

JOHN HALLUM (Hal) PRICE, P.E.

EDUCATION

Georgia Institute of Technology, Atlanta, Georgia - Field of Study: Aerospace Engineering
Degree: Bachelor of Aerospace Engineering

Southern Institute of Technology, Marietta, Georgia - Field of Study: Industrial Engineering

Dekalb College, Clarkston, Georgia - Field of Study: Pre-Engineering

PROFESSIONAL REGISTRATION:

Engineer in Training 1974

Professional Engineer 1977

State Licenses: Georgia

Inactive: Florida, Tennessee, Louisiana, Kentucky, New York, Pennsylvania, Connecticut, New Jersey, Michigan, Illinois, Iowa, Nebraska, Texas, Arizona, California, and Minnesota.

PROFESSIONAL ASSOCIATIONS

American Society of Heating, Ventilating, and Air Conditioning Engineers

American Society of Mechanical Engineers

American Society of Plumbing Engineers

SUMMARY

Over 35 years of design engineering and field inspection experience in HVAC, Plumbing, and Fire Protection Systems for Commercial, Institutional, Government, Military, and Industrial Facilities.

ACCOMPLISHMENTS

- **Ft. Benning, GA**, QAR responsible for field inspection of mechanical construction for the Tactical Equipment Maintenance Facility (6 buildings) including repair bays, paint prep & painting, bead blast, dynamometer test cells, machine shop, fueling facility, hazardous storage, POL storage, administration, and training rooms.
- **Centers For Disease Control, Atlanta, GA** - Mechanical Engineer - 15 Buildings - Project Mechanical Lead Engineer for the field survey and upgrade/critical operation study and evaluation of all mechanical systems for the 15 building campus including the central utility plant, all HVAC system including lab fume exhaust systems in order to develop a computerized database and software to manage a 20-year Preventative Maintenance and Upgrade Master Plan.

- **Pope AFB, Fayetteville NC**, Mechanical Design and field inspection of construction for the Renovation of Four (4) Dormitories (5-Story) with common chilled water plant and underground piping system;
- **Federal Aviation Administration-San Juan, Puerto Rico** -HVAC Renovation of the Caribbean Regional Air Traffic Control Center including a rolling plan to accomplish the renovation without the shutdown of any critical areas.
- **University of Georgia**, Rhodes Animal Research Facility, HVAC Evaluation, Athens, Georgia - Mechanical engineer for the evaluation of the existing HVAC systems serving the BSL 2 laboratory complex and animal research areas. The study assessed the present capacities and operation of the existing installed HVAC and DDC systems and identified the basis of design for proposed and recommended repairs or upgrades to maintain proper building and laboratory pressure relationships.
- **2008-Center for Family Resources, Marietta, GA** - This case involved numerous complaints from the various tenants of the facility. Some areas were cold in the winter, hot in the summer, hot and humid in the summer resulting in mold odors, cold and humid in the summer, poor ventilation resulting in high CO2 readings, natural gas odor, and poorly operating and non-operating temperature controls in some areas. Our scope of work was to determine the multiple causes of these problems, work with the Mechanical Engineer, Contractors, and Owner to resolve these problems, estimate an order of magnitude cost for the recommend repairs and modifications for the Owner, assist the Owner in assigning responsibilities and the associated costs to each party, and monitoring the quality assurance testing during and after the agreed to repairs and modifications were made. It was determined that the Test and Balance of the air distribution systems was not performed properly causing hot and cold spots for the same thermostatically controlled zone. HVAC equipment for variable occupancy spaces such as classrooms and ballrooms were not specified to have controls to adequately vary the cooling capacity of the equipment resulting in humid conditions. When thermostat settings were lowered to dehumidify the air the equipment was not specified to have reheat coils so the space became cold and humid. In an effort to correct the humidity problem throughout the facility in the summer the Contractor reduced the amount of fresh outside air to the facility since the outside air was very humid. This outside reduction did not help the high humidity in the facility, but it did result in poor ventilation and higher than required CO2 levels. The Automated Temperature Control system was not properly specified complete with detailed sequences of operation for the HVAC Controls Contractor and Manufacturer to follow, with any RFIs on the subject the Contractors and control system Manufacturer devised their own sequence of operation which was not adequate for a variable occupancy facility such as the Center for Family Resources. In addition the Controls Contractor was not trained or certified by the Manufacturer to install and commission this type of complex computer operated HVAC control system. In short the Mechanical Engineer and the Mechanical contractor both failed to properly perform their duties resulting in an HVAC system that performed as poorly as they did.

- **Noramco, Athens, GA**, Mechanical Engineer -Project Mechanical Lead Engineer for the design, field inspection, and construction administration of the HVAC, plumbing, and fire protection systems for new facility for producing super-absorbent fibers for the healthcare industry, including a chiller plant, hot water boilers, process exhaust systems, VAV air handling units with HEPA filtration and dehumidification control, differential pressure control to maintain the process area at a positive pressure relative to the adjacent spaces.
- **Ft. Benning, GA**, QAR responsible for field inspection of construction for the renovation of the 3-story Reception Barracks Bldg 3035) including new laundry facilities and storage areas complete with HVAC, plumbing, and fire protection modifications.
- **Robins Air Force Base**, 225,000 ft² Building 645, Avionics Maintenance/Repair Facility, Warner Robins, Georgia-Mechanical Design, Field Inspection, and Construction Administration for the HVAC/ Plumbing/ Fire Protection renovation of Building 645 including pre-action/dry/wet-pipe fire protection sprinkler systems, new custom air handling units with dual circuited chilled water and hot water coils, redundant VAV centrifugal fans, VAV air distribution system with oversized main air ducts to provide flexible load distribution air balancing over the life of the facility with phased construction to maintain 100% operation capability;
- **HVAC Renovation and Asbestos Remediation** For the Administration Department of the VA Hospital, Tampa, Florida;
- **Bell Helicopter, Esfahan, Iran**- HVAC Design of the 325,000 SF Manufacturing Building for the production of the AH-1 Cobra, including 1500-ton Air Cooled Chilled Water Farm, Steam Boilers, and VAV Custom Rooftop Air Handling Units.
- **HVAC Renovation and Mold Remediation** for the 4-story Nursing Home Facility of the VA Hospital, Tampa, Florida;
- **New Isolation Rooms for the Emergency Room** of the VA Hospital Tampa, Florida;
- **Ft. Benning, GA**, QAR responsible for field inspection of construction for the Reception Dining Facility including kitchen and dining areas, and Community Center including fitness center, locker rooms, and classrooms.
- **Fire Protection Sprinkler Systems** for the VA Hospitals at Forrest Hills and Lynwood Divisions, Augusta, GA;
- **Facility Upgrade Study** for the U.S. Army Hospital, Heidelberg, Germany;
- **Mechanical Design of the Radiology Department** for Northside Hospital, Alpharetta, Georgia;

- **Robins AFB, Warner Robins, GA**, Mechanical Design and field inspection of construction for the green field addition of the 100,000 SF Engineering Test Laboratory Facility with fast track construction schedule;
- **Indianhead Naval Air Station, Indianhead MD**, field inspection of construction for Renovation of the Stinger Missile Fuel Manufacturing Facility with nitroglycerine fume removal exhaust system to maintain the OSHA TLV fume exposure;
- **Chilled Water System Upgrade Study** for the VA Hospital Complex including thermal analysis of 22 buildings and thermal and hydraulic analysis of the Central Utility Plant and Campus Chilled Water Piping Loop, Tampa, Florida;
- **New 750-ton Chilled Water System** for the VA Hospital, Salisbury, NC;
- **New Sterilization Facility** for the Hinds Memorial Hospital, Jackson, MS;
- **Mechanical Design** for the new 10-Bed Birthing Wing, Wayne Memorial Hospital, Jesup, Georgia;
- **University of Georgia, Athens, Georgia**- Infrastructure Master Plan for the Northwest Precinct Campus of the including a 10,000-ton Central Chilled Water Plant and Campus Chilled Water Piping Loop,
- **General Electric Nuclear Fuel Rods Processing Facility, Wilmington, North Carolina**- Push/Pull Type Industrial Ventilation System for the Metal Heat Treating Tanks.
- **Seminole Electric Corporation, Palatka, Florida** - Project Manager and Mechanical Project Engineer for the Acid Mist Reduction Project requiring an Prototype Anhydrous Lime Injection System to be added to one of the Generating Units consisting of (2) 75-ft Silos with integral Material Handling Equipment, Air-Cooled Compressors and Air Dryers in a support building, Pneumatic Distribution Piping System with Pipe Rack Supports, and Custom Designed Injection Lances and Nozzles for injecting Anhydrous Lime into the Coal-Fired Boiler Flue Gas Ductwork upstream of the Electrostatic Precipitator to reduce the Acid Mist Effluent.
- **CBS Records and Tapes Manufacturing 300,000 ft2 Facility, Carrolton, Georgia** - Mechanical Design and Construction Administration for the HVAC systems including steam turbine driven centrifugal and steam absorption chiller and cooling tower system, high pressure steam boiler system with fuel redundancy, custom rooftop variable air flow air handling units, class 100,000 clean-room units, and high temperature rated smoke and heat exhaust system for the high bay warehouse.

- **Sherwin Williams, Lexington, Kentucky** - HVAC, Plumbing, and Fire Protection Design for a Paint Manufacturing Facility including explosion-proof HVAC systems and pressurized Instrument Control Rooms to prevent flammable fumes from entering this non-explosion-proof rated area including HEPA filtration and gas filtration systems.
- **Martin Marietta Aerospace, Orlando, Florida** -Mechanical Design of the TOW Missile Manufacturing Facility including a Central Utility Plant (CUP) and Elevated Interior Utility Distribution System (SPINE) above the Enclosed Walkways between the Buildings on Tropical Campus site.
- **Trane Air Conditioning Unit, 350,000 ft2 Manufacturing Facility, Anniston, Alabama** -Mechanical Design and Construction Administration for the HVAC systems including electric centrifugal chiller and cooling tower system, hot water boiler system, modular rooftop variable air flow air handling units, stratified air distribution system for the manufacturing areas, and a 4-pipe air conditioning system for the Office Building.
- **Lockheed Martin Aerospace Systems, Marietta, Georgia** - Mechanical Design of the Logistical Support Facilities associated with the F-22 Raptor Aircraft Manufacturing Facility,
- **TRW Composite Helicopter Blade Manufacturing Facility-Tallassee, Alabama** - Mechanical Design for the HVAC systems including electric centrifugal chiller and cooling tower systems, steam boiler system, and modular rooftop variable air flow air handling units.
- **Hudson Oil, Houston, Texas** -Mechanical Infrastructure Design and Master Planning for an On-Shore Community for 500 Oil Workers to support an Off-Shore Oil Drilling Operation near Baku, Azerbaijan including a Central Chilled Water Facility, Potable Water Treatment Facility, Wastewater Treatment Facility, Diesel Power Generating Facility, and Site Utility Distribution Piping.
- **Glaxo, Raleigh, NC**, Mechanical Engineer -Project HVAC Lead Engineer for the design of the HVAC systems for the renovation of several laboratories for this pharmaceutical facility including fume hoods, laboratory exhaust systems, air handling units with chilled water and hot water coils, HEPA filtration, dehumidification, space differential pressure control, and air locks to maintain the labs at a negative pressure relative to the adjacent spaces.
- **Burroughs Wellcome, Raleigh, NC**, Mechanical Engineer -Project Mechanical Lead Engineer for the design and construction administration of HVAC, plumbing, and fire protection systems for the expansion a pharmaceutical manufacturing facility including fume hood exhaust systems, air handling units with HEPA filtration, differential pressure control, and air locks to maintain quality control of the products.

- **Pulp & Paper Facilities for Georgia Pacific, Tennessee River, Domtar Ltd, Pan African Paper Mills** - HVAC and Fire Protection Design of MCC, Transformer, and Control Rooms including HEPA filtration and gas filtration systems to remove corrosive particles and fumes; H&V and Make-up Air systems for the Recovery Boiler, Digester, Bleach Plant, Paper Machine, Roll Stock Storage, Waste Treatment, and Warehouse areas; Trim Handling Dust Collector system, and Dryer Exhaust and Pocket Ventilation systems.
- **Grumman Aerospace Corporation, Long Island, New York** -HVAC Design of a Paint Booth including Make-Up Air Unit with HEPA filtration and Air Scrubber on the Exhaust System.
- **Johns Manville, Richmond, Virginia** -Insulation Manufacturing Facility-HVAC and Fire Protection Design of MCC, Transformer, and Control Rooms; H&V and Make-up Air systems for the Raw Material Storage, Machine Room, Finishing, and Warehouse areas.
- **J.M. Huber, Etowah, Tennessee** - HVAC and Fire Protection Design of MCC, Transformer, and Control Rooms; H&V and Make-up Air systems for the Raw Material Storage, Silica Processing, and Warehouse areas.
- **Crucible Steel, Syracuse, New York** - H&V and Make-up Air systems for the Raw Material Pellet Storage, Melt Furnace, Billet Grinding & Finishing, and Warehouse areas.
- **BASF, Winsor, Ontario** - HVAC, Plumbing, and Fire Protection Design for an Automotive Paint Additive Manufacturing Facility including explosion-proof HVAC systems and pressurized Instrument Control Rooms to prevent flammable fumes from entering this non-explosion-proof rated area including HEPA filtration and gas filtration systems.
- **Amoco Oil, Houston, Texas** -Mechanical Infrastructure Design and Master Planning for an On-Shore Community for 500 Oil Workers to support an Off-Shore Oil Drilling Operation near Sakhalin Island, USSR including a Central Chilled Water Facility, Potable Water Treatment Facility, and Diesel Power Generating Facility Wastewater Treatment Facility, Diesel Power Generating Facility, and Site Utility Distribution Piping.
- **Radford Army Ammunition Plant, Blacksburg, Virginia** -HVAC, Fire Protection, Process and Instrumentation Design of a Prototype Alcohol and Nitrocellulose Fines Centrifuge Facility including explosion-proof HVAC system and P&IDs.
- **Lockheed Martin Aerospace Systems, Marietta, Georgia** -L-10 Building Renovation Master Plan (Five-story cantilevered Hangar Building for the C5A Military Cargo Aircraft);
- **US Army Corps Of Engineers- Jeddah, Saudi Arabia and Jubal, Saudi Arabia** - Saudi Royal Navy Expansion Program - Project Lead Mechanical Engineer for two (2) 20,000-ton chilled water plants with sea-water cooling systems requiring titanium condensers for each of the ten (10) 2,000-ton sea-water cooled chillers.

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- **Grumman Aerospace Corporation, Macon, Georgia** - HVAC Design of a Paint Booth including Make-Up Air Unit with HEPA filtration and Air Scrubber on the Exhaust System.
- **TRW Investment Casting Turbine Blade manufacturing Facility-Douglas, Georgia** - Mechanical Design for the HVAC systems including electric centrifugal chiller and cooling tower systems, steam boiler system, and modular rooftop variable air flow air handling units.
- **Pratt & Whitney, Columbus, Georgia** - Mechanical Design for the HVAC systems including electric centrifugal chiller and cooling tower systems, steam boiler system, and modular rooftop variable air flow air handling units.
- **Naval Air Station, Mayport, Florida**, Mechanical Engineer - Project HVAC Lead Engineer for the design of the HVAC system for the renovation of micro-ball bearing finishing facility including fume hoods, laboratory exhaust systems, class 100,000 clean room type air handling units with chilled water and hot water coils, HEPA filtration, dehumidification, space differential pressure control to maintain the facility at a positive pressure relative to the adjacent spaces.
- **TRW-Sanford, North Carolina** - Mechanical Design for the HVAC systems including modular rooftop DX variable air flow air handling units with gas heat.
- **Vistacon-Johnson & Johnson, Jacksonville, Florida** - Mechanical Engineer- Project Mechanical Lead Engineer for the design and construction administration of HVAC, plumbing, and fire protection systems for a new manufacturing facility for contact lens production including dust and fume hood exhaust systems, class 100,000 clean room type air handling units with HEPA filtration, close temperature and humidity control, differential pressure control to maintain the manufacturing area at a positive pressure relative to the adjacent spaces to maintain a high level of product quality.
- **2003-Alembic, Fine, & Callner, Montgomery, AL** - This case involved a \$2-million damage claim against the HVAC Engineer, Dodie & Associates, for not providing an HVAC design for a heated attic for a 3-story brick office building causing the fire protection sprinkler piping main to freeze and burst when abnormally low ambient temperatures reached 25F and did not warm up above 32F for two days over the December 1992 Holiday week when the office was unoccupied. I reviewed the contract documents including the HVAC and Fire Protection drawings, specifications, and shop drawings. I issued my report of findings indicating that the General Contractor was responsible for ensuring proper coordination between the construction trades and that the Fire Protection Contractor was required to install the sprinkler system in accordance with NFPA 13 which requires that the water piping be protected from freezing. This freeze protection could be accomplished by heating the attic space or by insulating the piping in the unheated attic and wrapping electrical heat tape on the piping under the insulation. The Fire Protection Engineer failed to coordinate this requirement with the HVAC Engineer and the Electrical Engineer during the design phase. The Fire Protection Contractor failed to send an RFP to the Fire Protection Engineer for guidance and he did not coordinate his method of

freeze protection to the HVAC Contractor, Electrical Contractor, or the General Contractor. The claim against the HVAC Engineer was withdrawn.

- **2005-Crawford and Company, Atlanta, GA** - This case involved several tenant water damage claims of undetermined value for a 5-story Medical Office building over an unoccupied weekend in June 2005 where a pressurized water tank type toilet, located in the 5-th floor Medical offices of Atlanta Cancer Care, had its water tank burst which then caused water damage to the 4 floors below including undetermined damage claims for the loss of use of the other Medical offices affected. My investigation included obtaining a log of the measured water pressure for the city water main serving this building for the weekend in question. As well I reviewed the maintenance records of the building pressure reducing valves to determine if the Maintenance Contractor for Atlanta Cancer Care was responsible for an earlier, allegedly faulty repair to this particular toilet. The report of my findings indicated that the static water pressure on the 5-th floor was well below the toilet tank manufacturer's design pressure. Next it was necessary to have a Strength of Materials Expert examine the ruptured plastic tank to determine if there was any manufacturing defect or abuse indicated in order to indicate if the manufacturer of the tank or the installer was responsible. I was not made aware of the outcome of this next investigation.
- **2005-State Farm Insurance, Stone Mountain, GA** - This case involved a mold contamination claim against the Mechanical Contractor for a luxury residence owned by Lawrence Diamond. The mold was a result of an unknown source of a water leak while the house was only partially occupied by a young adult who did not check on this area of the house and did not investigate the source of mold and odors in the upstairs part of the house for a period of months. All water piping and the HVAC system was inspected for leaks and condensation. It was determined that the water leak was by ground water infiltration through the foundation wall to the below grade portion of the lower floor of the residence. The HVAC system air distribution system which serves multiple floors had spread the mold contamination throughout the house. It was recommended that the source of the ground water leak be determined by a civil engineer and corrected before a thorough mold decontamination process was undertaken for all of the interior surfaces and the replacement of all porous surfaces exposed to the mold contaminated air.
- **2005-CNA, Powder Springs, GA** - This case involved a chilled water piping system that experience multiple ruptures with water pressure damaged flooring and water damage for a 30,000 SF raised floor computer room addition to a mission critical confidential internet search engine facility. Our scope of work was to determine the cause and assist in determining the party responsible for the damage. The roles of the Engineer, Contractor (Mallory & Evans), and flexible pipe connection Manufacturer were examined. After a site investigation complete with interviews with the Mechanical Engineer and the Mechanical Contractor the contract documents were reviewed including mechanical drawings, specifications, RFIs, and shop drawings for the piping system components and pumps. It was determined that that an RFI to the Mechanical Engineer asked what water pressure to use when pressure testing the chilled water piping. The Mechanical Engineer required that the piping system be tested for 150% of

the maximum design operating pressure of the system without checking to see if the pressure ratings of the piping system components would be exceeded. The overall system was designed to withstand a pressure of 150 psig with the exception of the stainless steel braided flexible piping connections at each branch takeoff to the computer room HVAC units which were rated at 125 psig. The maximum design operating system pressure was 105 psig. When the Mechanical Contractor gradually raised the test pressure in the system to 145 psig the first flexible piping connector burst causing high pressure water to severely damage the raised flooring system and two other flexible connections were distorted. It was noted that the raised floor system mounting pedestals were only anchored with one concrete anchor bolt instead of two anchors as specified which allowed additional damage to the raised floor system. Due to the liquidated damages required from the General Contractor if the addition was not completed and operational as scheduled the Mechanical Engineer required the flexible piping connection Manufacturer's representative to provide replacement flexible connections for the Mechanical Contractor to install and pressure test the piping system again without any investigation of the damaged flexible connections or change in the testing pressure or procedure. Again one of the flexible connectors burst at 140 psig. The Mechanical Engineer simply did not thoroughly understand that he required the Mechanical Contractor to pressure test the chilled water system including the flexible connections at an arbitrary, but common specification testing requirement of 150% of the design operating pressure.

- **2007-Gray, Rush, St Armand, Lithia Springs, GA** - This case involved water damage from a fire protection sprinkler system located in the Choral Room of the brand new Lovinggood Middle School that discharged while the facility was unoccupied prior to being turned over to the Cobb County School System by the Contractor. The alleged cause of the water discharge was that the HVAC temperature sensor in the Choral Room had failed causing the Rooftop HVAC unit with gas heat to overheat the room causing the sprinkler head to discharge water when temperature rating of the sprinkler head was reached. Our scope of work was to determine if this particular HVAC unit was capable of heating the room to the temperature rating of the sprinkler head causing the water discharge and resulting water damage to the walls and floor. After a site investigation and review of all of the contract documents including drawings, specifications, test and balance report, shop drawings, correspondence, RFIs and change orders. While the HVAC unit was capable of producing a discharge air temperature and a room temperature of 165F which was equal to the temperature rating of the sprinkler head, the HVAC unit Manufacturer provided a high temperature limit safety device to shut-off the heat if the discharge air temperature reached a specified maximum temperature. Since the Mechanical Engineer did not indicate this maximum discharge temperature in the specifications or on the shop drawing submittals returned as approved to the Manufacturer and the Manufacturer did not request a clarification on this maximum temperature limit the Manufacturer simply set the maximum discharge air temperature setting at 165F. Our investigation and analysis of the actual operational status and temperature set point of this dedicated HVAC unit for the Choral Room as well as the HVAC units serving the adjacent spaces determined that this particular HVAC unit could not reach or exceed the temperature rating of the sprinkler head. This was confirmed by independent temperature monitoring trend logs for the night in question in January 2007 created by the Automated HVAC Control system

indicating a maximum discharge temperature of 144F. The Contractor had removed all of the sprinkler heads in the Choral Room after the one sprinkler head discharged. An inspection of the sprinkler heads removed indicated some damage to the head that had discharged as well as the heads that had not discharged. The damage brought into question whether or not these heads would discharge at a temperature below their rated temperature. A thorough review of the RFIs indicated that the Fire Protection Contractor had installed 135F rated heads which were acceptable in accordance with NFPA code requirements as specified by the Fire Protection Engineer, but the specifications called for 165F rated heads. The Fire Protection Engineer approved this change after the installation of 135F heads. The Fire Protection Engineer and the Mechanical Engineer did not coordinate their design documents such that the HVAC high limit thermostatic safety temperature set point and the temperature rating of the sprinkler head would not cause an unintended discharge. Both the Fire Protection Engineer and the Mechanical Engineer were from the same firm.

- **2008-Selective Insurance, Atlanta, GA** -This case involved a water damage claim against Art Plumbing for a water leak located in a medical research laboratory where they had installed small bore PPE piping for a deionized water system. PPE fittings were used that were manufactured by NIBCO. Several "tee" fittings were cracked and leaking when discovered on a Monday morning after apparently leaking all weekend while the lab was unoccupied. Art Plumbing had just replaced these same "tee" fittings the week before the leak occurred because their earlier installation of the deionized water system had some minor leaks from these previously installed cracked "tee" fittings. The damaged fittings along with the undamaged fitting received at the same time from the local NIBCO Supplier were analyzed by a Strength of Materials expert to determine if the undamaged "tee" fittings would fail under rated pressure conditions. It was suspected that the installer working for Art Plumbing had not followed the fitting Manufacturer's recommended installation procedure and inadvertently damaged the fittings on both occasions. I was not informed of the outcome of the "tee" fitting tests.
- **2008-Crawford and Company, Acworth, GA** - This case involved fire damage to a gymnasium operated by Gold's Gym including the 12 split system HVAC units suspended from the ceilings of this 2-story facility. Our scope was to determine if the fire and smoke damage to the units would warrant their replacement with new units or could these units be cleaned and restored to service. Prior to my investigation the Owner required the HVAC Contractor to replace all of the 15-year old units because of alleged smoke damage. A Cleaning Service Company had allegedly tried to clean these units and allegedly told the Owner that they could not be cleaned and the HVAC Contractor allegedly told the Owner that they could not be responsible for the safe operation of these units. My investigation indicated that the existing units that were still stored on site were not damaged by smoke with the possible exception of one unit that was located in the locker room where the fire originated. This unit was not stored on site and could not be examined. My report findings were that the units did not require replacement due to smoke damage. When I left the site I phoned the Adjuster and I advised him to notify the Owner to maintain the units in a secure location if they wanted a second opinion. When the Owner and the HVAC Contractor reviewed my report they complained that

I my conclusions were wrong and that they had eye-witnesses that would corroborate their allegations. In an abundance of caution the Adjuster asked me to participate in a conference call with all of the involved Parties. The Adjuster agreed for me to review the contractor's photos taken the day after the fire had occurred which the Contractor and Owner alleged would show the smoke and soot on these units prior to the cleaning attempt. The photos looked identical to my photos taken 10 days after the units were removed. Two months later I revisited the site for a meeting with the Adjuster, all of the involved Contractors, the Owner, and the Owner's attorney. Only 4 of the original 12 units remained. The other units were disposed of according to the Owner, who was also the landlord for the other stores in the shopping center. The Contractor's Superintendent who was present on site the first day after the fire insisted that the air filters were solid black with soot when he removed them, yet both sets of photos show fresh white cotton fiber filters. He then knelt down and put his hand inside the fan section of one of the remaining 4 units which were stored on the sidewalk in front of the gym, and showed us all his allegedly bad soot covered fingers. I agreed to thoroughly inspect the 4 remaining units for any soot damage that I might have missed. Everyone but the Owner left the site and after one hour of independent solo inspection and numerous flash photos taken of areas not visible by line-of-sight there was no evidence of any soot, except for the one unit that the Superintendent put his hand in and that black material looked as though it had been sprayed on and resembled a graphite spray lubricant used on door hinges. I notified the Owner that I had not discovered any soot damage inside or outside on the units. I offered to let him show me where he had found any soot damage. He attempted to reach inside the units with his hand and find soot as the Superintendent had found and he could not find any. After that site visit I stood by my original findings. To prove to the Owner beyond any reasonable doubt that the units were not smoke damaged as the HVAC Superintendent had indicated the day after the fire we engaged an Industrial Hygienist to take swab samples of the units intake plenum, cooling coil, fan inlet and outlet, and the discharge plenum, and have them tested in a laboratory for any particles of combustion. Less than 1% carbon particles were found. The Adjuster indicated that the claim would not be paid for all of the unit replacements.

- **2008-CNA, Doraville, GA** - This case involved the vandalizing of 35 Rooftop HVAC units and the theft of the unit's condenser coils and copper tubing from a large shopping center managed by Fletcher Bright. The shopping center was 80% unoccupied and being remodeled for several new tenants. The Contractor from Chattanooga, TN indicated that 19 units had been vandalized over the third weekend of the renovation project which at that point only consisted of a Demolition Subcontractor working Monday through Friday gutting the empty stores below the roof level. Two of the units were serving the only occupied space on that side of the shopping center, a Chinese Restaurant. Fletcher Bright had their HVAC Contractor scavenge two of the remaining units serving unoccupied spaces and install these where the two units had been vandalized. The next weekend all but the seven units serving the occupied spaces were vandalized and the unit's condenser coils were removed including the two units relocated to the Chinese Restaurant just the week before. I visited the site and confirmed that the 20+ year old units could not be repaired. I also noted that it seemed strange that the freshly paved asphalt around the rear drive of the building showed no signs of damage that would ordinarily exist if these 200 LB to 300 LB coils were tossed down to what would have been a fleet of

trucks to remove that many coils that measured 4'W x 4'L x 4'H. Also there were no dirty tire tracks on the fresh asphalt paving that would have been left there if they had driven over the dirt and grass area that was adjacent to the security chain secured to two concrete filled bollards on either side of the rear drive. CNA's Adjuster asked their Fraud Investigator to interview me and investigate this claim. I was not notified of their findings.

- **Pepperidge Farms Bakery, Bloomfield, Connecticut** - HVAC, Plumbing, and Fire Protection Design, Field Inspection, and Construction Administration for a 200,000 SF Greenfield Bakery Facility including 4 levels of Differential Pressure Control of Airflow from Finished Goods back through the process to the Raw Materials Storage area;
- **University of Georgia, Wildlife Research Facility, BSL 2 Laboratory Suite, Athens, Georgia** - Project Mechanical Lead Engineer for the design and construction administration of HVAC, plumbing, and fire protection systems for the addition of a BSL 2 Laboratory Suite consisting of eight (8) laboratories including fume hood exhaust systems, 100% outside air clean room type air handling units with HEPA filtration, variable air volume exhaust, differential pressure control, and air locks to maintain laboratory pressure relationships.
- **Hartsfield-Jackson International Airport, Atlanta, Georgia** - HVAC Renovation of the Security Screening Area due to the increased cooling load of up to 2000 passengers waiting in the Security Screening Line.
- **Robins AFB, Warner Robins, Georgia** - Mechanical Design and field inspection of construction for the green field addition of the 100,000 SF Engineering Test Laboratory Facility with fast track construction schedule;
- **Compaq Computer Center, Alpharetta, Georgia** - Infrastructure Upgrade (Redundant Chiller Plant),
- **Delta Airlines, Atlanta, Georgia** - Ticket Center UPS Upgrade,
- **Mead Packaging, New York, New York** - HVAC Renovation of the Pan Am Building Computer Facility (20,000 SF of computer raised floor).
- **Southern Company, Plant Scherer, Juliette, GA** - Spot cooling units for work platforms around the coal fired boiler flue gas ductwork using VAV water cooled DX units including individual control for each work station operator.

CAREER HISTORY

FORCON International – Consultant - Investigation of claims or litigation associated with HVAC, plumbing and fire protection systems and equipment.

URS Corporation, Atlanta, Georgia - Senior Mechanical Engineer

Responsibilities: Overall responsibility for QA inspections of DOD projects at Ft. Benning, Georgia including HVAC, Plumbing, and Fire Protection Systems for BRAC facilities including verifying LEED design criteria.

MATT-HNTB/AECOM, Atlanta, Georgia - Senior Mechanical Project Engineer

Responsibilities: Overall responsibility for Projects and Mechanical Design including HVAC, Plumbing, and Fire Protection Systems for MARTA Facilities. Project Engineering for Transportation Maintenance Facilities including incorporating LEED design criteria.

O'Brien & Gere Engineers, Alpharetta, Georgia - Mechanical Engineering Manager/Project Manager/ Senior Mechanical Engineer

Responsibilities: Overall responsibility for Projects and Mechanical Design including HVAC, Plumbing, and Fire Protection Systems for Commercial, Industrial, Institutional, and Government Facilities. Project Management for Commercial Projects, Laboratories, and College and University Projects such as an Energy Audit Master Plan for Coca Cola Enterprise at 67 North American Bottling Facilities, Seminole Electric Corporation Acid Mist Reduction Project, Palatka, Florida, University of Georgia Projects for Wildlife Health BSL 2 Laboratory, Driftmier Engineering Laboratory Lab Additions, Instructional Plaza HVAC and Sound Attenuation Upgrade of the Campus Closed Circuit TV Broadcasting Facility, Northwest Precinct Infrastructure Master Plan for 2.5-million SF of Future Academic and Residential Facilities, Double Bridges Livestock Farm, Rhodes Animal Research Facility, and the Greenhouse and Headhouse Teaching and Research Complex.

EMG, Baltimore, Maryland - Project Manager

Responsibilities: Overall responsibility for Facility Condition Assessments for Commercial, Institutional, and Government Facilities such as the 600+ Extended Stay of America Properties, Retail Facilities, and Hotel Resorts.

PRAD Group Inc., Atlanta, Georgia - Director of Engineering/Project Manager

Responsibilities: Overall responsibility for Project Management and Mechanical Design including HVAC, Plumbing, and Fire Protection Systems for Commercial, Institutional, and Government Facilities such as the Renovation of the Security Area for Hartsfield-Jackson International Airport, Atlanta, Georgia, Hospital Upgrades, Renovations, and the Infrastructure Upgrade Master Plan for the Veteran's Administration Hospital, Tampa, Florida.

Facility Design Group, Smyrna, Georgia - Mechanical Department Manager

Responsibilities: HVAC, Plumbing, Fire Protection, and Refrigeration Systems for Commercial, Institutional, and Government Facilities such as new privately funded Dormitories for the University

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of West Georgia, Carrollton, Georgia, HVAC Design of the Information Technology School at Georgia Southern University, Statesboro, Georgia, and the 200,000 SF Greenfield Bakery Facility for Pepperidge Farms Bakery, Bloomfield, Connecticut.

Carlson Associates, Atlanta, Georgia - Project Manager

Responsibilities: Overall project responsibility and coordination for Mission Critical Facilities such as Computer Facilities, Banking Facilities, and Government Computer Facilities and the design of HVAC systems for Commercial, Institutional, and Government Facilities such as Computer Hotel Facilities for Compaq Computer Facility, Alpharetta, Georgia and Support Facilities associated with Lockheed-Martin Aerospace Systems Aircraft Manufacturing Facility, Marietta, Georgia.

Heery International, Atlanta, Georgia - Senior Mechanical Engineer/Project Manager

Responsibilities: Overall project responsibility and coordination for Facilities such as Hospital Facilities, School Facilities, and Government Facilities and the design of HVAC systems for Commercial, Institutional, Military, and Government Facilities such as the Renovation of three Dormitory Buildings for Pope AFB, Fayetteville, North Carolina and the 2-million SF Georgia World Congress Center Expansion, Atlanta, Georgia..

Armour, Cape, and Pond, Atlanta, Georgia - Chief Engineer/Mechanical Department Manager/Project Manager

Responsibilities: Overall project responsibility and coordination for multidiscipline Design Teams for Facilities such as Commercial, Military, and Government Facilities and the design of HVAC, Plumbing, and Fire Protection systems for Facilities such as the Vehicle Maintenance Facility for the U.S. Army, Fort Sill, Oklahoma, Maintenance Master Planning Computer Program for the CDC, Atlanta, Georgia and HVAC Upgrade of Building 645-Avionics Repair Facility, Robbins AFB, Warner Robbins, Georgia.

Lockwood Greene Engineers, Inc., Atlanta, Georgia - Senior Mechanical Engineer

Responsibilities: Overall project responsibility and coordination for Facilities such as Industrial, Military and Government Facilities and the design of HVAC, Plumbing, and Fire Protection systems for Industrial, Commercial, Military, and Government Facilities.

Reynolds, Smith, and Hills, Atlanta, Georgia - Mechanical Department Manager

Responsibilities: Design of HVAC, Plumbing, and Fire Protection systems for Industrial, Commercial, Military, and Government Facilities.

Lockwood Greene Engineers, Inc., Atlanta, Georgia - Mechanical Department Assistant Manager

Responsibilities: Design of HVAC, Plumbing, and Fire Protection systems for Industrial, Commercial, Military, and Government Facilities.

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Simons Eastern Company, Decatur Georgia - Mechanical Engineer

Responsibilities: Design of HVAC systems for Industrial, Commercial, Military, and Government Facilities.

Automatic Sprinkler Company, Atlanta, Georgia - Fire Protection Designer

Responsibilities: Design of Fire Protection systems for Industrial, Commercial, and Government Facilities.