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STATEMENT OF
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"Too Much For Too Little: Finding the Cost-Risk Balance for Protecting Federal Employees in Leased Facilities"

House Subcommittee on Economic Development, Public Buildings and Emergency Management

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May 20, 2010
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Introduction

Chairwoman Norton, Ranking Member Diaz-Balart, and members of the Subcommittee — good afternoon. My name is Barbara Nadel, FAIA, and I am the principal of Barbara Nadel Architect (BNA), an architectural and consulting firm based in New York City. Thank you for this opportunity to appear before you on behalf of the American Institute of Architects (AIA) to discuss the risk implications of applying the Department of Defense's (DoD) "Antiterrorism Standards for Buildings" in General Service Administration (GSA) lease procurements.

By way of background, I specialize in building security, master planning, programming, and design of civic, justice, healthcare, cultural, and institutional facilities. I have worked with the world's leading institutions, building owners, security consultants, architects, engineers, construction managers, respected members of the security community, and over 40 federal, state and local government agencies in the U.S. and internationally. As a national expert and advocate for security and design excellence in civic architecture and the built environment, I have served as a consultant for a number of government agencies. GSA appointed me to the National Register of Peer Professionals in the Design Excellence Program, and I have served as the AIA's representative to the U.S. Department of State Bureau of Overseas Building Operations Industry Advisory Panel (OBO IAP).

More recently, I chaired the AIA's 21st Century Embassy Task Force, which brought together leading architects, engineers, landscape architects, ambassadors, diplomats, Foreign Service personnel, architectural historians, public art experts and key members of OBO to study the integration of design and security in U.S. embassies. In 2009, the Taskforce released the report, *Design for Diplomacy – New Embassies for the 21st Century*[1], which examined how embassies can reflect American values and ideals, while encompassing safety and security, along with aesthetics, energy efficiency, sustainability, flexibility of functions and work spaces, accessibility, historic preservation and user productivity. As a result of our Task Force's work, earlier this year the State Department

[1] http://www.aia.org/advocacy/federal/AIAB082752

announced the creation of a design excellence program, similar to that which exists at GSA.[2]

I am the editor-in-chief for the leading security resource, *Building Security: Handbook for Architectural Planning and Design* (McGraw-Hill, 2004). This book is considered the industry standard for building security. I have written more than 450 articles on security, design, sustainability, public policy, and technology and have keynoted and spoken to more than 70 industry and government groups on these topics.

I am also pleased to represent the American Institute of Architects (AIA) at today's hearing. The AIA is comprised of more than 83,000 licensed architects, architects-in-training and allied professionals across the country and abroad who are committed to the planning and design of safe and sustainable buildings and communities. Architects are required by their licensing bodies and codes of ethics to design structures that protect public health, safety, and welfare. In fact, the AIA requires its architect members to receive at least eight hours of continuing education every year to protect public health, safety and welfare, and most states require the same as a condition of continued licensure.

Ensuring to the maximum extent possible the safety and security of American public servants, whether serving in the U.S. or overseas, is one of the most important and valuable services that architects can contribute to U.S. national security. It is our collective responsibility to provide safe and secure buildings for all American personnel serving at home and abroad, for members of the military, the federal judiciary, federal employees, the Foreign Service, and the diplomatic corps.

The AIA has worked closely with GSA on issues relating to the security of federal facilities, including advising GSA on the *Site Security Design Guide*[3], which provides a strategy for security professionals, designers, and project and facility managers to follow in designing site security at federal projects of all sizes and locations. GSA is responsible

[2] http://www.state.gov/r/pa/prs/ps/2010/04/140238.htm
[3] http://www.gsa.gov/Portal/gsa/ep/contentView.do?contentType=GSA_BASIC&contentId=23429

for a large real estate portfolio within the U.S., including federal courthouses and office buildings which house federal employees from various federal agencies.

Similarly, in the last two years, the AIA has worked closely with OBO to create a framework for developing embassies and diplomatic facilities in foreign countries to reflect design excellence, and American values, while meeting the security mandates set forth by the U.S. Congress and by the State Department's Bureau of Diplomatic Security (DS) for protecting all personnel.

Risk Management

All federal agencies, including DoD, GSA, and OBO, place a high priority on protecting American personnel, buildings, and critical assets from acts of terrorism at home and abroad.

As the Subcommittee is aware, DoD and GSA have developed a set of security standards, Unified Facilities Criteria (UFC) and Interagency Security Criteria (ISC), respectively, for their facilities.

Since the 1995 bombing of the Alfred P. Murrah Federal Building in Oklahoma City, GSA and ISC have developed comprehensive standards and guidelines for levels of protection (LOP) at federal properties. Before the 1995 bombing, GSA had no standards for vehicle impact resistance, blast resistance, or standoff distances. Standoff distance is a distance maintained between a building or portion thereof and the potential location for an explosive detonation.[4] There were no perimeter security measures, guidelines for glazing in windows and doors, and no magnetometers or x-ray machines in federal building lobbies.

After the Oklahoma City bombing, however, GSA and ISC developed criteria to identify targets; determine levels of protection; understand the threats and the design response, known as the design basis threat (DBT); develop design strategies; and assess budgets for

[4] Unified Facilities Criteria UFC), DoD Minimum Antiterrorism Standards for Buildings, U.S. Department of Defense, (Washington, D.C.: January 22, 2007), page A-5.

security countermeasures. Design basis threat is the threat (aggressors, tactics, and associated weapons, tools, or explosives) against which assets within a building must be protected and upon which the security engineering design of a building is based. [5]

At the outset of any project, when addressing security, whether in the public or private sector, the public agency or building owner must engage in a risk management process, to determine the real or potential threats and the appropriate responses. The objective of the risk management process is to identify an achievable level of protection (LOP) that is commensurate with, or as close as possible to, the level of risk.

Risk management relies on obtaining good threat intelligence. Good design is based on good intelligence. Architects and design team members can provide appropriate, customized building hardening, aimed to strengthen building facades against the effects of a blast, and security measures based on actionable intelligence received from building owners. These may take the form of integrating design, technology, and operational measures to achieve a comprehensive security plan for a facility.

The UFC concurs with this approach: "The overarching philosophy upon which this UFC is based is that comprehensive protection against the range of possible threats may be cost prohibitive, but that an appropriate level of protection can be provided for all DoD personnel at a reasonable cost." [6]

There is no one-size-fits-all answer to providing physical security to facilities in the built environment. Each building and site is different. A threat and vulnerability analysis (TVRA) assesses potential threats, along with the function, design, construction, landscape features, site, adjacent uses, tenants, occupants, visitors, and critical infrastructure in and around a property. These factors are important in managing risk and applying a customized LOP to address facility-specific conditions. According to the

[5] Ibid, p. A-2.
[6] Ibid, p. 2-1.

UFC, "It would be cost prohibitive to provide protection against the worst-case scenario in every building."[7]

The findings of a TVRA provide guidance to architects and design professionals in reducing vulnerabilities and mitigating risk by applying the appropriate security measures. Building owners must have the flexibility to raise or lower security levels in and around their site, based on intelligence or other factors. For example, normal operations may be in place 85 percent of the time; however, when a VIP plans a visit, or on an important anniversary date when heightened tensions are expected, owners may wish to raise security levels by closing streets to achieve a greater standoff, deploying more personnel, and limiting building access.

In assigning levels of protection for GSA buildings, for example, a facility security level (FSL) is an estimation of risk. Within the ISC, each FSL addresses risk, and relates to an LOP and a set of appropriate baseline security measures. For example, a Level I facility is considered to have a Minimum level of risk, and Minimum LOP, while a Level V facility reflects a Very High level of risk and a Very High LOP.

The UFC provides a Low LOP to Primary Gathering Buildings, which could be office buildings, defined as inhabited buildings routinely occupied by 50 or more DoD personnel. [8] The UFC standards assign a Very Low LOP for other Inhabited Buildings, defined as routinely occupied by 11 or more DoD personnel, and with a population density of greater than one person per 430 gross square feet.[9]

Risk management has become more complex in recent years, as terrorism threats have spread from international venues to domestic settings, such as the Underwear Bomber in December 2009, and the recent Times Square vehicle bomber in New York. Good advance actionable intelligence becomes critical to avoiding mass casualties. We are now faced with the prospect of potential suicide bombers, homegrown jihadis, who can move

[7] Ibid, p. 2-3.
[8] Ibid, p. A-4.
[9] Ibid, p. A-3

freely in our society without attracting attention, making it harder to gather intelligence about their activities, and thereby increasing risk to our society.

Risk assessments are performed for existing and proposed new facilities. The methodology must be credible, and assess the threat, consequences, and vulnerability to specific undesirable events. The higher the risk, the higher the LOP. Variations in the nature of the mission, location, and physical configuration of a building and site may create unique risks that do not apply to similar building types with a given LOP in other locations. A high-rise office building in suburban Arlington, Virginia, for example, may be subject to a different range of threats and vulnerabilities than a mid-rise office building in a medium sized Midwestern city or suburb. For this reason, it is imperative that federal agency owners, security professionals, and design teams have the ability to customize security countermeasures for each facility, in order to mitigate potential risks and threats. This will avoid spending resources where they are not needed, making resources available for other installations, and ensure the effective use of taxpayer dollars.

Leased Commercial Space

DoD and GSA often rely on leased commercial space in suburban and urban areas of the U.S. to house personnel. Similarly, OBO often leases commercial space in host nations for American government personnel serving overseas. All three agencies have security guidelines and requirements, with the goal of protecting American personnel and assets.

In the case of leased commercial space for DoD personnel in GSA-owned buildings, there are several security criteria that must be addressed.

I would like to expand upon three of the most important building security requirements in the UFC and discuss how they relate to commercial leased space, particularly in dense, urban areas:

- Standoff distance
- Parking
- Windows and glazing.

Standoff Distance

Standoff distance is a response to mitigate damage from a vehicle borne improvised explosive device (VBIED), one of the most serious terrorism threats. VBIEDs were used in the 1995 Oklahoma City Alfred P. Murrah Federal Building bombing, and the 1993 truck bombing of the World Trade Center from an underground parking garage. The building industry and the security community have learned many lessons from these events, and other domestic and international terrorist attacks, on how to make buildings safer and more secure.

Standoff is critical because every foot from the source of a vehicle borne explosive to the face of a building can mitigate the impact of an explosion and collateral damage, which is injury to personnel or damage to buildings that are not the primary target of an attack. [10] Distance equals safety.

However, standoff distance does not protect people or assets from a suicide bomber, wearing explosives in a belt or backpack, who walks into the lobby of a building and detonates their charge between the front door and the x-ray machine before being screened. Nor does standoff distance protect against a pilot who flies a small plane into an office building housing the IRS, as occurred in Austin, Texas, in February 2010.

Blast resistant glazing, structural systems designed to avoid progressive collapse, blast resistant construction materials, and fire protection systems can mitigate collateral damage, along with operational training and fire exit drills for building occupants. Additionally, alert security personnel, electronic surveillance, and good intelligence should ideally be able to thwart such occurrences even before an attacker approaches a building.

Federal agencies, such as GSA, OBO, and DoD, call for different standoff distances for their facilities. Very often, however, in urban and suburban areas, the ideal standoff cannot reasonably be achieved with existing buildings. Security levels can be maintained

[10] Ibid, p. A-1.

by appropriate architectural and engineering design strategies, and building hardening measures, along with operational approaches implemented by the building owner.

GSA and ISC call for a 50-foot standoff, which can generally be obtained through building setbacks from roadways or closing streets to vehicular traffic. Appropriate architectural and engineering design strategies can harden building exteriors to provide blast resistance where the desired standoff cannot be achieved.

OBO requires 100-foot standoff distance for embassies and diplomatic facilities located in other countries. This standard is a result of the high risk to American personnel serving in foreign countries, and the historical use of VBIEDs against American diplomatic facilities and personnel, dating back to the 1983 bombings of the U.S. embassy, and the Marine barracks, in Beirut, Lebanon. These attacks on U.S. personnel and assets have continued over the years and remain a serious threat.

In contrast, DoD, based on the UFC, calls for a 148-foot (45 meter) standoff for a Primary Gathering Building, with Low LOP, of conventional construction without a controlled perimeter. For existing buildings, the minimum UFC standoff is 82feet (25 meters). For Inhabited Buildings, with fewer occupants, at a Very Low LOP, UFC calls for an 82-foot (25 meter) standoff, but requires a minimum standoff of 33 feet (10 meters).[11] These standards apply to all leased properties, in the U.S. and in other countries.

UFC addresses Leased Buildings as follows:

> DoD personnel occupying leased buildings deserve the same level of protection as those in DoD-owned buildings. Implementation of these standards is therefore mandatory for all facilities leased for DoD use and for those buildings in which DoD receives a space assignment from another government agency except as established below. This requirement is intended to cover all situations, including General Services Administration space, privatized buildings, and host-nation and other foreign government buildings. This requirement is applicable for all new

[11] Ibid, Table B-1, Standoff Distances for New and Existing Buildings, p. B-2.

leases executed on or after 1 October 2005 and to renewal or extension of any existing lease on or after 1 October 2009. Leases executed prior to the above fiscal years will comply with these standards wherever possible. [12]

Existing buildings: New leases or renewals of leases of existing buildings will trigger the minimum standards for existing buildings in accordance with the effective dates established above. [13]

In effect, this means that a military recruiting office located in a suburban mall storefront, or in the heart of Times Square, must have between 33 and 82-feet of standoff distance, an unrealistic situation. DoD must assess the risks and potential threats against the benefits of being in these locations.

Based on this data, it appears that the UFC imposes unreasonable conditions for leasing space within urban and suburban areas. GSA, OBO, and federal agencies with a significant history of VBIED attacks upon their facilities in the U.S. and abroad, have developed security standards and requirements that are less restrictive and more realistic for new construction, existing buildings, and leased facilities in urban locations than DoD's UFC standards. As a result, there is no apparent reason that DoD should require a standoff distance of 148-feet or 82-feet for all domestic leased facilities.

Distance creates safety, butalternative methods can be applied to address security and blast resistance other than standoff distance alone.

Simply put, the UFC 148-foot and 82-foot standoff is based on a design basis threat – a certain sized bomb, a certain distance, and a certain building façade hardening. When any of these parameters are increased or decreased, the others must be adjusted. If the bomb is bigger, the design basis threat becomes bigger, and the standoff distance must be increased, and/or the façade hardening should be increased as well. Or, if the standoff is

[12] Ibid, 1-6.4, Leased Buildings, p. 1-6.
[13] Ibid, 1-6.4.3, Existing Buildings, p. 1-6.

limited, and the bomb is calculated at a certain size, an increase in the façade hardening is in order. This is the basic approach used by security experts.

If building owners, such as the State Department or other agencies, cannot achieve the desired 100-foot standoff everywhere around the world, they make facades and exterior building envelopes more robust, and employ blast resistant design strategies at exterior walls, windows, doors, and structural systems. DoD, especially in the current domestic environment, should be able to do the same.

There are many examples of beautiful buildings with high performance curtain wall construction that are designed and built to withstand considerable blast in the urban environment. The new Goldman Sachs Headquarters building in Lower Manhattan, near Ground Zero and the site of the World Trade Center, is one such example. Designed by Pei Cobb Fried & Partners, the building is sheathed in blast resistant glass curtain wall, and is an outstanding example of integrating security, sustainability, and design excellence for one of the most high profile building owners at one of the most secure building sites in the United States.

Parking

The 1993 World Trade Center bombing in New York City, caused by a truck bomb in the underground parking area as part of a failed attempt to topple one of the Twin Towers, illustrates the need to provide screening and inspection for all vehicles that enter underground parking garages.

Underground parking areas must have robust inspection policies and operational procedures in place. No vehicle should be allowed to enter underneath a building unless the vehicle is fully screened for explosives. Ideally, according to some security experts, that includes the use of bomb-sniffing dogs trained to identify explosives. Owners may choose to implement policies allowing only authorized employees or other personnel to park underground. However, this is not a substitute for routine vehicle inspections, since explosives can be planted in or under vehicles at any time outside the facility.

For new construction, parking should ideally be in an adjacent, above ground structure. However, this does not relieve owners from the responsibility of requiring inspection and screening of all vehicles. Additionally, for new and existing buildings, a rejection lane should be provided to send unauthorized vehicles away without allowing them to drive into the parking structure or under a building.

Glazing

The Oklahoma City bombing prompted GSA and ISC to perform extensive research on how glass behaves during an explosion. Many of the fatalities occurred because of flying glass shards and other debris, in addition to the progressive building collapse. DoD has also done exhaustive research studies on how window framing and glass react in a blast environment. The building industry has benefitted from the findings of this federal research.

Laminated glass, consisting of multiple sheets of glass bonded together by a bonding interlayer [14], provides a level of protection to windows and doors because of the reduced likelihood of flying glass pieces.

Aluminum-based window systems, containing energy-absorbing devices concealed within the window structure, are generally known as blast windows. With blast-resistant window systems, the frame and laminated glass absorb blast energy without transferring loads onto the building structure. In retrofit projects, blast-resistant window systems can significantly reduce or eliminate the need for building reinforcement, allowing rapid installation with minimum disruption. Blast windows are suitable for high-risk, high-profile buildings considered potential targets; for projects where budget constraints or other concerns limit window replacement options, and where large glass facades, storefronts, and curtain walls are involved.[15] Blast window and door systems reduce the chance that frames will become flying missiles immediately after a blast.

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[14] Ibid, p. A-3

[15] Barbara A. Nadel, FAIA, ed., *Building Security: Handbook for Architectural Planning and Design* (New York: The McGraw-Hill Companies, 2004), 29.4.

Building material manufacturers are constantly developing high performance glazing and window systems designed to provide blast resistance, energy efficiency and sustainable qualities. Architects, engineers, and owners should have the flexibility to design and specify the most appropriate and current window and door systems to meet project requirements, especially when blast resistance, energy efficiency and sustainability are high priorities.

Conclusion

Building security design, especially for federal buildings which are considered targets, should prevent mass casualties, minimize injury, protect critical assets, ensure business continuity, mitigate risk, and enhance resilience.

Good design is based on good intelligence. There is no one-size fits all solution to building security in the built environment. Every building and site is different, and has unique criteria to be considered for threat and risk management. Owners, architects, engineers, design professionals, and security personnel can assess the risks and options most suitable and affordable for each facility. Security standards, such as ISC, and UFC, provide a baseline for determining the level of protection, the design basis threat, and the most appropriate security countermeasures.

Regarding standoff, distance equals safety. However, in urban settings around the world, deep setbacks are not always achievable, available, or realistic. Owners, and tenants in some cases, should identify the acceptable level of risk. Architects, engineers, and security experts should have the flexibility to develop alternative design strategies for building hardening that would achieve a similar level of protection as a proscribed standoff distance of 148-feet or82-feet.

Thank you for the opportunity to provide testimony on this important issue. I would be happy to answer any questions the Subcommittee may have.