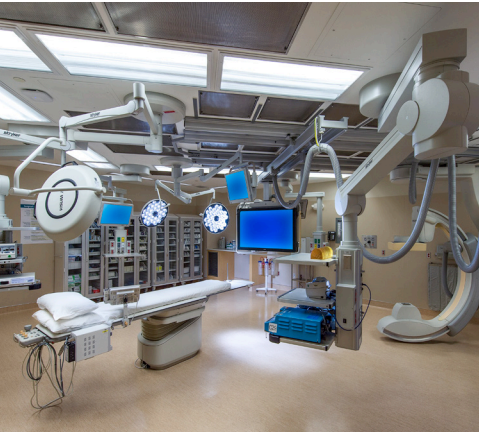


Healthcare Design



ENGINEERS

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Founded in 1981

Offices located in
Anchorage, AK
Bellingham, WA

Employee-owned
Staffed by 27

7 Mechanical PEs
5 Electrical PEs

Certified Healthcare
Constructors

Certified Construction
Document Technologists
or
Advanced Certified
Construction Specifiers

LEED Accredited Professionals

Registered Communications
Distribution Designers

Certified Lighting Consultant

ASHRAE Certified
Building Commissioning
Professionals

Proficient with AutoCAD
and REVIT



Safety and comfort is our ultimate focus

AMC Engineers is an engineering firm specializing in the design and retrofit of mechanical, electrical and plumbing (MEP) systems for healthcare facilities. AMC offers full project support services including MEP systems design, evaluation of MEP system upgrade/replacement options, life cycle cost analysis, life safety code compliance, energy models, development of phased renovation plans, construction administration services, and MEP system commissioning services.

AMC enjoys a long and successful track record working on complex medical and laboratory projects. We understand that many of these healthcare facilities never sleep and that unplanned interruption of building systems operation is often life threatening. Incorporating system and equipment redundancy, maintainability, and reliable operations is integral to each project. Phased construction and the utilization of temporary systems to ensure uninterrupted, safe, and reliable patient support come second nature to us. We understand the specialized criteria and building systems which surround healthcare projects. We have the capability to seamlessly support our clients from project inception through building systems commissioning; including follow-on consulting services throughout a facilities' lifetime.

Providing Healthcare Design Solutions Throughout Alaska

Southeast Alaska Regional Health Consortium (SEARHC)

Mt. Edgecumbe Medical Center (MEMC)

Juneau Ethel Lund Medical Clinic (ELMC)

Wrangell Medical Center (WMC)

Craig Express Medical Clinic

Alicia Roberts Medical Center (ARMC)

Providence Alaska Medical Center (PAMC)

Providence Kodiak Island Medical Center

Providence Seward Medical Center

Providence Valdez Medical Center

Alaska Native Medical Center (ANMC)

Alaska Native Tribal Health Consortium (ANTHC)

Yukon-Kuskokwim Health Consortium (YKHC)

Norton Sound Health Corporation

Samuel Simmonds Memorial Hospital

Southcentral Foundation

Alaska Regional Hospital

Mat-Su Regional Medical Center

Kanakanak Hospital

Bartlett Regional Hospital

Kotzebue Hospital



Southeast Alaska Regional Health Consortium (SEARHC)



SEARHC Projects

SEARHC On-call Mechanical and Electrical Engineering Services

Juneau Ethel Lund Medical Clinic (ELMC) Mechanical Upgrades (Fuel oil storage, Chiller, Boiler)

Juneau ELMC Generator Addition

Juneau Dental Building Mechanical Upgrades (Fuel oil storage, Chiller, Ventilation system)

Juneau Behavioral Health Building Boiler Replacement

Mt. Edgecumbe Medical Center (MEMC) Electric Utility Planning

MEMC Hospital Replacement Campus

MEMC Sprinkler Riser & Zone Maps

MEMC GCI Electrical Service

MEMC Operating Suite HVAC Improvements

MEMC Pharmacy Hoods Room Upgrades

MEMC ATS 6 and 7 Replacement

MEMC Life Safety Analysis

MEMC IT Upgrades

MEMC X-ray Review

MEMC Ventilation System As-built Project

MEMC Power One Line Update

MEMC Fuel Tank Replacement

MEMC MRI Upgrade Peer Review

MEMC Emergency Department Renovation-Commissioning Services

MEMC Security Study

MEM Chiller System Study

MEMC Nurse Call System Upgrade

MEMC Access Control Survey

MEMC Replacement Campus Concept Design

MEMC Hospital Arc Flash Study

MEMC Laboratory Humidification and Cooling

MEMC Dental Suite AHI Replacement

MEMC Fire Alarm Replacement

Craig Express Medical Clinic

Wrangell Medical Center Evaluation

Wrangell Critical Access Hospital Peer Review

Alicia Roberts Medical Center (ARMC) Expansion/HVAC Design



Providence Alaska Medical Center (PAMC)



PAMC Emergency Power Supply System ATS Replacements & Power Distribution System Upgrades



AMC was the Prime Consultant for PAMC's new 8 MW diesel power plant and reconfiguration of the power distribution system that serves the Essential Electrical System (EES) for the existing main hospital facility and the new "Generations" addition.

The project also upgraded the main normal power service to PAMC. This project had challenges: the need to upgrade existing normal (utility) power service to serve the hospital while maintaining the hospital in operation, and the need to upgrade existing generator plant, distribution switchgear and distribution equipment to provide N+1 capacity to support the hospital while maintaining the Hospital in Operation. N+1 capacity means the ability to support the health clinic and hospital with one of the generators off line.

Prior to the upgrade, the existing main PAMC campus generator electrical service consisted of 3 diesel engine generator sets and one diesel turbine that provided backup power to the facility (total capacity of 3.2 megawatt). The main generator plant was aged and capacity limited. Loading on the plant was close to reaching the main switchboard's 4,000 amp limit and the age of the equipment was making it increasingly difficult to find replacement parts.

AMC served as the formal Commissioning Authority (CxA) for the EPSS power plant, medium voltage distribution systems, switch cabinets, service transformers, double ended low voltage switchgear, 480V distribution systems, CTTs, fuel oil systems, boiler systems, HVAC systems, etc. Specialty systems commissioned include aqueous film forming foam (AFFF) fire suppression system, access control system, CCTV monitoring, flame detection cameras, fire alarm system, and a human machine interface (HMI) system for generator plant monitoring and control.

Total Cost: \$27 Million
Generator Plant: 25,000 SF
Hospital: 1.5M SF
Location: Anchorage, Alaska
Owner: PAMC
Project Completed: 2015

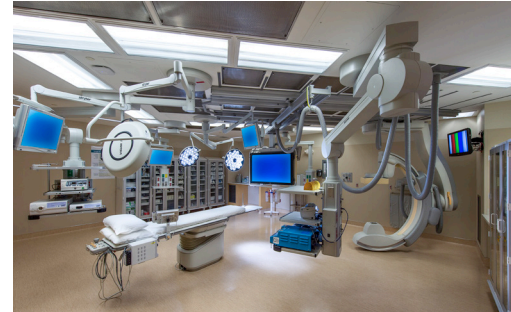
PAMC M Tower “Generations”

Ancillary Project Design

AMC designed the new and renovated mechanical systems to support this PAMC expansion and remodel project, which included two new hybrid operating rooms (and new supporting mechanical penthouse), renovations to existing operating rooms and semi sterile core, remodel of the special processing and sterilization department, materials management, and other support areas. Additionally, AMC designed an expansion to the hospital's existing bulk medical liquid oxygen storage tank site and equipment. The project was broken down into several “sub-projects,” each with its own phasing and interface requirements, to meet an aggressive construction schedule and maintain 24/7 hospital operational requirements. Project included specialized complex OR Rooms- Orthopedics, cystology, heart and hybrid.

Third Party Commissioning Authority (CxA) Services for Mechanical and Electrical

AMC served as the third party CxA for the new PAMC Tower M and associated “backfill” renovation of connecting hospital areas. This 4-year, 19-phase project, encompassed nearly every type of hospital system imaginable. AMC worked closely with the Facility Managers and the Contractor's Commissioning Representative (CCR) to develop the projects Cx Plan. This core document formally outlines Cx objectives, Cx approach, Cx team members by name, their specific responsibilities and the overall Cx process.



Total Cost: \$157 Million
New: 100,700 SF
Existing: 208,889 SF
Location: Anchorage, Alaska
Owner: PAMC
Project Completed: 2015

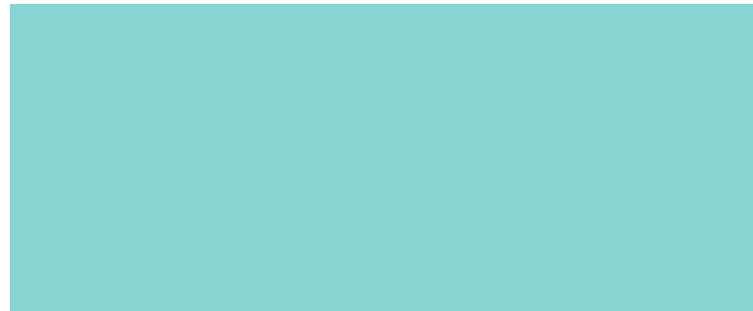
PAMC Projects

Chiller 3 and Cooling Towers Replacement
In-Patient Pharmacy Med Carousel Replacement
In-Patient Pharmacy Renovation
Heart Operating Room OR-6 Renovation
PAMC Generations Project – Surgery Addition and Renovation
PAMC Generations Project – Sterile Processing Department Renovation
PAMC Generations Project – Commissioning Services
Psychiatric Emergency Department Relocation
Emergency Power Supply System (8 MW)
ATS Replacements & Power Distribution System Upgrades
Endoscopy High Level Disinfection
OR Office Relocation
Trauma Office Relocation
Pediatric Emergency Department Expansion
Multiple Cath Labs Equipment Replacements
Nurse Call Replacement for the Main Campus
ATACS TI, Bldg. E Level 3
Cardiovascular Observation Renovation
Towers A and B, and Building H & G Elevator Modernization Projects
Tower A Discharge Lounge Renovation
S-Tower ALF Suite
Emergency Department Triage Nurse Call Addition

M Tower Pressurization Troubleshooting
Hyperbaric Chamber
U Tower Cancer Center Linear Accelerator Replacement
Parking Structure PS4 Heat Trace Troubleshooting
eICU Telemetry/Trauma TI Building E
Outpatient Laboratory Remodel
Emergency Operations Center
Cyberknife Equipment Replacement
MDF Room Upgrades
Providence Region Building Generator
RF Room Equipment Replacement
Imaging Center Check-In TI
Tower T Telecom Room UPS Replacement
Kitchen Steam and Condensate Systems Study
Providence Region Building Facility Assessment
Nuclear Medicine Remodel
Ultrasound Relocation
Data Center Chiller Revisions / Electrical Fan Coil
Data Center UPS/Flywheel Replacement
Multiple MRI Replacements – Providence Imaging Center
Inpatient MRI Addition
Building X HVAC Study
Emergency Well Water Supply

PAMC Projects

Removal of Underground Fuel Tanks
Imaging Center Mammography Equipment Improvements
Parking Garage Access/Revenue Control System
CT Scan 2 Grounding Investigation
Parking Structure PS1 Level 3 Heat Trace Additions
Kitchen Cooler Replacement
Hyperbaric Facility/Units Building E Second Level
Exhaust Fan EF-1 Replacement
Parking Structure PS1 Heat Trace Additions
Tower T – Essential Electrical System Critical Branch Addition
Providence Region Building MIS TI
MIS HVAC Renovation
EPIC Patient Record Project
Master Mechanical and Electrical AutoCAD Records Management
Building B Water Heater Replacement
Medical Gas Manifold Upgrade
Chiller CH-5 Replacement Recommendation
Cafeteria Remodel
4 North Dialysis Rooms Study
Linear Accelerator Upgrade
Building C Level 4 Anchorage Women's Clinic HVAC Study



Dr. Katherine and Dr. Kevin Gottlieb Building

(Southcentral Foundation
Children's Dental Clinic)

AMC provided mechanical and electrical design services for this new five-story building and new parking garage. The facility is now home to a new children's dental clinic and other services. The clinic, located on the main floor of the building, has 32 children's dental chairs, including 8 closed operatories, orthodontics rooms, lab spaces, and patient support spaces. Building support services, including dental equipment sterilization, receiving and storage spaces, fitness room, and locker rooms, are located in the basement.

The second-floor houses administrative spaces, a large staff break room, and numerous conference and training rooms. The upper 3 floors are tenant space, which include children's behavioral health, pediatric neuro and ob/gyn. To facilitate pedestrian traffic flow to the tenant spaces, floors 3, 4 and 5 have a sky bridge connection to three levels of the parking garage.



Total Cost: \$70 Million | New: 112,400 SF
New Parking Garage: 259,000 SF
Location: Anchorage, Alaska
Owner: Southcentral Foundation
Architect: Kumin Associates
Project Completed: 2018 | Design Build



Blood Bank of Alaska

© Kam Graham Photography.com



This new facility accommodates the Blood Bank of Alaska with flexible space to accommodate future technological advances and meet expanding healthcare needs for future Alaska generations. Sophisticated building temperature, relative humidity and pressurization control meet the Good Manufacturer Process (GMP), FDA and EU standards for blood processing facilities. The building's enhanced structural design as well as its redundant and self-sufficient building systems, ensure continued reliable building operation even during catastrophic events.



Total Cost: \$35 Million

New: 60,000 SF

Location: Anchorage, Alaska

Owner: Blood Bank of Alaska

Architect: Livingston Slone, Inc.

Project Completed: 2015

This new healthcare center provides much needed medical services to the 3,000 Kenaitze Indian Tribe residents located on the central Kenai Peninsula. Project priorities were centered on providing state-of-the-art medical technologies, meeting program requirements within available space and budget constraints, achieving 30% energy savings over the base line ASHRAE 90.1 design building, attaining LEED Silver certification, and providing a welcoming gathering place for the community that develops, nurtures, and celebrates the Alaskan Native identity.

Dena'ina Wellness Center was developed specifically to support the Kenaitze Indian Tribe and the Indian residents within the central Kenai Peninsula, there is no doubt it has met its intent. Within a year of opening, the facility initiated a variety of wellness programs and community events. It offers medical, dental, behavioral health, chemical dependency, wellness, physical therapy, pharmacy support and traditional healing services as well as a cultural center and gathering location for the community.

Total Cost: \$25.4 Million | New: 52,000 SF

Location: Kenai, Alaska

Owner: Kenaitze Indian Tribe

Architect: Architects Alaska

Project Completed: 2014



Alaska Native Medical Center/ANTHC



North Tower Hospital Expansion
Dental Renovation
Inpatient Pharmacy
Outpatient Pharmacy
Elevator Replacements
Inpatient Unit (4th and 5th Floor) Remodel
Sterile Processing Department Ventilation
Triplex Domestic Water Pressure Booster System
Replacement
Inuit Building 3rd Floor Office Remodel
Fire Sprinkler System Piping Renovation
Urology & General Surgery Renovation
Nurse Call System Upgrade Design
Nurse Call System Study
Coordination & Arc Flash Study
A/C Equipment Chillers and Cooling Towers
Replacement

General/Emergency Lighting and Power Systems Upgrades
Co-generation Concept Design & LCCA (2 MW)
Central Medical and Dental Compressed Air System Replacement
Central Medical Vacuum Pump Replacement
ATS Replacement Project
Power MRI/CT Power Analysis/Relocation
CT-2 Replacement
Critical Care Unit Addition CA and Commissioning Services
Power Monitoring Study/Replacement
Liquid Oxygen Relocation and Expansion Assessment
Oxygen System Upgrade
Electrical Equipment Assessment
COB H&V Upgrades CA Services
COB/HCB Well Water-Cooling Evaluation
COB Chiller Project
COB Tenant Improvements
Barrow Hospital Electrical Assessment
Toilet Room Remodel
ATS-Y3 Emergency Replacement
Fire Alarm System Study
Auxiliary Condenser Water System Upgrades
AutoCAD Records Management
Deferred Maintenance Assessment
Deep Look Surveys
Manilaq Health Center Chiller Replacement, Kotzebue
Manilaq Health Center Building Automation System, Fire Alarm
System & Access Control System, Kotzebue
Manilaq Health Center Sustainability Studies and Risk Assessment,
Kotzebue

The laboratory is arranged in two wings with a large central two-story main entry and lobby, which serves as its architectural focal point. One wing houses general administration and laboratory training and the other wing houses investigation space/laboratories for criminal forensics and DNA testing, ballistics analysis and secure evidence storage.

The facility utilizes an AMC Engineers exclusive “pressure mapping” strategy which ensures precise building zone pressure control while also protecting the building’s exterior envelope from moisture damage. The facilities indoor environmental quality (IEQ) monitoring and control system directly monitors indoor airborne gas and particulate concentrations and regulates HVAC system operation to minimize ventilation rates to save energy, while maintaining a safe indoor working environment for laboratory workers.

The facility won a 2014 National ASHRAE award and was the feature article for the April 2014 issue of the ASHRAE Journal. Through effective use of integrated heat recovery systems, the facility enjoys an EUI of 152 kBtu/SF which greatly exceeds the national laboratory average of 277 kBtu/SF.

Total Cost: \$92 Million | New: 85,000 SF
Location: Anchorage, Alaska
Owner: Alaska Department of Public Safety
Architect: Livingston Slone, Inc.
Project Completed: 2012

Alaska Scientific Crime Detection Laboratory



Alaska State Public Health Virology Laboratory

The laboratory facility includes Biological Safety Level 2 laboratory suites, a BSL-3 suite, as well as, space for future BSL-3 and Animal Biological Safety Level 3 suites. Precise differential pressure control (preventing the spread of airborne contaminants) between adjacent spaces is possible through the use of AMC Engineers exclusive “pressure mapping” design strategy. All laboratory exhaust air is passed through heat recovery coils to maximize energy conservation. The facility is pre-designed for the “plug and play” addition of new central HVAC equipment to serve future laboratory suite build-outs with minimal impact on current operations.

Total Cost: \$20.8 Million | New: 29,000 SF
Location: Fairbanks, Alaska
Owner: Alaska Department of Health
and Social Services
Architect: Livingston Slone, Inc.
Project Completed: 2009



UAA Health Sciences Building



AMC provided mechanical and electrical design for this three-story facility that houses the medical, nursing and physician assistant programs. The building includes interactive medical simulation labs, distance classrooms to connect students from rural communities, clinical and instructional labs, classrooms, conference rooms and administrative offices.

The facility is designed for high performance and incorporates the latest energy saving high efficiency lamps, solid-state lighting, occupancy sensors and daylight harvesting.

In addition, the building is interconnected to the campus via single mode optical fiber cable and serves as the central telecommunications hub for future developments south of Providence Drive. AMC's design team worked hand in hand with the CM/GC to ensure budget targets were achieved throughout the design process.



Total Cost: \$46.5 Million | New: 65,162 SF
Location: Anchorage, Alaska
Owner: University of Alaska Anchorage
Architect: Livingston Slone, Inc.
Project Completed: 2011