

ENVIRONMENTS FOR VETERANS

Facility Design and Operation
Critically Impact Effectiveness and Efficiency

Real Property Service

- Principal Resource for:
- Acquisition of Leasehold Interests
 - Land and Building Acquisitions
 - Disposal and Closing of Buildings or Land
 - Donations and Related Activities
 - Easements, Licenses and Permits
 - Get Leasing
 - Queries and Parking

Cost Estimation & A/E Evaluation Service

- Principal Resource for:
- Construction Project Budget Estimating
 - Final & Life Cycle Cost Estimation
 - Construction Cost Management
 - A/E Evaluation & Selection

Facilities Quality Service

- Principal Resource for:
- Architectural and Engineering Standards & Specifications
 - Design Guides, Manuals, and Alerts
 - Functional Space Criteria Management
 - Interior Design and Services
 - State Home Grant and Homeless Veterans Grant Programs
 - Physical Security Preparedness and Solistic Programs
 - Sustainability Program
 - Web-based Technical Information Library
 - Building Information Modeling (BIM)

Consulting Support Service

- Principal Resource for:
- Facility Condition Assessments
 - Building System Studies
 - Engineering and Architectural Consults
 - Master Plan Reviews
 - Conceptual & Schematic Design & Review
 - Engineering Design Services
 - Critical Path Method Scheduling and Training
 - Technical Emergency Response Team

Resource Management Office

- Principal Resource for:
- Medical Preparedness
 - Human Resources Management

Program Resource Service

- Principal Resource for:
- Major Capital Facilities Operating Plan
 - Major & Minor Budget Exercises
 - Financial Management-Budget Formulation
 - CFR Policies & Executive Correspondence

Operations Support Service

- Principal Resource for:
- Database Management
 - Web Oversight
 - Software and Hardware Management and Evaluation
 - Workstation Support Services

Quality Assurance Service

- Principal Resource for:
- Quality Assurance Dashboard (QAD)
 - Field Compliance Reviews
 - Contract Administration
 - Business Planning

Project Management Service

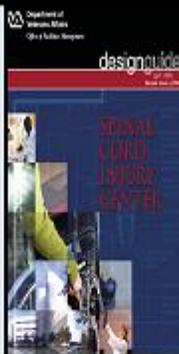
- Principal Resource for:
- Project Management
 - Construction Management
- Contracting for:
- Professional Architectural/Engineering Services
 - Construction Contractors
 - Construction Managers
 - Design-Build Contractors



VAMC Palo Alto Construction



Department of Veterans Affairs
Barrier Free Design Guide
A Supplement to the Uniform Federal Accessibility Standards



Department of Veterans Affairs
design guide
DESIGN & CONSTRUCTION CENTER



VAMC Houston, TX



VAMC Houston



VA Puget Sound Women's Clinic



VAMC Palo Alto OR



Vancouver Nursing Home



VAMC Chicago Walk-In Ambulatory Care Center



Bozeman State Nursing Home



VAMC Palo Alto Courtyard



Waltham State Nursing Home



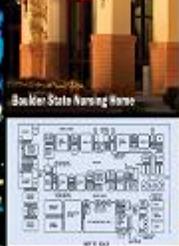
VAMC Detroit



design



Vancouver Nursing Home



Floor plan diagram



Leola Community Based Outpatient Clinic



Floor plan diagram



Waltham State Nursing Home



VAMC Sepulveda Ambulatory Care Center



VAMC Portland



VAMC Detroit



Fort Rucker Cemetery



VAMC Portland



Floor plan diagram



Bozeman State Nursing Home



Energy 2007 Conference

August 2007

VA PHYSICAL SECURITY PREPAREDNESS

Kurt D. Knight, P.E.





VA FACILITY ASSETS

- **5,291 Buildings / 1,668 Historic**
 - 157 Hospitals
 - 1,251 other medical facilities:
Outpatient Clinics; Counseling Centers; Nursing Homes;
and Domiciliaries
 - 57 Veterans Benefits Regional Offices
 - 120 National Cemeteries
 - 6 Miscellaneous Facilities
- 160 million square feet of owned and leased space
- 32,576 acres of land
- \$41 billion replacement value



VETERANS HEALTH ADMINISTRATION

- **5.5 million Patients** in FY 2006
- **1,423 Sites of Care** at end of FY 2006
- **59.1 million Outpatient Visits** in FY 2006
- **17,493 Inpatient Beds** in FY 2006
- **237.3 million Prescriptions** in FY 2006
- **60% of All Healthcare Professionals Trained** in VA Facilities



Fulfilling America's Pledge



We thank our employees and volunteers for delivering the best in health care to veterans.
Our mission gives us the great privilege of serving those who bravely serve our nation.



U.S. News and World Report

July 2005

"Today's VA Hospitals are models of Top-Notch Care."

Business Week

July 2006

"VA hospitals and clinics have been ranked best-in-class by a number of independent groups on a broad range of measures."

NBC Nightly News

March 2006

"The transformation of America's VA hospitals has been so dramatic that now the question is why can't all hospitals be this good."

TIME

September 2006

"Most private hospitals can only dream of the futuristic medicine Dr. Divya Shroff (of the Washington VA Medical Center) practices today."

Fortune

May 2006

"The seamless integration of science, information, and compassion is the dream of modern health care. Scenes like these are not fantasies, however, but daily realities at the Veterans Health Administration."

CBS Evening News

December 2006

"In studies, including one by Harvard, and in six straight years of patient satisfaction surveys, VA earned the highest health care quality rating in the country. It's also the least expensive.... Today's VA looks like the future."





VA FACILITIES MISSION

- Operational Performance Objectives
- Resilience
- Protection/Safety



MAJOR PREPARATIONS

- Seismic H-18-8
- Hurricane CD-54
- Man Made Disasters – Security Engineering Documents
- Other Risks – Design Manuals
- Physical Security Design Manual



APPROACH

- Seismic Assessments
 - High Risk Assessments for Damage
- Hurricane Assessments
 - At Risk Prioritization
- Physical Security Assessments
 - 140 Completed
 - Vulnerabilities identified



HURRICANE ASSESSMENTS

- VHA ACTION REPORT – 12/04
- PILOT STUDY OF 5 MOST-PRONE SITES
PHASE I INITIATED - 6/05
- SITE VISITS/ANALYSES/FINDINGS - 8/05
- RECOMMENDATIONS APPROVED - 10/05
- AFTER ACTION REPORT – 12/05
- PHASE II INITIATED - 3/06
- PHASE II COMPLETED – 11/06



SCOPE OF ASSESSMENTS

- **Assumptions**
 - VAMC to remain in operation after a hurricane
 - **Category 3 hurricane & 72-hour advance notice**
 - 4-day stand alone capability
- **Emergency Power for HVAC systems' needs and requirements**
- **Water supply security and reliability**



SYSTEMS INCLUDED

- Electrical and Emergency Power systems
- Potable water
- Industrial water
- Sewage storage
- Architectural & other building components
- Wind Protection – Building Enclosure, etc.
- Flood & Surge Protection



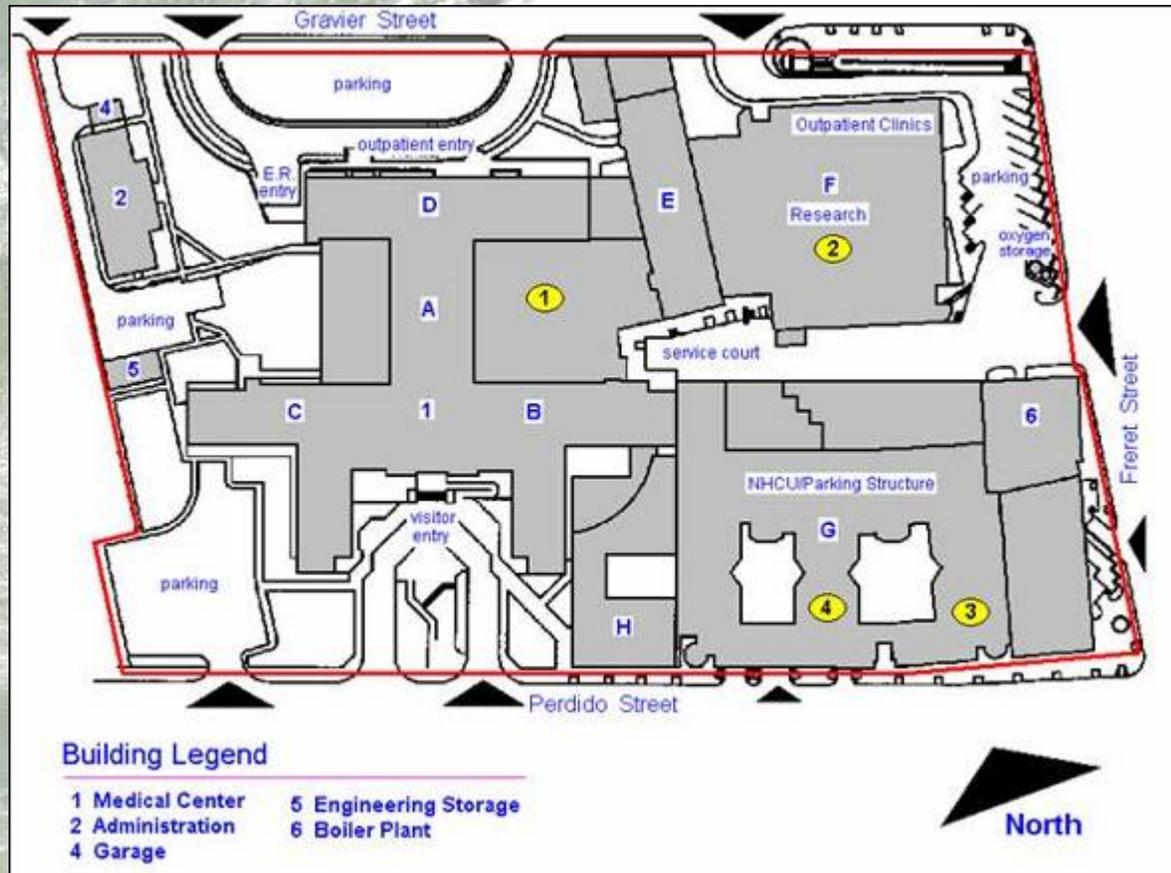
PILOT SITE VISITS CONDUCTED PRIOR TO KATRINA

- Miami
- West Palm Beach
- Bay Pines
- New Orleans
- Biloxi



EMERGENCY POWER & WATER SUPPLY DURING NATURAL DISASTERS

IV RESEARCH ON PILOT SITES—*cont.* D. NEW ORLEANS



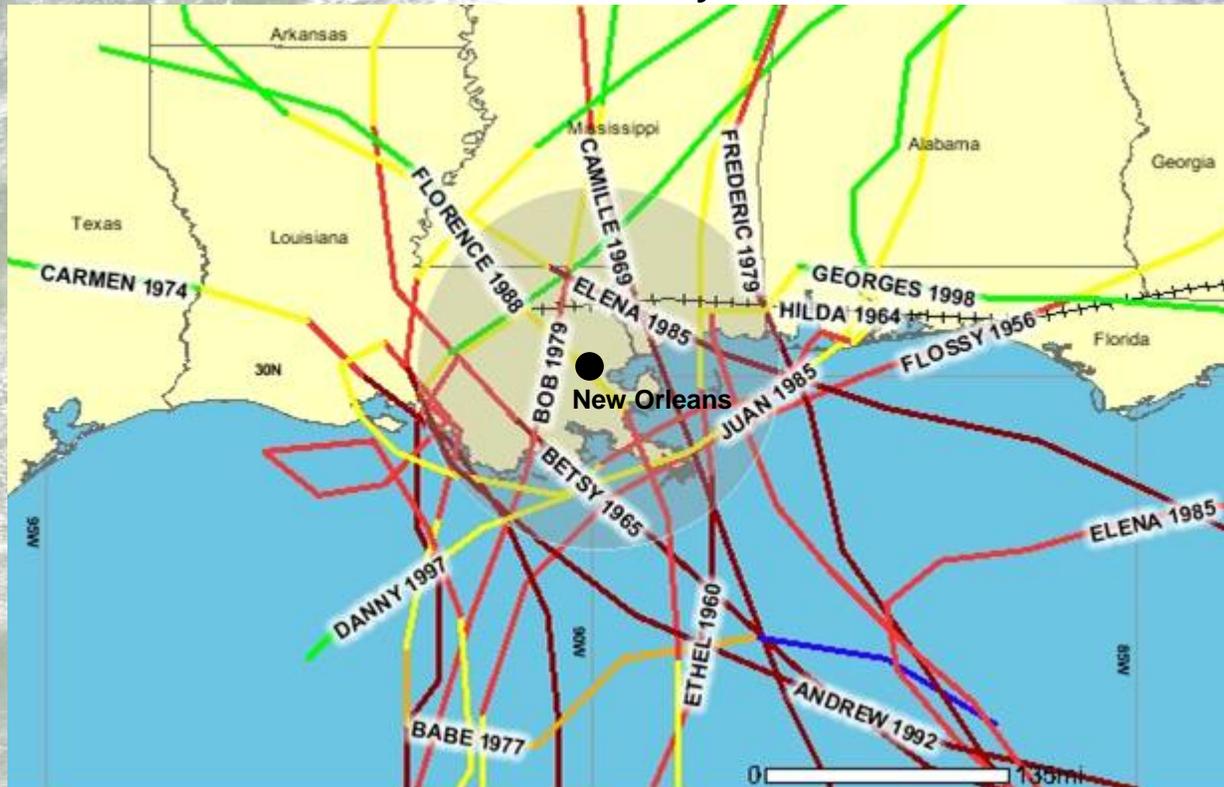
August 18, 2005



EMERGENCY POWER & WATER SUPPLY DURING NATURAL DISASTERS

IV RESEARCH ON PILOT SITES—*cont.* D. NEW ORLEANS-continued

Within 100 nautical miles within last 50 years



<http://hurricane.csc.noaa.gov/hurricanes/viewer.html>

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EMERGENCY POWER & WATER SUPPLY DURING NATURAL DISASTERS

IV RESEARCH ON PILOT SITES—*cont.* D. NEW ORLEANS--continued

HURRICANES W/IN 100 MILES IN LAST 50 YEARS (1955-2004)					
Total All Category Hurricanes for Site: 19					
Year	Name (> Category 3)	Category	Dates	Maximum winds (mph)	Minimum Pressure (mb)
2002	Hurricane Isidore	3	9/14 - 9/26	125	934
2002	Hurricane Lili	4	9/21 - 10/04	145	938
1998	Hurricane Georges	4	9/15 - 10/ 1	155	937
1992	Hurricane Andrew	5	8/16 - 8/28	170	922
1985	Hurricane Elena	3	8/28 - 9/ 4	125	953
1979	Hurricane Frederic	4	8/29 - 9/15	130	943
1974	Hurricane Carmen	4	8/29 - 9/10	150	928
1971	Hurricane Edith	5	9/ 5 - 9/18	160	943
1969	Hurricane Camille	5	8/14 - 8/22	190	905
1965	Hurricane Betsy	4	8/27 - 9/13	155	941
1964	Hurricane Hilda	4	9/28 - 10/ 5	150	941
1960	Hurricane Ethel	5	9/14 - 9/17	160	981

<http://www.wunderground.com/hurricane/hurrarchive.asp>

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EMERGENCY POWER & WATER SUPPLY DURING NATURAL DISASTERS

IV RESEARCH ON PILOT SITES—*cont.*

D. NEW ORLEANS—continued

❖ Disaster On Station Population

Patients:	130
Staff:	500
Family Members:	700
Total:	1,330

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EMERGENCY POWER & WATER SUPPLY DURING NATURAL DISASTERS

RESEARCH ON PILOT SITES—cont.

D. New Orleans—RECOMMENDATIONS

- ❖ **Construct New Energy Center:
Water/Wastewater/Fuel Storage, Boilers, Chillers,
Generators, Electrical Service and Distribution,
Swing Space**
- ❖ **Consider Purchasing Chilled Water from Adjacent
Energy District Cooling Plant**
- ❖ **Rejuvenate Existing Well to Provide Industrial Water
to Cooling Towers**
- ❖ **Relocate Certain Equipment From Basement/Sub-
Basement/Intermediate Floor and 1st to Conceptual
Energy Center or 2nd or Higher Floors**

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SUMMARY OF PILOT SITE RECOMMENDATIONS

EXISTING & RECOMMENDED SYSTEMS					
	Bay Pines	Biloxi	Miami	New Orleans	West Palm Beach
Potable Water	X	X	R	R	X
Industrial Water	X	X	R	R	X
Wastewater Retention	R	R	R	R	R
Standby Power	X	X/R	X	R	X
Flood Protection	X	X	R	R	X
Energy Center	X	X	X	R	X
X = EXISTING R = RECOMMENDED					

ADDITIONAL SITES WITH SIGNIFICANT HURRICANE RISK

VAMCs

- Baltimore, MD
- Brooklyn, NY
- Charleston, SC
- Gainesville, FL
- Hampton, VA
- Honolulu, HI
- Lake City, FL
- New York, NY

- Perry Point, MD
- San Juan, PR
- Tampa, FL

Ambulatory Care

- Orlando, FL
- Panama City, FL
- Pensacola, FL
- Viera, FL

INFRASTRUCTURE RECOMMENDATIONS High Risk Sites

- **Emergency Power 100%** -
Provide for all VAMCs and large Clinics
- **Storage Tanks for 4 days** - Provide for
potable water, industrial water, and sewage
- **Louvers for Air Handlers** – Water-resistant design
- **Elevations for 100-year flood plane and
building floor levels** - Obtain accurate readings
- **Other pertinent building factors** -
i.e. Skin, canopies, roof-top equipment,
storm shutters, etc.



FUNDING NEEDS IDENTIFIED

Costs categorized by:

- **Standby Power:** Full Electrical system and Fuel storage
- **Water:** Potable; industrial; sewage – Supply/ Storage
- **Enclosure:** Skin, glazing, roof, canopies, etc.
- **Flood Protection**

INFRASTRUCTURE RECOMMENDATIONS High Risk Sites

- **Emergency Power 100% with Fuel for 4 Days** - Provide for all VAMCs and large Clinics
- **Storage Tanks for 4 days** - Provide for potable, industrial, and fire safety water, and sewage
- **Louvers for Air Handlers** - Water-resistant design and Barriers
- **Elevations for 100-year flood plane and building floor levels** - Obtain accurate readings
- **Other pertinent building factors** - Skin, canopies, roof-top equipment, storm shutters, etc.



INFRASTRUCTURE RECOMMENDATIONS cont:

- Gravel roofing ballast - Remove
- Roof mounted equipment - Eliminate - or secure with Structural Engineer involvement
- Exterior envelope - Maintain to resist water penetration
- Windows - Improve resistance to debris impact
- Staff - Training required



DEVELOP PHYSICAL SECURITY DESIGN MANUAL

- Address: Natural and Manmade Disasters
- Conduct: Physical Security Assessments of all mission critical facilities



VA PHYSICAL SECURITY PROGRAM

- Physical Security Strategies Report – Jan 10, 2006
- Approved by the Secretary in May 2006
- Outlines Strategies
- Address 4 Types of Facilities:
 - Existing Mission Critical
 - New Life Safety Protection
 - New Mission Critical
 - Existing Life Safety Protection
- Criteria Development Underway
- Funding
 - Major Programs
 - Minor Programs



STRATEGIES FOR SECURITY

- 1. Concentric Levels Of Control
 - Consists of 5 Points of Control including the following:
 - Enhanced perimeter barriers
 - Gates with screening areas
 - Access control hardware
- 2. Stand Off Distance
 - 50 foot stand off distance
 - Anti-ram devices at main building and mission critical



STRATEGIES FOR SECURITY

- 3. Main Entrance and Lobbies
 - CCTV observation
 - Screening areas during elevated threats
 - Laminated glass in lobby

- 4. Loading Docks
 - High risk area
 - Should be separate from mission critical
 - Controlled access with fence and operable gate
 - CCTV observation



STRATEGIES FOR SECURITY

- 5. Mail Handling Rooms
 - Located away from main entrances and mission critical areas
 - Negative pressure

- 6. Ballistic and Forced Entry Resistance Construction
 - Provide ballistic protection to mission critical area



STRATEGIES FOR SECURITY

- 7. Functional Interrelations
 - Limit functional adjacencies/interrelations that compromise security during emergencies

- 8. Crime Prevention through Environmental Design (CPTED)
 - CPTED strategies:
 - Natural Surveillance
 - Territorial Reinforcement
 - Natural Access Control
 - Target Hardening
 - Adopt CPTED strategies whenever appropriate



STRATEGIES FOR SECURITY

- 9. Modularity
 - Allow for rapid interchange or replacement of mission critical elements
 - Systems that should have modular components
 - Emergency power
 - Communications
 - Domestic water
 - Sewers
 - Medical gas
- 10. Building Envelope
 - Positive pressurization of the building's interior relative to the outdoors
 - Locate all outdoor air intakes above grade away from sources of contamination



STRATEGIES FOR SECURITY

- 11. Blast Resistance, Progressive Collapse, and Column Protection
 - Design structure for blast resistance and to prevent progressive collapse
 - Use laminated glass in mission critical elements
- 12. Access Control Systems (ACS)
 - Design ACS with best practices of from operations, management, and tech cost-investment viewpoint
 - Adopt integrated and standardized ACS



STRATEGIES FOR SECURITY

- 13. Intrusion Detection System (IDS)
 - Provide IDS in and around mission critical elements and restricted areas
 - Integrate IDS with CCTV
 - Adopt and integrate standardized IDS

- 14. Closed Circuit TV (CCTV) Surveillance, Alarms and Monitoring
 - Used to monitor:
 - Building entrances
 - Sensitive areas, i.e. computer rooms and loading docks
 - Mission critical areas
 - Adopt and integrate standardized CCTV systems



STRATEGIES FOR SECURITY

- 15. Inter-Communications Systems
 - Provide for standardization of selection, application, performance, and design for:
 - Intercom
 - Duress alarm
 - Portable radio systems
- 16. Security Control Center (SCC)
 - Nerve center for VA facility security operation
 - Monitoring and termination point for security subsystems including:
 - Intrusion detection
 - Access control
 - CCTV
 - Duress alarm
 - Provide redundant SCC



STRATEGIES FOR SECURITY

- 17. Site Distribution for Mechanical, Plumbing, and Fire Protection Utilities
 - Protect mission critical utilities including:
 - On-site infrastructure
 - Equipment
 - Storage
 - Controls
 - Major distribution systems should be redundant
 - Provide Emergency connections for utilities
 - Protect the storage of water
- 18. Site Distribution for Electrical and Telecommunication Utilities
 - Provide multiple power and telecommunication feeders in protected pathways and separate sources



STRATEGIES FOR SECURITY

- 19. HVAC Buildings Systems
 - Provide backed up centralized operation of system
 - Improve filtration of the HVAC system
 - Provide positive air pressure for building
 - Secure all mechanical service areas and rooms
- 20. Plumbing and Fire Protection Building Systems
 - Protect fire Protection system
 - Protect domestic water system, including storage
 - Provide emergency connections in case of water outage
 - Provide clean agent sprinklers and extinguishers for computer areas



STRATEGIES FOR SECURITY

- 21. Electrical Building Systems
 - Electrical rooms should be remote from public areas
 - Protect and secure all service and electrical facilities

- 22. Emergency Power
 - Provide emergency generator capacity to maintain full operational capacity to 4 days
 - Protect emergency generators
 - Protect exterior emergency generator connections



STRATEGIES FOR SECURITY

- 23. Telecommunications Building Systems
 - Protect and secure all telecommunications services and areas
 - Protect and secure the UPS
 - Provide fire extinguishers and sprinkler systems in telecommunications and computer rooms
- 24. Contracts and Contract Documents
 - Incorporate physical security in all design and construction contracts
 - Incorporate security measures during construction projects
 - Provide for Current as-build plans, specs and other documents

FINAL DRAFT

June 2007

SUSTAINABLE DESIGN and ENERGY REDUCTION MANUAL



Department of
Veterans Affairs

<http://www.va.gov/facmgt/standard/energy.asp>



Would you like to know more about this session?

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New Orleans
August 5-8