



Fire Protection Engineering
Mechanical/Electrical/Plumbing
Engineering
Code Consulting

Governmental Facilities



FSC provides professional engineering, fire protection and code consulting services for the following types of Federal, State and Local Governmental facilities:

- Federal, State, County & Municipal Office Buildings
- Fire Stations / Police Stations / Public Safety Centers
- Federal Emergency Management Administration (FEMA) and State Environmental Control Facilities
- Veterans Affairs - Medical Facilities, Housing and State Veteran's Cemeteries



FSC, Inc.

Corporate Headquarters:

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Subsidiaries:

FSC MEP Engineers, LLC
Kansas City, MO 64138 U.S.A.

FSC Bredson, Inc.
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FSC Engineers, Pvt. Ltd.
Bhopal - 462011 M.P. India

FSC Consulting Services, Pvt. Ltd.
Bhopal - 462011 M.P. India

Web: www.fsc-inc.com

**Fire Station #19 (2006)
Kansas City, MO**

MEP and FP design of new \$6.4 Million, 17,000 sq. ft. fire station consisting of 3 bays for fire trucks and a 2-story fire station building.



- This **Design-Build** project includes design of: captain quarters, chief quarters, staff bunks, lobby, dining room, lounge room, kitchen, conference/training room, exercise room, communication center, apparatus area, bathrooms, toilet rooms, janitor closet, electrical/phone room, mechanical rooms.
- **Designed to "Silver" LEED rating**
- **Design-Build Institute of America Award - One of Nine Exceptional Design-Build Projects in the Region.**

**Fire Station #23 (2007)
Kansas City, MO**

MEP and FP design services for the renovation of the existing 15,000 sq. ft. fire station building. Services included design of: 3 bays for fire trucks, kitchen expansion, day room, captain's offices, conference room, living quarters, locker rooms, toilets, and a mezzanine floor.



- Add fuel station with above-ground fuel tank
- Add Confined Space Training Prop
- Add Parking lot
- Coordination with City, Fire Department, and design team members.
- Prepared Cost Estimates.
- Reviewed Shop Drawings and Balance Reports.
- Site visits during construction.

**Fire Academy Training Tower (2007)
Kansas City, MO**

MEP upgrade to existing tower and a new 2-1/2 story building added to adjoin the existing tower and burn building. Our services included the following design:

- Replace existing electrical panel & controls, lighting & receptacles, and internal wiring.
- Replace existing plumbing floor drains and lines will be replaced.
- New storm water drainage system for the new building.
- Exterior lighting for the new building.



**New Fire Training Center (2009)
Independence, MO**

Electrical design services for a 90,000 sq. ft. Fire Training Center including: site lighting, building interior and exterior lighting, data communications center and burn building for the City of Independence New Fire Training Center.



**Joplin Justice Center & Fire Station (2006)
Joplin, MO**

- MEP Design for Office, Courtroom, Detention Facility, Police Department and Fire Station Building renovations. MEP Construction Cost: \$400,000
- Renovation of existing Municipal Building to accommodate enlarged departments.

**Department of Natural Resources Lewis & Clark (2006)
Jefferson City, MO**

Provided MEP and FP design services for the new 4-story, 120,000 sq. ft. "green" office building. This building has become a model for future State of Missouri office building projects. Services:



- Solar hot water
- Under floor air distribution
- Night sky system
- Photovoltaics
- Gray water
- DDC controls
- **Designed to "Gold" LEED , Achieved "Platinum" rating**

**IRS Office Campus (2005)
Kansas City, MO**

The 1,140,000 sq. ft. IRS campus in Kansas City included:

- A new 2-story 599,851 GSF IRS Processing Office Wing with Café.
 - A new 5-level 1,112,748 GSF Parking Garage.
 - A new 70,000 GSF Warehouse with possibility of offices.
 - Renovation of existing 6-story 496,088 GSF historic post office building with 18,812 GSF tunnel.
 - A new partially below ground garage.
- Total Construction Cost: \$254 Million**



FSC provided the following MEP and FP services:

(As a sub-consultant to Lankford and GDS):

- Detailed field survey to ascertain actual conditions for historic post office building.
- Design of new air handling system with associated air/water distribution and control system.
- Design of CO controlled garage ventilation system.
- Design of energy efficient interior and exterior lighting including high bay lighting for warehouse and new special systems such as fire alarm, overhead paging, security and communication (voice and data).
- Design of public toilets with ADA and water conserving fixtures with electronic faucets and rainwater retention system.
- Design of wet and dry sprinkler system based on space requirements.

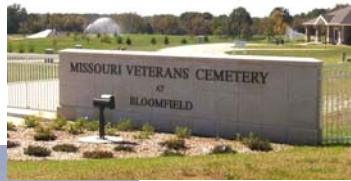
- *Design of green roof for “Silver” LEED rating.*

Newman Building (2007)

City of Joplin, MO

MEPF design services for the City of Joplin for the renovation and upgrade of a six story 70,000 sq. ft. building into administrative offices . The remodel included the following:

- Reconfiguration of existing HVAC system ductwork.
- Design for an additional HVAC unit to handle the peak air conditioning load requirements for the 5th floor City Council space.
- Upgrade of the main electrical service entrance.
- Design/installation of diesel generator for emergency power.
- New restrooms on the 5th floor.
- Fire protection systems modifications.
- Data distribution from data room with routers and backbone wiring to all floors.
- Consultation with City and design team members.
- Site survey to obtain actual condition.
- Bidding and Construction Administration Services.



Veterans Missouri State Cemeteries (2001)

Bloomfield, MO and Jacksonville, MO

MEP and FP services for two new State Veteran’s Cemeteries, approximately 14,000 sq. ft. each, with the following areas:

- administrative building,
- vehicle maintenance/wash bay,



- vehicle storage, and
- committal shelter buildings

Environmental Control Center - State of Missouri (2008)

Jefferson City, MO

Mechanical services for the Environmental Control Center, in particular:

- Evaluation of the existing chillers
- Recommendation on whether retrofit or replacement is needed.
- Performed energy analysis and life cycle cost study.
- Designed for retrofit, however, after design completion, the State decided to replace all the chillers.



- Re-designed for replacement of chillers.

V.A. Medical Center (2004)

Iowa City, IA

Riser upgrade and fire sprinkler system installation for a two phase project at Building 1 (13 stories, 400,000 sq. ft. hospital). Phase 1 upgraded the fire sprinkler risers and Phase 2 was an upgrade and retrofit of the fire sprinkler system for the entire building. Services included:

- Perform field surveys to determine existing conditions
- Review hydraulic analysis for compliance with NFPA code
- Prepare all bid documents
- Construction administration services and “as-built” drawings
- Convert Master Plan drawings to AutoCAD drawings

Fire Protection Cost: Phase 1 - \$400,000; Phase 2 - \$1 million

Veterans Administration Heartland On-Call IDIQ

Engineering Contract

(2005-2009)

MEP/F Engineering design services.



Dwight D. Eisenhower V.A. Medical Center (2008)

Leavenworth, KS

Mechanical services for the replacement of elevators and HVAC with energy management system in the penthouse elevator control room of Bldg. 90 “A”, Bldg. 91 and Bldg 122.



VA Medical Center (2002)

Kansas City, MO

ME Services including HVAC Controls Replacement.

VA Housing Cameron, MO & Warrensburg, MO

MEP design services for Long Term Care Housing for Veterans.



Independence City Hall, Police Headquarters

**City of Kansas City, MO
City Hall Building FP Master Planning
(Historic)**

Kansas City, MO

FP master planning for the 30-story, historic government administration building with historically sensitive areas that include offices, large meeting rooms, computer rooms, and an underground parking garage.



City of Kansas City, MO

Block 76 (2007)

Kansas City, MO

MEPFP systems survey and assessment for the City of KCMO on the existing 263,000 sq. ft. building.

City of Kansas City, MO

Market Building (2007)

Kansas City, MO

Energy Audit and Report for the City of KCMO of the approximate 200,000 sq. ft. Building to include site survey, building usage information, utility information and recommendations for reducing the energy usage.

Watkins Mill Park - Fire Alarm (2009)

Lawson, MO

Electrical services to replace /install a new fire alarm system, campus wide including detectors, pull stations and notification devices.

City of Joplin Park Improvements

Joplin, MO

MEP design services for improvements at five parks (Cunningham, Ewert, Humphrey, Leonard, Parr Hill) including restrooms, shelters, parking, signage, playground and lighting.

Memorial Hall

Joplin, MO

Study and Report of Existing HVAC systems.

Clay County, Missouri On-Call Engineering Services

• **Boys' and Girls' Group Homes (2007)**

Liberty, MO

Design for Fire Alarm system upgrade and emergency lighting for the occupied 2-story girls' home and the 3-story boys' home.

• **Human Resources Department Tenant Finish (2006)**

Independence, MO

MEP design for approximately 5,200 sq. ft. of office space on the 2nd floor of the City Hall Building.

• **Donald C. Pharis Farm (2006)**

Clay County, MO

Mechanical design for new geothermal HVAC system at the historic farm.

FEMA Enclosure Storm Shelters (2006)

Smithville, MO

- MEP engineering design for two separate storm shelter enclosures each with emergency lighting, power, heating and ventilation systems.
- Coordination with FEMA guidelines and County requirements.



Signal Synchronization Building (2009)

City of Kansas City, MO

MEPF design services including:

- Building reuse and adaptation.
- Efficient lighting with responsive controls and daylight utilization.
- Efficient air conditioning with individual control for private offices.
- Ventilation monitoring for indoor air quality.
- Data and cooling coordination with traffic engineer.
- **Designed to "Silver" LEED rating.**

Satchel Paige Memorial Stadium Renovations (2009)

KCMO Parks and Recreation Department On-Call Services

Kansas City, MO

MEP design services for new lighting and new restrooms. No field lighting.

Martin Luther King Tennis Court (2009)

KCMO Parks & Recreation Department On-Call Services

Kansas City, MO

MEP design services to add back a restroom on an existing slab with power, water and waste.

Republic Fire Station # 2 (2007)

Republic, MO

Electrical engineering design services for the new 12,285 sq. ft. fire station for the City of Republic.



Springfield Fire Station # 12 (2007)

Springfield, MO

Electrical engineering design services for the new fire station for the City of Springfield.

Barry County 911

Emergency Call Center

(2008)

Cassville, MO

MEP design services a new 2-story 911 emergency call center. MEP Construction





Fire Protection Engineering
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Governmental - Military

U.S. Army Corps of Engineers - Kansas City District

Fort Leavenworth, KS

- **Building 341** (2005) - MEPF services for the remodel of the existing 89,000 sq. ft. historic building.
Construction Cost: \$200,000
- **Building 480** (2002) - FP services for the existing historic 4-story, 100,000 sq. ft. building used for administrative and support purposes.
Construction Cost: \$120,000
- **Renovation and Repair of Gruber Gymnasium** (1999)
MEPF services for the replacement of HVAC system, installation of new 480 volt electrical system, renovation of locker rooms, replacement of saunas, steam rooms, and whirlpool, replacement of existing lighting with new energy-efficient fixtures. Performed a detailed field investigation of the facility to determine actual conditions.
Construction Cost: \$1,230,000
- **Building 468 & 472** (2009)
MEPF services as part of a Design-Build team for the repair of the existing 21,546 sq. ft. historic Building 472 and renovation of the 5,000 sq. ft. historic Building 468. The project was designed to meet at minimum a Silver LEED rating; however, it was not registered with the USGBC.
Construction Cost: \$3 million
- **Building 465**
MEPF value engineering review for the renovation of this building. (2009)
Fire Protection and Code Consulting services. (2010)
- **Building 465, 466 and 467** (2009)
MEPF value engineering services for renovation of two historical barracks and a Quartermasters building dating to the 1880s. (**Adaptive Reuse**)
Value Engineering Studies with Strategic Value Solutions, Inc.
- **Building 427** (2010)
Value Engineering Study for historic Building 427 to be reused for administrative purposes. Services performed with Strategic Value Solutions, Inc. (**Adaptive Reuse**)
- **Battalion Headquarters (3) and Company Operations Facilities (COF) (4)** (2009)
Design Review for Fire Alarm and Fire Protection contract drawings plus Code Analysis for 3 Battalion Headquarters Buildings and 4 Company Operations Facilities (COF).
Construction Cost: \$3 Million



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U S Army Corps of Engineers - Kansas City District

Fort Leonard Wood, MO

- **Davidson Physical Fitness Center** (2001)
FP systems review and MEP design services
MEP Construction Cost: \$900,000



- **Natatorium** (2004)
HVAC System Revision for the 66,000 sq. ft. facility. Construction Cost: \$ 1 Million
- **Counter Explosive Training Complex Phase I & II** (2006 - 2009)
MEP and FP services for this complex which includes 3 buildings consisting of Veterinary Hospital, Dog Kennels and Administrative offices.

Phase I – CEHC Training Complex - Design included detailed drawings for wet-pipe sprinkler systems and dry-pipe sprinkler systems.

Phase II – Veterinary Hospital and Kennels - Design included detailed drawings for wet-pipe sprinkler systems and dry-pipe sprinkler systems. Construction Cost: \$499,500

U.S. Army Corps of Engineers -Kansas City District

Fort Crowder Weapons Simulation Building Neosho, MO

MEP design services for a Weapons Simulation Building.

U.S. Army Corps of Engineers - Kansas City District

Fort Riley, KS

- **Battalion Headquarters** (2009)
FP design services for the 18,000 sq. ft., 2-story office building. FP Construction Cost: \$56,000.
- **UEPH Barracks** (2009)
FP design services for 3-story, Design-Build Barracks with GLMV Architecture.



- **Vehicle Maintenance Facility (VMF) & Company** (2008)
Operations Facility (COF) Buildings 770, 774, 776, 778, 820, and 820A
FP design services for 5 facility buildings totaling 217,713 sq. ft. for a Design-Build Team for Conley Sprinkler, Inc. Design included a wet pipe fire sprinkler system including hydraulic calculations and detailed design to prepare contractor shop drawings.
Construction Cost: \$ 45 Million
- **Building 727 Hangar-Air Support Operations Squadron** (2008)
FP design services for the 31,200 sq. ft. officer/vehicle maintenance/repair facility. Design included a wet pipe fire sprinkler system including hydraulic calculations and detailed design to prepare contractor shop drawings.
FP Construction Cost: \$84,000.
- **Whiteside Dining Hall** (2006)
Fire Protection Engineering services part of a Design-Build team for a 38,000 sq. ft. dining hall / storage facility.
- **Building 835** (2006)
- **Building 404 - Housing**
- **Historic Building 212 -Tactical Equipment Workshop**
MEP and Fire protection services including Interior repair and HVAC replacement for historic facility with 3 floors.
- **Irwin Army Hospital ***
MEP Upgrades/Value Engineering Study
- **Consolidated Troop Medical Clinic**
- **US Army Reserve Center (USARC) & OMS/AMSA Buildings**
FP services for 1000 member USARC & OMS/AMSA buildings.

U.S. Army Corps of Engineers - Kansas City District

Whiteman Air Force Base Knob Noster, MO



- **B2-LO Facility Restoration** (1998-99)
Fire Protection design and consulting services for (Support Facility Package 83 and 84)
ADAL Fire Protection systems for two dock hangars each 20,500 sq. ft. separated by a 4,000 sq. ft. support facility.



- **POL and Refueler Buildings** (2004)
- **Dormitory Building 1551** (2003)
MEP services for renovation of Type "M" Multi-Family housing including: Installation of motion detectors and upgrade of housing infrastructure.

U.S. Army Corps of Engineers - Kansas City District

Kansas Air National Guard Training Facility - Forbes Field - Topeka, KS

190th Air Refueling Wing

FP design services for the 190th Air Refueling Wing (ARW) of the Kansas Air National Guard.

U.S. Army Corps of Engineers - Kansas City District

**Richards Gebaur Air Force Base
Belton, MO**

U.S. Marine Corps Bachelor Enlisted Quarters (BEQ) (2004)



MEP and FP design services for new 46,130 sq. ft., 4-story building, 98 two-person rooms with semi-private bathrooms. Services included:

- Anti-terrorism force protection features
- 134a chiller
- Individual room fan coil units
- HVAC system commissioning and utility metering
- Underground fire main service from city main & flow alarms
- Automatic wet sprinkler system
- New sprinkler piping, valves and heads
- Manual standpipes

Designed to "Silver" LEED rating

Construction Cost: \$8 million MEPF Cost: \$2 million

U.S. Army - Corps of Engineers - Kansas City District

**McConnell Air Force Base
Wichita, KS**

McConnell Air Force Base



- **Building 1107 (2010)**
Fire Protection services for Lakeshore/BDY/McDaniel Design-Build team.
- **Building 840 (2009)**
Fire Protection services for Lakeshore/BDY/McDaniel Co. Inc., Design-Build team.
Design 08/11/09
- **Building 1170 (Consolidated with Building 840)**
MXG Consolidation & Forward Logistics Center (2009)
Fire Protection services for Lakeshore/BDY/McDaniel Co., Inc., Design-Build team.
Design 12/01/03 and 08/2009 As-Built.

- **Building 1127 - SOAR (2009)**
FP services for Fire Protection Services Inc.
- **Building 1094 B1B Flight Simulator/ Aircraft Hangar Support Facility Design-Build with Lakeshore/GLA/McDaniel team (2008)**
Fire Protection design services for McDaniel Co, Inc.
 - Evaluation of existing fire sprinkler system.
 - Evaluation of existing fire alarm & detection systems &
 - Life Safety Inspection.
- **Street Lighting (2008)**
Electrical power and road lighting design calculations for a new road on McConnell AFB, Wichita, KS
Electrical Construction Cost: \$200,000
- **Building 1396 (2008)**
FP services for Fire Protection Services Inc.
Design 07/23/08 and 12-23-08 As-Built
- **Building 710 - Automotive Maintenance Shop (2007)**
FP services for Fire Protection Services Inc.
Design 11/17/04 and 1/15/07 As-Built
- **Building 714 - Building Addition (2006)**
FP services for Fire Protection Services Inc.
Design 01/22/05 and 01/09/06 As-Built
- **Building 1120 - Visual Information (2006)**
FP services for Fire Protection Services, Inc.
Design 02/17/06 and 08/30/06 As-Built
- **Building 250 - Physical Therapy (2006)**
FP Design 11/15/06 and 12/20/06 As-Built
- **Building 1090 - Arms Vault (2005)**
FP Design 01/06/05 and 05/18/05 As-Built
- **Building 1096 Hazardous Waste Addition (2005)**
FP Design 11/07/04 and 06/23/05 As-Built
- **Building ____ MFH Maintenance Building (2005)**
FP Design 08/02/05 As-Built
- **Building 515 (2005)**
FP Design services for Fire Protection Services, Inc.
1/10/05
- **Building 70 - Control Tower / Simulator Repairs (2004)**
FP Design 12/11-03 and 06/08/04 As-Built
- **Building 699 - Electric Shop (2004)**
FP services for Fire Protection Services, Inc.
5/18/04 As-Built
- **Building No. 1176 Aircraft Hangar (2004)**
FP services for Fire Protection Services, Inc.
Corrosion Protection
Design 01/21/04
- **Building 1166 Aircraft Hangar (2004)**
FP services for Fire Protection Services, Inc.
Design 01/21/04
- **Airmen's Dormitory (1998)**
FP services for a new 55,000 sq. ft. airmen's dormitory with laundry room, kitchen and mechanical room.
Survey, Value Engineering, Hydraulic Calculations, and As-Built drawings.



Kansas Air National Guard (KANG)
McConnell Air Force Base, Wichita, Kansas

184th Intelligence Wing

- **KANG Building 33 - Training Facility** (2009)
- **KANG Building 1393 - Storage Warehouse** (2009)
15,300 sq. ft. warehouse
- **KANG Building 1419 - Offices** (2009)
7,350 sq. ft. offices
- **KANG Building 1375 - Operations Bays, Offices and Lockers** (2009)
32,000 sq. ft. Operations / Office Building
- **KANG Building 1225 - STRAPP Relocation** (2009)
9,000 sq. ft. Storage, Assembly and Offices
Design 10/07/09
- **KANG Building 40 - KANG Operations Building** (2007)
including Mission Briefing, Flight Training, Flight Scheduling, OPS work area, Document Destruction area, Weapons & Tactics, and Offices for Officers.
170 Sprinklers - Design 5/10/06 and 1/15/07 As-Built
- **KANG Building 54 - Avionics Facility** (2006)
Design 04/06/05 and As-Built 1/11/06
- **KANG Building 42** (2005)
40,424 sq. ft. building
Design 03/10/05 and 08/10/05 As-Built
- **KANG Building 44 - Intelligence Squadron** (2004)
Design 02/23/04 and 06/19/04 As-Built
- **KANG Building 54 - Avionics Facility** (2000)
Design 4/27/00

FSC acted as the **Full Service - Fire Protection Engineer of Record** to the design build team of **Fire Protection Services, Inc.** for the following **KANG buildings** related to strategic training and maintenance personnel of the **Kansas Air National Guard** at Mc Connell Air Force Base, Wichita, KS: **FSC services on these KANG projects** included:

- Development of design criteria to provide wet pipe and dry pipe systems protection per NFPA#13 and UFC3-600-1.
- Adequacy of water supply analysis.
- Development of shop drawings and hydraulic calculations.
- Final Review and Engineering Seal of contract drawings.
- Be available to answer questions during the review and construction phases.

KANG Buildings: 35, 36, 41, 49 and 65 / Design-Build Team of MVP/Fire Protection Services, Inc/ FSC Inc:

- **KANG Building 35 - Medical Services** (2009)
Repair Roof Design-Build / MVP
Design 02/07/09 and 09/09/09 As-Built
- **KANG Building 36 - Mess Hall - Dining /Kitchen** (2007)
Repair Roof Design Build / MVP
72 sprinklers - 7,100 sq. ft. Design 1/11/07

- **KANG Building 41 - JEIM Repair** (2006)
Repair & Reconfigure 2nd high bay fire sprinkler system - JEIM repair area (raise to the roof deck) to allow crane system to be installed and update existing building to codes.
242 + 23 sprinklers Design-Build/MVP 02/23/06 As-Built
- **KANG Building 49 - FP+ Repair Roof HVAC & Lighting + As-Built Drawings** (2008- 2009)
Design-Build / MVP /Fire Protection Services, Inc.
25,000 sq. ft. 252 sprinklers 03/18/09 As-Built
- **KANG Building 65 - Repair O&T / SFS Facility**
Design-Build / MVP /Fire Protection Services, Inc.
36,500 sq. ft.
Design – 2006 As-Built Drawings - 2007

FSC Fire Protection engineering services were also provided to **Fire Protection Services, Inc.**, (Sprinkler Contractor) on the following **non-KANG projects** at McConnell Air Force Base. FP services included:

- Development of design criteria to provide wet pipe and dry pipe systems protection per NFPA#13 and UFC3-600-1.
- Adequacy of water supply analysis.
- Development of shop drawings and hydraulic calculations.
- Final Review and Engineering Seal of submittals.
- Be available to answer questions during the review and construction phases.
- **Building 976 - Liquid Fuels Maintenance** (2004)
Design 5/18/04
- **Building ___ - SAP Youth Center for School Age Program (SAP)** Design 04/25/04
- **Building 1110 - Parachute & Dingy Shop** (2003)
04/30/03 As-Built
- **Building 408 - Dining Facility** (2002)
FP Design 02/07/02
- **Building 1090 - Mobility Processing** (2002)
FP Design 09/09/02
- **Building 1096 - Hazardous Waste Building** (1993)
FP Design 4/20/93
- **Building 51 - Fire Station # 2** (2010)
- **IDIQ Contract** (2006-2009) and (2009-2012)
Fire Protection services for McCluggage Van Sickle & Perry Architects (MVP/GLMV) as part of an Indefinite Delivery contract:
 - **Base-Wide - Repair HVAC** (2009)
Mechanical Engineering design services / GLMV
 - **Building 672 Chlorine Building Addition** (2009)
Fire Protection services for McDaniel Co., Inc. / MVP
Design 10/15/09
 - **Building 202 Repair Visiting Officers' Quarters** (2008)
Design-Build / McDaniel Fire Sprinkler Contractor/ MVP

U.S. Army Corps of Engineers - Louisville District

- **U.S. Army Reserve Center (USARC) (2010)
Kirksville, MO**
FP design services for a new, 21,000 sq. ft. single story U.S. Army Reserve Center with administrative offices, classrooms, assembly, storage rooms including flammable liquids storage room, workout space and support areas. Scope included: Design of fire alarm and fire sprinkler systems including hydraulic calculations and both wet-pipe and dry pipe systems plus 3-D BIM Modeling for the Fire alarm devices and fire sprinklers to meet USACE requirements on this Design-Build project.
- **MG Jones U.S. Army Reserve Center (USARC) (2009)
Columbia, MO**
MEP and FP services for the renovation and new construction of the Columbia USARC facility. This project consisted of 95% replacement of MEP systems and the addition of a fire sprinkler system in the existing training building, renovation to the existing storage building and the construction of a new storage building.
- **MWD Kennel Building (2008)
Fort Bragg, NC**
MEP services for a one-story addition to the existing Kennel Building including: sixteen (16) dog runs each having their own climate controlled den, mechanical/electrical room, food storage/ prep room, and veterinarian office.
Construction Cost: \$250,000.
- **New Barracks (2005)
Ft. Campbell, KY**
MEP services - Value Engineering Study with Strategic Value Solutions, Inc.
- **Pine Bluff Arsenal Chemical Testing Facility (2005)
Pine Bluff, AR**
MEP services - Value Engineering Study with Strategic Value Solutions, Inc.
- **Fort Drum Combined Arms Collective Training Facility (CACTF) -Technical Review (2006)
Fort Drum, New York**
MEP services - Provided independent Technical Review of the Fort Drum Combined Arms Collective Training Facility (CACTF) - 90% and 100% design submittals.

U.S. Army Corps of Engineers - Fort Worth District

- **Troop Readiness Clinic
Fort Hood, TX**
MEP services -Value Engineering Study with Strategic Value Solutions, Inc.
- **Fort Sam Houston Medical Training Facility
Houston, TX**
MEP services - Value Engineering Study with Strategic Value Solutions, Inc.

U.S. Army Corps of Engineers - Omaha

**MI Battalion Headquarters (2009-2010)
Fort Carson, CO**
Fire Protection design and Life Safety Code consulting services for 60,000 GSF Design-Build Battalion Military Intelligence (MI) Headquarters which includes a **Sensitive Compartmented Information Facility (SCIF)**, administrative area and battalion area for 220 military personnel.
Construction Cost: \$17 Million
FP cost: \$1,098,000

U.S. Army Corps of Engineers -Tulsa District

**Tinker Air Force Base (1999)
Building 240 - Aircraft Hangar
Oklahoma City, OK**
Fire Protection services including:
Aircraft bay upgrade to an aircraft fuel cell hangar for B1B, B52, KC135R and AWACS aircraft.
Performed code analysis based on Engineering Technical Letter and NFPA standards, CADD generated bid drawings, computerized hydraulic calculation and specifications.
Fire Protection Services included:

- Analyzed existing water supply
- Offered recommendations for improvement. Provided construction support and review of shop drawings.

State of Missouri - Missouri National Guard

**Missouri National Guard Armory (2007)
Joplin, Missouri**
MEP services for the renovation of the kitchen and site lighting at the Joplin armory. Additions included a panel board for power, rooftop equipment for exhaust hood, and HVAC rooftop unit for the expanded kitchen.

- Designed in accordance with State of Missouri Guidelines.
- Field investigation to obtain actual conditions.
- Prepared Cost Estimates
- Attended Construction Document Review Meetings.
- Assisted with bidding process.
- Attended pre-bid and pre-construction meetings.
- Shop drawing review.
- Prepared As-built drawings.

Construction Cost: \$259,000



**Missouri National Guard Armory (2007)
Albany, Missouri**
MEP services for the renovation of the Albany armory to include new restrooms, new relocated kitchen, new underground electrical service, new electrical distribution system throughout the building, new lighting throughout the building, new power/data distribution system for the revised floor plan, new HVAC system and new building automation system.

- Design in accordance with the State of Missouri Guidelines.
- Field investigation to obtain actual conditions.

- Prepared cost estimates.
 - Attend construction document review meetings.
 - Assist with bidding process.
 - Attend pre-bid and pre-construction meetings.
 - Shop drawing review.
 - Prepared As-Built drawings.
- Construction Cost: \$530,000.

U. S. Department of Veterans Affairs

Robert J. Dole V.A. Medical Center (2009)

Building 4, Ground Floor Prosthetics Wichita, KS

FP engineering services for McDaniel Company Inc / WDM Architects Heartland VA - IDIQ contract.



Dwight D. Eisenhower V.A. Medical Center (2008) Leavenworth, KS

ME design services for the replacement of elevators and HVAC with energy management systems in the penthouse elevator control room of Buildings 90-A, 91 and 122.



- Upgraded heating and cooling systems.
- Upgraded ventilation and lighting systems.
- Provided electrical improvements to replace elevator controls.

V.A. Medical Center (2006-2007)

Two CATH Labs Addition and Remodel Kansas City, MO

- MEP design services for multi-phased Addition and Remodel of two CATH labs.
- Remodel of existing surgical suite into a CATH lab with pre- and post operation recovery areas, break room, offices and support areas.
- Complete mechanical systems replacement.
- Electrical upgrades and UPS.



V.A. Medical Center Research Building (2001) Kansas City, MO

ME design services for Building Automation Systems upgrade including:

- Replacement HVAC Controls &
- Emergency egress and exit lighting.

V.A. Medical Center

(2001-2004)

Phase 1 & 2 -Fire Protection Engineering Iowa City, IA

Riser upgrade and fire sprinkler system installation for a two phase project at Building 1 (13



stories, 400,000 sq. ft. hospital). Phase 1 upgraded the fire sprinkler risers and Phase 2 was an upgrade and retrofit of the fire sprinkler system for the entire building.

FP Services included:

- Perform field surveys to determine existing conditions
- Review hydraulic analysis for compliance with NFPA code
- Prepare all bid documents
- Construction administration services and “as-built” drawings
- Convert Master Plan drawings to AutoCAD drawings

Fire Protection Cost: Phase 1 - \$443,065

Phase 2 - \$ 735,311

Veterans Administration Housing

Warrensburg, MO

MEP design services for Long Term Care Housing for Veterans.



Veterans Administration Housing

Cameron, MO

MEP design services for Long Term Care Housing for Veterans.

Missouri Veterans State Cemeteries (2003)

Bloomfield, MO and Jacksonville, MO

MEP and FP engineering services for two new cemeteries, approximately 14,000 sq. ft. each, with the following areas:

- administrative building
- vehicle maintenance/wash bay
- vehicle storage, and
- committal shelter buildings.





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Governmental - Justice

Johnson County Adult Detention Center MEP Energy Audit (2006) Olathe, KS

- Comprehensive audit and study of the Center to identify potential equipment/system problem areas, identify potential energy conservation measures, document savings for each energy conservation measure (ECM), and develop a plan for implementation including construction cost.
- Evaluated the condition and reliability of existing HVAC equipment, while also identifying actual equipment capacity, deficiencies, and code violations.
- A detailed report for distribution to the County.
- Evaluated the Security Electronics Room Air Conditioning problem, developed options and made recommendations for the most economical and reliable solution.



Jackson County Detention Center (2008) Kansas City, MO

FP and fire alarm services including fire sprinkler design upgrade to the existing 7-story center and acting as the owner's representative overseeing the replacement of the complete fire alarm system. Specifically, we were responsible for:

- Reviewing existing data and designs.
- Attending review meetings with County departments and contractor.
- Reviewing and approving shop drawings.
- Site visits during construction and final closeout.
- Witnessing final testing of equipment.

Fire Protection Cost: \$10,300

Sedgwick County Detention Center (2008) Wichita, KS

Fire Sprinkler Inspection to obtain water samples and preparation of Plan Correction Report.

- Reviewed shop drawings.
- Attended meetings with County officials.
- Site visits.

Police Building - Third Floor Renovation (2008) Independence, MO

MEP services for the 3rd floor, 14,000 sq. ft. renovation including new secure entry lobby, open office environment for detectives, secure drug enforcement unit office and conference room, holding / interrogation rooms, and remodel of restrooms to be accessible.

Medical Center for Federal Prisoners (2007) Springfield, MO

- Conversion of an existing building into a hospital to meet Life Safety Code for both detention and hospital occupancies.
- Building evaluation using the Fire Safety Evaluation System of NFPA-101A "Guide on Alternative Approach to Life Safety".

**U.S. Courthouse (2008)
Jefferson City, MO**

FP design and Code Consulting services for the new 118,000 gross sq ft. facility. The United States Courts, United States District Court Clerks, United States



Probation, United States Pretrial Services, United States Marshals Service, United States Attorney, and the local offices of the United States Senators, 1st Congressional District Representative, and General Services Administration Building Manager will occupy the facility. The space will include two (2) District Courtrooms, two (2) Magistrate Courtrooms and their associated supporting spaces, such as judge's chambers (including one (1) visiting Bankruptcy Chambers), jury deliberation facilities, jury assembly, and grand jury suites, restrooms and holding cells.
Construction cost: \$71 million

**Jackson County Courthouse (2008)
Kansas City, MO**

FSC was retained by Jackson County to study various alternatives to upgrade the existing fire protections systems in the 13-story historic Courthouse building. The Courthouse was partially sprinklered and had multiple service supplies. Based on our findings, FSC designed a new fire sprinkler system for this multiple-use building, in particular we provided:

- Master Plan for phasing of sprinkler installation due to budget constraints.
- Protection of historic lobby with extended coverage side-wall sprinklers supplied from pipes in the existing offices surrounding the lobby.
- Rework of existing class I and class II standpipes and addition of new standpipe system.
- New fire pump and integration of sprinkler alarm and elevator recall with existing fire alarm system.
- Cutting & Patching of exposed piping.
- Upgrade of the Fire Alarm System.



**Thomas F. Eagleton Courthouse (2006)
St. Louis, MO**

- Provided study of installed plumbing and HVAC piping systems.
- Provided study and preliminary design for outside air intake modifications.
- Field survey followed by design to correct fire safety issues, i.e. add exit signs, add heaters or heat tracing of sprinkler piping in stairwells, reprogram BAS to bypass stairwell pressurization after hours.
- Worked with GSA, Courthouse personnel and other design team members.
- Attended pre-design meetings and Prepared Cost Estimates.

**Joplin Justice Center & Fire Station (2006)
Joplin, MO**

- MEP Design for Office, Courtroom, Detention Facility, Police Department and Fire Station Building renovations.
MEP construction cost: \$400,000
- Renovation of existing Municipal Building to accommodate enlarged departments.

**Federal Correctional Institute (2006)
Waseca, MN**

Preliminary code consulting services included touring existing medium security prison; reviewing original drawings; evaluating existing conditions and code deficiencies of previous life safety inspections. Provided recommendations on how non-compliant code conditions can be solved.

**Dunklin County Justice Center (2006)
Kennett, MO**

MEP services for a new County Jail & Sheriff's Office.

**Pottawatomie County Public Safety Center (2004)
Shawnee, OK**

MEP services for a new County Detention Center.

**Cass County Justice Center (2004)
Harrisonville, MO**

FP design of new 5-building complex for Cass County Courts, Sheriff's Department, Juvenile Department, and County Jail.

- Coordination with County and design team members.
- Prepared Cost Estimates.
- Attended pre-bid and pre-construction meetings.
- Shop drawing review.

FP construction cost: \$467,050.



**Hutchison Correctional Facility (2003)
Hutchison, KS**

Kitchen /dining area remodel for this maximum security facility.

**Crawford County Jail (2003)
Steelville, MO**

MEP services for a new County Jail and Sheriff's Office.

**Kansas Female Boot Camp (2002)
Oswego, KS**

MEP services for a new County Female Detention Center.

**U.S. Courthouse & Parking Garage (Historic) (1997)
Wichita, KS**

Fire Protection services including the placement of sprinklers in architecturally and historically sensitive areas; retrofit design of sprinkler system and modifications of existing standpipe system in the 197,000 sq. ft., 5-story historic structure and parking garage. Building included courtrooms, offices, vaults, prisoner cells, sallyport mechanical mezzanines, hanging file storage, electric and telephone equipment. rooms and multiple occupancy areas.



**U. S. Department of Justice Federal Bureau of Prisons (2002)
Englewood & Florence, CO
Sandstone & Waseca, MN**

- Life Safety & SMIAS
- Surveyed site and identified conflicts.
- Prepared written report listing code deficiencies, various options of compliance and engineering alternates (performance-based code compliance).

**Western Reception Diagnostic Correctional Center
St. Joseph, MO**

Fire Protection design for:

- New 124,000 sq. ft., Reception/Processing, Case Worker/ Education, Testing and Cells for prisoners
- Renovation of existing 4-story building with basement, encompassing approximately 100,000 sq. ft, to house approximately 400 minimum security prisoners.

**Kansas City Community Release Center Detention Facility
Kansas City, MO**

Plumbing services for the design-build contractor

**Booneville Correctional Center (1999)
Booneville, MO**

- FP and fire alarm system design for the existing historic 2-story administration building containing offices, cells, classrooms, library, etc
- MEP services for the addition of a third 400 HP boiler to central heating plant.

**Chillicothe (1999) Correctional Center
Chillicothe, MO**

Fire protection systems design for seven building complex.

**Boone County Jail Renovation (1998)
Columbia, MO**

MEP services for the renovation of existing spaces to provide an additional 66 secure beds.

**Randolph County Detention Center (1997)
Pocahontas, AR**

MEP services for a new County Jail, Court Room, and Sheriff's Office.

**Boone County Juvenile Justice Center Expansion (1995)
Columbia, MO**

MEP services for a 14,300 sq. ft. expansion to the juvenile holding facility including a secured detention area.

**Ottawa County Detention Center (1995)
Ottawa County, KS**

**Andrew County Jail Report
Savannah, MO**

Mechanical and Electrical System Study.

**Johnson County Detention Center*
Gardner, KS**

MEP design services for the new 12,000 sq ft. Detention Center and Sheriff's Facility.
Total Construction Cost: \$30 million.

**Newton County Detention
Center (1994)
Neosho, MO**

MEP services for a 27,500 sq. ft. county detention center with sleeping facilities for 72 inmates, day rooms, control room, multi-purpose room, booking, holding, secured sallyport, full-service kitchen, sheriff's offices, infirmary, and secured recreation yard.



**Ray County Jail Consulting (1994)
Richmond, MO**

HVAC System Analysis.

**New County Jail and Sheriff's Facility
Minneapolis, KS**

MEP services for a new County Jail and Sheriff's building.

**Clinton County Juvenile Treatment Center
Frankfurt, IN**

MEP services for a county juvenile treatment facility.



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GSA Projects

GSA - Work Order Number 15 (2009-2010)

Level 4 Building Evaluation Reports for the following locations:

- Charles Evans Whittaker U.S. Courthouse, Kansas City, MO
- Hruska U.S. Courthouse, Omaha, NE
- Sioux City Federal Building & U.S. Courthouse, Sioux City, IA
- Army Publications Center, Overland, MO

Provide GSA with individual reports for each building listed above. Each report includes:

- Detailed information needed to create a 5+ year investment plan.
- Long-term information needed to make strategic decisions and make use of the VFA tools statistical analysis for lifecycles of buildings.
- Review of the structure, documentation, maintainability and reliability of the maintenance program at these facilities.

U.S. Courthouse (2008) Jefferson City, MO

Fire Protection design and Code Consulting services for the new 118,000 gross sq ft. facility. The United States Courts, United States District Court Clerks, United States Probation, United States Pretrial Services, United States Marshals Service, United States Attorney, and the local offices of the United States Senators, 1st Congressional District Representative, and General Services Administration Building Manager will occupy the facility. The space includes two (2) District Courtrooms, two (2) Magistrate Courtrooms and their associated supporting spaces, such as judge's chambers, one (1) visiting Bankruptcy Chamber, jury deliberation facilities, jury assembly, and grand jury suites, restrooms and holding cells. Construction cost: \$71 million



Thomas F. Eagleton Courthouse (2006) St. Louis, MO

- Provided study of installed plumbing and HVAC piping systems.
- Provided study and preliminary design for outside air intake modifications.
- Field survey followed by design to correct fire safety issues, i.e. add exit signs, add heaters or heat tracing of sprinkler piping in stairwells, reprogram BAS to bypass stairwell pressurization after hours.
- Worked with GSA, Courthouse personnel and design team members.
- Attended pre-design meetings and Prepared Cost Estimates.



U.S. Courthouse (Historic) (1997) Wichita, KS

Fire Protection services including the placement of sprinklers in architecturally and historically sensitive areas; retrofit design of sprinkler system and modifications of existing standpipe system in the 197,000 sq. ft., 5-story historic structure and parking garage. Building included courtrooms, offices, vaults, prisoner cells, sallyport mechanical mezzanines, hanging file storage, electric and telephone equipment rooms and multiple occupancy areas. FP construction cost: \$375,000



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GSA - Work Order Number 21 (2009)

**Prevedel Federal Office Building - Energy Feasibility Study
Overland, MO**

Evaluate existing building HVAC, lighting, power and other energy consuming systems, along with the exterior closure (i.e., roofs and exterior walls), to determine what systems need to be renovated or replaced to make the building comply with High Performance Green Building (HPGB) requirements.

FSC provided the following MEP engineering services:

- Energy modeling to review the cost savings for several measures including changing 2 x 4 parabolic troffers with T-12 lamps; magnetic ballasts to T-8 lamps; photocell lighting controls including daylight control measures; occupancy sensors for lighting; providing heating by high-efficiency condensing boilers in lieu of existing steam heating systems; providing variable air volume control to existing constant volume air handling units; replacing self contained air handling DX cooling with central water cooled chilling units utilizing a magnetic bearing to reduce energy consumption.

GSA - Work Order Number 29 (2010)

**Marine Federal Reserve - Continuance of Operation Plans
Kansas City, MO**

MEP/F engineering design services for approximately 4,000 gross sq. ft. Marine Federal Reserve building at the Bannister complex including electrical, HVAC, security entry, and fire suppression systems.



**IRS Office Campus
Kansas City, MO**

The new IRS Office Campus for the General Services Administration in downtown Kansas City includes:

- A new 2-story 599,851 GSF IRS Processing Office Wing with Café.
- A new 5-level 1,112,748 GSF Parking Garage.
- A new 70,000 GSF Warehouse with possibility of offices.
- Renovation of existing 6-story 496,088 GSF historic post office building with 18,812 GSF tunnel.
- A new partially below ground garage.

FSC provided the following MEP/FP engineering services:

- Detailed field survey to ascertain actual conditions for historic post office building.
- Design of new air handling system with associated air/water distribution and control system.
- Design of CO controlled garage ventilation system.
- Design of energy efficient interior and exterior lighting including high bay lighting for warehouse and new special systems such as fire alarm, overhead paging, security and communication (voice and data).
- Design of public toilets with ADA and water conserving fixtures with electronic faucets and rainwater retention system.
- Design of wet and dry sprinkler fire protection system based on space requirements.
- *Design of green roof for "Silver" LEED rating.*