



CONCRETE COOLING SYSTEMS WORLDWIDE

ABOUT US

ConCool, LLC offers the concrete industry more than 50 years experience in systems to produce concrete to stringent temperature specifications. With more than 150 installed projects worldwide this company has the experience to design, supply and install cooling systems to meet any concrete temperature requirement at any level of production.

PHILOSOPHY

The ConCool philosophy revolves around finding the most cost effective solution for the specific project needs. Heat balance calculations allow a careful consideration of all available methods to reach the required placement temperature. These technical calculations are then followed by a project cycle cost analysis which allows the Client to see clearly in economic terms their total project costs for producing concrete to meet contract requirements for each available option.

COOLING METHODS

Passive cooling methods are by far the most cost effective in reducing heat loads. These include shading of sand and large aggregates, and spraying water over the covered materials. Passive measures can also include placing sand and aggregates in large tanks, allowing the temperature to stabilize for several days prior to use.

Active cooling methods are those which remove energy (heat) from the concrete. These are divided into two types- those which remove energy from the constituent materials (cooling prior to mixing), and those which remove energy prior to discharge of the concrete (cooling prior to discharge).

Options for cooling prior to mixing:

A) Wet belts: Niagara® Wet belts from ConCool are used to reduce the temperature of large aggregates. Aggregates are fed onto covered conveyors and sprayed with chilled water. The effect of the chilled water is to reduce the aggregate temperature to 2.8 C. This is an energy efficient method for reducing requirements for cooling prior to discharge. (continued on back)

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B) Fluidized Bed Chillers: Where required, fluidized bed chillers can be used to chill sand to 7.5 C.

C) Air chillers: Blue Northern® air chillers can be used to cool large aggregates stored in conditioning tanks, or can provide chilled air directly to aggregates stored in the batch plant to maintain the required temperatures if the plant is stopped for an extended period of time.

Options for cooling prior to discharge:

A) Super chilled water: Water can be supplied to the concrete production at -1 C from purpose built equipment.

B) Dry flake ice: Glacier® dry flake ice systems from ConCool deliver ice to the mix at -7 C, absorbing energy through phase change thus delivering a significant cooling effect to the mix.

C) Gases: In extreme conditions, CO₂ or nitrogen gas can be added at the mixer to ensure compliance with placing temperature specifications.

PROJECT CYCLE COST ANALYSIS

ConCool can offer a wide variety of options to meet project specifications. Each option can be presented with estimated capital costs, operating costs, and salvage value to give clients an accurate picture of the cost per m³ of delivering the specified concrete to their project.

