Alejandro Rivas, PE, HFDP, LEED AP BD+C
Mechanical Engineer

Alejandro has over 7 years of experience in managing and designing mechanical systems for the healthcare, commercial, industrial, residential, corporate, higher education, and research industries. This includes expertise focusing on healthcare and laboratory design for many of the major healthcare systems in South Florida. He also has expertise in the calculation of thermal and cooling loads, ventilation requirements per ASHRAE Standards 62.1 and 170, layout and selection of HVAC systems per ASHRAE 90.1 and knowledge of AIA FGI guidelines, NFPA and ICC codes. Furthermore, he is certified as Healthcare Facility Design Professional and LEED AP BD+C. Lastly, Alejandro was recipient of the 2017 ASHRAE Technical Paper Award for his published work on VAV Systems.

Education
M.S., Mechanical Engineering, University of Oklahoma, 2016

M.S., Reliability of Industrial Systems, University Simon Bolivar, 2014

B.S., Mechanical Engineering, University Simon Bolivar, 2010

Affiliations
American Society of Heating, Refrigerating and Air Conditioning Engineers (ASHRAE)

Licenses and Certifications
Professional Engineer (PE), State of Florida
LEED AP Building Design and Construction (BD+C), GBCI
Healthcare Facility Design Professional (HFDP), ASHRAE

Awards
2017 Technical Paper Award, ASHRAE

Summary of Experience

HEALTHCARE

South Miami Hospital Critical Care Unit Renovation
Miami, Florida
Mechanical Engineer for renovations to several critical care areas por patients in the 2nd Floor of the main building on campus. Responsible of HVAC design for 20,000 SF in scope of work which included 24 beds for critical care patients with 2 as airborne infection isolation rooms. Space renovations required the replacement of 2 air handling units and providing an additional new one. High plume exhaust fan was provided for air exhaust of All rooms.

Aventura Hospital MRI Replacement
Aventura, Florida
Mechanical Designer for renovation of imaging suite and MRI equipment replacement in the 4th floor of the main building. Project duties included survey of existing services, rebalancing of airflows, and addition of new Chilled Water CRAC unit to serve as backup cooling for the equipment room.

Mount Sinai Medical Center SOP 540 Expansion
Miami Beach, Florida
Mechanical Designer for renovation project to convert existing administration space to a 6,000 SF urology department suite. Responsible for full design of VAV with electric reheat system fed from main AHU serving the building.

St. Anne's Chiller Replacement
Miami, Florida
Mechanical Engineer for renovations of the central energy plant of the facility. Existing air-cooled chillers were replaced by full 200-ton chilled water system with cooling towers, chillers, condenser and primary chilled water pumps.

South Miami Hospital Fluoroscopy Replacement
Miami, Florida
Mechanical Designer for renovation of Fluoroscopy imaging rooms of the main building on campus. Replacement of existing imaging equipment required load

calculations and new space air distribution to meet manufacturers requirements. New CRAC unit was provided to provide independent cooling for equipment room serving new imaging suite.

A1 Imaging Plantation MRI Fit-Out
Plantation, Florida
Mechanical Engineer for complete MRI room fit-out project for A1 Imaging at their Plantation location. Duties part of the scope of work included planning and coordination of quench vent location and sizing, emergency exhaust fan system, sizing of new AHU to serve control room and existing areas out of the scope of work, sizing of new CRAC unit for equipment room and development of construction documents and specifications for the project.

South Miami Hospital Nuclear Medicine Addition & Renovation
Miami, Florida
Mechanical Engineer responsible for project that involve the replacement of a 15,000 CFM chilled water rooftop unit that fully serves the imaging department at Baptist South Miami Hospital. In addition, responsible for mechanical design for renovation of 2 nuclear medicine rooms. Renovation measures included bringing up to code current mechanical systems, this meant the addition of a dedicated exhaust air fan to comply with ASHRAE 170 and AIA FGI requirements for nuclear medicine rooms.

Sanitas Doral Medical Center Fit-Out
Doral, Florida
Mechanical Engineer responsible of mechanical design for 5,000 SF fit-out project for Sanitas Medical Center. Duties included full layout of VAV system with electric reheat and the addition of an exhaust fan to meet code requirements and balancing with outdoor air.

Tendler Oral and Maxillofacial Surgery
Pembroke Pines, Florida
Mechanical Engineer assigned with the mechanical design for expansion of surgery area of dental clinic. The project involved the planning and selection for new area to be served by 2 split-systems: one system operating for common and administration areas to be maintained at 72 F and one specially selected system to condition 3 procedure rooms at 66 F per owner's project requirement.

Jackson Health System, South Community Hospital, Addition & Renovation
Miami, Florida
Mechanical Designer for renovations and additions to various patient care areas in the South Wing and the Tower buildings. Responsible for mechanical design for all areas including renovation of a Behavioral Health Inpatient Unit, Labor & Delivery/Post-Partum, Med/Surgery and ICU fit-out. Scope also included a new building addition with Adult and Juvenile Intake and Inpatient Support as well as a Pediatric Emergency Department. Scope included (2) 650-ton water cooled chillers, (1) 450-ton water cooled chiller, and (3) 650-ton cooling towers.

DoD, Tinker AFB Clinic Facility, HVAC System Optimization
Oklahoma City, Oklahoma

Contributed in a DoE funded research program by performing testing and balancing of HVAC systems to test new control strategies that aim to improve DoD's buildings energy performance. The scope of work included measuring and data trending of supply, exhaust and return airflows, retro-commissioning of VAV terminal units to comply with ASHRAE Standard 170 and modifications in Building Automated System sequences to improve feedback and identify fails in real time.

PHARMACIES

Nicklaus Children's Hospital Pharmacy Renovation
Miami, Florida
Mechanical Engineer in charge of the mechanical design of a new USP 800 clean rooms for main pharmacy at the TMMC Hospital of the Nicklaus Children's network. Project involved the sizing and selection of a high outdoor air percentage air handling unit, addition of a new high plume exhaust fan to discharge exhaust from hazardous fume hoods and full coordination of intakes and outlets locations to ensure ASHRAE 170, AIA FGI and AHCA guidelines were fully met to avoid recirculation of hazardous materials.

Leon Medical Center Chemotherapy Center
Doral, Florida
Mechanical Engineer responsible for the mechanical design of renovation of 4,000 SF space in a chemotherapy center, which included the addition of a USP 800 drug preparation area. The inclusion of hazardous drugs rooms involved the planning and design of a dedicated outdoor air system and a dedicated high plume exhaust fan.

HIGHER EDUCATION & RESEARCH

Cambridge College School of Nursing Fit-Out
Miami, Florida
Mechanical Engineer responsible for fit-out of 12,000 SF warehouse space to be converted into a school or nursing. Project involved performing load calculations, ventilation calculations per ASHRAE 62.1 meeting the Florida Building Code – Mechanical requirements, sizing and location of 3 DX rooftop units totaling 50 tons and the full layout of VAV system and including 3 exhaust fans to meet exhaust and outdoor air balance requirements for the building

Miami Dade College Interamerican Campus Renovation
Miami, Florida
Mechanical Designer for renovation of 2 complete floors at the Miami Dade College Interamerican Campus. One floor was 16,000 SF of administration space that was completely renewed, with a portion of it converted into a testing center facility for standardized tests. The space was designed as a full VAV system with electric reheat. The other floor part of the project was a 10,000 SF floor of regular classrooms to be converted into chemistry and physics laboratories. Planned laboratories contained multiple fume hoods each. Therefore, a full VAV system with a custom dedicated outdoor air unit including heat recovery was designed and sized to meet Florida Energy Code requirements. Individual high plume exhaust fans were assigned to each laboratory to increase system flexibility and energy savings during unoccupied hours.

University of Illinois, Mechanical Engineering Building
Urbana-Champaign, Illinois
Mechanical Designer for the $40 Million renovation of the existing Mechanical Engineering Building and its new five-story 36,000sf addition. Scope included thermal loads calculation, conceptualization of the HVAC system, and schematic design. The project included layout of dedicated outdoor air systems, energy recovery ventilation and heat-recovery variable refrigerant flow units.

Cornerstone University, DeWitt Center for Science and Technology
Grand Rapids, Michigan
Mechanical Designer for a new facility with laboratories and classrooms to improve the quality of its education in STEM fields. This new $15.5 million, three-story, 20.000sf science & technology building included chemistry, biology and physics laboratories. The client had specific requirements to align mechanical systems with University's vision statement that gave Alejandro the opportunity to conceptualize and get the approval from the client to include what is the second bio-filtering green wall in the U.S. Additionally, energy recovery strategies were applied as part of the basis of design. Scope included conceptual design, thermal load calculations, schematic design and firsthand communications with local and Canadian vendors of new bio-filtering wall technology.

AVIATION

Philadelphia International Airport, American Express Lounge
Philadelphia, Pennsylvania
Mechanical Designer for a new 5,000sf American Express Centurion Lounge located on the Mezzanine level, overlooking the Concourse on one side & the Airfield on the other.

Miami International Airport, American Express Lounge Expansion Shell
Miami, Florida
Mechanical Designer for the shell expansion of the existing American Express Centurion Lounge. The expansion area is approximately 4,850sf adjacent to the West of the existing AMEX Centurion Lounge, located on the fourth floor of the North Terminal and includes modifications to existing HVAC systems and the design of consistent air conditioning strategies that help to preserve the aesthetics of the complete AMEX Centurion Lounge. Scope included site visits for HVAC system connection and layout, thermal loads calculations, and complete design development of mechanical set of drawings.

Miami International Airport, American Express Lounge Expansion Buildout
Miami, Florida
Mechanical Designer for the interior buildout of the American Express Centurion Lounge expansion. The expansion area is approximately 4,850sf adjacent to the West of the existing AMEX Centurion Lounge, located on the fourth floor of the North Terminal.

COMMERCIAL

CA Ventures, CA Senior Living, Oro Valley, Arizona
Mechanical Designer for the development of a new senior living housing building. The building included 101 units (69 units dedicated to assisted living and the remaining to memory care suites) distributed in a $25 million two-story building. The building included PTAC units, VAV Systems serving common spaces and a commercial type Kitchen. Scope included thermal loads calculations, design of exhaust systems and several construction administration tasks.

Central Madeirense, CM El Recreo Branch, Barquisimeto, Venezuela
Mechanical Designer for the complete design of a brand new supermarket branch store of 40,000sf. The built-out project included several package DX rooftop units and air-cooled refrigeration system. Mechanical ventilation and DOAS systems where utilized to condition food processing and preparation areas. Scope of work included field surveys, thermal load calculations, system selection and layout, field inspection and full construction administration duties.

Banesco, Banesco La Vela Mall Branch, Margarita, Venezuela
Mechanical Designer for the complete build-out project of a new bank branch in brand new La Vela Mall. The built-out space of approximately 4,000sf required selection of a single chilled water air handing unit and exhaust fans. The scope included thermal load and ventilation calculation, equipment selection and HVAC system layout.

Banco Venezolano de Credito, BVC La Lagunita Branch, Caracas, Venezuela
Mechanical Designer for the renovation project of a 5,000sf bank branch. The scope of work included field survey, split DX systems selection, thermal load calculations, equipment selection and supply and exhaust air systems layout.

Banesco, Banesco Los Aviadores Mall Branch, Maracay, Venezuela
Mechanical Designer for the built-out project of a brand new 7,600sf bank branch in the Los Aviadores Mall. The project included the location of chilled water air handling units, thermal load calculations and full design of supply air, return and exhaust air systems layouts.