1. The purpose of this drawing is to clearly show the control scheme required for the building chilled water connection to the campus system.

2. Refer to section 15900 for details of equipment specifications.

3. Metering and control functions are performed by campus energy management and control system (EMCS). (MCVU is the local computer)

Legend:
- FE: Flow Element
- FT: Flow Transmitter
- ICV: Interface Control Valve
- P: Pump (Secondary Chilled Water Pump, Optional for Primary Systems)
- PI: Pressure Gauge
- PT: Pressure Transmitter
- S1: Strainer (1/16" Mesh)
- TCV: Temperature Control Valve
- TI: Thermometer
- TT: Temperature Transmitter
- V1: Isolation Valve
- V2: Instrument Valve
- V3: Check Valve
- DPS: Differential Pressure Switch

Mode of operation - no pump boost: ICV controls differential pressure (DP) across building load. Pump is off.

ICV DP setpoint is reset based on return water temperature, typically from a minimum of 5 PSID to a maximum of 30 PSID.

The return water temperature setpoint is typically 55 F.

Mode of operation - pump boost: ICV controls mixed water temperature, pump controls DP across building load.

When building DP falls below setpoint, and ICV is fully open for a selectable time period (typically 5 minutes), the pump will turn on and speed will be controlled to meet the DP setpoint.

When the pump is running, the ICV will be controlled to meet the mixed water temperature setpoint (typically 48 F).

When the pump speed is at its minimum (typically 15% of speed range) for a selectable time period (typically 5 minutes), the pump will be turned off and the system will default to the un-boosted mode of operation.

Stanford University Facility Operations

Drawing Title: P & ID CHILLED WATER PRIMARY INTERFACE

Scale: NTS  Check: Robert R.  Rev. By: OG  Rev. Date: 04/15/09