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A River of Energy Solutions

Energy Savings at USP Atlanta

August 8,2011

Agenda

- Scope
  - Phase 1
  - Phase 2
- Challenges
- Lessons Learned

Phase 1 Scope

- Existing Lighting
  - T12 Fluorescent
  - HID
  - Incandescent and CF Exits
- New, High Efficiency Lighting
  - T8 Retrofit
  - HID
    - HE HID or T5
  - LED Exits
  - Compact Fluorescent

Phase 1 Scope

- Water Conservation
  - Shower Replacement
    - Existing shower valves difficult to maintain
    - No control on water usage
    - Easy to remove tiles allowed for contraband storage
  - New Stainless Steel Showers
    - New access chase provided for ease of maintenance
    - 2 piece construction makes contraband storage difficult
    - Water usage control
    - Low flow fixtures

New Stainless Steel Showers

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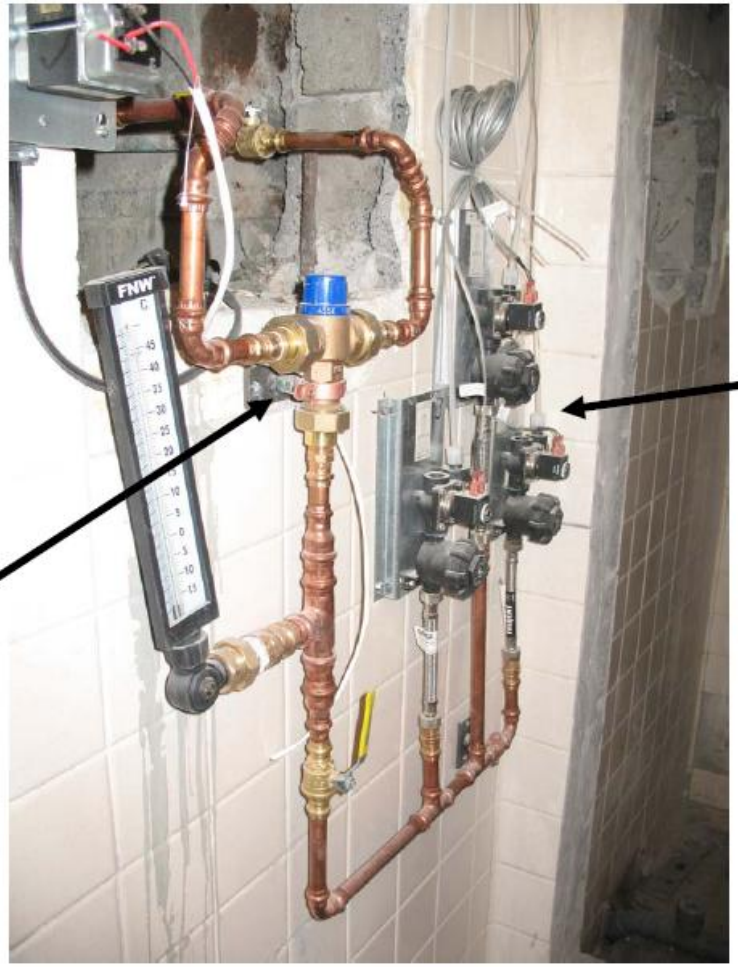
New Stainless Steel Showers

New 3-Watt LED Waterproof Shower Light Fixture

Electronic Shower Activation "Button" (No Moving Parts)

New Stainless Steel Showers

Shower electronic controls for (3) showers



Electronic Solenoids for Individual Showers

Mixing Valve set to approx 104 F.

Phase 1 Scope

- Water Conservation
  - Stainless steel sinks, water closets
  - Controls to eliminate excessive usage
  - Flush valves and low flow aerators (on equipment not being replaced)
  - New water sub meters with remote access
  - Sewage treatment plant study
  - Design for water storage tank

Phase 2 Scope

- Steam Plant
  - Remove existing steam boilers
  - Many leaks in existing steam distribution system
- New Hot Water Plant
  - Install high-efficiency hybrid hot water boilers
  - Electric HW pumps with variable-speed drives
  - Install HW distribution system
  - Convert steam heating systems to HW systems

Phase 2 Scope

- Existing
  - Distributed chillers, split system air-conditioning, window air-conditioning
  - Maintenance difficult due to security restrictions and equipment differences
- New Chilled Water Plant
  - Centralized chilled water plant in Power House
  - New variable speed, high efficiency, centrifugal chillers
  - Primary/secondary pumping system

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Phase 2 Scope

- New Chilled Water Plant (cont.)
  - Install on-site water storage tank
  - Tank to be used for thermal storage

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Phase 2 Scope

- Energy Management Control System (EMCS)
  - Install EMCS on Heating, Ventilating, and Air Conditioning (HVAC) equipment.

Phase 2 Scope

- Laundry Retrofit
  - Install Ozone Laundry System
  - Install heat recovery for clothes dryers

Challenges

- Security Escorts
  - Reworked Schedule to Accommodate Available Escorts
- Institution Operations
  - Frequent subcontractor tool inventories.
  - Required small, lockable toolboxes for subcontractors.
    - Reduced the number of daily tool inventories.

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Challenges

- Required separate locked tool box for cutting tools to increase accountability and control.
- Before starting the water upgrades
  - Honeywell developed a task breakdown by cellblock area, which allowed the subcontractor to develop daily work teams based on skill sets, plan also necessary tools and equipment for each day in advance, make adjustments if needs change, and track progress against the schedules.

Challenges

- This increased the subcontractor's productivity, reduced the need for daily direction by Honeywell staff, and increased accountability and control.

Questions?

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