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From Steam to Green

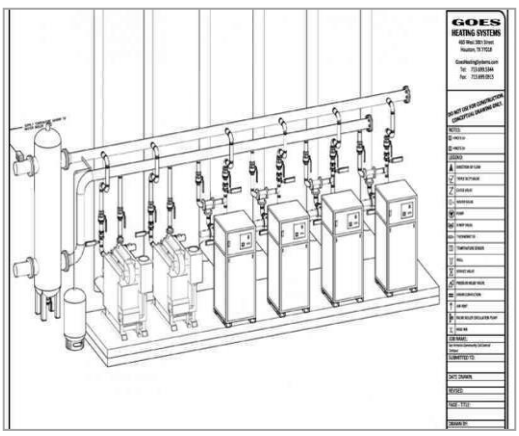
Summer 2013

Installation Location:
College in San Antonio, Texas

Project:
Replace inefficient steam boilers
and convert to a direct hot water system
using hybrid concept hydronic heat

Design:
HydroCal™ 3-in-1 Hydraulic Separator
(NA549 Series)

Purchaser:
(Engineer) Texas Energy Engineering Services,
(Installer) Columbia Contracting,
(Manufacturer's Rep) Goes Heating

A challenging project at a San Antonio college funded through Texas SECO (State Energy Conservation Office) commenced with an energy audit. The local representative, Goes Heating Systems, worked with design engineer Texas Energy Engineering Services, Inc. (TEESI) from the early development phases of the project. The main goal consisted of replacing the current systems which used large, inefficient steam boilers utilizing shell and tube heat exchangers for hydronic heat. Secondarily was to convert to a direct hot water system using the hybrid concept. The "hybrid" boiler concept incorporates condensing, medium-mass, KN series boilers from HydroTherm together with non-condensing, low-mass, copper-fin boilers from RBI to maximize efficiency and longevity while minimizing the upfront equipment and long term operating costs. The system has served well for several clients in the past but due to the required flow rates for each boiler, there were limitations in just how efficient the system could be. Boilers are most efficient at lower firing rates. With the introduction of the Caleffi HydroCal™ hydraulic separator into the system, they were able to run the boiler system at its maximum efficiency (multiple boilers at lower firing rates) without concerns of flow rates on the system side. The boiler is also protected from air and dirt contamination by using the 3-in-1 functionality of the hydraulic separator.

Many of the buildings this system serves (and the piping within) are very old. The separator would need to be an integral part of this new system to ensure protection of the new high efficiency boilers as well as simplify piping. The site would require a new Caleffi 10" NA549 Series hydraulic separator to manage the varying flow rates on the secondary side, as well as removal of air and dirt from the existing system. Through a partnership of TEESI, Goes Heating, Trane and Columbia Contracting, the installation was a huge success and the owner could not be happier. The quality and craftsmanship of this install is only rivaled by the view of the Caleffi unit in the plant's glass boiler room. It is truly a work of art.