

# The Infrastructure Conference 2005

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# PENTAGON

## A Building, Institution, and Symbol

- The Building:
  - Conceived mid July 1941
  - Provide office space for War Department
  - World events pointing towards U.S. military involvement
  - Construction funded for 83 million dollars
  - Groundbreaking Ceremony September 11, 1941

# PENTAGON

## A Building, Institution, and Symbol

- The Building:

- Site located in Arlington Virginia

- Previous structures included an old airport, brick factory, pickle factory, race track, and low income housing project known as Hell's Bottom.

- Architectural Style

- Stripped Neo-Classical

- Final Design:

- Open air court surrounded by 5 concentric pentagonal rings traversed by 10 spoke-like corridors.

# PENTAGON

## A Building, Institution, and Symbol

- The Building:
  - Construction: 16 Months
  - Reinforced Concrete made from 380,000 tons of sand dredged from the Potomac River.
  - Supported by 41,492 concrete piles.
  - Workers:
    - Over 1,000 Architects
    - 14,000 construction workers & tradesmen
    - Three shifts- 24 hours per day, 7 days per week

# PENTAGON

## A Building, Institution, and Symbol

- The Building:
  - 6.8 Million Square Feet (632,000 square meters) of Interior Building
  - 23,000 workers
  - 17.5 Miles (28.2 Kilometers) of Hallways
  - 34 acres (137,000 square meters) of grounds and parking lots.
  - 283 Bathrooms
  - 232,000 florescent lamps
  - +1500 air handlers

# PENTAGON

## A Building, Institution, and Symbol

- The Building:
  - Stairways 131
  - Escalators 19
  - Elevators 13
  - Fire hose cabinets 672
  - Fixtures 4,900
  - Drinking fountains 691
  - Electric clock outlets 7,000
  - Clocks installed 4,200
  - Windows 7,754
  - Glass area (equals 7.1 acres)(23,746 square meters)

# PENTAGON

## A Building, Institution, and Symbol

- A Symbol
  - One of the top three recognized buildings in the world.
  - Stands for freedom, defense, and might
  - Stands for our unity with other countries for a common goal of free societies.

# PENTAGON

## What fuels the Pentagon?

- In One Year, the people at the Pentagon consume over:
  - Over 112,000 pounds of McDonald's French Fries.
  - Over 424,000 McDonald's Hamburgers.
  - 120,000 scoops of Baskin Robbins Ice Cream.
  - 130,000 Dunkin Donuts bagels, and 730,000 donuts.
  - 26,000 gallons of soup.



# PENTAGON

## What fuels the Pentagon?

- In One Year, the people at the Pentagon consume over:
  - 52,000 gallons of Starbucks coffee.
  - 110,000 gallons of fountain beverage.
  - 78,000 pounds of collard greens
  - 23,400 pounds of turkey
- McDonald's serves an average of 550 customers per hour during Lunch.

...and then our life and mission  
changed.....



































View from 395

9.11.2001







# New Day....New Way

- Teardown and Rebuild Damaged Areas within one year.
- Continue Renovation Program at expedited pace.
- Incorporate Lessons learned.
- Review and adjust requirements.

# New Key Phrases

- Terrorist Attacks
- Survivability
- CBRN
- Collective Protection
- Safe Harbor
- Continuity of Operations
- Single Points of Vulnerability
- Multiple Use Systems.

# Same Structure....New Vision

- Horizontal Egress
- Collective Protection Systems
- Plan your strategies.
- Practice your plans.
- Codes
- Consistency in design and construction.
- Leverage new technology.

# You are **NOT** alone.....

- Create Partnerships.
  - First Responders.
  - Critical Mission Support
  - Designers
  - Constructors
  - Construction Management Teams
  - Centers of Expertise
- Train with your partners.
- Communicate, communicate, communicate...



# The Pentagon Renovation

- The Corps involvement in the Pentagon Renovation.
- What exactly is happening in the Renovation?
- How can it benefit you?

# Background

- The Corps of Engineers, Huntsville Alabama- Wedge 1 Award in 1998.
- Competed IDIQ contract for Pentagon in 1998
- Awarded contract for Wedge 1 to Johnson Controls, Inc. in 1998
- Pentagon Renovation Requirements
  - HVAC (Mechanical and Electrical)
  - Computer Room Supplemental Cooling
  - Lighting
  - Energy Management & Control Systems
  - Fire Alarm Systems
  - Access Control
  - Utility Metering and Verification
  - Gas Detection Systems
  - Chemical Biological Radiological Nuclear Response (CBRN)

# Pentagon Items of Interest

- Building Operations and Command Center
- National Military Command Center
  - Positive Pressure Scheme
  - Air Wash Entrances
- Energy Monitoring and Command System
- Chemical Biological Radiological Nuclear Response (CBRN)
  - Area Purging Schemes
  - Gatekeeper Door Latches
  - CBRN Sensing and Mitigation Strategies

# Upcoming Items of Interest

- Smart Lighting
- Wedge 3-5
- Pentagon Shield Test 2
- Pentagon Athletic Complex
- Pentagon Library and Conference Center  
(PLC2)

# How does this benefit you?

- The Huntsville Corps can provide a one stop shop for all building automation and security needs.
- The Huntsville Corps works with the local Corps Districts for Quality Assurance and Quality Control.
- The Huntsville Corps strives for customer satisfaction at a reasonable fee.