

Training Administrative Complex (TAC) Design/Build

Pro2Serve teamed with the Pangea Group to offer fast-track design and construction of a multipurpose Training Administrative Complex for Shaw/AREVA MOX Services, LLC in the F-Area of the Savannah River Site. The TAC is a multipurpose building with areas for the Training Organization, IT Organization, and a Fitness/Wellness facility with an attached Records Vault. Faced with a total project duration of only six months, Pro2Serve accelerated design activities to provide the detailed design for release to construction in two and one-half months.

The TAC will be used during the construction of the Mixed Oxide Fuel Fabrication Facility (MFFF). Pangea Group is the prime for the project and Pro2Serve is providing the detailed design for the facility. The project schedule is 6 months from award to completion and being ready for occupancy. The design is being developed for issue for construction in two and one half months. In order to meet the six month total project duration, the building foundation concrete slab and associated embedded piping and components are being issued in advance of the rest of the design package to allow construction to start as soon as possible. The Pangea/Pro2Serve team is providing the design and furnishing all material, labor, and equipment required for the design and construction of the TAC.

Building Description:

The TAC is a one-story, 16,500 ft² steel-framed conventional quality building designed and constructed in accordance with conventional industry codes/standards. The superstructure consists of pre-engineered structural steel bents, purlins, girts, and bracing. The Records Vault is a 1-hour fire rated masonry building that is connected to the TAC. Sound/acoustical/thermal insulation is installed in all exterior walls and roof. All exterior window glazing is tinted and double layered for energy efficiency. The roof consists of a standing seam metal roof system.

Architectural Design Requirements

The TAC is being designed and configured to comply with the Life Safety codes and 36 CFR 1191 (Americans with Disabilities Act) requirements.

Structural Design Requirements

The design of the structures meets or exceeds the requirements of all applicable codes, standards, and specifications. The structure is analyzed for seismic loading in accordance with the IBC including Sections 1613 to 1623 and the ASCE Standard 7 Section 9. The steel structures are designed in accordance with the AISC Manual of Steel Construction. A summary of the structural design criteria follows.

Criterion	Value
Basic Wind Speed	Three second wind speed: 107 mph
Precipitation	Minimum 25-year, 1-hour rainfall event
Snow and Ice Loads	Snow / Ice Loading: 10 lb/ft ² , Exposure Factor: 1.0
Seismic	In accordance with ASCE Standard 7, Section 9 and IBC, Sections 1613 to 1623
Foundation Pressure	4000 psf maximum allowable soil bearing pressure

Mechanical Design Requirements:

The mechanical scope includes the Heating, Ventilation, and Air Conditioning (HVAC) systems, the plumbing system, and the fire suppression systems with the fire detection and alarm systems. The fire suppression system is being provided by a fire protection sprinkler contractor.

- Heating, Ventilation, and Air Conditioning (HVAC) systems include air handlers, compressors, condensers, fans, supplemental heating, ductwork, air distribution, humidifiers, and control devices necessary for the heating and cooling of the building.
- The plumbing system including pipes for sewage and drinking water, water heaters, water coolers, floor drains, and all plumbing fixtures.
- The fire detection and alarm systems and fire suppression systems for the TAC include the piping, sprinklers, nozzles, fittings. The wet-pipe sprinkler system includes fire department connection(s) and cover the majority of the facility. A gaseous suppression system, including fire detection and alarm, is used for the Network Operations Center (NOC) and for each of the chambers of the Records Vaults.

Electrical Design Requirements:

The design of the electrical systems includes power, lighting, communications, and interface with the IT Network. The electrical power service system includes the panel boxes, wiring, switches, outlets, and other electrical equipment necessary to bring and distribute electrical service. The lighting system includes the emergency lighting and interior and exterior light fixtures necessary to provide adequate and functional lighting. The communications and data transmission system includes the phone lines and jacks (i.e. voice and data), Public Address (PA) system, alarms, security, television cable, and audio/visual system necessary to provide a functional computer lab for training.