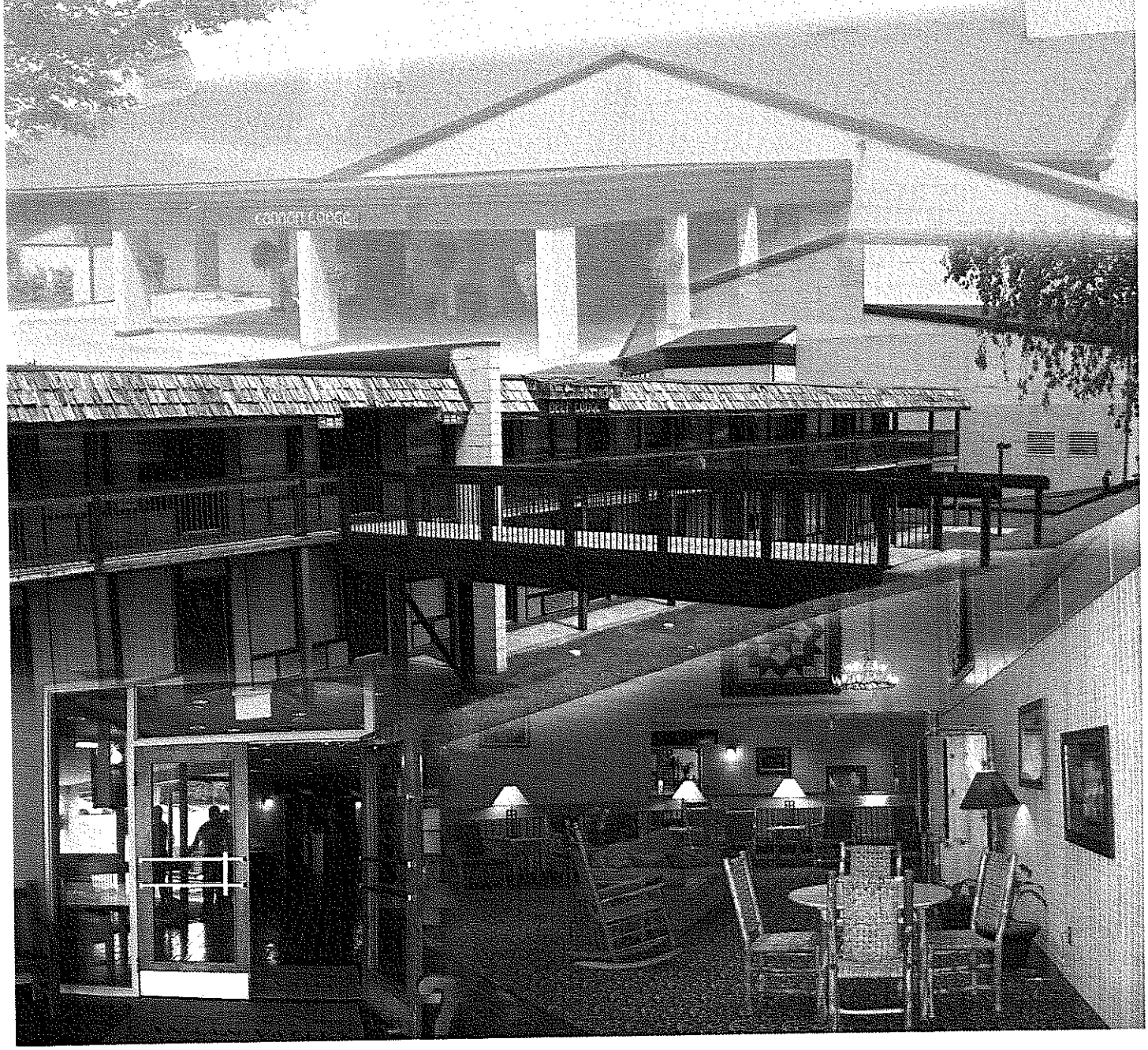
Expression of Interest for the
West Virginia Department of Natural Resources for the
Sleeping Unit Replacements and Other Improvements
Canaan Valley Resort State Park

RFQ DNRB11006

Chapman Technical Group

August 31, 2010



Chapman
Technical
Group

August 31, 2010

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

Re: A/E Services for Canaan Valley Guest Rooms, Demolition, Renovation and Other Improvements
RFQ DNRB11006

To the Selection Committee:

Chapman Technical Group is most interested in providing the architectural and engineering services for the demolition, renovation, and replacement of the guest rooms. Chapman Technical Group has been involved in the cabins and site improvements at Blackwater State Park, the water line project at Canaan Valley State Park, and we are currently working at the Tucker County Courthouse so we are quite familiar with the area. Having designed many projects for the WV State Parks, including the current cabin project at Blackwater Falls, we are familiar with State Parks' procedures, desires and goals. With every project we develop we continue to learn and we'll take our experiences from past projects to develop an even better project at Canaan Valley State Park.

As a firm, it may not appear that Chapman Technical Group has a lot of hospitality experience; however, our collective staff has experience in numerous hospitality projects at different points in our careers. I personally was a part of the design team for the Days Inn at Flatwoods, which has over 200 guest rooms and I was the chief designer of the Conference Center that connects the guest room wings. Other members of our team have similar experience too numerous to list here.

Sharon L. Chapman, President and Interior Designer, will be intimately involved in the project and will provide the necessary services to work with the owner to select furniture, fixtures, and equipment for the project.

As part of our project team we have included **CAS Structural Engineering, Inc.** for all the structural design and evaluation of the existing structures that are to remain after demolition. For the Mechanical/Plumbing/Electrical design, we have joined with **Miller Engineering, Inc.** We have worked successfully and comfortably with both of these consultants on other projects. They have their own list of hospitality type projects, which are included in later sections of this submittal.

It is critical that the facilities and other amenities be developed in such a way that minimizes the disturbance of pristine areas and maximizes the natural beauty of the park. Chapman Technical Group's landscape architects and engineers will work together to carefully craft the design package to accomplish these goals.

200 Sixth Avenue
St. Albans, WV 25177
304.727.5501
FAX 304.727.5580
Buckhannon, WV
Martinsburg, WV
www.chaptech.com

Chapman Technical Group

We understand that the project also involves the design, construction and/or repair of parking areas, ski lifts, and shooting ranges. Having completed the preliminary design of these types of improvements as part of the Blackwater Falls Cabin project, we are very familiar with many of the requirements and issues for these elements of the project. We have supplemented our project team with the inclusion of two specialty consultants to address the water supply requirements and the design of the surface lift or tow system.

Joining our team to assist with the design of lift system is **Stevens Engineering**. With nearly 30 years experience, Stevens Engineering is recognized throughout North America for their lift planning and design expertise. **Groundwater Science** has extensive experience in the design of groundwater supply systems and will assist Chapman Technical Group in determining the placement of the new well and determining what kind of production we might expect.

Our main office is in St. Albans and that is where the design work will be performed, but we also maintain a fully functioning office in Buckhannon. We have completed several projects for the Towns of Davis and Thomas and Courthouse renovations in Parsons, so we are constantly working in the area. You can be assured that we will be available at the project site on short notice and can be available to whatever extent is required during the critical construction phase.

You will find all of the requested information regarding our firm and our consultants and our ability to execute the requirements of this project within this submittal. We would very much appreciate the opportunity to present our project team and further discuss your project. In the meantime, if you have any questions or need additional information, please contact me.

Sincerely,

CHAPMAN TECHNICAL GROUP

Dale E. Withrow, AIT, GA
Manager, Architecture

200 Sixth Avenue
St. Albans, WV 25177
304.727.5501
FAX 304.727.5580

Buckhannon, WV
Martinsburg, WV

www.chaptech.com

M:\proposals\ARCHITECTURE\Canaan Valley\Canaan Valley Guest Rooms.doc

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

Request for Quotation

RFQ NUMBER	PAGE
DNRB11006	2

ADDRESS CORRESPONDENCE TO ATTENTION OF:
FRANK WHITTAKER
304-558-2316

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EXHIBIT 10

REQUISITION NO.: DNRB1106

ADDENDUM ACKNOWLEDGEMENT

I HEREBY ACKNOWLEDGE RECEIPT OF THE FOLLOWING CHECKED ADDENDUM(S) AND HAVE MADE THE NECESSARY REVISIONS TO MY PROPOSAL, PLANS AND/OR SPECIFICATION, ETC.

ADDENDUM NO.'S:

NO. 1 ..✓.....

NO. 2 ..✓.....

NO. 3 .....

NO. 4 .....

NO. 5 .....

I UNDERSTAND THAT FAILURE TO CONFIRM THE RECEIPT OF THE ADDENDUM(S) MAY BE CAUSE FOR REJECTION OF PROPOASLS.

VENDOR MUST CLEARLY UNDERSTAND THAT ANY VERBAL REPRESENTATION MADE OR ASSUMED TO BE MADE DURING ANY ORAL DISCUSSION HELD BETWEEN VENDOR'S REPRESENTATIVES AND ANY STATE PERSONNEL IS NOT BINDING. ONLY THE INFORMATION ISSUED IN WRITING AND ADDED TO THE SPECIFICATIONS BY AN OFFICIAL ADDENDUM IS BINDING.

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SIGNATURE

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SIGNATURE	TELEPHONE	DATE

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LINE	QUANTITY	UOP	CAT NO	ITEM NUMBER	UNIT PRICE	AMOUNT

Chapman Technical Group Ltd.
COMPANY

8-30-2010
DATE

NOTE: THIS ADDENDUM ACKNOWLEDGEMENT SHOULD BE SUBMITTED WITH THE PROPOSAL.

REV. 09/21/2009

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.

NOTICE

A SIGNED EOI MUST BE SUBMITTED TO:

DEPARTMENT OF ADMINISTRATION
PURCHASING DIVISION
BUILDING 15
2019 WASHINGTON STREET, EAST
CHARLESTON, WV 25305-0130

THE EOI SHOULD CONTAIN THIS INFORMATION ON THE FACE OF THE ENVELOPE OR THE EOI MAY NOT BE CONSIDERED:

SEALED EOI

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Request for Quotation

RFQ NUMBER	PAGE
DNRB11006	4

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BID OPENING DATE: 08/31/2010 BID OPENING TIME 01:30PM

LINE	QUANTITY	UOP	CAT NO.	ITEM NUMBER	UNIT PRICE	AMOUNT

BUYER: 44

EOI. NO.: DNRB11006

BID OPENING DATE: 08/31/2010

EOI OPENING TIME: 1:30 PM

PLEASE PROVIDE A FAX NUMBER IN CASE IT IS NECESSARY TO CONTACT YOU REGARDING YOUR PROPOSAL:

304 727 5580

CONTACT PERSON (PLEASE PRINT CLEARLY):

Dale E. Withrow

****** THIS IS THE END OF RFQ DNRB11006 ****** TOTAL:

SEE REVERSE SIDE FOR TERMS AND CONDITIONS

SIGNATURE	TELEPHONE	DATE

TITLE	FEIN	ADDRESS CHANGES TO BE NOTED ABOVE

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RFQ No. DNRB11006

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 exceed 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: Chapman Technical Group, Ltd.

Authorized Signature: Shawn L. Chapman Date: August 31, 2010

State of West Virginia

County of Kanawha, to-wit:

Taken, subscribed, and sworn to before me this 31 day of August, 2010.

My Commission expires September 20, 2010.

AFFIX SEAL HERE

NOTARY PUBLIC Jessica D. Gunnoe

Official Seal
Notary Public, State of West Virginia
Jessica D. Gunnoe
506 Coal Fork Road
Charleston, WV 25306
My Commission Expires September 20, 2010

Chapman Technical Group

Cathedral Stone WORKSHOPS

SPACE IS LIMITED. REGISTER TODAY!

Cathedral Stone Products, Inc. offers three-day training workshops at our facilities in the Baltimore-Washington area. Our classes welcome masons, contractors, craftsmen, specifiers, and other preservation professionals. Architects can receive AIA/CES credits, upon request. Workshops are available throughout the year. Successful completion of the Jahn Restoration Workshop is necessary to purchase Jahn Repair Mortars M70, M100, M120, and M160.

Please call 1-800-684-0901 for more information.

We look forward to seeing you at our workshop in the near future!

$1075 Includes:

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- Complete Cathedral Stone Products Binder
- Excellent lunch
- Graduation Certificate
- "Authorized Installer" Card
- Referrals in your area
- Price includes a set of brand new training tools.

SPECIAL OFFER FOR SPECIFIERS!

FREE registration and certificate issued upon completion.

Call Today!

(800) 684-0901

Upcoming Workshops

DATES	CLASS NUMBER
May 19-21, 2008	#08003
Jul 21-23, 2008	#08004
Sep 15-17, 2008	#08005
Nov 17-19, 2008	#08006

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Project Team

WV Division of Natural Resources
Parks & Recreation Section

CHAPMAN TECHNICAL GROUP

Project Management
Joseph E. Bird, ASLA

Architectural Design

Dale E. Withrow, AIT, GA.
Project Coordinator

W. Thomas Cloer, III, AIA, NCARB
Project Architect
Specification Writer

Phillip A. Warnock
NCARB, AIA
Design Support
Detailing

Structural Design

CAS Structural Engineering

Carol A. Stevens, PE
Principal In Charge
Design/Specifications

Kenneth B. Robinson, PE
Design

David C. Hoy, EI
Design Support

Mechanical Electrical Plumbing

Miller Engineering, Inc.

Craig Miller, PE, LEED AP
Principal In Charge

Brandon Merriman, EI
Mechanical Designer

Shelby McMahon, Technician
Mechanical Designer

Jack E. Jamison, Jr.
Electrical Design
Construction Representative

Robert Angus
Construction Observation

Water System Engineering

Stephen M. Johnson, PE
System Design
Specifications

Hydrogeology/Well Design

Smith-Comesky Ground Water Science
Eploration, Evaluation Design

Ski Lift Design

Stevens Engineering

Ross Stevens, PE
Principal In Charge
Design

Site Design

Joseph E. Bird, ASLA
Site Layout and Landscape

Robert G. Belcher, PE
Civil Design

Robert D. Dinsmore
Landscape Design

Production

Fred L. Brown
CADD Manager

Dennis N. Duncan
CADD Technician V

Lisa D. Acord
CADD Technician V

John R. Farnham
CADD Technician V

Executive Summary

Chapman Technical Group is a professional design firm of architects, engineers, interior designers, landscape architects and surveyors. With offices in St. Albans, Buckhannon, and Martinsburg, West Virginia, Chapman Technical Group can offer a wide range of services to clients throughout the state. Founded in 1984, we have grown to over 40 employees.

With our diverse staff of professional and support personnel, Chapman Technical Group is capable of meting ambitious project schedules on nearly any size project. Our long list of awards gives testament to the quality projects produced at Chapman Technical Group. We also are proud of and work to maintain our reputation of bringing projects in on or under budget and with fewer than the industry standard Change Orders.

Chapman Technical Group offers these services in-house:

*** Architecture**
*** Airport Planning and Development**
*** Interior Design**
*** Civil Engineering and Site Design**
*** Landscape Architecture**
*** Surveying**

Chapman Technical Group's list of projects includes:

Recreation Facilities, Bathhouses, Concessions
Cabins for State Parks
Rest Areas and Welcome Centers.
Higher Education Facilities
Office Buildings
Landscapes for Public and Private Clients
Historic Preservation Depots, Homes, Courthouses
Courthouse Facility Master Plans and Renovations
Community Centers
Business Incubators
Airports, Terminals, Support Facilities
Water Treatment Facilities
Waste Water Processing Plants
Bridges and Highways
Utility Design
Athletic Facilities
Streetscapes
Site Layout and Design
Parking design
Industrial Park Layout
Fish Hatcheries

The collective experience of our design professionals and support personnel can be measured in hundreds of years. Beyond the firm projects listed above, our staff also has experience with Hospitality, Healthcare, Military Facilities, Multi-Family Housing, Public Safety Facilities, Chain Stores, restaurants, and many other types.

Awards

AMERICAN INSTITUTE OF ARCHITECTS - MERIT AWARD FOR EXCELLENCE IN ARCHITECTURE, 2009 - Interstate 79 Rest Areas.

AMERICAN SOCIETY OF CIVIL ENGINEERS - NATIONAL - SUPERIOR EMPLOYER AWARD, 2009, Support of Young Professionals in the Private Sector.

AMERICAN COUNCIL OF ENGINEERING COMPANIES-WV - ENGINEERING EXCELLENCE AWARD, 2009, Gold Award - Special Projects Category for the Mercer County Airport Runway Safety Area Project.

AMERICAN INSTITUTE OF ARCHITECTS - HONOR AWARD FOR EXCELLENCE IN ARCHITECTURE, 2008 - Upshur County Courthouse Restoration and Renovations.

AMERICAN COUNCIL OF ENGINEERING COMPANIES-WV - ENGINEERING EXCELLENCE AWARD, 2008, Bronze Award - Wastewater Category for the Spring Run State Fish Hatchery Improvements.

AMERICAN COUNCIL OF ENGINEERING COMPANIES-WV - ENGINEERING EXCELLENCE AWARD, 2007, Silver Award - Structures Category for the Mercer County Airport Runway Safety Area Project.

GARY KING COMMUNITY SERVICE AWARD, 2006. **GOOD SCOUT RECIPIENT,** 2005.

AMERICAN COUNCIL OF ENGINEERING COMPANIES-WV - ENGINEERING EXCELLENCE AWARD, 2003, Gold Award - Water Treatment Category for the City of Fairmont Water Treatment Plant Project.

AMERICAN COUNCIL OF ENGINEERING COMPANIES-WV - ENGINEERING EXCELLENCE AWARD, 2002, Gold Award - Transportation Category for the Raleigh County Memorial Airport Runway Rehabilitation Project.

WINNER - "COMMISSIONER'S ENGINEERING ACHIEVEMENT AWARD", 2000, The WVDOT - Division of Highways - Large Bridge Category for WV10 Buffalo Creek Bridge, Logan County, West Virginia.

FINALIST - "COMMISSIONER'S ENGINEERING ACHIEVEMENT AWARD", 1999, The WVDOT - Division of Highways - Large Roadway Category for WV10 Buffalo Creek - Taplin Project and 2000 for WV10 Buffalo Creek - Huff Junction Project, both in Logan County, West Virginia.

AMERICAN COUNCIL OF ENGINEERING COMPANIES-WV - ENGINEERING EXCELLENCE AWARD, 1999, Silver Award - Water and Wastewater Category, for the City of Beckley Piney Creek Wastewater Treatment Plant Project.

ENTREPRENEUR OF THE YEAR AWARD - FINALIST, 1999 and 2000, Sharon L. Chapman, President, was named one of twenty finalists in the West Virginia Area Entrepreneur of the Year Award. Sharon was recognized for leading Chapman Technical Group to become one of the most highly regarded engineering firms in the state after the death of her husband and company founder, Harvey R. Chapman.

"EXPECT THE BEST FROM WEST VIRGINIA AWARD", 1998, Charleston Regional Chamber of Commerce. The Expect the Best program was created to recognize West Virginia businesses and organizations that promote quality of life at home, work, and in the community so that individuals and organizations will implement quality principles and practices leading to unprecedented pride and economic growth in West Virginia.

HONOR AWARD, West Virginia Chapter of the American Society of Landscape Architects, 1994, Shrewsbury Street Area Redevelopment Plan, for excellence in planning and design projects. Joseph E. Bird, ASLA, Project Manager.

"GOVERNOR'S AWARD FOR ENGINEERING EXCELLENCE", 1990, The West Virginia Chapter of the American Public Works Association, in recognition of outstanding Public Works Engineering and Design of Projects within West Virginia.

DUNDEE CEMENT COMPANY ANNUAL DESIGN AWARD, 1988, Yeager Airport Taxiway Overlay Project. Harvey R. Chapman, P.E., Project Manager.

AUSTIN C. PALMER "OUTSTANDING FACILITY DESIGN AWARD", 1988, City of Bridgeport Swimming Pool Complex. Harvey R. Chapman, P.E., Project Manager.

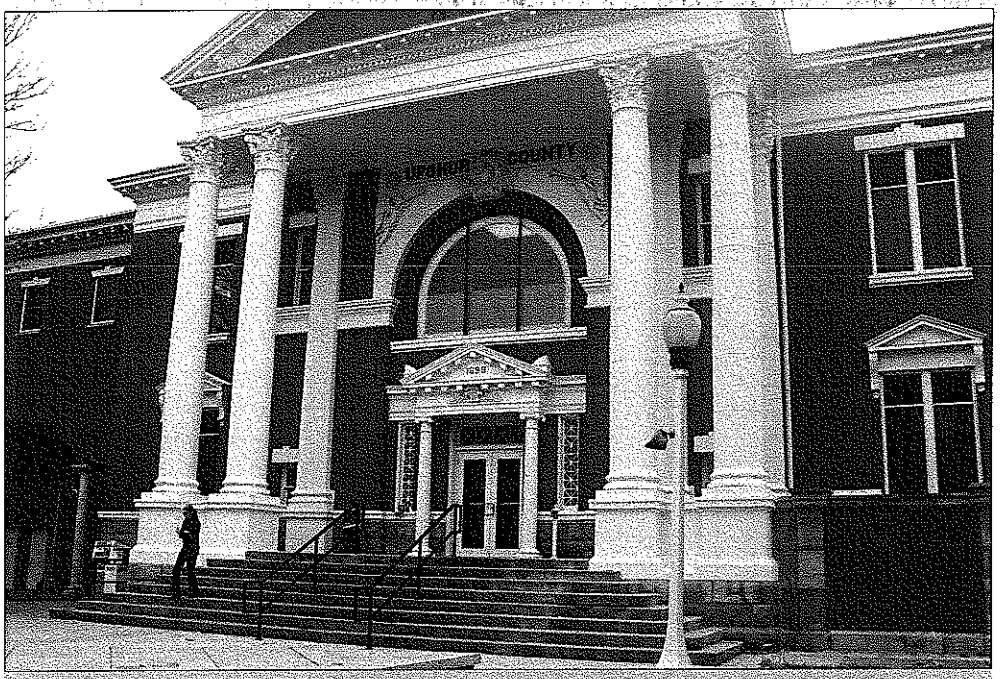
"GEORGE WARREN FULLER AWARD", Harvey R. Chapman, P.E., 1984, Robert G. Belcher, P.E., 2001, and Sharon L. Chapman, 2005, Jeffery D. Ekstrom, P.E., 2010, American Water Works Association, for distinguished service in the water supply field in the State of West Virginia.

The Cathedral Stone® NEWSLETTER

April 2008, Volume 4, Issue 1

Upshur County Courthouse Restoration

NSIDE THIS ISSUE:



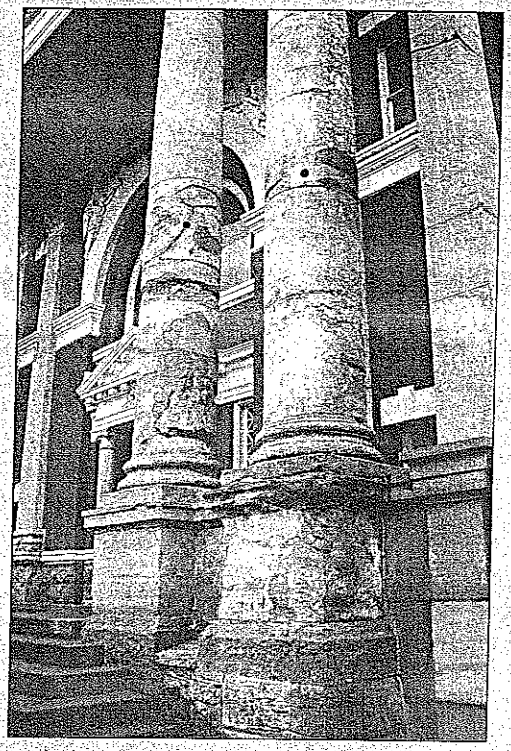
Upshur County Courthouse after restoration.

Built in 1899, The Upshur County Courthouse, is an impressive brick and stone structure, with four sandstone columns and pilasters that stand 30 feet tall from plinth base to their cast iron capitals. Both monumental and charming, the courthouse provides the city of Buckhannon, West Virginia with a sense of dignity, pride, and presence.

In 2006, the Upshur County Commission wanted to repaint the stonework at the portico on the courthouse. Chapman Technical Group, architects for the project, discovered in a previous effort to protect the stonework, the portico area columns, railings and plinths were coated with a cementitious parging, and painted with a waterproofing used for pool liners. However, waterinfiltrated the system and could not get out. The water was trapped in the sandstone through freeze-thaw cycles and hot days, which essentially caused the deterioration of the stone below. The deteriorated stone pulled away, creating larger cracks and exacerbating the problem until sections of the parging began to fall from the columns. Unfortunately, the bond strength of the parging was greater than the material strength of the sandstone, and in many areas the parging ripped good stone away as it went.

Once informed of the seriousness of the problem, the Commission approved removal of the existing parging, uncovering previously unknown repair attempts.

(Continued on page 2)



Coatings were stripped revealing severely deteriorated stone.

Coatings were stripped revealing severely deteriorated stone.

Upshur County Courthouse, *continued from page 1*

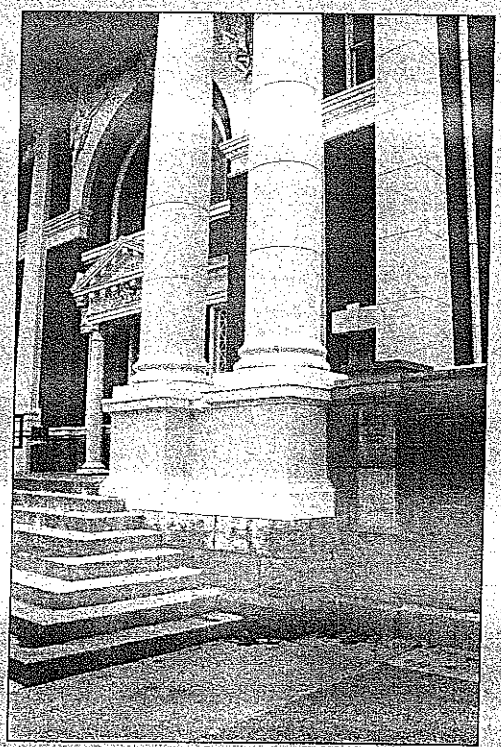
Repairs reinforced with iron nails had rusted and failed, but very large chunks of non-shrink grout repairs remained. These repairs were near the base on two separate columns, and spanned as much as 42" wide, 20" high and 10" deep. A careful investigation of the columns was performed by the Chapman Technical Group team, which included CAS Structural Engineering and Historic Preservation Consultant, Bill Kostellic. Cathedral Stone Products was recommended as a respected source of information and products to repair and restore the stone. A plan was developed, and in 2007 historic preservation contractor, Keystone Waterproofing, Inc., of Greensburg, PA was added to the team to perform the work.

Cathedral Stone Products was a key player in the diagnosis of the problem as well as the solution. Physical property testing of the core samples as well as color matching was provided. Keystone Waterproofing masonry restoration contractors, who are Jahn Authorized Installers, used Jahn M70 stone repair mortar, Jahn M80 anchor setting mortar, Jahn M30 micro injection grout, Jahn M40 crack and void injection grout, and Silin Silith mineral coating to restore the stone work.

Some cracks completely transected the column shafts and were stitched together with stainless steel pins, anchored with Jahn M80 Setting Mortar. Ports were created to fill the crack with injection grouts and adhesive as appropriate. Surface cracks were cut out from the stonework and filled with Jahn M70 stone repair mortar, engineered to match the properties of the existing stone. The large non-shrink grout repairs at the column shafts required steel bracing to be installed before removal. Keystone Waterproofing contractors also used Jahn Repair Mortars to recreate the original profiling of the plinth area railings, column bases, pilaster bases and the scrollwork for an ionic column.

The importance of matching stone properties with repairs was clearly illustrated by the previous attempts where repairs had failed. If the thermal expansion and contraction rate is different between the repair and the stone, cracks will develop, and water will penetrate the repair. When the vapor permeability of the repair is too low, water will be trapped and the

Repairs finished and coated with Silin Silith.



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Please call 1-800-684-0901 for more information.

We look forward to seeing you at our workshop in the near future!

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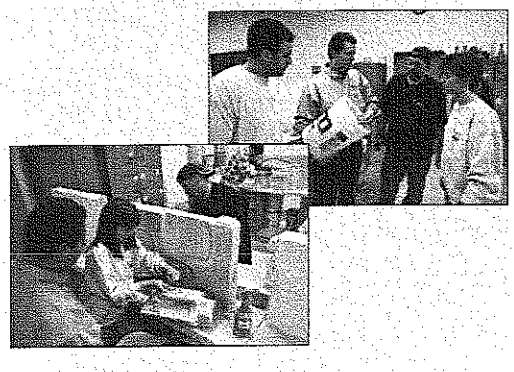

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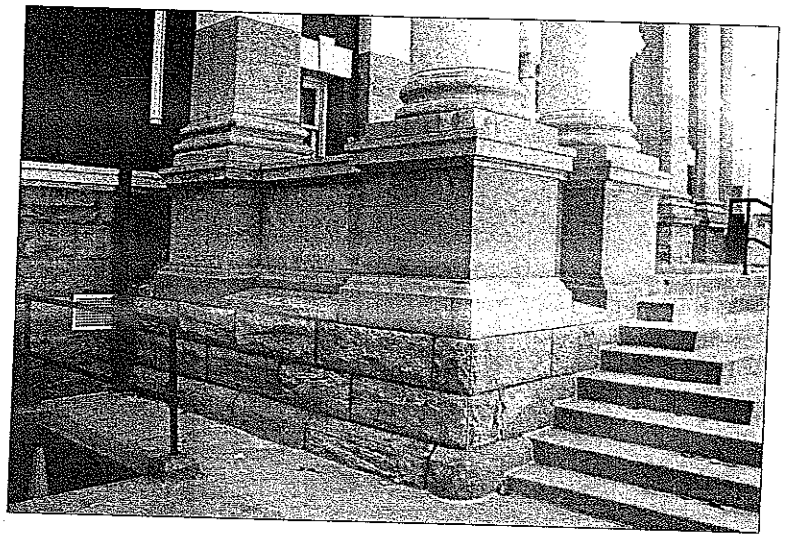


Repaired stone with Jahn M70 Repair Mortar before coating.

repair will delaminate. If the bonding strength of the repair is too high, it will remove good stone with it, should the repair fail or need to be removed. Therefore, a stone repair mortar engineered to the existing stone's properties, like Jahn Mortar, can help to restore and protect the existing stone.

After all the mortar joints were repointed, the smooth-tooled areas of stone were coated with Silin Silith. This mineal coating has a very high rate of vapor permeability (70 perms). At the rock-faced stone, color-matched mortar and dutchman were used to match repairs to the existing substrate.

The Restoration Team, utilizing CSP products not only restored the structural integrity of the foundations, pilasters and columns, but artfully provided material stability improvements as well. The sandstone columns, foundations, and railings were preserved and restored by removing damaged areas, including previous attempts at repair, and building them back with stone repair mortar engineered to match the existing stone properties. The restorations to the Courthouse have provided the people of Upshur County with a courthouse complex that is stable, accessible, beautiful, and well-positioned to serve the community for the next 100 years.

Cathedral Stone Products, Inc. would like to thank Keystone Waterproofing as well as Chapman Technical Group for their dedication and fine craftsmanship to the restoration of the Upshur County Courthouse.

CATHEDRAL STONE STAFF

FOUNDER AND CEO
Dennis Rude

NATIONAL TRAINING & SALES MANAGERS
Chuck Spitznagel
Larry Burkhardt

TECHNICAL REPRESENTATIVES
Dan Perakes
Aaron Wolk
Gary Keshner
John Shaw
Ted Kinnari

MARKETING & SALES COORDINATOR
Kathleen Lawlor

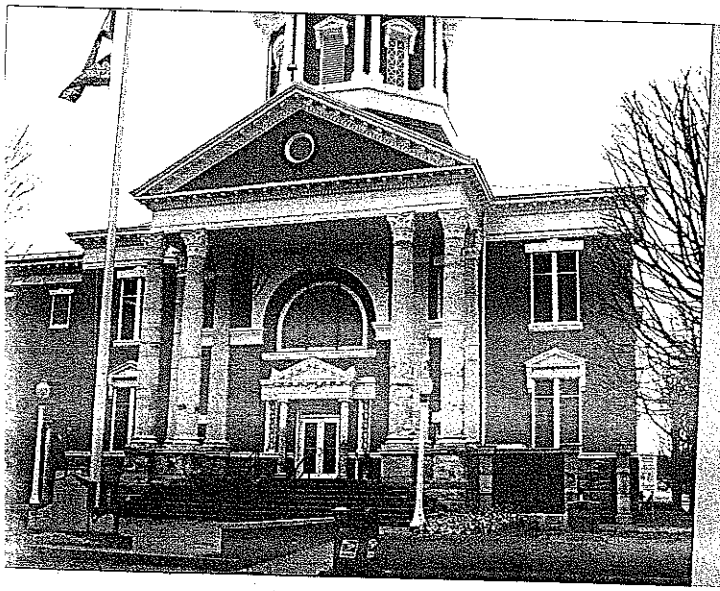
MARKETING ASSISTANT
Dawn Seim

BOOKKEEPING & ACCOUNTS PAYABLE
Mary Fran Fry

QUALITY CONTROL LABORATORY
Karen Spitznagel

COLOR LABORATORY & PRODUCTION STAFF
Charlie Burkhardt
Jerry Weiss
Melissa Burkhardt

ADMINISTRATIVE
Deb Keefe



Upshur County Courthouse prior to portico restoration.

However, when hairline cracks appeared, water penetrated the system and could not escape. Freeze-thaw cycles and hot days combined to break down the underlying stone's properties, essentially rotting the stone because water could not escape the waterproofing. Areas of parging began to fall off, uncovering softened stone and sometimes pulling good stone with it, as the bonding strength of the parging was greater than that of the stone. The parging and waterproofing were removed from the columns and left exposed over the winter, allowing the stone to "breathe" and dry out. Many areas of stone were much stronger after drying out, no longer crumbling when rubbed with fingertips. The removal of the parging also exposed some beautiful detailing, that had been hidden for unknown years, at the stone capitols of the entry columns and at the column bases. Core samples were taken to determine the properties of the inner stone, including compressive strength, bond strength and color.

Scaffold around dome to facilitate repairs.

The repair of the stone elements at the main entrance (columns, railings, cheekwalls and foundations) turned into the third and final phase of the project. Matching the original stone properties, repair mortar was created to repair portions of the stone columns, railing and foundations. Other stones were too severely damaged to repair and were replaced in-kind with dutchmen. Steel bracing was installed before the deepest prior repair materials were removed due to concerns with the structural integrity and stability of the columns. Where cracking of the stone carried through an entire column, injection repairs complemented stainless steel cross-pinning to stitch the column together. All areas of grout and other cementitious repair materials were removed and repair mortar was installed. Shallow cracks were routed and repaired; deeper cracks were injected with repair materials. Column base and railing sections were repaired with the repair mortar and the original stone profile was restored.

Due to funding limitations and a conscious decision not to remove all traces of work, wear and weather from the columns, only the most egregious of the pits and ruts on the stone were repaired along with the structural issues discussed above. This created a structurally sound set of columns, railings and foundations while retaining a patina of the 100 plus years of use. The smooth-tooled areas of stone that had historically been coated were provided with a self-cleaning, mineral coating specifically formulated for stone and approved for historic preservation use. This coating has a very high rate of vapor permeability and allows the stone to breathe while preventing liquid water from penetrating the stone. At the rock-faced stone, color-matched mortar and dutchman were used to match the existing stone.

In all instances, the design team endeavored to fix the root cause of each problem, while making repairs in a historically accurate and sensitive method with the best materials and methods currently available. The Upshur County Courthouse Renovations project has been awarded the Honor Award for Excellence in Architecture by AIA West Virginia.

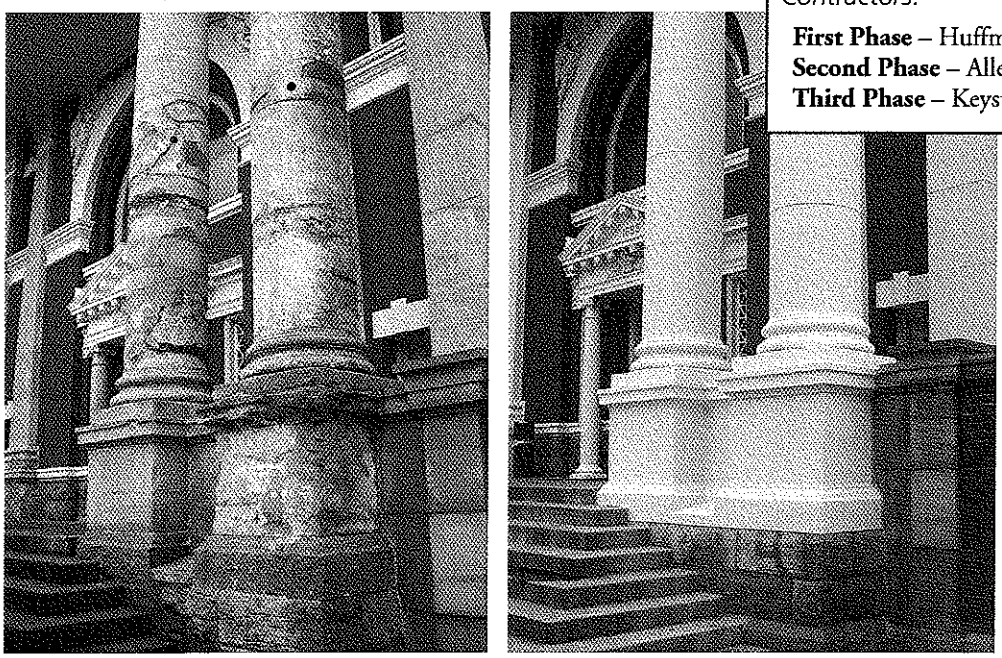
This series of projects, performed by three separate contractors, was completed for $865,000, an amazing deal when the price of a new courthouse is considered. The result has provided the people of Upshur County with a courthouse complex that is stable, accessible, beautiful, and well positioned to provide services for the next 100 years. The "Gem in the Mountains" has been polished.▪

Project Team

Structural Engineer of Record – CAS Structural Engineering, Inc.
Architect of Record – Chapman Technical Group
Restoration Consultant – William S. Kostelic
Owner – Upshur County Commission

Contractors:

First Phase – Huffman Corporation
Second Phase – Allegheny Restoration & Builders, Inc.
Third Phase – Keystone Waterproofing, Inc.



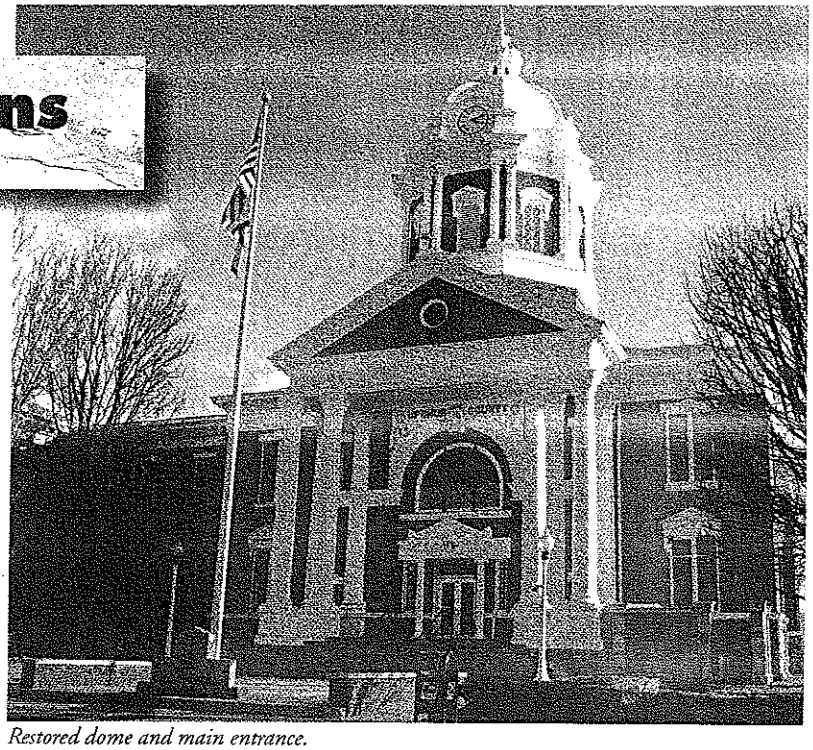
Left: Distressed sandstone columns discovered upon parging removal. Right: Restored sandstone columns and bases.

Carol A. Stevens, P.E., SECB, is president of CAS Structural Engineering, Inc, a consulting firm in Alum Creek, WV. Ms. Stevens has been recognized by both AIA-WV and AIA–NY for restoration projects within West Virginia. Ms. Stevens can be reached at ***calalane@aol.com****.*

Phillip A. Warnock, AIA, NCARB, is a project architect for Chapman Technical Group, in St. Albans, WV. Mr. Warnock has been granted the Honor Award for Excellence in Architecture from the AIA-WV for the Upshur County Courthouse Renovations. Mr. Warnock can be reached at ***pwarnock@chaptech.com****.*

A Gem in the Mountains

By Carol A. Stevens, P.E., SECB and Phillip A. Warnock, AIA, NCARB



Restored dome and main entrance.

The Upshur County Courthouse, built in 1899, is situated in the weathered mountains in the north central West Virginia town of Buckhannon. Located on a prominent corner in downtown, the dome of the courthouse can be seen from miles away while traveling through the hills. The building is constructed of brick with a rock face sandstone foundation and monumental sandstone columns supporting the portico. A wooden cornice with heavily detailed dentil molding trims the entire building at the roof level. The dome is supported by a brick tower that draws one's eye to the top of the structure, where decorative Corinthian cast iron columns adorn the façade. The dome itself is constructed of radial arch steel trusses with wood decking and galvanized sheet steel cladding. Time and weather had taken a toll on this gem, which has suffered the consequences of good intentions.

The investigation of this phased project started with the Upshur County Commission applying for grants through the Courthouse Facilities Improvement Authority. Since the grant monies were limited, the project was completed in three phases, with three different contractors. The first issues addressed pertained to the main entrance. Initially, the terrazzo flooring was raised, prohibiting the proper function of the main entrance doors. The terrazzo had cracked and chipped, and had been repaired with grout. It was determined that a structural steel beam directly below the entrance was severely deteriorated, with rust jacking causing the flooring issues above. In lieu of replacing the beam and pipe column support, the masonry wall below was extended up to support the floor above.

In addition to repairing the terrazzo and structural issues at the main entry, accessibility issues were addressed. As the root problem appeared to be water and salts migrating toward the entry, a lightweight concrete pad was provided on top of the existing portico slab to provide positive slope away from the building and provide a level entry plane at the portico. Ramps were provided at the plaza and an ADA compliant chair lift was installed, with all work complimenting the historical aesthetic of the property.

In the second phase of the project, the dome was repaired and restored. During the initial investigation, it was discovered that the dome had actually shifted because the legs of the inverted steel channel that it was resting on failed, causing the south side of the dome to be approximately 1½ inches lower than the north. The rusting was so advanced that the riveted connections between the truss rib and the bottom channel ring were completely deteriorated in some locations. The shifting also caused low slope areas above the cast iron ornamental columns to slope toward the building, essentially funneling water into the structure. Previous repairs, including EPDM roofing installed directly over leaking panels, increased the deterioration of the galvanized sheathing and the water infiltration in the dome area. The brick tower began to deteriorate due to the presence of water. As the interior brick spalled and steel rods anchoring the structure to the brick disintegrated, the deterioration of the dome structure continued until the only thing holding the dome to its unstable base was gravity.

Left: Failed steel channel and riveted connection at truss. Right: Repaired connection at truss.

Brick fired at the same plant and from around the same time that the courthouse was built was salvaged from a local house, and used to replace those bricks that had lost their structural integrity. Bricks and anchors were reset, repointed, and when necessary, replaced to create a structurally stable base for the steel dome trusses. A jack truss was created to allow the replacement of the entire steel ring at the bottom of the trusses. A steel angle was used in place of the steel channel, as the previous channel caught and trapped water and pigeon droppings, leading to its disintegration. Slight corrections were made to counteract the dome shifting without stressing the roofing system. The wood windows and louvers were repaired to deter pigeons from roosting in the dome. The original roofing system on the dome consisted of painted galvanized steel sheets on wood decking. For galvanized steel that was over 100 years old, most of the original steel was in remarkable condition. However, as the processing of steel changed around WWII to speed its manufacturing, the replacement of damaged steel with in-kind materials was impossible. Terne-coated stainless steel was selected to replace damaged areas, and low slope areas were built up to provide positive drainage with no visual impact from the ground. Once all leaks were repaired, the roofing was coated with a high performance polyurethane industrial coating that provides the greatest protection for the roofing and provides a clean white gloss finish. The dome's cast iron columns and column bases were repaired and coated as well.

When the dome was painted, the front entrance columns and all of the exposed wood were also scheduled to be painted. The sandstone columns were also a victim of time, good intentions, and available materials. Being sandstone, the columns were coated early on, most likely with a lime wash, to protect them from the weather. Over time, repairs up to ten inches deep on the 30-inch diameter columns were made with nonshrink grout. In an effort to further protect the columns, hide the nonshrink grout repairs and smooth out the column finish, the columns were coated with a cementitious parging and a waterproof coating. This system was in line with preservation techniques at the time, and worked fairly well as long as there were no cracks in the parging and the coating was maintained.

JOSEPH E. BIRD, ASLA
Senior Vice President
Project Manager

EDUCATION

West Virginia University, BSLA, 1978

REGISTRATION

Landscape Architect, West Virginia, 1981

PROFESSIONAL HISTORY

August 1985 to Present: Chapman Technical Group
Senior Vice President and Project Manager.

May 1978 to August 1985: Kelley, Gidley, Blair & Wolfe, Inc.
Landscape Architect and Project Manager.

Mr. Bird is a project manager and registered landscape architect. His experience ranges from large site development projects to the management of multi-discipline and architectural projects.

31 years professional experience.

PROJECT EXPERIENCE

Site Development: Site planning and project management for numerous projects throughout West Virginia ranging from small campus sites to large sites for commercial, government, industrial, and institutional development. Projects include military complexes, campuses, public housing developments and other public facilities.

Parks and Recreation: Projects include swimming pools, bathhouses, cabins and support facilities for the West Virginia Division of Natural Resources and similar facilities for county and municipal park systems. Also involved in the design of facilities such as softball fields, fishing access facilities, recreation facilities for prisons, as well as passive recreation areas for public and private clients.

Miscellaneous: Other project experience includes the urban planning and development, streetscape design, roadway and storm drainage projects, as well as the project management of numerous major architectural projects throughout West Virginia.

AFFILIATIONS

West Virginia Chapter of the American Society of Landscape Architects

AWARDS

Honor Award for Shrewsbury St. Redevelopment Plan
West Virginia Chapter of American Society of Landscape Architects

DALE E. WITHROW, AIT
Project Coordinator, Department Manager
Architecture

EDUCATION

West Virginia Institute of Technology, AS, Drafting and Design, 1975.

PROFESSIONAL HISTORY

November 2000 to Present: Chapman Technical Group
Project Coordinator/Department Manager.

March 1993 to August 2000: The HDMR Group, Inc.
Project Coordinator.

February 1990 to March 1993: AFAB Services
Owner - Designer/Drafter.

Prior to 1990 Mr. Withrow worked with several architectural and engineering firms as an employee and independent consultant.

From 1978 to 1987 he was a Facilities Planner for the Kanawha County Board of Education.

Mr. Withrow is a Project Coordinator involved in all aspects of a wide variety of architectural projects. He is also Manager of the Architecture Group.

36 years professional experience.

PROJECT EXPERIENCE

Project Design and Management: Experience ranges from drafting, detailing and design through construction observation and project management of numerous building projects in West Virginia, Kentucky and North Carolina including:

- Residential/Housing
- Governmental Facilities
- Hospital/Healthcare Facilities
- Public School Facilities
- College Athletic Facilities
- Hotel/Hospitality Facilities
- Airport Support Facilities
- Historic Preservation
- Military Support Facilities/Armories
- Grocery and Drug Chain Stores
- Industrial Plant/Laboratory Facilities
- Office Buildings
- Banking Facilities
- Americans with Disabilities Act Assessment and Implementation
- Public Safety Facilities

AFFILIATIONS

Certified Architect-in-Training, State of Arizona
Associate Member WVAIA
President, St. Albans Business and Community Development Group
Vice Chair, Friends of the Alban Theatre
Board Member - St. Albans Chamber of Commerce

W. THOMAS CLOER, III, AIA, NCARB
Project Architect

EDUCATION

University of Tennessee, BArch, 2001

REGISTRATION

NCARB registered architect.
ARE exam completed.
Intern Development Program completed.

PROFESSIONAL HISTORY

October 2006 to Present: Chapman Technical Group
Project Architect and Architectural Designer

2001-2006: N Visions Architect
Architect Intern

9 years professional experience.

PROJECT EXPERIENCE

Experience ranges from drafting, detailing and design through project management and construction administration of building projects throughout West Virginia including the following project types:

Public School Facilities
Government Facilities
Office Buildings
Medical Office Facilities
Single Family Housing
Multi-family Housing
Recreational Facilities
ADA Assessments
Site Planning

AFFILIATIONS

American Institute of Architects
City of St. Albans Property and Maintenance Board, Member
City of St. Albans Historic District Committee, Member
Boy Scouts of America Troop 250 Committee Member

PHILLIP A. WARNOCK, NCARB, AIA
Project Architect

EDUCATION

The University of Tennessee, BArch, 1995

REGISTRATION

Architect, West Virginia, 2003
Architect, Tennessee, 2002

PROFESSIONAL HISTORY

September 2003 to Present: Chapman Technical Group
Project Architect.

June 2002 to July 2003: ZMM
Architect.

June 1995 to May 2002: Lockwood Greene
Intern Architect.

August 1991 to July 1993: Omni Associates
Architectural Draftsman.

17 years professional experience with additional experience in construction, interior design and developing.

2008 AIA West Virginia Honor Award for Excellence in Architecture for the historic preservation of the Upshur County Courthouse.

2010 AIA-West Virginia Merit Award for Achievement in Architecture for the I-79 Rest Areas in Burnsville, West Virginia

PROJECT EXPERIENCE

Project Participation and Design: Experience ranges from design, detailing and drafting through project management and construction administration of building projects in various states, including West Virginia, Tennessee, Kentucky and South Carolina. Project experience includes:

- Public School Facilities
- Community Centers
- Recreational Facilities
- Aviation Facilities
- Health Care/Hospice Facilities
- Medical and Psychiatric Clincics
- Pharmaceutical Facilities
- Research and Development Labs
- Office Buildings
- Rest Areas and Welcome Centers
- Public Transit Facilities
- Historic Preservation
- Historic Renovation/Additions
- Adaptive Reuse
- Governmental Facilities
- Military Support Facilities/Armories
- Multi-Family Housing
- ADA Assessments
- HUD 811, 202 and ECHO Facilities
- Small Cities Block Grant Developments
- Public Safety Facilities

AFFILIATIONS

National Council of Architectural Registration Boards (NCARB)
American Institute of Architects (AIA)

DAVID C. HOY, E.I.
Civil/Structural Engineer

EDUCATION

West Virginia University, BSCE, 2006

REGISTRATION

E.I., West Virginia, 2006

PROFESSIONAL HISTORY

January 2007 to Present: Chapman Technical Group
Civil Engineer

Summer 2005: Advantage Home and Environment
Assisted structural engineer with home inspections, and report preparation.

3 years professional experience.

PROJECT EXPERIENCE

Structural: Investigation, analysis, and design of various building structural systems, including foundation design. Review shop drawings and performs periodic site visits.

Civil: Design of highways, bridges, and airport improvements projects throughout West Virginia.

AFFILIATIONS

Chi Epsilon, National Civil Engineering Honor Society
ASCE Member

STEPHEN M. JOHNSON, PE
Civil Engineer

EDUCATION

West Virginia Institute of Technology, BSCE, 2004

REGISTRATION

Civil Engineering, West Virginia, 2009
Civil Engineering, North Carolina, 2008

EXPERIENCE

January 2009 to Present: Chapman Technical Group
Civil Engineer

October 2006 to January 2009: McKim and Creed
Civil Engineer

May 2004 to October 2006: Chapman Technical Group
Civil Engineer

June 2001 to May 2004: Allegheny Power
Gas Support Technician/Intern

6 years professional experience.

PROJECT EXPERIENCE

Water Systems: Overall experience includes planning, design, bidding, and construction administration/management of various public and private water system projects throughout West Virginia and North Carolina. Specific project experience includes distribution systems, river crossings, horizontal directional drills, booster stations, treatment plants, ground and elevated water storage tanks, SCADA systems computer modeling, treatment process evaluation, and problem troubleshooting in existing systems.

Wastewater Systems: Overall experience includes comprehensive system master plans, design, bidding, construction administration/management of various public and private wastewater system projects throughout West Virginia and North Carolina. Specific project expreiance includes gravity and low-pressure collection systems, pump stations and force main transmission systems, treatment process evaluation and design, trenchless pipeline rehabilitation, bypass pump system design, odor and corrosion control, effluent infiltration ponds, SCADA systems.

ROBERT G. BELCHER, P.E.
Senior Vice President, Engineering
and Project Officer

EDUCATION

West Virginia Institute of Technology, BSCE, 1983

REGISTRATION

Civil Engineering, West Virginia, 1996
Civil Engineering, Ohio, 2006

PROFESSIONAL HISTORY

January 1987 to Present: Chapman Technical Group
Senior Vice President and Project Officer.

June 1984 to January 1987: Regional Intergovernmental Council
Planning and Development Council for West Virginia Region III - Metropolitan Planning Organization for Charleston, WV, MSA.

26 years professional experience.

PROJECT EXPERIENCE

Water Systems: Design and project management for numerous water systems for both public and private water companies. Projects include new water treatment plants as large as 10 MGD, improvements to existing plants, water mains and distribution systems. Water storage projects include glass-lined steel tanks, welded high-strength steel tanks, and elevated pedestal tanks.

Wastewater Systems: Design and project management for numerous wastewater systems throughout West Virginia. Projects include new, secondary and tertiary wastewater treatment plants as large as 4.5 MGD, improvements to existing plants, small-flow treatment plants, new and rehabilitation of wastewater collection systems, and facility plan updates.

Miscellaneous: Design and project management for large highway and bridge projects, airport improvements projects, large stormwater management projects, as well as potable water and wastewater system design for site development projects throughout West Virginia.

AFFILIATIONS

Water Environment Association - WV Section
Contractor's Association of West Virginia - Associate Member
American Water Works Association - WV Section
WV Society of Professional Engineers
American Council of Engineering Companies - ACEC/WV
WVUIT Civil Engineering Advisory Board
Ohio Rural Water Association

AWARDS

George Warren Fuller Award, 2001

ROBERT D. DINSMORE
Project Designer

EDUCATION

West Virginia University, BSLA, 2010

PROFESSIONAL HISTORY

June 2010 to Present: Chapman Technical Group
Project Designer.

Fall 2008 to Fall 2009: West Virginia University
Teaching Assistant, Intro to Landscape Architecture Graphics

Fall 2009 to Spring 2010: West Virginia University
Teaching Assistant, History of Landscape Architecture

Summer 2008: Austin Outdoor Landscape Professionals
Landscape Architecture Intern,

2006 to 2007: Austin Outdoor Landscape Professionals
Project Manager

Mr. Dinsmore is responsible for the design and development of urban design projects, parks and recreation projects, and landscape design.

PROJECT EXPERIENCE

Urban Design: Designed and developed a master plan as part of his senior thesis for the Boston waterfront development.

Receation Design: Developed master plans and designs for various facilities as part of scholastic studies.

Landscape Design: Designed and installed numerous landscape plans for high end residential and resort projects constructed in Florida.

AFFILIATIONS

Student Society of Landscape Architects (WVU Vice-President)
Sigma Lambda Alpha Landscape Architecture Honorary (WVU President)
G.E.R.M.A.N. Club of Virginia Tech
Sunnyside Up Campus Neighborhoods Revitalization Corporation (Volunteer)

AWARDS

ASLA Student Honor Award Winner 2010
ASLA Student Merit Award Nominee 2010

FRED L. BROWN
CADD Manager

EDUCATION

Carver Career Center, Two Year Drafting/Cad Degree, 1997
Glenville State College, 20 Hours Toward Forestry Degree, 1988
Attended AUTOCAD14 Training Class Provided By Digital Graphics

PROFESSIONAL HISTORY

2002 to Present: Chapman Technical Group
CADD Manager.

1997 to 2002: Chapman Technical Group
Engineering Technician and CADD Designer.

13 years professional experience.

PROJECT EXPERIENCE

Bridge and Highway: Responsible for CADD drafting on basemap, site development, construction plan sheets, signal plans, superelevation plans, existing and proposed utilities, utility relocation plans, lighting plans, boring construction plans, typical sections and details, mainline cross sections, bridge plans and details, attenuator details, guardrail plan layout and details, geometric plans, station and offsets of mainline centerline, stationing and curve geometric information, survey reference and control plans, point dump creations.

Architectural/Structural: Responsible for CADD drafting on existing and proposed building plans, structural framing plans and details, foundation plans and details, structural scheduling.

Site Design: Responsible for CADD drafting on proposed site layouts, site details and cross sections.

Airport: Responsible for CADD drafting on existing and proposed taxiways and runways, taxiway signage, hangar layout, and airport master plans.

Mapping: Responsible for CADD drafting for city street and zoning maps.

Water and Wastewater: Responsible for CADD drafting on treatment plants, improvements on existing and new facilities, stormwater plans and profiles, booster stations, meter vaults, water system updates for both public and private sectors, PRV plans and details.

AFFILIATIONS

Member, National Vocational-Technical Honor Society (NV-THS)

ACHIEVEMENTS

First place winner in Carver Career Center VICA skills competition and represented Carver at the state VICA competition for technical drafting.

Judge in 2001 State VICA skills competition for technical drafting.

DENNIS N. DUNCAN
CADD Technician

EDUCATION

Mountain CAD, April 1996
West Virginia State College, 1994
Putnam County Vocational School, 1991-1992

PROFESSIONAL HISTORY

September 1997 to Present: Chapman Technical Group
Architectural Technician and CADD Designer.

June 1992 to August 1997: Connie Post Designs
CADD Designer.

18 years professional experience.

PROJECT EXPERIENCE

Bridge and Highway: Responsible for CADD drafting on mainline and side road profiles, maintenance of traffic, signing and marking plans, intersection details, survey reference and control plans, typical roadway sections, stormline profiles, bridge sections and details.

Architectural/Structural: Responsible for CADD drafting on recreational and commercial floor plans, building cross sections and details, structural framing plans, foundation plans and details, and building renovations.

Water and Wastewater: Responsible for CADD drafting on treatment plants, improvements on existing and new facilities, stormwater plans and profiles, booster stations, meter vaults, water system updates for both public and private sectors, PRV plans and details.

LISA D. ACORD
CADD Technician

EDUCATION

West Virginia University Institute of Technology, BS, Industrial Technology, 1997
West Virginia Institute of Technology, AS, Drafting and Design Engineering Technology, 1995

PROFESSIONAL HISTORY

November 1998 to Present: Chapman Technical Group
Engineering Technician and CADD Designer.

January 1998 to November 1998: GAI Consultants, Inc.
CADD Designer.

May 1997 to November 1997: Commercial Welding & Fabrication
Design Engineer.

13 years professional experience.

PROJECT EXPERIENCE

Bridge and Highway: Responsible for CADD drafting of design and preparation of construction plans and details for roadway and bridge work. Involvement includes final design drawings for bridges, signing, pavement marking plans, maintenance of traffic plans, lighting plans, right-of-way plans, geotechnical boring logs and cross-sections.

Site Design: Drafting for site layout and proposed grading, including site access and parking areas. Also, assisted in construction documents for lake dredging projects, including dredging scheme, disposal site design, and a sediment control plan for both the dredging operations and the disposal site. Performed several presubsidence surveys in conjunction with a deep mines operation.

Water and Wastewater: Responsible for drafting profiles, site layout and proposed grading, booster stations, PRV's, master meter vaults, septic systems, plant valve pit, chemical feed vault, raw water intake and details, and various miscellaneous water treatment plant details.

Mining: Drafting for surface and deep mining permits, construction documents, and many detailed plans. Extensive research and drafting of property lines and ownership. Assisted with 100+ presubsidence surveys in West Virginia and Ohio.

JOHN R. FARNHAM
CADD Technician

EDUCATION

Center College, Two Year Drafting Degree
Ben Franklin Career Center, AutoCad Course, 1995

PROFESSIONAL HISTORY

July 1996 to Present: Chapman Technical Group
Architectural Technician and CADD Designer.

1986 to 1995: Jerry Goff Architecture
Draftsman.

1976 to 1986: Gandee, Thomas & Sprouse - Architects
Draftsman.

1974 to 1976: Don Moses - Architecture
Draftsman.

37 years professional experience.

PROJECT EXPERIENCE

Bridge and Highway: Responsible for CADD drafting on right-of-way plans, maintenance of traffic plans, signing and marking plans, boring plans and boring cross sections, typical sections and details.

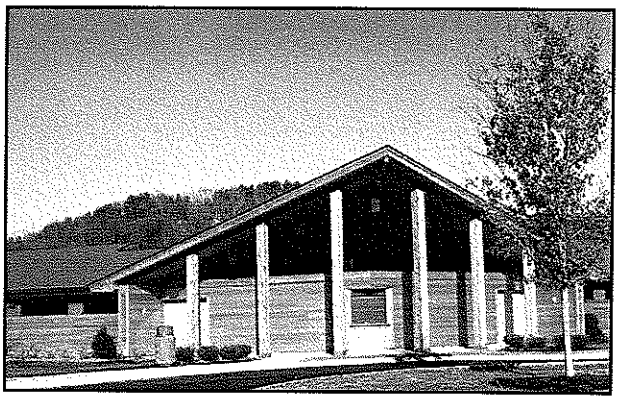
Water and Wastewater: Responsible for CADD drafting on treatment plants, improvements on existing and new facilities, stormwater plans, booster stations, meter vaults, water system updates for both public and private sectors, PRV plans and details.

Architectural/Structural: Responsible for CADD drafting on schedules, details, floor plan designs, framing plans and details, foundation plans and details, renovation of buildings, reflected ceiling plans, cross sections, building interior and exterior elevations, roof plans and details, plumbing plans and details, HVAC plans and details, and building code implementation.

Architecture

Beech Fork State Park 97049

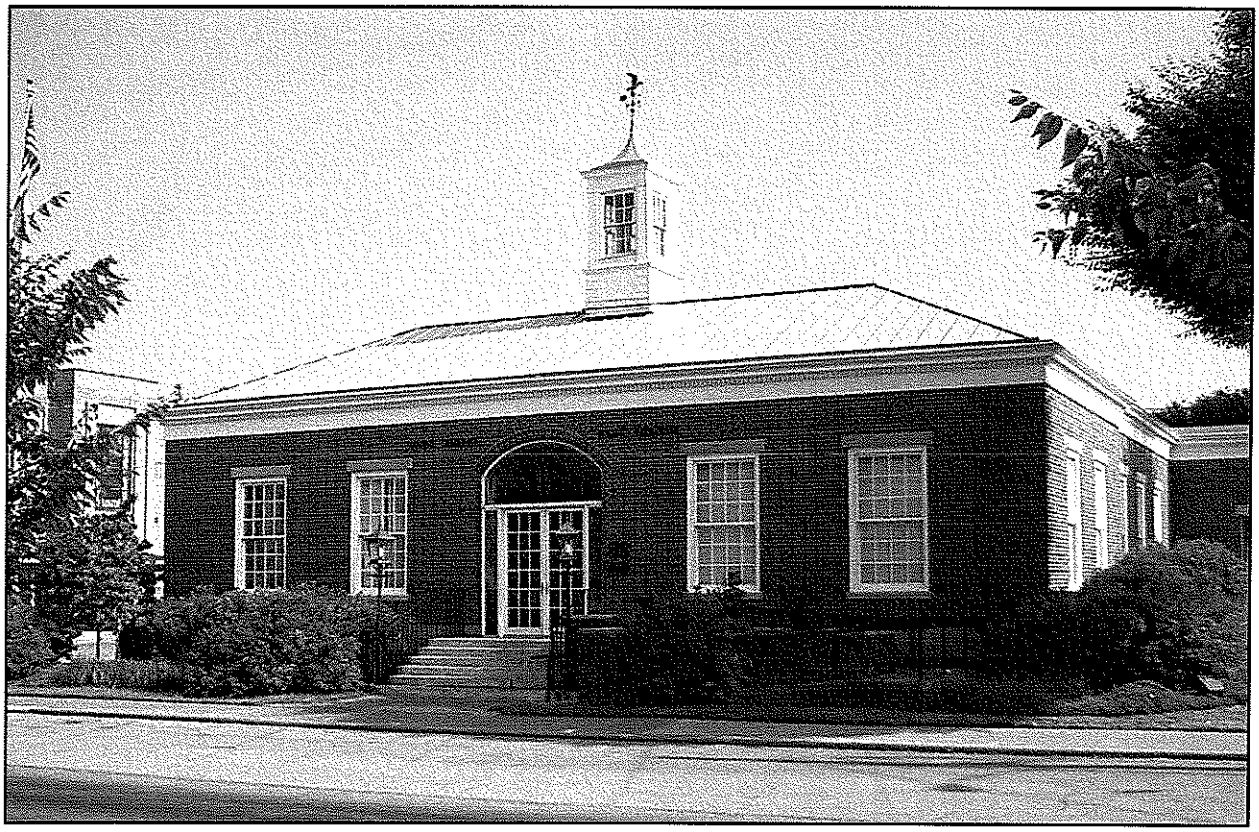
West Virginia Division of Natural Resources
State Capitol, Building 3, Room 669
1900 Kanawha Boulevard, East
Charleston, West Virginia 25305



Chapman Technical Group designed $4.5 million worth of improvements at the state park near Barboursville including a 50-meter swimming pool, bathhouse, six modern cabins, and campground upgrades. With its distinctive high sloped roof, the bathhouse was designed as the architectural centerpiece of the Bowan Day Use area while complementing the architecture of the existing park structures. The cabins provide the warmth of natural materials such as wood and stone, yet are fully equipped with modern conveniences such as air conditioning and microwaves.

Architecture

Chapman Technical Group Office 93037



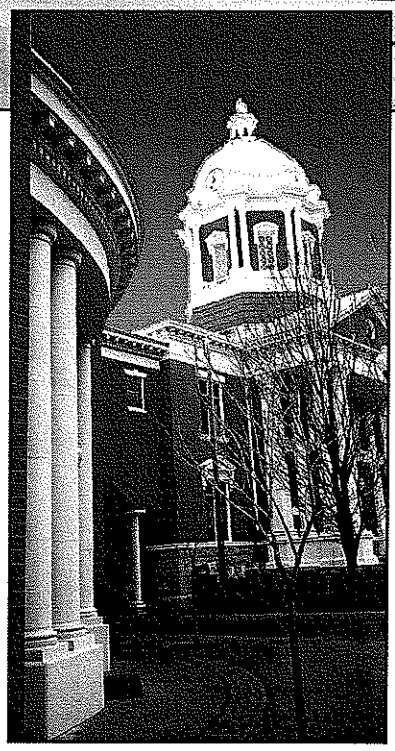
Chapman Technical Group
Post Office Box 1355
St. Albans, West Virginia 25177

Complete design of the renovation of an existing 7,000 square-foot building and an 8,000 square-foot addition. The former building served as the St. Albans Post Office and is on the National Register of Historic Places. The new building now serves as the Engineering/Architectural Offices of Chapman Technical Group. In addition to its beauty, the building is a very functional E/A office facility. The electrical and communications conduits were upgraded to allow for a fully integrated computer local area network.

The building has 16 computer aided design workstations that were tailored to meet the needs of our employees. In keeping with our desire to have healthy productive people, a fitness facility was added in the basement of the new wing. The facility also includes two conference rooms, offices, reproduction room, dark room, art room, and file room. Chapman Technical Group provided all structural, mechanical and electrical work.

Architecture

Judge Jack Dowell Jennings Courthouse Annex 93033



Upshur County Commission
38 West Main Street
Buckhannon, West Virginia 26201

Project included the complete design of a 24,000 square foot 3-story brick building, including structural, mechanical, and electrical engineering, as an annex to the existing courthouse. The new building design had to be sensitive to the existing building architecture. A skywalk was used to connect the two buildings for circulation and accessibility to the second floor of the existing courthouse. Also included in the project were space planning and interior design for the different departments of the Upshur County government such as the county assessor, sheriff, prosecuting attorney, county clerk, magistrates and magistrate's courtroom, jury room, tax department, and county commission meeting room.

Architecture

Eastern West Virginia Regional Airport Terminal 00054

Eastern West Virginia Regional Airport Authority
170 Aviation Way, Room 105
Martinsburg, West Virginia 25405

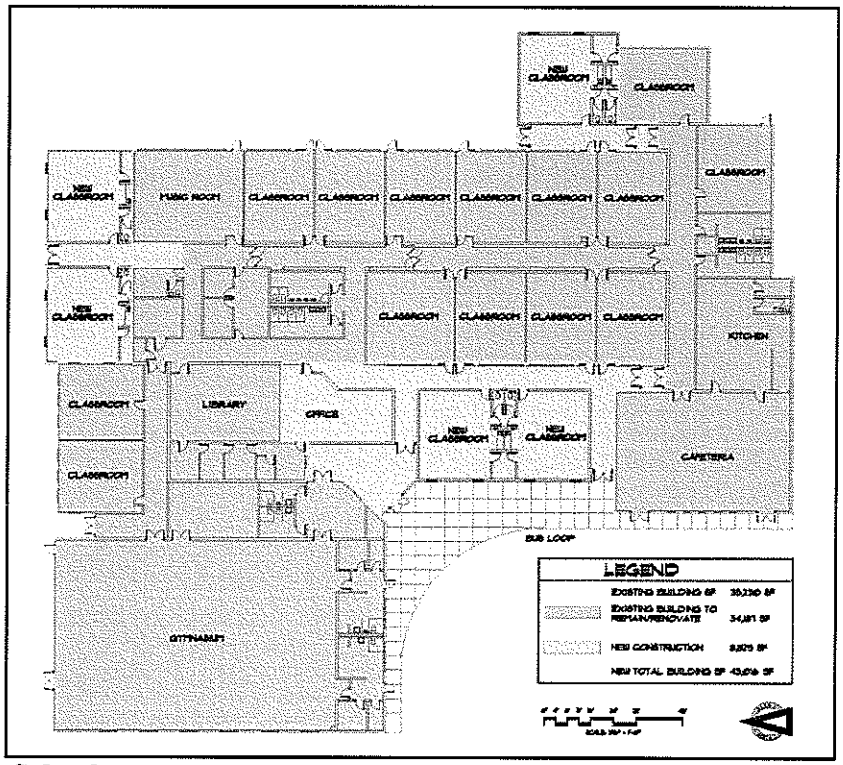
In 2001, the EWVRAA initiated the design and "Stage I" development of its terminal facilities, preparing to accommodate the airport's role as a "reliever" for Dulles International Airport. Stage I included the relocation of electrical equipment to a new underground vault, which was designed to be part of a small basement for the new terminal building. Stage II included the construction of a $1.9 M, 12,000 square-foot, two-story terminal/ administration building, adjacent to the existing terminal building.

The core function of the building is to function as a general aviation airport , while accommodating future passengers once commercial air service is provided. In addition to housing the EWVRAA main offices, a museum/lobby, interim lobby (sterile hold), restaurant, and tenant office spaces have also been provided.

One of the unique challenges of the project was to incorporate elements of the ruins of a nearby historic operations building into the design of the project. Original blocks from the historic building were used in the new construction to recreate its facade.

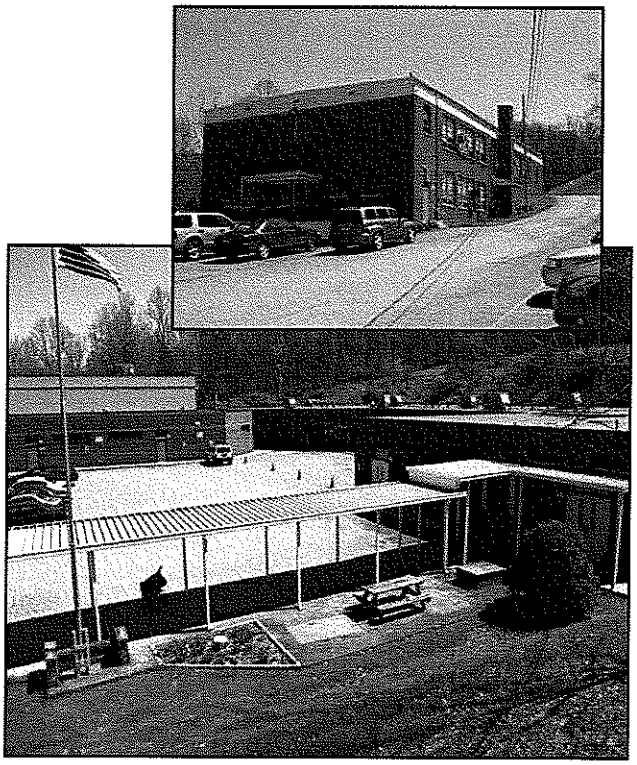
Architecture

Jane Lew Elementary Addition/Renovation 09022.A



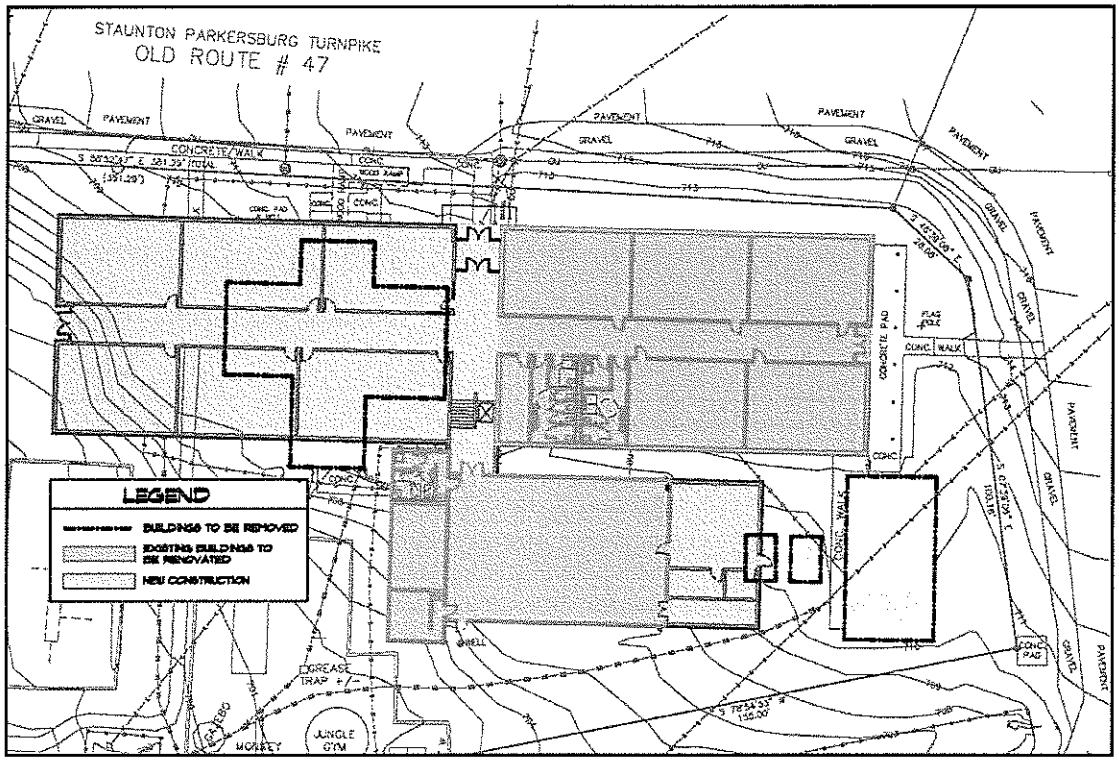
Lewis County Schools
239 Court Avenue
Weston, WV 26452

A study of the existing buildings and site was completed to determine the needs of the facility. The study revealed that the existing annex building, while well maintained, had out lived its useful life as a school facility. The recommendation of the design team was to demolish the annex building and provide additions and renovations to the main school building. The proposed new construction included five new classrooms an updated office suite with a new building entrance and bus loop, renovated toilet rooms, new VCT floors and the installation of a new sprinkler and fire alarm system. These renovations would allow the students to be housed in a single building that provides the safety, security and educational spaces that are required in a modern school.



Architecture

Smithville Elementary Renovation/Addition 08058



Ritchie County Schools
134 South Penn Avenue
Harrisville, WV 26362

The design goal for this project was to significantly improve the health, safety and welfare of the students and staff of Smithville Elementary School. The project began by demolishing two buildings in the existing four building complex and designing a new classroom wing and a new kitchen addition adjacent to the remaining buildings. The new additions were designed to join with the existing classroom wing and multipurpose building to create a single cohesive facility, under one roof. The new school will provide access control and better security, new HVAC systems and better Indoor Air Quality, compliance with ADA/ABA requirements and the modern technology and amenities typical of today's schools. The renovations and additions to this school will have a direct impact on improving the learning environment for the students and improve the overall functionality of the school.

Architecture

Orchard Manor Community Building 92067

Charleston Housing Authority
Post Office Box 86
Charleston, West Virginia 25312

Project involved the design of a new 9,000 square-foot community building that included a multi-purpose room/gymnasium, kitchen, library, laundry, restrooms, storage and office facilities. A unique feature of this facility was the design of a mini police station. Chapman Technical Group provided all structural, mechanical, and electrical engineering, as well as site design and landscape architecture.

Mason County Fish Hatchery

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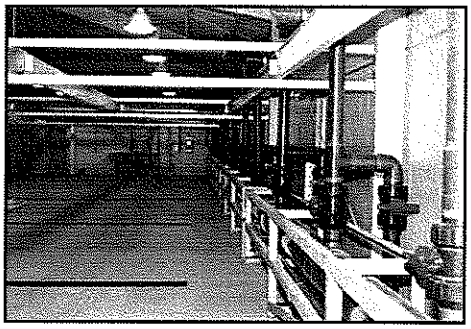


Above: The Mason County Fish Hatchery building houses fish rearing facilities as part of WVDNR's hatchery operations at the Robert C. Byrd Locks and Dam. Right: Piping manifolds will distribute both well water and reservoir water to a variety of fish tanks.

West Virginia Division of Natural Resources
Capitol Complex, Building 3, Room 669
1900 Kanawha Boulevard, East
Charleston, West Virginia 25305

Located at the Robert C. Byrd Locks and Dam at Apple Grove, West Virginia, the Mason County fish hatchery building is the final component to the hatchery complex that also includes a series of fish rearing ponds and a reservoir to supply the ponds. The project also included the design and construction of two residences to be used by hatchery personnel.

The 9,200 square-foot fish hatchery building is a masonry and steel structure housing the actual hatching components, as well as offices and other support facilities. More than half of the building is open space to accommodate the fish hatching egg rack and a variety of rearing tanks that hold the fish until they are mature enough to be transferred to ponds. The tanks are fed from either reservoir water or directly from well water which first passes through a degassing head tank. As water flows continuously through the tanks from an overhead distribution system, it is collected in a series of trench drains in the hatchery floor and eventually makes its way back to the Ohio River.

The hatchery also includes an office, a bunk room and kitchen for seasonal employees, a brine/shrimp room, and storage and maintenance garages. A mezzanine above the office area provides for additional storage.

Interior Design

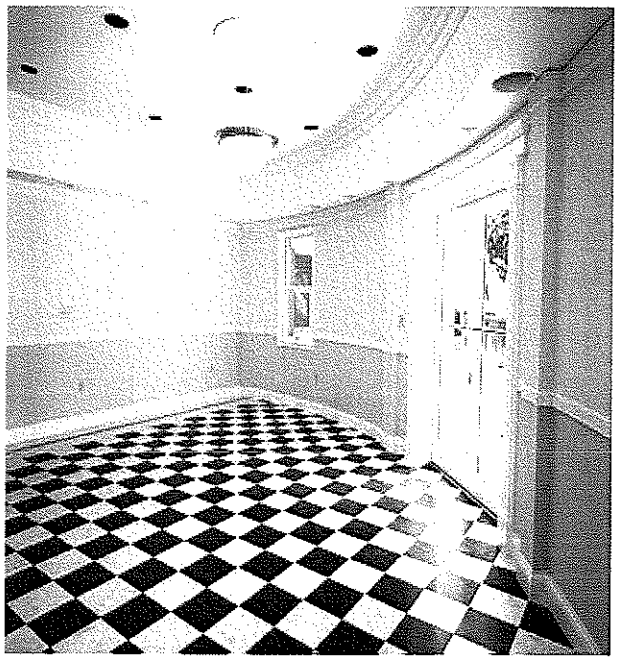
Yeager Airport Terminal Renovations 90051

Central West Virginia
Regional Airport Authority
100 Airport Road, Suite 175
Charleston, West Virginia 25311

Design and construction administration for a $3.5 million Terminal Expansion and Renovation Project at Yeager Airport in Charleston. The project consisted of four major project goals: 1) the renovation of interior public spaces in the Terminal Building; 2) the expansion of the Ticket Lobby and Passenger lobby areas; 3) the replacement of the two existing passenger leading bridges; and 4) the upgrade of the inbound baggage delivery system. Chapman Technical Group served as a Consultant to TRA.BV Architects of Seattle, Washington, and provided civil, structural, mechanical and electrical engineering. In the Ticket Lobby, a new vaulted ceiling combines with new windows on the east end of the lobby to provide a sense of openness. New finishes such as ceramic tile and carpet, ensure long term durability. Inlaid in the tile at the west end of the Ticket Lobby is a tile compass rosette and enlarged photographs of the West Virginia scenes, all help in giving the airport a regional identity.

Interior Design

Judge Jack Dowell Jennings Courthouse Annex 93033

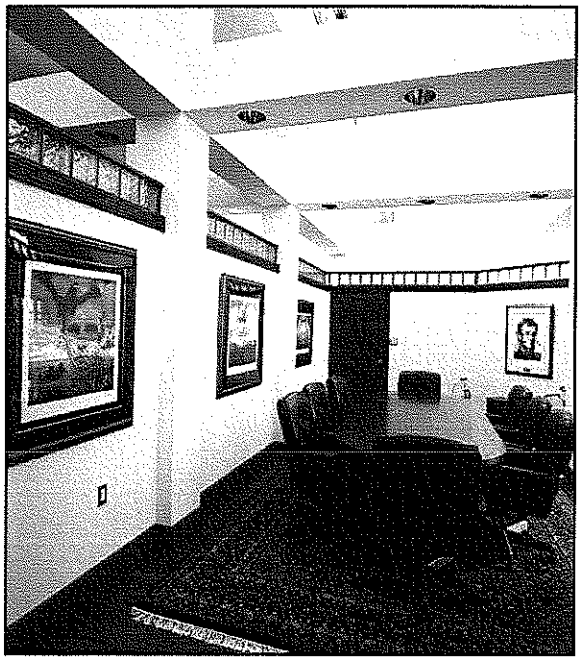


Upshur County Commission
38 West Main Street, Room 302
Buckhannon, West Virginia 26201

Project included the complete design of a 24,000 square foot, 3-story brick building as an annex to the existing courthouse. The new building design had to be sensitive to the existing building architecture. A skywalk was used to connect the two buildings for circulation and accessibility to the second floor of the existing courthouse. The building was designed with consideration for future expansion. Also included in the project was space planning and interior design for the different departments of the Upshur County government such as the county assessor, sheriff, prosecuting attorney, county clerk, magistrates and magistrate's courtroom, jury room, tax department, and county commission meeting room.

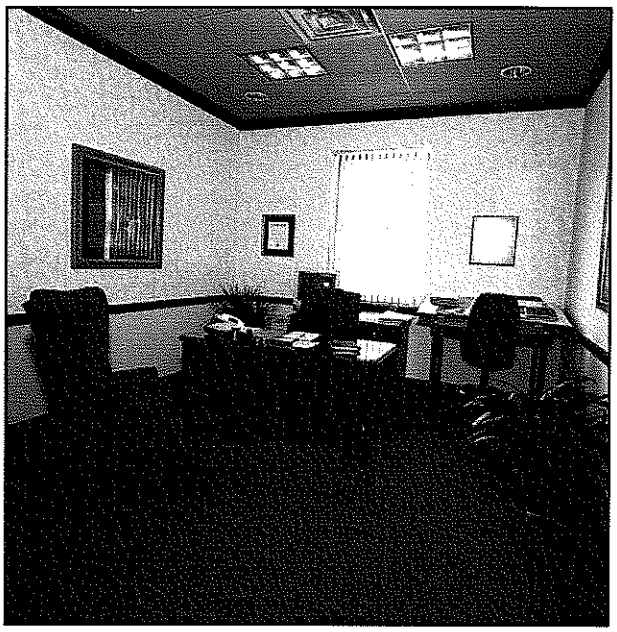
Interior Design

Chapman Technical Group Office 93037



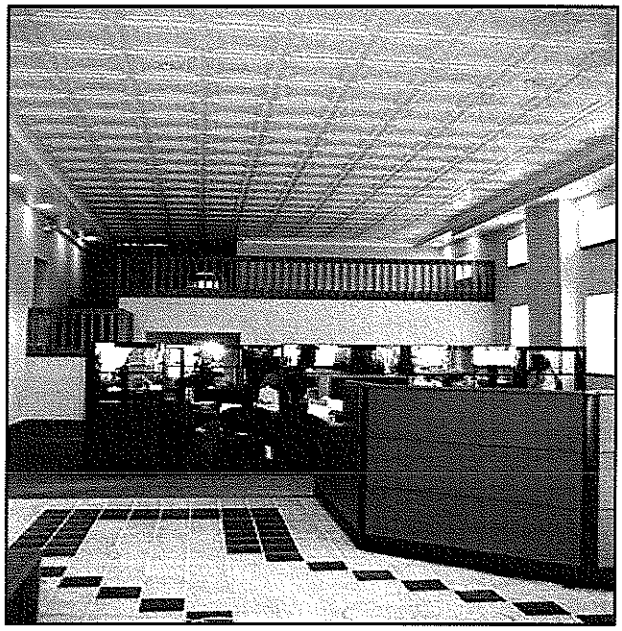
Chapman Technical Group
Post Office Box 1355
St. Albans, West Virginia 25177

On the National Record of Historic Places, the Saint Albans office of Chapman Technical Group is a very successful example of a modernization of an historic structure. An 8,000 SF addition helped to turn this former post office into a state of the art Engineering/Architectural office. Original materials were refurbished and new materials were carefully selected to accentuate the building's historic nature while adding a dramatic flair.



Interior Design

Beckley Water Company Office Renovation 95008



Beckley Water Company
Post Office Drawer U
Beckley, West Virginia 25801

Design and construction observation services for a renovation to the existing Water Company offices and an expansion of those offices into an adjacent building. The interior spaces were restored to the original 1930's configuration with high ceilings and an open mezzanine. An original pressed tin ceiling which was badly damaged during previous renovations was replaced with a new ceiling of the same style. Facade renovations included traditional storefront design elements along with the introduction of stained glass transoms windows. The lobby area included the introduction of a new open office system. Mechanical and electrical systems for the entire building were replaced along with the installation of new sprinkler and fire alarm systems. The renovation was phased so that all operations of the Water Company were maintained during the construction process.

Interior Design

Natural Resource Partners Office Renovations 02037

Natural Resource Partners, L.P.
1035 Third Avenue, Suite 300
Huntington, West Virginia 25727

Natural Resource Partners, L.P., wanted to update their image with a renovation of their office space in the Radisson Hotel in Huntington and turned to Sharon Chapman and Chapman Technical Group to provide interior design services. The renovation was accomplished in two phases starting in 2003 and finishing in early 2005. The 15,000 square-foot project included floor plan modifications, as well as new finishes and furnishings. The result is an ultra-modern look with a feeling of openness and spaciousness. The modern furnishings were provided by Contemporary Galleries and the unique carpet design was provided by Patcraft.

CAS Structural Engineering, Inc.

Firm Profile

CAS Structural Engineering, Inc. – CAS Structural Engineering, Inc. is a West Virginia Certified Disadvantaged Business Enterprise structural engineering firm located in the Charleston, West Virginia area.

Providing structural engineering design and/or analysis on a variety of projects throughout the state of West Virginia, CAS Structural Engineering has experience in excess of 20 years on the following types of building and parking structures:

- Governmental Facilities (including Institutional and Educational Facilities)
- Industrial Facilities
- Commercial Facilities

Projects range from new design and construction, additions, renovation, adaptive reuse and historic preservation (including use of The Secretary of the Interior's Standards for Rehabilitation) to evaluation studies/reports and analysis.

CAS Structural Engineering utilizes AutoCAD for drawing production and Enercalc and RISA 2D and 3D engineering software programs for design and analysis. Structural systems designed and analyzed have included reinforced concrete, masonry, precast concrete, structural steel, light gauge steel and timber.

Carol A. Stevens, PE is the firm President and will be the individual responsible for, as well as reviewing, the structural engineering design work on this project. While CAS Structural Engineering, Inc. has only been in business for nine years, Carol has over 20 years of experience in the building structures field, working both here in West Virginia and in the York, Pennsylvania vicinity. Carol is also certified by the Structural Engineering Certification Board for experience in the field of structural engineering.

CAS Structural Engineering, Inc. is covered by a $1 million errors and omissions liability policy.

P.O. Box 469 Alum Creek, WV 25003-0469 (304) 756-2564 (voice) (304) 756-2565 (fax)
A West Virginia Certified DBE Consultant
Certified in the Practice of Structural Engineering

CAS Structural Engineering, Inc.

Carol A. Stevens, P.E.
Structural Engineer

EDUCATION

West Virginia University, BSCE, 1984
Chi Epsilon National Civil Engineering Honorary
The Pennsylvania State University, ME Eng Sci, 1989

PROFESSIONAL REGISTRATION

P.E.	1990	Pennsylvania
P.E.	1991	West Virginia
P.E.	1994	Maryland
P.E.	2008	Ohio
P.E.	2010	Kentucky

BACKGROUND SUMMARY

2001 – Present	President, Structural Engineer CAS Structural Engineering, Inc.
1999 – 2001	Structural Engineer Clingenpeel/McBrayer & Assoc, Inc.
1996 – 1999	Transportation Department Manager Structural Engineer Chapman Technical Group, Inc.
1995 – 1996	Structural Engineer Alpha Associates, Inc.
1988 – 1995	Structural Department Manager Structural Engineer NuTec Design Associates, Inc.
1982 – 1988	Engineer AAI Corporation, Inc.

PROFESSIONAL ASSOCIATIONS

American Society of Civil Engineers
National Society of Professional Engineers
American Concrete Institute
American Institute of Steel Construction
West Virginia University Department of Civil and Environmental Engineering Advisory Committee Chair
West Virginia University Institute of Technology Department of Civil Engineering Advisory Committee

CIVIC INVOLVEMENT

ASCE Christmas in April Project
Engineer's Week Speaker

EXPERIENCE

West Virginia, Canaan Valley Resort State Park: Structural investigation and recommendations for repairs to the five (5) existing overnight sleeping facilities.

West Virginia, Twin Falls Resort State Park Lodge Addition: Structural design for new 28,000 SF addition to existing facility, including new entrance lobby, conference areas, sleeping rooms and indoor pool.

West Virginia, Hawks Nest State Park Lodge: Analysis of structural cracks in lodge building. Work included probes to determine condition of existing connections between structural elements.

West Virginia, State Capitol Complex, Governor's Mansion: Structural analysis and design in addition to evaluation report for modifications and renovations to several areas of mansion. Building is on State Historic Register and was constructed in the 1920's.

West Virginia, State Capitol Complex, Holly Grove Mansion: Structural evaluation report for preliminary condition assessment of building structure. Building is on State Historic Register and was constructed in the 1830's.

West Virginia, State Capitol Complex, Main Capitol Building Parapet: Exploratory investigation of limestone/brick parapet/balustrade of Main Capitol Building to determine cause of movement/cracking/ leaks. Construction contract for repairs has been completed. Building is on State Historic Register and was constructed in the 1920's and 1930's.

West Virginia, Twin Falls Resort State Park: Structural evaluation of existing recreation building.

West Virginia, Pipestem Resort State Park: Structural evaluation of existing recreation building.

West Virginia, Cabwaylingo State Forest: Structural evaluation of existing dormitory buildings constructed in the 1950's.

West Virginia, State Capitol Complex, Main Capitol Building Dome: Exploratory investigation of structural steel components of Lantern Level of dome and development of contract documents for repairs. Building is on State Historic Register and was constructed in the 1930's.

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West Virginia, Historic Putnam-Houser House (Parkersburg): Designed system for stabilization and upgrades to floor framing of building that was constructed in the 1700's.

West Virginia, Upshur County Courthouse: Developed construction documents for structural repairs to main entrance, dome and monumental sandstone columns of 1899 structure. Work was recently completed and received a WVAIA Honor Award for Design Excellence.

Ohio, Mahoning County Courthouse: Completed preliminary structural observation report of exterior façade conditions to recommended phased repairs for terra cotta and granite façade. Building is on State Historic Register and was constructed in the early 1900's.

West Virginia, State Capitol Complex, Building 5: Structural design and analysis for support of new boilers and other mechanical equipment to be placed in mechanical penthouse.

West Virginia, State Capitol Complex, Building 7: Investigation and development of Construction Documents for new elevators.

West Virginia, State Capitol Complex, Building 3: Structural design and construction administration of repairs to limestone canopy. Building is eligible to be placed on State Historic Register and was constructed in the 1950's.

West Virginia, State of West Virginia Office Building #21, Fairmont, WV: Preliminary structural observation report for condition assessment of building structure.

West Virginia, State Capitol Complex, Building 5: Structural design and analysis for support of new boilers and other mechanical equipment to be placed in mechanical penthouse.

West Virginia, Hampshire County Courthouse: Structural design for new elevator for existing historic building.

West Virginia, Shinnston Park: Structural design of new outdoor pool.

PREVIOUS EXPERIENCE

West Virginia, State Capitol Building, North Portico Steps: Designed structural system to replace deteriorated reinforced concrete slab at landing on north side of Capitol steps. Building is on State Historic Register and was constructed in the 1930's.

West Virginia, Beech Fork State Park Pool, Bathhouse and Cabins: Designed structure for new bathhouse, swimming pool and cabins.

West Virginia, Moncove Lake State Park Pool: Designed structure for new swimming pool.

West Virginia, Upshur County Courthouse Annex: Performed structural evaluation and design for repairs to existing multi-story Annex addition.

West Virginia, Canaan Valley Resort and Conference Center: Structural feasibility study to upgrade lodging units.

West Virginia, West Virginia University Masterplan: Investigated structural floor load capacity of several university buildings as a consultant to a large national architectural firm for masterplan.

West Virginia, Morgantown High School Additions: Designed steel framing and foundations for science classroom, cafeteria and gymnasium additions to existing education complex.

Pennsylvania, Hampton Inn: Structural design of new 5-story masonry and precast plank hotel building.

Pennsylvania, Comfort Inn: Structural design of new 5-story masonry and precast plank hotel building.

Pennsylvania, Misericordia University: Structural design of new 4-story masonry and precast plank dormitory building.

Pennsylvania, Metropolitan Edison Company, Headquarters: Structural design of new 80,000 SF two-story office addition to existing complex.

Pennsylvania, York County Government Center: Structural analysis and design of 1898 former department store converted to county government offices. Interior renovations included adding floor framing at mezzanine level, analyzing and redesigning deficient floor framing, and adding new elevators. Exterior renovations included complete façade rework to recreate original appearance.

Pennsylvania, Metropolitan Edison Company, Headquarters: Structural design for new 80,000 SF two-story office addition to existing complex.

Pennsylvania, Defense Distribution Region East: Structural engineering and design for a 33,000 SF Hazardous Materials Storage Warehouse.

Maryland, U.S. Army Corps of Engineers, Baltimore District, Administration Building: Structural design of new 10,000 SF masonry building.

KENNETH B ROBINSON & ASSOCIATES
CONSULTING STRUCTURAL ENGINEERS

40 W. MAIN ST., SUITE #1
MECHANICSBURG, PA 17055

PHONE: (717) 697-9250
FAX: (717) 697-9251

40 W. Main Street, Suite #1
Mechanicsburg, PA 17055

Phone: (717) 697-9250
Fax: (717) 697-9251

COMPANY PROFILE

MISSION STATEMENT:

Provide on time, quality structural engineering design services and creative solutions to unique design challenges for our clients in a manner that will promote continued business relations and enhance the engineering profession.

GENERAL OVERVIEW:

Kenneth B. Robinson & Associates is a small firm specializing in building structure analysis and design. Our projects have ranged from simple roof analysis for new rooftop units to the complete design of multi-story office and commercial buildings. Since it's inception in 2000, our focus has been on providing quality structural engineering design services and creative solutions to unique design challenges. We take great pride in the thoroughness, clarity, coordination and detail of our construction documents. Providing our clients the best design experience possible is a primary focus. One way we provide this is being flexible in responding to unique design conditions and challenges and providing multiple solutions to various problems for evaluation.

REGISTRATIONS: States with Professional Engineering Licensure

Pennsylvania, New Jersey, Maryland, Delaware and West Virginia.

INSURANCE:

Liability & Business: Million dollar professional liability coverage.

CAPABILITIES:

AutoCAD Lt 2010
2-D finite element analysis using RISA2D
3-D finite element analysis using RISA3D
Steel, Concrete and Timber design and analysis
Specification and Report writing

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PERSONNEL INFORMATION

Kenneth B. Robinson, PE

PROFESSIONAL SOCIETIES:

Member PSPE & NSPE, Pennsylvania and National Society of Professional Engineers
Member CSI, Construction Specification Institute
Member ACI, American Concrete Institute Member
Member AISC, American Institute of Steel Construction
Member ASCE, American Society of Civil Engineers
Certified through the Structural Engineering Certification Board (SECB)

EDUCATION/TRAINING:

The Pennsylvania State University, University Park, PA 16802
Bachelor of Architectural Engineering – Structural Design Option
Five Year Professional Degree - ABET Accredited
Graduated - May 13, 1989

Registered Professional Engineer - Pennsylvania March, 1995
also New Jersey, Delaware, Maryland, and West Virginia

The Pennsylvania State University, York, PA 17403
Continuing Education - The Fundamentals of Project Management April 1997

The Construction Specifications Institute – Certified Document Technologist June 1997

Ongoing - Periodic seminars focusing on structural design elements to meet continuing education requirements of many states, such as: IBC code updates, masonry design and detailing, concrete design and troubleshooting construction problems, AISC – New Steel Design manual and practices, ASCE Wind & Seismic Loads Seminar

BACKGROUND SUMMARY:

Kenneth B. Robinson & Associates, Consulting Structural Engineers, Inc.
President / Structural Engineer March 1998 to Present

Reynolds Construction Management, Harrisburg, PA
Project Manager March 1998 to June 2000

NuTec Design Associates, York PA
Lead Engineer/Assistant Project April 1993 to March 1998

Brinjac, Kambic & Assoc., Harrisburg PA
Engineer July 1991 to April 1993

Leo A Daly Architects & Engineers, Washington, DC
Design Engineer January 1990 to July 1991.

Besier Gibble Norden Consulting Engineers, Inc.
Designer June 1989 to January 1990

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CONSULTING STRUCTURAL ENGINEERS

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PROJECT EXPERIENCE:

Boutique Hotel, Harrisburg, PA

Adaptive re-use of two existing three-story, wood framed row homes into an eight story boutique hotel. Structural design included the evaluation of the existing building structure and recommendations for salvage and reinforcing. A new steel frame structure was designed to fit within the existing footprint and the new layout. The new floors are framed with concrete slabs on metal deck with steel beams. Existing wood framed floors were reinforced where necessary in combination with the new steel framing to meet current load criteria.

Elizabethtown College Garden Apts. II, Elizabethtown, PA

Design of a new 3-story wood framed school dormitory. The structure consists of open web wood trusses, load bearing wood stud walls, and exterior wood panel shear walls with special anchorage.

Penn Mar Castings Addition, Hanover, PA

Structural design of a new one-story 16,700 square-foot building addition. The roof structure was designed using conventional steel framing using joists with wide flange columns and girders.

Delta Pointe, Silver Spring Twp, PA

Structural design of a 56,000 square-foot, two-story office building. The building was designed using conventional steel framing with steel wide-flange beams and girders.

Selinsgrove Elementary School Addition and Renovation, Selinsgrove, PA

Structural design of a multi-story 33,000 square-foot classroom addition, plus a 1,000 square-foot kitchen addition, and 18,500 square-feet of additions for a gymnasium and lobby spaces. The structures were designed using steel beams and joists with masonry load-bearing shear walls and steel columns as necessary. The gymnasium addition was designed with clear-span joists, steel girders and columns, and masonry shear walls. The gymnasium lobby addition was designed to support a vegetative roof and act as an outdoor classroom/promenade.

PANG Stryker Brigade Additions and Renovations Lewistown, Lewistown, PA

Structural design of a two-story 16,000 square-foot office building, and foundations for a one-story 12,500 square-foot pre-engineered warehouse building for maintenance and training for the PA National Guard. The office structure was designed using clear-span wood roof trusses, with light-gage framed bearing walls at the upper level, and a concrete slab on deck over steel joists with load bearing masonry walls and ivany retaining walls at the lower level

Jane Lew Silo Foundations, Jane Lew, WV

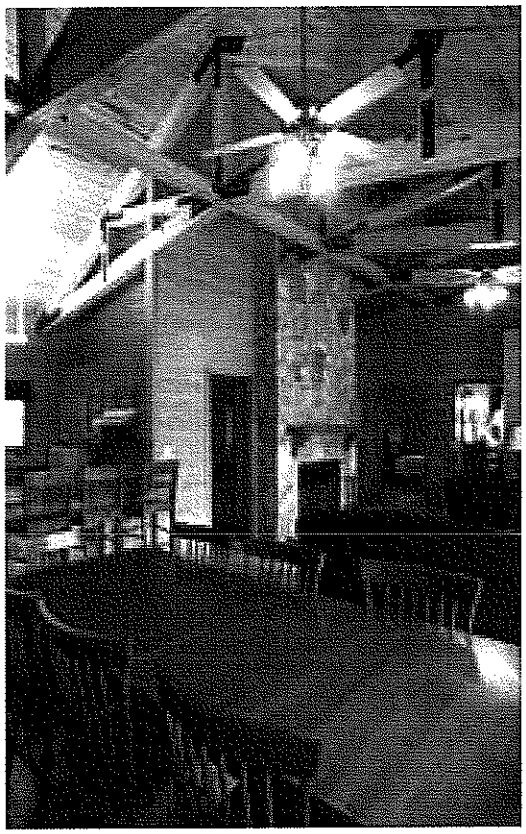
Design of three mat foundations supporting multiple material storage silos in poor soil conditions. Foundations were designed to account for overturning loads as well as gravity loads, including significant point loads on the mat foundations.

Giant Foods Store #331, Mechanicsburg, PA

A new 45,000 square-foot two-story grocery store building with adjacent lease space. The framing consists of steel joists and joist girders, steel beams and columns with masonry shear walls for lateral stability.

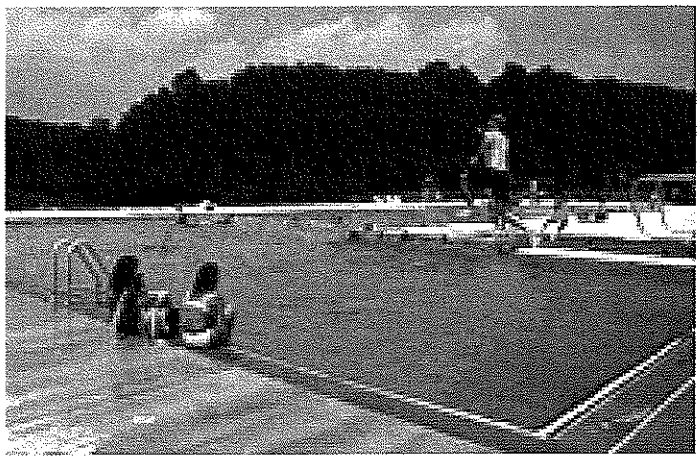
BEECH FORK STATE PARK POOL, BATHHOUSE AND CABINS

Barboursville, West Virginia



The project included design of new cabins with exposed glulam scissors roof trusses.

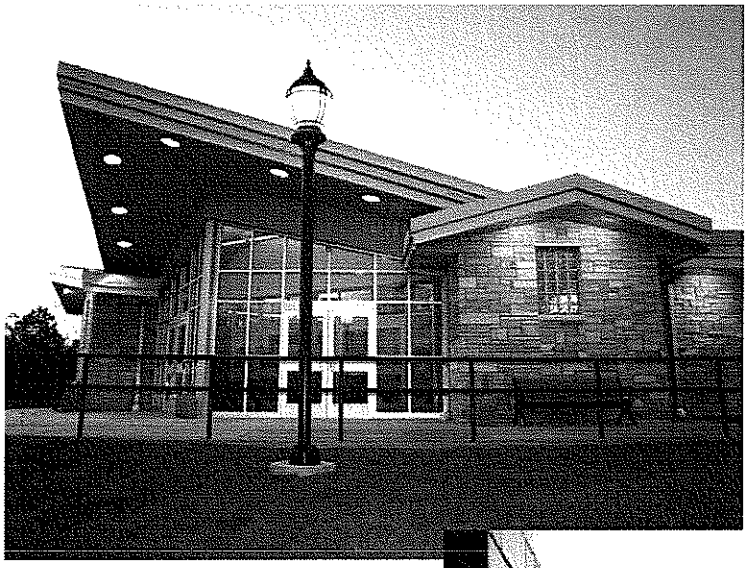
A new pool and bathhouse were also part of the design for the project.



CAS Structural Engineering, Inc.

BURNSVILLE I-79 REST AREAS

Burnsville, West Virginia



The rest areas consist of three buildings, the rest area building, the vending building and the maintenance building. Each of the buildings was constructed with a local West Virginia stone façade.

The existing rest area buildings were demolished and replaced with these new state-of-the-art facilities.

The main lobby framing consists of a tube steel beam, glulam beams and timber decking.

CAS

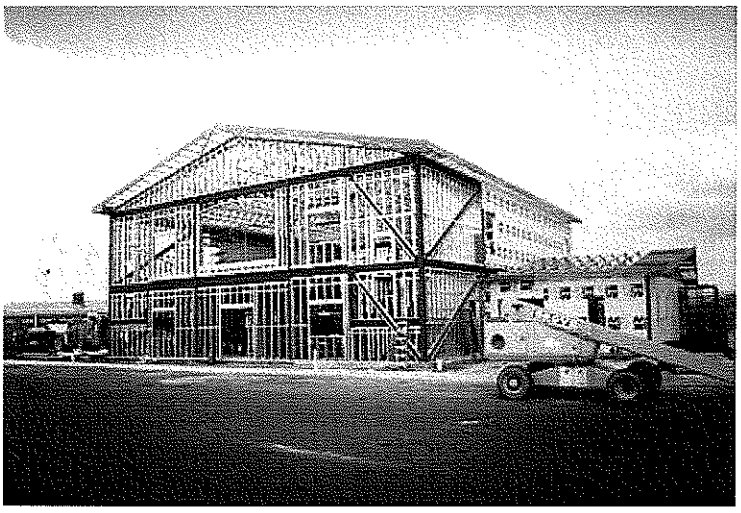
Structural Engineering, Inc.

EASTERN WEST VIRGINIA REGIONAL AIRPORT
TERMINAL BUILDING

Martinsburg, West Virginia

This facility replaced an existing, undersized terminal building at the airport. The building houses normal airport terminal building functions such as rental car space, restaurant ticket counters, baggage areas and offices.

Both the air side and the public side have attractive brick and limestone exteriors, with a standing seam metal roof system.

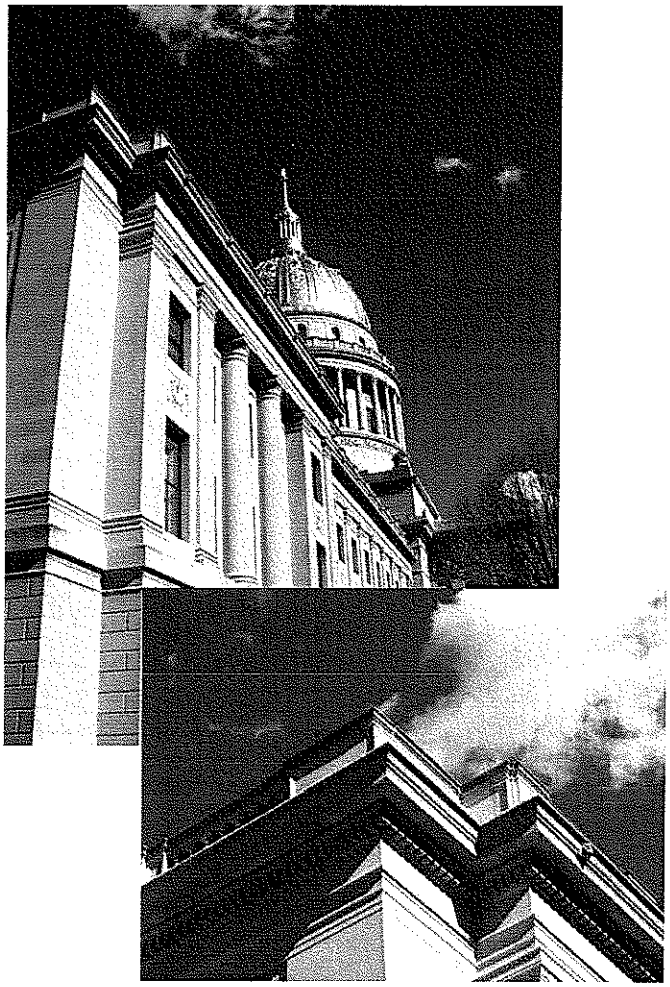


The building structure consists of structural steel frame with metal stud infill.

CAS

Structural Engineering, Inc.

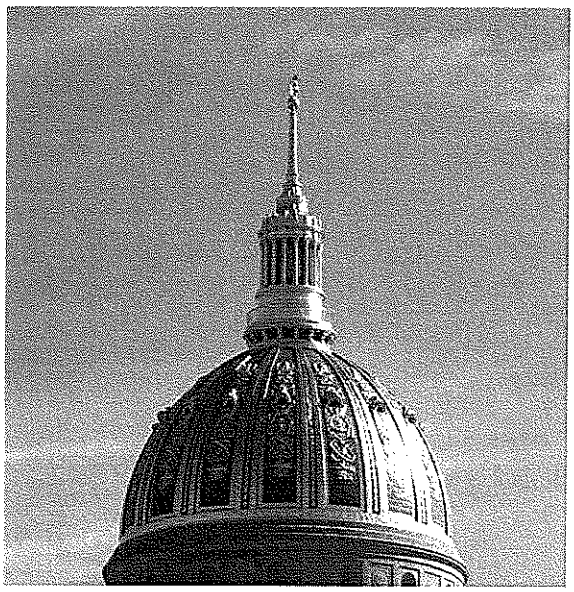
Project Experience



CAPITOL PARAPET WALL REPAIRS

Charleston, West Virginia

This project included an exploratory investigation and preparation of construction documents for repairs to the limestone and brick parapet wall and balustrade at the top of the Capitol Building.



CAPITOL DOME RESTORATION

Charleston, West Virginia

This project included an exploratory investigation and preparation of construction documents for repairs to the structural steel in Capitol Dome.

CAS Structural Engineering, Inc.

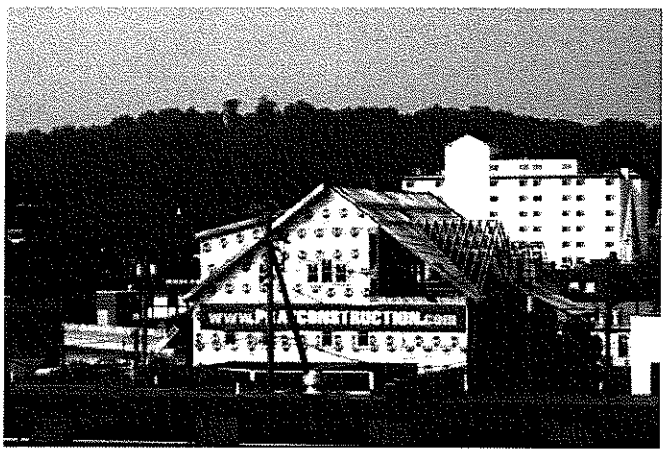
Project Experience

BUILDING 3 CANOPY REPAIRS
Charleston, West Virginia

Structural design of repairs to existing limestone canopy and supporting structural elements. Discovered that as-built conditions differed from original design documentation

GEORGE WASHINGTON HIGH SCHOOL
Charleston, West Virginia

Structural design of additions to include new 3-story classroom addition, new entrance/commons addition, and new gymnasium addition for Kanawha County Schools.



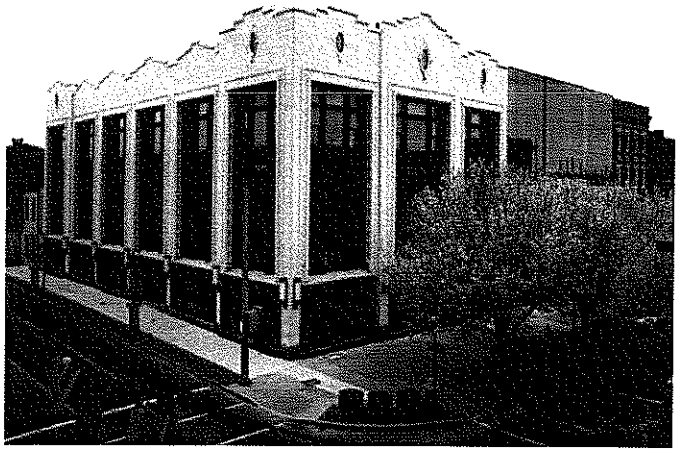
COVENANT HOUSE
Charleston, West Virginia

This 3-story structure utilized a structural steel frame and light-gauge steel roof trusses for the structural system. The 13,700 SF building was designed to appear as a residential structure, with vinyl siding, asphalt shingles, dormers and gingerbread accents.

Project Experience

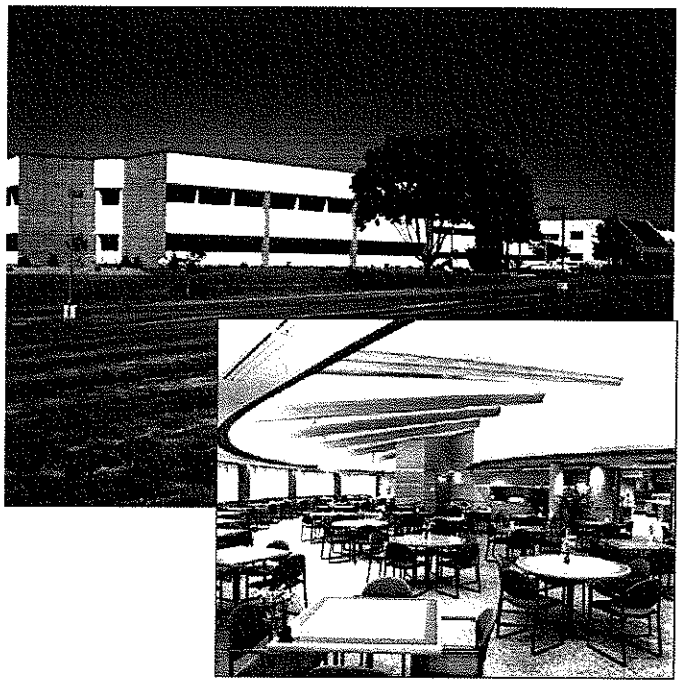
JOHNSON AVENUE PROFESSIONAL BUILDING
Bridgeport, West Virginia

Structural design of new 9,400 SF steel framed office building.



YORK COUNTY GOVERNMENT CENTER
York, Pennsylvania

Structural analysis and design of 1898 former department store converted to county government offices. Interior renovations included adding floor framing at mezzanine level, analyzing and redesigning deficient floor framing, and adding new elevators. Exterior renovations included complete façade rework to recreate original appearance.



METROPOLITAN EDISON
Reading, Pennsylvania

The two-story, 5000 SF lobby replaced an outdated 1200 SF lobby and business office. The lobby addition, which serves as a focal piece for the Headquarters Complex, contains several conference rooms and a second floor bridge spanning the width of the lobby. The lobby addition consisted of structural steel framing. An 80,000 SF office addition was constructed during the second phase of this project. A semi-circular cafeteria addition was located at the rear of the complex.

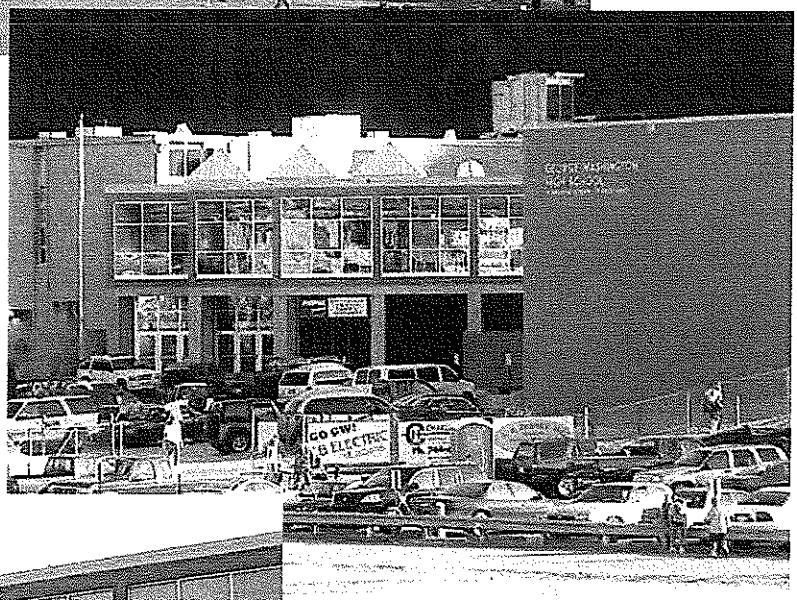
CAS
Structural Engineering, Inc.

CAS
Structural Engineering, Inc.

GEORGE WASHINGTON HIGH SCHOOL

Charleston, West Virginia

Addition to this high school included a 3-story class-room wing, new entrance/ commons area and new auxiliary gymnasium.



Construction was completed while the school was in session, including interior renovations and tie-ins to the existing facility.

Project Architect: NVisions Architects
Project Structural Engineer: CAS Structural Engineering, Inc.

South Charleston, West Virginia
Alum Creek, West Virginia

CAS
Structural Engineering, Inc.

JOHNSON AVE PROFESSIONAL BUILDING

Bridgeport, West Virginia

This building was designed as professional office space for several tenants. The 9,400 SF building has a complex system of wood roof trusses supported by a structural steel frame.

Project Architect: The Omni Associates—Architects
Fairmont, West Virginia

Project Structural Engineer: CAS Structural Engineering, Inc.
Alum Creek, West Virginia

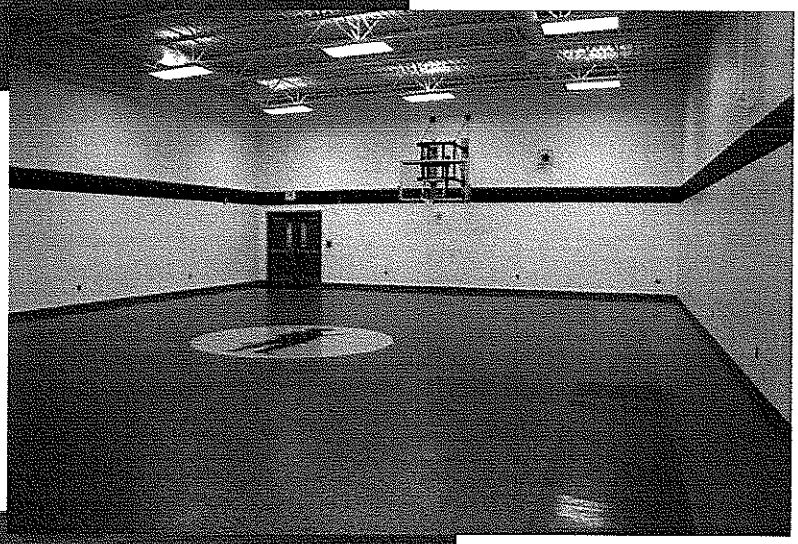
CAS
Structural Engineering, Inc.

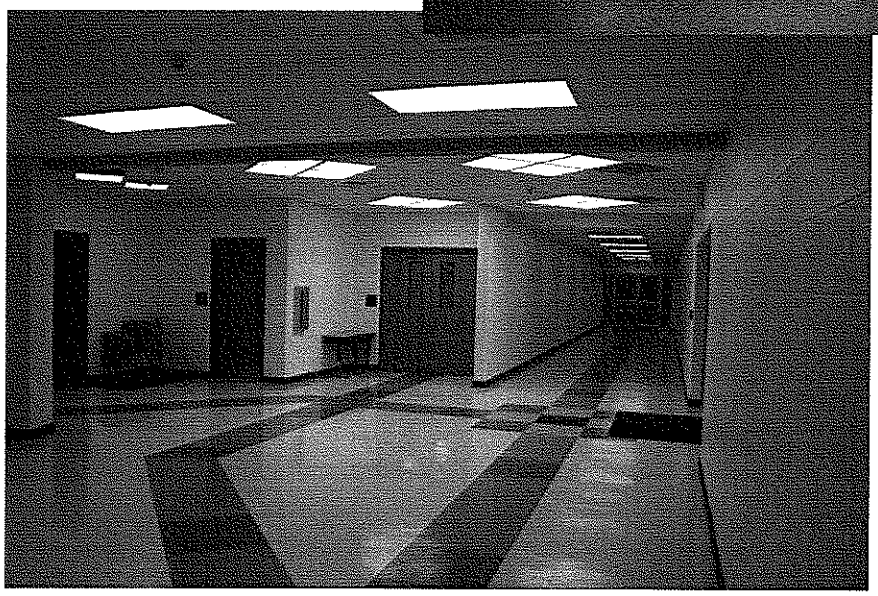
MAN K-8 ADDITION

Man, West Virginia

Addition consisted of four new classrooms and a multipurpose room with additional ancillary space to serve the facility.

Exterior façade was required to match existing brick façade, with all window, door and roof treatments matching as well.





Interior corridor floor coverings, wall and ceiling treatment matched the existing to make the addition appear as though it has always been part of the facility.

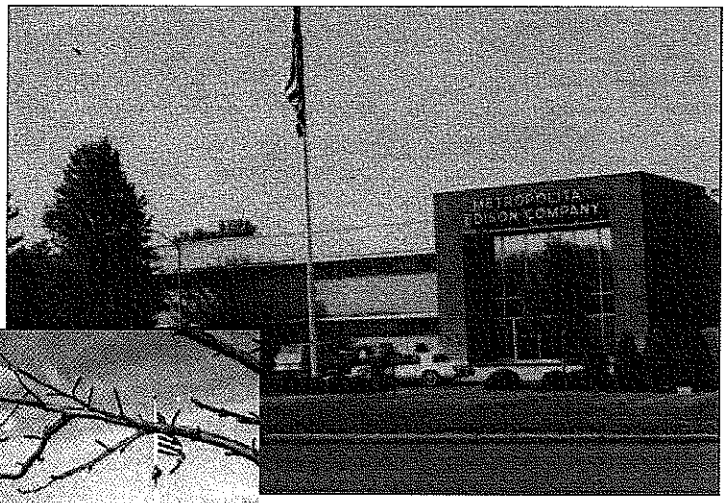
Project Architect: Chapman Technical Group, Ltd.
Project Structural Engineer: CAS Structural Engineering, Inc.

St. Albans, West Virginia
Alum Creek, West Virginia

METROPOLITAN EDISON COMPANY

Reading, Pennsylvania

A stately lobby and contrastingly elegant cafeteria were added as part of the first two phases of a four-phase renovation/addition project to the Metropolitan Edison Company Headquarters in Reading, Pa.



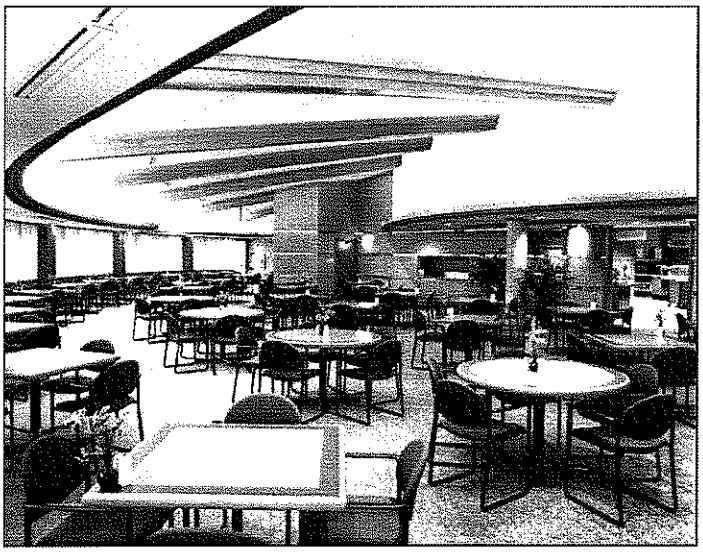
A facade restoration also took place during the initial phase of the renovation process.

The two-story, 5000 SF lobby replaced an outdated 1200 SF lobby and business office. The lobby addition, which serves as a focal piece for the Headquarters Complex, contains several conference rooms and a second floor bridge spanning the width of the lobby. The lobby addition consisted of structural steel framing.

An 80,000 SF office addition was constructed during the second phase of this project. The addition is two stories and has a partial basement, which contains the electrical equipment for the new construction and the mechanical equipment for the entire facility. The addition structure consists of a concrete waffle slab system.

The cafeteria was challenging to frame structurally, to capture the imagination of the architectural and interior design teams. The cafeteria addition is semi-circular in shape. Below this addition is a cast-in-place concrete basement which houses the majority of the support equipment for the cafeteria.

A concrete utility tunnel connecting the cafeteria and office additions with the main building were also part of the structural design scope.



TWIN FALLS STATE PARK LODGE ADDITION

Mullens, West Virginia

Performed structural design for new 28,000 SF addition to existing lodge facility. Addition includes new lobby and conference areas, sleeping rooms, indoor pool facility and all support spaces.

Construction materials consisted of timber, concrete masonry, precast plank and structural steel.

Project is nearing completion.

CAS

Structural Engineering, Inc.

MILLER ENGINEERING, INC.

SUMMARY

Miller Engineering, Inc. (MEI) provides professional services to facility owners and operators, architects, and contractors throughout West Virginia, Pennsylvania, Ohio, and Western Maryland. MEI services range through all facets of mechanical, electrical, and plumbing design as well as construction administration and project management. We utilize the abilities of designers with many years experience in their area of expertise, teamed with younger designers on a "best resource for the project approach". We also provide project management services at levels ranging from general oversight to complete project delivery through all phases of design and construction. Our personnel have worked in both the private and public sector and are familiar with many methods of project delivery from classic design/bid/build to full design/build with partnering.

MEI has developed the following philosophy to guide the performance of its services:

- Provide superlative design services to our clients in new construction, renovations, and daily operations.
- Perform work in a timely, accurate, and professional manner.
- Present multiple alternative and solutions whenever possible.
- Work with our clients to control first and life cycle costs.
- Be a technical "sounding board" for our clients in all situations.
- Strive to maintain professional competency through continuing education and training.

MEI utilizes a "practical application" approach to all projects throughout the design process to provide a "well rounded" result. This methodology emphasizes the best overall solution, meeting all the client's needs, instead of just the best technical solution. We believe our small size provides a distinct advantage to our clients and affords us the freedom to easily team with the clients to achieve the overall best possible result.

MILLER
ENGINEERING, INC.

B. Craig Miller, PE, LEED-AP

President
Miller Engineering, Inc

RESPONSIBILITIES INCLUDE:
Engineer in Responsible Charge of all projects.
Design, Project Management, Construction Administration of Mechanical, Electrical, Plumbing systems for new construction and renovation projects.
Managing all aspects of projects from evaluation and initial identification of project opportunities, developing concept, schematic and construction design, bidding, submittal review and project management as required to deliver project with specific objectives in a given time frame.

Registrations: Registered Professional Engineer in West Virginia, Pennsylvania, and Maryland

PROFESSIONAL HISTORY

CASTO TECHNICAL SERVICES
Charleston, West Virginia

Existing Building Services Staff Engineer
Nov 2002 – September 2003
Duties include:
Completion of HVAC performance contracting and "turn key" retrofit projects.
Managing all aspects of projects from evaluation and initial identification of project opportunities, developing concept, schematic and construction design, managing project team and subcontractors to deliver project with specific objectives in a given time frame.
Responsible for administration, implementation, and management of performance contract based and "turn key" mechanical, electrical projects.

UNIONTOWN HOSPITAL ENGINEERING DEPARTMENT
Uniontown, Pennsylvania
Supervisor of Engineering and Clinical Engineering

Feb. 2001 – Oct 2002
Work included:
Supervising Engineering personnel in the day-to-day operation of Hospital's physical facilities including: mechanical, electrical, plumbing, and structural troubleshooting.
Managing the Clinical Engineering technician in the repair and maintenance of patient-critical support and monitoring equipment.
Managing small alteration and construction projects
Managing the facility's preventative maintenance program.
Re-commissioning HVAC systems and controls.

Managing the personnel safety, and "cross training" program.
Keeping the hospital code compliant with such codes as: NFPA, NEC, ADA, BOCA, JCAHO.

WEST VIRGINIA UNIVERSITY PHYSICAL PLANT
Morgantown, West Virginia

Staff Engineer
Nov. 1995 - Feb2001
Work included:
Assisting in-house maintenance personnel in troubleshooting mechanical, electrical, plumbing, and structural operations problems.
Assisting in-house personnel in maintenance of the University's facilities.
Managing the University Energy Efficiency Program
Scoping, budget estimating, designing, preparation of project documents including drawings and specifications, bidding, and overall project management of alteration, maintenance, and repair projects in support of the University function as a major research institution (project list attached).
Managing projects which have been designed by outside A/E firms
Infrastructure planning for both alterations and capital construction projects
Reviewing designs by outside A/E firms for compliance codes such as: NFPA, NEC, ADA, BOCA, ALAC, as well as the University's construction standards and constructability.

WEST VIRGINIA UNIVERSITY PHYSICAL PLANT
Morgantown, West Virginia

Interim Manager of Alterations, Engineering, & Energy Unit
November 1997 – March 2000
Duties included all duties of Staff Engineer's Position listed above and additionally:
Managing day to day operation of the Engineering Unit and it's integration with other Physical Plant units, other University departments, and outside entities such as contractors and the public
Integrating the Engineering Unit with the Capital Construction Unit in the design review of all Capital projects
Supervision and tasking of Staff Engineers, Alterations Project Managers, Project Inspector, Landscape Designer, Elevator Contract Manager, Drafting Technician, Secretary/Receptionist, Student Interns
Prioritization of Unit's work responsibilities in such a manner as to deliver projects on-time, within budget
Review of all the unit's design and contract work prior to release for procurement of services

BOARD OF PARKS AND RECREATION COMMISSIONERS (BOPARC)
Morgantown, West Virginia

Caretaker – Krepps Park
May 1990 – November 1995

Work included:
Managing aquatics facilities operations
Performing maintenance and repair work to park system facilities
Design and construction of facilities upgrades to park system facilities

UNIVERSITY OF CHARLESTON PHYSICAL PLANT
Charleston, West Virginia

Electrician / HVAC Mechanic
October1983 – August 1988
Work included:
Work as systems mechanic performing maintenance, repair, and construction to mechanical, Electrical, and Plumbing systems throughout the University facilities.

MILLER
ENGINEERING, INC.

Robert Angus
Project Construction Representative
Miller Engineering, Inc

RESPONSIBILITIES INCLUDE:
Construction Administrator in Charge of All MEI Projects.
On-Site Evaluation of all MEI Projects
Review/Approval of all Job Submittals
Administration of job related construction documents

Registrations: Licensed Contractor, Licensed Electrician, Master Plumber,
Licensed HVAC Technician

PROFESSIONAL HISTORY

Angus Contracting LLC
Owner Operator

2000-2009
Work included:
All aspects of Residential and Commercial Construction, HVAC, plumbing, & electric

City of Morgantown
Morgantown, WV

BOPARC Facilities Maintenance Director
1991-2000
Duties include:
Operation/Maintenance of 2 Commercial Swimming Pools, Interactive Water Play System, 2 Waterslides, and an Ice Rink
Responsible for maintenance/repair, and operation of all recreational facilities and buildings for the City of Morgantown, WV.

MILLER
ENGINEERING, INC.

Shelby McMahon

Associates Degree, Architectural Engineering Technology, Penn State Fayette 2008
Associates Degree, Building Systems Technology, Penn State Fayette 2008

Mechanical Technician/Designer
Miller Engineering, Inc

RESPONSIBILITIES INCLUDE:
Design of MEP systems for new construction and renovation projects including mechanical modeling and layout, drafting, and scheduling of systems components. Electrical systems and Fire Alarm layout. Plumbing and piping design and layout. Drafting of MEP systems including details and schedules.
Construction administration including submittal review, RFI responses, and punchlisting.

STUDENT ACTIVITIES

PENN STATE UNIVERSITY, FAYETTE CAMPUS
Capstone project--2008
Green roofing system for the Fayette Campus engineering building

ASSOCIATION OF HEATING AND AIR CONDITIONING ENGINEERS (ASHRAE)
Member

MILLER
ENGINEERING, INC.

Jack E. Jamison, Jr.

BS Engineering Technology—Electrical Electronics, Fairmont State College 1971

Construction Project Representative/Electrical Design
Miller Engineering, Inc

RESPONSIBILITIES INCLUDE:
Facilities evaluation
Design of electrical systems for new construction and renovation projects
Management of project construction including field project observation and issue resolution
Code research and constructability review of projects, estimating

Licenses and Certifications:
Certified Master Code Professional
IAEI Certified Electrical Inspector—Master
Class C Electrical Inspector—WV State Fire Marshal, WV Master Electrician
ICC Commercial Building/Plumbing Inspector
Certified WV Home Inspector

PROFESSIONAL HISTORY

MEGCO INSPECTIONS, INC.
Keyser and Morgantown, West Virginia

Chief Inspector
May 1999—Present
Duties include:
Inspect and certify commercial and residential electrical services as code compliant as required by Allegheny Power. Inspect and certify residential structures for West Virginia housing financing agencies.

JAMISON ELECTRICAL CONSTRUCTION COMPANY
Morgantown, West Virginia

Electrician
December 1972—June 1998
Work included:
Installed, maintained and repaired all types of commercial and light industrial electrical apparatus including original piping of runs, connections, startups and maintenance. Primary customers included restaurants, gasoline bulk plants (hazardous location), communication facilities, water plants, pumping stations, water slides, public swimming pools, banks, schools and printing shops. Designed and installed lighting and equipment layouts including generator-transfer switch combinations and fire alarm systems.

PROJECT: ADVANCE ORTHOPEDIC HOSPITAL
OWNER: Advance Orthopedic, Washington, PA

MILLER ENGINEERING, INC.

MEP TECHNICAL HIGHLIGHTS:

Total Project Budget:
$13.5M

MEP Budget:
$3.8M

Facility Area:
67,000 ft²

Services Provided:
Mechanical, Electrical, Plumbing, Medical Gases, Fire Protection, Fire Alarm, Nurse Call

Project Status:
In Construction

Project Completion Date:
May 2010

The HVAC systems serving the suites are redundant; utilizing laminar air distribution, high level filtration, and UV in the air handling units. For energy efficiency, the ORs have the ability to "step down" their airflow in unoccupied mode while meeting pressurization standards. Either a simple pushbutton or the control system schedule returns the OR to design flow conditions. At the Owner's request, the HVAC systems were design as smaller de-centralized systems to reduce the impact of system repair and maintenance. A complete NFPA 70 compliant emergency power system, medgas system, nurse call system, and fire alarm system were part of the scope of professional services. The facility has received regulatory approval and is under construction at this time.

PROJECT DESCRIPTION:

The project is a 67,000 sq. ft. design-build orthopedic hospital with a 5 OR suite surgery center including: Pre-Op, PACU, Phase II, and 21 patient rooms. The facility includes all supporting service such as dietary, diagnostic imaging (X ray, MRI, etc), lab, pharmacy, offices, and associated central and public spaces. The surgery suites are sized such and are mechanically capable of any surgery procedure through Orthopedic and open heart surgery.

REFERENCE:
Richard Briggs, Lutz, Briggs Associates
Mercer, PA
724-758-5455

PROJECT: THE AUGUSTA PROJECT
OWNER: McCoy 6, Morgantown, WV

MILLER ENGINEERING, INC.

EP TECHNICAL HIGHLIGHTS:

Total Project Budget:
$10M

MEP Budget:
$3.5M

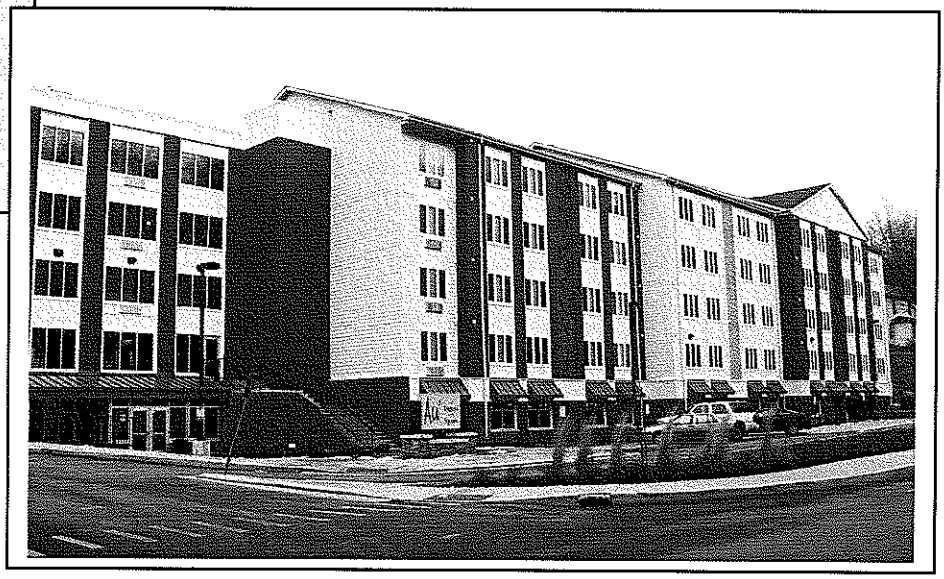
Facility Area:
150,852 ft²

Services Provided:
Facility and Site: Mechanical, Electrical, Plumbing, Fire Protection, Fire Alarm

Project Status:
Complete

Project Completion Date:
August 2007

The 150,000 ft² facility incorporates modular construction which presented many design challenges. The HVAC systems are independent to each unit and had to be accomplished in a minimum footprint within each apartment. An underground parking garage added to the mechanical and fire protection complexity. The Fire protections systems presented a unique challenge as the apartment systems were installed at the modular factory and had to coordinate with the hallway header piping on site. The fire protection system incorporates both wet and dry systems. The building water, electric, and tel/dat/cable utilities each required special attention and coordination with the service providers. The construction has proceeded as designed with only minor issues for resolution.



PROJECT DESCRIPTION:

The Augusta Project is a 157 unit, 293 bed apartment complex located proximate to the WVU downtown campus. The urban inspired apartments are configured for maximum efficiency and use of space. The facility boasts underground parking, several social areas, centralized security systems, and limited retail area.

REFERENCE:
Richard Colebank PE, Alpha Associates
209 Prairie Ave.
Morgantown, West Virginia 26505
304-296-8216

PROJECT: BERKELEY SPRINGS BATHHOUSE
OWNER: WEST VIRGINIA DNR, BATH, WV

MILLER ENGINEERING, INC.

MEP TECHNICAL HIGHLIGHTS:

Total Project Budget:
$1.1M

MEP Budget:
$660K

Facility Area:
9,000 ft²

Services Provided:
Mechanical, Electrical, Plumbing

Project Status:
In Construction

Project Completion Date:
October 2010

The Bathhouse Renovation includes replacement of all MEP systems within the facility. The existing steam boiler is being replaced as are steam fired hot water tanks and all associated piping. The hot water demand is huge and is split into two systems, domestic (2,000 GPH) and Roman Bath water (3,000 GPH). The cast iron radiator heating system is being replaced by a full VAV HVAC system w/ terminal reheat, and comfort radiant heating over the clients tubs and massage tables. These systems will provide proper ventilation and dehumidification, which has never existed in the facility.

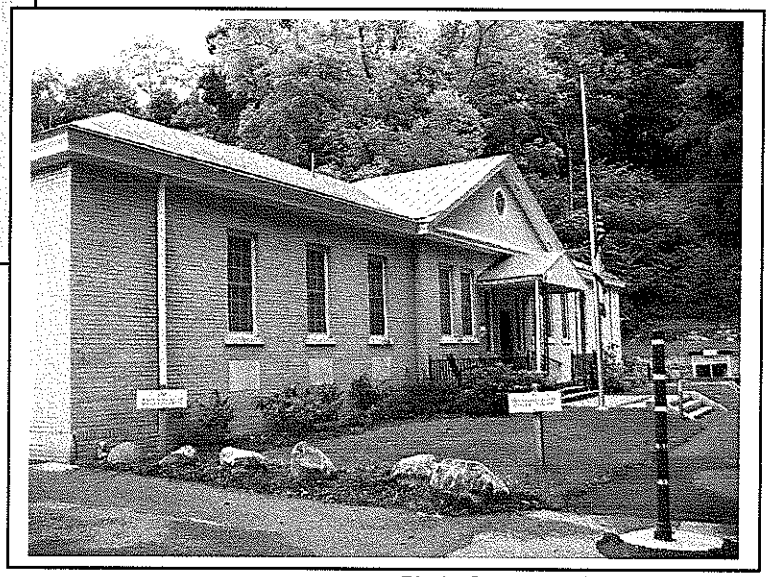


Photo Courtesy of ALPHA Associates

PROJECT DESCRIPTION:

The Berkeley Springs Bathhouse, built in 1929, is a historic structure located in the Berkeley Spring State Park in the Town of Bath, West Virginia. The approximately 1000 gallon per minute flow of 78.4 degree mineral laden water is used by the spa located in the bathhouse. The water is heated and clients soak in either tubs or large Roman baths prior to other spa activities. The Project is a renovation of the facility with a total MEP replacement. The goal of the MEP system design is reliable, cost effective, and energy efficient systems that enhance the client experience and protect the historic facility.

REFERENCE:
Brad Leslie PE, Assistant Chief
WV DNR, Parks and Recreation Section
324 Fourth Ave, Room 203
South Charleston, WV 25303
304-558-2764

PROJECT: BLACKWATER FALLS STATE PARK
LODGE DINING ROOM AC
LOCATION: DAVIS, WV

MILLER ENGINEERING, INC.

MEP TECHNICAL HIGHLIGHTS:

Total Project Budget:
$165K (est)

MEP Budget:
$165K (est)

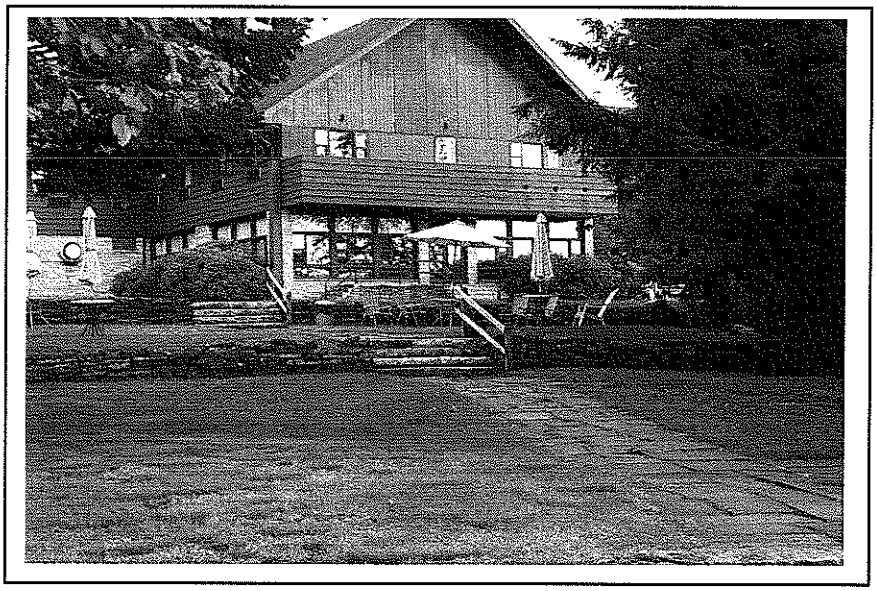
Facility Area:
Approx 3,000 ft²

Services Provided:
Mechanical

Project Status:
Construction

Project Completion Date:
Oct 2010

Miller designed a replacement air system which includes air conditioning. This was achieved by installing an air handling unit on the exterior and ducting it into the facility. To prevent the new equipment from becoming an eyesore and interfering with the views form the lodge, some of it is mounted remotely in a loading dock area. The equipment which could not be remotely located is installed behind a masonry wall which incorporates the same stone as the lodge. A reheat configuration was incorporated into the design to give better humidity control.



PROJECT DESCRIPTION:

The Lodge Dining Room was originally constructed with a heating only air system. As the facility has increased in popularity and the dining room begins to fill with visitors, the temperature and humidity levels became uncomfortable and air conditioning was needed. The Park Lodge is located proximate to the Blackwater Falls, a natural wonder. MEI performed a detailed survey of the system and made recommendations to the Owner; which are now being implemented in a construction project.

REFERENCE:
Brad Leslie PE, Assistant Chief
WV DNR, Parks and Recreation Section
324 Fourth Ave, Room 203
South Charleston, WV 25303
304-558-2764

PROJECT: CHEAT LAKE EL- MIDDLE RENOVATION
OWNER: Monongalia County Board of Education, Morgantown, WV

MILLER ENGINEERING, INC.

MEP TECHNICAL HIGHLIGHTS:

Total Project Budget: $5.5M
MEP Budget: Estimated $1.6M
Facility Area: 17,500 ft2
Services Provided: Facility and Site: Mechanical, Electrical, Plumbing, Fire Protection, Fire Alarm, Public Address & Clock Systems,
Project Status: 85% Complete
Project Completion Date: August 2010

The facility has several technical challenges; the 1950's original "core" of the middle school had seen little renovation since its construction. As a result, the classrooms lacked good ventilation, sufficient electrical and data systems capacity, and were not sprinkled. While fire alarm systems were added to each building during an addition, the systems were not of sufficient capacity to support the changes and were replaced with a new, addressable system. The original steam heating system was still in place in part of the middle school and was replaced. Bathrooms were updated and the gym/multipurpose was being air conditioned under the project. Clock, public address, and intercom systems were upgraded to serve both the elementary and middle as one system.

PROJECT DESCRIPTION:

The existing Cheat Lake Elementary and Middle School are two connected facilities that are being renovated as a result of changes within the county school system. The middle school is being relocated to a newly renovated facility and the existing middle school will serve as an expansion of the elementary school. Additionally, certain areas within the elementary school are being renovated to serve pre-K students. The project includes a new "bridge" connector between the facilities and a revised traffic/ parking flow plan.

REFERENCE:
Mr. Ed McCabe - Clerk of the Works
Monongalia County Schools
210 High Street
Morgantown, WV 26505
304-276-0669

PROJECT: GREER BUILDING HVAC RENOVATION

OWNER: The Dominion Post and Greer Industries, Morgantown, WV

MILLER ENGINEERING, INC.

MEP TECHNICAL HIGHLIGHTS:

Total Project Budget:
$1.8M

MEP Budget:
$1.8M

Facility Area:
18,000 ft²

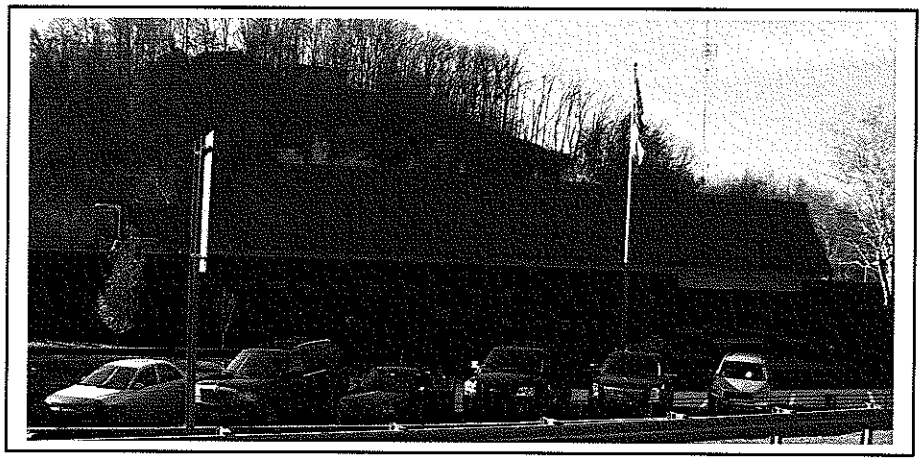
Services Provided:
Mechanical, Electrical

Project Status:
90% *Complete*

Project Completion Date:
Sept 2010

The original HVAC systems served the facility well for many years but have fallen into a state of extreme disrepair. Also, approximately 10 years ago, a contractor made changes which interconnected the air system between the two levels of the building. This interconnection has caused significant temperature control problems. Changes in space utilization have further complicated the issue through the years.

The Owner decided to reconfigure the entire floor plan over the next three years; with significant HVAC changes required. The ensuing HVAC renovation was designed and implemented as a phased approach, as the Owner will maintain occupancy during construction. The system must serve the facility in its current floor plan and then adapt as the floor plan changes take effect. Miller designed the system to work with the existing floor plan, and adapt to the future plan. A concurrent electrical upgrade has completed construction.



PROJECT DESCRIPTION:

The Greer Building is the home of the Dominion Post newspaper and several local radio stations. Constructed in 1967, it incorporated state-of-the-art multi-zone HVAC systems. The systems have served the facility well, lasting twice their expected life. The main air handling systems, piping, and ductwork are being replaced and reconfigured as a matter of necessity and to better serve the floor plan changes made to the facility.

REFERENCE:
Terry Rankin – Dir of Maintenance
1201 Hal Greer Blvd.
Morgantown, WV 26508
304-291-9425 or 304-376-2642

PROJECT: MAPLETOWN HIGH HVAC RENOVATION
OWNER: Southeastern Green School District, Greensboro, PA

MILLER ENGINEERING, INC.

MEP TECHNICAL HIGHLIGHTS:

Total Project Budget:
Est. $650k

MEP Budget:
Unknown at this time

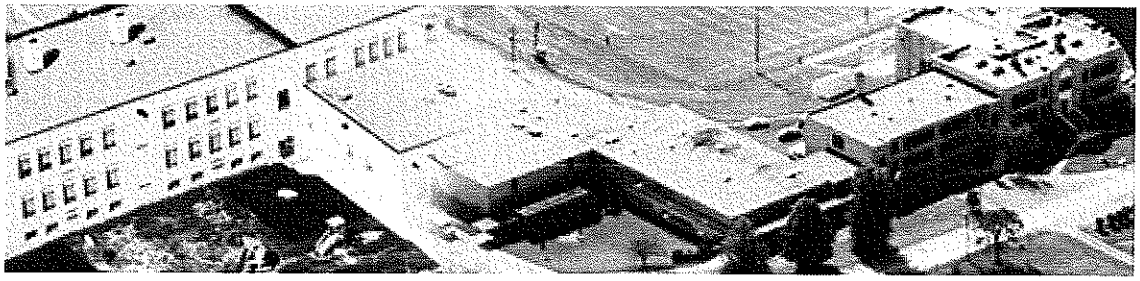
Facility Area:
18,500 ft2

Services Provided:
Mechanical, HVAC

Project Status:
Initial Investigation Completed, Awaiting Funding

Project Completion Date:
Est. Aug 2012

The facility was constructed at three different times and has a variety of mechanical and HVAC systems. The existing boilers systems are old, unreliable and inefficient. The air systems serving the gym require attention and likely replacement. The steam system piping has reached it's age limit. Evaluation included determining the best systems to apply to the facility that balance cost, reliability, and long term energy use. The evaluation included detailed computer modeling of the building and its system to assist in the evaluation. Budget estimates have been prepared for several options and the project is awaiting funding by the School District.



PROJECT DESCRIPTION:

Miller Engineering has been retained by the Southeastern School District to evaluate the existing system at Mapletown Middle/High School and prepare a report and budget for an equipment replacement and systems renovation. While early in the process, Miller Engineering has completed the initial facility review and the evaluation report and budget.

Patrick R. Sweeney - Business Manager
Southeastern Greene School District
1000 Mapletown Road
Greensboro, PA 15338
(T) 724-943-3630 ext 350

PROJECT: MED EXPRESS NATIONAL HEADQUARTERS
OWNER: MED EXPRESS, Morgantown, WV

MILLER ENGINEERING, INC.

MEP TECHNICAL HIGHLIGHTS:

Total Project Budget:
$12M

MEP Budget:
$3.6M

Facility Area:
31,000 ft²

Services Provided:
Mechanical, Electrical, Plumbing, Fire Protection, Fire Alarm

Project Status:
Complete

Project Completion Date:
2009

A full Mechanical, Electrical, and Plumbing (MEP) upgrade to the existing building was required to implement the project. Miller evaluated the existing system at the Owner's request and found them to be unusable for corporate offices. A full computational model of the building and its new floor plan allowed Miller to use rooftop units of varying configurations to most effectively condition the space. The 31,000 ft² facility now uses VAV (variable air volume) mulit-zone, VAV single zone, and constant volume systems to condition the spaces. In addition a dedicated data center air system was designed to accommodate both the current load and future growth, complete with halon systems and extensive fire alarm and warning systems. The data Center also required the design of a full standby power system with generator, uninterruptible power supply, and transient voltage surge suppression.

PROJECT DESCRIPTION:

The Med Express National Headquarters Office Building is a facility re-use success story. Originally a grocery store, it was renovated into a modern, comfortable, user friendly facility which serves the needs of the client well. The facility, located in the Sabraton area of Morgantown, it has become the center piece of an area revitalization effort.

REFERENCE:
Paul Slowik AIA
PSA ARCHITECTS
Pittsburgh, PA
421-367-7777

PROJECT: MAIN TERMINAL RENOV. PH. I &2
OWNER: Morgantown Municipal Airport, Morgantown, WV

MILLER ENGINEERING, INC.

MEP TECHNICAL HIGHLIGHTS:

Total Project Budget:
PH 1 $400k
PH2 $850k
MEP Budget:
Ph1 $85K
Ph2 $185k

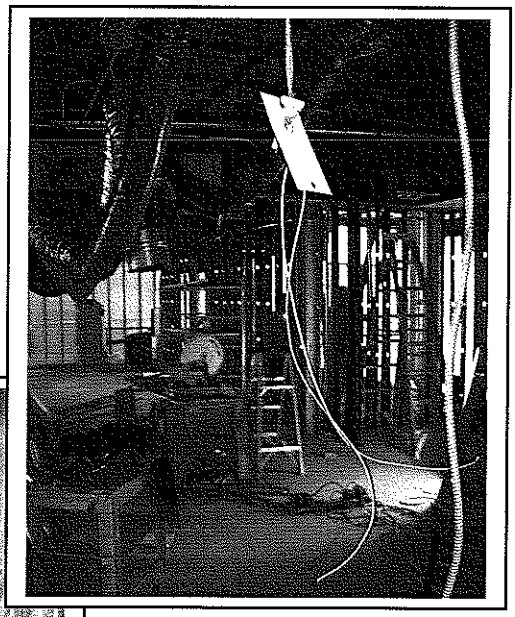
Facility Area:
Approx 12,000 ft2

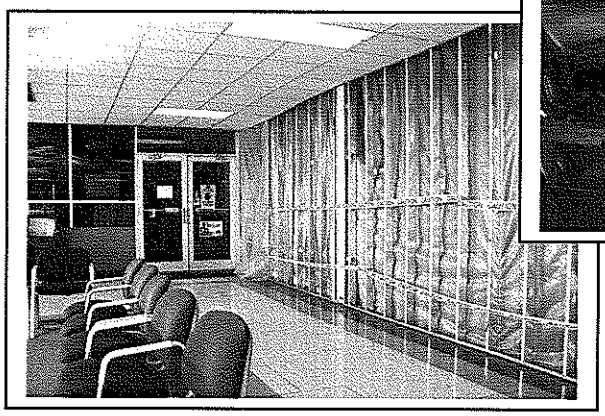
Services Provided:
Mechanical, Electrical, Plumbing, Fire Protection, Fire Alarm

Project Status:
Ph 1 Complete
Ph2 Commencing

Project Completion Date:
Mar 2011

The projects require the maximum re-use of existing HVAC equipment including a renovation and re-configuration of the existing VAV system to serve newly subdivided areas. The existing fire alarm system was evaluated and found to be insufficient; requiring a full replacement. The replacement had to be phased due to funding issues and this required close coordination with the Fire Marshal. Office areas and the fixed based operator (FBO) offices were moved and enlarged, with modifications to HVAC systems serving those areas. The electrical work includes new electrical distribution in the project area to serve the needs of both Airport and the FBO. Electrical deficiencies relating to the original construction were identified and are being corrected.





PROJECT DESCRIPTION:

The Terminal Renovation was initiated to create an improved, more functional space for the terminal offices and the fixed base operator. New rental space was created along with increasing the size and efficiency of the terminal office spaces. The project is split funded over two years requiring the project to be phased, increasing project document detail and coordination.

REFERENCE:
Mr. Glenn Kelly - Airport Director
Morgantown Municipal Airport
100 Hart Field Rd.
Morgantown, WV 26505
304-291-7461

PROJECT: MONONGALIA CTY COURTHOUSE HVAC
LOCATION: MORGANTOWN, WV

MILLER ENGINEERING, INC.

MEP TECHNICAL HIGHLIGHTS:

Total Project Budget:
$175K

MEP Budget:
$175K

Facility Area:
Approx 7,000 ft²
(in project)

Services Provided:
Heating, Ventilating, Air Conditioning Design

Project Status:
BID Phase

Project Completion Date:
November 2010

The Monongalia County Courthouse has been obtaining steam for heating most of the oldest areas of the facility from a boiler in the adjacent jail building. The jail is no longer in use and the boiler is highly inefficient due to the small load being placed on the large boiler. A new heating and cooling system is being installed to serve these areas. It will tie into the existing systems and significantly increase user comfort and energy efficiency. Also, certain existing systems are being slightly altered to increase user comfort and energy efficiency. MEI provided energy savings calculations which assisted the County in obtaining an energy efficiency/ environmental impact grant. The project disconnects the courthouse from the jail and provides new, high efficiency boilers for heating.

PROJECT DESCRIPTION:

The original courthouse was altered previously with the last addition and major renovation occurring in 1973. Some HVAC system upgrades occurred in the 1980s but are insufficient in areas where the building use has changed. The shutdown and planned removal of the jail behind the courthouse has impacted the operational cost and will leave part of the facility without heating. The project will address this and other HVAC concerns. The Romanesque Revival courthouse was designed by Pittsburgh-architect James Bailey and features a statue from the original 1848 Courthouse of Old Dominion statesman Patrick Henry. The Courthouse Complex houses county most major government functions, including the commission, assessor, sheriff and clerks offices.

REFERENCE:
Bobby Doyle
Monongalia County Courthouse
High Street
Morgantown, West Virginia 26505 304-288-0378

PROJECT: PRESTON COUNTY 911 CENTER
OWNER: PRESTON COUNTY, Kingwood, WV

MILLER ENGINEERING, INC.

MEP TECHNICAL HIGHLIGHTS:

Total Project Budget:
$2M

MEP Budget:
$500K

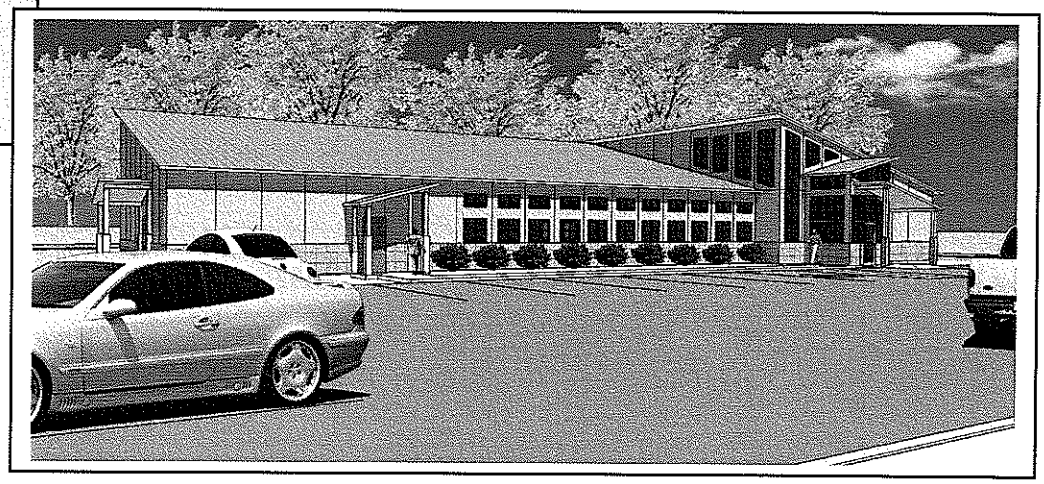
Facility Area:
7,000 ft²

Services Provided:
Facility and Site: Mechanical, Electrical, Plumbing, Fire Protection, Fire Alarm

Project Status:
Construction

Project Completion Date:
August 2010

The 7,000 ft² facility incorporates many features to increase the facilities reliability and functionality as a county wide emergency operations center in addition to being a 911 service call center. The HVAC system serving the 911 center and it's supporting data center are redundant and incorporate a "shelter in place" function to seal them from outside air should the need arise. The training facility is equipped with HVAC systems and power and data cabling to permit it to function as an emergency operations center should the need arise. The facility has a dual fuel emergency generator which serves the 911 center and the training room/ operations center. The building water, electric, and tel/data/cable utilities each required special attention and coordination with the service providers. The construction has proceeded as designed with only minor issues for resolution.



Rendering Courtesy of Mills Group

PROJECT DESCRIPTION:

The Preston County 911 Center is a purpose built new facility which replaces the existing undersized center. The facility includes a training facility that, in the event of an emergency, can be converted to an emergency operations center. The 911 center with its associated data center and training room required particular attention to tel/data wiring and power systems. The facility has several redundancies to minimize facility downtime.

REFERENCE:
Michael Mills, Mills Design Group
206 High Street
Morgantown, WV 26505
304-296-1010

PROJECT: WVU BOREMAN BISTRO RENOVATION
OWNER: WEST VIRGINIA UNIVERSITY, MORGANTOWN, WV

MILLER ENGINEERING, INC.

MEP TECHNICAL HIGHLIGHTS:

Total Project Budget:
$1.8M

MEP Budget:
$1.2M

Facility Area:
Approx 10,000ft²

Services Provided:
Mechanical, Electrical, Plumbing, Fire Protection

Project Status:
Complete

Project Completion Date:
August 2008

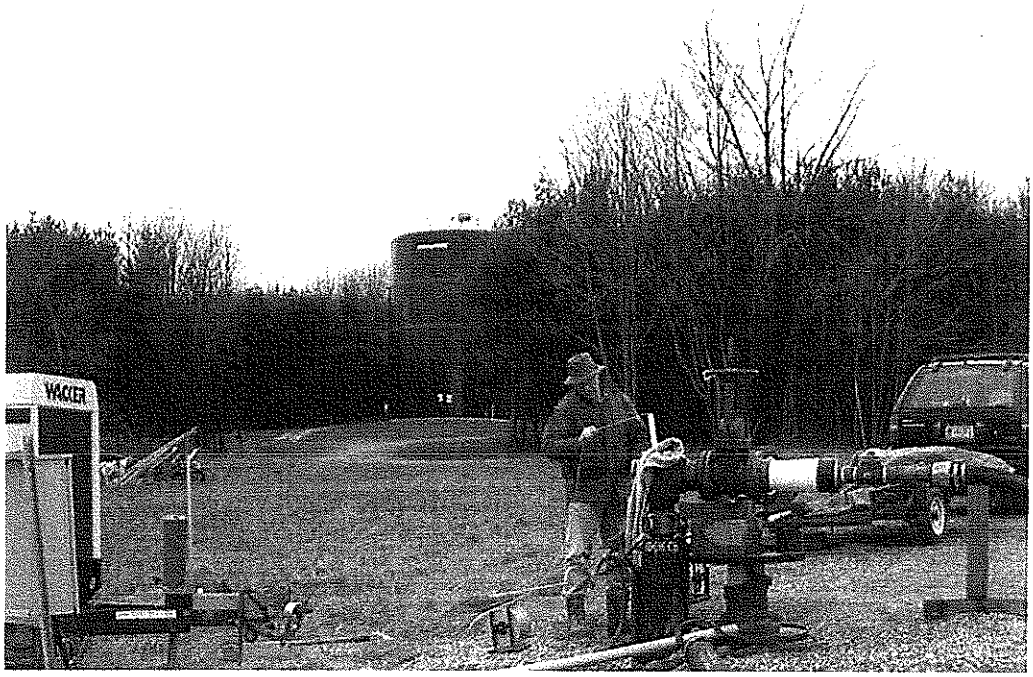
There had been little or no modification to the kitchen or dining room since the building was constructed in 1937. The mechanical design for the renovation of Boreman Bistro was challenged by the following factors: minimum deck-to-deck height, many existing overhead utilities that had to remain to serve the dormitory overhead, a lack of utilities, and severely deteriorated piping systems. MEI modeled the space in three dimensions to ensure that the new piping, ductwork, and electrical systems would coordinate in the field during construction. The addition of substantially larger cooking exhaust hoods complicated this process and required a (successful) reversal of the normal manner in which such ductwork is installed. The new installation accomplishes the task and meets fire codes as well as the Owners wish for a maintainable system.

PROJECT DESCRIPTION:

Boreman Bistro is located on the ground floor of Boreman South, a WVU residence hall on the Downtown Campus in Morgantown, WV. Many students dine at the Bistro due to its food quality and proximity to the campus and surrounding student living quarters. The University wished to upgrade these issues to permit better production of food, a more comfortable environment to patrons and kitchen staff alike, an ergonomically efficient dining area, and a safer environment to all by upgrading the existing systems. Upon completion of the project, the sanitary drain, supply water, HVAC and electrical systems were all completely upgraded to modern codes and standards.

REFERENCE:
Paul Whiteman, WVU Facilities Management
979 Rawley Lane
Morgantown, West Virginia 26506
304-293-8134

Statement of Qualifications with Example Projects and Service Information



June 2010

Smith-Comeskey Ground Water Science LLC

295 S. Lawn Ave.
Bluffton, OH 45817
Tel: 419/358-0528 • e-mail:
info@groundwaterscience.com

www.groundwaterscience.com

Ground Water Science
Science and Planning for Earth's Most Critical Resource

Ground Water Science Capability Statement

Company Summary

Smith-Comeskey Ground Water Science has been providing a broad range of scientific and training services in hydrogeology and well and drain maintenance and rehabilitation since 1986.

Unique among comparable hydrogeologic consulting firms, we take a "total systems" approach to designing ground water source systems, and solving and preventing the problems that impair their performance. We link hydrogeologic analysis to a wide range of information needed for a complete ground water information package.

Unique among consultants on well and pressure relief system performance problems and maintenance and improvement, we are not commercially tied to specific chemical or technical solutions and can serve our clients without bias.

Professional Services

- Hydrogeologic field testing
- Hydrogeologic modeling with experience in complex fracture-flow, quasi-porous media fracture flow, layered unconsolidated, and glacial-alluvial in bedrock settings
- Environmental microbiology (including biofouling and biocorrosion-related) and geochemical field sampling and analysis for both water and solid matrices.
- Providing specifications, site supervision, and verification testing and documentation for well construction and well rehabilitation projects – also the capability to provide these as turn-key services
- Forensic analysis and troubleshooting for biofouling and biocorrosion of ground water and pressure relief system problems and microbiological well contamination
- Ground water system and pressure relief system maintenance planning and implementation
- Training in problem prevention and performance maintenance.

Experienced Staff

The Ground Water Science partners, Stuart Smith and Allen Comeskey, are certified and licensed geologists and ground water professionals with advanced degrees. Each contributes over 30 years of varied, quality, hands-on professional experience to the firm. The partners are both published and Smith has contributed to several landmark drilling, well construction, biofouling analysis and well rehabilitation publications. The integrated understanding of hydrogeologic, biogeochemical, and well performance problems that this experience brings is available on each project, large or small.

With us, it's personal. **One or both partners are always actively engaged in your project.**

- **We don't just show up at sales meetings and "sign off" at the end.**
- **We stay active in and volunteer with industry and professional organizations and learning.**

Facilities and Equipment

- All equipment to perform well and pump performance testing (1 to 2000 gpm). Borehole and surface geophysics and video available.
- All equipment to perform on-site sampling and analysis of basic chemical-physical and biofouling and biocorrosion parameters. Packaged to be easily transportable.
- Hydrologic modeling (both semi-analytical and numerical) and graphical software on high-capacity workstations and laptops for flexible use.
- GIS, contouring, LIDAR/fracture trace mapping, and three-dimensional log and profile capacity to import, manipulate, manage, and display a wide range of information in a spatial context.
- Biofouling, biocorrosion, and other microbiological analysis by microscopy, cultural and biochemical methods. We supply these services to major full-service laboratories.
- Training packages and presentation technology for improving the capabilities of others.

Primary Clients

Ground Water Science command of rock hydrogeology is second to none regionally, and our expertise in ground water system biofouling, maintenance, and rehabilitation is recognized and sought out across North America and beyond. We have solved problems for everything from small private systems to some of the nation's biggest ground water projects.

- **National Ground Water Association:** Training, research on well problems and solutions, and manual production.
- **Quality firms e.g., Hull & Associates, Greeley & Hansen; Earth Tech; CH2M Hill; Fanning/Howey; DLZ Indiana; GEO Consultants.** Testing and plans for ground water system maintenance and rehabilitation, hydrogeology, WHPP.
- **AWWA Research (Water Research) Foundation:** Landmark biofouling and well maintenance and rehabilitation research.
- **U.S. Army Corps of Engineers Omaha District (via contractor ARCC Inc.):** Wellfield maintenance guidance manual.
- **Federal Highway Administration**, Borehole Sealing Research Project contractor.
- **Bureau of Reclamation Technical Services Center.** Biofouling analysis, research, and comprehensive maintenance planning for large wellfields and dam pressure relief systems.
- **Municipal clients including Hamilton, Ohio, Tate-Monroe Water Association (Ohio), Elkhart, Indiana, Muscatine, Iowa, and Metropolitan Water, Tucson, Arizona.** Well construction and well maintenance and rehabilitation analysis and planning.
- **Angus (Kidde), Cablerie d'Eupen, (Belgium) and Boreline (South Africa):** Consultant, well maintenance related products.

- **Our informative and widely linked web site www.groundwaterscience.com has more information on our experience and qualifications, plus a newsletter and informative pages oriented toward ground water topics.**
- **We urge you to stay active in associations, volunteer, and contribute to safe drinking water worldwide.**

Company Designations

Dun & Bradstreet no. 794593327

Cage code: 1WRP2

Corporate status: Small business, no additional designations

Limited liability company

NAICS Codes

Ground Water Science offers services under the following listed NAICS codes:

Primary:
541690 – Other scientific and technical consulting services
541712 – R&D physical, engineering, life sciences
541990 – All other professional, technical, and scientific services
611430 – Professional and management development training

Secondary (subcontracted):
541330 – Engineering services
541360 – Geophysical surveying and mapping

PSC Codes

Primary:
AJ32 – R&D Environmental Science
AJ34 – Environmental Science Engr. Development
AJ52 – Life Sciences, Applied & Exploratory
AJ54 – Life Sciences Engr. Development
B504 – Chemical/Biological Studies
B517 – Geological Studies
B525 – Natural Resources Studies
B533 – Water Quality Studies
F103 – Water Quality Support Services
H332 – Inspection Services, Water Pur. Equipment
H999 – Misc. Inspection and Testing Services

Secondary:
AJ42 – Engineering, Applied & Exploratory
B518 – Geophysical Studies
F015 – Well Drilling/Exploratory Services

Contact Information

Stuart Smith, CGWP, partner, e-mail stuart@groundwaterscience.com, tel: 419.235.4955
Allen Comeskey, CPG, partner, e-mail allen@groundwaterscience.com, tel: 419.358.0528.

RESUME

Allen E. Comeskey, MS, RG, CPG, Partner
Smith-Comeskey Ground Water Science

PROFESSIONAL EMPLOYMENT HISTORY

September 1996-present: Smith-Comeskey Ground Water Science LLC (partner), 295 S. Lawn Ave., Bluffton, OH 45817USA. Tel: 419/358-0528, allen@groundwaterscience.com. URL http://www.groundwaterscience.com.

Scope of services: Advising clients on ground water supply issues; planning and analyzing aquifer and step testing; numerical modeling and wellfield protection and planning studies, both in glacial-fluvial and fractured carbonate rock settings; geology; GIS.

January 1995-March 1996: Leggette, Brashears and Graham, Inc., Trumbull, CT 06611. Position: Hydrogeologist II, responsible for supervising test drilling, monitoring well installation and sampling at remediation sites, numerical modeling of aquifers to delineate wellhead protection areas, assisting with aquifer tests.

August 1993-January 1995: Earth Data Inc., St. Michaels, MD 21663. Position: Hydrogeologist, responsible for record keeping and report writing for remediation projects; aquifer test analysis; hydrogeologic analysis; performing geophysical logging.

September 1989-June 1993: Dept. Of Geology and Geological Engineering, University of North Dakota, Grand Forks, ND 58202. Position: Teaching/Research Assistant. Responsible for teaching geology laboratories and assisting in department research.

September 1979-July 1989: North Dakota State Water Commission, Bismarck, ND 58505. Position: Hydrogeologist supervising test drilling for county ground water studies and other hydrogeological investigations, operating and maintaining borehole geophysical logger, logging 50,000 ft of borehole per year; radiation safety officer.

September 1978-September 1979: Freeport Exploration, Elko, NV and Utah Geological and Mineral Survey, Salt Lake City, UT. Positions: Logging drilling cuttings and collecting samples for gold and coal exploration projects.

EDUCATION

Degrees and Emphases:

MS, Geology, University of North Dakota, Grand Forks, ND 58202 (1993). Thesis: The Hydrogeology of Agnes Marsh, Grand Forks, ND.

BS, Geology, Bowling Green State University, Bowling Green, OH 43403 (1978).

Selected Continuing Education:

Ground water flow and well hydraulics for porous and fractured media; Analysis and design of aquifer tests including slug tests and fracture flow; geographical information systems, photogrammatic analysis (LIDAR, etc.), environmental project management. Hold 40-hr + supervisor OSHA HAZWOPER certification.

PROFESSIONAL CERTIFICATION AND REGISTRATION

Certified Professional Geologist (#9880), American Institute of Professional Geologists.

Registered Professional Geologist (Pennsylvania, #PG-001844-G and Indiana, #1788).

PROFESSIONAL AFFILIATIONS

American Institute of Professional Geologists; National Ground Water Association; International Association of Hydrogeologists; American Water Works Association.

SELECTED PUBLICATIONS OF THE PRINCIPALS

Smith, S.A. 1980. A layman's guide to iron bacteria problems in wells. *Water Well J.* 34(6): 40-42 (reprinted in AWWA *OpFlow*, Feb. 1981).

Comeskey, A.E. and J. Reiten, 1982. Ground-Water Resources of the Surrey Area, Ward County, North Dakota, North Dakota Ground-Water study No. 87, North Dakota State Water Commission, Bismarck.

Comeskey, A.E. 1985. Flowing Well Pressure Changes in the Knife River Area, North Dakota State Water Commission, Bismarck.

Smith, S.A. and O.H. Tuovinen. 1985. Environmental analysis of iron-precipitating bacteria in ground water and wells. *Ground Water Monitoring Review* 5(4): 45-52.

Comeskey, A.E. 1989. Hydrogeology of the Plaza Area, Mountrail County, North Dakota, North Dakota Ground-Water study No. 94, North Dakota State Water Commission, Bismarck.

Smith, S.A. 1990. Well maintenance and rehabilitation in North America: an overview, pp. 8-15. in: *Water Wells: Monitoring, Maintenance, Rehabilitation* (Proc. of International Groundwater Engineering Conference, Cranfield Institute of Technology, Cranfield), E&FN Spon, London, UK.

Eggington, H.F., et al.. 1992. *Australian Drilling Manual.* Australian Drilling Industry Training Comm., Macquarie Ctr., NSW. (553 pp. Smith principal editor: and section author.)

Smith, S.A. 1992. *Methods for Monitoring Iron and Manganese Biofouling in Water Supply Wells.* AWWA Research Foundation, Denver, CO (96 pp.).

Smith, S.A. 1992. New developments in water well restoration. (Invited paper) in: *Proc. Drill '92, Conference of the Australian Drilling Industry Assn., Perth, W.A., October 1992.* West Australia Branch, ADIA, Fremantle, W.A., Australia.

Comeskey, A.E. and P.J. Gerla, 1993. Estimation of Wetland Water Budget: Agnes Marsh, *Agronomy Abstracts*, American Soc. of Agronomy.

Borch, M.A., S.A. Smith, and L.N. Noble. 1993. *Evaluation and Restoration of Water Supply Wells.* NGWA for AWWA Research Foundation, Denver, CO (270 pp.).

Smith, S.A. 1995. *Monitoring and Remediation Wells: Problem Prevention, Maintenance and Rehabilitation.* CRC Lewis Publishers, Boca Raton, FL (183 pp.).

Clancy, J.L. and S.A. Smith. 1995 and 2004. Iron bacteria, Chapter 2. In: *Problem Organisms in Water: Identification and Treatment.* Manual M7, American Water Works Assn.

Smith, S.A. 1996. Monitoring biofouling in source and treated waters: status of available methods and recommendations for standard guide. *Sampling Environmental Media*, ASTM STP 1282, J.H. Morgan, Ed., ASTM, West Conshohocken, PA, pp. 158-175.

Australian Drilling Industry Training Committee (including S.A. Smith). 1997. *Drilling: The Manual of Methods, Applications and Management.* (Co-editor/section author.) CRC Lewis Publishers, Boca Raton, FL (replaced 1992 ed.).

Smith, S.A. 1997. Well Construction, maintenance and abandonment: How they help in preventing contamination. *Under the Microscope: Examining Microbes in Groundwater,* Proc. Groundwater Foundation's 1996 Fall Symposium, AWWA, Denver, CO.

Comeskey, A.E. 1997. A Study to Provide Integrated Scientific Management of a Municipal Wellfield (abstract and presentation), Annual Conference, Ohio Section AWWA, Columbus, OH, September 1997.

National Ground Water Assn. 1998. *Manual of Water Well Construction Processes.* NGWA, Westerville, OH (Stuart Smith principal author/editor). Also participated in the 2010 revision.

S.A. Smith. 1999. Source water quality management: Groundwater (Chap. 4a). *Water Quality & Treatment* Fifth ed. AWWA and John Wiley & Sons, New York.

Alford, G., Roy Leach and S.A. Smith. 2000. Operation and Maintenance of Extraction and Injection Wells at HTRW sites, EP 1110-1-27, U.S. Army Corps of Engineers, St. Louis.

Some Representative Wellfield Planning and Wellhead Protection Projects (1997-present):

The following are some of our projects (of the ones we can discuss) to provide an idea of the type and scope of projects we have conducted. One feature is the long-term and repeat nature of our work with our clients.

Village of Ada -- First fully endorsed wellhead protection plan in northwest Ohio and further implementation of the plan. Jim Meyer, Village Administrator, 419/634-4045.

Back before source water protection planning became a paper exercise in Ohio, there was real hydrogeology done. The Village of Ada began its wellhead protection planning in 1990, before final Ohio Wellhead Protection Program requirements were in place due to concern about the vulnerability of its high-capacity carbonate-aquifer wells. Ground Water Science predecessor S.A.Smith Consulting Services worked with the village in adapting to changing requirements, developing a wellhead protection team, and gathering crucial hydrogeologic information (including detailed geophysical data provided by the University of Toledo), with the assistance of faculty and students at Ohio Northern University. The delineation submitted was one of the first in northwestern Ohio and was a test-bed for acceptance of MODFLOW-MODPATH delineation in the carbonate aquifer (building on existing Ohio State University experience). The PPSI was relatively detailed due to the long industrial history and numerous glacial layer perforations in the vicinity of the wellfield. The MEP was the first endorsed in northwest Ohio, and was endorsed with little request for modification by the Ohio EPA. Copies of it have been frequently requested as a model. Work was conducted within budget.

Dunkirk, Ohio -- To date: Well upgrades, fully endorsed wellhead protection plan, quarry impact assessment. Paul Cramer, W/WW Superintendent, 419/759-2102.

(1) WHPP: Dunkirk is the smallest northwest Ohio community committed to full-scale WHPP. Also with a vulnerable (shallow-bedrock) wellfield near rail lines, Dunkirk began the process when S.A.Smith supervised well upgrades to be designated "ground water" under the Surface Water Treatment Rule. The PPSI relied heavily on recruiting local knowledge of past land-use activities. The delineation was completed in 1996, PPSI in 1997, and management plan in 1999. All quickly endorsed by Ohio EPA. The entire project was completed under budget. (2) Advising the village on potential impacts from a quarry property being developed and expected to pump 1 MGD, including data collection, MODFLOW modeling, and interacting with other parties (Fall 2000-2003). 3) Revise source water protection plan (2007-present). 4) Corrosion consultation, distribution system valves (2009) 5) Planning new replacement well.

Forest, Ohio -- To date: Delineation endorsed, FPS Inc. (now ARCADIS), engineering. Charles Brunkhart, Village Administrator, 419/273-2505.

Forest has wells that are less vulnerable to surface influences, but the area is gaining several large industrial agriculture operations, which could affect both ground water use and quality. The delineation was completed in early 1997 with modifications requested by Ohio EPA. Smith-Comeskey successfully defended a technically accurate and rigorous approach to modeling this aquifer setting (heavily vertical fracturing in the carbonate matrix) using MODFLOW and further demonstrated its statistical validity. Work completed under budget.

City of Oxford: detailed alluvial valley WHPA delineation and management planning. WHPA endorsed. 1997. Hueston Woods project hydrogeologic support (completed). New well planning (in progress). Dave Weihrauch, Chief Water Plant Operator, 513/523-1753.

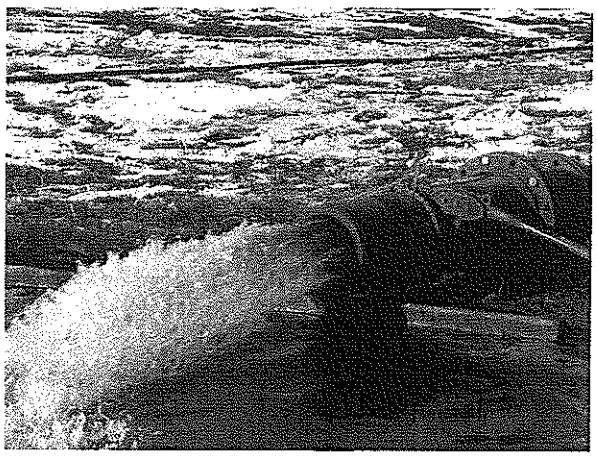
Oxford, Ohio manages a 2-MGD water supply developed in two glacial-fluvial valleys in Butler County. Ground Water Science performed the WHPA delineation for the eastern Seven-Mile wellfield, which is also a politically sensitive resource. This aquifer is a complex two-layer confined unit with multiple clay lens units. Background information was both extensive and in some ways misinterpreted in past work. We gathered detailed and useful data on the confining unit and potentiometric surface. Testing work included confirmation of aquifer-stream interactions and analysis included reinterpretation of past test results. Modeling involved accounting for both aquifer units, the virtually continuous aquitard between, the aquiclude valley geometry, and stream interactions. We were able to show that flow is vertical down into the lower unit pumped by the production wells and downgradient along the valley. Work on this complex project was completed under budget. Notification of endorsement by the Southwest District Office occurred within two weeks of submittal. Oxford also intends to use the model for future planning and community interaction. Hueston Woods proved to be an economically nonviable development. Adding additional well capacity is taking the form of enlarging existing well capacity.

Village of Ottoville: New well siting, old well plugging and wellhead protection. 1997-2002. Steve Wittler, W/WW Supt., 419/453-3147.

Ottoville maintains a ground-water supply system in southern Putnam County in a tight, high-sulfide portion of the carbonate aquifer. Existing wells had corroded and become unusable. Smith-Comeskey conducted site planning for a new well, wrote specifications for a deep well to avoid the highest sulfide ground water, and successfully brought the well to production, meeting project objectives. Existing corroded wells were securely sealed. WHPA delineation completed and submitted to Ohio EPA for endorsement. New well siting and testing in 2002 included interacting with new high school site architects over 180 geothermal bores being installed within the wellfield capture zone. New well in the planning phases.

Village of Willshire: New well siting replacing quarry water source, and wellhead protection. 1997-99. WHPA endorsed. Jim Myers, P.E., Kohli & Kaliher Associates, Lima, Ohio, 419/227-1135.

Willshire has established a new ground-water supply system in western Van Wert County to replace an existing degraded and antiquated quarry supply and water plant. The new plant includes two wells feeding the first PWS iron filtration-nanofiltration treatment system in Ohio, just brought online in November 1998. Wells were completed and tested by S.A.Smith in 1995, with the remainder of the project awaiting Ohio EPA approval of the nanofiltration concept. S.A. Smith conducted site planning for a new well, wrote specifications for wells, and successfully brought the wells to production, meeting project objectives. . The WHPA delineation was completed on a fast track and endorsed, along with a potential pollution source inventory, in 1999. A draft management plan is being reviewed by the village and state SWAP personnel.

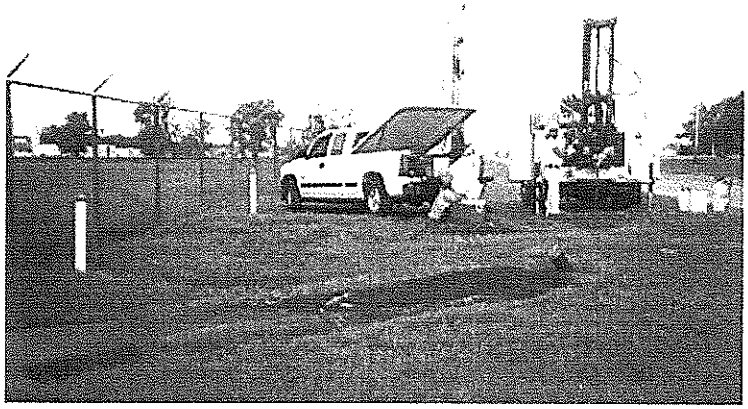


City of Hamilton, Ohio -- Well and wellfield capacity testing and modeling support of an application for increased withdrawal. Darla Crum, tel: 513/785-7211.

(1) The city had an interest in testing its wells to determine their pumping and production capabilities. Testing being conducted under contract by Jackson & Sons was analyzed by Ground Water Science (2000). (2) Conducting information review, analysis and modeling of the impacts of current and projected multi-MGD impacts from ground water pumping on the Miami River Valley aquifer. Project includes acquiring well information and withdrawal rates, using these to update and correct the existing regionally constructed MODFLOW model of the aquifer, and projecting output in

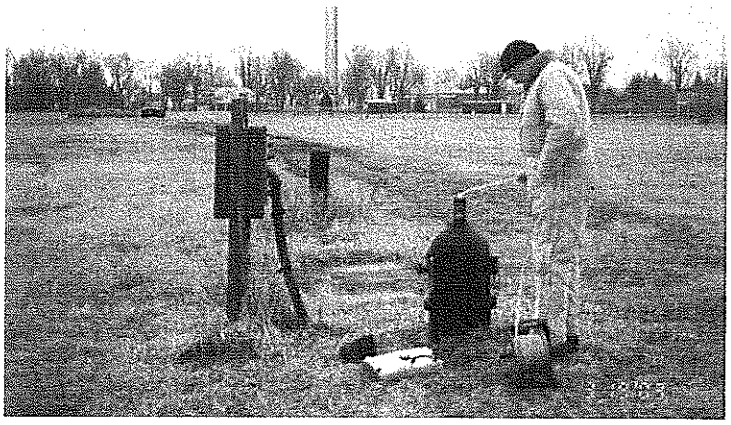
service. A maintenance plan to prevent loss of production due to iron biofouling was drafted for facility implementation. A changing well environment (going to an iron sulfide condition) tested the plan and resulted in the need for recommending changes in the cleaning program and equipment to meet the new conditions in cooperation with the well contractor. 2000-2003. A revised well maintenance system is being planned and evaluated. 2003-ongoing.

Muscatine, Iowa – Conducting test drilling to confirm and characterize the nature of contamination from ethanol spills, the effect on aquifer water quality, and plans for management of the problem.



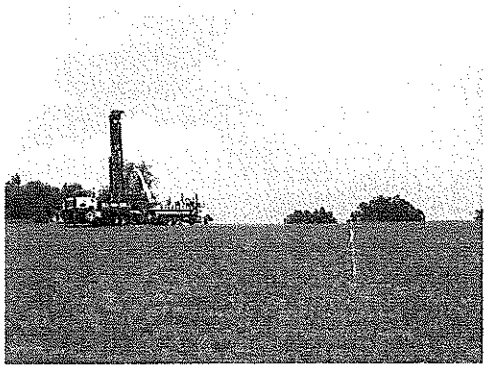
Ground Water Science teamed with environmental remediation service provider Philip Services, Columbia, IL (Dale Markley, CGWP, 618/281-1540), on a winning proposal to perform these services, using Geoprobe to sample aquifer media, and a combination of physical-chemical and biological analyses to define the current conditions in the aquifer. Based on information gathered, an emphasis on improving and managing the performance of the wells, rather than a focus on ground water quality remediation, was recommended. Recommendations are made for further action, treatment, and wellfield improvements to improve yield and quality. Completed in September 2001, on schedule. Further well rehabilitation planning and interaction with PRP was in progress.

Village of Carey, Ohio. Source water protection planning and wellfield resource optimization. Roy Johnson, Village Administrator (419/396-7681)



Carey has a wellfield developed in Silurian dolomite, but affected by nearby very large quarries and shallow upper Silurian to Devonian karstic "ridge" carbonates vulnerable to surface effects. The village requested that we develop a wellhead protection area delineation based on hydrogeologic analysis, and an associated management plan (2002-ongoing), rather than having the OEPA do it for "free". Data were collected for a water table map spanning the variety in heads and output flows in the region (including the 100-ft drop into quarries), an aquifer test conducted at the wellfield without disrupting water production operations, fractures were delineated to define the geometry of the flow field and to refine regional transmissivity values. Information was integrated with CAD and electronic topo maps from several sources in our GIS system with SURFER, and modeling conducted using a MODFLOW-MODPATH package integrated with ArcView and SURFER. A WHPA delineation report has been submitted for endorsement and a SWPP developed. A final WHPA was endorsed incorporating OEPA's views of hydrogeologic parameters determined from 80 miles away. Future work planned includes assessments of well performance and developing options to reduce seasonally detectable nitrate (sub-MCL), and planning in relation to extended quarry operations.

Village of Danville, Ohio. Robert Shipley, Administrator, 740/599-6888



(1) Danville is in the process of developing a new wellfield and water treatment plant, being designed by Bird+Bull. Ground Water Science worked with the village and MTWSI to deal with existing well water quality problems, including a new well installed in 2003 that experienced problems with passing coliform tests, as did an existing well that previously had no record of bad samples. Ground Water Science developed a plan to identify the source of the problems and to solve them without intrusive, expensive repairs. After a second well provided poor yield, Ground Water Science conducted exploration in the wellfield to find optimal well positions in the mixed sandstone-shale sequence; design, test and certify new wells; and bring them to production. A new 400-gpm well was successfully brought into production. 2002-present. (2) With MTWSI, Ground Water Science is aiding the village in defining and mitigating an ammonia plume in the vicinity of their wastewater treatment lagoons (2007-present).

Mercer County Water and Sewer, Celina, OH, Kent Hinton, Jared Ebbing, Development Director 419/584-1982

Mercer County is a growing area of the state with increased water demands. However, the county's major municipal supplier, Celina, is faced with quantity limits and quality problems with its lake water source, even with sophisticated water treatment. Efforts to secure surface or ground water supplies are further hampered by the proximity of the Lake Erie-Gulf of Mexico watershed divide. The Great Lakes Compact requires that water from the Lake Erie watershed be returned to the watershed. The county is developing new wellfield capacity for domestic and industrial water supply. Video inspections, step tests and aquifer tests were conducted on existing wells constructed in 2001-2002 to define individual well performance and overall withdrawal impact on the area. A hydrogeologic framework was defined to focus additional well site locations and overall development strategy. Planning is now under way to develop at least 2-MGD of capacity from the current wellfield and to explore others, and to bring these supplies into service. Withdrawal of the planned anchor industrial water user has interrupted progress. Ground Water Science is working closely with engineers Fanning & Howey and the county. 2004 and ongoing.

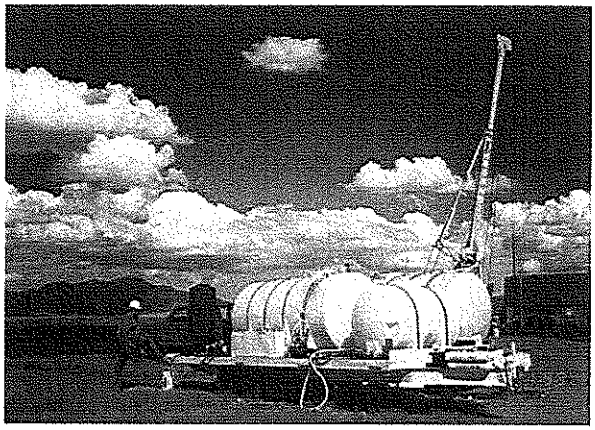
Village of New Washington, Ohio and McGhee Technical Water Services Inc. Lonnie McGhee (MTWSI) 419/886-4716

New Washington operates a marginal surface water supply. "Conventional wisdom" is that ground water is unavailable in municipal capacity in the area. Ground Water Science has conducted preliminary ground water exploration, locating promising aquifer targets for the village to explore, and test drilling to define potential capacity and water quality. Planning with OEPA and the village was under way when the village accepted an offer to have a regional water supplier purchase its system and supply it water. (2005-2009). Plans are under way to interest other potential buyers in the defined high-capacity ground-water resource.

City of Richmond, MI, Jon Moore, City Manager 586/727-7571

Richmond has a series of deep gravel wells supplying more than 2 MGD, with ground water operations handled by an outside contractor. One well was brought on line years after construction and produced poor water quality. Rehabilitation was attempted, but proceeded with difficulty and well damage occurred. Ground Water Science was engaged to assist the city in its decision-making process and to supervise and document attempted well rehabilitation and new constriction. October 2004-2008.

vision: Conduct a field evaluation of biofouling in an earthen dam drainage system and provide recommendations for rehabilitation and maintenance treatment as part of a multidisciplinary team (2001). Treatments have to be designed to avoid negative impact on downstream ecological resources. Pilot studies and comprehensive system-wide planning of treatment for dams are in process, starting with analyses of clogging and corrosion potential. Denise Hosler. October 2000-ongoing.



ARCC Inc., Daytona Beach, FL for U.S. Army Corps of Engineers. Development of detailed "engineering pamphlets" (technical publications) in (1) mitigation and maintenance methods (completed and published on USACE web site) and (2) rehabilitation planning and methods for problems of pumping and reinjection wells on hazardous and radioactive waste sites. August 1998-December 2000.

C.C.A. Limited, Carenage, Canouan, St. Vincent and the Grenadines. Conduct analysis of biofouling, corrosion rates, potential causes and recommendations for resort sea water and ground water treatment plants and distribution systems. October 1999-May 2000.

Environmental services contractor to major energy fuel facility, KY (as of now confidential). Conduct analysis to define biofouling and biocorrosion mechanisms involved in the rapid corrosion of multiple monitoring well casing, potentially compromising critical data on potential chemical and radiological contamination of ground water. Smith-Comeskey supplied project scope, an on-site laboratory capability to analyze for microbial contributors to biocorrosion, documentation of evidence of biocorrosion from pulled well components, and definition of a method to measure corrosion potentials between inner and outer casings through grout. Project conducted on a very rapid time scale. October 2000-2001.

Village of Byesville, Ohio. Conduct an investigation of causes of rapid filter fouling and persistent occurrence of certain heterotrophic bacterial genera in distribution system water. Wells and downstream treatment system components were sampled for analysis of biofouling parameters, and data on microbial occurrence reviewed for patterns. Report with recommendations to date. January 2001-2004. The affected wellfield was abandoned and surface water treatment installed to treat mine-affected water.

National Ground Water Well Association, Westerville, Ohio. NGWA selected Ground Water Science to conduct a FEMA-funded study of emergency well disinfection methods to refine response to large-scale flooding events such as hurricanes. The project involves literature reviews and testing disinfection methods on a variety of wells in coastal North Carolina affected by Hurricane Floyd in 1999, and involves a well inspection and treatment subcontractor (EGIS, P.A., Chapel Hill, NC) and peer review of results. The project was completed as scheduled in September 2002 (>$90,000 budget). We have conducted projects for NGWA since 1983.

University of Cincinnati Genome Research Institute, Cincinnati, Ohio. U.C. took over an existing animal study facility with piped water systems subject to biofouling. Engineering and testing contractors for facility restoration turned to Ground Water Science for planning and executing biofouling testing and recommendations for remediation and ongoing maintenance to assure quality water to experimental animals. Initial testing conducted in 2002, followed by testing of the rebuilt system in 2003. When finished, then reporting to Nelson Stark Co., Cincinnati, the facility was in the final planning phase in preparation for lab animal delivery.

STEVENS ENGINEERING

Stevens Engineering is recognized throughout North America for responsive planning and engineering design. With nearly 30 years of service to its clients, Stevens Engineering is an accomplished source for passenger ropeway engineering, planning and design of lift and trail systems, snow tubing park design and mountain surveying.

Lift relocation engineering and the design of upgrades and modifications to existing lift installations are technical specialties at the core of the firms' capabilities. Stevens Engineering frequently assists lift manufacturers with the design of new installations, major lift upgrades and lift profile surveying. Ski area clients often seek out the technical expertise and the knowledge of governing standards and regulations Stevens Engineering has to offer for assistance in preparing comprehensive and result-oriented bid specifications for future lift purchases and for expert witness representation.

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SPECIALIZED PROFESSIONAL COMPETENCE

Passenger Ropeways:	Planning, Engineering Design, Analysis, Inspection,
Aerial Ropeways	Relocation Engineering, Upgrades, Modifications,
Surface Lifts	Due Diligence Surveys, Dynamic Testing,
Conveyors	Maintenance Consulting, Accident Investigation,
	Profile Surveying, Construction Engineering
Snow Tubing Parks:	Planning & Engineering Design, Terrain Dynamics Evaluation
Civil Engineering:	Site Planning, Engineering Design, Surveying, Permitting
Structural Engineering:	Engineering Design, Analysis, Inspection

PROFESSIONAL BACKGROUND

Registered Professional Engineer and Qualified Tramway Engineer in: Maine, Maryland New Hampshire, Vermont, Connecticut, Massachusetts, New York, Pennsylvania, Michigan, Utah, Wisconsin, New Jersey, Colorado, Idaho, Iowa, Tennessee, West Virginia, Wisconsin, Ontario, New Brunswick

Bachelor of Science Degree in Civil Engineering University of Massachusetts, Amherst - 1974

Entered Profession in 1974

AFFILIATIONS

NATIONAL TRAMWAY STANDARDS BOARD – Member from 2000 - 2006

AMERICAN NATIONAL STANDARDS INSTITUTE - ASC B77 Accredited Standards Committee - American National Standard for Passenger Tramways, Committee Member

OITAF-NACS - International Organization for Transportation by Rope, North American Continental Section, Member

NSAA - National Ski Areas Association, Member

OSRA - Ontario Ski Resorts Association, TSSA/OSRA Technical Advisory Committee

SENH - Structural Engineers of New Hampshire, Member

State of New Hampshire, Governor's Office of Emergency Management - ACT-20 Post-Earthquake Building Safety Evaluation Engineer

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SELECTED CLIENTS FOR THE MOUNTAIN RESORT INDUSTRY

Squaw Valley – CA
CNL Lifestyles, LLC – FLA
Arrowhead Ski Area – NH
Mount Isenglass Snow Park - NH
Attitash - NH
Cannon Mtn. - NH
Crotched Mountain, Francistown, NH
Dartmouth Skiway, NH
Gunstock, NH
Willis of New Hampshire
Kaser North America – Grantham, NH
Mount Cranmore - North Conway, NH
Mount Sunapee State Park, NH
Star Lifts, Sunapee, NH
State of NH - Dept. of Parks and Recreation
Proctor Academy, NH
Rowell Hill - NH
Moose Mountain - NH
Ragged Mountain - NH
Whaleback - Lebanon, NH
Bretton Woods - NH
Waterville Valley - Waterville Valley, NH
King Ridge - New London, NH
Snow Hill at Eastman - NH
Sno-engineering, Inc. - Littleton, NH
Poma of America - West Lebanon, NH
Ragged Mountain, NH
Tenney Mountain - New Hampshire
Mountain Creek – NJ
Hidden Valley - NJ
Ober Gatlinberg, TN
Burke Mtn. - VT
Round Top, VT
Bolton Valley, VT
Stratton Mountain - VT
Mount Snow – VT
Smugglers Resort - VT
Haystack, VT
Mount Mansfield Resort - Stowe, VT
Round Top, VT
Sugarbush Resort - Warren, VT
Mad River Glen - Fayston, VT
Magic Mountain, VT
Jay Peak Resort - Jay, VT
Middlebury Snow Bowl - Middlebury, VT
Bear Creek - VT
Wachusett Mountain - Princeton, MA
Otis Ridge - MA
Ski Bradford - MA
Nashoba Valley - MA
Amesbury Sports Park - Amesbury, MA
Blue Hills Ski Area - Canton, MA
Conservation Tourism, LTD - MA
Aon-Reed Stenhouse – ON
Searchmont – ON
Horseshoe Valley - ON
Craigleith Ski Club - ON
Cassels Brock & Blackwell - ON
Dale Intermediaries Ltd. - Toronto, ON
Hidden Valley Highlands Ski Club - ON
Hughes, Amys - Toronto, ON
Zurich Canada - Toronto, ON
Snow Valley - Barrie, ON
Berthoud Pass, CO
Breckenridge, CO
Howelson Hill, CO
Jenlynn International, Inc. - Boulder, CO
Stadeli USA - Boulder, CO
Doppelmayr USA - Golden, CO
Poma of America - CO
Ski Snowstar - Ill
Sun Valley Company - Idaho
Mt. Crescent – Iowa
Sleepy Hollow Sports Park – Iowa
Norway Mountain – MI
Ski Brule - MI
Mt. Bohemia, MI
Porcupine Mountain - MI
U.S. Gypsum, MI
Whiteface - Olympic Regional Development
Authority - Wilmington, NY
Catamount - NY
Mount Peter, NY
Gore Mountain - NY
Partek Enterprises, Inc. - Pine Island, NY
USMA, West Point - NY
Big Tupper – NY
Snow Park Niagara – NY
Scotch Valley, NY
Hunt Hollow, NY
Ski Windham – NY
Royal Mtn. - NY
Belleayre Ski Center - NY
Whitetail Ski Company - Mercersberg, PA
Laurel Mountain State Park - PA
Boyce Park Ski Area - Pittsburg, PA
Willowbrook - PA
Ski Big Bear - PA

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Montage Ski Area - PA
Pinecrest Resorts – PA
Framar, Inc – PA
Ski Roundtop – PA
Rustler Lodge - Alta, Utah

Bruckschlogl GES.M.B.H - Austria
Winter Park - Wisconsin
Ri b Mountain – Wisconsin
Hermon Mountain – Maine
Oxford Plains Snowtubing, Maine
Sugarloaf USA – Maine
Camden Snow Bowl - Maine
Mars Hill – Maine
Shawnee Peak - Maine
Saddleback – Maine
Sports Parks of Maine
Shawnee Peak - Maine
Sunday River - Maine
Eaton Mountain – Maine
Stone Mountain Park - GA
Ober Gatlinburg - TN
Garaventa, CTEC – Utah
Division of Parks and Recreation - Commonwealth of WV
Canaan Valley – WV
Oglebay Family Resort - WV
Snowshoe Mountain Resort - WV
Mount Ashwabay - WI
Dosel, S.A. – Costa Rica
Rain Forest Trams – Costa Rica
Rain Forest Trams, LTD – Dominica
Poley Mountain – New Brunswick
Mount Southington – CT
Yawgoo Valley - CT
Brandywine - Ohio

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