



VA PROJECT NUMBER **621-24-701 (2409)**
PROJECT NAME **EHRM Infrastructure Upgrades – Tier
3 DC Mountain Home, TN**
SUBMITTAL **Final Bid Documents**
SUBJECT **Architectural Narrative**

Project Overview and Background

The purpose of this project is to coordinate all design efforts to relocate the main computer room (MCR) on Floor 3 of Building 77 located at James H. Quillen VA Medical Center (JHQVAMC) and make it compliant with VA standards for a Tier 3 data center. The area of work for this project will occur within rooms 3A109 (existing MCR), 3A112, 3A112A, 3A112D, 3A113, 3A113A, and 3A212. Work will include providing redundant power distribution, computer room cooling and distribution, replacement of aged equipment, grounding and bonding, cable management, and new fiber and copper to the new MCR. A new clean agent system will be provided, as well as a new fire rated assembly within the new MCR, ensuring that all penetrations are sealed appropriately. A new space will be provided in room 3A112A to host cylinder storage for the clean agent system. The clean agent releasing panel, which is not typically allowed to be located within the MCR, will be located in room 3A212. The project will be designed so as not to exceed a Construction Cost Limitation of \$6,248,000 without the consent of the VA.

A kickoff meeting was held virtually with the VA on August 21st, 2024 and field investigation occurred August 22nd-23rd, 2024, performed by the electrical and telecommunications teams. The purpose of the visit was to conduct a preliminary investigation of the existing MCR, located in room 3A109, and its supporting infrastructure. During the visit, architectural measurements were taken and our electrical team surveyed lighting and power distribution for the MCR and supporting spaces. Existing computer room units (CRU), fire protection equipment, fire riser, clean agent tanks, and releasing panel were also identified and documented. Rooms surveyed included MCR 3A109, Telecom 3A110, Electrical Closet 3A115, Storage 3A107 (Electrical Distribution Panel), UPS Room (Liebert) 3A108, and Telecom 3A221 in Building 77. Room A006 (Demarc Room) was also investigated in Building 200 as well as the Switchgear L169 (Electrical Distribution Switchgear Room) in Building 204.

Due to Mod 1 of the contract, which changed the location of the new MCR, the Architectural team visited the facility on February 3rd, 2025 along with Telecom, Electrical, and Mechanical. A visit by Physical Security and Fire Protection later occurred on February 6th, 2025. During



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this visit, field measurements and photographic documentation for the following spaces: Office 3A112, Storage 3A112A, Restroom 3A112D, Storage 3A113, and Kitchen 3A113A. These spaces will be altered to host the new MCR space.

Ultimate Design Capacity

Following the completion of the equipment layout and selection of design criteria–driven basis-of-design equipment, calculations identified a projected telecommunications load of 90 kW. To adequately support this load, the basis of design includes a 100 kW UPS system. The overall design has been coordinated across all disciplines around two 100 kW UPS systems to provide redundancy and ensure capacity for the 90 kW telecommunications load. The ultimate design capacity of the MCR will be 100 kW.

Occupancy & Classifications

No change in occupancy or classification is anticipated during this project. Life Safety sheets provided to show travel distances.

Construction Phasing

Project to be phased so that the existing MCR remains functional during construction and interruptions are kept at a minimum while services are switched over. Plans are to be developed by the Contractor and approved by the VA to eliminate interruptions or kept to an absolute minimum. Emergency egress shall not be compromised during construction. Contractor parking and staging areas have not been identified. Staging for construction materials will be available as close as possible to affected buildings, if necessary, during construction. Contractor is responsible for building construction/demolition remediation throughout construction process until the work is accepted by the VA. Contractor to coordinate with VA COR prior to all construction phasing and staging while on station.



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Phasing shall be done in the following order:

PHASE 1 – DEMOLITION & PREPARATION

- Vacate rooms as indicated in demolition drawings.
- Demolish existing walls, ceiling systems, plumbing, HVAC, electrical, and telecommunications infrastructure.
- Cut new door openings and infill existing openings as required. Apply fire/smoke sealants to penetrations.
- Maintain existing cabling pathways where needed until replacement systems are installed.

PHASE 2 – NEW MCR CONSTRUCTION

- Construct new 1-hour fire-rated walls for the Main Computer Room (MCR).
- Perform mechanical, electrical, telecom, and fire protection rough-ins.
- Finish MCR interior surfaces to create sealed, clean-agent-compatible environment.
- Verify enclosure continuity floor-to-deck above.
- Apply dust mitigation materials (gasketed tiles, caulking, epoxy coatings, etc.).

PHASE 3 – INFRASTRUCTURE INSTALLATION

Install

- Redundant UPS systems (Liebert Vertiv APM2 or approved equal), dual A/B feed
- Overhead distribution busways with L21-20 tap boxes
- MDA and HDA cabinets (partial)
- Cable tray and raceway systems
- Bonding and grounding (TIA-607-D compliant)
- Security, lighting, CRU units on raised stands
- All systems sized per ultimate design capacity.

WAN Demarcation & Carrier Cutover



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- Install single-mode fiber from the existing Demarc Room (Telecom A006) to new MCR.
- This link shall become the new WAN demarcation point.
- If new cabinets have not been installed prior to fiber optic cabling from Demarc is installed, provide service loop and enclosure for fiber optic cabling to keep safe during construction until which time the fiber optic cabling can be terminated.
- Coordinate with the Local Exchange Carrier (LEC) for service handoff, splicing, and termination requirements.
- Label fiber type, termination points, and routing on final telecom drawings.

PHASE 4 – NETWORK MIGRATION, TESTING & COMMISSIONING

Core Switch Migration

- Phase 1: Deploy Core A in new MCR. Create a temporary interconnect (“umbilical”) to Core B in the existing MCR to maintain network redundancy.
- Phase 2: Migrate Core B to new MCR. Complete permanent dual-core configuration.

Backbone Fiber Migration

- Extend backbone fiber from existing MCR to new MCR.
 - To be done while backbone for respective Core switches which feed the backbone is being deployed to new MCR.
- Use existing pathways where possible.
- Re-terminate or fusion splice existing fibers to meet TIA-568 and HEFP standards.
- When necessary, deploy temporary parallel backbone routes to avoid service disruption.
- All fiber cabling to be labeled on both ends per VA OIT standards.

Equipment Migration

- Coordinate migration of network/server equipment cabinet mounted equipment (e.g., Cerner FDSS, IaaMS, Biomed).
- Prior to move:

- Inventory cabinet contents.
- Validate destination cabinet locations and power (dual L21-20 feeds).
- Ensure UPS, CRU, bonding, and grounding are operational.
- Migrate equipment during low-usage windows to reduce impact.
- Maintain service redundancy through temporary cross-patching and umbilical links.
- Post-move: verify connectivity and operability before decommissioning legacy connections.

Applicable Codes, Standards, and Guidelines

The following codes, standards, and guidelines will be followed throughout the design of this project:

- Design Manuals (By discipline) PG-18-10
- Design and Construction Procedures PG-18-3
- A/E Submission Instructions, PG-18-15, Minor and NRM Projects Vol. C
- Standard Details and CAD Standards PG-18-4
- Equipment Guide List PG-18-5
- Equipment Guide List Index
- Architectural Barrier Act (ABA) Standards
- VA Barrier Free Design Standard (A Supplement to the ABA) PG-18-13
- VA Signage and Wayfinding Design Manual PG-18-10
- Master Construction Specifications PG-18-1
- Space Planning Criteria PG-18-9
- Design Guides (graphical, by function) PG-18-12
- Room Finishes, Door, and Hardware Schedule PG-18-14
- NEPA Interim Guidance for Projects PG-18-17
- VA Design Alerts
- VHA Fire Protection Design Manual
- VHA National BIM/CAD Standards
- VHA Required Division 01 Specification Sections List



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- Physical Security and Resiliency Design Manual, June 2025 Revision
- Whole Building Commissioning Process Manual
- VA Sustainable Design Manuals
- VHA Directive 1061 – Prevention of Healthcare-Associated Legionella Disease and Scald Injury from Potable Water Distribution Systems
- Seismic Design Requirements H-18-8
- VA Cultural Resource Management Procedures H-7545
- OIT Infrastructure Standard for Telecommunications Spaces v4.0 (01 July 2023)
- National Codes and Standards: (Most recent Editions)
 - NFPA
 - IBC
 - NEC
 - EPA
 - NSPC
 - OSHA