Ray Grill Consulting, PLLC

13002 Graphite Court
Clifton, VA 20124
202-560-2801

The Board of Zoning Adjustment
Washington, DC

October 29, 2026

**BZA Case No. 21510**
**Rock Creek Club**
**Response to FEMS Letter**

Dear Chairperson Pourciau and Honorable Members of the Board:

I have been retained by the Rock Creek Club to provide fire protection engineering and fire and code consulting services.

**Professional Background**

I am a licensed fire protection engineer and mechanical engineer with over 45 years' experience. I am an expert in the application of building and fire codes and serve on various NFPA and IBC technical committees. I have served on the Life Safety Technical Advisory Group to the Board for the Coordination of the DC Construction Codes for over 20 years (it has recently been discontinued). I am certified by the International Code Council as a Building and Fire Plans Examiner and as an Accessibility Inspector/Plans Examiner.

My resume is attached.

**October 26, 2026 - DCFEMS/Fire Marshal's Office Project Review**

I have reviewed the report prepared by the DCFEMS Fire Marshal's Office. The owner's representative, project architect, and I met with Chief White and Inspector Auerbach on October 27, to review the comments provided in their October 26, 2026, memorandum.

It was agreed that we would develop a comprehensive life safety and code compliance plan that we would review with DCFEMS Fire Marshal's Office for their input. Based on a review of the documents, I am confident that the team will be able to provide a design that will comply with the applicable codes.

We did specifically discuss the requirement for two access road in the memorandum. The requirement is based on a building height (as defined by the Fire Code) greater than 30 feet. The



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building height is less than 30 feet. It was agreed that if the building is less than 30 feet in height, only one access road is required.

Based on a review of the criteria with Chief White and Inspector Auerbach, it is my professional opinion that the project will be able to comply with the applicable requirements of the DC Building and Fire Codes.

Sincerely,



Raymond A. Grill, P.E., FSFPE
Principal

Enc. Resume

# Raymond Grill, PE, FSFPE, LEED AP



**Years of Experience**
45

**Professional History**
Ray Grill Consulting PLLC, 2021 to Present

Arup, 2005 - 2020

Rolf Jensen & Associates, 1984-2005, 1976-1981

Kaiser Aluminium & Chemical, 1981-1984

**Qualifications**
Wharton School of the University of Pennsylvania, Leading Organizational Change, Executive Education, 1998

Post Graduate Course, University of Southern California, Legal Aspects of Safety, 1982

Certificate Program, Insurance Education Association Risk Control, 1982

BS, Fire Protection and Safety Engineering, Illinois Institute of Technology, 1980

PE, District of Columbia, Maryland, New York, New Jersey, Pennsylvania, Delaware, Rhode Island, Virginia, California, Illinois, Florida, North Carolina, South Carolina, Idaho, Ohio, West Virginia

LEED AP

ICC Certified Building and Fire Code Plans Examiner, and Accessibility Inspector/Plans Examiner

Adjunct Professor – University of Maryland Fire Protection Engineering Department

Ray has over forty-five years of experience in fire protection engineering. He has extensive experience in the development of comprehensive fire protection and life safety programs for all building types. He is regularly involved in the development of equivalencies to building and fire code requirements based on the intent of the code and substantiated by engineering analysis. He serves as an expert on litigation involving building and fire code application and compliance and fire protection system design and performance. Over the course of his career, he has had technical and project management responsibility for numerous projects including multiple disciplines and sub-consultants.

## Arts and Culture:

### Virginia Commonwealth University Institute for Contemporary Art, Richmond, VA

Supervised the fire sprinkler design for the 38,000ft$^2$ facility, including exhibition galleries, ground floor reception area with catering kitchen, lecture hall, loading dock with work rooms, administrative offices, classrooms, and associated site development and service roads. An efficient design was provided that met the approval of the Board for Capital Outlay Management (BCOM).

### Corning Museum of Glass, Corning, NY

Project Director for fire and life safety code consulting for the 84,000ft² expansion of the Corning Museum of Glass. The expansion involves adaptive reuse of an existing glass factory, namely the Steuben Factory and Robinson Ventilator, which will be converted into gallery and performance spaces serving the museum. Ray advised architect Thomas Phifer and Partners on various code issues associated the change of use of an existing building and integrating with the existing museum. Arup's scope includes code consulting, meetings with local authorities, variance submissions, life safety drawing mark-ups and code reports.

### Orange County Performing Arts Center, Cost Mesa, CA

Project Director for the code and life safety strategy development and lead approval negotiations with the City of Costa Mesa.

### Bard College Performing Arts Center, Annandale-on-Hudson, NY

Provided fire protection/life safety and code consulting services for the design of the new performing arts center. Client: Gehry Partners

### Walt Disney Concert Hall, Los Angeles, CA

Developed overall building code application strategy including development of code modifications to address unique design features.

**Professional Associations**

Society of Fire Protection Engineers – Fellow, President of the Society for 2007

National Fire Protection Association – Lifetime Member

International Code Council

Virginia Building and Code Officials Association

Automatic Fire Alarm Association

**Committees**

DC Construction Code Coordinating Board Fire Life Safety TAG Member

National Fire Protection Association:

Standards Council Member

Building Fire Safety Systems Section, Past Chairman Executive Board

National Fire Alarm Code, Technical Committees on Notification Appliances and Emergency Communications and Chair of the Correlating Committee

NFPA 13 – Automatic Sprinklers, Past Chair and Member-Installation Criteria Technical Committee

NFPA 101 – Chair, Building Services & Fire Protection Equipment

ICC - General Code Development Committee for the 2018 IBC and 2021 IBC – Fire Safety Code Development Committee for the 2024 IBC and 2027 IBC

Consulting-Specifying Engineer Magazine Editorial Advisory Board

**Former Committee Memberships**

NFPA Fire Protection Research Foundation – Trustee

NFPA 72 – Past Chair of Fundamentals Technical Committee, NFPA 5000 – Structures and Construction Committee, NFPA 1 - Fire prevention Code, NFPA 231 – General Storage, NFPA 231C – Rack Storage, NFPA 12A – Halogenated Fire Extinguishing Systems, NFPA 140 – Motion Picture and Television Studios, NFPA 730 and 731 – Premises Security.

ICC – Terrorism Resistant Buildings Ad Hoc Committee

**Price of Freedom Exhibit-Smithsonian National Museum of American History, Washington, DC**

Provided fire protection/life safety and code consulting services for the design of the new exhibit.

**The Star Spangled Banner Exhibit-Smithsonian National Museum of American History, Washington, DC**

Provided fire protection/life safety and code consulting services for the design of the new exhibit for the Star Spangled Banner.

**Armand Hammer Museum, Los Angeles, CA**

Provided fire protection/life Safety and code consulting services for the design and construction of the building as well as the exhibit areas. Client: Gruen Associates

**Aviation:**

**LAX Terminal 5 Renovation, Los Angeles, CA**

Project Manager for fire protection and code consulting services for a major renovation including incorporation of an atrium.

**McCarran International Airport Expansion, Las Vegas, NV**

Project Manager for the development and implementation of smoke control system acceptance tests for a major terminal expansion.

**Commercial Property:**

**Metropolitan Park Phases 6, 7, and 8, Arlington, VA**

Providing fire/life safety code consulting during project design and construction. Negotiated resolution of building and fire code application and fire protection system design issues with Arlington County. Prepared engineering opinion documentation and code modification documentation of unique construction features for approval by Arlington County Building and Fire Departments

**FMC Tower, Philadelphia, PA**

Provided expert advice regarding fire and building code application issues during project design and construction. Prepared and presented various building code modification reports to the Board of Appeals to affect more efficient use of the building.

**EVO Tower and Garage, Philadelphia. PA**

Prepared a code application approach to allow the garage and EVO tower to be treated as a single building without sprinklering the garage. Provided fire/life safety code consulting services during the design and construction of the EVO Tower.

**Capital One New Headquarters, McLean, VA**

Provided fire/life safety code consulting during project design and construction. Negotiated resolution of building and fire code application and fire protection system design issues with Fairfax County. Prepared engineering opinion documentation and code

**Publications & Presentations**

"Code Requirements for Elevators – Fire Service Access Elevators Included," Society of Fire Protection Engineers Annual Conference and Expo, October, 2021

"Occupant Load Challenges in Business Occupancies," NFPA Conference & Expo, Boston, MA, June, 2017

"What's new to NFPA 13 and what to expect in future editions," Consulting-Specifying Engineer magazine, April 2017.

"Reorganization of NFPA 13-2019 Edition," SFPE Annual Meeting Presentation, Denver, CO, September 2016

"Key Changes to the 2016 Edition of NFPA 72," SFPE Annual Meeting presentation, Philadelphia, November 2015.

"Intelligibility Requirements of NFPA 72 – Dispelling the Myths," SFPS Annual Meeting presentation November, 2014, Issue 94, SFPE Emerging Trends.

"NFPA 72-2016 Proposed Changes," Consulting-Specifying Engineer, July 2014.

"Fire Alarm Requirements of the Model Codes and How they work with NFPA 72," NFPA Conference & Expo, Las Vegas, NV, June 2014.

"The Role of Fire Protection Engineering in Sustainable Design," Keynote presentation, Society of Fire Protection Engineers Annual Meeting, Austin, TX, October 2013

"Intelligibility Requirements of the 2010 NFPA 72®," NFPA World Safety Conference & Exhibition, Las Vegas, June 2012.

"Trends and Positioning for Fire Protection Engineers," Consulting-Specifying Engineer, December 2009.

"Things You Will Want to Know About the 2010 NFPA 72®," NFPA World Safety Conference & Exhibition, Las Vegas, June 2008.

"Ignite Opportunities to Mentor Fire Protection Engineers," Consulting-Specifying Engineer, March 2008.

"International Application of the IBC: The Venetian Macau

modification documentation of unique construction features for approval by Fairfax County Building and Fire Departments.

**Springfield Town Center, Springfield, VA**

Provided expert advice with fire and building code compliance issues during project construction. Negotiated resolution of fire protection system design issues with Fairfax County Fire & Rescue Department. Prepared engineering opinion documentation of unique construction features for approval by Fairfax County Building Department.

**National Institute of Allergy and Infectious Disease Headquarters (5601 Fishers Lane), Montgomery County, MD**

Project Director for fire and life safety consulting for a new 9-story, 491,000ft$^2$, high-rise office building for the National Institute of Allergy and Infectious Disease. The unique nature of the work space required creative egress analysis and egress design to achieve the desired use of the space.

**Village at Leesburg, Leesburg, VA**

Project Director for code and fire life safety engineering for a new, mixed-use town center development, including retail, residential, and emergency vehicle access. Ray developed overall building code approach and fire department access plan for this mixed-use town center project.

**1420 New York Avenue NW (Skadden), Washington, DC**

Project Director and lead engineer for the alteration of this existing Class A office building in Washington, DC. The project included alteration of select common areas including the main entrance lobby as well as mechanical, electrical, and plumbing system upgrades to accommodate future single tenant occupancy throughout the building. The project also included replacement/upgrade of the existing obsolete fire alarm system with a new current technology head-end to accommodate future expansion.

**2550 M Street, Washington, DC**

Project Director and lead engineer for the renovation of this 210,000ft$^2$ class A high-rise office building in Washington, DC. The application of the building code requirements can be subjective. Our services provided for the most efficient application while meeting the code required level of safety.

Project," Building Safety Journal, Jan-Feb 2008.

"Mass Notification – Where is it Heading?" NFPA World Safety Conference & Exposition, Boston, June 2007.

"Evacuation Strategies in High-Rise Buildings," Symposium on Egress Stairs in High-Rise Buildings, Architectural Engineering Institute of ASCE. New York, May 2007.

"Smoke Management Concepts in the IBC," Boston ASHRAE Chapter presentation, January 9, 2007.

"NFPA 72 – The New 2007 Edition" Co-presenter, NFPA World Fire Safety Congress, Orlando, FL., June 2006

"Automatic Sprinklers & Fire Alarm – What's the connection?" Automatic Fire Alarm Association Annual Meeting, Annapolis, MD., April 27, 2006.

"Incorporating the findings of NIST World Trade Center 9/11 Study in NFPA design codes," Human Behaviour in Fire Network Workshop, London, UK, November 18, 2005.

"Integrating Mass Notification Systems in NFPA 72," NFPA World Fire Safety Congress and Exhibition, Las Vegas, NV, June 2005.

"Engineering Challenges Facing the Integration of Fire and Security Systems," presentation at the Fire Suppression & Detection Research Applications Symposium, The Fire Protection Research foundation (NFPA), Orlando, FL, January 26, 2005.

"Ten Years After-Fire Protection and Building Automation at the L.A. Convention Center," Consulting –Specifying Engineer, April 2005.

"Integrating Fire Safety and Security-Establishing a Framework," presentation at National Fire Protection Association Fall Education Conference, November 16, 2004.

"Detection and Alarm" section editor, Fire Protection Handbook, 19th Edition, National Fire Protection Association, 2003.

"Motion Picture and Television Studios and Soundstages," National Fire Protection

**3 White Flint North (Nuclear Regulatory Commission HQ), North Bethesda, MD**

Project Director for the tenant build-out of a new high-rise office building from a core and shell condition. Services included development of the fire protection design criteria, reviews for code compliance, egress calculations and identification of fire-resistive requirements. The project targeted LEED-Silver certification.

**600 13th Street NW, Washington, DC**

Project Director providing fire engineering services for the renovation of select areas of an existing high- rise office building at 600 13th Street, NW in Washington, DC.

**799 Ninth Street, Washington, DC**

Project Director providing code consulting and fire engineering services for the alteration of an existing high-rise office building in Washington, DC.

**ADNOC Headquarters Tower, Abu Dhabi, UAE**

Technical Advisor for a new 65-story high-rise office building for the Abu Dhabi National Oil Company in the United Arab Emirates.

**Altria Mass Notification Study, Richmond, VA**

Project Director and lead engineer providing fire engineering services for Altria, a manufacturing conglomerate with a number of office and plants in the Richmond, VA area and various other global locations. The project included the development of a master plan for emergency communications that would identify ways of incorporating existing communication tools into a comprehensive emergency communication system that is scalable to all of their facilities.

**Bethesda Center New Multi Tower, Bethesda, MD**

Project Director for the new construction of a high-rise 236,000ft$^2$ office building tower and high-rise 200-unit hotel tower connected with a common podium. Services included the development of the fire protection and life safety strategy and development of fire sprinkler/standpipe and fire alarm system design criteria for compliance with applicable codes and hotel operator requirements.

**Capitol Crossing, Washington, DC**

Project Director and lead technical advisor for fire/life safety consulting for this District of Columbia air rights project over I-395 between M Street and E Street. The project consists of 2.2 million square feet of mixed use development. The work includes life safety consulting for the vehicle tunnel being created. Property Group Partners has targeted LEED Platinum certification for all of the buildings.

Association, Fire Protection Handbook, 19th Edition,

"Changes to NFPA 72, 2002 National Fire Alarm Code®," Instructor, September 2003, Society of Fire Protection Engineers Professional Development Week.

"Fire Safety in Buildings," The Military Engineer, March-April 2003

"Planning for Terrorist Trauma – Fire Safety Lessons of September 11," Facility Management Journal, January/February 2003, Co-author Joseph Cappuccio.

"Fire Protection Engineering at the United States Capitol," Co-presenter, January 24, 2003, The Fire Protection Research Foundation Fire Suppression and Detection Symposium.

"What's New in NFPA 72 for 2002?" Co-presenter, May 20, 2002, NFPA World Fire Safety Congress.

"NFPA's Premises Security Project Update," Co-presenter, May 16, 2001, NFPA World Fire Safety Congress.

"Integrating Fire Safety & Security Systems -Issues & Perspective," Presentation, May 15, 2000, NFPA World Fire Safety Congress & Exposition.

"Bomb Defense Engineering as a Tool to Evaluate the Survivability of Fire Protection Systems," Presentation, February 24, 2000, The Fire Protection Research Foundation Fire Suppression and Detection Research Application Symposium.

"Current Issues with NFPA 72, National Fire Alarm Code," Joint Presentation, November 15, 1999, National Fire Protection Association Fall Meeting.

"Fire Protection Testing and Maintenance, Grabbing it by the Horns," Presentation, June 24th, 1999, 36th Annual Conference & Technical Exhibition, American Society for Healthcare Engineering.

"Fire Protection Testing and Maintenance," Joint Presentation, May 17, 1999, National Fire Protection Association World Fire Safety Congress and Exposition.

"Integrating Fire Alarm Systems With Other Building Systems," Presentation, May 17, 1999,

**CityCenter - Covington and Burling LLP Tenant Fit-out, Washington, DC**

Project Director providing code/fire life safety for the tenant fit-out of the new offices for law firm Covington and Burling LLP, at the old convention center site. Our work included the implantation of creative code application to unique egress issues.

**Loudoun Station Mixed Development, Loudoun Count, VA**

Project Director and lead engineer providing fire engineering services for the new construction of a mixed-use development in Loudoun County, VA (off the Dulles Rail). The development includes a cinema, retail/restaurant, and offices. A key factor was obtaining approval of the unique design of apartment construction above large box retail while minimizing the allowable construction type to effect efficient construction.

**Storey Park (1005 First Street NE), Washington, DC**

Project Director providing fire engineering services for a new mixed-use, high-rise project at 1005 First Street, NE, Washington.

**Square 673, Phases 1 and 2, Washington, DC**

Project Manager and Lead Consultant of the overall fire protection and code compliance approach for the 500,000ft$^2$ commercial high-rise development.

**Constitution Square – Office Building 1, 2, 3, 4 and Residential, Washington, DC**

Project Manager and Lead Consultant of the overall fire protection and code compliance approach for this large commercial high-rise mixed-use development. Work includes fit out of Office Building 2, 3, and 4.

**2 Dulles Tower, Fairfax County, VA**

Developed overall building code approach and fire department access plan for this high-rise building and parking structure. Client: Tishman Speyer

**NIST World Trade Center 9/11 Investigation, New York, NY**

Lead Investigator and Project Manager for multidisciplinary review of codes applicable to the design of the World Trade Center. Lead Investigator and Project Manager for the review and analysis of the fire alarm systems in the World Trade Center.

**700 Sixth Street, Washington, DC**

Project Manager for fire protection and code consulting services for this high-rise atrium office building.

**Los Angeles Convention Center Expansion, Los Angeles, CA**

National Fire Protection Association World Fire Safety Congress and Exposition.

“Performance & Prescriptive Based Codes and the Effects on Fire Alarm System,” Presentation, April 30, 1999, Fire Safety for the New Millennium Seminar sponsored by the New York and New Jersey Chapters of the Society of Fire Protection Engineers.

"Motion Picture and Television Studios and Soundstages," National Fire Protection Association, Fire Protection Handbook, 18th Edition, co-author James R. Quiter.

"Performance-Based Design Takes a Starring Role," Consulting-Specifying Engineer, May, 1997, co-author Daniel F. Gemeny.

“Using NFPA 72 in Conjunction with the Building Codes,” Presentation, November, 1996 National Fire Protection Association Fall Meeting.

“Fire Protection and Life Safety Issues for Large Assembly Occupancies”, Security Technology & Design, April 1996

“Training & Education: Who Needs It?”, Panel Discussion, November 1995 National Fire Protection Association Fall Meeting.

“Integrating Fire Alarms with Building Automation Systems...Things to Consider”, Security Technology & Design, August, 1995.

"Fire Alarm System Upgrades," Building Operating Management Magazine, March 1995.

"National Fire Alarm Code – NFPA 72 - Update: Chapter & Verse," Panel Discussion, California Automatic Fire Alarm Association, 1994 Annual Meeting, Indian Wells, California, January 1994.

"ADA – Update '93," Panel Discussion, 1993 Annual Automatic Fire Alarm Association Breakfast meeting, Orlando, Florida, May 1993.

"Defining "Base Building" and the Competitive Bid Process Unmasked at Last" Panel Discussion, Los Angeles Commercial Realty Assoc., June, 1992.

Project Manager for the preparation of the overall fire protection and code compliance approach for this major expansion to an existing convention center. This project included interface of existing systems and development and implementation of fire protection and smoke control system acceptance tests.

**Los Angeles Time Building, Los Angeles, CA**

Project Manager for fire protection and code consulting services for the renovation and adaptive reuse of this high-rise building.

**California Plaza, Los Angeles, CA**

Project Manager for the fire protection and code consulting services including acceptance testing of fire protection and smoke control systems for existing and new high-rise office buildings.

**First Interstate World Center, Los Angeles, CA**

Project Engineer for the preparation of the overall fire protection and code compliance approach for this new high-rise building.

**Gas Company Tower, Los Angeles, CA**

Project Manager for the preparation of the overall fire protection and code compliance approach including fire protection system acceptance testing for this new high-rise building. This included preparation and presentation to the LA Board of Appeals.

**Pacific Design Center, West Hollywood, CA**

Project Manager for the preparation of an overall fire protection and code compliance approach for this major high-rise expansion to an existing high-rise building including integration of existing fire protection and smoke control systems.

**Pacific Bell, Madison Complex, Los Angeles, CA**

Provided technical support for the retrofit design and installation of the fire alarm system for this major telephone central office.

**Education:**

**SUNY Buffalo North Campus Fire Alarm System, Buffalo, NY**

Project Director for the design and replacement of the fire alarm system for The State University of New York’s Buffalo campus. The project comprises 23 office/non-dormitory buildings with out-of-date alarm systems. In addition to new alarm systems, Arup engineers have been tasked with developing a campus reporting system that links each building to the main security building via fiber optic cable.

**American University (4401 Connecticut Ave) Radio Station, Washington, DC**

Project Director, working with Gensler, responsible for code and fire life safety for the new broadcast station area for WAMU/NPR. The station also included support spaces, classrooms, and administrative offices. This project involved the adaptive reuse of an existing building. Our extensive understanding of the Existing Building Code

"Professionalism for the 90's," Panel Discussion, 1991 Annual Automatic Fire Alarm Association Breakfast Meeting, Boston, Massachusetts.

"The Code Development Process," Guest Speaker, Code Committee of the Los Angeles Chapter of the American Institute of Architects, November 1985.

and its applicability to the building allowed for efficient design of the renovation.

**Duke University Eye Clinic Addition, Durham, NC**

Project Director lead engineer providing fire/life safety and code engineering services for a 122,000ft$^2$ addition to the existing Duke Eye Clinic. Our extensive understanding of the Existing Building Code and its applicability to the building allowed for efficient design of the renovation.

**George Mason University Academic Building, Fairfax, VA**

Project Director and lead engineer for code summary report and fire engineering consulting services for a new academic building at George Mason University. This project included obtaining approval from BCOM of an atrium design that eliminated the need for smoke control.

**West Virginia University Agricultural Sciences Building, Morgantown, WV, USA**

Project Director for code/life-safety services for a new agricultural sciences building at West Virginia University in Morgantown. The building consists of approximately 250,000ft$^2$ of space for academic and research programs including laboratories. The application of the building codes to laboratory building can be subjective. The fire protection and life safety consulting effort was focused on developing code application strategies that were approvable by the State Fire Marshal to allow for efficient design of the building while achieving design goals.

**Government:**

**New US London Embassy, London, UK**

Project Director for the fire protection engineering for a new $500m US Embassy building in London. The project is being designed to meet the client's goals of LEED Platinum as well as BREEAM Outstanding.

**City of Richmond Justice Center, Richmond, VA**

Project Director and lead engineer providing fire/life-safety and code consulting services for the design of a new 1,200-bed high-rise justice center. The development of fire protection and life safety strategies for facilities that do not allow unimpeded egress requires a thorough understanding of the intent behind the code requirements and how facilities of this nature operate in emergency conditions.

**Catawba Country Justice Center, Catawba County, NC**

Project Director and lead engineer providing fire/life safety and code consulting services for the expansion of the Catawba County Justice Center in Catawba County, North Carolina. Creative application of the code to achieve compliant egress allowed for efficient design of the expansion to this existing justice center.

**Fairfax County Public Safety Headquarters Building, |Fairfax, VA**

Project Director for the design of a new Public Safety Headquarters Building and associated parking garage to serve the Fairfax County Police and Fire & Rescue Departments. The high-rise building is approximately 268,000ft$^2$ and includes public areas, staff offices, an occupational health area, conference and training rooms, press room, media relations areas, offices of the Major Crimes Division of the Criminal Investigations Bureau, secure sally port, in-custody interview area, and a food service area. The project has a goal of silver certification under the LEED Green Building Program.

**US Coast Guard Headquarters, Washington, DC**

Project Director for fire and life safety engineering for this new, large-scale headquarter building for the US Coast Guard with an associated parking garage and existing central utilities plant. The Headquarters has been designed with emergency generators, backup power, and other equipment needed for an organization like the Coast Guard to operate under all conditions. The main facility will feature a 400,000ft$^2$ green roof and high efficiency mechanical and electrical systems. The building is targeting LEED gold certification

**Washington Headquarters Service, BRAC 133, Alexandria, VA**

Project Manager and Lead Consultant of the overall fire protection, life safety and code compliance approach for this 1.5-million-square-foot headquarters facility for the Department of Defense.

**United States Capitol, Washington, DC**

Project Director for the development of a fire and life safety masterplan for the Capitol.

**US Embassy, Berlin, Germany**

Project Manager for the preparation of the overall fire protection, life safety and code compliance approach for this non standard embassy design. Work included coordination between local and Dept. of State requirements.

**International Monetary Fund, Washington, DC**

Project Manager for the development of a comprehensive study for implementing fire sprinkler protection in the original headquarters building which included architectural sub-consultants.

**Prince George's County Courthouse Expansion, Prince George's County, MD**

Project Director for the fire protection, code consulting and security system design services for this major expansion and addition to a historic structure.

**York County Courthouse, York, PA**

Project Director for fire protection, code consulting and security design services including computational fluid dynamics analysis of an atrium smoke control system.

**Los Angeles City Hall Modernization, Los Angeles, CA**

Project Director for fire protection and code consulting services for this major renovation to a historic structure.

**Los Angeles Metropolitan Detention Center, Los Angeles, CA**

Project Manager and Lead Consultant for the design of this high-rise detention facility. Work included life safety and code compliance as well as fire suppression and fire alarm design. Client: GSA/Federal Bureau of Prisons

**Healthcare:**

**Duke Raleigh Hospital Expansion, Raleigh, NC**

Project Director and lead engineer providing fire/life safety and code consulting services for a 140,000ft$^2$ addition to the existing Duke Raleigh Hospital.

**Duke Eye Clinic, Durham, NC**

Project Director lead engineer providing fire/life safety and code consulting services for a 122,000ft$^2$ addition to the existing Duke Eye Clinic. Our extensive understanding of the Existing Building Code and its applicability to the building allowed for efficient design of the renovation.

**Kaiser NOVA Medical Office Building and Surgery Center, McLean, VA**

Provided fire/life safety/code consulting for the adaptive reuse of an existing office building to serve as an MOB and surgery center.

**Ohio State University Medical Center, Columbus, OH**

Lead Reviewer and preparation of multiple Statements of Conditions required by the JCAHO. Prepared a masterplan for fire alarm replacement for the entire Medical Center. Provided consulting on various additions and renovations.

**Carolinas Medical Center, Charlotte, NC**

Managed the design and replacement of the fire alarm system for the Medical Center.

**Providence Hospital, Anchorage, AK**

Development of overall fire protection and life safety plan and code consulting for design of a new hospital including appeals board preparation and presentation to address unique design features.

**Georgetown University Hospital, Washington, DC**

Lead Reviewer and preparation of the Statements of Conditions required by the JCAHO.

**Highways:**

**Union Station Bus Deck, Washington, DC**

Fire/Life safety engineer for the design and construction administration services for the renovation of the pedestrian plaza of the bus level of the parking structure located immediately behind Union Station in Washington, DC.

**Hotels and Leisure:**

**CityCenter Conrad Hotel, Washington, DC**

Project Director providing code/fire life safety services for the new full service Conrad Hotel at CityCenter.

**Revel Hotel Resort & Casino, Atlantic City, NJ**

Project Director and lead engineer for code/life-safety services for the 47-story, 6.3 million-square-foot beachfront hotel resort and casino in Atlantic City, New Jersey. Arup developed the overall code application approach for the resort and presented it to the State of New Jersey Department of Community Affairs. During the course of the project, Arup provided code application advice to facilitate the design and achieve the design goals and special inspection services for approval of the smoke control systems.

**Sands Bethworks Casino Resort, Bethlehem, PA**

Project Director for the code and life safety strategy and lead engineer for code modification hearings.

**Venetian Macau, Macau, China**

Provided technical overview and support to the team in the areas of building and fire code application and fire protection system design.

**McLean Hilton, McLean, VA**

Project Director for the retrofit of the fire alarm and voice evacuation system of a fully operational high-rise hotel. This project included preparation and presentation to the Fairfax County Board of Appeals.

**Rail:**

**Dulles Corridor Metrorail, Tysons Corner – McLean, VA**

Team Leader for fire and life safety engineering for preliminary engineering design for 4 subway stations and associated tunnels for an alternative subterranean rail system.

**Burnham Place Air Rights Project – Union Station, Washington, DC**

Project manager and lead fire consultant for planned overbuild of the rail yard at Union Station in Washington, DC. Work to date has included ventilation studies and preliminary egress analysis.

**First Street Tunnel Ventilation Study, Union Station, Washington, DC**

Project director for the study of the existing ventilation system including recommendations for modifications.

**Residential:**

**Constitution Square – Residential, Washington, DC**

Project Manager and Lead Consultant of the overall fire protection and code compliance approach for the residential portion of the Constitution Square project. The first phase of the project included approximately 440 apartment units and a hotel. The second phase includes an additional 176 apartment units. These elements are constructed above a garage and ground floor retail.

**Cira South Walnut Tower, Philadelphia, PA**

Project Director for Fire/Life Safety consulting for the expansion of an existing garage and design and construction of a new 36-story mixed-use tower.

**Cira South Chestnut Tower, Philadelphia, PA**

Project Director for Fire/Life Safety consulting for a 32-story tower with 479,000ft$^2$ of program consisting of 25 residential floors (totaling 252,400ft$^2$), 4 floors of office/residential space (totaling 49,200ft$^2$), 1 amenity floor, 2 floors of retail, and a rooftop pool.

**The Boro, Tysons Corner, VA**

Project Director and lead consultant for this multi tower project. The project includes two-blocks with a common below grade garage, three high-rise residential towers and a low-rise office building.

**The Metropolitan Downtown Columbia, Columbia, MD**

Project Director and lead consultant for this 7–story residential building consisting of Type IIIA construction above Type IA construction including an internal double-tee construction Type IB garage.

**Highgate at The Mile, McLean, VA**

Project Director and lead consultant for this 7–story residential building consisting of Type IIIA construction above Type IA construction including an internal double-tee construction Type IB garage. Services included negotiating phased occupancy to allow early occupancy.

**Hanover Tysons, McLean, VA**

Project Director and lead consultant for this 7–story residential building consisting of Type IIIA construction above Type IA

construction including an internal double-tee construction Type IB garage. Services include negotiating phased occupancy.

**Science and Industry:**

**Max Planck Florida Institute, Jupiter, FL**

Project Director code/life-safety services for new construction of the three level research laboratory in Jupiter, Florida. The project included the application of the IBC and NFPA 45 for control area, laboratory units and chemical storage requirements. A key issue for the project was the code strategy for classification of the main entrance lobby to avoid an atrium classification and associated smoke management requirements.

**Sport:**

**The St. James Sport and Active Entertainment Center, Springfield, VA**

Provided fire/life safety code consulting for the design of this 450,000 SF sport and active entertainment facility.

**Charles E. Smith Center at George Washington University, Washington, DC**

Provided fire/life safety code consulting for the renovation of this arena and athletic facility. Client: Gensler

**Verizon Center, Washington, DC**

Provided code consulting services for renovations to club facilities. Client: HKS