Electric LEAGUE of the pacific northwest

Guided Tour

Scavenger Hunt

Facility Dynamics ENGINEERING

Presented By:

- David Sellers; Facility Dynamics Engineering
- Senior Engineer
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See If You Can Find These Items or Answer These Questions

First Boiler Plant

1. Find a balancing valve
2. Is the boiler fired by gas or oil?
3. Which pumps circulate the boilers?
4. The hot water system is most likely a:
   a) Variable flow primary only system
   b) Constant flow system
   c) Variable flow primary secondary system
5. What is the basis of your answer to the preceding question?

See If You Can Find These Items or Answer These Questions

First Chiller Plant

1. Find a basket strainer.
2. Find a backflow preventer.
3. If the chiller closest to the door is a nominal 0.50 kW per ton machine, approximately how many tons is the machine capable of
4. Find a shot (a.k.a. pot) feeder.
5. What potential energy conservation opportunity might be associated with the shot feeder?

See If You Can Find These Items or Answer These Questions

Interstitial Space

1. Find Variable Air Volume (VAV) terminal unit
2. Find a VAV reheat terminal unit.
3. Who is do you think is the control vendor for the facility?
4. Find a motor control center.
5. Find a water filter.
6. What details about the water filter would you look at during design review?
7. Find a ball valve.
8. Find a lighting control panel.
9. Find a refrigerant sight glass.
10. Find a self contained temperature control valve.
11. What are the benefits of this interstitial space design?

See If You Can Find These Items or Answer These Questions

Cooling Tower Mechanical Room and Cooling Towers

1. Find a plate and frame heat exchanger.
2. Out on the roof, which “thingie” is a cooling tower, and which is a closed circuit fluid cooler?
3. What type of level control system does the cooling tower appear to have?
4. Is the cooling tower induced draft or forced draft?
5. Is the cooling tower cross-flow or counterflow?
6. Find a hydraulically actuated control valve.
7. Find a pressure reducing valve.
8. Find a coupon rack.
9. How well is flow being distributed on the towers and/or fluid coolers?

See If You Can Find These Items or Answer These Questions

Large (*Really Big)* Boiler/Chiller Plant

1. Find a removable insulation blanket.
2. What is the benefit of a removable insulation blanket and where would you use one?
3. Do you need to consider the same things when using removable insulation blankets on hot water and steam piping as you need to consider when using them on chilled water piping?
4. Is the non-insulated condenser water piping an energy conservation opportunity?
5. Find some expansion tanks.
6. Are the expansion tanks bladder type expansion tanks?
7. Find a flow meter.

See If You Can Find These Items or Answer These Questions (continued)

Large (*Really Big)* Boiler/Chiller Plant

8. Are there any steam boilers in this plant and if so, how could you tell?
9. Find a two-way, electrically actuated control valve.
10. Find a humidifier.
11. Which coil in the air handling system is a cooling coil and how can you tell?
12. Find the preheat coil circulating pumps.
13. Why are there preheat coil circulating pumps?
14. What type of fan is used in the large AHU (Single Width, Single inlet or SWSI, Double Width, Double Inlet or DWDI, or Plenum/Plug fan)?
15. Find the spare fan wheel?
16. What is the other thing sitting behind the spare fan wheel?

See If You Can Find These Items or Answer These Questions (continued)

Large (*Really Big)* Boiler/Chiller Plant

17. What does the spare fan wheel and other thing tell you about the MAU and the way the facility is run?4
18. Find a steam pressure reducing valve.
19. Find a steam pressure relief valve.
20. Find a differential pressure switch.
21. Find a condenser water pump with the discharge valve throttled
    a. What do the markings on the valve tell you?
    b. Is this a potential energy conservation opportunity?
22. Find an eccentric reducer.
23. Find fuel oil pumps.

See If You Can Find These Items or Answer These Questions

Switch Gear Room

1. Find an Infra-Red (IR) viewport.
2. Why are there IR viewports?
3. Find a Kirk Key interlock.
4. How comfortable should you be in this room?
5. Find arc shuts.

See If You Can Find These Items or Answer These Questions

Stacked AHU Equipment Room

1. Find a pneumatic control valve.
2. Find a filter Differential Pressure (DP) switch.
3. Are there resource conservation opportunities associated with filters?
4. Find a steam powered condensate pump.
5. Is there an advantage to a steam powered condensate pump?