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DATA CENTER

FACILITY STAFF DUTIES

Every data center is different; size, structure, and complexity vary from site-to-site. The goal of facility management is to keep the site up and running, to avoid outages and maintain uptime.

Where much of facility management's energy is devoted to monitoring the system, it takes considerable time and resources to install and maintain equipment. Where monitoring needs to be owned and handled by facilities staff, maintenance is more of a gray area that is impacted by staffing levels and quantity and complexity of the equipment and systems.

While there is no shortage of tasks and duties to be performed in a data center, prioritizing what's most important and what your people should do verse outsourcing is as much a challenge as physically performing the work.

I'm frequently asked how I prioritized the work related to in-house or outsourced resources.

Following are some tasks my in-house facilities staff would perform as part of their regular duties.

HVAC CRAC/CRAH Maintenance
- Check and replace filters.
- Check fan belts, ware on belts and proper belt tension and alignment.
- Infrared scan all electrical components on units.
- Replace failed compressors within CRAC units.
- Clean A coils and inside of units.
- Check coolant levels and look for coolant leaks Repair leaks and refill with coolant.
- Test and log chemicals readings in all cooling systems.
- Drain and clean cooling towers twice a year.
- Replace failed cooling tower fan motors, bearings etc.
- Check and record all pump motors vibration test preformed.
- Annual cleaning of tubes in central chillers.
- Amp probe all fan motors, if amps exceed the motor nameplate rating, check to see if your belts are out of alignment or too tight. This could also be a sign of worn motor bearings.

PDU Maintenance
- Check and record all load readings to ensure capacity for dual path failover.
- Run and terminate all power whips installations.
- IR scans, all PDU panels every time they were opened to add new branch circuits.
- Preform all maintenance on PDU.
- Remove all covers IR scan all connections, clean inside of units.
- Torque all connections inside of PDU's.
- Exercise all main and branch circuit breakers on PDU's.
- Check and calibrate all meters on PDU's.
- Remove covers and IR scan inside connections.
- Be sure the meters you use to calibrate PDU's are true RMS meters.

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Diesel Generator Maintenance

- Inspect batteries for corrosion, take specific gravity readings.
- Test generators under load and record all readings, load, voltage , frequency, oil pressure, engine temperature.
- Check all exhaust systems for leaks.
- Collect and send fuel samples to be tested for any contaminants.
- If fuel is contaminated run through a fuel polishing system.

UPS Systems

- Replace filters.
- IR scan all electrical components inside the systems.
- Record and check loads to ensure N+1 capacity was maintained.
- Ensure proper cooling was maintained in UPS area.
- Inspect batteries.
- Preform specific gravity readings.
- Check for post seal leaks.
- Check battery jars for cracks/leaks.
- Replace batteries that failed.
- Check and maintain proper electrolyte levels in batteries.
- Check and re-torque all connections.
- Test hydrogen detectors for proper operation.
- Check exhaust fans.
- Test emergency eye wash station and deluge shower for proper operation.
- Periodically test water flow alarms at eye wash station and deluge shower.

Cleaning

- Clean switchgear, UPS systems, diesel generators, PDU's, CRAC/CRAH units.
- Clean raised floor.
- Annually vacuum under the raised floor, and clean out the perforated tiles.
- Remove all combustible materials from raised floor daily.
- Remove all combustible materials from out of server cabinets.

Miscellaneous

- Test and exercise main switchgear breakers during maintenance shutdown.
- Test each branch circuit breaker that feeds servers prior to installing into panels for your PDU's.
- Install all power whips and test them prior to IT powering equipment with them.
- Removal of all unused or obsolete power whips from under a raised floor. (Required per NEC 645.5 code)
- Cut and install brush grommets in raised floor tiles for new equipment installs.
- Place perforated floor tiles in cold aisles for new server installs.
- Repair or replace lamps in data center lighting.
- Handle plumbing issues in the site.