

MUELLER® ACCU-THERM® PLATE HEAT EXCHANGERS

TYPICAL HVAC COOLING APPLICATIONS

COOLING TOWER ISOLATION

Cooling tower water is frequently fouled from a variety of environmental sources. It is not uncommon for tree pollen, grass, and even plant life to be introduced into the water stream. To protect the chiller, condenser, and evaporator equipment from this contaminated cooling water stream, it is reasonable to install an intermediate isolation heat exchanger. The close approach temperatures and the easy maintenance of the Accu-Therm heat exchanger make it a perfect solution for this critical application.

Whether servicing a large chiller package with a single exchanger or serving an array of smaller units, the Accu-Therm can ensure security and integrity of the cooling water loop. See Figures A and B.

FREE COOLING APPLICATION

When ambient conditions allow, the cooling tower water loop can be used directly to provide the air conditioning unit with a cooling water flow or “free cooling.” Installing an Accu-Therm heat exchanger as an intermediate exchanger provides economical protection (isolation) and allows the chiller to be off-line (free cooling). See Figures C and D.

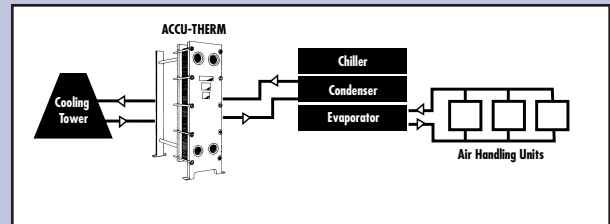


Figure A

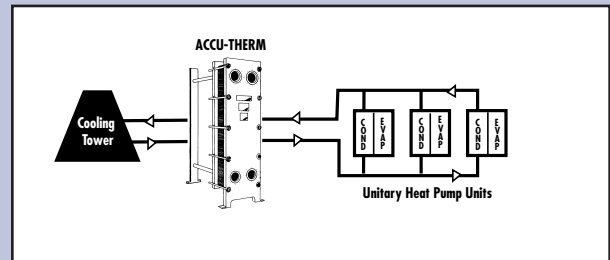


Figure B

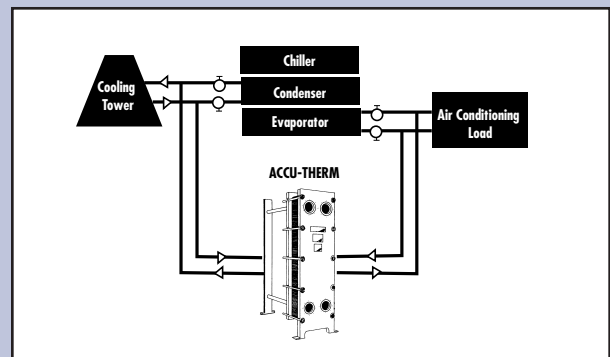


Figure C

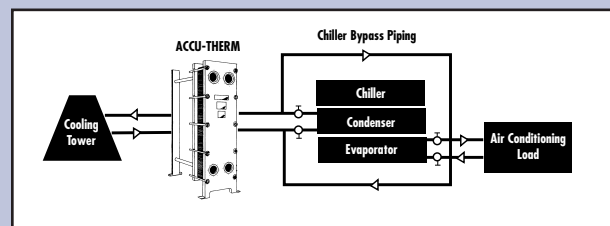


Figure D

POND WATER ISOLATION (ALSO LAKE, RIVER, SEAWATER, GROUNDWATER, WASTE STREAM, ETC.)

Instead of a cooling tower water loop to cool the chiller package for the air conditioning load, an alternative source of cooling water is often used. To protect the chiller equipment from any possible biological or chemical fouling, it is correct to install an Accu-Therm heat exchanger as an isolation device.

If the water source is at the appropriate temperature for the process, the Accu-Therm could provide the entire cooling load as well as isolation protection. See **Figure E**.

STATIC HEAD ISOLATION FOR TALL BUILDINGS

To save on the cost of high pressure fittings for tall buildings and their associated static head, it is possible to divide the building into “pressure zones” that are isolated from the main chiller lines with an Accu-Therm heat exchanger. The efficient Accu-Therm will allow the building to be developed with each pressure zone in parallel with the chiller (assuming a single high-pressure main), see **Figure F**, or with each successive zone in series with the other, see **Figure G**.

THERMAL STORAGE TANK ISOLATIONS

As our costs for electricity increase, it is becoming more common to use the chiller to produce a thermal sink of cold water overnight when the rates tend to be lower. Then during the day, when the air conditioning (or process) load is highest, the air conditioning load can be supplemented with this stored cooling capacity.

The storage tanks tend to develop a high solids content that may damage the air conditioning if allowed to enter the coils. The use of the Accu-Therm heat exchanger effectively isolates the water and the load. See **Figure H**.

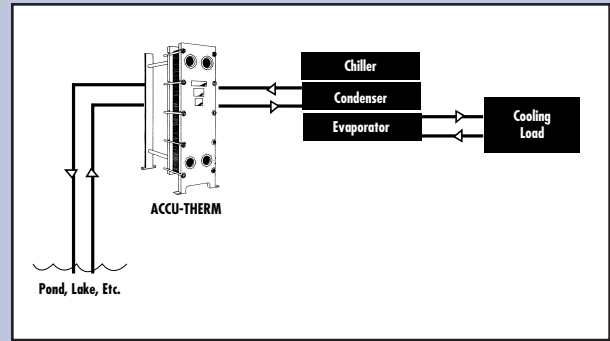


Figure E

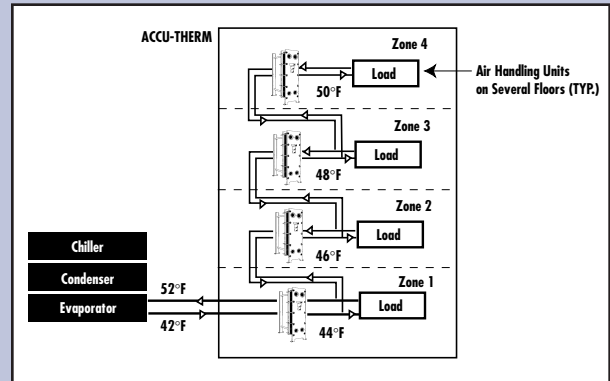


Figure F

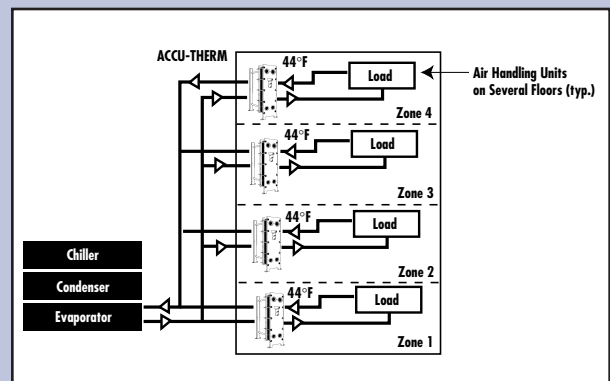


Figure G

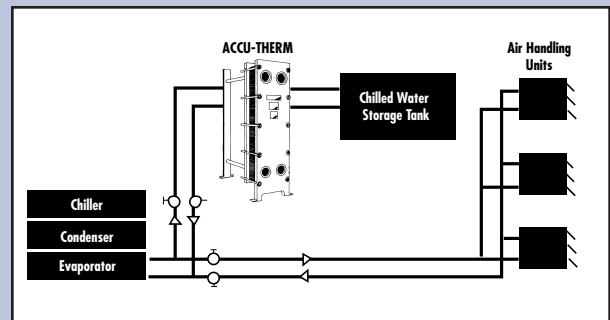


Figure H

WATER SOURCE PRECOOLER AND ISOLATION

To relieve the load on the evaporator portion of the chiller, it is possible to precool the air conditioning return using a water source cooling loop. The water loop needs to be isolated with an Accu-Therm heat exchanger to protect against the possible solids and biological fouling from the water source.

See Figure I.

POTABLE WATER HEATER

The Accu-Therm heat exchanger is a very effective interchanger when used between a water boiler or steam source and your hot water needs. The stainless steel plates are very clean and the unit can even be compact enough to serve as a point-of-use exchanger.

For critical applications, the Accu-Therm can even be designed as a double-wall heat exchanger. This design meets certain local codes that demand two walls of heat transfer between the fluids. See Figure J.

For more details on our double-wall Accu-Therm, ask for brochure AT-1629.

HEAT RECOVERY FROM CONDENSER WATER

If your process and ambient conditions allow, the hot water return from the chiller package condenser is often useful for heating (or preheating) another process load. The addition of a bypass loop and an Accu-Therm heat exchanger will effectively recover this “free heat” instead of dumping it into the cooling tower or pond. See Figure K.

WATER SOURCE HEAT PUMP ISOLATION

To protect the new, high-efficiency heat pump installations from the contaminants that are present in your water source, insert an Accu-Therm heat exchanger in line. The close approach temperatures will ensure effective performance. The high turbulence will provide the maximum operational life of the heat exchanger.

See Figure L.

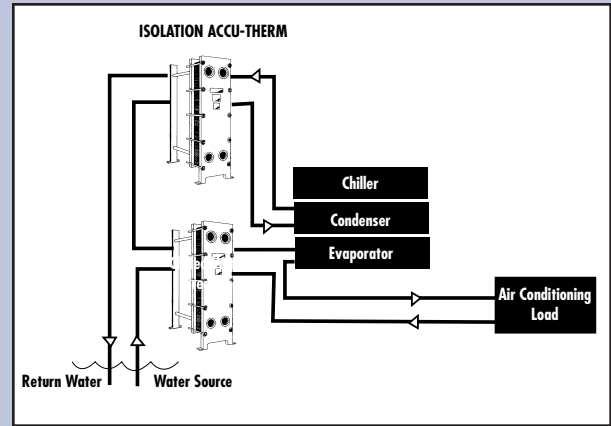


Figure I

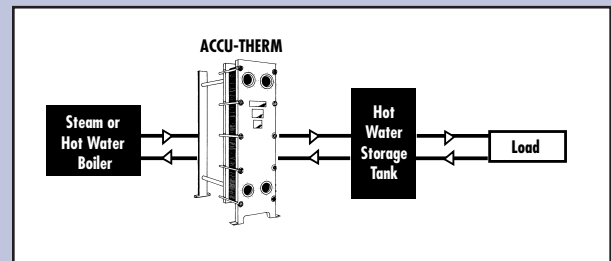


Figure J

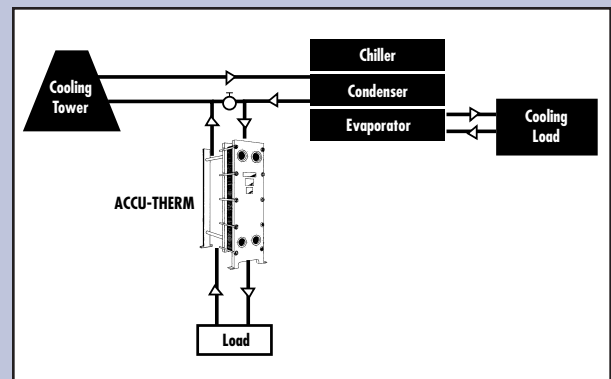


Figure K

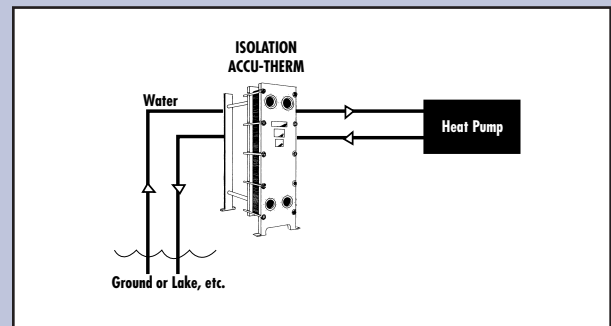


Figure L

BOILER BLOWDOWN AND CONDENSER HEAT RECOVERY

To further cool condensate, prevent condensate flashing, and to recover yet more heat from your investment, insert an Accu-Therm heat exchanger in line. You can further recover the investment in your boiler energy costs by recovering energy from the boiler blowdown. Both of these heat sources are typically wasted energy that can easily be fed back into boiler preheat or into other process heating. See Figure M.

WASTE HEAT RECOVERY FROM ELECTRONICS AND COMPUTER ROOMS

Any area or process that is generating hot water is a candidate for heat recovery with an Accu-Therm heat exchanger. Even if the waste water is a by-product of the process or is a treated water line that was originally the cooling water loop, there is probable energy left to be recovered. The close-approach temperature capabilities of the Accu-Therm make it a practical solution to your energy needs. See Figure N.

DISTRICT/ZONE HEATING

The district heating (and cooling) era is upon us. The effectiveness of having a central heat or cooling source and distributing the energy via steam or water lines has large cost savings potential. The close approach temperature of the Accu-Therm heat exchanger, and its compact point-of-use size, make it a perfect fit for this application. See Figure O.

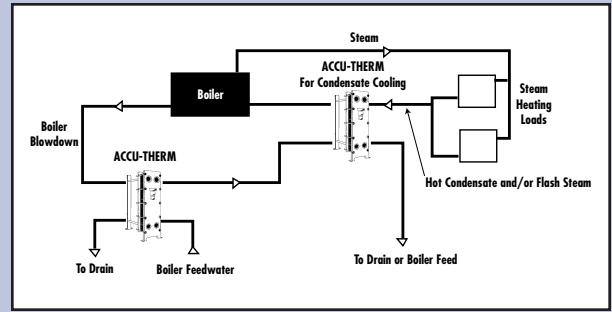


Figure M

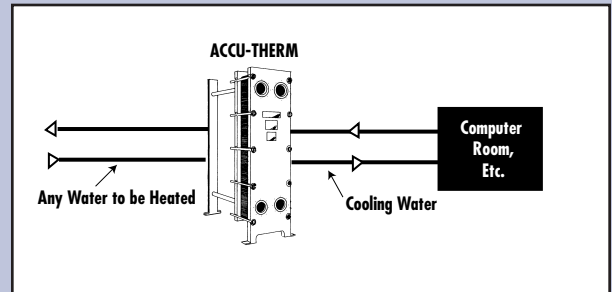


Figure N

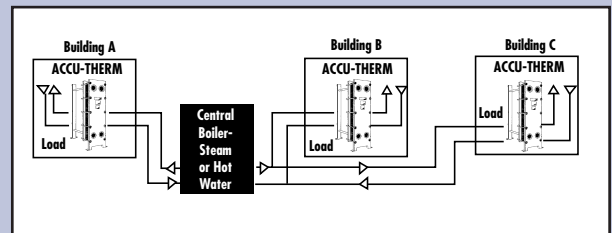


Figure O



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