



Innovation Credit Letter
Sustainability Tracking, Assessment & Rating System
Water Conservation at Colorado State - Particularly in Campus Laboratory Buildings

February 13, 2014

To Whom It May Concern:

It is my pleasure to endorse Colorado State University's efforts in water conservation for the fulfillment of the STARS Innovation Credit. As the Energy Engineer in charge of energy & water efficiency projects on campus, I feel qualified to assess the sustainable value of this effort. My work experience includes renewable energy applications, energy & water efficiency, green buildings, GHG accounting, and utility systems maintenance & operation. I have devoted nearly 15 years to the implementation of efficiency & renewable projects on campus. I am a licensed professional engineer, LEED AP and Certified Water Professional.

Campuses in general and laboratory buildings in particular are notorious for using large quantities of water. Colorado State University recognized that very dramatically when a water metering project was initiated approximately 15 years ago. Before that time, water was delivered through master meters from the City of Fort Collins utility, but downstream of those meters only some of the buildings were submetered. In the early 2000s, the university implemented a program to install water submeters on nearly all of the campus buildings. The subsequent data accumulated from those meters helped to focus conservation efforts. For example the university learned that while the Chemistry Building represented less than 2% of the building square footage on campus, it used over 12% of the water. By focusing attention on the dramatic water use in the lab buildings, the metering project allowed the university staff to begin implementing focused water conservation efforts including:

- Autoclaves – installed water saving kits on 42 autoclaves across campus saving more than 15 million gallons of water/year
- Process Cooling - switch equipment from once through cooling to dedicated cooling loops connected to the campus chilled water loop. Examples included lasers in the Engineering building, compressors in the Bake Shop and vacuum pumps in the Molecular and Radiological Biosciences Building. The results of the MRB project are illustrated in the graph below.
- Process Cooling loop – in the Chemistry building there are a number of researchers using water to cool process loads. In order to meet the large demand for process cooling in this building, a process cooling loop was designed including a heat exchanger & tanks for thermal capacity. This system has just recently come online and is being distributed throughout the Chemistry building.

So have all these efforts been a success? In the past decade, the Chemistry building that used the most water of any building on campus has reduced water use by 37% from 32 million gallons of water/year to 20 million gallons/year. In addition, the water use on Main Campus has dropped 24%. During that same period buildings space increased by 22% and enrollment increased by 12%. The metric of gallons / sf /10,000 students has been reduced to 65% of the value it was 10 years ago.

Sincerely,



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