Case Study of Condensate Recovery and its Reuse at the University of Alabama at Birmingham

Collection of air handling unit (AHU) condensate has become an essential part of the new building design codes; many of the new buildings being constructed throughout the world are incorporating this technique in their buildings. However, installation of condensate recovery systems in the existing building is still not very popular amongst building/facility operators. Building operators of many industrial and commercial buildings prefer energy conservation as a priority due to the high savings in electricity bills, water conservation is often considered as an afterthought. Weather conditions in the majority of the southeastern states including Alabama are very favorable for the successful condensate recovery [Lawrence and Perry, 2010b]; however implementation of these projects is not very common in Alabama. This article discusses a case study of Condensate Recovery Systems (CRS) installed at the various campus buildings of the University of Alabama at Birmingham (UAB). This article highlights the need and importance of CRSs in commercial, industrial, and Institutional buildings throughout the state of Alabama, given that majority of the southeastern counties in the state are more vulnerable to draught conditions. It is therefore necessary, to increase awareness of water conservation amongst building/facility operators in Alabama. Condensate Recovery Systems are installed in 6 campus buildings at the University of Alabama and the collected condensate water is supplied to the central chilled water plant to meet the make-up water requirements. More than 7 million gallons of condensate water was captured from six condensate systems in 2012 which is equivalent to $30,000 represents 4% of the total water demand of the chilled water plant. The payback period of the system is 2 years. Reuse of the AHU condensate water in chilled water plants can minimize the energy used to produce chilled water of desired temperature by up to 54% for the equal volume of tap water. It can also help facility operators in minimizing their fresh water demand and sewer cost.

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