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## PROJECTS

### Denver Center for Performing Arts

The Helen Bonfils Theater Complex is getting a well-deserved overhaul which includes backstage and support areas, a redesign of the lobby and rebuilding of the theaters. It is been 40 years since the theater opened and the improvements will reflect modern theatrical practices. Updated areas include the dressing rooms, green room, wardrobe room as well as new seating with improved sightlines. Telecommunications which plays a key role in the operation is being completely updated and HJSA is providing design services with new cabling, a data center and support spaces. Audiovisual systems were designed for the meeting rooms in the office area. Mechanical and electrical systems are also being refreshed.



# Denver Center for Performing Arts

## Technology

DCPA needed to consolidate their network which is currently spread over two buildings and a number of shared telecom spaces. A new data center was designed for the building and the telecom spaces were combined into two IDF rooms. The need for three disparate networks, DCPA, Theater and Security complicated the design as all the networks share the IDF rooms, and touch the DCPA network at some point.

### Telecom

The Data Center, located in a secure area, is designed with an N+1 cooling system, providing the redundancy to maintain the data center operation 24/7/365. Three CRAC units support the center. On day one, only two are required and future growth will bring the third unit on line. Design calculations using historical data and forward looking technology advances were used to determine the power and heat loads, and the design allows for the UPS and CRAC units to be upsized. Working with the electrical and mechanical engineers, HJSA ensured the power requirements and the heat loads identified and accounted for.

Cat6a cabling is installed for all data drops with two cables to each Wireless Access Point to support WiFi 6 standards. The unusual shape of the each IDF, due to the complex layout of the solid concrete building, required detailed analysis and design of equipment racks, ladder rack and sleeve locations, making sure all three networks had pathways in and out of the rooms. Several planned routes had to be abandoned as rebar, conduits and other items embedded in the concrete impeded the pathways.

During installation and equally complex, several pathways had “pinch points” where the transition from cable tray to conduit and back was required. The conduit sections required that cable quantities for current and future need were accommodated.

The varied performances require re-patching of the networks so tie lines between the server cabinets and the data switches allow unlimited cross connects.

### Audiovisual Systems

Two conference rooms are located in the office area one large and one medium. The large room design includes side-by-side 98” displays. Inputs include HDMI connection points with a wireless presentation system providing multi-user interactive collaboration. A video conference camera works in sync with the ceiling-mounted beam tracking microphones and “conference tuned” ceiling-mounted speakers provide high definition video and audio conferences with great sound.

The room is controlled by an Extron Zoom Room touch panel that provides seamless control of the audiovisual system and room lighting from the familiar Zoom Room interface.

## Security Systems

HJSA performed an audit of the existing access control. All doors were identified and logged with all critical information captured including door and control type, door control devices, controller locations and wire types. The video surveillance audit included camera location and type and switch port connections were located and verified.

The renovation plan included new IDF Rooms eliminating the old IT rooms and security equipment locations. The new IDF Rooms are designed to support the security head end components in a much more consolidated manner. Relocating the head end equipment means all existing security cabling must be removed and replaced so a comprehensive set of drawings was created locating all security equipment, doors, and cameras control ports and data switch ports clearly defined.

## Huerfano County Justice Center

Located adjacent to the Historical Courthouse, which was built in 1904, the new Justice Center provides the County with the much needed space and the technology innovations required to support the facility for years to come. Two courtrooms, one State and one County have easy to use technology systems that include advanced audio and video equipment specialized for judicial spaces. Audio systems include a multi-channel speech reinforcement system with the well and gallery as separate zones. A multifunction assisted listening system is programmed so a remote translator



to speak privately to the witness or publicly to the court. The detention grade security system stands guard over the holding cells and the “tunnel” to the adjacent jail facility. Typical courthouse security is provided with panic and duress buttons strategically located throughout the building.

## Huerfano County Justice Center

### Technology

#### Audiovisual

The audiovisual systems design encompasses the courtrooms, a hearing room, jury deliberation rooms, and conference rooms. The courtroom systems are the most sophisticated and required the most design time. Meetings were held with the County and State, the court clerks, sheriff’s department, and judges to review and aspects of the building design from entrances and exits to the positioning of the various departments. The courtroom layouts and technology were finely tuned down to the exact location of

floor boxes and video monitors, Equally important sightlines were studied. The next step was to design the infrastructure to support the technology systems. A technology room is located adjacent to the courtrooms which houses courtroom technology equipment.

Technology in the courtrooms include a centralized video and audio presentation system providing the Judge with full control of what is seen and heard in the courtroom. An advanced streaming-based court recording system is set for both courtrooms.

## Telecom

As a shared County-State facility, an additional layer of complexity is added to the structured cabling system design as each requires a separate data network. Cable trays were common to both networks with drops identified at each end point. Each network has an MDF strategically located on the first floor with shared space on the second.

The OSP (OutSide Plant) was not typical as a pathway for the State needs went directly to the service provider while a pathway to the existing jail was needed to connect and support the County needs. This was solved by locating a hand hole at the future foundation of the jail addition and connecting it to the new courthouse. This way construction delays were avoided.

Since there are holding cells in the courthouse, the jail security system must and monitor the secure areas there.

## Security

Security systems are critical to the safety and well-being of all persons working there. To that extent, data gathered in the early meetings included critical security requirements. A pathway from the jail to the courthouse holding cells demanded a robust detention- level security systems design. The system includes a "Sally Port" intercom system, access control, video surveillance, man-down, panic and duress buttons. The public entrance to the Courthouse has security checkpoint with magnetometer and x-ray detector.

Common areas, corridors, elevators, and parking areas were considered in the overall security plan. The HJSA security team provided guidance and systems designs to meet the functional requirements, asset protection needs and code compliancy by using (CPJED) Crime Prevention Through Environment Design.

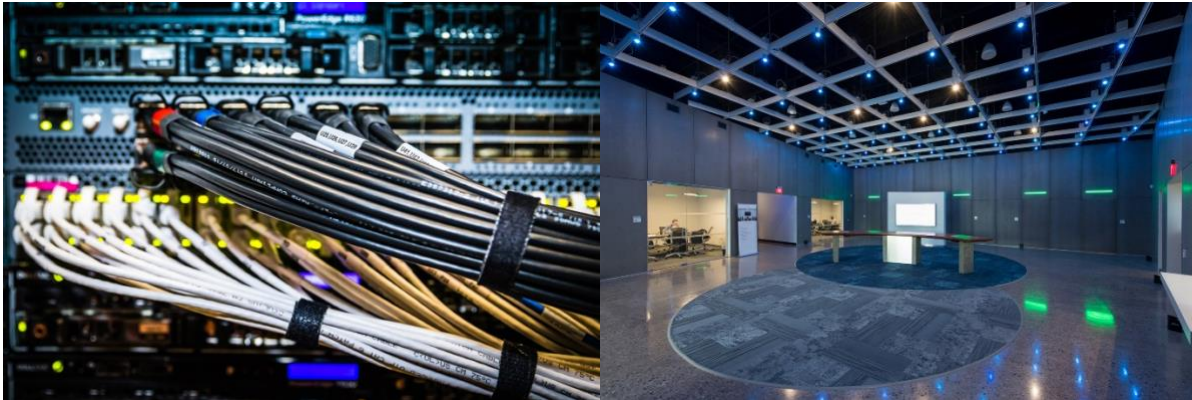


## Camelback Data Center

Working with our affiliate, TLD Design Consulting, HJSA is providing Audiovisual and Security Systems design services for the new Camelback Data Center.

This 550,000 sq. foot center can support 180 Megawatts of critical power capacity, and cooling to support from 1 to 50 Kilowatts per rack. Reliability is the keyword and that means un failing and well-designed audiovisual systems are a must to monitor the client's networks which depend on the center.

Security must be designed in a similar manner as failure is not an option. Systems include access control, laser intrusion detection, radar and lidar sensors, AI video surveillance and mantraps.



## University of Colorado Lynx Crossing

Working with the architect and the University, renovation of the Lynx Crossing Residence Hall includes Security and Telecommunications design services. The work is centered on revamping the security system to a de-centralized card based system which secures the building and parking areas. Telecom design involves working with the University IT department to identify new data drop locations that support the security system and meeting spaces.



## Converse County Joint Justice Center Phase 2

Phase 2 completes the Converse County Joint Justice Center with the addition of the Courthouse. The completed Phase 1 (Detention Facility) includes the police and sheriff's department, and the 911 and police call center. As we were part of Phase 1, HJSA was the perfect fit for Phase 2.

The Courthouse connects to the detention facility and will allow detainees to access the courtrooms directly. Two courtrooms, The Circuit Courtroom the District Courtroom are divided between the two floors. The Circuit Courtroom is designed for dual purpose use and can function as a second District Courtroom as needed. HJSA is providing audiovisual and telecommunications design services for the project.



## Marriott Residence Inn

The Marriott Residence Inn in Steamboat is the latest design and features high speed internet access and amenities normally found in higher end properties. HJSA is providing audiovisual, security and telecommunications design services. Working with the developer and the hotel operator at the highest level is important as management, comfort and entertainment systems drive the success of the property.



Other projects include:

Schomp BMW

Alpine Buick

Ft. Sill Officers Quarters

Jaguar/ Landrover Houston

Adams County Youth Services Center

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