**Created:** 2025-10-29 **Updated from:** Pryor\_Bod\_EVS\_Rev01.md + Erik\_BOD references

# BASIS OF DESIGN - GENERAL REQUIREMENTS

## CSI Division 01

### Pryor Data Center - PACHYDERM GLOBAL

**Parent Document:** [[Saga Pryor DC/Basis of Design/Erik\_BOD\_Updated/\_BOD - Exec Summary and TOC]]

## 01 10 00 – SUMMARY

* Scope includes design, procurement, construction, commissioning, and turnover of a 50,000 GSF Tier III data center with 3 MW Phase 1 IT and 12 MW Phase 2.
* All critical systems shall be concurrently maintainable: N+1 IT UPS with 11 kV dual-ring MV path redundancy, N+1 mechanical, N+1 generators and transformers.

## 01 14 00 – WORK RESTRICTIONS

* Normal work hours: M–F, 7:00–17:00; after-hours for outages or noisy work.
* Security badging required; background checks for all personnel.
* No photography without Owner approval; NDA required.

## 01 30 00 – ADMINISTRATIVE REQUIREMENTS

* Kickoff meeting; weekly OAC meetings; monthly risk reviews.
* RFI process via Procore (or Owner’s platform); 3 business-day response goal.
* Document control: Use drawing/revision indices; cloud-based repository.

## 01 33 00 – SUBMITTALS

* Product data, shop drawings, samples, calculations, test reports.
* Critical submittals: Generators, MV gear, transformers, UPS, chillers, RMUs, fire alarm, DOAS, CDUs, BESS (if included), solar inverters.
* Provide factory witness test plans for generators, UPS, switchgear, chillers.

## 01 35 00 – SPECIAL PROCEDURES

* Hot work permits; lockout/tagout (LOTO); confined space.
* Outage coordination: 10 business days’ notice; method of procedure (MOP) required.
* Vibration/noise controls for nearby stakeholders.

## 01 40 00 – QUALITY REQUIREMENTS

* Manufacturers: Tier-1 with 10+ year support and parts availability.
* Factory testing: FAT for UPS, switchgear, generators, BMS head-end.
* Field testing: Acceptance testing per NETA ATS (electrical), TAB (mechanical).

## 01 42 00 – IDENTIFICATION AND NAMING STANDARDS

### Asset Naming Hierarchy

**Campus Code:** TUL (Tulsa International Airport - nearest major airport to Pryor, OK)

**Building Numbering:** TUL-## - First building: TUL-01 - Future expansion: TUL-02, TUL-03, etc.

**Floor Designation:** TUL-##-F# - Ground floor: F1 - Mezzanine: F2 - Upper level: F3

**Zone Codes:** TUL-##-F#-ZZZ - Data halls: DH1, DH2 - Equipment yards: EYN (North/Mechanical), EYS (South/Electrical) - Substation: SUB - Network Operations Center: NOC - Meet-Me Rooms: MMR1, MMR2 - Main Distribution Area: MDA

### Equipment Asset Tagging Format

**Full Asset ID:** XXX-##-F#-ZZZ-EEEEE-###

**Components:** - Location: XXX-##-F#-ZZZ (Campus-Building-Floor-Zone) - Equipment Type: EEEEE (5-character code) - Unit Number: ### (3-digit sequential)

**Key Equipment Type Codes:** - Generators: GEN (e.g., TUL-01-F1-EYS-GEN-001) - Transformers: XFMR (e.g., TUL-01-F1-EYS-XFMR-001) - UPS Modules: UPS-IT, UPS-MC - Chillers: CHLR (e.g., TUL-01-F1-EYN-CHLR-L1-001) - Pumps: PUMP - CDUs: CDU - Switchboards: SWBD - Racks/Cabinets: Format TUL-01-F1-DH1-R001 (R001 through R030)

### Path and Loop Designation

**Electrical Paths (Dual Switchboards on Different MV Ring Segments):** - Add suffix -A or -B for switchboard designation (SWBD-A on Ring A, SWBD-B on Ring B) - Example: TUL-01-F1-EYS-SWBD-A, TUL-01-F1-EYS-SWBD-B - Cabinet PDUs: TUL-01-F1-DH1-PDU-R001-A, PDU-R001-B (fed from different panels/switchboards)

**Mechanical Loops:** - Add suffix -L# for Loop number - Loop 1+2: Air cooling (shared plant) - Loop 3: Direct-to-chip cooling - Example: TUL-01-F1-EYN-CHLR-L1-001, CHLR-L3-001

### Physical Asset Labels

**Label Content:** - QR code (machine-readable, links to DCIM asset record) - Human-readable asset ID - Equipment description and capacity - Vendor serial number - Commissioning date

**Label Material:** - Outdoor equipment: Anodized aluminum (weather/UV resistant) - Indoor equipment: Laminated polyester - Engraving: Laser-engraved (permanent, no fade)

**Label Placement:** - Primary: Front panel at eye level - Backup: Rear/side panel (for large equipment) - Cable entry points: Cable identification labels

### Cable and Conduit Marking

**Cable ID Format:** [SOURCE]-[DEST]-[TYPE]-###

Examples: - Power cable: SWBD-A-PANEL-DH1-PWR-001 - MV cable: RMU-001-XFMR-001-MV-001 - Fiber: MMR1-DH1-R001-FIBER-001

**Labeling Frequency:** - Every 10 ft along cable route - At both termination points - At all junction boxes and pull points

### DCIM/Asset Management Integration

**Required Asset Registry Fields:** - Asset ID (per naming standard) - Asset type and capacity - Location (Campus-Building-Floor-Zone) - Vendor, model, serial number - Commissioning date, warranty expiration - Path/Loop assignment - BMS/EPMS point address - Maintenance schedule links

**Database Population:** - All assets registered in DCIM before commissioning - QR codes link directly to DCIM asset record - Changes tracked with revision history

### Documentation Requirements

**Contractor Deliverables:** - Asset tag schedule (Excel/CSV with all equipment IDs) - As-built cable schedule (source-destination-ID for all cables) - Physical labels installed and photographed - DCIM database populated and verified

**Detailed Naming Standard:** See [[Appendix A - Asset Naming and Tagging Standard]] for complete rubric, equipment type codes, and examples.

## 01 43 00 – CODE COMPLIANCE

* Comply with NEC 2023, IBC/IFC 2021, NFPA, IEEE, ASHRAE, TIA-942.
* Local AHJ approvals; utility interconnect agreements.

## 01 50 00 – TEMPORARY FACILITIES

* Temporary power, lighting, water, sanitary per OSHA.
* Temporary security fence/gates; badging trailer if needed.
* Temporary network for coordination (separate from customer IT).

## 01 60 00 – PRODUCT REQUIREMENTS

* Standardize on: 11 kV MV equipment, 3,500 kVA transformers, 4.0 MW MV gens, 1,500 kW chillers, 1,250 kVA IT UPS modules (N+1), 250 kW mech UPS.
* Spares: Filters, UPS modules (one spare module per 5 deployed), sensors, controller cards.

## 01 70 00 – EXECUTION AND CLOSEOUT

* Closeout submittals: O&M manuals, as-builts (PDF + CAD/BIM), warranty certificates.
* Training: 40 hours per discipline (electrical, mechanical, BMS, security).
* Warranties: 1 year minimum; extended warranties for UPS batteries (5–10 years), generators (5 years), roof (20 years).

## 01 78 00 – CLOSEOUT SUBMITTALS

* Turnover: Asset registry, maintenance schedules, vendor contacts.
* As-builts: Redline drawings transferred to CAD/BIM; point lists for BMS/EPMS/DCIM.

## 01 79 00 – DEMONSTRATION AND TRAINING

* Vendor-led training sessions with recordings; quick-reference guides.
* Emergency drills: Generator failover, fire alarm, security breach.

## 01 90 00 – COMMISSIONING

* Commissioning Agent (CxA): Independent 3rd party.
* Levels 1–5: Factory tests, delivery inspection, start-up, functional testing, IST.
* IST scenarios: Utility loss, chiller failure, UPS module failure, RMU switching, fire alarm.
* Performance targets: PUE ≤1.35 (Phase 1), ≤1.25 (Phase 2).

## 01 91 00 – MONITORING & REPORTING

* Monthly reports: PUE, WUE, uptime, incident summaries, maintenance performed.
* Quarterly reviews: Energy optimization, capacity planning, reliability improvements.

**Tags:** #general-requirements #commissioning #submittals #quality #codes #cx

**Next Steps:** 1. Approve standardized equipment list and preferred vendors 2. Appoint CxA and finalize commissioning plan 3. Establish Procore (or equivalent) for RFI/submittal workflows

**Document Control:** - **Source:** Pryor\_Bod\_EVS\_Rev01.md, Erik\_BOD references - **Date Updated:** October 29, 2025 - **Prepared by:** EVS / PGCIS Team - **Key Updates:** Standardized equipment list, commissioning scope, training