Connecting the Dots:
Understanding Sustainability and Security in a Complex Environment

December 2010

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Agenda

Sustainability
• Community Economic Development and Quality of Life
• EO 13514 and Presidential Memorandums Overview
• EPA Energy Star Portfolio Manager and 5 GP’s

Security
• DHS National Infrastructure Protection Plan 2009
• DHS Government Sector Specific Plan Snapshot 2009
• DHS ISC and DOD UFC Update

Resiliency
• Presidential Infrastructure Resiliency Directive
• Resiliency - Community and Building Emergency Management Notification
• DHS S&T High Performance – Integrated Design
• DHS S&T Rapid Visual Screening Tool
Sustainability
Community Economic Development

Community Economic Growth Depends on Productive Potential:
- People
- Capital (Investment)
- Ideas

DHS S&T High Performance-Integrated Design Program
- Integrated Rapid Visualization System (IRVS)
- Advanced Materials
- Urban Blast Tool
- Stabilization of Buildings
- High-Performance BuildingEnvelope
- High-Performance Concrete

Community Long-Range Plans
- Comprehensive Energy Plan
- City Redevelopment
- Transportation
Energy is Key to Quality of Life

India & China

United States

Carbon Dioxide Variations

Courtesy of Dr. Roger H. Bezdeks
Transmission capacity limits could result in price pressures and reliability problems this summer in California, Long Island, the Great Lakes, the Southeast, and New England. The arrows in this figure depict the locations and directions of current transmission congestion.


Growth in peak demand for electricity has far outstripped investment in transmission capacity. As a result, transmission constraints could aggravate already limited supplies of power and could result in high prices in some areas of the country.

Source: PA Consulting Group, based on data from the VDI database.
Climate Change

http://en.wikipedia.org/wiki/Climate_change

IPCC Climate Change 2007: Synthesis Report

Figure 3PM.6: Projected surface temperature changes for the late 21st century (2080-2099). The map shows the multi-model average projection for the A1B SRES scenario. Temperatures are relative to the period 1980-1999. (Figure 3.2)
EO 13514


The Strategic Sustainability Performance Plan (SSPP) integrates previous EOs, statutes, and requirements into a single framework that details the agency strategy for achieving goals and targets required by EOs and statutory requirements. The SSPP explains how the agency will progress from “today” toward achieving each goal, and what it will take to get there.

5 Guiding Principals
1. Employ integrated design principles
2. Optimize energy performance
3. Protect and conserve water
4. Enhance indoor environmental quality
5. Reduce environmental impact of materials.
The new Executive Order requires agencies to measure, manage, and reduce greenhouse gas emissions toward agency-defined targets. It describes a process by which agency goals will be set and reported to the President by the Chair of CEQ. The Executive Order also requires agencies to meet a number of energy, water, and waste reduction targets, including:

- 30% reduction in vehicle fleet petroleum use by 2020;
- 26% improvement in water efficiency by 2020;
- 50% recycling and waste diversion by 2015;
- 95% of all applicable contracts will meet sustainability requirements;
- Implementation of the 2030 net-zero-energy building requirement;
- Implementation of the stormwater provisions of the Energy Independence and Security Act of 2007, section 438; and
- Development of guidance for sustainable Federal building locations in alignment with the Livability Principles put forward by the Department of Housing and Urban Development, the Department of Transportation, and the Environmental Protection Agency.
Agency Plans Posted
HUD-DOT-EPA Partnership

HUD-DOT-EPA Interagency Partnership for Sustainable Communities

Background
On June 16, 2009, EPA joined with the U.S. Department of Housing and Urban Development (HUD) and the U.S. Department of Transportation (DOT) to help improve access to affordable housing, more transportation options, and lower transportation costs while protecting the environment in communities nationwide. Through a suite of guiding livability principles and a partnership agreement that will guide the joint efforts, this partnership will coordinate federal housing, transportation, and other infrastructure investments to protect the environment, promote equitable development, and help to address the challenges of climate change.

Livability Principles

- Provide more transportation choices. Develop safe, reliable, and economical transportation choices to decrease household transportation costs, reduce our nation’s dependence on foreign oil, improve air quality, reduce greenhouse gas emissions, and promote public health.
- Provide equitable, affordable housing. Expand location- and energy-efficient housing choices for people of all ages, incomes, races, and abilities to increase mobility and lower the combined cost of housing and transportation.
- Enhance economic competitiveness. Improve economic competitiveness through accessible and timely access to employment centers, educational opportunities, services and other basic needs by workers, as well as expanded business access to markets.
- Support existing communities. Target federal funding toward existing communities—through strategies like transit oriented, mixed use development, and land recycling—to increase community revitalization and the efficiency of public works investments and safeguard rural landscapes.
- Coordinate and leverage federal policies and investment. Align federal policies and funding to remove barriers to collaboration, leverage funding, and increase the accountability and effectiveness of all levels of government to plan the future growth, including making smart energy choices such as locally generated renewable energy.
- Value communities and neighborhoods. Enhance the unique characteristics of all communities by investing in healthy, safe, and walkable neighborhoods—rural, urban, or suburban.

http://www.epa.gov/smartgrowth/2009-0616-epahuddot.htm
1. Scope 1 & 2 Greenhouse Gas Reduction
2. Scope 3 Greenhouse Gas Reduction
3. Develop and Maintain Agency Comprehensive Greenhouse Gas Inventory
4. High-Performance Sustainable Design / Green Buildings
5. Regional and Local Planning
6. Water Use Efficiency and Management
7. Pollution Prevention and Waste Elimination
8. Sustainable Acquisition
9. Electronic Stewardship and Data Centers
10. Agency Innovation
EO 13514 SSPP ROI

Each agency SSPP must address Evaluating Return on Investment

• Economic Lifecycle Cost / Return on Investment
• Social Costs & Benefits
• Environmental Costs & Benefits
• Mission-Specific Costs & Benefits
• Operations & Maintenance and Deferred Investments
• Climate Change Risk and Vulnerability
• Other, as defined by agency
Office of Federal High-Performance Green Buildings

The mission of the Office of Federal High-Performance Green Buildings is to provide high-performance green building information and disseminate practices, technologies and research results through outreach, education, and the provision of technical assistance government-wide. The Office was established by the Energy Independence and Security Act of 2007 (EISA), Public Law 110-140 to:

- coordinate the activities of the Office of Federal High-Performance Green Buildings with the activities of the DOE Office of Commercial High-Performance Green Buildings;
- ensure full coordination of high-performance green building information and activities within the General Services Administration and all relevant agencies;
- establish a senior-level Federal Green Building Advisory Committee, which shall provide advice and recommendations for high-performance green buildings;
- identify and reassess improved or higher rating standards recommended by the Advisory Committee;
- ensure full coordination, dissemination of information regarding, and promotion of the results of research and development information relating to federal high-performance green building initiatives;
- identify and develop Federal high-performance green building standards for all types of Federal facilities;
- establish green practices that can be used throughout the life of a federal facility;
- review and analyze current federal budget practices and life-cycle costing issues, and make recommendations to support high-performance green buildings; and
- identify opportunities to demonstrate innovative and emerging green building technologies and concepts.
Community Energy Plan Goals

Seven Key Measures of Success

- Competitiveness
  1. Energy cost
  2. Employment
  3. Investment

- Security
  4. Supply security
  5. Supply quality
  6. Flexibility

- Environment
  7. Greenhouse Gas Reduction

Breakthrough Performance
Arlington CEP Framework

Energy efficiency – **If you don’t need it don’t use it**
- Efficient buildings, vehicles
- Urban design for transport efficiency
- Local employment for commuting efficiency

Heat Recovery – **If it’s already there – use it**
- Distributed combined heat and power
- Use existing “waste” heat
- Structure commercial sites to maximize “waste” heat use

Renewable energy – **If it makes sense, go carbon free**
- Renewable electricity – Photovoltaic, Wind, Run-of-river Hydro
- Renewable heat - Solar thermal, Biomass, geothermal
- Renewable heat and power – waste-to-energy, biomass

Energy distribution – **Invest where it makes sense**
- Flexible distribution – electricity, gas, heating, cooling, ....
- Accepts multiple fuels and energy conversion technologies
- Optimize local / regional investment choices

**Integrated Solution – Tailored for Arlington**
Guiding Principles Checklist in Portfolio Manager

**June 2009**
Collaboration begins between DOE FEMP / EPA / GSA

**October 2009**
Guiding Principles Checklist is live within EPA’s Portfolio Manager
EPA Energy Star

Why Focus on Existing Buildings?

- Commercial buildings and industrial facilities generate about **50 percent** of U.S. carbon dioxide emissions.
- On average, **30 percent** of energy consumed in commercial and industrial buildings is wasted.
- Reductions of **10 percent or more** in energy use can be possible with little or no cost.
EPA Energy Star

Space Types Eligible for the 1-100 Performance Rating System

Hospitals  Retail  Office Buildings  Hotels
Medical Office Buildings  Waste Water Treatment Plants  Courthouses  Financial Centers
Warehouses  Dormitories  Supermarkets  Schools
ISWG’s 5 Guiding Principles - Existing Buildings

I. Employ Integrated Assessment, Operation, and Management Principles

II. Optimize Energy Performance

III. Protect and Conserve Water

IV. Enhance Indoor Environmental Quality

V. Reduce Environmental Impact of Materials

Federal agencies are using ENERGY STAR Portfolio Manager to track progress toward Guiding Principles & generate a completed Sustainability Checklist
Portfolio Manager – Tracking Performance in Existing Buildings

- Free online tool for existing buildings:
  - Centrally track and assess the energy use of existing buildings.
  - Track weather normalized whole building energy use intensity for ALL buildings.
  - Set baselines and track changes in energy use over time in single buildings, groups of buildings, or entire portfolios.
  - Receive an energy performance rating (1-100 score) for eligible building types.
  - Track cost savings and GHG emission reductions.
  - Track water usage.
  - High Performance Sustainable Building Checklist integration (Guiding Principles).

[Website: www.energystar.gov/benchmark]
Using the Guiding Principles Checklist

3A General use

Always Save before Exiting

Pre-populated building Info
Pie chart of GPs status
Green Checkbox = Complete
Compliance verification docs
Enter Notes and Comments
Corresponding radio buttons
References and Resources

EPA Energy Star
EPA Energy Star
New Federal Building and Energy Requirements

- LEED Gold
- Energy Star Annual Rating and Submission
- Transit Oriented Design
- Community Involvement
Security
In the Beginning....

Murrah Federal Building

<table>
<thead>
<tr>
<th>YIELD (≈TNT Equiv.)</th>
<th>4,000 lb.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Reflected PRESSURE</td>
<td>9,600 psi.</td>
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<tr>
<td>Stand-off</td>
<td>15 feet</td>
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</table>

166 killed – Not Designed for Progressive Collapse and Total Loss

Khobar Towers

<table>
<thead>
<tr>
<th>YIELD (≈TNT Equiv.)</th>
<th>20,000 lb.</th>
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<tr>
<td>Reflected PRESSURE</td>
<td>800 psi.</td>
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<tr>
<td>Stand-off</td>
<td>80 feet</td>
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</table>

19 killed – Designed for Progressive Collapse, lost façade and repaired

Senior leaders careers ruined; security professionals “not on my watch” mentality, very little public or private understanding of risk
Building Security Design All Hazards Guides/Standards/Codes

FEMA 426 and FEMA 452 are 2 of the most downloaded DHS publications
DHS PM: Mila Kennett-Reston

GSA and DoD developed separate security standards and applied them differently, both standards had tremendous impacts on public space, transit, communities, and best use of land.

They had significant conflict with other design objectives.

The Government and Commercial Sector SSP’s recommended FEMA 426/452 as the preferred risk methodology.
DHS Risk Focus Switched from People to Assets and Back Again

DHS Risk Formula, as implemented in the Grants Programs

Risk = T x V x C
derived from a national database of ~300k assets

Risk Focus

Assets

2002 2003 2004 2005 2006 2007 2008 2009

People

UASI Risk = Credible Threats, Assets, Population Density

Risk = Population

“More heavily weighted toward people”
R = T x (V&C)

DHS recognizes the need to account for CI/KR assets; but it made an about-face in 2007 in recognition that it has insufficient visibility into the risks to individual assets
National Infrastructure Protection Plan
Partnering to enhance protection and resiliency
2009

DHS NIPP 2009

18 Sectors of CIKR – All Hazards
DHS NIPP 2009
Understanding the Government Facilities Sector

The Government Facilities Sector includes facilities owned or leased by all levels of government domestically or overseas. Many of these facilities are open to the public, such as courthouses, educational facilities, libraries, and archives. Other facilities not open to the public contain highly sensitive information, materials, processes, and equipment, such as military installations, embassies, and research facilities. These facilities are differentiated from other CIKR sectors because they are uniquely governmental.

The sector also includes the Education Facilities Subsector, which covers prekindergarten through 12th grade (preK-12) schools, institutions of higher education, and business and trade schools. This subsector includes both government-owned facilities and facilities owned by private-sector entities, so it faces some unique challenges.

Sector-Specific Agency (SSA): SSAs are Federal departments and agencies identified under Homeland Security Presidential Directive 7 as responsible for the protection activities in specified CIKR sectors. The Federal Protective Service (FPS) serves as the SSA for the Government Facilities Sector. The Department of Education (ED)’s Office of Safe and Drug-Free Schools (OSDFS) is the designated SSA for the Education Facilities Subsector.

Related Sectors: The Government Facilities Sector shares dependencies and interdependencies with all other CIKR sectors, including but not limited to the Communications, Energy, Information Technology, and Water. The Education Facilities Subsector shares dependencies and interdependencies with the following sectors: Agriculture and Food, Chemical, Commercial Facilities, Emergency Services, and Transportation Systems.
State & Local: Asset Risk is Aggregated

Jurisdiction (or Sector) Risk

Asset Risk

Scenario Risk

Asset 1 Risk (e.g., LAX)

Scenario 1 (e.g., IED@LAX)

Threat (likelihood IED attack is attempted against LAX)

Vulnerability (likelihood launched IED attack against LAX succeeds in causing expected damage)

Consequence (magnitude of expected damage if IED attack against LAX is successful)

Human (number of people killed)

Economic (property damage and business loss)

Mission (non-economic strategic missions)

Psychological (behavioral impacts not related to H/E/M)

Asset 2 Risk (e.g., Capitol)

Scenario 2 (e.g., Bio@LAX)

Scenario 1 (e.g., IED@Capitol)

Scenario 2 (e.g., Bio@Capitol)
DHS NIPP Gov SSP 2009

Sector-Specific Plan

Each of the CIKR sectors develops a Sector-Specific Plan (SSP) that details the application of the National Infrastructure Protection Plan (NIPP) framework to the unique characteristics and risk landscape of their sector.

SSPs support the NIPP by establishing a coordinated approach to national priorities, goals, and requirements for CIKR protection.

The Government Facilities SSP is For Official Use Only and cannot be directly linked to this page. Access to the Government Facilities SSP is available on a need-to-know basis to discourage inappropriate sharing of sensitive security information.

If you are a representative of the Government Facilities Sector, contact the Government Facilities SSA at NIPP_GFS@dhs.gov to gain access to the Government Facilities SSP.

Education Facilities Subsector Annex: Because of the unique landscape and requirements of the subsector, an annex is included in the Government Facilities SSP to describe how the NIPP will be applied for education facilities.
All Government Facilities are listed in the National Asset Database
FEMA 452 addresses the activities necessary to conduct a vulnerability assessment, including:

- Pre-meeting and preparation of a schedule and tentative agenda;
- On-site meeting(s) upon arrival, as an introduction with key staff to review available information useful for the assessment process;

20 The NIPP defines vulnerability as “a weakness in the design, implementation, or operation of an asset, system, or network that can be exploited by an adversary or disrupted by a natural hazard or technological failure.”

Federal Emergency Management Agency Guidelines

Following the attacks of September 11, 2001, the Federal Emergency Management Agency (FEMA) published a series of documents addressing the various risks, including the terrorism risk, to buildings and related infrastructure nationwide. FEMA’s Risk Management Series provides design guidance to enhance security and mitigate the potential impact of terrorist attacks. These best practices inform and complement the recommendations presented in subsequent chapters.

The core security documents in the Risk Management Series include: FEMA 426, Reference Manual to Mitigate Potential Terrorist Attacks Against Buildings;
So What Is The Problem?

- Manmade Threats typically still dominate risk perception – Low Probability-High Consequence
- Manmade events related to terrorism are typically local or regional and high media interest, but in economic terms, relatively small impacts
- Manmade events such as workplace violence and crime are socially accepted - High Probability-Low Consequence
- Natural Hazards range from Low Probability-High Consequence (earthquake) to High Probability-Low Consequence (local flooding) and is socially acceptable

- We as a society have attempted to “Engineer Out” risk and society expects government to “fix” or take care of any event:
  - Flood Insurance Program
  - Disaster Declarations
  - Monetary compensation for loss of life or injury by any cause (even Darwin Awards)
Explosive Blast

*Explosive blast is still a primary threat of concern*

*Ineffective and blocks public space*
An Introduction to the DHS ISC

• The Interagency Security Committee (ISC) is dedicated to the protection of civilian Federal facilities in the United States.

• **Mission:** We safeguard U.S. civilian facilities from all hazards by developing state-of-the-art security standards in collaboration with public and private homeland security partners.

• Today the ISC works to ensure security for:
  – 378,329 federally owned and leased assets
  – 2.7 million civilian workers and approximately 8,000 children in child-care centers
  – 3.26 billion square feet of property with a replacement value of $371 billion
  

• President Clinton issued Executive Order 12977 creating the ISC soon after the Oklahoma City bombing on April 19, 1995.
DHS ISC Compendium of Standards 2010

Smart security in practice
The New DHS ISC Compendium of Standards addresses the full-spectrum of security threats

New Standards and countermeasures:
- address current and future risks
- fully replace the 1995 DOJ report and all past ISC Standards

The Compendium of Standards includes five elements:

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<tbody>
<tr>
<td>1. Facility Security Level Determinations (FSL)</td>
<td>2008</td>
</tr>
<tr>
<td></td>
<td>Single source of countermeasures for each security level</td>
</tr>
<tr>
<td></td>
<td>Comprehensive standard for all civilian Federal Facilities</td>
</tr>
<tr>
<td>3. New Design-Basis Threat Report (DBT)</td>
<td>2010</td>
</tr>
<tr>
<td></td>
<td>A stand-alone threat analysis to be used with the PSC</td>
</tr>
<tr>
<td>5. Facility Security Committees (FSC)</td>
<td>Late 2010</td>
</tr>
</tbody>
</table>
Key Components of the New DHS ISC Compendium of Standards

• **Creates the concept of a common threat truly “risk based” concept:**
  – Identical risks will be handled in an identical manner

• **Risk acceptance:**
  – Do less or do nothing are [valid alternatives](#) if full mitigation of risk is not possible

• **A unified approach:**
  – Based on the current ISC process for New Construction and Major Modernization

• **One formalized process to:**
  – Determine risks
  – Identify desired level of protection
  – Identify when the desired level of protection is not achievable
  – Develop alternatives
  – Accept risk when necessary

• **Provides and ensures:**
  – Equivalent mitigation strategies for equivalent risks
  – Customized templates for agencies with repetitive requirements (Child-Care, Courthouses)
DHS ISC - Old Standard

The graph illustrates various undesirable events such as Arson, Assault, VBIED, Burglary, Kidnapping, Larceny, Robbery, Vandalism, and Workplace Violence, each represented on the x-axis. The y-axis shows the level of risk/protection, ranging from 0 to 5. The graph also highlights unmitigated vulnerability and over-expenditure areas, indicating the level of protection needed for each event to mitigate risk.
DHS ISC - New Standard

All Government Facilities required to conduct Tier 2/3 Risk Assessment

There is no minimum standoff distance
DHS ISC - Other 2010 Initiatives

• **Minimum Standards for Armed Contract Guards**
  – Defines a baseline and set of minimum standards for determining the duties and responsibilities of a contract security force in all Federal facilities used for nonmilitary activities

• **Security Specialist Competencies**
  – Details the core competencies federal security specialists should have to perform their basic duties and responsibilities

• **Prevention of Workplace Violence:**
  – Developed in concert with Chief Human Capital Officers (CHCO) Council and the National Institutes of Occupational Safety and Health (NIOSH)

• **Nationwide training:**
  – Introduces the Compendium of Standards
DOD - Real Property Portfolio

- 539,353 Facilities
  - 307,295 buildings ($484B Plant Replacement Value)
    - 207,693 owned; 10,001 leased; 89,601 other
    - 2.18B sq ft
  - 183,799 Structures
  - 48,259 Linear Structures

- 28.5M Acres
  - 97% in U.S.

- 536 Installations
  - 5,579 DOD Sites (85% in US)

(Data as of 30 Sep 09)
DOD - Basis for Minimum Standards

- DoD policy - Protect all Components, elements, and personnel from all threats, including terrorist attack
  - Includes military and civilian personnel and dependents;
  - DoD installations and facilities;
  - DoD-owned, leased, or managed infrastructure

- Four modes of terrorist attack
  - Bomb, direct-fire weapons, fire, or chemical/biological/radiological (CBR)

- Two categories of baseline threat
  - **Within Controlled Perimeter** (on installation): what is likely to pass through security checkpoint
  - **With No Controlled Perimeter** (off installation): balance between most damaging attack and the most likely type of attack on a DoD facility

- Risk assessment
  - Reduce (not eliminate) risk of mass (not individual) casualties from baseline threat
  - Provide “low” level protection from baseline threat for inhabited buildings
# DOD - Minimum Standards for Buildings

## Site Planning
1. Minimum standoff distance
2. Unobstructed space
3. Drive-up/drop-off areas
4. Access roads
5. Parking beneath buildings and on rooftops

## Structural Design
6. Progressive collapse avoidance
7. Structural isolation
8. Building overhangs
9. Exterior masonry walls

## Architectural Design
10. Windows and glazed doors
11. Building entrance layout
12. Exterior doors
13. Mailrooms
14. Roof access
15. Overhead mounted architectural features

## Electrical and Mechanical Design
16. Air intakes
17. Mailroom ventilation
18. Emergency air distribution shutoff
19. Utility distribution and layout
20. Equipment bracing
21. Under building access
22. Mass notification

*Address more than just standoff distance*
DOD - Application of Minimum Standards

• Minimum standards apply to:
  – DoD buildings routinely occupied by 11 or more DoD personnel with population density of at least 1 person per 430 square feet
  – Leased buildings with similar populations where DoD personnel occupy at least 25% of net space
  – Existing inhabited DoD buildings where:
    • Renovation and repair work exceeds 50% of PRV
    • Windows are being replaced
    • Building addition is larger than existing building
• Buildings with more critical mission or higher threat may receive higher levels of protection
• Some building types or uses are exempt
  – e.g., gas stations, fast food operations, recruiting centers
• Most standards allow for mitigation of risks in existing buildings where full compliance is not practical
  – (e.g., security patrol of building perimeter if it does not meet standoff distance)
DOD - Standoff Distances

- Blast-resistance standards are performance-based, and provide **flexibility** in options to satisfy them
  - Tradeoff between standoff distance and type of construction

- Conventional construction standoff distance minimums for office buildings
  - 148 ft uncontrolled perimeter / 82 ft controlled perimeter
    - based on least-protective construction type
  - Overly conservative for many buildings that offer greater protection

- **Standoff may be reduced through blast analysis or building hardening**
  - Often not exercised due to lack of awareness

- Revised UFC (under development) is expected to indentify reduced standoff distances for specific construction types (e.g., reinforced concrete)
# DOD versus ISC Standards

<table>
<thead>
<tr>
<th></th>
<th>DoD</th>
<th>ISC</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Standoff distance</strong></td>
<td>Generally minimum of 33 ft</td>
<td>No minimum</td>
</tr>
<tr>
<td><strong>Parking</strong></td>
<td>Effectively same as ISC</td>
<td>Effectively same as DoD</td>
</tr>
<tr>
<td><strong>Window design</strong></td>
<td>3 ft penetration for office buildings</td>
<td>10 ft penetration</td>
</tr>
<tr>
<td><strong>Window failure</strong></td>
<td>No catastrophic failure allowed</td>
<td>Up to 10% catastrophic failure allowed (40% of any</td>
</tr>
<tr>
<td></td>
<td></td>
<td>face of building)</td>
</tr>
<tr>
<td><strong>Effective blast resistance</strong></td>
<td>Applies to buildings with 11 or more people</td>
<td>Applies to buildings with 251 or more people</td>
</tr>
<tr>
<td><strong>Waivers</strong></td>
<td>No processes currently developed – but mitigation measures may be used</td>
<td>Can be granted at local building level</td>
</tr>
</tbody>
</table>
Congressional Pushback

- House Transportation and Infrastructure (T&I) Committee
  - Challenging dual DoD vs ISC standards for leases (May 20, 2010 hearing)
  - July 1, 2010 committee resolution to approve DoD Medical Command HQ lease prospectus based on ISC standards
  - Threatening to apply ISC standards to future GSA leases for DoD

- All GSA-executed leases over $2.79M annual lease cost require prior approval by GSA’s Congressional oversight committees
  - GSA has authority to execute most leases for DoD

- DoD reviewing its AT policy and standards for leased facilities
GAO Study Findings

• GAO-10-873 released September 22, 2010
  *Building Security: New Federal Standards Hold Promise, But Could Be Strengthened to Better Protect Leased Space*

• Focus:
  – Identified challenges that exist in protecting leased space and
  – Examined how the 2010 Interagency Security Committee (ISC) standards address these challenges

• Recommendations:
  – ISC should establish a working group or other mechanism to determine guidance for working with lessors
  – This guidance should be incorporated into a future ISC standard or other product, as appropriate.
Resiliency
Infrastructure resilience is the ability to reduce the magnitude and/or duration of disruptive events. The effectiveness of a resilient infrastructure or enterprise depends upon its ability to anticipate, absorb, adapt to, and/or rapidly recover from a potentially disruptive event.

NIAC Recommendations:

- Fortify government policy framework
- Improve government coordination
- Strengthen and leverage public-private partnership
- Encourage resilience using appropriate market incentives
- Implement government enabling activities & programs in concert with critical infrastructure owners and operators

New Presidential Memo expected soon
Community Preparedness and Resiliency

Ensure community preparedness for and rapid recovery from disaster threats in Arlington County and the Region.

Arlington Community Resiliency

Communities with a highly robust pool of resources and a high degree of adaptive capacity will be the most resilient.


Government alone will never have enough resources.
## Effects on Recovery Time

<table>
<thead>
<tr>
<th>Effects</th>
<th>Longer</th>
<th>Shorter</th>
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<tbody>
<tr>
<td>Average Income</td>
<td>Lowest</td>
<td>Highest</td>
</tr>
<tr>
<td>Buildings Mitigated</td>
<td>None</td>
<td>Extensive</td>
</tr>
<tr>
<td>Business Size</td>
<td>Smaller</td>
<td>Larger</td>
</tr>
<tr>
<td>Oriented Economy-Mostly</td>
<td>Imports</td>
<td>Exports</td>
</tr>
<tr>
<td>Infrastructure Mitigated</td>
<td>None</td>
<td>Extensive</td>
</tr>
<tr>
<td>Transportation Mitigated</td>
<td>None</td>
<td>Extensive</td>
</tr>
<tr>
<td>Recovery Planning</td>
<td>None</td>
<td>Extensive</td>
</tr>
<tr>
<td>Business Retention</td>
<td>Leave</td>
<td>Stay</td>
</tr>
</tbody>
</table>
Resiliency Standards and Guides

- TISP Regional Resiliency Guide 2006
- ASIS/ANSI SP 1 Organizational Resilience 2009
- ISO 31000 Risk Management Framework 2009
- NFPA 1600 Standard on Disaster/Emergency Management and Business Continuity 2010
The Need for Infrastructure and Community Resiliency

Business continuity planning (BCP) is “planning which identifies the organization's exposure to internal and external threats and synthesizes hard and soft assets to provide effective prevention and recovery for the organization, whilst maintaining competitive advantage and value system integrity”.[1] It is also called Business continuity & Resilency planning (BCRP). The logistical plan used in BCP is called a business continuity plan. The intended effect of BCP is to ensure business continuity, which is an ongoing state or methodology governing how business is conducted.


The public and private sector must be able to conduct a risk assessment and complete a BCP that addresses the systems interactions and complexity, while at the same time be relatively fast, accurate, and cost effective.
DHS S&T HP-ID Program

HP-ID and Infrastructure Resilience

High Performance & Integrated Design
- Manmade Hazards
- Natural Hazards
- Aging/Extended Life
- Other High Performance Attributes
- Continuity of Operations

Robustness Resourcefulness Rapid Recovery
- Site Protection
- Structural Resistance
- Envelope Systems
- Advanced Materials
- Retrofit/Renovation
- Fire Systems
- Performance Based Codes/Standards
- Independent Sources of Energy
- Mechanical Systems
- Environmental Sustainability

DHS S&T Program Manager - Mila Reston-Kennett
DHS S&T HP-ID Program Taxonomy

HP-ID Program Taxonomy

- Advanced Materials
  - Advanced Materials Council and Data Base
  - Journal of Advanced and High Performance Materials
  - Security Information and Technology Exchange (SITE)
  - Ultra Performance Concrete
- High Performance Based Design
  - Security, Energy and Environmental Program (SEE)
  - Performance Based Design for Building Envelopes
  - Retrofit of Buildings and Infrastructure in Large Urban Centers
  - First Responder Information Exchange (IEM)
- Blast Load Effects
  - Blast Load Effects in Urban Canyons
  - Fast Running Air Blast Tool
  - Emergency Evacuation, Rescue and Recovery (EERR)
  - Progressive Collapse Performance and Analysis
  - Stabilization of Damaged Buildings
- Building and Infrastructure Protection
  - Primer to Design Safe School Against Terrorism and Shootings
  - Aging Infrastructure Issues, Research and Technologies
- Risk Assessments
  - Rapid Visual Screening for Buildings (CBRE, EQ, Fire, Floods and Winds)
  - Rapid Visual Screening for Mass Transit Stations
  - Rapid Visual Screening for Tunnels
  - Risk Assessment and How-to Guide (CBRE, EQ, Floods and Winds)
  - Risk Assessment for IED Damaged Buildings
Building and Infrastructure Protection (BIPS)

Description

The purpose of this project is to advance the “Building Infrastructure Protection Series” (BIPS) which consists of delivering state-of-the-art research to design professionals and owners/operators of buildings and critical infrastructure. The publications include a series of manuals in the area of building protection for CSHe, protection of college campus against terrorist attacks, and the latest techniques for performing a rapid visual screening risk assessment for buildings, mass transit, tunnels and bridges. This project includes efforts to prepare innovative workshops that advances IGD’s mission and research activities.

Rapid Visual Screening

Three forms of Rapid Visual Screening (RVS) are available: buildings, tunnels, and subway stations. The purpose of the RVS is to determine the risk of a building, tunnel or transit station by evaluating the threat, consequence, and vulnerability for specific station/tunnel characteristics. Different risk scores can be used to prioritize tunnels and transit stations for further evaluation or mitigation.

Probable Users

Office of Infrastructure Protection; Federal Emergency Management Agency; Commercial and Government Facilities; State and local governments; Code Officials; Associations of Engineers and Architects

Deliverables

FY10: Aging Infrastructure publication, Reference Manual publication, Primer publication, and Rapid Visual Screening tool and publications for Tunnels and Subway Stations
Hold two workshops in Aging Infrastructures
FY11: Rapid Visual Screening tool for Bridges
Incorporate blast tool model and CBRF plume model tool
DHS S&T BIP IRVS Capabilities

Building Infrastructure and Protection Series
Integrated Rapid Visual Screening (IRVS) of Buildings

The U.S. Department of Homeland Security (DHS), Science and Technology Directorate's Infrastructure and Geophysical Division (IGD) will develop an integrated rapid visual screening (IRVS) procedure for assessing the risk to a building from natural and human-caused hazards that have the potential to cause catastrophic losses (injuries, impacts, damage, and business interruption). This procedure is an enhanced version of FEMA 455, Handbook for Rapid Visual Screening of Buildings to Identify Seismic Risk, and includes improvements to the methodology, updates to the catalog of building characteristics, and updates to the forms that incorporate natural hazards, building types, and risk functions.

Goal
The goal of the IRVS procedure is to determine the level of risk to a building from natural and human-caused natural hazards.

IRVS is a simple and quick procedure for obtaining a preliminary risk assessment rating. Risk is determined by evaluating key building characteristics for consequence, threat, and vulnerabilities. The screening process can be conducted by one or two assessors and completed in 3 to 5 hours. The procedure is intended to be used to identify the level of risk for a single building, to identify the relative risk among buildings in a community or region, and as a prioritization tool for further risk management activities. Information from the visual inspection can be used to support higher level assessments and mitigation options by experts.

Homeland Security
Science and Technology
DHS S&T BIP IRVS Uniqueness

What makes the IRVS unique?

• First “All-Hazards” weighted risk matrix that incorporates “trade-offs”; i.e. a seismic mitigation may result in benefits or detriments to blast or wind events, etc.
• A screening methodology built on the well adopted and accepted FEMA 452 and FEMA 455 methods, now with natural hazards
• Can be used for all 18 sectors of CIKR as an apples to apples comparison
• Incorporates collateral infrastructure loss and redundancy into the building risk rating
• Incorporates business recovery and community resiliency into the resiliency rating
• Can be done in 4 hours or less by 2-3 people with a reasonable knowledge of the buildings and organization
• Software has an embedded catalogue
DHS S&T IRVS Infrastructure Target Density

A snapshot of potential collateral damage and business community impacts

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<th>Facility Type (CIKR Sector):</th>
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<th>≥100 ft and &lt; 300 ft</th>
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Note: Based On NFPA 1600 and ASIS SP 1; these factors still under development/testing (MAD and RTO criterion)
DHS S&T IRVS Arlington Pilot Overview

Schedule (2 days)
- Program Overview
- IRVS Training
- Metro assessment
- Building assessments
- Group Review and Discussion

Participants
- Arlington EDO
- Arlington EMO
- Arlington Building Inspectors
- Arlington Police
- Building Owner, Manager and Engineers

Building 1
- 1970’s era large Commercial Office Building above Metro, located in Crystal City submarket
- Mix of federal agencies and commercial tenants
- Standard commercial property security requirements and procedures (no use of the DHS ISC or DoD ATFP)

Building 2
- 2000 era large Commercial Office Building near Metro, located in Ballston submarket
- Mix of federal agencies and commercial tenants
- Used requirements from both the DHS ISC and DoD ATFP
DHS S&T IRVS Arlington Pilot Results

Regional
- **Flood, Wind, Earthquake**
  - Low to medium natural hazard risk ratings
- **Manmade Threats**
  - High CBR and Explosive risk rating, low/medium intrusion

**Building 1**
- High Risk, Low Resiliency rating

**Building 2**
- High Risk, High Resiliency rating

**Program Validation and Next Steps**
- The IRVS can be completed in 4 hours or less with experienced building professionals
- County receives a cross sector infrastructure and business resiliency snapshot
- A number of questions were moved from in-field to Desk Top data collection and analysis; better integration with other applications
- Updated the BCP with the new NFPA 1600 and ASIS standards for Business Recovery and Emergency Management, Organizational Resilience
- Added Cyber Security to questions
Summary

In the past 10 years, we have begun to understand:
- Energy Consumption/Energy Intensity
- Coupled manmade threats and natural hazard design and operations
- Greenhouse Gas and Climate Impacts
- Community Resiliency

In the next decade, we can expect:
- More people, less oil
- Adoption of resiliency and redundancy (in place of protection)
- Sustainability
- Energy production at micro level
- Per capita reduction in consumption of resources
- New tools (S&T, BIM, GIS, etc)

Economic growth and quality of life:
- Sustainability
- Security
- Resiliency