

---

## **CENTRAL AND COGENERATION PLANTS**

### **SANTA CLARITA COMMUNITY COLLEGE**

### **COLLEGE OF THE CANYONS**

26455 Rockwell Canyon Road

Santa Clarita, CA 91355

James Schrage, Dean of Facilities (661) 259-7800 ext. 3222

## **NORTH PLANT AND SITE PIPING DISTRIBUTION**

**PROJECT DESCRIPTION AND KBZ'S INVOLVEMENT:** The project consisted of an Investment Grade Audit (IGA) and architectural services from design through construction of a new Central HVAC plant and electrical power cogeneration plant to serve buildings at the north portion of the College of the Canyons campus.

The IGA involved Compass Energy Solutions LLC with engineering support provided by KBZ and it's consultants; d'Autremont-Helms and Associates, Inc. (mechanical) and CALPEC Engineering (electrical). The IGA determined that a cogeneration plant was economically feasible based on a determined pay-back period and incentives from utility companies.

The mechanical system for the plant designed by KBZ with consultant d'Autremont-Helms consisted of :

1. Cogeneration plant: One (1) Engine generator and one (1) absorption chiller with heat recovery piping system.
2. Chilled water system: Two (2) water cooled chillers and chilled water piping system.
3. Condenser water system: Two (2) cooling towers and condenser water piping system.
4. Hot water system: Three (3) hot water boilers and hot water piping system.
5. Extending the chilled water and hot water piping outside (North) of the existing Physical Education (PE) building for the future connection to the PE Addition.
6. Extending the chilled water and hot water piping to the Hi Tech Classroom Building.
7. Exhaust systems for Central Plant.
8. HVAC Direct Digital Control (DDC) system for the Central Plant. DDC system shall be based on the existing Campus wide control system.

The electrical system designed by KBZ with CALPEC consisted of:

1. Implementation of Rule 21 for the cogeneration unit.
2. A substation to serve the plant and connect to existing campus medium voltage power distribution system.
3. The cogeneration plant.

The building designed by KBZ with consultant Kanda and Tso consisted of 2,300 sf steel brace frame structure supported on concrete footings and slab-on-grade. The cooling tower enclosure yard consisted of 2,100 sf of screened area housing outdoor equipment.

The project was approved through DSA.

## PROJECTS

---

### Section E

#### **SOUTH PLANT**

**PROJECT DESCRIPTION AND KBZ'S INVOLVEMENT:** The project consisted of architectural services from design through construction of a reconstruction of an existing Central HVAC plant with the addition of electrical power cogeneration unit to serve buildings on the south portion of the College of the Canyons campus.

The mechanical system for the plant designed by KBZ with consultant d'Autremont-Helms consisted of :

1. Cogeneration plant: One (1) Engine generator and one (1) absorption chiller with heat recovery piping system.
2. Chilled water system: Two (2) water cooled chillers and chilled water piping system.
3. Condenser water system: Two (2) cooling towers and condenser water piping system.
4. Hot water system: Two (2) hot water boilers and hot water piping system.
5. Exhaust systems for Central Plant.
6. Extending hot water and chilled water piping to buildings served.

The electrical system consisted of a new cogeneration unit with implementation of Rule 21.

The interior of the existing Central plant building was nearly completely gutted. The existing cooling tower yard was reconstructed for new equipment.

The project was approved through DSA.

#### **'I' BUILDING CENTRAL COOLING PLANT**

**PROJECT DESCRIPTION AND KBZ'S INVOLVEMENT:** The project consisted of architectural services for the reconstruction of a penthouse HVAC plant with additional new cooling plant to serve laboratory classroom building and lab building expansion.

The chilled water system involved replacing an existing small chiller and associated pumps with a new chiller, associated pumps, and chilled water piping system.

The condenser water system involved replacing an existing small cooling tower and associated pumps with new tower, associated pumps, and condenser water piping system.

A HVAC Direct Digital Control system was also included.

The penthouse roof was replaced as part of the installation.

Electrical main switch was also replaced.

The project was approved through DSA.

#### **PROJECT COSTS**

All three projects were constructed under one contract.

Budget Estimate - \$14,326,127 (without VE)

Construction Cost - \$12,800,000 (with VE)

Completion of the construction for all three projects is August 2007.