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MILITARY

PROJECT EXPERIENCE

Military

US Air Force – Eastern Processing Facility Cape Canaveral Air Force Station, Florida

Large satellite processing facility for the U.S. Air Force. Facility includes three 140 foot tall Class 100,000 clean rooms and one 180 foot tall Class 1,000 clean room. Project includes the design of high pressure gaseous nitrogen (GN₂) and gaseous helium (GHE) process piping systems, propellant fuel and oxidizer piping systems, fuel incinerator, oxidizer scrubber, mechanical HVAC systems, stainless steel ductwork, desiccant dehumidifier systems, 3,300-ton central chiller and 30 mmBtu heating water plants, breathing air systems of high and medium pressures, safety ventilation systems, and a PLC-based Facility Automated Management System (FAMS). Mechanical HVAC systems were computer simulated with computational fluid dynamics modeling to assure systems would perform with all the cleanliness levels and transient recovery requirements stipulated in the design criteria.



PROJECT EXPERIENCE

Military

US Army Corps of
Engineers –
C-130 Corrosion
Control Aircraft
Hangar
Pope Air Force Base,
Fayetteville, North Carolina



Mechanical troubleshooting services for a 69,500 s.f. two-bay corrosion control facility for the C-130 aircraft. Project includes one wash bay and one paint bay with offices and support spaces located between the bays. Mechanical systems include full outside air supply units for the paint bay that filter and heat the air with direct-fired gas heaters, and direct-fired gas unit heaters are provided in the wash bay. Exhaust air fans draw the air through the paint bay in a horizontal “push – pull” arrangement and then through three-stage paint filters located in the walls of the large hangar doors. The six exhaust fans are provided with variable frequency drives to control the exhaust air as the filters load up with paint. Fire protection is provided with fire sprinkler system and a high expansion foam system for the two bays. Troubleshooting was required due to Air Force acceptance testing of the paint bay heating and ventilating system. Pre-testing indicated potential problems, but after tweaking the system, ventilating system passed on the first test witnessed by the Industrial Hygienist for the Air Force Base.



PROJECT EXPERIENCE

Military

US Air National Guard F-15 Corrosion Control Aircraft Hangar Jacksonville, Florida

Mechanical engineering services for a 10,600 s.f. single-bay corrosion control facility for the F-15 aircraft at the Jacksonville International Airport. Project includes one wash bay, paint room with a prefabricated paint booth, offices, and support spaces. Mechanical systems include full outside air ventilating units for the high bay, heat is provided by a high temperature water boiler, wash water is heated by the same boiler through a heat exchanger, compressed air and breathing air provided by an oil-free reciprocating air compressor, office areas are provided air conditioning from a dedicated packaged heat pump. Plumbing systems include trench drains in the high bay that drain to an existing oil/water separator and emergency shower/eyewash stations located throughout the facility. Fire protection is provided with fire sprinkler system and a high expansion foam system for the high bay.



US Air Force – Renovation of Various Facilities Andersen Air Force Base, US Territory of Guam

Project Manager for projects which consisted of the complete architectural, electrical and mechanical renovation of existing facilities. Design included tropical island criteria consideration in material and equipment selection. Facilities included Base Chapel 1 and Chapel 2 (classrooms, offices, banquet rooms, and sanctuaries), Third Air Division Headquarters (offices, security facilities and secured conference rooms), Passenger Air Terminal (ticketing areas, passenger waiting areas, administrative offices, security facilities baggage claim, and baggage storage), Squadron Operations Facility (offices, sleeping quarters, briefing rooms, and security facilities).



PROJECT EXPERIENCE

Military

US Army Corps of
Engineers –
Weatherize Buildings/
Alter Mechanical
System (ECIP)
Nellis Air Force Base,
Las Vegas, Nevada

Energy Conservation Improvement Program (ECIP) project consisted of providing design documentation for the installation of radiant heating systems and a radio frequency demand deferment system. Constant air volume HVAC systems with steam or hot water heating coils were replaced with low-intensity gas-fired radiant heating systems in 18 aircraft hangars. Natural gas piping, mains and regulators were replaced and existing boilers were modified. Radio frequency demand deferment system involved the radio control, by duty cycling and scheduling, of compressor operation for residential air conditioners compressors at 85 single family houses on the base.



PROJECT EXPERIENCE

Military

US Air Force –
POL Tank Farm Piping
Upgrade
Andersen Air Force Base,
US Territory of Guam

Mechanical engineering services for this Strategic Air Command facility located on the U.S. Territory of Guam in the Pacific Ocean. Project consisted of replacing POL (jet fuel) tank farm valves, valve pits, and above ground and underground piping. Cathodic protection and tropical climate concerns were included in the design.

US Air Force –
Basewide Well Water
Control System
Andersen Air Force Base,
US Territory of Guam

Mechanical engineering services for project which consisted of installing a radio frequency monitoring and control system for the basewide well water distribution system. Control system allowed for the remote operation of water system pumps located throughout northern part of the island and collection of meter data.

US Navy –
Piti Power Plant
Boilder Retubing
US Territory of Guam

Project Manager for boiler re-tubing project at Piti Power Plant power generating station serving all Navy and Air Force facilities on the U.S. Territory of Guam. Project included the complete boiler tube replacement for Boilers No. 1 and No. 2 and modifications to existing high pressure air (300 psig) system used for boiler tube cleaning.

PROJECT EXPERIENCE

Military

US Air Force Headquarters, Europe Energy Engineering Analysis Program (EEAP) Study Ramstein Air Force Base, Kaiserslautern, Germany

Mechanical engineering services for a comprehensive energy study performed on all 2,900 buildings on Ramstein AFB having a total building area of 26 million s.f. Buildings included offices, mission support facilities, aircraft hangars, maintenance facilities, central plants, dormitories, residential facilities, commissaries, medical facilities, and recreation facilities. The purpose of the study was to evaluate all buildings, utility systems, energy distribution systems, and central plants. Computer simulations performed using the hour-by-hour method with DOE 2.1. Recommendations were presented for cost-effective energy conservation measures.

Areas investigated for energy conservation opportunities were: Building envelopes, utilities and energy distribution systems, building HVAC and lighting

systems, central energy monitoring and control systems (EMCS) and improvements to existing controls, centralization of heating plants, cogeneration or district heating, operation and maintenance procedures and practices.



PROJECT EXPERIENCE

Military

US Air Force
Headquarters, Europe
Vogelweh Community
Physical Security
Design
Ramstein Air Force Base,
Kaiserslautern, Germany

Engineering services for the U.S. military housing and recreation area in the western portion of Kaiserslautern, Germany. The community consists of multifamily housing complexes, schools, administration offices, fire stations, commissary, base exchange, medical clinics, officer clubs, bowling alleys, restaurants, movie theaters, skating rink, etc. The project included the design of security fencing, concrete barriers, security gates, and checkpoint stations enclosing the entire community.

US Army Corps of
Engineers, Army
Headquarters, Europe
Energy Vulnerability
Assessment, Europe
Heidelberg, Germany

Project Manager and Mechanical Engineer for assessment of energy systems and sources supplying U.S. Army facilities throughout Europe. Evaluated the vulnerability of these systems to supply disruptions or reductions during peacetime operation. Evaluation included an assessment of physical vulnerability of both on-base and off-base energy supply and distribution systems, consequences of energy disruptions on mission accomplishment, identification of procedures to lessen the impacts of energy disruption, and remedial measures to correct energy vulnerability deficiencies.



PROJECT EXPERIENCE

Military

US Army Corps of Engineers, Army Headquarters, Europe
Radiant Heating System Investigation
Heidelberg, Germany

Energy engineering services for investigation conducted on the economic feasibility of gas-fired radiant heating systems at U.S. Army military community in Goeppingen, Germany. Project included 1) development of theoretical models based from existing radiant heating system installations at Goeppingen, 2) comparison of actual system performance with theoretical models, 3) assessment of the operating problems and limitations of the system, and 4) development of guidelines and criteria to determine the feasibility of installing radiant heating in potential buildings.

US Army Corps of Engineers –
Flight Simulator Building Operations and Maintenance Program
Hanau Military Community
Heidelberg, Germany

Engineering services for the operation and maintenance program for the mechanical and electrical systems in the Fliegerhorst Flight Simulator Building at the military community of Hanau, Germany. Program entails the HVAC, fire protection, power, controls, and security systems of the building. Project involved assembling the necessary information and documenting maintenance procedures required by equipment manufacturers and general maintenance practices for a comprehensive operation and maintenance program.

US Navy, Naval Facilities Pacific and Western Divisions
NAVFAC – ACT-UP Studies
Subic Bay, Philippines
Pearl Harbor, Hawaii and
San Bruno, California

Mechanical Engineer for air conditioning tune-up (ACT-UP) and energy conservation study of 40 buildings and energy using equipment located on the base. Project consisted of data gathering, site observations, computer analyses, and recommendations for modifications to HVAC systems to reduce energy consumption and improve system reliabilities. Computer simulations performed using the hour-by-hour method with BLAST 3.0.