



U.S. Department of Energy
Energy Efficiency and Renewable Energy

City of Albuquerque Energy Conservation_Council

Mechanical Systems

Chuck O'Neal



AGENDA

- Cooling Towers
- Centrifugal Chillers
- Air Handlers
- A/C DX Equipment
- Evaporative Cooling
- Exhaust Fans
- Boilers
- Pumps
- Questions



Cooling Towers

- High efficiency motors (new & existing)
- Lower tower approach (new)
- Water treatment (always)
- Automatic bleed (eliminate)
- Maintenance (new & existing)
- Add sand filters (new & existing)
- Variable speed motors (new & existing)
- Location (clean air inlets)



Centrifugal Chillers

- High efficiency chillers (new)
- Add variable speed drives (new & existing)
- Refrigerant replacement (new & existing)
- Add automatic tube cleaning to condenser (new & existing)
- Raise set point of discharge chilled water (all)
- Lower condenser water temperature (check with manufacturer on how low)
- High efficiency purge systems (existing)



Air Handlers (New & Existing)

- CO2 monitors for minimum outside air
- Clean filters
- Select coils for low face velocity (lower static pressure loss)
- Variable speed drive
- Displacement ventilation (lower static)
- Dampers not operating correct
- Control valves not operating correct



Air Cooled DX Equipment (new & existing)

- Location (east vs. west side of building)
- Location (not on roof)
- Location (no re-circulated air)
- High efficiency selection
- Clean inlet air passages and condenser coils



Evaporative Cooling

- Direct / Indirect increased efficiency over direct evaporative cooling
- Two speed motors



Exhaust Fans

- Kitchen fans & hoods
- Bathroom
- Elevator shafts
- Relief fans



Boilers

- Power venting
- Lower water temperature setting
- Reduce cycling
- Reduce excess air on intake of the boiler burner
- Select high efficiency boilers
- Use multiple small boilers
- Proper pipe insulation



Pumps

- Variable speed (evaporator & system – not condenser)
- Clean strainers
- Select pumps to match system



Questions?



U.S. Department of Energy
Energy Efficiency and Renewable Energy

Thank You!

Engineered Equipment Sales & Testing, Inc.

8420 Washington Place NE Suite D

Albuquerque, NM 87113

(505)823-1113

c.oneal@eestinc.com