Direct/Indirect Evaporative Cooling

This type of system, referred to as “two-stage cooling,” adds a second stage of evaporative cooling before the conditioned air enters the dwelling to further lower the temperature of the incoming air. Typically, an indirect cooler is first used on the supply air. Then, the pre-cool air is sent through a direct cooler which adds water to the air. Systems on the market vary in providing indirect units as add-ons to existing direct coolers, or packaged indirect/direct systems. The companies offering these systems are listed below.

One manufacturer, Alter-Air Corporation, is producing a three-stage cooling system – the ACE. It brings in supply air and passes it through a heat exchanger where cooled water extracts the heat from the supply air. The cooler air is then sent into the dwelling. The warmer air is directed to a cooling unit for the second stage. Here, the air is changed into a mist where it drenches warmer ambient air. In this process, the water becomes much cooler and collected into a reservoir. Finally in the third stage, the cooler water is pumped from the reservoir into the heat exchanger where the supply air in brought in to be cooled once again.

Manufacturers