

DESIGN REVIEW / DESIGN BUILD

Justice Facilities

Equipment type: Central plant
Equipment designation: RU-1, RU-2, P-1A, P-2A, P-1B, P-2B, CT-1, CT-2
Barcode designation: 111111
Area served: Justice facilities
Equipment location: Mechanical room / roof

DESIGN REVIEW

[Y] [N]

- Verify adequate ventilation per American Correctional Association or ASHRAE Standard 62.1
- Consider appropriate equipment locations for access reasons. All equipment must be secure from inmates.
- Where duct or openings between secure areas, provide bar barriers.
- Consider security type equipment to provide proper construction to meet specifications.
- Spot-check air quantity by cfm/sq ft.
- Create system flow diagram to assess static pressure sequence of operation, condenser water, and/or chilled water pressure drops.
- Consider locations above roof level for outside air and exhaust louvers.
- Consider energy recovery for facility and the equipment running 24/7.
- Review control drawings and specifications and confirm alarm sequences are specified.
- Review control drawings and specifications to determine if unit will operate on emergency through the BAS/BMS.

ELECTRICAL INSPECTION/REQUIREMENTS [Y] [N]

- Is the equipment secure from inmates and maintenance accessible?
- What are the new electrical requirements for the new chillers, pumps, and towers?
- Is there adequate electrical power to meet the electrical load?
- Identify electrical scope of work required with new chillers, pumps, and towers.
- Is emergency power a requirement for the central plant?
- Are electrical connections tight and secure?
- Have the fuses and wire sizes been checked and verified?
- Are there existing electrical code issues that should be address at this time?

HVAC INSPECTION/REQUIREMENTS [Y] [N]

- Is the equipment secure from inmates and maintenance accessible?
- Has selection of equipment been approved and signed off by owner?
- Has consideration been given to future expansion of system?

- Has consideration been given to back up/standby operation of equipment?
- Has pressure testing of pipe distribution been determined in scope of work?
- Has system flushing been determined in scope of work?
- Have equipment locations for the towers been selected based on secure access?
- Has consideration be given to the manufacturer's recommended clearance around equipment for service?

GENERAL CONDITIONS

CONSIDERATIONS/REQUIREMENTS [Y] [N]

- What are the necessary installation permitting and operation permitting requirements?
- Has insurance certificates been submitted to building owner?
- Will record drawings be submitted electronically along with one paper copy?
- Will there be an extended warranty on the equipment?
- Will there be a service contract submitted for the chillers, pumps and towers?

REFERENCE

- 2008 ASHRAE Handbook –HVAC Systems and Equipment, Chapter 1, “HVAC System Analysis and Selection,” and Chapter 3, “Central Heating and Cooling Plants”
- 2007 ASHRAE Handbook – Applications, Chapter 8, “Justice Facilities”
- 2009 ASHRAE Handbook –Fundamentals, Chapter 36, “Pipe Design”

DESIGN REVIEW AND TRICKS OF THE TRADE

- Create an airflow diagram indicating cfm.
- Confirm there is safe and secure access to the equipment.
- Confirm there is the manufacturers’ recommended clearance around equipment.
- Consider routine maintenance can be achieved without shutting unit down.
- Attach sequence of operation to checklist.
- Attach associated contract detail drawing to checklist.

NOTE

- Refer to equipment manufacturers’ literature for additional data and requirements.
- Refer to building owner standards and guidelines for additional criteria. **ES**

If you have any comments, suggestions, or questions regarding this designer checklist, contact Amanda McKew at amckew@rdkengineers.com.

