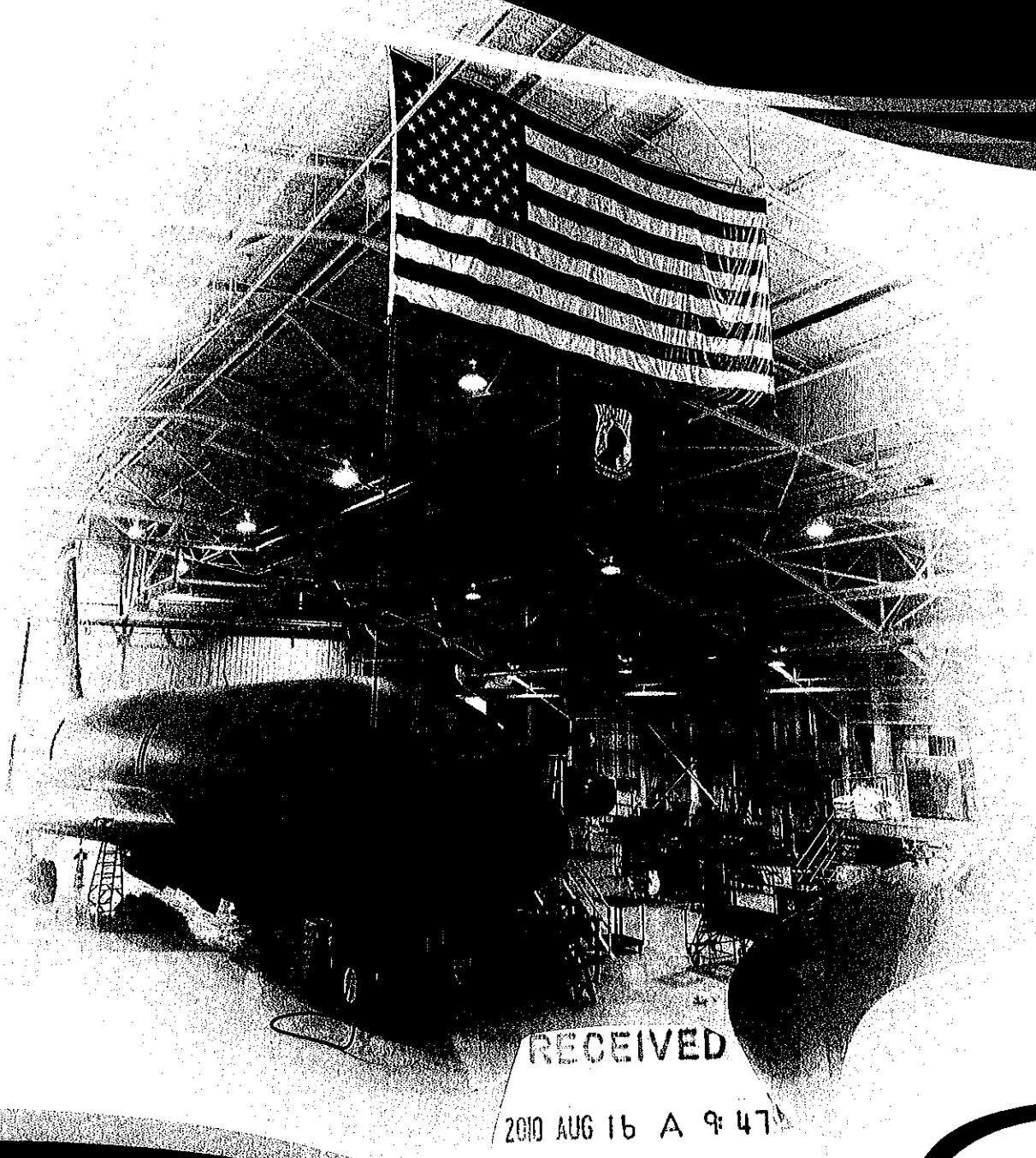


Expression of Interest

Fixed Wing Army Aviation Training Site Facility Expansion
West Virginia Army National Guard

August 17, 2010



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PURCHASING DIVISION
STATE OF WV



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801 Corporate Drive • Lexington, KY 40501
859-223-3999 • www.grwinc.com

RFQ# DEFK11009
State of West Virginia
Department of Administration
Purchasing Division

August 13, 2010

State of West Virginia
Department of Administration
Purchasing Division
2019 Washington Street, East
Charleston, WV 25305-0130

RE: RFQ# DEFK11009, Expression of Interest (EOI) for Contract to Provide
Architecture and Engineering Services for the Fixed Wing Army Aviation Training Site Expansion
West Virginia Army National Guard, Bridgeport, WV

Dear Members of the Selection Committee:

GRW thanks you for the opportunity to submit our qualifications for this project. Our project team brings several unique advantages to you for the design of the Fixed Wing Army Aviation Training Site Expansion:

- **Experience:** GRW has completed many similar projects for the National Guard Bureau as well as for other clients. We also have extensive experience with the West Virginia Air National Guard and Army National Guard. These projects include:
 - District of Columbia ANG 113th Wing Maintenance Hangar Modifications, Andrews AFB, MD
 - Georgia ANG 116th Wing B-1B Bomber Beddown and Composite Aircraft Maintenance Hangar Complex, Robins AFB, GA
 - Illinois ANG 126th Air Refueling Wing Flightline Facilities (Fuel Cell Hangar, Maintenance Hangar, Aerospace Ground Equipment Shops and Maintenance Shops), Scott AFB, IL
 - Kentucky ANG 123rd Airlift Wing Fuels System Maintenance & Corrosion Control Hangar, Louisville, KY
 - Air Force Special Operations Command C-130 Hangar Complex, Cannon AFB, NM
 - John C. Tune Municipal Airport T Hangars, Nashville, TN
 - Blue Grass Airport General Aviation Hangar Area Development, Lexington, KY
 - West Virginia ARNG Live Fire Exercise Shoot House, Camp Dawson, WV
 - West Virginia ANG Pavement Design, Yeager Airport, Charleston, WV
 - West Virginia ANG 130th Airlift Wing Squadron Operations Facility, Charleston, WV
 - West Virginia ANG 130th Airlift Wing Communications Facility, Charleston, WV
 - Indiana ANG 122nd Fighter Wing Security Forces Operations and Training Facility, Ft. Wayne, IN
 - Kentucky ANG 123rd Airlift Wing Contingency Response Group Facility, Louisville, KY
 - Texas ANG 136th Airlift Wing Security Forces Squadron Facility, NAS JRB Fort Worth, TX
 - Ohio ARNG Joint Armed Forces Reserve Center and Field Maintenance Shop Complex, Springfield, OH
 - Kentucky ARNG Joint Armed Forces Reserve Center and Field Maintenance Shop Complex, Bluegrass Army Depot, Richmond, KY
 - Kentucky ARNG Joint Armed Forces Reserve Center and Field Maintenance Shop, Paducah, KY
 - Indiana ARNG 76th Brigade Combat Team Readiness Center, Lawrence, IN



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State of West Virginia
Department of Administration, Purchasing Division
August 13, 2010
Page 2

- **Experienced Project Team:** GRW has been providing architectural and engineering design services for the National Guard for more than 30 years, and the individual team members selected for this assignment have been working together on National Guard projects for the past 5 years under a nationwide NGB A/E services IDIQ contract. As Vice President in charge of GRW's Architecture Division, and with NGB design experience in West Virginia, Mr. Shane Lyle, AIA, will be the Principal-In-Charge of this project.
- **Capacity:** GRW has more than 245 employees, including a building design studio of 16 architects and more than 40 structural, civil, mechanical and electrical engineers and technicians. The anticipated workload for this assignment is well within the available capacity of the firm.
- **LEED Sustainable Design Experience:** GRW has LEED Accredited Professionals in architecture and all engineering disciplines including electrical, mechanical, structural, sanitary, and civil engineering. We have been active members of the US Green Building Council for many years and have assisted our NGB clients attain certification and LEED Silver ratings for their facilities.
- **Knowledge of Local Conditions:** GRW has designed several projects in West Virginia and is familiar with the unique geology and topography of the project area. To provide additional knowledge of this area, we have included one subconsultant on our project team - Terradon – for geotechnical engineering, topographical surveying and landscape architecture. GRW and Terradon have worked together on previous West Virginia assignments, and Terradon is on GRW's team for a 5-year A/E services IDIQ contract for the WV ARNG and ANG.

GRW's corporate culture is one of close collaboration with the Owner to ensure a timely, cost-effective and functional project. We are exceptionally familiar with ARNG facility requirements and design guidelines. We maintain a current library of all applicable NGB and UFC publications associated with facility design and construction. Regardless of a project's size, complexity or schedule, we leverage our unique insight and perspective to move projects forward in a timely manner, while facilitating clear, frequent and open lines of communication.

We look forward to the next step in your A/E selection process. Please contact me if you have any questions regarding this EOI.

Sincerely,

A handwritten signature in black ink, appearing to read 'Shane Lyle', written in a cursive style.

Shane Lyle, AIA, Vice President
Email: slyle@grwinc.com



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**Expression of Interest
Architecture and Engineering Services
Fixed Wing Army Aviation Training Site Facility Expansion
West Virginia Army National Guard
RFQ DEFK11009**

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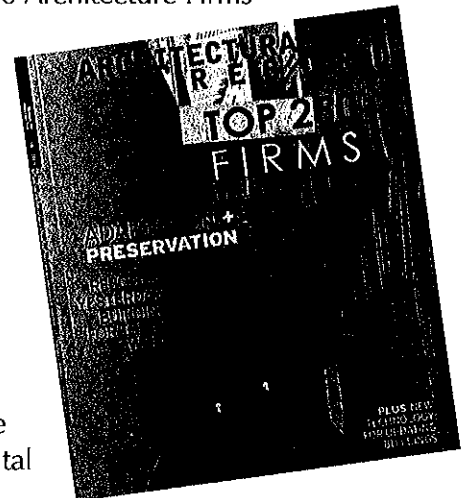
1.0 Introduction to GRW Team

Founded over 40 years ago, GRW is a full-service architectural, engineering, and planning firm with a building design studio of 16 architectural professionals and more than 40 electrical, mechanical, civil and structural engineers and technicians. By bringing together our multidisciplinary design team with all building stakeholders early in the planning stages, GRW is able to drive aggressive project schedules while keeping projects on budget.

Our vast project experience includes facility renovations and expansions, as well as new facility construction for federal, local and state governments, and commercial markets. Using the principles of sustainable design, our architects and engineers improve the functionality, operating efficiency, aesthetics and long-term value of our clients' building projects. GRW strives to deliver "whole building" designs that not only maximize the potential of the site, but also integrate the architectural and engineered features of the building in relation to its environment. In addition, we have 14 LEED Accredited Professionals in key disciplines (architecture, electrical, mechanical, structural, sanitary and civil), and we have designed or are in the process of designing more than 1,800,000 SF of LEED registered projects

The quality of our work is further demonstrated in the numerous awards our projects have won, both on national and state levels. Our projects have received awards from the American Institute of Architects, the American Council of Engineering Companies, the U.S. Air Force, the U.S. Army Corps of Engineers, and the U.S. Environmental Protection Agency. Also included in the benchmarks of our firm's history are several prestigious, national rankings.

- As published in the *Architectural Record*, GRW is among the Top 250 Architecture Firms in the U.S.
- According to *Building Design and Construction's* Giants 300 report, GRW is 44th among the magazine's listing of the Top Engineer-Architect Firms in design and construction.
- GRW is ranked by *Public Works* as a Top AEC Firm (architecture, engineering, and construction) serving the government market.
- GRW is also listed in the Top 100 of Giants for Mechanical/Electrical Engineering Consultants in the *Consulting-Specifying Engineer*.
- Since 1972, GRW has been continually ranked in *Engineering News Record's* Top 500 Design Firms in the U.S. We are also ranked in the journal as a Top 100 Green Design Firm and a Top 200 Environmental Firm.



As a national design firm of more than 250 professionals with offices in Kentucky, Indiana, Ohio, Tennessee and Texas, GRW offers a wide range of professional services including:

- Architecture
- Mechanical Engineering
- Electrical Engineering
- Structural Engineering
- Water & Wastewater System Engineering
- Site/Civil Engineering

- Transportation Engineering
- Master Planning
- Aerial Mapping and Surveying
- Geographic Information Services
- Construction Administration and Resident Project Representation (Inspection)
- Operations & Management Support
- Cost Estimating
- Alternative Project Delivery Methods (Design/Build, CM)
- Sustainable Design
- Anti-Terrorist Force Protection and Physical Security
- Three Dimensional Modeling
- AutoCAD, Microstation, and Revit® (BIM) Deliverables

Building Information Modeling (BIM)

GRW has hardware and software for virtually any A/E project, and we are experienced in the use of this equipment for a very wide variety of project applications. Our computer aided drafting and design software includes the most current versions (via subscription service) of MicroStation (40+ licenses) and AutoCAD (70+ licenses) products.

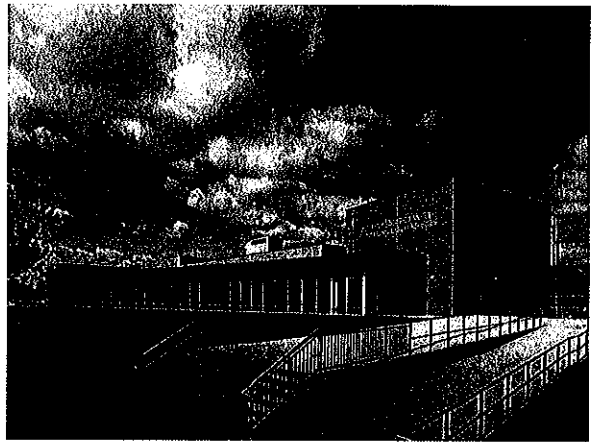
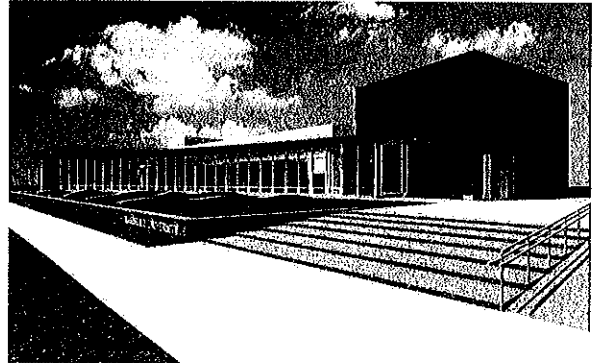
For several years, GRW has been transitioning away from two dimensional drafting to three dimensional modeling of structures, and embedding more intelligence into our projects' digital files through the use of products like AutoCAD Revit Architectural, MEP, Structural and Suites, and Civil 3D, as well as the Bentley TriForma Suite. We firmly believe that building information modeling (BIM) software is the future of computer-aided design, allowing for intelligent, 3D digital building models to be developed during the design process. Any design change is automatically updated throughout the digital model instantly, with no user interaction to manually update any view. Thus, designs and documentation stay coordinated, consistent, and complete.

One particular advantage is the ability to identify conflicts within the construction drawings. The software identifies parts of the building in conflict or clashing through a detailed computer analysis of each part in relation to the total building, and then notifies the design team of these conflicts for appropriate correction. The software also provides a value-added benefit to our clients, in that the resulting digital building model can be used for life-cycle costing and facility management. Quantities and shared properties of materials can easily be extracted. In addition, the BIM model automatically generates a material take-off that can be directly linked to industry-standard cost estimating software. Thus, the design team can quickly investigate the implication that a proposed design change might have to the overall cost of the project. The automatically generated take-off will be selectively double-checked by hand, to make sure that nothing is being missed. This check and balance procedure ensures the most accurate cost estimating that is available.

We are excited to be able to offer this cutting-edge CAD technology to our clients, and we are firmly convinced that the results, both in terms of better design visualization and better coordination, offer definite and quantifiable advantages over traditional CAD software.

GRW has used BIM software on a variety of projects for federal, state and local governments, as well as commercial clients. A few of these projects include:

- **Kentucky Air National Guard Offices and Warehouse for 123rd Airlift Wing Contingency Response Group, Louisville, KY** – This 54,400 SF facility includes a 2-story, 26,900 SF office/administration building and a 24,500 SF high-bay warehouse
- **Marshall University Engineering Lab, Huntington, WV** - This 16,000 SF facility houses materials, soils, hydraulics, structural, and environmental laboratory space, as well as classroom space and faculty offices.
- **Twin Lakes Emergency Services Building, Albany, KY** - This 12,150 SF building will house the fire department (four truck bays), EMS (six truck bays) and 911 service. Additional building facilities include equipment and storage areas, sleeping quarters, kitchen, conference and training room, offices and 911 dispatch workstations.
- **Ohio Army National Guard Joint Armed Forces Reserve Center and Field Maintenance Shop, Springfield, OH** - GRW designed this new 108,126 SF Joint Armed Forces Reserve Center (AFRC) and Field Maintenance Shop (FMS) for the Ohio Army National Guard (ARNG) and the US Army Reserves. The buildings include a diverse array of spaces, such as administrative areas, classrooms, library and training center, distance learning area, weapons simulator, assembly hall, storage areas and vehicle work bays.
- **West Virginia Air National Guard Communications Facility, Charleston, WV** - This 13,100 SF facility will provide a centrally located common user communications system for both intra-base and off-base communications. Initially, consideration was given to a 10,000 SF Joint Operations Center in the basement of this facility for state and national emergency situations. With Autodesk® Revit® software, the drawings were easily changed to meet the new scope of work.



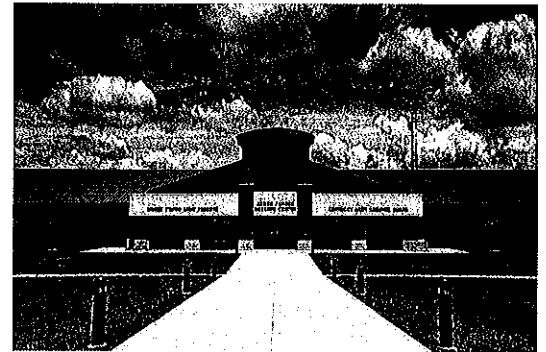
LEED Design

GRW is a founding member and major sponsor of the Kentucky Chapter of the U.S. Green Building Council (USGBC), as well as a member at the national level. Our commitment to preserving sites and energy, incorporating renewable resources into our projects, and reducing waste has led to a better employment of LEED® (Leadership in Energy and Environmental Design) in the planning, design and construction of new and renovated facilities.

GRW has LEED® Accredited Professionals in key design disciplines (architecture, electrical, mechanical, civil, and sanitary engineering), and has other engineers and architects who have completed the LEED® training program in preparation of receiving the LEED® AP certification.

GRW has designed or is in the process of designing more than 1,800,000 SF of LEED projects:

- **LEED® Silver Design Criteria** - West Virginia ARNG Joint Armed Forces Reserve Center and Area Maintenance Support Activity Facility, Ripley, WV (charrette only)
- **LEED® Silver Design Criteria** - Ohio ARNG Armed Forces Reserve Center and Field Maintenance Shop, Springfield, OH
- **LEED® Silver Design Criteria** - Kentucky ARNG Armed Forces Reserve Center and Field Maintenance Shop, Richmond, KY
- **LEED® Silver Design Criteria** - Kentucky ARNG Armed Forces Reserve Center and Field Maintenance Shop, Paducah, KY
- **LEED® Silver Certified Criteria** - U.S. Penitentiary and Satellite Camp, Yazoo City, MS
- **LEED® Silver Design Criteria** - Colorado ANG Weapons Release Facility, Buckley AFB, CO
- **LEED® Silver Design Criteria** - Kentucky ANG Contingency Response Group (CRG) Facility, Louisville, KY
- **LEED® Silver Design Criteria** - Texas ANG Security Forces/Composite Support Facility, Carswell AFB, Fort Worth, TX
- **LEED® Silver Design Criteria** - Texas ANG Munitions Maintenance Shop, Ellington Field, Houston, TX
- **LEED® Silver Design Criteria** - Texas ANG Electronic Countermeasures Facility, Carswell AFB, Fort Worth, TX
- **LEED® Silver Design Criteria** - Air Force Special Operations Command C-130 Hangar Complex, Cannon AFB, NM
- **LEED® Certified Design Criteria** - West Virginia ANG Communications and Audio/Visual Facility, Charleston, WV
- **LEED® Certified Design Criteria** - Dallas Executive Airport Improvements, Dallas, TX
- **LEED® Certified Design Criteria** - Indiana ARNG Army National Guard Readiness Center, Lawrence, IN
- **SPiRiT Gold Rating Design Criteria** - Michigan ARNG/ANG Joint Forces Headquarters, Lansing, MI (design charrette only)
- **LEED® Certified Design Criteria** - Northpoint Correctional Facility, Burgin, KY



Subconsultant – TERRADON Corporation

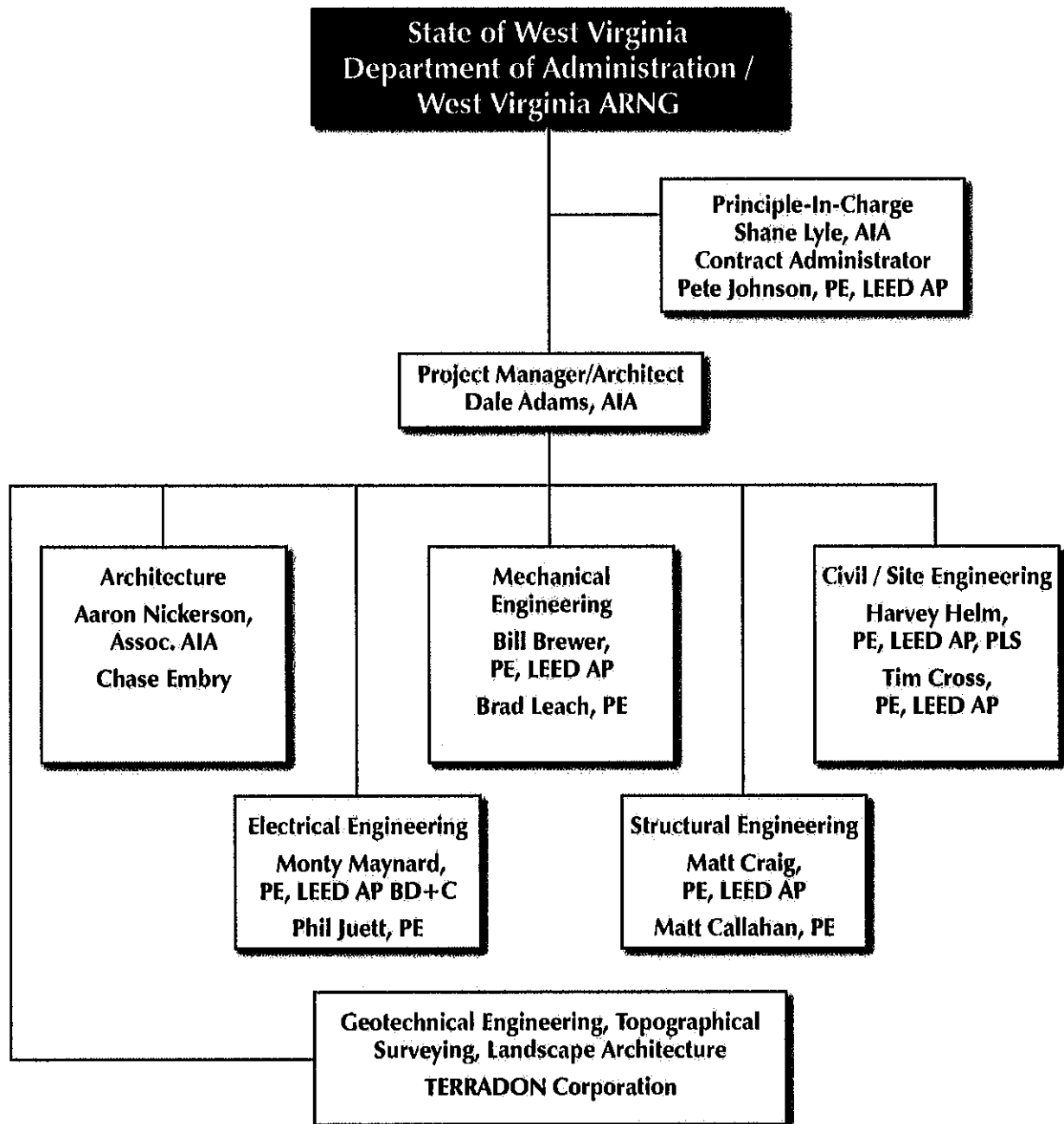
GRW uses local specialty firms to augment in-house expertise and to provide knowledge of local conditions. For this project, GRW will retain the services of TERRADON Corporation of Nitro, WV, for geotechnical engineering, topographical surveying and landscape architectural design services, as needed.

GRW and TERRADON have worked together on previous West Virginia National Guard project assignments and the two firms have an excellent professional working relationship.

TERRADON Corporation was founded in 1989 and its staff includes engineers, landscape architects, surveyors, designers and other specialists. Resumes of key TERRADON professionals are included in the next section of this Expression of Interest.

2.0 Project Team Organization and Resumes

GRW has assembled a project team of professionals with specific experience in the design of hangars and aviation support facilities for the National Guard. Each team member has unique architectural or engineering experience that is critical to the successful design of this project. As the lead firm, GRW will be the primary contact with the Owner. Our services will include project management; architecture, and mechanical, electrical, civil, and structural engineering.





Shane Lyle, AIA GRW Principal-in-Charge

Years of Experience: 27

Years with GRW: 21

Education

Bachelor of Architecture (with honors), 1983, University of Kentucky

Registration

- Registered Architect: WV, KY, TN, AL, IN, TX
- National Council of Architectural Boards Certification

Professional Affiliations and Training

- Past President - East Kentucky Chapter (Lexington), American Institute of Architects
- Member / Past Officer - UK College of Architecture Alumni Association

Qualifications and Similar Project Experience

Mr. Lyle has had primary responsibility for a wide range of architectural projects for clients including federal and state government, universities, and private developers. He is in charge of the firm's architectural practice, and he is also a Project Manager or Architect-in-Charge of projects for Army and Air National Guard clients.

Air Force Special Operations Command C-130 Complex (Corrosion Control Hangar and Fuel Cell Hangar), Cannon AFB, NM - Principal/Project Manager for architecture and engineering services for AFCEE design / build program to construct two of the first facilities supporting C-130 aircraft to be built at a new AFSOC base at Cannon AFB (NM), including a Corrosion Control Hangar (\$22 million, 57,700 SF) and a Fuel Cell Hangar (\$23 million, 31,100 SF), utility service, pavements and other site development features. Involved 3-day charrette to develop conceptual site and floor plans, narratives of functional areas, requirements for facility system design (architecture, civil/site, HVAC, electrical, security, communications, Antiterrorism / Force Protection, utilities, etc), recommended design criteria, functional area adjacency requirements, a parametric cost estimate and a detailed room requirements sheet for each space, Conceptual Design with Performance Specification and Design Analysis to support a request for proposal for design / build delivery.

West Virginia ARNG Joint Armed Forces Reserve Center and Area Maintenance Support Activity, Ripley, WV – Architect for design consultation during a Program Planning Document Charrette (PPDC) for replacement of two local armories and a USAR center with aging facilities and site limitations, with a new, \$17 million Joint Armed Forces Reserve Center and support facilities on a 94-acre site. Resulting plans include an Armed Forces Reserve Center (60,927 SF), unheated storage (6,000 SF), area maintenance support (4,500 SF) and helipad.

West Virginia ANG 130th Airlift Wing Communications Facility, Charleston, WV - Project Manager for design (Type A and B, 65%) of a new \$3.6 million, 13,100 SF Communications Facility at Yeager Airport in Charleston for West Virginia Air National Guard, designed for LEED Silver rating, to provide a centrally located common user communications system for both intra-base and off-base communications, with ground control of all ground point-to-point contact and air to ground point-to-point contact (such as radio, telephone, DISNET, etc.). Design paused at 65% to enable base's master plan and re-prioritize new capital improvements.

Marshall University Engineering Laboratory, Huntington, WV - Principal/Project Manager for architectural and engineering design of a new, 16,000 SF Engineering Laboratory Building on the main campus providing laboratories for materials, soils, hydraulics, structural, and environmental studies, classrooms and faculty offices, representing the initial phase in a \$50+ million multi-story complex (design led by GRW), supporting undergraduate and post-graduate programs in engineering, mathematics, environmental sciences, transportation, and applied digital/graphic arts technology.

Ohio ARNG Joint Armed Forces Reserve Center and Field Maintenance Shop Complex, Springfield, OH – Architect for design charrette of new LEED Silver, 85,865 SF complex serving both Ohio Army National Guard and U.S. Army Reserves. Provided Joint Armed Forces Reserve Center (AFRC) totaling 60,902 SF, and Field Maintenance Shop (FMS) totaling 24,963 SF, with a construction bid of \$14 million (\$9 million under the MCC of \$23 million) due in large part to innovative design and alternative construction materials. Functional spaces include administrative, educational (classrooms, weapons simulator, distance learning, training-specific libraries, COMSEC), assembly hall and kitchen, general storage, flammable materials storage and controlled waste facilities, 10 drive-through work bays (6 for ARNG, 4 for USAR), parking and access roads, wash platform, Antiterrorism / Force Protection Measures, security, and geothermal system for heating and cooling.

Murray State University Winslow Cafeteria Renovation, Murray, KY – Principal/Project Manager for demolition and design of \$1.2 million renovation of college's main dining room and food serving area. The 28,287 SF building includes dining rooms with decorative columns of pre-cast concrete; lounge areas with wall-mounted televisions; and wireless internet access. The bid documents were delivered to the Owner 45 calendar days after the initial kick-off meeting. Completed on schedule, the project also bid at 0.5% below the A/E estimate. The project was a complete success, and featured in the magazine, "*On-Campus Hospitality*."

Cumberland Valley Technical College Building One Renovation, Harlan, KY - Principal/Project Manager for renovation design of 31,000 SF building including updated exterior appearance, and modernized teaching spaces. Work included roof replacement, window replacement, complete interior finish replacement, interior excavation for a new 200-seat auditorium, and total replacement of building mechanical and electrical systems. The project was completed 1 month ahead of schedule, and the low bid was 3% below the Architect's estimate.

Cumberland County Justice Center, Burkesville, KY - Principal/Project Manager for design of new \$4.1 million, 24,270 SF courts facility which includes two courtrooms, judge's chambers and secretarial areas, circuit court clerk's offices, conference and reference spaces, substantial public lobby spaces, and related support spaces. The building is segregated as required for judges' circulation, public circulation, and secure areas.

Aliceville Federal Correctional Institution and Satellite Camp, Aliceville, AL - Principal/Project Manager for design team leadership of design / build delivery of a \$184 million women's medium-security Federal Correctional Institution and minimum-security Federal Prison Camp totaling 58,000 SM, housing approximately 1,800 inmates in three 4-story housing units. Designed FCI and FPC buildings for LEED certification and under Federal Leadership in High Performance Building Standards. Highlights in sustainable design include: recycled and treated laundry waste water; stormwater detention ponds design to allow on-site infiltration to reduce runoff and pollution of receiving streams; water efficient landscaping and 30% reduction of water use resulting from low-flow plumbing fixtures; on-site renewable energy and measurable optimized energy performance; and attention to indoor environmental quality.

Pete Johnson, PE, LEED AP **GRW Contract Administrator**



Years of Experience: 43 **Years with GRW:** 13

Education

PhD Studies, Environmental Engineering, 1971, Oklahoma State University
M.S., Environmental Engineering, 1967, Oklahoma State University
B.S., Civil Engineering (Sanitary Specialty), 1966, University of Missouri-Rolla

Registration

Professional Engineer: WV, KY, OH, IL, IN, MO
LEED Accredited Professional
The Institute of Engineers, Australia
Value Engineer
AHERA Asbestos Inspector, Mgmt. Planner: MO, IL

Professional Affiliations

Water Environment Federation
American Water Works Association
American Society of Civil Engineers
Society of American Military Engineers
Air Force Association
Association of U.S. Army
National Society of Professional Engineers
Design Build Institute of America
Veterans of Foreign Wars of the United States

Qualifications and Similar Project Experience

Mr. Johnson is the GRW's Director of Military Programs. In this role, he is responsible for the administration, coordination and personnel assignments of multi-discipline teams of GRW staff and consultants on military projects undertaken by the firm. He has provided contract administration and QA/QC oversight services on more than 50 ARNG and ANG task orders awarded to GRW under its \$62.5 million, 5-year National Guard Bureau IDIQ A/E services contract. Mr. Johnson is a retired US Army Reserves Engineer Officer (O-6), a position in which he commanded reserve units in combat as well as serving as Deputy Chief of Staff for Facilities and ARCOM Deputy Commander, where he was responsible for new Armed Forces Reserve Centers and related facilities in a two-state area.

West Virginia ANG 130th Airlift Wing Squadron Operations Facility, Charleston, WV – Principal-in-Charge for design and construction services (Type A, B & C) for modifications and energy-efficient improvements to 25,765 SF facility with history of additions and relocating activities resulting in a building that inadequately serves its users (Administration and Operations, Base Operations, Command Post, and Life Support and Fitness Center). Work included Charrette to develop alternative floor plans. Final design allows for efficient use of space; HVAC, electrical and fire protection systems upgrade; and roof repairs. Designed to achieve USGBC LEED Certified rating and meet EAct 2005 requirements.

West Virginia ARNG Live Fire Exercise Shoot House, Camp Dawson, WV - Principal-in-Charge responsible for design team management in preparation of Project Planning Document Charrette, bid package, plans, specifications, cost estimates and bid documents for phased construction of the complex. Also assisted with construction administration services to ensure that all facilities complied with bid documents, applicable codes and LFSH Design Guide standards. Project included innovative re-use design of a recently-acquired former industrial complex adjacent to Camp Dawson to provide a \$2 million Live Fire Exercise Shoot House, including shoot house to be housed in a metal warehouse, operations / storage, after action review (AAR) facility, ammunition breakdown facility, warehouse restroom renovation, access road and parking area, and utility services. Completed conceptual design for LFSH facility with final design and construction of LFSH completed by selected vendor (design / build); balance of facilities delivered with traditional design / bid / build approach.

Ohio ARNG Joint Armed Forces Reserve Center and Field Maintenance Shop Complex, Springfield, OH - Principal-in-Charge responsible for overseeing Project Planning Document Charrette and full-discipline A/E design and construction administration services for new LEED Silver 85,865 SF complex serving both Ohio Army National Guard and U.S. Army Reserves. Provided Joint Armed Forces Reserve Center (AFRC) totaling 60,902 SF, and Field Maintenance Shop (FMS) totaling 24,963 SF, with a construction bid of \$14 million (\$9 million under the MCC of \$23 million) due in large part to innovative design and alternative construction materials. Functional spaces include administrative, educational (classrooms, weapons simulator, distance learning, training-specific libraries, COMSEC), assembly hall and kitchen, general storage, flammable materials storage and controlled waste facilities, 10 drive-through work bays (6 for ARNG, 4 for USAR), parking and access roads, wash platform, Antiterrorism / Force Protection Measures, security, and geothermal system for heating and cooling.

Indiana ARNG 76th Brigade Combat Team Readiness Center, Lawrence, IN - Principal-in-Charge of comprehensive A/E planning and design for a new 109,555 SF, 2-story Readiness Center and 8,300 SF unheated storage facility. Includes: administrative areas; classrooms, COMSEC training, library and training center, distance learning; assembly hall with fully functional kitchen; locker rooms, medical section room; heated unit storage and unheated storage rooms, facility maintenance, arms vault, tool rooms; RAPIDS, family support and recruiting offices; space for future indoor range or simulator; military and POV parking, wash platform, loading ramp and dock, helipad; site Antiterrorism / Force Protection (AT/FP) measures, security lighting; energy management and control system, intrusion detection system, mass notification system; stormwater bio-retention pond.

Kentucky ARNG Joint Armed Forces Reserve Center and Field Maintenance Shop Complex, Bluegrass Army Depot, Richmond, KY - Principal-in-Charge for Design Criteria Consultant services for design / build delivery of a new \$18.5 million complex encompassing a 63,250 SF Armed Forces Reserve Center (AFRC) and a 31,725 SF Field Maintenance Shop (FMS), both designed to meet LEED Silver sustainable design rating. Provided RFQ and RFP development, assistance in short-listing and final selection of the design/build team, construction administration and commissioning of the new facilities that included administrative, training, assembly, storage, and vehicle workbays.

Michigan ARNG Design & Renovation of 8 Facilities at Ft. Custer, Camp Grayling, Grayling Army Airfield and Midland, MI, MI - Principal-in-Charge for architectural and engineering design for 8 "fast track" projects for Michigan Army National Guard scattered throughout the state, including: new Bachelor Officer Quarters at Fort Custer, Camp Grayling and Grayling AAF; an addition to the Range Control Building and a new Logistics Facility at Fort Custer; a new General Officers BOQ at Camp Grayling; a new Company Operations Facility at Grayling AAF; and kitchen and other renovations to an existing armory in

Midland that required lead and asbestos abatement. Completed design, permitting, and master planning for future expansion and/or facilities in 10 weeks, in time to meeting funding deadlines for bid advertisements.

Indiana ARNG Combined Arms Collective Training Facility Project, Planning Design Charrette, Muscatatuck, IN - Principal-in-Charge of collaborative Project Planning Document Charrette (PPDC) for development of a Combined Arms Collective Training Facility (Muscatatuck CACTF) and to validate a \$16.1 million project award estimate, involving senior leadership, key staff, other stakeholders, ARSC-TPIO-Live, USACE Huntsville Division MCX (CEHNC), and DAMOTRS. Confirmed project development cost and facilities needs and recommended major renovation / conversion of 23 of 70 existing buildings and new construction.

West Virginia ANG 130th Airlift Wing Communications Facility, Charleston, WV - Principal-in-Charge responsible for coordination of a multi-discipline team of architects, engineers, soils consultant, topographic survey consultant and RCDD specialist in conducting the Design Charrette and Type A and B design services for a new \$3.6 million, 13,100 SF Communications . Designed for LEED Silver rating, to provide a centrally located common user communications system for both intra-base and off-base communications, with ground control of all ground point-to-point contact and air to ground point-to-point contact (such as radio, telephone, DISNET, etc.). Design paused at 65% to enable base's master plan and re-prioritize new capital improvements.

West Virginia ANG 130th Airlift Wing Aboveground Fuel Storage Dispensing Facility, Charleston, WV - Principal-in-Charge for design of a new aboveground fuel station for the installation's government-owned vehicles, comprising two new aboveground tanks (1 diesel, 1 unleaded gasoline) and a new dispensing system, replacing an older fuel station that included underground fuel storage tanks.

West Virginia ANG 130th Airlift Wing Master Plan Update and CIP, Charleston, WV - Principal-in-Charge for preparation of a Web-Enabled Master Plan Update and GeoBase Common Installation Picture (CIP) for the 130th Airlift Wing in Charleston to evaluate benefits and impacts associated with acquiring additional airfield property for aircraft parking, operations, and maintenance facilities to meet current and future proposed missions. Identified constraints and opportunities that apply to the 130th AW aircraft parking, operations and maintenance areas, including Anti-Terrorism/Force Protection (AT/FP) measures; quantified existing and required airfield facilities; developed new alternatives for long- and short-range plans; and created plan tabs that depict constraints and opportunities, long- and short-range development plans, land use and circulation plan, real estate plan, and facility utilization plan.

West Virginia ANG 167th Air Wing POL Complex Demolition Design, Martinsburg, WV - . Principal-in-Charge for the demolition of the former POL Complex, including two 305,000-gallon aboveground POL tanks and surrounding secondary containment structure, below ground piping, oil / water separator, fuel recovery tank, fuel loading and unloading facilities and piping and equipment in the Pump Building. Some of the existing equipment was set aside for government re-use (fuel pumps, major valves and instrumentation).

California ARNG Urban Assault Course, Infantry Squad Battle Course and Infantry Platoon Battle Course, Camp Roberts, CA – GRW Principal-in-Charge for design of three training ranges for Army National Guard soldier training at Camp Roberts, including: Infantry Squad Battle Course (ISBC) covering 45 acres with centrally-controlled, computer operated automated target systems varying from 200M to 100M, and a Range Operations and Control Area (ROCA) including an Operations/Storage Building, Ammunition Breakdown Building, Instruction Building and other facilities for managing and maintaining the range; an Urban Assault Course (UAC) for squad and platoon sized units to train and evaluate urban operations tasks, ROCA and five training stations for individual / team, squad / platoon, grenadier / gunnery,

urban offense / defense, and underground; Infantry Platoon Battle Course (IPBC) covering approximately 100 acres with ROCA and six major objectives for stationary and moving infantry targets, stationary and moving armor targets, two landing zones, trench obstacles, machine gun bunkers and an assault / defend house.

Colorado ANG 140th Air Wing Add/Alter Weapons Release Facility, Buckley AFB, CO – GRW Project Manager for expansion and upgrade design of Building 805 (from 12,100 SF to 16,200 SF) to support new missions: 18 PAI F-16 aircraft and Air Sovereignty Alert (ASA). Involved extensive modifications to existing floor plan and interior finishes, space allocated for training additional personnel and mission support equipment, increased energy efficiency through upgraded HVAC and lighting, new roof and new building envelope, planned to achieve from 28 to 33 credits for Leadership in Energy and Environmental Design (LEED), depending on final cost estimates and budget.

Indiana ANG 122nd Fighter Wing Installation Development Plan, Ft. Wayne, IN - Principal-in-Charge for master planning services to update existing master plan, providing an Installation Development Plan (IDP) with web-based documents allowing installation staff to update as mission changes and facilities are constructed or modified, and coordinated / integrated with the Common Installation Picture (CIP), a GeoBase series of base maps with rapid access to GIS databases for detailed information on real property, utility systems, real estate and other assets vital to each base's mission capability. Fort Wayne's IDP supported a mission transition to increased A-10 aircraft, F-15E and later to F-35A or joint cargo aircraft over the next 15 to 20 years while accommodating a future Red Horse Beddown, and special attention to antiterrorism/force protection (AT/FP) measures for a commercial rail line bisecting the installation.

Kentucky ANG 123rd Airlift Wing Contingency Response Group Facility, Louisville, KY - Principal-in-Charge for design for a 54,400 SF masonry and standing seam roof addition and 3,000 SF of modifications to the Wing Headquarters Building addition to house personnel and equipment for the 123rd Airlift Wing Contingency Response Group (CRG), providing 24,600 SF of administrative, food service and training space, a 24,500 SF storage area for 200 tons of mobility equipment and a 2,300 SF dining facility. Includes approximately 3,000 SF of renovation to the existing Services Flight and Security Forces Squadron area, applicable antiterrorism / force protection measures as well as design to meet the USGBC LEED Silver sustainable design criteria and EAct 2005 energy efficiency standards.

Texas ANG 136th Airlift Wing Security Forces Squadron Facility, NAS JRB, Fort Worth, TX - Principal-in-Charge for conceptual site-specific design and bridging documents for \$4.5 million design / build delivery of a 17,400 SF, 2-story addition to the 136th Airlift Wing Headquarters Building to house personnel and equipment for the unit's Security Forces Squadron (SFS) at NAS JRB Fort Worth (Carswell Field). Provides command, control and administrative office space, weapons simulator, arms vault, classrooms, weapons and equipment storage / maintenance areas, locker rooms and restrooms, a fitness room, mobility equipment storage and utility vehicle storage, and Anti-terrorism / Force Protection measures, all designed to meet the USGBC **LEED Silver** sustainable design criteria and EAct 2005 energy efficiency standards.

Texas ANG 147th Reconnaissance Wing Munitions Maintenance Shop, Ellington Field JRB, Houston, TX - Principal-in-Charge for design of a \$1.5 million, 3,100 SF munitions maintenance and inspection shop relocating activities from another building that does not meet explosive safety requirements for the current mission. Provides a heavily reinforced concrete structure with two feet of earth on the roof and between double concrete exterior walls, exterior doors designed as blast doors, 1,800 SF maintenance bay, electrical / communications / mechanical rooms, restroom and office equipped for SIPERNET, meeting ANG Sustainable Design Criteria and EAct 2005 energy efficiency standards for an industrial facility, secure fenced perimeter, access road, parking lot and gates, and new utility services.

Dale Adams, AIA
GRW Project Manager/Architect



Years of Experience: 24 **Years with GRW:** 1

Education

Bachelor of Architecture, 1985, University of Oklahoma

Registration

Registered Architect: KY

Professional Affiliations

American Institute of Architects

Qualifications and Similar Project Experience

Mr. Adams has more than two decades of architectural experience including 18 years as a Registered Architect with involvement in various project types located across the United States. His responsibilities include fee proposals, proposal negotiations, charrettes, schematic design, programming, project planning, design development and construction documents. His experience also includes RFP document preparations for the construction management team, including outline specifications and budget cost analysis. Mr. Adams has also provided on-site consultations and in-office construction administration services including RFI/OPR/CO preparation, submittal reviews and as-built drawing preparation. Through the completion of several DoD projects, he is knowledgeable of US Army Corps of Engineers adopted MDS (Modular Design System) software for automated project delivery, MCACES and Navy's SUCCESS cost estimating software.

West Virginia ARNG Live Fire Exercise Shoot House, Camp Dawson, WV - Project Manager for innovative re-use of a recently-acquired former industrial complex adjacent to Camp Dawson to provide a \$2 million Live Fire Exercise Shoot House, including shoot house to be housed in a metal warehouse, operations / storage, after action review (AAR) facility, ammunition breakdown facility, warehouse restroom renovation, access road and parking area, and utility services. Completed conceptual design for LFSH facility with final design and construction of LFSH completed by selected vendor (design / build); balance of facilities delivered with traditional design / bid / build approach.

West Virginia ANG 130th Airlift Wing Squadron Operations Facility, Charleston, WV - Project Manager for design and construction services (Type A, B & C) for modifications and energy-efficient improvements to 25,765 SF facility with history of additions and relocating activities resulting in a building that inadequately serves its users (Administration and Operations, Base Operations, Command Post, and Life Support and Fitness Center). Work included Charrette to develop alternative floor plans. Final design allows for efficient use of space; HVAC, electrical and fire protection systems upgrade; and roof repairs. Designed to achieve USGBC LEED Certified rating and meet EPA 2005 requirements.

West Virginia ANG 130th Airlift Wing Aboveground Fuel Storage Dispensing Facility, Charleston, WV - Project Architect for a new aboveground fuel station for the installation's government-owned vehicles, comprising two new aboveground tanks (1 diesel, 1 unleaded gasoline) and a new dispensing system, replacing an older fuel station that included underground fuel storage tanks.

Kentucky ANG 123rd Airlift Wing Contingency Response Group Facility, Louisville, KY - Project Manager for design of a 54,400 SF masonry and standing seam roof addition and 3,000 SF of modifications

to the Wing Headquarters Building addition to house personnel and equipment for the 123rd Airlift Wing Contingency Response Group (CRG) at Standiford Field in Louisville, KY, providing 24,600 SF of administrative, food service and training space, a 24,500 SF storage area for 200 tons of mobility equipment and a 2,300 SF dining facility. Includes approximately 3,000 SF of renovation to the existing Services Flight and Security Forces Squadron area, applicable antiterrorism / force protection measures as well as design to meet the USGBC LEED Silver sustainable design criteria and EPA 2005 energy efficiency standards.

Kentucky ANG 123rd Airlift Wing Roof Replacements, Louisville, KY - Project Manager for a \$900,000 replacement of roofs on the Wing Headquarters Building (non-ballasted fully adhered 0.60 mil single ply EPDM membrane roof system with mechanically fastened tapered, rigid insulation and perimeter cants) and the Maintenance Hangar (0.60 mil single ply EPDM roof fully adhered with mechanically fastened rigid insulation designed to withstand a 90 mph wind resistance).

Texas ANG 136th Airlift Wing Security Forces Squadron Facility, NAS JRB, Fort Worth, TX - Project Manager for conceptual site-specific design and bridging documents for \$4.5 million design / build delivery of a 17,400 SF, 2-story addition to the 136th Airlift Wing Headquarters Building to house personnel and equipment for the unit's Security Forces Squadron (SFS) at NAS JRB Fort Worth (Carswell Field). Provides command, control and administrative office space, weapons simulator, arms vault, classrooms, weapons and equipment storage / maintenance areas, locker rooms and restrooms, a fitness room, mobility equipment storage and utility vehicle storage, and Anti-terrorism / Force Protection measures, all designed to meet the USGBC **LEED Silver** sustainable design criteria and EPA 2005 energy efficiency standards.

Texas ANG 147th Reconnaissance Wing Munitions Maintenance Shop, Ellington Field JRB, Houston, TX - Project Manager for a \$1.5 million, 3,100 SF munitions maintenance and inspection shop relocating activities from another building that does not meet explosive safety requirements for the current mission. Provides a heavily reinforced concrete structure with two feet of earth on the roof and between double concrete exterior walls, exterior doors designed as blast doors, 1,800 SF maintenance bay, electrical / communications / mechanical rooms, restroom and office equipped for SIPERNET, meeting **ANG Sustainable Design Criteria and EPA 2005** energy efficiency standards for an industrial facility, secure fenced perimeter, access road, parking lot and gates, and new utility services.

Kentucky ANG 123rd Airlift Wing Installation Development Plan and CIP, Louisville, KY - Project Manager for development of a Common Installation Picture (CIP) to integrate a facility inventory system into the base-wide GeoBase GIS, providing a series of maps of the base, infrastructure, and facilities) and forming the backbone of the updated master plan for 123rd Airlift Wing at Standiford Field, Louisville airport.

Arizona ANG 162nd Fighter Wing Installation Development Plan, Tucson IAP, AZ - Architect for a web-based, geo-referenced Installation Development Plan for Arizona Air National Guard's 162nd Fighter Wing (F-18 squadrons and pilot training) to consider several mission planning factors, such as the next generation of fighter aircraft, a second weapons Mission Design Series (MDS), a Consolidated Intermediate Repair Facility (CIRF) and the acquisition of additional property to support these expanded missions.

Hawaii ANG 154th Wing Installation Development Plan, Hickam AFB, HI - Architect involved with master planning services for Air National Guard facilities at Hickam AFB with three missions and airframes: KC-135 tankers and C-17 cargo planes (supported in USAF facilities), and F-15 fighters (in ANG facilities), transitioning to F-22 aircraft. Provided a web-based installation development plan supported by a series of geo-referenced maps including buildings, infrastructure, and site facilities to support current and future base operations and facilities maintenance functions.



Aaron Nickerson, Associate AIA GRW Architectural Intern

Years of Experience: 5

Years with GRW: 4

Education

Bachelor of Architecture (with honors), 2006, University of Kentucky
Master of Architecture, 2007, University of Kentucky

Professional Affiliations and Training

National Council of Architecture Registration Board (NCARB)

Qualifications and Similar Project Experience

While at the University of Kentucky, Mr. Nickerson received an Excellence in Architectural Design Award and an Excellence in Digital Visualization Award. He has experience with building construction, cabinet and casework construction, as well as an extensive knowledge of digital visualization tools. His primary responsibilities include programming, code research, schematic design, design development, construction documents and construction administration.

West Virginia ANG 130th Airlift Wing Communications Facility, Charleston, WV - Architectural Designer for design (Type A and B, 65%) of a new \$3.6 million, 13,100 SF Communications Facility at Yeager Airport in Charleston for West Virginia Air National Guard, designed for LEED Silver rating, to provide a centrally located common user communications system for both intra-base and off-base communications, with ground control of all ground point-to-point contact and air to ground point-to-point contact (such as radio, telephone, DISNET, etc.). Design paused at 65% to enable base's master plan and re-prioritize new capital improvements.

Air Force Special Operations Command C-130 Complex (Corrosion Control Hangar and Fuel Cell Hangar), Cannon AFB, NM - Architectural Designer for AFCEE design / build program to construct two of the first facilities supporting C-130 aircraft to be built at a new AFSOC base at Cannon AFB (NM), including a Corrosion Control Hangar (\$22 million, 57,700 SF) and a Fuel Cell Hangar (\$23 million, 31,100 SF), utility service, pavements and other site development features. Involved 3-day charrette to develop conceptual site and floor plans, narratives of functional areas, requirements for facility system design (architecture, civil/site, HVAC, electrical, security, communications, Antiterrorism / Force Protection, utilities, etc), recommended design criteria, functional area adjacency requirements, a parametric cost estimate and a detailed room requirements sheet for each space, Conceptual Design with Performance Specification and Design Analysis to support a request for proposal for design / build delivery.

Ohio ARNG Joint Armed Forces Reserve Center and Field Maintenance Shop Complex, Springfield, OH - Architectural Designer for new LEED Silver, 85,865 SF complex serving both Ohio Army National Guard and U.S. Army Reserves. Provided Joint Armed Forces Reserve Center (AFRC) totaling 60,902 SF, and Field Maintenance Shop (FMS) totaling 24,963 SF, with a construction bid of \$14 million (\$9 million under the MCC of \$23 million) due in large part to innovative design and alternative construction materials. Functional spaces include administrative, educational (classrooms, weapons simulator, distance learning, training-specific libraries, COMSEC), assembly hall and kitchen, general storage, flammable materials storage and controlled waste facilities, 10 drive-through work bays (6 for ARNG, 4 for USAR), parking and access roads, wash platform, Antiterrorism / Force Protection Measures, security, and geothermal system for heating and cooling.

Marshall University Engineering Laboratory, Huntington, WV - Architectural Designer for a new, 16,000 SF Engineering Laboratory Building on the main campus providing laboratories for materials, soils, hydraulics,

structural, and environmental studies, classrooms and faculty offices, representing the initial phase in a \$50+ million multi-story complex (design led by GRW), supporting undergraduate and post-graduate programs in engineering, mathematics, environmental sciences, transportation, and applied digital/graphic arts technology.

Aliceville Federal Correctional Institution and Satellite Camp, Aliceville, AL - Architectural Designer for design / build delivery of a \$184 million women's medium-security Federal Correctional Institution and minimum-security Federal Prison Camp totaling 58,000 SM, housing approximately 1,800 inmates in three 4-story housing units. Designed FCI and FPC buildings for LEED certification and under Federal Leadership in High Performance Building Standards. Highlights in sustainable design include: recycled and treated laundry waste water; stormwater detention ponds design to allow on-site infiltration to reduce runoff and pollution of receiving streams; water efficient landscaping and 30% reduction of water use resulting from low-flow plumbing fixtures; on-site renewable energy and measurable optimized energy performance; and attention to indoor environmental quality.

Adena Springs Horse Farm Development (Paris), Paris, KY - Architectural Designer for development of a new horse farm providing a modern example of functionality and safety in a picturesque 2,045 acres, including: a 14-stall stallion barn with attached main office; seven 28-stall broodmare barns equipped for foaling; an employee village with more than 20 homes and recreational complex; longer windows for improved ventilation; rubber stall walls and floors for easy disinfection; and paddock configuration allowing varying size pastures to reduce injury.

Allen County Extension Office, Scottsville, KY - Architectural Designer for renovation of an old, 6,600 SF tractor dealership into cooperative extension offices and meeting facility with catering kitchen, including façade restoration, new interior layout, new elevator, catering kitchen, demonstration kitchen, offices, large meeting room, conference room, restrooms and supporting facilities.

Monroe County Wellness Center, Tompkinsville, KY - Architectural Designer for two-phase, 27,000 SF family wellness center; constructed 6,900 SF, \$1.7 million phase includes racquetball court, reception/check-in station, offices, support spaces, equipment storage, and two multi-purposes classrooms with an adjoining warming kitchen. The 20,100 SF future \$4.6 million phase includes a cardio fitness/weight room, indoor 25-yard, 6-lane competition swimming pool, therapy pool, whirlpool, locker rooms, first aid, multi-purpose room, support spaces, equipment storage, and a juice bar/lounge.

Munfordville City Hall Renovation, Munfordville, KY - Architectural Designer for renovation of the existing 8,920 SF historic City Hall located on Main Street severely damaged by a tornado, presenting an opportunity to reconfigure the floor plan for improved space utilization and ADA compliance. Spaces provided Mayor's office, City Council chambers, City Clerk's office, Police Department, Water & Sewer Department offices and garage area, public lobby and service counter for bill payment.

Nicholasville United Methodist Church Addition, Nicholasville, KY - Architectural Designer for a two-story addition of 13,000 SF to provide an adequate multi-functional gathering space and fellowship hall for a growing church, including stage, classrooms, commercial kitchen and pantry, and youth and children's rooms, new elevator, restrooms, janitorial and building systems support space. Constructed of steel post and beam structure with facade of brick veneer atop manufactured stone wainscot.

Yazoo City U.S. Penitentiary and Satellite Camp, Yazoo City, MS - Architectural Design for design/build delivery of a \$175 million medium-security main complex and minimum-security prison camp totaling 674,262 SF and housing approximately 1,536 inmates in general housing, 120 in special housing and 256 at the prison camp. The facility is being designed to meet **LEED® Silver Certified Criteria**.

Chase Embry GRW Architectural Designer



Years of Experience: 2 Years with GRW: 2

Education

B.S., Industrial Science, Western Kentucky University

Qualifications and Similar Project Experience

Texas ANG 136th Airlift Wing Security Forces Squadron Facility, NAS JRB, Fort Worth, TX - Architectural Designer for conceptual site-specific design and bridging documents for \$4.5 million design / build delivery of a 17,400 SF, 2-story addition to the 136th Airlift Wing Headquarters Building to house personnel and equipment for the unit's Security Forces Squadron (SFS) at NAS JRB Fort Worth (Carswell Field). Provides command, control and administrative office space, weapons simulator, arms vault, classrooms, weapons and equipment storage / maintenance areas, locker rooms and restrooms, a fitness room, mobility equipment storage and utility vehicle storage, and Anti-terrorism / Force Protection measures, all designed to meet the USGBC **LEED Silver** sustainable design criteria and EPA 2005 energy efficiency standards.

Aliceville Federal Correctional Institution and Satellite Camp, Aliceville, AL - Architectural Designer for design / build delivery of a \$188 million women's medium-security Federal Correctional Institution and minimum-security Federal Prison Camp totaling 58,000 SM, housing approximately 1,400 inmates in three 4-story housing units. Designed buildings for LEED Certification and under Federal Leadership in High Performance Building Standards. Highlights in sustainable design include: recycled and treated laundry waste water; stormwater detention ponds design to allow on-site infiltration to reduce runoff and pollution of receiving streams; water efficient landscaping; 30% reduction of water use resulting from low-flow plumbing fixtures; on-site renewable energy and measurable optimized energy performance; and attention to indoor environmental quality.

Yazoo City U.S. Penitentiary and Satellite Camp, Yazoo City, MS - Architectural Designer for design/build delivery of a \$175 million medium-security main complex (USP) and minimum-security prison camp (FPC), on track for LEED Certification, with a gross building area of 780,000 SF and housing approximately 1,200 inmates. USP includes six, 2-story housing units, a secure housing unit, and program and multipurpose functions in rectangular campus layout enclosing a central secure compound.

Indiana American Water Design/Build Kokomo & Richmond Water Treatment Plant Stage 2D/DBPR Improvements, IN - Architectural Designer for design/build of new chemical feed facilities for two water treatment plants in Kokomo (Treatment Center WTP and Phillips Street WTP) and three plants in Richmond (Middle Fork WTP, Main Station WTP, and South 4th Street WTP) ranging in plant capacity from 3 to 17 MGD. Facilities consist of new ammonia feed and storage facilities at all five plant sites, new sodium permanganate feed and storage facilities at the Middle Fork plant, surface/groundwater blending point modifications at the Kokomo Treatment Center plant, and existing chlorine feed equipment upgrades at all plant sites, including new chemical feed buildings or room additions.

Fall Creek Regional Waste District Wastewater Treatment Plant Ultraviolet Disinfection System Upgrades, Pendleton, IN - Architectural Designer for upgrading the ultraviolet (UV) disinfection system at existing wastewater treatment plant with two 4.3 MGD in-line medium pressure/high intensity UV units. Based on engineering evaluation to improve reliability, disinfection effectiveness, and increase hydraulic

) capacity, GRW recommended the installation of a third 4.3 MGD in-line unit to work in parallel with the existing two UV units providing a total capacity of 12.9 MGD and firm disinfection capacity of 8.6 MGD as well as replacing the existing 24" process piping with new 30" piping.

Frankfort Water Treatment Plant Disinfection and Chemical Feed Evaluation and Design, Frankfort, KY

- Architectural Designer improvements to chemical feed systems, including chemical processes, safety concerns, and investigation of new chemical system technologies for outdated water treatment plant. Resulted in replacement of all chemical piping, equipment, and storage facilities with on-site generation of chlorine technology was selected in lieu of traditional chlorine gas utilization, decreasing risk factors and allowing better compliance with Federal Safe Drinking Water Act Amendments for Stage 2 of the Disinfectants and Disinfection Byproducts Rule. Sulfuric acid feed system was provided and facilities were sized for a future treatment capacity of 27 MGD. The \$5.7-million project received funding through the Kentucky Infrastructure Authority.

Harrodsburg Water Treatment Plant and Raw Water Intake Pump Station Expansion, Harrodsburg, KY

- Architectural Designer for expansion of the existing raw water intake pumping station and water treatment plant from 4.0 MGD to 6.0 MGD. Plant improvements included: new chemical storage and feed facilities; new chemical mixing basin; new flocculation and settling basins; additional filters and clearwell capacity; high service pumping station improvements; SCADA upgrade; and new solids processing facilities.

Northern Kentucky Water District Licking River Intake Improvements, KY - Architectural Designer for improvements to a 1950s-built river intake structure. Work included enlarged roof openings over the pumps and new roof hatches installed; and replacement of the catwalk handrail and grating.

William L. Maynard, PE, LEED AP BD+C GRW Electrical Engineer



Years of Experience: 33

Years with GRW: 14

Education

B.S., Electrical Engineering, 1978, University of Kentucky

Registration

Professional Engineer (Electrical): KY, WV, IN, GA, TN, TX, NV, NC, MS, MI, AL
NCEES Member allows reciprocity with other states
LEED Accredited Professional, Building Design + Construction

Professional Affiliations and Training

National Fire Protection Association
International Society of Automation
American Institute of Architects
American Council of Engineering Companies
National Council of Examiners for Engineering and Surveying
Design Build Institute of America
Immediate Past Chairman, Ohio Valley Region, Design Build Institute of America
Air National Guard Civil Engineering Association Life Member (Associate)
Society of American Military Engineers
American Water Works Association

Qualifications and Similar Project Experience

Mr. Maynard directs the GRW Electrical/Mechanical/Structural Division. He has designed electrical and mechanical systems for more than 250 projects with total construction values as high as \$184 million. Mr. Maynard is a member of the American Institute of Architects, National Fire Protection Association, Design Build Institute of America (2006-2008 President), Air National Guard Civil Engineering Association Life Member (Associate) and the Society of American Military Engineers.

West Virginia ARNG Planning Charrette for Armed Forces Reserve Center and AMSA Shop, Ripley, WV

- Electrical Engineer for this BRAC project that consolidates several existing armories into a new Armed Forces Reserve Center to be jointly occupied by units of the Army Reserve and Army National Guard. Also onsite is planned an Area Maintenance Support Activity Shop with 5 bays. The purpose of the charrette was to prepare conceptual floor and site plans, as well as validate costs and update the 1390/1391 to FY10 dollars. The facilities planned are the AFRC at approximately 60,000 SF, the AMSA Shop at 4500 SF, UHS of approximately 6000 SF, washrack, and other supporting functions such as paving, POV and MVSA parking, site lighting, fuel dispensing/storage, standby power, and helipad. A special feature not seen in most AFRC's is inclusion of a mock post office for training of Army Reserve Postal Unit reservists.

West Virginia ANG Communications Facility for the 130th Airlift Wing and Joint Operations Center, Charleston, WV

- Electrical Engineer for "Fast Track Design" of \$3.6 million, 13,100 SF communications training facility for intra-base and off-base ground and air-to-ground contact. Services included full design, construction administration and post-construction inspection activities.

B-1B Bomber Composite Aircraft Maintenance Corrosion Control Complex - Project Manager responsible for mechanical/electrical systems for a 76,000 SF hangar complex, a two-bay facility that provides space for aircraft fuel system maintenance, corrosion control program activities and administrative functions. Separate hangar bays house the fuel cell and corrosion control functions, each requiring specialized humidity, vapor removal, and breathing air utilities.

Ohio ARNG Joint Armed Forces Reserve Center and Field Maintenance Shop Complex, Springfield, OH - Electrical Engineer for new LEED Silver, 85,865 SF complex serving both Ohio Army National Guard and U.S. Army Reserves. Provided Joint Armed Forces Reserve Center (AFRC) totaling 60,902 SF, and Field Maintenance Shop (FMS) totaling 24,963 SF, with a construction bid of \$14 million (\$9 million under the MCC of \$23 million) due in large part to innovative design and alternative construction materials. Functional spaces include administrative, educational (classrooms, weapons simulator, distance learning, training-specific libraries, COMSEC), assembly hall and kitchen, general storage, flammable materials storage and controlled waste facilities, 10 drive-through work bays (6 for ARNG, 4 for USAR), parking and access roads, wash platform, Antiterrorism / Force Protection Measures, security, and geothermal system for heating and cooling.

New Air Surveillance Radar (ASR) Tower and Equipment Shelter, Robins Air Force Base, GA - Project Manager/Electrical Engineer for demolition and design of FAA ASR tower. Major work items included new masonry equipment shelter building for housing radar and power distribution equipment, and diesel emergency generator set; 77' steel radar tower; power distribution (600 ampere, 208/120 volt 3 phase) and electrical work in support of the equipment shelter environmental conditioning, lighting, and miscellaneous small power; conduits and raceways for FAA cables up the tower; conduit and cables from the new equipment shelter to the existing FAA RAPCON building for monitoring the ASR function; underground 12.47 kv primary electrical power to the equipment shelter; and a 112.5 KVA pad-mounted transformer for low voltage service to the facility.

Flightline Facilities, Scott AFB, IL - Principal-in-Charge and Electrical Engineer for the design of the aerospace ground equipment shops and storage (5,241SF), and the general purpose maintenance shops (46,202 SF) for the relocation of Illinois ANG to Scott AFB. The design of this flightline complex was accomplished under tight time constraints to meet construction and relocation deadlines associated with the move from O'Hare International Airport.

Kentucky ARNG Armed Forces Reserve Center and Field Maintenance Shop, Paducah, KY - Project Manager for electrical and mechanical engineering for design/build of an estimated \$14.7 million Armed Forces Reserve Center (AFRC) and Field Maintenance Shop (FMS) in Paducah. This BRAC joint forces facility for the KY Army National Guard and U.S. Army Reserve is adjacent to the Barkley Regional Airport. Work included site anti-terrorism/force protection measures, security lighting, intrusion detection system, and mass notification system.

Marshall University Engineering Lab, Huntington, WV - Electrical Engineer for a new 16,000 SF Engineering Laboratory Building to house materials, soils, hydraulics, structural, and environmental laboratory space, as well as classroom space and faculty offices. The curved façade of the building was designed to create a park-like plaza along the north edge of 3rd Avenue, giving a softened edge to what previously had been parking lots and pavement. Brick and other exterior building materials were selected to complement the adjacent campus buildings, thus giving a more unified appearance to the campus.

Federal Correctional Institution and Satellite Camp, Glenville, WV - GRW Principal-in-Charge for the design of mechanical, electrical, plumbing and fire protection systems for a \$106 million correctional facility for the Federal Bureau of Prisons.

Phil Juett, PE
GRW Electrical Engineer



Years of Experience: 23

Years with GRW: 3

Education

B.S., Electrical Engineering, University of Kentucky

Registration

Professional Engineer (Electrical): KY

Qualifications and Similar Project Experience

Mr. Juett has 23 years of electrical engineering experience including power, lighting, telecommunications, grounding and lightning protection, fire detection and alarm, security, and auxiliary systems for new construction and renovation projects. He has also worked with various military branches including the Air Force, Air Force Reserves, Marine Corps, Marine Reserves and the United States Embassies. He has extensive experience with design development charrettes, design/build RFPs, 1391s, AT/FP measures, and sustainable design features.

West Virginia ARNG Live Fire Exercise Shoot House, Camp Dawson, WV – Electrical Engineer for design of adaptive re-use of a recently-acquired former industrial complex adjacent to Camp Dawson to provide a \$2 million Live Fire Exercise Shoot House, including shoot house to be housed in a metal warehouse, operations / storage, after action review (AAR) facility, ammunition breakdown facility, warehouse restroom renovation, access road and parking area, and utility services. Completed conceptual design for LFSH facility with final design and construction of LFSH completed by selected vendor (design / build); balance of facilities delivered with traditional design / bid / build approach.

Air Force Special Operations Command C-130 Complex, Cannon AFB, NM - Electrical Engineer for design charrette and conceptual design of a 57,700 SF, \$22 million Corrosion Control Hangar and a 31,100 SF, \$23 million Fuel Cell Hangar. The design charrette verified the requirements and costs for each hangar based on a set of requirements previously developed for these facilities. Information from the Charrette was used to prepare a conceptual design, including a performance specification and design analysis to support a Request for Proposal (RFP) for a subsequent design/build construction project to complete the design and to construct these two hangars, along with associated utility service, pavements and other site development features.

Reconfigure Hangar 1404 VR-46, NAS JRB, Carswell, Fort Worth, TX - Electrical Engineer for a proposal for site electrical distribution, site communications, lighting, power, communications, fire alarm, and mass notification systems for a hangar operations facility. Design needed 400-hertz power, classrooms, and administration and office space.

D/B RFP for Upgrade Hangar 1049, NAS JRB, Carswell, Fort Worth, TX - Wrote design/build proposal for site electrical distribution, site communications, lighting, power, communications, fire alarm, and mass notification systems for a hangar operations facility. Design needed classrooms, 400-hertz power, and administration and office space. Cost was \$2,245,000.

D/B RFP for Reconfigure Hangar 1408, NAS JRB, Carswell, Fort Worth, TX - Wrote a proposal for site electrical distribution, site communications, lighting, power, communications, fire alarm, and mass notification systems for a hangar operations facility. Design needed 400-hertz power, classrooms, and administration and office space.

Air Support Operations Squadron (ASOS) and Weather Facility, Fort Bliss, TX - Electrical Engineer for (MN00058.03) Fort Bliss Texas electrical systems design which included lighting, security, communications and AT/FP measures. The ASOS provides command and control of close air support and maintains mission-ready air support operations, personnel, radios, vehicles and mobility equipment. Cost was \$5,950,000.

Fort Carson, CO - Electrical Engineer for ASOS (Air Support Operation Squadron) building which included power, lighting, telecommunications, grounding, lightning protection, fire detection, alarm, and security systems.

Fort Drum, NY - Electrical Engineer for ASOS (Air Support Operation Squadron) building that included power, lighting, telecommunications, grounding, lightning protection, fire detection, alarm, and security systems.

Squad Operations Building, Fort Worth, TX - Electrical Engineer for power, lighting, telecommunications, grounding, lightning protection, fire detection, alarm, and security systems. The majority of this building had to comply with the SCIF environment.

Ohio ARNG Joint Armed Forces Reserve Center and Field Maintenance Shop Complex, Springfield, OH - Electrical Engineer for planning, design and construction of a new LEED Silver 85,867 SF Joint Armed Forces Reserve Center (AFRC) and Field Maintenance Shop (FMS) for the OH ARNG and the US Army Reserves in Springfield, Ohio. Prior to design, the GRW Team completed a Project Planning Document Charrette (PPDC) for this project.

Kentucky ANG 123rd AW Offices and Warehouse for Contingency Response Group Facility, Louisville, KY – Electrical Engineer for Charrette and conceptual design of a 54,400 SF masonry and standing seam roof office and warehouse, including 3,000 SF of modifications to the Wing Headquarters Building addition to house personnel and equipment for the 123rd Airlift Wing Contingency Response Group (CRG) at Standiford Field in Louisville, KY, providing 24,600 SF of administrative, food service and training space, a 24,500 SF warehouse for 200 tons of mobility equipment and a 2,300 SF dining facility. Includes approximately 3,000 SF of renovation to the existing Services Flight and Security Forces Squadron area, applicable antiterrorism / force protection measures as well as design to meet the USGBC **LEED Silver** sustainable design criteria and EPA 2005 energy efficiency standards.

Indiana ARNG Readiness Center for 76th Brigade Combat Team, Lawrence, IN - Electrical Engineer for planning, design and construction of a new 109,555 SF two-story Army National Guard Readiness Center in Lawrence, a suburb of Indianapolis, IN. This facility is located on a site that was formerly part of Fort Benjamin Harrison. An 8,300 SF unheated storage facility is also included. This facility is designed to meet the LEED Certified sustainable design rating.

Texas ANG 136th Airlift Wing Security Forces Squadron Facility, Fort Worth, TX - Electrical Engineer for initial programming Charrette and conceptual design for this Design/Build project at NAS JRB Fort Worth. The facility, a 17,400 SF, 2-story addition to the base's Headquarters Building, includes command, control and administrative office spaces, a weapons simulator, an arms vault, classrooms, weapons and equipment storage and maintenance areas, locker rooms and restrooms, a fitness room, mobility equipment storage and utility vehicle storage. The facility is being designed to meet the USGBC LEED Silver sustainable design criteria.

Texas ANG Munitions Maintenance Shop for 147th Reconnaissance Wing, Ellington Field JRB, Houston - Electrical Engineer for Charrette and design of a 3,100 SF maintenance shop to provide for munitions maintenance and inspection.

William H. Brewer, PE, LEED AP
GRW Mechanical Engineer



Years of Experience: 38

Years with GRW: 10

Education

B.S., Mechanical Engineering, 1967, Case Western Reserve University

Registration

Professional Engineer: KY, OH, NC, TN, NH, WV, IN, CA, TX, MS, GA, VA, MI

NCEES Member, allows reciprocity with other states

Professional Member, Society of Fire Protection Engineers

LEED Accredited Professional

Professional Affiliations and Training

American Society of Mechanical Engineers

American Society of Heating, Refrigeration and Air Conditioning Engineers

American Institute of Aeronautics and Astronautics

International Code Council

Society of Fire Protection Engineers

International Ground Source Heat Pump Association

U.S. Green Building Council

American Council of Engineering Companies

Qualifications and Similar Project Experience

Mr. Brewer has nearly four decades of engineering experience with building and industrial process systems. He has extensive experience in the design, application and trouble-shooting of environmental and process systems, particularly HVAC, plumbing and fire protection systems. He has also been involved in the construction administration for most of his projects.

Kentucky ARNG Armed Forces Reserve Center and Field Maintenance Shop, Paducah, KY - Mechanical Engineer for design/build of an estimated \$14.7 million Armed Forces Reserve Center (AFRC) and Field Maintenance Shop (FMS) in Paducah. This BRAC joint forces facility for the KY Army National Guard and U.S. Army Reserve is adjacent to the Barkley Regional Airport.

B-Composite Aircraft Maintenance Hangar, Robins Air Force Base, GA - Mechanical engineering design for a new building housing both corrosion control and fuel cell hangars, as well as supporting shops and offices.

West Virginia ANG Communications Facility for the 130th Airlift Wing and Joint Operations Center, Charleston, WV - Mechanical Engineer for "Fast Track Design" of \$3.6 million, 13,100 SF communications training facility for intra-base and off-base ground and air to ground contact.

Michigan ARNG Baker-Olin Complex Planning/Programming Charrette, Lansing, MI - Mechanical Engineer for planning charrette and DD Forms 1390/91 assistance to secure federal funding for the renovation of 4 buildings (300,000 SF) acquired from the State of Michigan. The facilities, located on a 42-acre site, include former state office buildings and warehouses. Work included a general evaluation of the size, condition, and capacity of the facilities proposed for occupancy; determination of space requirements

and special needs by means of an on-site 3-day charrette; cost estimates for building renovations; and review of DD Forms 1390/91 and related documentation for submission to Congress.

Michigan ARNG Design & Renovation of 8 Facilities at Ft. Custer, Camp Grayling, Grayling Army Airfield and Midland, MI - Mechanical Engineer for 8 "Fast Track Design" projects in scattered parts of Michigan. These projects include new Bachelor Officer Quarters at Fort Custer, Camp Grayling and Grayling AAF, an addition to the Range Control Building at Fort Custer, a new Logistics Facility at Fort Custer, a new General Officers BOQ at Camp Grayling, a new Company Operations Facility at Grayling AAF, and kitchen and other renovations to an existing armory in Midland.

Kentucky ARNG Armed Forces Reserve Center and Field Maintenance Shop Complex at Bluegrass Army Depot, Richmond, KY - Mechanical Engineer for A/E team serving as Design Criteria Consultant to KY ARNG for design and construction using the Design-Build methodology of an \$18.7 million AFRC and FMS. Services include development of Design-Build RFP documents, assistance during evaluation of Design-Build proposals, review and analysis of design, construction administration services and warranty inspection.

Colorado ANG Add/Alter Weapons Release Facility for 140th AW, Buckley AFB - Mechanical Engineer for an additional 4,100 SF of new space for these functions on the west and north sides of the building. Extensive modifications will also be made to the existing floor plan, and a new, more energy efficient HVAC system, new roof and new building envelope will be installed. This 16,200 SF facility is required to meet the ANG Sustainability Silver rating criteria for an Industrial facility, as well as the energy savings criteria required under EPA Act 2005.

Indiana ANG Security Forces Operations and Training Facility, Fort Wayne, IN - Mechanical Engineer for conceptual designs, bidding documents and construction services for design/build of a new 18,494 SF Security Forces Operations and Training Facility, including a Combat Arms Training and Simulator/Combat Arms Training Maintenance (CATS/CATM) activity in the same building. All facilities are connected to a base-wide Energy Management Control System.

Kentucky ANG Design of Six Renovation Projects for 123rd Airlift Wing, Louisville, KY - Project Manager for series of "fast-track" designs at the Louisville ANG Base including fire suppression systems in two buildings, new lights in several rooms of two buildings, relocation of a LOX storage facility, remodeling of the Command Post for the Wing Operations Center, and remodeling the Operations Center for the Critical Response Team.

National Guard Readiness Centers HVAC Replacements, Jackson and Williamsburg, KY - Project Manager for replacement systems which included new high efficiency air-cooled heat pumps for both heating and cooling in many areas, such as offices and classrooms, and with new duct work, ceilings, light fixtures and finish repair. Both buildings are provided with new web-based DDC control networks, allowing the monitoring, troubleshooting and adjustment of the HVAC equipment from the headquarters of the National Guard in Frankfort, KY.

Federal Correctional Institution and Satellite Camp, Glenville, WV - Mechanical Engineer for this \$106,000,000+ facility comprised of 13 buildings (603,132 SF). The complex houses 1,000 inmates at the main complex, and 128 inmates at the camp. Work included a utility plant, which centrally produces chilled water, hot water and backup power for the entire facility. The heating system consists of three 300 horsepower natural gas-fired boilers, two of which can handle the entire load, the third unit being standby. Two centrifugal chillers provide 1200 tons of cooling, and include variable speed secondary chilled water pumps.

Brad Leach, PE
GRW Mechanical Engineer



Years of Experience: 18

Years with GRW: 3

Education

B.S., Mechanical Engineering, 1992, Tennessee Technological University

Registration

Professional Engineer: KY

Professional Affiliations and Training

American Society of Heating & Refrigeration Engineers (ASHRAE)

Qualifications and Similar Project Experience

Mr. Leach's areas of expertise include the design of mechanical HVAC systems for new facilities, as well as renovations/additions, to multi-use military buildings. His experience includes multi-zone split systems, chilled water, industrial ventilation, dust collection, vehicle exhaust capture systems, commercial kitchen exhaust systems, and computer room applications. Mr. Leach has a broad range of experience with DoD projects, and he has authored mechanical and plumbing requirements for military RFPs. He also has extensive knowledge of design development charrettes, design/build RFPs, 1391s, AT/FP measures, and sustainable design.

West Virginia ANG 130th Airlift Wing Squadron Operations Facility, Charleston, WV - Mechanical Engineer. Design and construction services (Type A, B & C) for modifications and energy-efficient improvements to 25,765 SF facility with history of additions and relocating activities resulting in a building that inadequately serves its users (Administration and Operations, Base Operations, Command Post, and Life Support and Fitness Center). Work included Charrette to develop alternative floor plans. Final design allows for efficient use of space; HVAC, electrical and fire protection systems upgrade; and roof repairs. Designed to achieve USGBC LEED Certified rating and meet EPA 2005 requirements.

West Virginia ARNG Live Fire Exercise Shoot House, Camp Dawson, WV - Mechanical Engineer. Design for innovative re-use of a recently-acquired former industrial complex adjacent to Camp Dawson to provide a \$2 million Live Fire Exercise Shoot House, including shoot house to be housed in a metal warehouse, operations / storage, after action review (AAR) facility, ammunition breakdown facility, warehouse restroom renovation, access road and parking area, and utility services. Completed conceptual design for LFSH facility with final design and construction of LFSH completed by selected vendor (design / build); balance of facilities delivered with traditional design / bid / build approach.

Indiana ARNG Readiness Center for 76th Brigade Combat Team, Lawrence, IN - Mechanical Engineer for planning, design and construction of a new 109,555 SF two-story Army National Guard Readiness Center in Lawrence, a suburb of Indianapolis, IN. This facility is located on a site that was formerly part of Fort Benjamin Harrison. An 8,300 SF unheated storage facility is also included. This facility is designed to meet the LEED Certified sustainable design rating.

Ohio ARNG Joint Armed Forces Reserve Center and Field Maintenance Shop Complex, Springfield, OH - Mechanical Engineer for planning, design and construction of a new LEED Silver 85,867 SF Joint

Armed Forces Reserve Center (AFRC) and Field Maintenance Shop (FMS) for the OH ARNG and the US Army Reserves in Springfield, Ohio. Prior to design, the GRW Team completed a Project Planning Document Charrette (PPDC) for this project.

Kentucky ANG 123rd Airlift Wing Contingency Response Group Facility, Louisville, KY - Mechanical Engineer for Charrette and conceptual design of a 51,400 SF addition which includes approximately 24,600 SF of administrative, food service and training space, a 24,500 SF storage area for 200 tons of mobility equipment and a 2,300 SF dining facility addition. The project also includes approximately 3,000 SF of renovation to the existing Services Flight and Security Forces Squadron area. The facility is being designed to meet the USGBC LEED Silver sustainable design criteria.

Texas ANG 136th Airlift Wing Security Forces Squadron Facility, Fort Worth, TX - Mechanical Engineer for initial programming Charrette and conceptual design for this Design/Build project at NAS JRB Fort Worth. The facility, a 17,400 SF, 2-story addition to the base's Headquarters Building, includes command, control and administrative office spaces, a weapons simulator, an arms vault, classrooms, weapons and equipment storage and maintenance areas, locker rooms and restrooms, a fitness room, mobility equipment storage and utility vehicle storage. The facility is being designed to meet the USGBC LEED Silver sustainable design criteria.

Texas ANG Munitions Maintenance Shop for 147th Reconnaissance Wing, Ellington Field JRB, Houston - Mechanical Engineer for Charrette and design of a 3,100 SF maintenance shop to provide for munitions maintenance and inspection. The selected alternative is a heavily reinforced concrete structure with two feet of earth on the roof and in between double concrete exterior walls. All exterior doors are designed as blast doors. The interior includes an 1800 SF maintenance bay, electrical, communications, and mechanical rooms, a rest room and an office equipped for SIPERNET. The facility is being designed to meet the ANG sustainable design criteria and EPA 2005 energy efficiency standards for an industrial facility. Exterior features include a secure fenced perimeter, access road, parking lot and gates, and new utility services.

Aliceville Federal Correctional Institution and Satellite Camp, Aliceville, AL - Mechanical Engineer for design / build delivery of a \$184 million women's medium-security Federal Correctional Institution and minimum-security Federal Prison Camp totaling 58,000 SM, housing approximately 1,800 inmates in three 4-story housing units. Designed FCI and FPC buildings for LEED certification and under Federal Leadership in High Performance Building Standards. Highlights in sustainable design include: recycled and treated laundry waste water; stormwater detention ponds design to allow on-site infiltration to reduce runoff and pollution of receiving streams; water efficient landscaping and 30% reduction of water use resulting from low-flow plumbing fixtures; on-site renewable energy and measurable optimized energy performance; and attention to indoor environmental quality.

Fort Dix Combined Arms Collective Training Facility RFP, Fort Dix, NJ - Development of proposal documents for urban combat training facility to be located at Ft. Dix, NJ. Mechanical Engineer project responsibilities included client interface, field investigation and documentation of requirements, cost estimation, scope determination and mechanical systems evaluation and recommendation, and preparation of official proposal documents for all mechanical facets of the project.

Waterfront Security Force Facility, Kings Bay, GA (NAVFAC SE) - Design of a two-story, ballistic-hardened, reinforced concrete structure with concrete floor slab, concrete exterior walls, and a reinforced concrete roof to house security forces located in the Strategic Weapons Facility Atlantic at the Naval Base Kings Bay. Mechanical Design Engineer for HVAC, Plumbing, computer rooms, vehicle exhaust and other mechanical systems, energy evaluation, cost estimation, and specification preparation.



Matt Craig, PE, LEED AP **GRW Structural Engineer**

Years of Experience: 20

Years with GRW: 2

Education

B.S., Mechanical Engineering, 1990, Ohio State University

M.S., Engineering (Focus on Structural), 1994, Purdue University

Registration

Professional Engineer: AL, FL, GA, IN, KY, LA, MD, MI, MN, MS, NC, OH, PA, SC, TX, VA, WI

LEED Accredited Professional

Professional Affiliations and Training

Board Member, Structural Engineers Association of Kentucky (SEAK)

Qualifications and Similar Project Experience

With 20 years of experience, Mr. Craig's technical experience includes structural steel, foundation design, reinforced concrete, and code compliance. He is extremely knowledgeable of the structural requirements for multi-story buildings and parking facilities. For example, Mr. Craig designed over 500 precast components for a 7-story parking garage. He has also designed the structural components for many manufacturing and industrial facilities.

Colorado ANG Add/Alter Weapons Release Facility for 140th AW, Buckley AFB - Structural Engineer for an additional 4,100 SF of new space for these functions on the west and north sides of the building. Extensive modifications will also be made to the existing floor plan, and a new, more energy efficient HVAC system, new roof and new building envelope will be installed. This 16,200 SF facility is required to meet the ANG Sustainability Silver rating criteria for an Industrial facility, as well as the energy savings criteria required under EAct 2005.

Texas ANG Munitions Maintenance Shop for 147th Reconnaissance Wing, Ellington Field JRB, Houston - Structural Engineer for Charrette and design of a 3,100 SF maintenance shop to provide for munitions maintenance and inspection. The selected alternative is a heavily reinforced concrete structure with two feet of earth on the roof and in between double concrete exterior walls. All exterior doors are designed as blast doors. The interior includes an 1800 SF maintenance bay, electrical, communications, and mechanical rooms, a rest room and an office equipped for SIPERNET. The facility is being designed to meet the ANG sustainable design criteria and EAct 2005 energy efficiency standards for an industrial facility. Exterior features include a secure fenced perimeter, access road, parking lot and gates, and new utility services.

Yazoo City U.S. Penitentiary and Satellite Camp, Yazoo City, MS – Structural Engineer for design/build delivery of a \$175 million medium-security main complex and minimum-security prison camp totaling 674,262 SF and housing approximately 1,536 inmates in general housing, 120 in special housing and 256 at the prison camp. The facility is being designed to meet **LEED® Silver Certified Criteria**.

Fruit Of The Loom Distribution Center, Jedburg, SC - Structural Engineer for a 350,000 SF distribution center with load-bearing site-cast tilt-up walls and conventional structural steel roof framing. The facility included defined-aisle Fmin 60 concrete floors for narrow-aisle rack storage with 35-foot clear height and was located in both a high wind and high seismic region. (Design/Build)

Bluegrass Community & Technical College, Georgetown, KY - Structural Engineer for a 77,000 SF new community college building for teaching manufacturing skills near the Georgetown Toyota plant. The building was a two-story conventional structural steel building with horizontally-spanning architectural insulated metal panel cladding. The facility included a manufacturing lab with robots, injection molding machines in a high bay with a 10-ton overhead bridge crane.

REHAU Automotive America Expansion, Cullman AL - Design Manager for all design disciplines on a 200,000 SF manufacturing and warehouse addition for an automotive and construction parts manufacturer. The building was a pre-engineered metal building with a 55-foot-tall high-rack storage system including defined-aisle Fmin 80 concrete floors for a narrow-aisle semi-automatic forklift system. Design scope included design of material flow, racking system and integration of building, racking, in-rack sprinkler system and specialized forklift to material flow design. (Design/Build)

Mohawk Carpet FX Plant, Bennettsville, SC - Structural Engineer for 440,000 SF new textile yarn conversion manufacturing plant. The building had a conventional structural steel frame with precast wall panels with mechanical penthouses for four large chillers/air washers. (Design/Build)

Jim Hudson Toyota, Columbia, SC - Engineering Project Leader for mechanical, electrical, plumbing and structural engineering and Structural Engineer for a 70,000 SF auto dealership. The building had site-cast tilt-up concrete walls with conventional structural steel roof. An octagonal showroom consisted of 50-foot-wide tilt-up concrete wall panels with 42-foot-wide openings and a portion of the roof was designed with a ramp leading up to an area where cars could be parked to showcase them for higher visibility from the nearby highway.

St. Vincent's Hospital Parking Deck, Jacksonville, FL - Structural Engineer and detailing coordinator for design of all precast components of a 7-story parking garage. Produced structural design and supervised and checked detailing and shop drawing production of over 500 precast components working for the precast manufacturer. The parking deck design featured a clinic on the ground level, and had architectural thin brick cast into most of the visible components on the front fascia - all of which had to be detailed so that the brick joints would align between pieces of precast. The structure also included a precast connector structure to connect it to the adjacent hospital.

Medical University of South Carolina, Charleston, SC - Performed seismic analysis and designed precast components for 9-deck parking garage.

Alu-Menziken / Universal Alloy, Canton, GA - Structural Engineer for an 80,000 SF addition to an aluminum component manufacturer for the aerospace industry. The addition was a conventional steel structure with precast wall panel cladding including support structure for three overhead bridge cranes, the largest being 60 ton spanning nearly 100 feet. Crane support structure included runway beams 110-foot span nearly 6 feet deep. The structural design was coordinated around foundations for large extrusion presses, some being 20 feet thick. (Design/Build)

Glaxo Smithkline Distribution Center, Greenville, SC - Engineering Project Leader for civil, mechanical, electrical, plumbing and structural engineering and Structural Engineer for a 265,000 SF pharmaceutical distribution center. The building was designed to FM Global, FDA and Glaxo standards and for precise temperature control of the 35-foot-tall warehouse. The building incorporated load-bearing precast wall panels and environmental control was designed for using air-rotation units.

Matt Callahan, PE GRW Structural Engineer



Years of Experience: 23

Years with GRW: 3

Education

M.S., Structural Engineering, 1998, University of South Carolina

B.S., Civil Engineering, 1979, Syracuse University

B.S., Wood Products Engineering, 1979, SUNY College of Environmental Science

Registration

Professional Engineer: KY, OH, NY, GA, WV, TN, IN, AL, TX

Qualifications and Similar Project Experience

Mr. Callahan has 23 years of experience in structural analysis and design for industrial, commercial, institutional and residential projects using steel, reinforced concrete, prestressed concrete, masonry and wood as structural materials. His areas of technical expertise include foundation design and analysis; superstructure design and analysis; new design and renovation of existing structures; repair of distressed structures; and code compliance.

Ohio ARNG Joint Armed Forces Reserve Center and Field Maintenance Shop Complex, Springfield, OH - Structural Engineer for a new LEED Silver 85,865 SF Joint Armed Forces Reserve Center (AFRC) and Field Maintenance Shop (FMS) for the OH ARNG and the US Army Reserves. The facilities are designed to match the architecture of the facilities on an adjacent site occupied by the Ohio Air National Guard. Prior to design, the GRW Team completed a Project Planning Document Charrette (PPDC) for this project.

Indiana ARNG Readiness Center for 76th Brigade Combat Team, Lawrence, IN - Structural Engineer for planning, design and construction of a new 109,555 SF two-story Army National Guard Readiness Center in Lawrence, a suburb of Indianapolis, IN. This facility is located on a site that was formerly part of Fort Benjamin Harrison. An 8,300 SF unheated storage facility is also included. This facility is designed to meet the LEED Certified sustainable design rating.

West Virginia ANG 130th Airlift Wing Aboveground Fuel Storage Dispensing Facility, Charleston, WV - Structural Engineer for a new aboveground fuel station for the installation's government-owned vehicles, comprising two new aboveground tanks (1 diesel, 1 unleaded gasoline) and a new dispensing system, replacing an older fuel station that included underground fuel storage tanks.

Kentucky ANG Design of Six Renovation Projects for 123rd Airlift Wing, Louisville ANG Base, KY - Structural Engineer for "fast-track" designs at the Louisville ANG Base including fire suppression systems in two buildings and relocation of a LOX storage facility.

Texas ANG 136th Airlift Wing Security Forces Squadron Facility, Fort Worth, TX - Structural Engineer for this Design/Build project at NAS JRB Fort Worth. The facility, a 17,400 SF, 2-story addition to the base's Headquarters Building, includes command, control and administrative office spaces, a weapons simulator, an arms vault, classrooms, weapons and equipment storage and maintenance areas, locker rooms and restrooms, a fitness room, mobility equipment storage and utility vehicle storage. The facility is being designed to meet the USGBC LEED Silver sustainable design criteria. Estimated Construction is \$4.54 million.

Texas ANG Munitions Maintenance Shop for 147th Reconnaissance Wing, Ellington Field JRB, Houston - Structural Engineer for Charrette and design of a 3,100 SF maintenance shop to provide for munitions maintenance and inspection. The selected alternative is a heavily reinforced concrete structure with two feet of earth on the roof and in between double concrete exterior walls. All exterior doors are designed as blast doors. The interior includes an 1800 SF maintenance bay, electrical, communications, and mechanical rooms, a rest room and an office equipped for SIPERNET. The facility is being designed to meet the ANG sustainable design criteria and EAct 2005 energy efficiency standards for an industrial facility. Exterior features include a secure fenced perimeter, access road, parking lot and gates, and new utility services.

Marshall University Engineering Lab, Huntington, WV - Structural Engineer for a new 16,000 SF Engineering Laboratory Building to house materials, soils, hydraulics, structural, and environmental laboratory space, as well as classroom space and faculty offices. The curved façade of the building was designed to create a park-like plaza along the north edge of 3rd Avenue, giving a softened edge to what previously had been parking lots and pavement. Brick and other exterior building materials were selected to complement the adjacent campus buildings, thus giving a more unified appearance to the campus.

Southwestern High School Addition and Renovation, Somerset, KY - Structural Engineer for a new 28,000 SF, two-story classroom addition and a 1980 SF renovation to the existing cafeteria.

Northern and Southern Middle Schools, Somerset, KY - Consulted by the school district to investigate and recommend structural repair of wall distress in the gymnasiums.

Monroe County Health Department Expansion, Tompkinsville, KY - Structural Engineer for a 5,000 SF expansion to the existing 2,300 SF facility. The main components of the addition include examination rooms, lobby, registration area, conference/education room, offices and restrooms.

Robertson County Fire Department and Community Center, Mt. Olivet, KY - Structural Engineer for 5,368 SF, single-story, wood-framed facility with metal roof and siding. The 3,000 SF fire department has three emergency vehicle bays with dual (front and rear) entrances. A corridor with restrooms connects the vehicle bays to a 1,183 SF community room which seats 96 attendees. A warming kitchen and janitor closet are located off of community center.

Del Rio Police Station, Del Rio, TX - Structural Engineer for \$6 million facility which includes a 27,000 SF police station with a detention area, and a 7,000 SF evidence building. The building design includes structural steel framing along with load bearing masonry and incorporate traditional local materials as well as modern elements. The building was designed for future expansion, and uses energy efficient materials and equipment suited for the area.

Corbin Utilities Office and Warehouse Buildings, Corbin, KY - Structural Engineer for renovation of an existing automobile dealership that is comprised of three buildings, Building One consists of approximately 26,000 SF and contains a spacious public lobby, a cashier's counter for walk-in customers, general offices, administrative offices, shower and locker room facilities, and a warehouse for company service vehicles. The extent of the programming and design development of the additional two buildings will be established upon collaboration with the Owner.

New Municipal Building Complex for Augusta/Richmond County, GA - Part of structural team for design of (2), three-story, steel moment frame buildings and foundations for several pre-engineered out buildings. Coordinated with architect to finalize mezzanine and loading dock layout for the largest out building.

Harvey H. Helm, PE, LEED AP, PLS GRW Civil/Site Engineer



Years of Experience: 36

Years with GRW: 36

Education

B.S., Civil Engineering, 1977, University of Kentucky

Registration

Professional Engineer: KY, TN, OH, MS, GA, OK, TX, WA, KS, MO, WV, FL, NC, MI, AL

LEED Accredited Professional

Professional Land Surveyor: KY

Professional Affiliations and Training

National Society of Professional Engineers

Kentucky Society of Professional Engineers

Qualifications and Similar Project Experience

Mr. Helm has more than 36 years of experience in land surveying, drainage facilities, streets and roads, site development and site utilities. He has been Project Manager for major Federal agency site development projects, as well as small task orders under Indefinite Delivery/Indefinite Quantity Contracts. Mr. Helm has completed more than 50 projects for the U.S. Army Corps of Engineers, U.S. Bureau of Prisons, National Guard Bureau and the U.S. Air Force.

West Virginia ANG Communications Facility for the 130th Airlift Wing, Charleston, WV - Civil Engineer for a 13,100 SF (1,217 SM) LEED Silver facility which provides a centrally located common user communications system for both intra-base and off-base communications. Various types of cable from the base transmitter and receiver as well as other base communications systems will be normally fed through this structure. Ground control of all ground point-to-point contact and air to ground point-to-point contact (such as radio, telephone, DISNET, etc.) may be exercised from this facility.

Ohio ARNG Joint Armed Forces Reserve Center and Field Maintenance Shop Complex, Springfield, OH - Civil Engineer for a new LEED Silver 85,865 SF Joint Armed Forces Reserve Center (AFRC) and Field Maintenance Shop (FMS) for the OH ARNG and the US Army Reserves in Springfield, Ohio. The complex includes administrative areas, education spaces, assembly hall with fully functional kitchen, storage areas, and 10 drive-through work bays. Other features include parking, wash platform, loading dock, access roads and ramps, site AT/FP measures, security lighting, and a geothermal system for heating and cooling of the facilities. Prior to design, the GRW Team completed a Project Planning Document Charrette (PPDC) for this project.

Kentucky ARNG Armed Forces Reserve Center and Field Maintenance Shop, Paducah, KY - Civil Engineer for design/build of an estimated \$14.7 million Armed Forces Reserve Center (AFRC) and Field Maintenance Shop (FMS) in Paducah. This BRAC joint forces facility for the KY Army National Guard and U.S. Army Reserve is adjacent to the Barkley Regional Airport.

Kentucky ARNG Armed Forces Reserve Center and Field Maintenance Shop Complex at Bluegrass Army Depot, Richmond, KY - Civil Engineer for conceptual design and construction services for a LEED Silver rated, \$21 million, 63,250 SF AFRC and 31,725 SF FMS. This design/build project was undertaken

by the KY ARNG in response to the 2005 BRAC requirements. Nine ARNG and USAR units, including more than 500 personnel, from five closing facilities will use the new AFRC and FMS for training. A/E services provided include development of Phase 1 and Phase 2 design-build RFP documents, conceptual plans, outline technical specifications, assistance in selection of the design-build team, construction administration and commissioning assistance.

Indiana ANG Security Forces Operations and Training Facility, Fort Wayne, IN - Civil Engineer for conceptual designs, bidding documents and construction services for design/build of a new 18,494 SF Security Forces Operations and Training Facility, including a Combat Arms Training and Simulator/Combat Arms Training Maintenance (CATS/CATM) activity in the same building.

Kentucky ANG Design of Six Renovation Projects for 123rd Airlift Wing, Louisville ANG Base, KY - Civil Engineer for series of "fast-track" designs at the Louisville ANG Base including relocation of a LOX storage facility, remodeling of the Command Post for the Wing Operations Center, and remodeling the Operations Center for the Critical Response Team.

Michigan ARNG Design & Renovation of 8 Facilities at Ft. Custer, Camp Grayling, Grayling Army Airfield and Midland, MI, MI - Lead Civil Engineer for 8 "Fast Track Design" projects in scattered parts of Michigan. These projects include new Bachelor Officer Quarters at Fort Custer, Camp Grayling and Grayling AAF, an addition to the Range Control Building at Fort Custer, a new Logistics Facility at Fort Custer, a new General Officers BOQ at Camp Grayling, a new Company Operations Facility at Grayling AAF, and kitchen and other renovations to an existing armory in Midland.

Fuels System Maintenance and Corrosion Control (FSMCC) Facility, Kentucky Air National Guard at Standiford Field, Louisville, KY - Project Engineer for 23,800 SF FSMCC hangar project which was constructed using the design/build acquisition process. The purpose of the facility is to provide a hangar for the environmentally safe repair of aircraft fuel cells/bladders and corrosion control on aircraft parts, both on and off the aircraft. This is a level II environmental compliance project. The project also included pavement design/construction of approximately 12,500 SY of C-130 aircraft ramp access taxiway to connect the new FSMCC hangar to the aircraft parking apron as well as water, sanitary sewer, drainage, gas, electric and telephone utilities.

Air National Guard B-1B Beddown, Robins Air Force Base, GA - Project Civil Engineer for site work for the development of a new base for the Georgia Air National Guard in their transition from F-15 Fighters to B-1 Bombers and their corresponding move from Dobbins ARB to Robins AFB, GA. The team was responsible for the development of area development plans and the design of all site work, utility extensions, airfield pavement, road pavements, the Consolidated Aircraft Support System (CASS), and the Hydrant Fueling System and Fuel Farm. The project was a fast paced effort to meet operational and funding deadlines; the entire process from planning through design to the start of construction was completed in only 10 months.

Toyota Tsusho of America Coil Steel Warehouse and Office Facilities, Georgetown, KY and Princeton, IN - Civil Engineer for the design/build construction of coil steel warehouses and office facilities. Facilities for the Princeton Service Center included a phased three-bay warehouse for steel coil storage, two office facilities, a general-purpose warehouse, roadways, rail spurs and parking. Facilities in Georgetown included a new coil steel warehouse, roadways, rail spurs and parking.



Timothy Cross, PE, LEED AP
GRW Civil Engineer

Years of Experience: 10

Years with GRW: 7

Education

B.S., Civil Engineering, 2000, University of Kentucky

Registration

Professional Engineer: KY

LEED Accredited Professional

Professional Affiliations and Training

National Society of Profession Engineers

U.S. Army Corps of Engineers, Protective Design Center: 24 hour training on Access Control Point Standards and 15 hour training on Security Engineering and Standards

Qualifications and Similar Project Experience

Mr. Cross has 10 years of experience with roadway, drainage and site development planning and design. He has worked on several projects under GRW's Indefinite Delivery Contract with the National Guard Bureau including assignments for both the Air National Guard and the Army National Guard.

Indiana ARNG Readiness Center for 76th Brigade Combat Team, Lawrence, IN - Civil Engineer for planning, design and construction of a new 109,555 SF two-story Army National Guard Readiness Center in Lawrence, a suburb of Indianapolis, IN. This facility is located on a site that was formerly part of Fort Benjamin Harrison. An 8,300 SF unheated storage facility is also included. This facility is designed to meet the LEED Certified sustainable design rating.

West Virginia ARNG Live Fire Exercise Shoot House, Camp Dawson, WV – Civil Engineer for design of adaptive re-use of a recently-acquired former industrial complex adjacent to Camp Dawson to provide a \$2 million Live Fire Exercise Shoot House, including shoot house to be housed in a metal warehouse, operations / storage, after action review (AAR) facility, ammunition breakdown facility, warehouse restroom renovation, access road and parking area, and utility services. Completed conceptual design for LFSH facility with final design and construction of LFSH completed by selected vendor (design / build); balance of facilities delivered with traditional design / bid / build approach.

West Virginia ANG 130th Airlift Wing Aboveground Fuel Storage Dispensing Facility, Charleston, WV - Civil Engineer. Design for a new aboveground fuel station for the installation's government-owned vehicles, comprising two new aboveground tanks (1 diesel, 1 unleaded gasoline) and a new dispensing system, replacing an older fuel station that included underground fuel storage tanks.

Ohio ARNG Joint Armed Forces Reserve Center and Field Maintenance Shop Complex, Springfield, OH - Civil Engineer for planning, design and construction of a new LEED Silver 85,867 SF Joint Armed Forces Reserve Center (AFRC) and Field Maintenance Shop (FMS) for the OH ARNG and the US Army Reserves in Springfield, Ohio. The facilities are designed to match the architecture of the facilities on an adjacent site occupied by the Ohio Air National Guard. Prior to design, the GRW Team completed a Project Planning Document Charrette (PPDC) for this project. This meets the LEED Silver sustainable design rating.

Kentucky ARNG Armed Forces Reserve Center and Field Maintenance Shop, Paducah, KY - Civil Engineer for design/build of an estimated \$14.7 million Armed Forces Reserve Center (AFRC) and Field Maintenance Shop (FMS) in Paducah. This BRAC joint forces facility for the KY Army National Guard and U.S. Army Reserve is adjacent to the Barkley Regional Airport.

Texas ANG 136th Airlift Wing Security Forces Squadron Facility, Fort Worth, TX - Civil Engineer for initial programming Charrette and conceptual design for this Design/Build project at NAS JRB Fort Worth. The facility, a 17,400 SF, 2-story addition to the base's Headquarters Building, includes command, control and administrative office spaces, a weapons simulator, an arms vault, classrooms, weapons and equipment storage and maintenance areas, locker rooms and restrooms, a fitness room, mobility equipment storage and utility vehicle storage. The facility is being designed to meet the USGBC LEED Silver sustainable design criteria.

Kentucky ARNG Armed Forces Reserve Center and Field Maintenance Shop, Bluegrass Army Depot, Richmond, KY - Civil Engineer for preparation of Request for Qualification and Proposal documents for design/build of an Armed Forces Reserve Center (AFRC) and Field Maintenance Shop (FMS) in Paducah. Also assisted in review and evaluation of received proposals as well as construction administration services. This BRAC joint forces facility for the KY Army National Guard and U.S. Army Reserve is adjacent to the Bluegrass Army Depot in Richmond, KY.

West Virginia ANG Communications Building, Charleston, WV - Civil Engineer for design of relocating and constructing a new communications building in Charleston. This building is to be designed and constructed with Silver LEED accreditation. This facility for the WV Air National Guard is adjacent to the Yeager International Airport.

Indiana ANG Security Forces Operations and Training Facility, Fort Wayne, IN - Civil Engineer for conceptual designs, bidding documents and construction services for design/build of a new 18,494 SF Security Forces Operations and Training Facility, including a Combat Arms Training and Simulator/Combat Arms Training Maintenance (CATS/CATM) activity in the same building. The building includes offices for the Flight Chief, open office area for the base security forces, classrooms, workout room, locker room, weapons simulator room and weapons storage areas.

Federal Correctional Institution and Satellite Camp, Aliceville, AL - Civil Engineer for design/build of a women's medium-security Federal Correctional Institution and minimum-security Federal Prison Camp. This \$184,000,000 design/build project has a gross building area of approximately 58,000 square meters, and will house approximately 1,800 inmates. Site work involved earthwork, roadways and parking, building pads, and utilities for the 70-acre Federal Correctional Institution and 20-acre Federal Prison Camp and support facilities. The project necessitated an early site work package in order to keep the project on schedule.

Abraham Lincoln Bicentennial Town Square Renovations, Hodgenville, KY - Civil Engineer for the design and construction administration for the Hodgenville Town Square renovation which included a new, pedestrian friendly roundabout to encompass the existing Lincoln Statue. Features included signage, parking, brick paver fields, underground utilities installation (water, sanitary and storm sewer, and electric) and surface drainage.

Robertson County Fire Department and Community Center, Mt. Olivet, KY - Civil Engineer for 5,368 SF, single-story, wood-framed facility with metal roof and siding. The 3,000 SF fire department has three emergency vehicle bays with dual (front and rear) entrances. A corridor with restrooms connects the vehicle bays to a 1,183 SF community room which seats 96 attendees. A warming kitchen and janitor closet are located off of community center.

Jonathan Young

Terradon Senior Geotechnical Engineer



Environmental Scientist for site development permitting, site assessment, property transfer/due diligence assessment projects, stormwater DMR preparation, and groundwater monitoring well projects. Thirteen years of experience in environmental research, state, industry, and consulting experience. As an environmental scientist, research included how cottontail rabbits use edge habitat, and studied numbers and composition of wildlife species on property surrounding industrial facilities. Performed monitoring studies for and managed state-owned properties, conducted water quality testing and analysis, obtained environmental permits and produced and implemented mitigation plans for numerous development and industrial projects. Conducted and prepared environmental site assessments for industrial and residential property transfer projects, managed storm water and groundwater monitoring projects for industrial and commercial entities.

Education

Master of Science, 1997, Texas A&M University
Bachelor of Science, 1994, West Virginia University

Recent Project Experience Highlights

- Oversaw a native warm season grass reintroduction project on a 65,000 acre wildlife management area
- Groundwater monitoring well sampling, analysis and abandonment for commercial companies
- Phase I Site Assessment for several commercial developments in West Virginia
- Phase I Site Assessment Update for a multi-site HUD/Charleston Public Housing
- Phase I Site Assessments for telecommunication tower projects in WV
- Prepared a Federal Energy Regulatory Commission Environmental Report for the relocation of two 30-inch diameter and one 36-inch diameter natural gas transmission pipelines for a distance of 8 miles each in Brentwood, TN.
- Obtained individual environmental permits (USACE 404, WVDEP 401, WNDNR Public Lands Corporation Right of Entry, and others) and stream and wetland mitigation planning and implementation on five large retail facilities in WV
- Section 7 of the Endangered Species Act Consultation with the US Fish and Wildlife Service on multiple residential, commercial, and industrial projects, to include coal companies, retail facilities, and natural gas transmission companies.
- Section 106 of the National Historic Preservation Act Consultation with historic preservation agencies in 9 states for numerous commercial and industrial projects, to include coal companies, retail facilities, and natural gas transmission companies.
- Consultation with numerous state wildlife agencies for endangered species issues for numerous projects in 9 states.
- Consulted with flood plain agencies in numerous states concerning natural gas replacement and auxiliary installation projects.
- Provided Federal Energy Regulatory Commission project type determinations and compliance for 3 natural gas transmission companies in 9 states.

Robert Thaw, PS Terradon Survey Manager



Mr. Thaw is Manager of Surveying Services for TERRADON. He organizes and supervises survey crews; designs commercial sites for drainage, building site locations, parking and utility easements; reviews project plans; and creates base mapping. Mr. Thaw has more than 22 years of experience in a wide range of land surveying applications. He is experienced with the day-to-day operation of the business and management of personnel.

Education

B.A., Survey Technology, 1981, West Virginia Institute of Technology
B.S., Surveying, 1985, West Virginia Institute of Technology

Registration

Professional Surveyor, West Virginia

Recent Project Experience Highlights

- Control Surveys - Conventional and G.P.S.
- Topographic Surveys
 - Commercial Sites under ALTA Standards
 - Abandoned Mine Lands
- Waste Management Facilities
- Boundary Surveys
- Right of Way Plans (Highways and Utilities)
- Site Design (Commercial and Urban Developments)
- Gas Well Locations and Permitting
- Construction Stakeout
 - Commercial Buildings
 - Sanitary Sewer
 - State and Federal Highways
- Geographic Information Systems Project No. U234-19-15.14, Preliminary horizontal and vertical control.

Gregory D. Fox, ASLA, LEED
Terradon Landscape Architect



TERRADON'S Landscape Architect services are managed by Gregory D. Fox, ASLA, LEED. Mr. Fox, a native of West Virginia and a graduate of West Virginia University with a Bachelor of Science in Landscape Architecture and a Bachelor of Arts in Geography (Planning) has gained a wide range of experience with a variety of project types.

Education

B.S Landscape Architecture, West Virginia University
B.A. Geography (Planning) West Virginia University

Registration

Landscape Architect: West Virginia, Ohio, North Carolina, South Carolina,

Recent Project Experience Highlights

Mr. Fox has been responsible for a number of notable recreation, commercial and educational site development projects since joining TERRADON in February of 2000. His group earned a 2001 Engineering Excellence Award from the West Virginia Association of Consulting Engineers for the master planning of an extreme sports park at WUIT in Montgomery.

They also earned a 2002 Engineering Excellence Award from the West Virginia Association of Consulting Engineers and a 2002 Merit Award from the American Society of Landscape Architects for the City of Fairmont Riverfront Master plan project. Most recently, the 2005 Gold Award from the American Council of Engineering Companies was presented to the firm for the site design of the new West Virginia Division of Environmental Protection Headquarters Building.

Other notable projects include the Marshall University Parking Garage, the West Virginia Public Service Commission Parking Facility, the Home Depot development at Southridge Center, and over 25 new schools located throughout West Virginia.

Mr. Fox has managed over 30 West Virginia park and recreation projects since joining TERRADON in 2000.

3.0 Experience with Similar Projects

The following pages include descriptions of selected projects that have relevance to the proposed Fixed Wing Army Aviation Training Site Facility Expansion.

District of Columbia ANG Maintenance Hangar Modifications

The 201st Airlift Squadron of the 113th Wing of the District of Columbia Air National Guard was scheduled to receive the first of four new Boeing 737-700 or BBJ (Boeing Business Jet) aircraft in the summer of 2002. To accommodate the maintenance of these aircraft (and possibly 757 aircraft in the future), which have a vertical stabilizer taller than the door trusses of a hangar used for assigned C-22 aircraft, GRW was selected to develop a cost-effective method for enclosing the entire aircraft within the hangar. A budget ceiling of \$500,000 was established by HQ, ANG for this project.

GRW initially completed a study of feasible options for modifying the selected maintenance hangar (Hangar 9, Building 1228), a historically significant structure at the base. The study primarily focused on a structural evaluation of the “eyebrow” of the hangar to determine how the 40-foot high door trusses could be modified to allow the higher vertical stabilizer of the new aircraft and the even higher vertical stabilizer of the 757 aircraft to enter the hangar so the doors could be closed during cold weather maintenance. Options ranged from demolishing and re-building the entire eyebrow to raising the center portion to accommodate the taller vertical stabilizer. The internal dimensions of the hangar (width and length) were sufficient to accommodate the new aircraft.

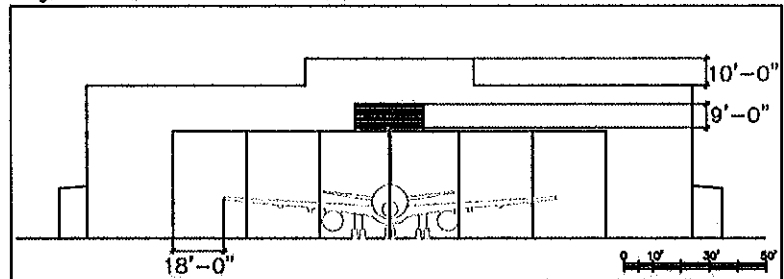
This was an excellent example of “designing to cost”, in which the design and construction is driven by the need to meet the required project objectives within a fixed budget. In addition to modifying the trusses, the impacts on demolition, existing building fire protection and HVAC systems, availability of the hangar for use during construction, and architectural compatibility with the other buildings on the base had to be considered.

The approach taken by GRW initially involved the investigation of several options, each of which was evaluated in terms of its cost and the other impacts described above. A DD1391 was developed for each option, with an accompanying narrative describing the architectural/engineering aspects of the option, operational considerations and estimated construction cost. Working closely with a Design Working Group from the Base, an option was selected that involved the innovative re-use of the existing roof truss system. Other

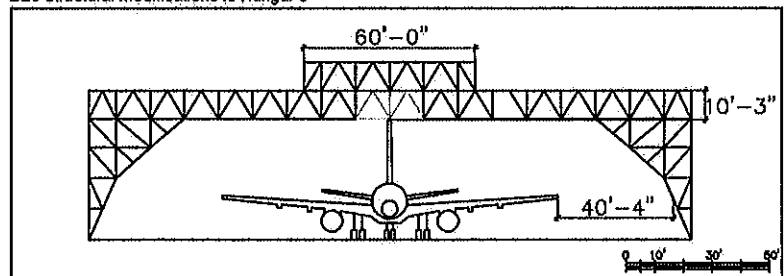
Project Highlights

- National Guard hangar modification experience
- “Design to Cost”
- Fast track project

Hangar 9 Elevation after structural modification



BBJ Structural Modifications to Hangar 9



) options were found to be more expensive, had additional impacts on other building systems and were not further considered.

As the accompanying sketch indicates (see previous page), a new truss was attached to the top chord of the existing truss so that the combined truss spanned across the center of the hangar doorway. A 24' -0" center section of the existing truss was then removed, leaving the majority of the existing truss to span the hangar while the new truss spanned only the raised portion needed to accommodate the vertical stabilizer for the new aircraft.

The selected option allowed the hangar doors to remain intact and could be built fairly quickly without significantly interfering with ongoing building operations. Minor modifications were needed to relocate a portion of the interior lighting and sprinkler systems, and to relocate the exterior building signage. The estimated cost for this option was \$265,000.

This option was rapidly developed into plans and specifications at the request of the base, but bids were postponed after the terrorist attacks of September 11, 2001. More stringent site security and anti-terrorism criteria (Andrews

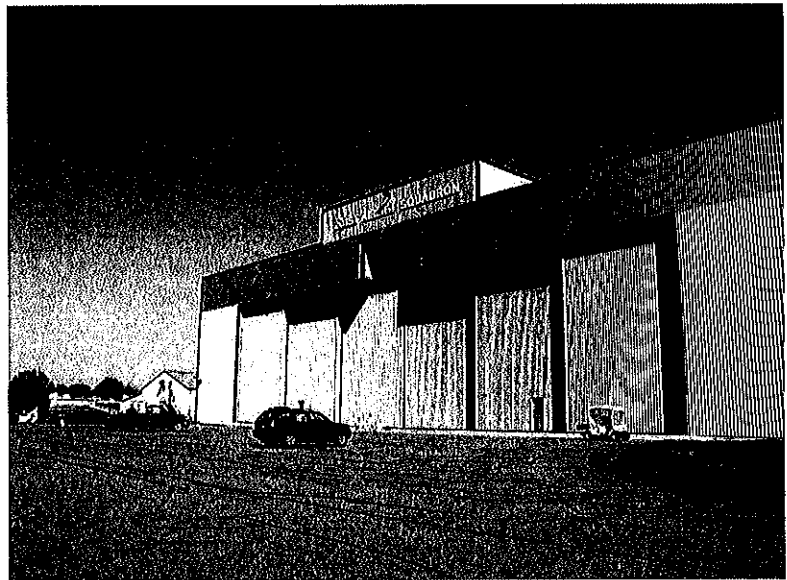
) AFB is the "home" of Air Force One), were put in place at the base, limiting construction access and increasing the project cost. The pre-bid construction cost estimate was \$325,000. Construction bids were received in 2002 from local contractors and the accepted bid price was \$308,450 (62% of the budget ceiling).

The construction was completed without change orders and the hangar was available for the new aircraft ahead of schedule. The entire project took 2 months for design and 4 months for construction. GRW reviewed contractor submittals during construction.

The innovative, cost-effective approach developed by GRW received the appreciation of the 113th Wing Base Civil Engineer and the HQ, ANG. To summarize, this project was an excellent example of:

- "Designing to Cost" by developing an economical option and continually looking for additional ways during design to reduce construction cost
- Working within existing structural and budget constraints to modify a facility for future requirements
- Using close communication between Base Civil Engineer staff, facility users and the A/E to minimize operational impacts
- Committing to fast-track the project from conceptual design to commissioning despite the construction delay caused by the 9/11 attack.

Client Contact: Major Robert Bowie, Base Civil Engineer, District of Columbia Air National Guard, 113th Air Wing, 3252 Perimeter Road, Andrews AFB, MD 20762-5011. Telephone: (240) 857-7167



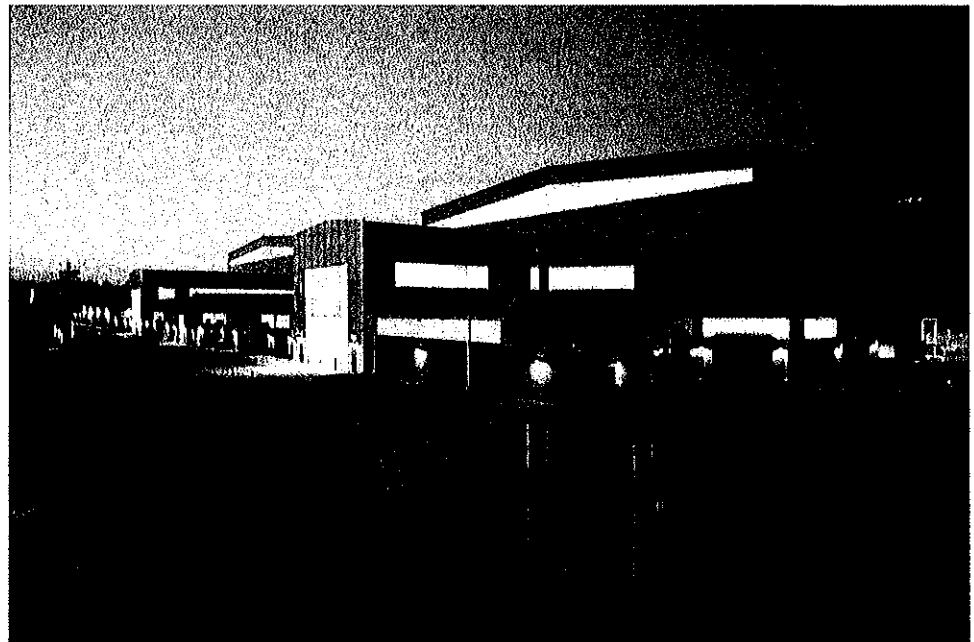
Georgia ANG 116th Wing B-1B Bomber Beddown and Composite Aircraft Maintenance Hangar Complex

For the Georgia Air National Guard, GRW prepared the site master plan, and final plans and specifications for the development of a new, \$27.5 million base for the 116th Wing's transition from F-15 Fighters to B-1B Bombers and their corresponding move from Dobbins ARB to Robins AFB, GA. The long range planning of this new ANG installation can accommodate 16 B-1B Bombers and the associated facilities necessary to support mission

requirements. GRW was responsible for the siting of all new facilities and obtaining approval from all involved agencies. The entire process, from planning through design to the start of construction, was completed in only 10 months.

Work included:

- Parking Lots
- 72,500 SY of Concrete Apron and
- 3800 LF of Taxiway
- Parking Lot/Site Lighting
- Communications Outside Plant
- Base-wide Energy Management Control System
- ASR (Air Surveillance Radar) Tower
- B-1B HGPU Shelter
- Elevated Water Tank
- POL OPS Building
- POL Ground Storage Tanks
- Bulk Fuel Loading/Unloading
- Roads
- Guardhouses
- Security Fencing/Access Control
- Airfield Lighting
- Power Distribution
- AFFF (Aqueous Film Forming Foam) Pond
- B-1B CASS Building, Tunnel, & Pits
- B-1B Start Air Building
- Hot Cargo Pad and Hot Cargo Bunkers (igloos)
- POL Pump Shelter
- 6 Position Fuel Hydrant System
- Munitions Administration Building



"The conversion of the GA ANG 116th FW to B-1B bombers and the relocation to Robins AFB was an extremely complex undertaking ... further complicated by an expedited schedule. GRW not only met the schedule, but provided an efficient master plan and design."

-- COL Grant Smith, District Engineer, Savannah COE

This \$23.2 million B-1B Bomber Composite Aircraft Maintenance Hangar Complex was a fast track design, proceeding from NTP to Final Design in six-and-a-half months. The 76,000 SF hangar complex is a two-bay facility which provides space for aircraft fuel system maintenance, corrosion control program activities, administrative functions, and the needed utilities and special systems required to safely perform fuel system maintenance, corrosion control functions and identified activities associated with the B-1B Bomber. The exterior is made of metal panels, reddish brown brick and beige stucco to complement that used on the Joint Starts development across the flightline. Roofs are a dark bronze standing seam metal roof. Exterior windows and doors are dark bronzed anodized aluminum, double glazed.

The office and shop is reinforced concrete slab-on-grade. Interior walls are constructed of painted CMU; 22-gage metal panel siding is proposed for the exterior walls. The roof composition includes 24 gage standing seam metal roof with rigid insulation over metal deck. Spaces included in this area include:

- Pneudraulics Shop
- Weld Shop
- Structural Repair Shop
- Tubing Shop
- Survival (including parachute drying tower)
- Men's & Women's Lavatories/Showers/Locker Rooms
- Tool Storage
- Mechanical Rooms
- Repair/Reclaim (Tire Shop)
- Machine Shop
- Composite Shop
- Electro/Environmental/Battery Shop
- T. O. Libraries
- Break Room
- Electrical Equipment Rooms
- Laundry

Separate hangar bays (50 feet in height) house the fuel cell and corrosion control functions, each requiring specialized humidity, vapor removal, and shop and breathing air utilities. The corrosion control hangar bay includes a paint storage room, paint mixing room, sanding area, prep room, paint booth, and stencil room.

The fuel cell maintenance hangar bay includes AFFF/fire pump room, storage workshop area, T.O. (tech order) library, dispatch office and office. A mezzanine joins the shops and hangar areas and includes a mechanical area, classroom, unisex bathrooms and shower and four maintenance command offices.

The facility includes 400 Hz power distribution for aircraft power in the hangar bays. Office administration areas are two stories in height. All shop and maintenance service areas are located on the ground floor.

The project also included a new addressable fire alarm system. The new addressable fire alarm system included interface with numerous HVAC systems. The suppression system included 4 fire pumps and sprinkler system risers, which were monitored in accordance with NFPA requirements. UV/IR (flame detectors) in the fuel cell hangar provide alarm signaling for building occupants to manually initiate an AFFF dump.

As this facility is on the flight line, access is controlled by fence, with an electrically-latched turnstile which is released by a card reader. Parking is set back to meet anti-terrorist force protection (ATFP) guidelines.

Client Contact: Lt Col Jeremy Simmons, Base Civil Engineer, Georgia Air National Guard, 116th Wing, 235 Fifth Street, Robins AFB, GA 31098-1884. Telephone: (478) 201-1400

Project Highlights

- Aircraft pavement design
- National Guard facility design including hangar, administrative and classroom space
- Fast track project

Illinois ANG 126th Air Refueling Wing Flightline Facilities

GRW was one of five A/E team members chosen to design facilities for the relocation of the Illinois ANG and their KC-135E aircraft in the unit's move from Chicago O'Hare International Airport to Scott AFB. The design efforts represent over \$15,000,000 worth of facilities toward the development of this new, \$85,000,000 installation for the Illinois ANG. The design of this flightline complex was accomplished under tight time constraints to meet construction and relocation deadlines associated with the move from O'Hare International Airport.

This project included all architectural; civil/site, structural, mechanical and electrical engineering and environmental issues associated with the design of:

- **fuel cell hangar;**
- renovations to an existing two-bay **general maintenance hangar** including design of the engine inspection and repair shop;
- aerospace ground equipment shops and storage; and
- general purpose maintenance shops.

The 29,400 SF **fuel cell hangar** is designed to house KC-135E aircraft in conjunction with fuel system inspection/repair and air frame corrosion control. Interior design and finishes were selected in accordance with the Base Design Guide.

Spaces of the fuel cell hangar include:

- Maintenance Hangar Bay (Explosion Proof)
- Paint Storage and Mixing Rooms, 400 Hz Equipment Room, Tool Room, Aircraft Wash Equipment Room, and Media and Paint Booths
- AFFF/Fire Pump Room
- Fuel System Storage and Hazardous Material Storage
- T.O. (Tech Order) Library, Offices, Break Room, Laundry and Men's & Women's Lavatories/Showers/Locker Rooms, Classroom
- Mechanical, Electrical, and Communications (met Scott AFB TEMPEST Protection Requirements) Rooms

The existing two-bay **general maintenance hangar** (Building 3680) was substantially renovated to house two KC-135E aircraft. "Phase" and "Intermediate" level maintenance and inspection is the primary function of the facility. Work included design of the engine inspection and repair shop; and new, updated life safety and accessibility code features. Interior design and finishes were selected in accordance with the Base Design Guide.



"GRW worked tirelessly with the members of the 126 ARW during the design phase of the Flight Line Buildings. They have stepped up to the challenge of the compressed schedule, completing each design phase in a timely manner."

-- Lt. Col. William E. Mell, Illinois ANG
regarding the relocation of the IL ANG to
Scott AFB

The 71,300 SF general maintenance hangar included:

- Maintenance Hangar Bay
- Parts Storage and Cleaning, Compressor Room, Non-Powered AGE Shop
- Kitchen, Ready Room, Classroom, T.O. (Tech Order) Library, Quality Assurance Office and Administrative Space
- Hazardous Material Storage (Flammable Storage)
- Men's & Women's Lavatories/Showers/Locker Rooms
- Mechanical, Electrical and Communications (Met Scott AFB TEMPEST Protection Requirements)

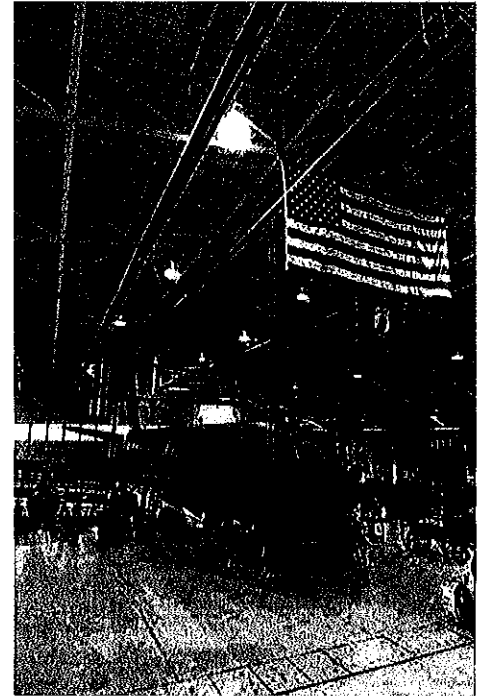
The **AGE Shop and Storage Building** (5,241 SF) supports inspection, maintenance, repair and servicing of all authorized powered aircraft support equipment. The facility contains maintenance bays, tool crib, storage, battery shop and administrative areas as well as wash and paint areas. In addition, covered storage and parking for selected essential base vehicles and AGE equipment are provided.

Aircraft Engine Repair Shops and Parachute Shops are attached to the **General Maintenance Shops** (46,202 SF), which contain general purpose maintenance, avionics, engine repair, para-rescue and administrative areas. The Engine Inspection and Repair and the Non-Destructive Inspection Shops include aircraft maintenance shops for aircraft engine inspection and repair functions, with non-destructive inspection operations for engine/parts inspection. The Parachute Shops include functions to receive, inspect, repair, pack and ship parachutes and life rafts in industrial type space.

A fire protection design summary of the proposed fire protection systems for each of the four facilities was prepared under the Type A design services for the project. This included an in-depth analysis of the existing water storage tank and fire pumping arrangement to the existing Alter Maintenance Hangar. Based on this analysis, recommendations were included in Type A services and implemented in our Type B design services. Type B design services included the design of new fire alarm systems for each of the four buildings included in this project. The fire alarm designs for both the existing Alter Maintenance Hangar and Fuel Cell/Corrosion Control Hangar involved integrating these fire alarm systems with the overhead fire suppression systems. The fire protection systems design met the requirements for the Air National Guard Design Criteria, NFPA and Engineering Technical Letter (ETL) 96-1, Air Force Fire Protection Design Criteria for Aircraft Hangars. (Latest edition is ETL 02-15 and MIL Handbok 1008, now UFC 3-600-1.)

Flightline facilities were secured in accordance with current AT/FP guidelines at the time of construction

Client Contact: Lt Col John Steed, Base Civil Engineer, Illinois Air National Guard, 126th Air Refueling Wing, 146 Air Guard Way, Scott AFB, IL 62225. Telephone: (618) 222-4875



Project Highlights

- National Guard facility design including hangar, administrative and classroom space
- AT/FP design

Kentucky ANG 123rd Airlift Wing Fuels System Maintenance & Corrosion Control (FSMCC) Hangar

This project involved the design of a modern C-130 Fuels System Maintenance and Corrosion Control (FSMCC) hangar and shops for the Kentucky ANG at Standiford Field in Louisville, KY. Design included architectural, and civil/site, structural, mechanical and electrical engineering disciplines. This \$4 million design/build project was part of the development of a base relocation resulting from the expansion of the commercial airfield which required relocation of the Kentucky ANG facilities.

The 23,800 SF FSMCC hangar project was constructed using the design/build acquisition process. The purpose of the facility is to provide a hangar for the environmentally safe repair of aircraft fuel cells/bladders and corrosion control on aircraft parts, both on and off the aircraft.

Functional areas include:

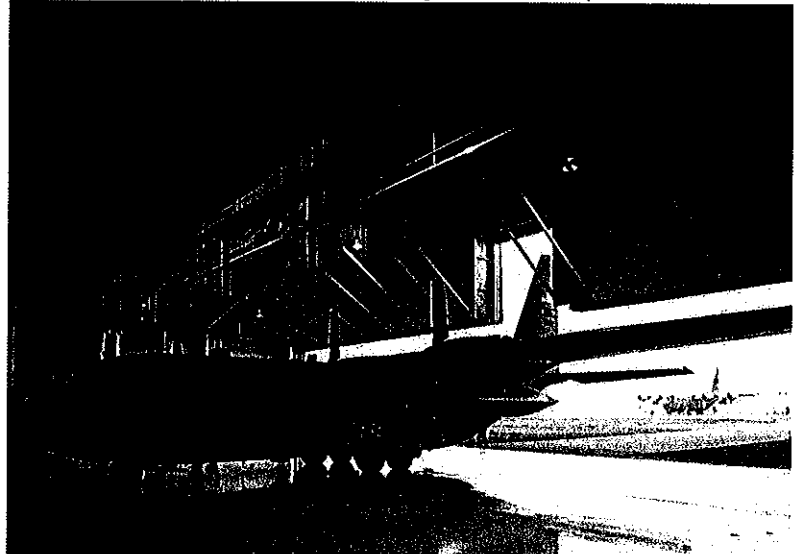
- Fuel cell/corrosion control dock (Explosion Proof)
- AFFF room
- Bladder repair shop
- Support shop space
- Paint spray area for painting component parts
- Prep shop to strip component parts (including media blast)
- Training and administration areas
- Tool room

The facility includes environmentally safe exhaust systems to prevent air pollution and an oil/water separator system to prevent corrosion contaminants or fuel spills from entering the soil/aquifer or wastewater system. This is a level II environmental compliance project.

The facility is also equipped with an AFFF system and automatic fire protection/detection devices. Spark-proof and explosion proof construction is used throughout. Ventilation systems required by T.O. 113 include purging systems (supply and exhaust), breathing air and climate control units.

The hangar structure is a predetermined rigid steel frame. The external walls are masonry and metal panels which match the base standards. The roof is a standing seam steel roof. The facility was designed to fit into a site restricted by existing construction and base boundaries. The project also included pavement design/construction of approximately 12,500 SY of C-130 aircraft ramp access taxiway to connect the new FSMCC hangar to the aircraft parking apron as well as water, sanitary sewer, drainage, gas, electric and telephone utilities.

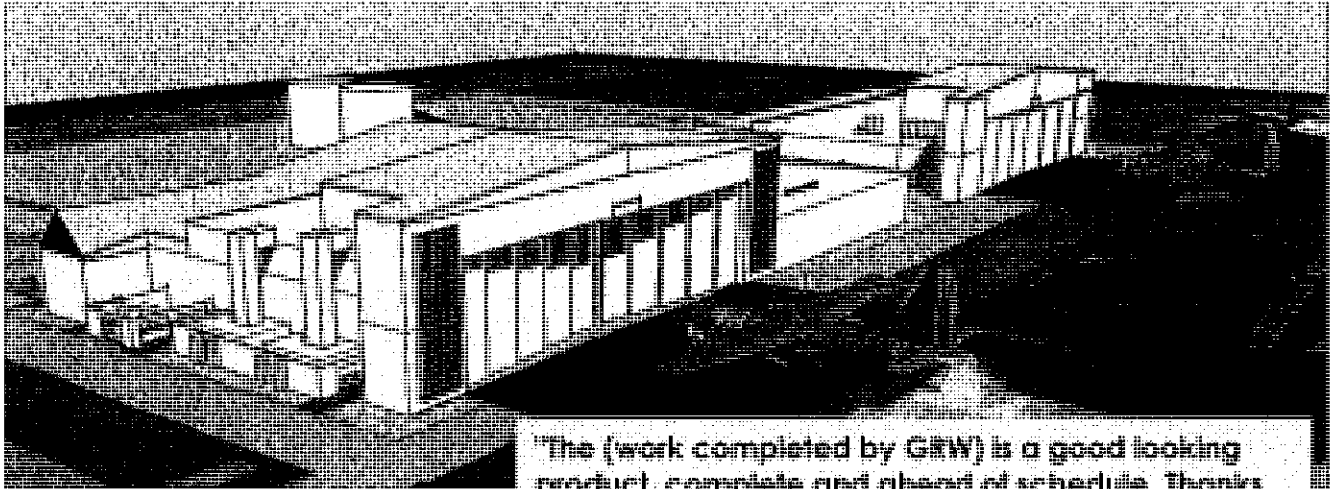
Client Contact: Capt. Keith Smith, Deputy Base Civil Engineer, Kentucky Air National Guard, 123rd Airlift Wing, 1101 Grade Lane, Louisville, KY 40213. Telephone: (502) 413-4434



"The hangar designed by GRW was the best project we have ever done at the base, and is the only one done within budget and on time."

—Clarence Deason, Construction Manager,
Kentucky ANG

Air Force Special Operations Command C-130 Hangar Complex



"The (work completed by GRW) is a good looking product, complete and ahead of schedule. Thanks for helping us get started to make this project a success story for USACE, AFSOC and AFCEE."

-- Ralph Clark; MILCON Program Manager, AFSOC

Over the next few years, the Air Force Special Operations Command (AFSOC) will be constructing a new base at Cannon AFB in New Mexico.

This new complex includes all horizontal and vertical construction elements to augment AFSOC's base at Hurlburt Field, FL. To support the AFSOC's C-130 aircraft, the first phase of the complex has been programmed, and is scheduled to be built by 2010. The Air Force Center for Environmental Excellence (AFCEE) is the lead agency for managing the first phase of this program. Because of our excellent track record of designing C-130 facilities and using LEED sustainable design techniques, GRW was selected to provide A/E services in support of two of the first facilities to be built at Cannon AFB: a C-130 Corrosion Control Hangar and a C-130 Fuel Cell Hangar. The initial program calls for a 57,700 SF, \$22 million Corrosion Control Hangar and a 31,100 SF, \$23 million Fuel Cell Hangar to be built under the Design/Build project delivery approach and designed to meet LEED Silver criteria.

Initially, GRW conducted an on-site, 3-day charrette at Cannon AFB. This Charrette included AFSOC, Cannon AFB, Hurlburt Field, AFCEE, GRW and other participants who met together to develop conceptual site and floor plans, narratives of functional areas, requirements for facility system design (architecture, civil/site, HVAC, electrical, security, communications, AT/FP, utilities, etc). The Charrette report included recommended design criteria, functional area adjacency requirements, a parametric cost estimate (used to revise the DD Forms 1390/1391) and a detailed room requirements sheet for each space. The information from the Charrette was used by GRW to prepare a Conceptual Design, including a Performance Specification and Design Analysis to support a Request for Proposal (RFP) for a subsequent Design/Build construction project to complete the design and to construct these two hangars, along with associated utility service, pavements and other site development features.

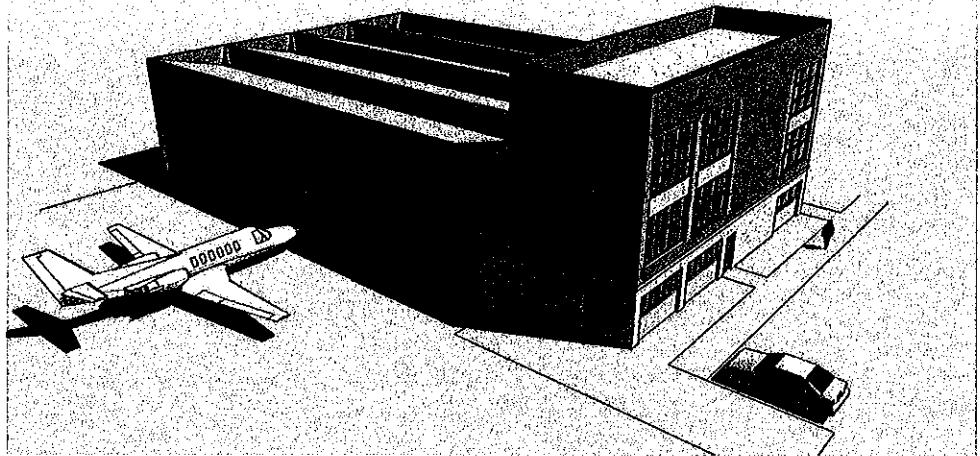
Client Contact: Ralph Clark, MILCON Program Manager, AFSOC, Air Force Special Operation Command.
Telephone: (850) 884-7838

Sugar Land Regional Airport Private Hangar

This hangar structure was designed to meet the specialized requirements of a private owner, who has several private aircraft and needed to accommodate both turbo prop and jet aircraft at various times.

The structure was uniquely designed for a variety of functions ranging from aircraft maintenance and operational activity on the lower level to private offices on the second and third levels.

The hangar structure was designed to accommodate the installation of photovoltaic panels on the angled roof sections which would allow a reduction in energy costs for the hangar HVAC system, which provides cooling to the entire hangar and the adjacent three story building structure.



The roof design also allowed for the installation of North facing clear-story windows which will allow additional light into the hangar, further reducing energy requirements.

The total square footage for the hangar and the adjacent structure is approximately 15,000 square feet.

John C. Tune Municipal Airport T Hangars

The Metro Nashville Airport Authority contracted with GRW Engineers to provide a site plan and utility drawings to install "T" hangars at the John C. Tune Municipal Airport. Construction work consisted of the T hangars, water, sewer and gas utilities and paving. This project was a fast track project in which GRW worked closely with the contractor to get the project installed in a design/build mode.

Client Contact: Mark Buck, Metro Nashville Airport Authority, One Terminal Drive, Ste.# 501, Nashville, TN 37214. Telephone: (615) 275-2312

Blue Grass Airport General Aviation Hangar Area Development

Blue Grass Airport has had an increasing demand for private sector hangar space. The purpose of this project was to provide approximately 16 new hangar sites with water, sanitary sewer, gas and electric main lines that would allow for service connections as needed. Two new taxiways (880 linear feet total) were required to access the new hangar sites along with a new vehicular access road and security gate. GRW provided final construction plans and specifications for the site improvements under a time constraint to ensure the use of available grant money.

GRW provided the following services for this project:

- Review of airport design parameters and alternatives
- Field surveys
- Taxiway and roadway design
- Drainage improvements
- Pavement design
- Geotechnical investigation
- Utility layout and design
- Construction cost estimates
- Airport layout plan update
- Resident inspection

This project required GRW design engineers to evaluate all site aspects. A new retention basin was designed to handle the anticipated increase in run off due to the increase of impervious area. The biggest challenge was the changes that were required during construction due to unforeseen circumstances such as an 8-inch waterline found at a depth of 16 foot where a tie-in was planned. Our staff coordinated with the owner and contractor to find the most economical and time efficient solutions for these problems.

The project also involved relocating the main electrical service and communications outside plant for the entire airport.

Client Contact: Joey Honeycutt, Blue Grass Airport, 4000 Versailles Road, Lexington, KY 40511.
Telephone: (859) 425-3100

West Virginia ANG 130th Airlift Wing Squadron Operations Facility

GRW is providing multi-discipline design and construction administration services for modifications and energy-efficient improvements to the 25,765 SF Squadron Operations Facility at the WV Air National Guard Base at Yeager Field, Charleston, WV. This facility was originally built as a three-story, 18,265 SF building in 1949 and housed the Base Operations and Dining Area. In 1977, a two-story, 7,500 SF addition was constructed on the east end of the facility to increase space needed for airfield operations. The Dining Area was relocated to Building 141 in 1993 and its space was converted to a Physical Fitness Center. The history of additions and relocating activities within the facility has resulted in a building that inadequately serves its users, which include Administration and Operations (Category Code 141-753), Base Operations (141-453), Command Post (141-461), Life Support and Fitness Center (740-674). The facility size meets the current ANG facility requirements (ANGH 32-1084) but the user spaces are not efficiently arranged, the HVAC and electrical systems are inadequate, roofs are in need of repair and the fire protection system does not comply with current codes. All of these factors contribute to a degradation of mission completion.

GRW began the project with a Charrette to review the facility requirements with a Design Working Group, consisting of user groups and other key stakeholders, to confirm the authorized functional space requirements of each activity in the facility, to develop alternative floor plans that overcome the current deficiencies, and to validate the Government's construction cost estimate. A Concept Proposal Report and a Concept Development Report were prepared following the Charrette.

After considering the alternative floor plans, a plan was selected that meets the goals of the project while also achieving a more energy-efficient, sustainable facility. The final design will allow for the efficient use of space for Squadron personnel to perform their operations, maintenance and training activities in a modern, comfortable environment that is conducive to effective mission execution.

Client Contact: Lt. Col. John W. Dulin, Base Civil Engineer, West Virginia Air National Guard, 130th Airlift Wing, 1679 Coonskin Drive, Charleston, WV 25311-5010. Telephone: (304) 341-6270

West Virginia ANG Yeager Airport Pavement Design

GRW was commissioned by the West Virginia Air National Guard to accomplish pavement investigation and analysis, subsurface investigation, and design for grade, drain and surfacing construction plans for all air base pavements. Included with the plans were specifications for all phases of expansion and improvements.

Tasks completed by GRW include:

- Replacement of approximately 9,000 sq. yd. of bituminous taxiway with portland cement concrete pavement
- Replacement of approximately 33,000 sq. yd. of bituminous apron pavement with portland cement concrete pavement

Project Highlights

- Designed to achieve LEED Certified rating
- Will meet requirements of EPAct 2005 and Executive Order 13123 in conformance with ANG Sustainable Design Policy
- Will meet the AT/FP requirements of UFC 4-010-01



- Design of a 27,000 sq. yd. perimeter taxiway that could be used for future expansion as an aircraft apron
- Design of a 10,600 sq. yd. apron/holding pad capable of providing two C-130 H aircraft for preflight check operations.

All pavement design incorporated portland cement concrete for mixed aircraft traffic.

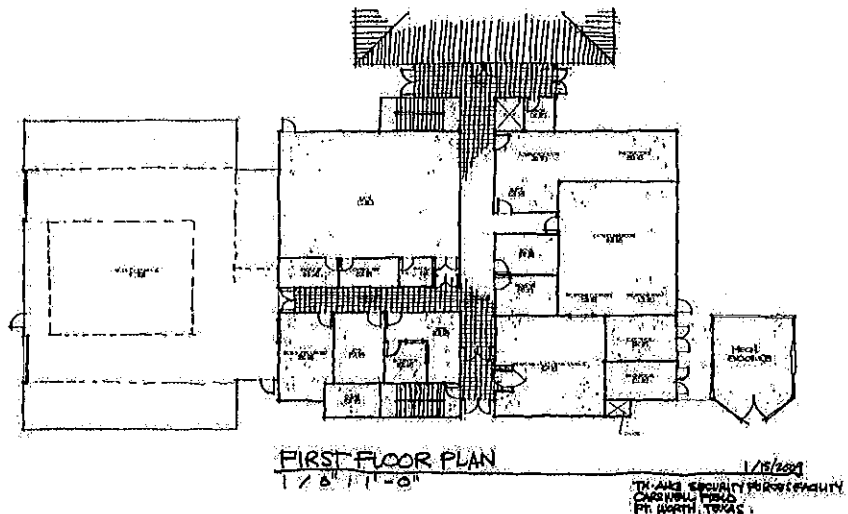
Client Contact: Lt Col James E. Johnson, West Virginia Air National Guard, 130th Airlift Wing, 1679 Coonskin Drive, Charleston, WV 25311-5010

Texas ANG 136th Airlift Wing Security Forces Squadron Facility

GRW provided full architectural and engineering services for a \$4.5 million 17,400 square foot 2-story addition to the base's Wing Headquarters Building to house personnel and equipment for the unit's Security Forces Squadron (SFS). These services were completed to develop the conceptual design and bridging documents for this Design/Build project at NAS JRB Fort Worth (Carswell Field).

This facility includes:

- command, control and administrative office spaces,
- weapons simulator,
- arms vault,
- classrooms,
- weapons and equipment storage and maintenance areas,
- locker rooms and restrooms,
- fitness room,
- mobility equipment storage and
- utility vehicle storage



The facility was designed to meet the USGBC **LEED Silver** sustainable design criteria and EPA 2005 energy efficiency standards. This facility includes applicable Anti-terrorism/Force Protection measures, and was designed to adhere to the base's architectural, fire protection and communications standards.

GRW completed an initial programming Charrette, a Concept Proposal Report and a Concept Development Report to prepare the Bridging Documents for the Design/Build RFP. Topographic surveys, geotechnical investigations and geothermal tests were completed to develop a site-specific design. GRW is providing construction administration services as the new facility is being built.

Client Contact: Lt Col Kevin McKinney, Base Civil Engineer, Texas Air National Guard, 136th Airlift Wing, NAS JRB, 100 Hensley Avenue, Bldg. 1671, Fort Worth, TX 76127-1671. Telephone Number: (817) 852-3395

Indiana ANG 122nd Fighter Wing Security Forces Operations and Training Facility

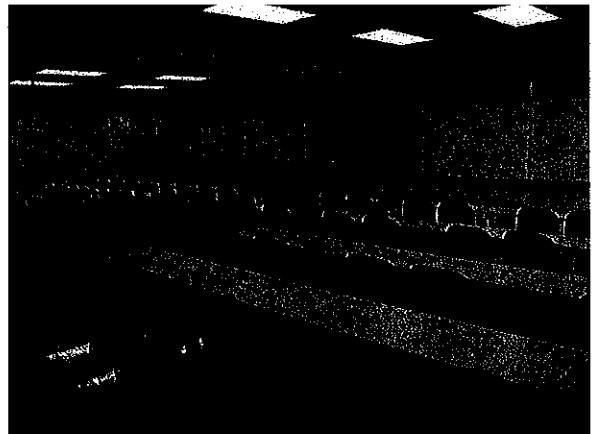
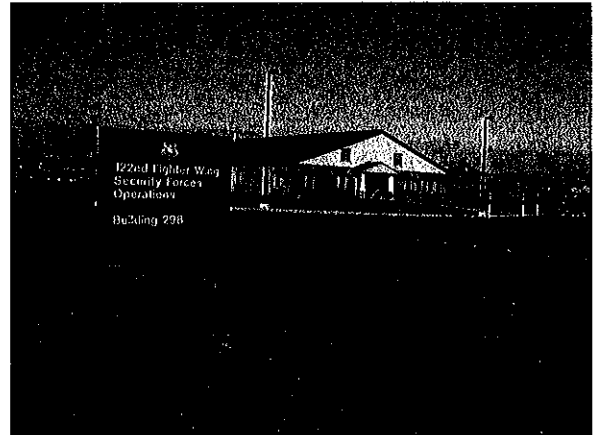
GRW was selected by the 122nd FW to provide Type A and Type C A/E services for the design/build of a new 18,494 SF Security Forces Operations and Training Facility, including a Combat Arms Training and Simulator/Combat Arms Training Maintenance (CATS/CATM) area, in Ft. Wayne, IN. This facility includes offices for the Flight Chief, open office area for the base security forces, classrooms, workout room, locker room, weapons simulator room and weapons storage areas. The demolition of a 3,000 SF building was also included in the project.

The Security Forces Operations and Training Facility is connected to a base-wide Energy Management Control System. The Security Forces facility includes the Central Security Control (CSC) system for the entire base. The Security Forces and CATS/CATM facilities are wired for communications, security monitoring, intrusion detection systems, LAN, intercom, CCTV, and CATV. The CATS/CATM houses a Weapons Simulator for security forces training.

Under this assignment, GRW developed a detailed Project Book and concurrently completed a Type A1 Conceptual Design submittal. The conceptual design included design analysis, building descriptions and drawings. The conceptual design provided details of all rooms, along with their functional requirements in accordance with all applicable codes, criteria and ANG design standards. A preliminary construction cost estimate was also prepared. The objective of this effort was to ensure that a low life cycle cost, low maintenance, mission compliant facility could be built within the Maximum Construction Cost (MCC) limitation of \$3.86 million based on FY07 construction, excluding contingencies.

The design-build Bridging Documents were prepared so that the actual construction cost (Base Amount plus Additive Bid Items), will not exceed the MCC. The construction cost estimate separately identified the Base Bid Amount and each ABI. Each ABI was described on the drawings and listed in priority order so that they could be added to the project if the total cost remained within the MCC.

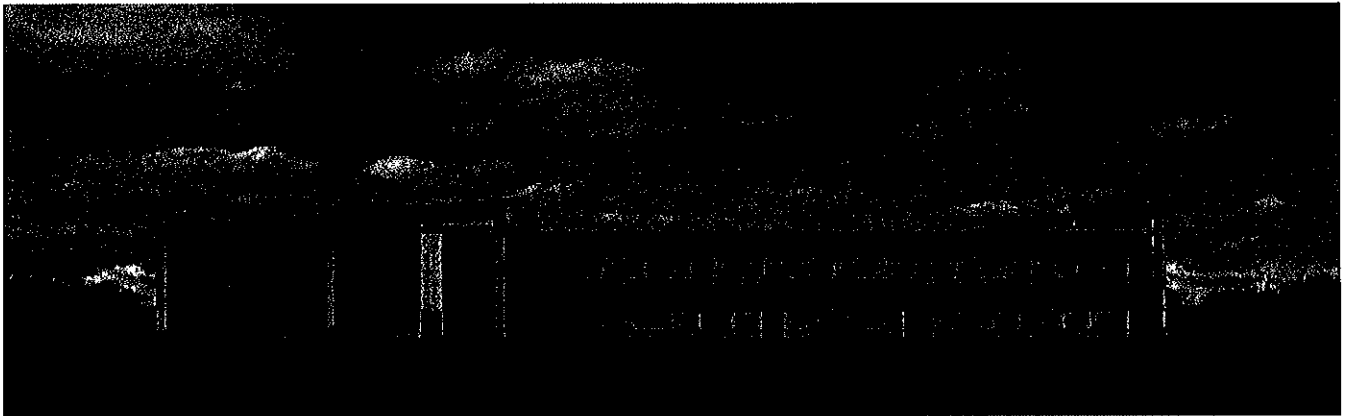
Client Contact: Major Chad Warren, Deputy Base Civil Engineer, Indiana Air National Guard, 122nd Fighter Wing, Fort Wayne, IN 46809. Telephone Number: (260) 403-5883



Kentucky ANG 123rd Airlift Wing Contingency Response Group Facility

GRW is designing a 54,400 SF addition and 3,000 SF of modifications to the Wing Headquarters Building addition to house personnel and equipment for the 123rd Airlift Wing Contingency Response Group (CRG) at Standiford Field in Louisville, KY. The 123rd AW is the second Air National Guard unit of its kind in the nation to receive the CRG mission. The CRG is an "airbase in a box" and can mobilize to provide everything necessary to open a runway, load and unload aircraft, provide security, housing and all the necessities to run an airfield in the event of a natural disaster in the US or a deployment to a combat theater.

GRW led a Charrette to review the facility requirements with all user groups and other key stakeholders to confirm the authorized functional space requirements of all activities in the facility, to develop alternative floor and site plans that satisfy those space needs, and to validate the government's construction cost estimate. A Concept Proposal Report and a Concept Development Report were prepared following the Charrette. Final Design will be completed by GRW in the next phase of the project.



The selected alternative is a masonry and standing seam roof addition which includes approximately 24,600 SF of administrative, food service and training space, a 24,500 SF storage area for 200 tons of mobility equipment and a 2,300 SF dining facility addition. The project also includes approximately 3,000 SF of renovation to the existing Services Flight and Security Forces Squadron area. The facility is being designed to meet the USGBC **LEED Silver** sustainable design criteria and EPA 2005 energy efficiency standards. This facility will include applicable AT/FP measures, and will be designed to adhere to the base's architectural, fire protection and communications standards.

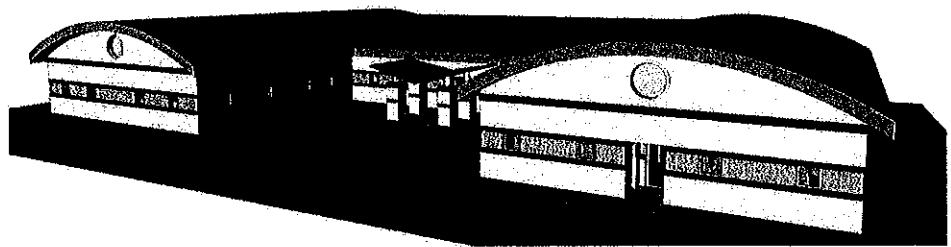
Client Contact: Lt Col Phillip Howard, Base Civil Engineer, Kentucky Air National Guard, 123rd Airlift Wing, 1101 Grade Lane, Louisville, KY 40213. Telephone Number: (502) 413-4461

West Virginia ANG 130th Airlift Wing Communications Facility

GRW provided Type A and Type B design services for a new \$3.6 million Communications Facility at Yeager Airport in Charleston, WV. The initial program included an 8,000 SF Joint Operations Center (JOC) for use by the WV ANG and ARNG during emergencies; however, the JOC was later eliminated from the project.

This 13,100 SF (1,217 SM) **LEED Silver** facility was designed to provide a centrally located common user communications system for both intra-base and off-base communications. Various types of cable from the base transmitter and receiver as well as other base communications systems will be normally fed through this structure. Ground control of all ground point-to-point contact and air to ground point-to-point contact (such as radio, telephone, DISNET, etc.) may be exercised from this facility. This building includes space for:

- Telephone Exchange 1 (Base PBX Switching Gear). The switching center is composed of switchboard positions, electromechanical and/or electronic switching equipment, emergency power plant, terminal equipment, distributing frame, relay racks, inside cable, wiring, cable vault, Uninterruptible Power Supply (UPS), back up generator and operating appliances.
- Administrative Functions. Includes office space for communications officer and assistants, intra-base radio management, the base message distribution center, crypto storage vault, crypto accounting, commercial communications offices, storage space for communications records, magnetic tapes, message paper and message tape.
- Maintenance Functions. Includes space for the chiefs of maintenance and systems (COM/COS), training of system/support flight personnel, training of maintenance and operations personnel and programming personnel.
- Defense Switched Network (DSN) Equipment
- Audio/Visual Production Area and Library
- Graphic Arts Facility



"From the Communications Building to the Master Plan, GRW has shown many of the traits that we look for in an A/E Firm. They have offered us outstanding solutions. They have shown their commitment to our unit by always going above and beyond; I know that I am extremely proud to have had them on our projects."

--Comment from Lt. Col John Dulin
130th AW/AMC

The design of this facility also included AT/FP measures, fire detection and alarm, ADA compliance, landscaping, utilities (water, sewer, gas, electric, etc), special hazardous materials storage spaces, parking areas and exterior signage and lighting. The design was stopped at 65% complete at the convenience of the government due to the need to update the base's master plan and re-prioritize new capital improvements.

Client Contact: Lt. Col. John W. Dulin, Base Civil Engineer, West Virginia Air National Guard, 130th Airlift Wing, 1679 Coonskin Drive, Charleston, WV 25311-5010. Telephone Number: (304) 341-6270

West Virginia ARNG Joint Armed Forces Reserve Center and Area Maintenance Support Activity

GRW participated in the Program Planning Document Charrette (PPDC) for WVARNG's Armed Forces Readiness Center (AFRC) in Ripley, WV. A three-day Planning Charrette was conducted in order to understand the needs of the end users of the AFRC. The AFRC will replace two local armories and a USAR center. Due to the aging facilities and site limitations, the WVARNG determined that rehabilitation or expansion on the sites is not feasible.

The Eastern Star property in Jackson County, WV was selected as the preferred site for the AFRC. The Eastern Star property consists of 344 acres that straddle State Route (RTE) 2. The portion to the east of RTE 2 consists of approximately 250 acres with the remaining 94 acres located to the west of RTE 2. The western portion currently includes a large brick structure, known as the Eastern Star Home, garage, barn and picnic shelter. Due to the hilly terrain and floodplain constraints on the eastern portion, the site for the AFRC will be on the western portion of the property.

The purpose of the on-site planning charrette was to conduct a fact-finding mission and to have discussions on the project details with key installation stake holders and to preliminarily review the 1391 construction cost estimate. The Charrette Team evaluated site constructability issues such as geotechnical conditions, environmental constraints, historical significance of the existing structures, and cultural and natural resource issues. In addition, the Team assessed utilities, traffic issues, outdoor lighting, parking, AT/FP issues, and space planning. The end work product outlined two alternative overall site layouts and floor plans. A parametric cost estimate was prepared and a revised DD Form 1390/1391 was developed for a 60,927 SF AFRC and a 4,500 SF unheated storage facility at a PA of \$16,979,000.

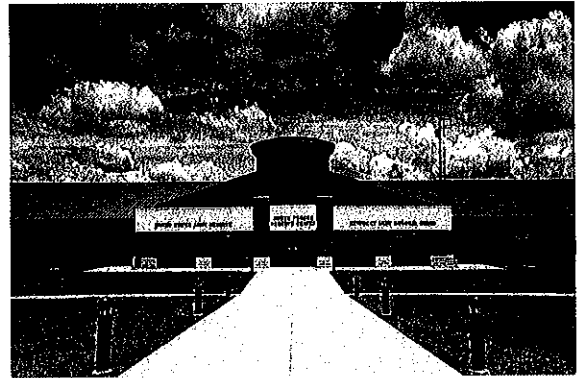
The preliminary plans for the complex include:

- Administrative areas: Private office suites, administrative common spaces, recruiting offices (ARNG and USAR), family support offices (ARNG and USAR)
- Educational spaces: Classrooms, COMSEC training room, learning center / library, distance learning, training device simulator, training aid storage
- Assembly hall with a full kitchen and chair and table storage, break room and vending area
- Storage spaces: Audio/visual storage, facility maintenance storage, janitorial storage / other minor closets
- Building operation spaces: Network operations, mechanical / electrical / telephone, janitor rooms
- Support spaces: Toilets / locker rooms / showers, physical fitness area, mailroom
- Unit storage will be co-located within the AFRC. The unit storage will house caging, arms vault, and private offices.
- 2 AMSA, 2 ARNG and 1 USAR vehicle bays
- Flammable storage, controlled waste storage
- Energy management control system
- Landscaping, utilities, wash rack, emergency power
- Helipad

Client Contact: BG Melvin Burch, West Virginia Army National Guard, 1703 Coonskin Drive, Charleston, WV 25311. Telephone Number: (304) 561-6458

Additional Army National Guard Experience

- **Ohio ARNG Joint Armed Forces Reserve Center and Field Maintenance Shop Complex, Springfield, OH** – Provided full-discipline A/E services for planning and design of new \$14 million **LEED Silver** 85,865 SF Joint Armed Forces Reserve Center (AFRC) and Field Maintenance Shop (FMS) for the OH ARNG and the US Army Reserves in Springfield, Ohio.
- **Kentucky ARNG Joint Armed Forces Reserve Center and Field Maintenance Shop Complex, Bluegrass Army Depot, Richmond, KY** - “Design Criteria Consultant” for design/build of a new \$18.5 million Armed Forces Reserve Center (AFRC) and Field Maintenance Shop (FMS). This complex is designed to meet the **LEED Silver** sustainable design rating.
- **Kentucky ARNG Joint Armed Forces Reserve Center and Field Maintenance Shop, Paducah, KY** - Mechanical, electrical and civil engineering design services as part of a Design-Build team for this \$14.7 million BRAC project. This complex, which meets the **LEED Silver** sustainable design rating, serves units from the KY ARNG and U.S. Army Reserves.
- **Indiana ARNG 76th Brigade Combat Team Readiness Center, Lawrence, IN** - Provided full-discipline A/E services for planning and design of a new 109,555 SF two-story Army National Guard Readiness Center. This facility is designed to meet the **LEED Certified** sustainable design rating.
- **Indiana ARNG Combined Arms Collective Training Facility Master Plan, Muscatatuck, IN** – Prepared Master Plan for the conversion of former hospital complex into of the world’s largest Combined Arms Collective Training Facility (CACTF). Planning effort included both Long and Short Range Development Plans; a Capital Investment Strategy; new aerial photography and digital mapping; and an extensive GIS system to support future development of the installation.
- **Kentucky ARNG Readiness Centers HVAC Replacement, Jackson and Williamsburg, KY** - Renovation of the HVAC systems for two small Readiness Centers totaling approximately 32,000 SF. Project also included changes in the electric services and miscellaneous lighting and ceiling replacement
- **Michigan ARNG Design & Renovation of 8 Facilities at Ft. Custer, Camp Grayling, Grayling Army Airfield and Midland, MI** - A/E design services for 8 “fast track” projects: new Bachelor Officer Quarters at Fort Custer, Camp Grayling and Grayling AAF; an addition to the Range Control Building at Fort Custer; a new Logistics Facility at Fort Custer; a new General Officers BOQ at Camp Grayling; a new Company Operations Facility at Grayling AAF; and kitchen and other renovations to an existing armory in Midland.
- **Michigan ARNG Joint Forces HQ Complex Planning/Programming Charrette, Lansing, MI** – Evaluation of the size, condition, and capacity of the facilities (42-acre site with four buildings comprising 300,000 SF previously owned by state) proposed for occupancy by MI ARNG. Work included an on-site 3-day charrette, cost estimates for renovations and review of DD Forms 1390/91 and related documentation for submission to Congress.



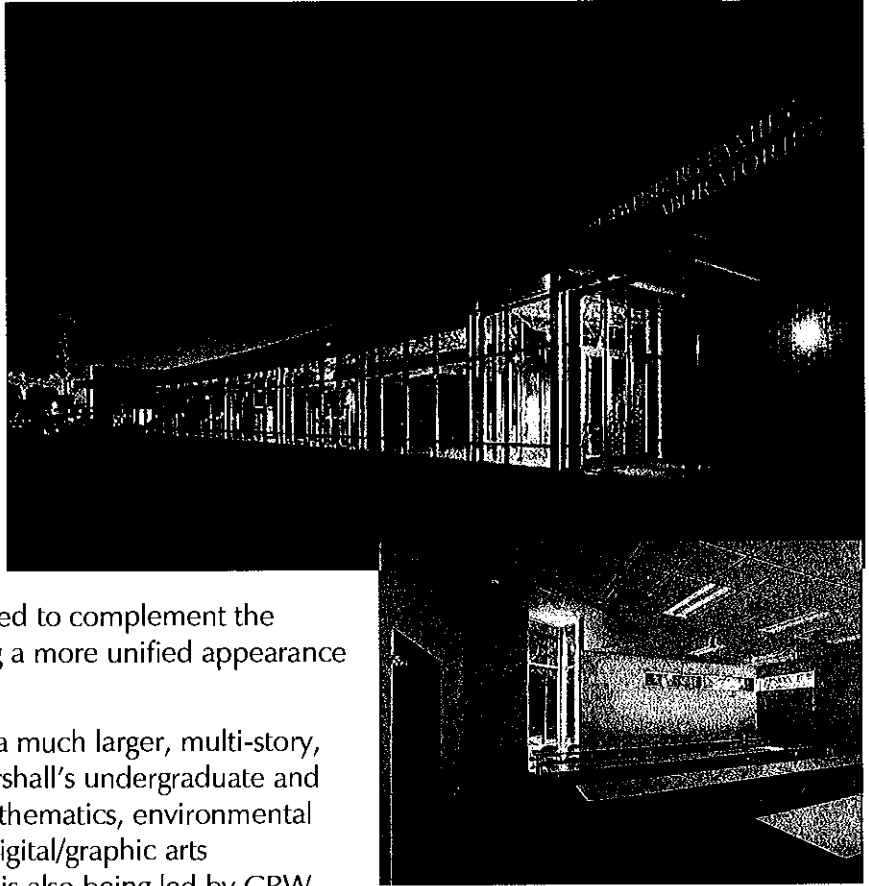
Marshall University Engineering Laboratory

GRW provided architectural/engineering services to Marshall University for a new Engineering Laboratory Building on their main campus in Huntington, WV. This 16,000 SF facility houses materials, soils, hydraulics, structural, and environmental laboratory space, as well as classroom space and faculty offices.

The curved façade of the building was designed to create a park-like plaza along the north edge of 3rd Avenue, giving a softened edge to what previously had been parking lots and pavement. Brick and other exterior building materials were selected to complement the adjacent campus buildings, thus giving a more unified appearance to the campus.

This building is only the first phase of a much larger, multi-story, \$50+ million complex to support Marshall's undergraduate and graduate programs in engineering, mathematics, environmental sciences, transportation and applied digital/graphic arts technology. The design of this project is also being led by GRW.

Client Contact: Ron May, Manager of Project Operations, Marshall University, One John Marshall Drive, Huntington, WV 25755. Telephone Number: (304) 696-6415



4.0 Project Concepts and Approach

We have successfully used the following general approach on many similar ARNG project assignments. We also recognize that each project has its own unique aspects and requirements, and we will adapt our approach to fit the WV ARNG requirements, schedule and needs. It is our primary goal to develop a design that satisfies all programmatic, cost and energy-saving requirements while achieving a facility that provides a complete and usable space for its intended use.

As this project moves forward, we will make recommendations to save O&M costs, to reduce energy needs and to use alternative construction materials. Some of our recommendations may reduce construction cost, others may reduce utility costs, and others may change both. These recommendations will be provided for consideration and, if accepted, we will incorporate them in the design. The final construction documents that we will prepare at the end of the design will include Bid Options that will allow the WV ARNG the opportunity to select items that enhance the facility while still staying within the Maximum Construction Cost approved for this project.

It is our understanding that a Program Planning Document Charrette (PPDC) has already been completed for this project. Our previous experience in providing Charrettes for our ARNG clients indicates that the PPDC Report should include: an analysis of the project site (including a topographic survey, a preliminary geotechnical study, an environmental review, a description of site hydrology and natural conditions, information related to utility services and a legal property description), a discussion of facility requirements (space allowances per NG Pam 415-12, functional requirements, adjacencies and spatial organization), a list of exceptions to criteria and a validation of the DD Form 1390/1391 project data (assigned personnel, space criteria) and a validation of the construction cost estimate.

When we are selected for this assignment, we will schedule a Criteria Review Conference (CRC) with the CFMO's assigned Project Manager to confirm the scope, objectives and schedule for this project. We understand that the PPDC Report will be provided to us at that time, along with any other relevant site information, requirements and applicable design guidelines. If any of the information that is generally included in the PPDC is not available, one of our first tasks will be to discuss with the CFMO PM what measures we need to take to collect that information in a timely manner. For example, if additional site surveying or geotechnical data is needed, we will include these items as part of our proposal for design services.

After submitting and negotiating our design contract, we will issue a sub-contract (if needed) for surveying and geotechnical investigations. These tasks will be among the initial tasks completed at the beginning of the design phase. We will also schedule and conduct a Design Charrette with the CFMO PM and the facility users. The objective of this Charrette will be confirm the detailed requirements of the WV ARNG USP&FO regarding architectural finishes, electrical requirements, ventilation, communications, and other elements of all spaces within the facility. We will use this information to prepare a Basis of Design that will be used in calculating power, lighting, HVAC, fire protection and other services for the buildings. This information will also be used to confirm the final floor plan and finish schedule for the various spaces and functional areas in each building.

The design procedures we will follow are the same as those described in Chapter 11 of NG Pam 415-5, unless otherwise directed by the CFMO. These procedures will include the development of a Conceptual Design, which we will summarize and deliver in a Concept Design Report, if no such report has been developed to date. This report generally represents 10-15% of the total design effort and serves as a bridge between the PPDC Report and the development of the construction documents.

) At this stage, we will submit this project to the USGBC for registration under the LEED rating system, using Version 3.0 for New Construction, which became effective in the fall of 2009. We will identify to the CFMO PM, the LEED credits that we plan to achieve, along with the cost associated with each. This information will be used to verify the actual LEED credits to be pursued in the design and construction of the facilities.

The next step will be to incorporate the review comments received from the CFMO and users from the Concept Design into a Preliminary Design submittal that represents approximately the 35% design completion of the construction documents. This submittal will include site and floor plans, building elevations, a room finish schedule, and descriptive information on the utility systems, HVAC and lighting systems, and other special systems. This submittal will also include preliminary technical specifications (CSI Divisions 2-16), general requirements (Division 1), an updated construction cost estimate, and supplemental design data and information, such as narrative descriptions of the building elements, engineering calculations and code analyses. If required, a 65% design submittal will also be provided for review.

A 95% design submittal will be presented to include the resolution of review comments on the previous submittal, final plans and specifications, cost estimate, bidding documents (Division 0), and supporting data as described in paragraph 11-4 of NG Pam 415-5. Following review and approval of the 95% design submittal, we will prepare a 100% final approved set of plans and specifications for advertisement for bids.

) If this project is advertised for bids through the state's Purchasing Division, GRW will prepare the required bidding information using the state's forms and contract documents. If the project is advertised through the USP&FO, GRW will provide the required information to the appointed Contracting Officer for incorporation into the contract documents. Plan sets can be supplied to plan rooms and other locations where potential bidders and vendors can review them.

Copies of each design submittal will be furnished as hard copies and CDs, in the number needed for each agency to review. The project schedule will include time for reviews by each agency.

GRW will provide assistance during advertising and bidding of the project by answering RFIs, preparing Addenda, and attending the pre-bid site visit and bid opening. If requested, GRW will assist in evaluating the bids and will provide a tabulation of all bids.

If Type "C" A/E services are needed by the WV ARNG during construction, GRW will be pleased to submit a proposal for those services in time for them to be negotiated and awarded in conjunction with the award of the construction contract.

5.0 Past Performance

GRW has a proven record of accomplishment of delivering quality services to our clients nationwide. We adhere to well-developed policies and procedures to ensure quality control, quality of work, compliance with performance schedules and customer satisfaction. This section describes these policies and procedures. Copies of recent Letters of Appreciation from National Guard clients are provided to illustrate their satisfaction in our performance.

Cost Control

GRW's experience with cost control for military projects began when the firm started serving the DOD in the early 1970's. Now, almost 40 years later, we prioritize this element of a project on an equal level with the quality of our work. We recognize the significance of cost control as a key measure in successfully executing projects so that our DOD clients meet their own budget and schedule requirements and projects are able to receive design and construction funds in their programmed fiscal year.

We begin cost control in the early planning stages of each project, often during the Criteria Review Conference when the scope is resolved and the fee proposal is developed. At this time our Principle-In-Charge, the selected Project Manager and key discipline leads meet with the Contracting Officer, Contracting Officer's Representative and other Design Working Group members at the installation to visit the project site, review available information, and develop an agreed-upon technical approach for the project.

This allows us to reduce design costs if, for example, recent site surveys or soils investigations negate the need for us to conclude these tasks as part of the project. Based on experience with similar projects, we also look to find ways to site-adapt facilities where possible and to re-use conceptual designs completed for similar projects.

Quality of Work

The quality of our work is best demonstrated by the recognition we receive from the engineering industry and by the numerous awards our projects have won, both on a national and state level. Our projects have received awards from the US Air Force, the US Army Corps of Engineers, the American Institute of Architects, the American Council of Engineering Companies, and the US Environmental Protection Agency. Some of these awards are listed below:

- **DBIA Award** – Kentucky ARNG Armed Forces Reserve Center and Field Maintenance Shop, Paducah, KY
- **USAF Design and Construction Awards** – CA ARNG B-1B Beddown Plan; NV ANG Master Plan; USAF Academy General Plan; and Housing Redevelopment Plan, Kadena AB, Okinawa, Japan.
- **USAF Agent and Design Excellence Award** – PACAF Award for Housing Redevelopment Plan, Kadena AB, Okinawa, Japan.
- **USAF Citation Award for Planning Studies and Design Guides** – Nevada ANG Master Plan, Reno/Tahoe IAP, NV
- **ACEC Honor Award, Associated General Contractor's Excellence in Construction Award, AGC National Partnering Award, DBIA National Award, and three other awards** – US Penitentiary and Satellite Camp for US Bureau of Prisons, McCreary County, KY.

Compliance with Performance Schedules

Schedule control also begins at the Criteria Review Conference with the Design Working Group. We confirm the critical interim milestone dates for deliverables at this meeting. We also include dates for review comment feedback and progress meetings at the site. Dates are also established for Charrettes, both at the project site and at the JFHQ or NGB if needed. This schedule is verified in the project proposal and it becomes part of the Project Award and NTP.

We then prepare a Work Breakdown Structure (WBS) that subdivides each work element into manageable units of work this allowing all Project Team members to understand how their portion of a project fits into and coordinates with all of the other work elements being completed by others on the team.

This procedure has successfully allowed GRW to meet the National Guard's schedule requirements, even if it becomes necessary to accelerate the schedule due to delays in the TO Award or NTP.

Customer Satisfaction

GRW enjoys one of the highest percentages of repeat business in the A/E industry. Our clients recognize the superior quality of our work and the commendations we receive are a testament to the staff of GRW. We are continually rated by the "Engineering News-Record" and other professional publications as one of the best A/E firms in the country. While our total revenues are not at the same level as firms with tens of thousands of employees, it has been our client's opinion that GRW's size has nothing to do with the firm's performance on their projects. Instead, it is the close, personal service provided by our staff, combined with frequent, focused communication, and attention to detail that result in the continued retention of GRW for new contracts and tasks.

This record is the result of hard work by the GRW management and staff. We accomplish these results by focusing on the following:

- Providing dedicated, experienced project personnel who are committed to meeting the challenges of providing innovative, cost-effective designs.
- Training our staff to ensure they have the most effective design tools available for use, while remaining current with our client's design criteria and the application of new building codes and other evolving standards.
- Maintaining strong and frequent lines of communication, not only among members of the design team but also with our clients' key stakeholders.
- Following up with our clients after facility occupancy, not just to see if there are any unresolved construction issues but correcting any problems and finding ways to operate and maintain facilities more economically and effectively.

) These efforts have been acknowledged by GRW's many ANG and ARNG clients.

"I would like to commend you for all of the excellent engineering services GRW has rendered to the 130th Airlift Wing. From the Communications Building to the Master Plan, GRW has shown the traits we look for in an A/E firm. You have shown a commitment to our unit by always going above and beyond our expectations. I look forward to working with you in the future."

Lt Col John W. Dulin, Base Civil Engineer, 130th AW, WV ANG

"I want to express my appreciation and gratitude for the highly successful design of our Lawrence Readiness Center. The process you used was extremely productive and efficient, due to the highly professional team assembled for this project and their willingness to meet our requirements and timeline. We are anxious to continue working with GRW."

LTC Steven R. Hines, Facilities Management Officer, IN ARNG

"I am pleased to highly recommend your firm to other states that are in need of a design team for ARNG facilities. Your team has been an excellent resource to us, and your architects, engineers and other staff are to be commended for their high level of expertise and professionalism."

MAJ Brian S. Demers, AIA, Construction and Facilities Management Officer, KY ARNG

"GRW worked tirelessly with the members of the 126th ARW during the design of our Flight Line Buildings. They stepped up to the challenge of the compressed schedule, completing each design phase in a timely manner. The acceptance of 'ownership' of this project resulted in an extremely good working relationship with the 126th."

Lt Col William Mell, Base Civil Engineer, 126th AW, IL ANG, Scott AFB

"The conversion of the GA ANG from F-15's to B-1B bombers and their relocation to Robins AFB was an extremely complex undertaking, further complicated by an expedited schedule. You not only met the schedule but also provided the base with an efficient Master Plan and facilities designs that are essential to us."

Colonel Grant Smith, GA ANG

"The Fuel System Maintenance and Corrosion Control Hangar designed by GRW was the best project ever done at this base, and was the only one done within budget and on time."

Clarence Deason, Construction Manager BCE Office, KY ANG, Louisville

"It's been a real pleasure working with you. What a difference it makes working with someone who knows how our side of the deal works vs. someone who doesn't. Thanks."

MSgt Tina Kubik, Contracting Officer, 130thMSC/MSG, WV ANG

The following pages include letters of appreciation written by several of our recent ARNG and ANG clients.



DEPARTMENT OF THE AIR FORCE
130th CIVIL ENGINEER SQUADRON (AMC)
1679 COONSKIN DRIVE
CHARLESTON, WV 25311-5005

30 September 2008

MEMORANDUM FOR Mr. Pete Johnson, Director-Military Programs, GRW Inc.

FROM: BCE

SUBJECT: Letter of Commendation

1. I would like to commend you and your company for all of the excellent engineering services that they have rendered the 130th Airlift Wing. From the Communications Building to the Master Plan, GRW has shown many of the traits that we look for in an Architectural/Engineering Firm. They have shown their patients with our never ending changes and have each time rose to the occasion and offered us outstanding solutions. They offer their engineering and personal expertise ensuring successful completion on each project. They have shown their commitment to our unit by always going above and beyond our expectation.

2. GRW and its employees should be proud of the professional services that they have given to our unit and the nation; I know that I am extremely proud to have had them on our projects. I look forward to working with you and your team in the future.

A handwritten signature in black ink, appearing to read "John W. Dulin", with a long horizontal line extending to the right.

JOHN W. DULIN, LtCol, WVANG
Base Civil Engineer



DEPARTMENT OF THE ARMY
HEADQUARTERS, KENTUCKY ARMY NATIONAL GUARD
BOONE NATIONAL GUARD CENTER
100 MINUTEMAN PARKWAY
FRANKFORT, KENTUCKY 40601-8168

25 May, 2007

Mr. Pete Johnson, PE
Director of Military Programs
GRW, Inc.
801 Corporate Drive
Lexington, KY 40503

RE: GRW Architectural and Engineering Services
Armed Forces Reserve Center and Field Maintenance Shop
KY ARNG, Blue Grass Army Depot, Richmond, KY

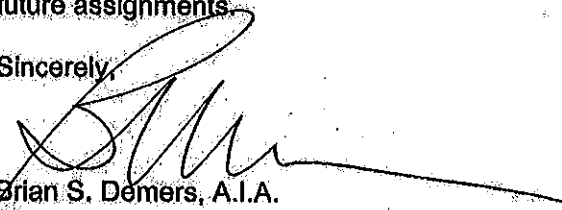
Dear Mr. Johnson:

I am pleased to write this **Letter of Recommendation** on behalf of the Kentucky Army National Guard for the excellent A/E services that GRW has provided for the development of the Design/Build documents for the Blue Grass Army Depot AFRC and FMS project.

Your firm has demonstrated excellent an understanding and knowledge of the requirements for this project and you have provided us with outstanding service whenever we have called on your firm to respond to our needs. Your design team has been an excellent resource for us, and your architects, engineers and other staff members are to be commended for their high level of expertise and professionalism. We look forward to a continuing relationship with GRW on this project and others in the future.

I will be pleased to highly recommend your firm to other states that are in need of a design team for ARNG facilities. Please do not hesitate to use me as a reference for such future assignments.

Sincerely,


Brian S. Demers, A.I.A.
MAJ, KyARNG
Construction and Facilities Management Officer
Kentucky Army National Guard
(502) 607-1481



INDIANA
JOINT FORCES HEADQUARTERS
NATIONAL GUARD
2002 SOUTH HOLT ROAD
INDIANAPOLIS, INDIANA 46241-4839



9 October 2008

JFHQ-IN-FMO

PETER F. JOHNSON, P.E.
Director of Military Programs
GRW, Inc.
801 Corporate Drive
Lexington, KY 40503

Dear Mr. Johnson

I want to take this opportunity to express my appreciation and gratitude to you and your team for what we feel will be a highly successful design of our Lawrence Readiness Center.

The design process that your team led us through has been extremely productive and efficient. There effectiveness was due in large part to the highly professional team you assembled for this project and their willingness to meet the owner's requirements and timeline.

We are anxious to see the project through to completion and the continued work with your staff throughout the process. Again, thank you and the team at GRW for the hard work and professional approach to this design of this facility.

Sincerely

Steven R. Hines
Facilities Management Officer
Indiana Army National Guard

**STATE OF OHIO
ADJUTANT GENERAL'S DEPARTMENT
2825 West Dublin Granville Road
Columbus, Ohio 43235-2789**

October 15, 2008

Directorate of Installation Management,
and Resources

GRW Engineers, Inc.
Attn: Mr. Peter F. Johnson
801 Corporate Drive
Lexington, Kentucky 40503

Dear Mr. Johnson:

I want to take this opportunity to tell you and your team how much the Ohio National Guard appreciates the design GRW produced for the Springfield Armed Forces Reserve Center and Field Maintenance Shop. Of particular note was your Project Manager, Jimmy Piper, who did an outstanding job coordinating all design disciplines, incorporating the Ohio Army National Guard's design comments, and following all required design guidance from the National Guard Bureau to ensure all design submissions were timely and complete.

As we press forward to the construction phase, we look forward to working with you and the rest of the GRW team to produce a state-of-the-art facility that will serve soldiers of the Ohio National Guard for generation to come. As with all projects, the construction phase is the true test of a great design.

Sincerely,



Robert C. Clouse
Colonel, Ohio Army National Guard
Construction Facilities Management Officer

6.0 Proposal Forms

This section includes the forms required by the State's Purchasing Division, as indicated in the Request for Quotation. These forms include the following:

- RFQ Forms
- Purchasing Affidavit



State of West Virginia
 Department of Administration
 Purchasing Division
 2019 Washington Street East
 Post Office Box 50130
 Charleston, WV 25305-0130

Request for Quotation

RFQ NUMBER
DEFK11009

PAGE
1

ADDRESS CORRESPONDENCE TO ATTENTION OF
**BUYER 32
 304-558-2544**

**RFQ COPY
 TYPE NAME/ADDRESS HERE**

VENDOR

GRW
 801 Corporate Drive
 Lexington, KY 40503

BUYER

**DIV ENGINEERING & FACILITIES
 ARMORY BOARD SECTION
 1707 COONSKIN DRIVE
 CHARLESTON, WV
 25311-1099 304-341-6368**

DATE PRINTED	TERMS OF SALE	SHIP VIA	FOB	FREIGHT TERMS
07/21/2010				

BID OPENING DATE: **08/17/2010** BID OPENING TIME **01:30PM**

LINE	QUANTITY	UOP	CAT. NO.	ITEM NUMBER	UNIT PRICE	AMOUNT
0001	1	JB		906-29		
<p>ARCHITECTURAL DESIGN SERVICES</p> <p>EXPRESSION OF INTEREST</p> <p>THE WEST VIRGINIA PURCHASING DIVISION, FOR THE AGENCY, THE WEST VIRGINIA ARMY NATIONAL GUARD'S DIVISION OF ENGINEERING & FACILITIES, IS SOLICITING EXPRESSIONS OF INTEREST FOR ARCHITECTURAL DESIGN SERVICES FOR THE EXPANSION OF THE BUILDING AND HANGER SPACE OF THE CURRENT FIXED WING ARMY AVIATION TRAINING SITE IN BRIDGEPORT, WV, PER THE FOLLOWING BID REQUIRMENTS AND THE ATTACHED SPECIFICAITONS.</p> <p>BANKRUPTCY: IN THE EVENT THE VENDOR/CONTRACTOR FILES FOR BANKRUPTCY PROTECTION, THE STATE MAY DEEM THE CONTRACT NULL AND VOID, AND TERMINATE SUCH CONTRACT WITHOUT FURTHER ORDER.</p> <p>***** THIS IS THE END OF RFQ DEFK11009 ***** TOTAL:</p>						

SEE REVERSE SIDE FOR TERMS AND CONDITIONS

NATURE *John Lyle* TELEPHONE (859) 223-3999 DATE 8-12-2010

TITLE Vice President FEIN 61-0665036 ADDRESS CHANGES TO BE NOTED ABOVE

WHEN RESPONDING TO RFQ, INSERT NAME AND ADDRESS IN SPACE ABOVE LABELED 'VENDOR'

STATE OF WEST VIRGINIA
Purchasing Division

PURCHASING AFFIDAVIT

West Virginia Code §5A-3-10a states: No contract or renewal of any contract may be awarded by the state or any of its political subdivisions to any vendor or prospective vendor when the vendor or prospective vendor or a related party to the vendor or prospective vendor is a debtor and the debt owed is an amount greater than one thousand dollars in the aggregate.

DEFINITIONS:

"Debt" means any assessment, premium, penalty, fine, tax or other amount of money owed to the state or any of its political subdivisions because of a judgment, fine, permit violation, license assessment, defaulted workers' compensation premium, penalty or other assessment presently delinquent or due and required to be paid to the state or any of its political subdivisions, including any interest or additional penalties accrued thereon.

"Debtor" means any individual, corporation, partnership, association, limited liability company or any other form or business association owing a debt to the state or any of its political subdivisions. "Political subdivision" means any county commission; municipality; county board of education; any instrumentality established by a county or municipality; any separate corporation or instrumentality established by one or more counties or municipalities, as permitted by law; or any public body charged by law with the performance of a government function or whose jurisdiction is coextensive with one or more counties or municipalities. "Related party" means a party, whether an individual, corporation, partnership, association, limited liability company or any other form or business association or other entity whatsoever, related to any vendor by blood, marriage, ownership or contract through which the party has a relationship of ownership or other interest with the vendor so that the party will actually or by effect receive or control a portion of the benefit, profit or other consideration from performance of a vendor contract with the party receiving an amount that meets or exceeds five percent of the total contract amount.

EXCEPTION: The prohibition of this section does not apply where a vendor has contested any tax administered pursuant to chapter eleven of this code, workers' compensation premium, permit fee or environmental fee or assessment and the matter has not become final or where the vendor has entered into a payment plan or agreement and the vendor is not in default of any of the provisions of such plan or agreement.

Under penalty of law for false swearing (*West Virginia Code* §61-5-3), it is hereby certified that the vendor affirms and acknowledges the information in this affidavit and is in compliance with the requirements as stated.

WITNESS THE FOLLOWING SIGNATURE

Vendor's Name: GRW

Authorized Signature: *Shawn Lye* Date: 8-12-2010

State of Kentucky

County of Shelby, to-wit:

Taken, subscribed, and sworn to before me this 12 day of August, 2010

My Commission expires July 6, 2014

AFFIX SEAL HERE

NOTARY PUBLIC *Deuse O. Owshe*
423298