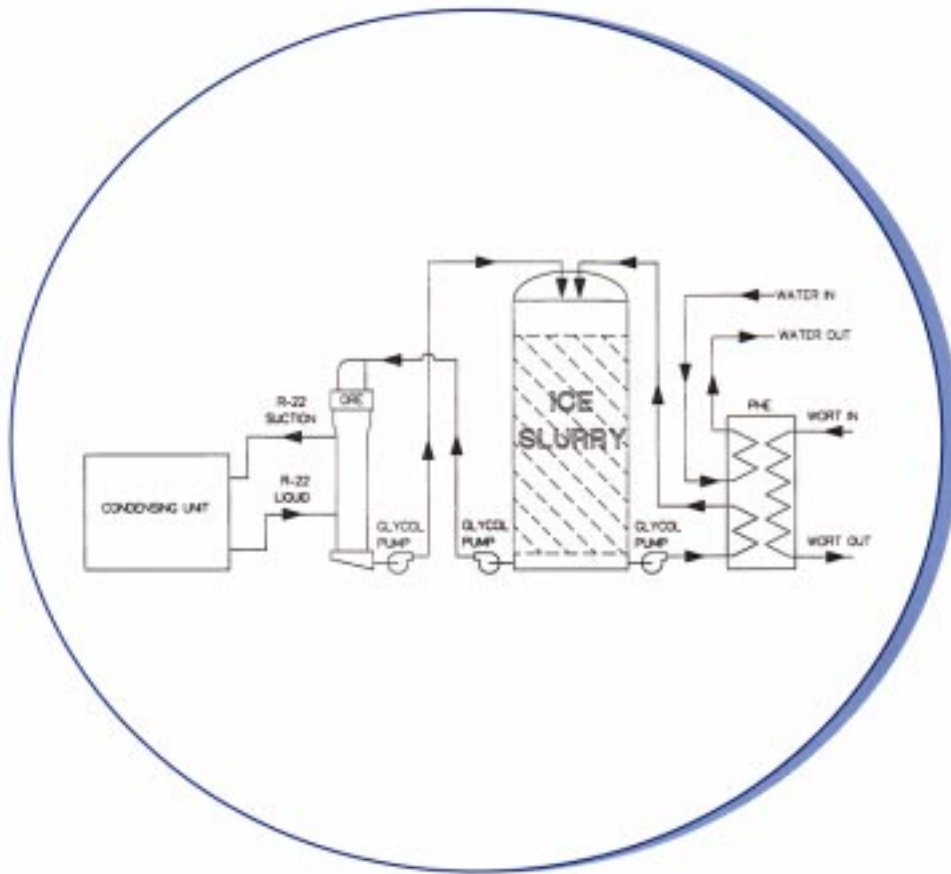
This **Mueller** plate heat exchanger receives cold solution from the ice tank to cool the wort.



The ice slurry is pumped into the top of the storage tank. Note the spray ball which distributes the warm return solution over the ice.

Typical Micro-Brewery Schematic:

The ice slurry system cools the wort from about 210°F down to 46°F. The 3-ton ice slurry generator can produce (3 tons x 24 hours x 7 days) 504 ton-hours of ice slurry per week.



Springfield Brewing Company Springfield, Missouri

Project Scope:

- Installed a 3-ton ice slurry generator

- Installed a refrigeration heat recovery system

- System designed to minimize energy consumption

- System start-up December 1997