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IS DENSITY DANGEROUS?
THE ARCHITECTS' OBLIGATIONS AFTER THE TOWERS FELL

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The war against terrorism threatens to become a war against the livability of American cities. In the rush to respond to the threat of terrorism, a loose network of public officials, architects, developers, engineers, lawyers, planners, security consultants, and others who influence building codes are creating a new generation of planning and design regulations. Their purpose is to make terrorism more difficult and to reduce its human and material toll. Unfortunately, the broader, indirect impact of these regulations, with their focus on isolating people from buildings and shutting buildings off from streets, could undermine the vitality, sense of community, and civic quality of much of urban America.

In fact, the economic, social, and design dimensions of urban communities have been largely ignored in most of the approaches to fighting terrorism that have emerged after September 11. The vitality of many American cities hinges on public investment in urban areas that have been abandoned by the private sector—the very areas that will bear the brunt of new regulations that focus on decentralizing potential targets, such as court houses and other public buildings. Measures like these threaten efforts to revitalize older downtowns and reverse sprawl. A strong sense of community in urban areas— seen in revived streets and squares that are again drawing people together in cities—plays a critical role in building vitality and reversing economic and social fragmentation. The life of streets and squares depends on a lively interplay between buildings and the public realm, one that is undermined by closing entries to major buildings and surrounding them with security perimeters. Civic buildings and spaces shaped in the interests of security become bunkers, not the symbols of a democratic and open society that ennoble and enrich cities.

To understand better the trade-offs involved between fighting terrorism and the health of American cities, it is critical to examine four core questions: What issues does the fight against terrorism raise? What new approaches to enhanced security are emerging? How can steps to fight terrorism affect cities? Are there better approaches to achieving a balance between protecting Americans against terrorism and promoting the livability of American cities?

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Issues Raised by the Fight Against Terrorism

The 1973 oil embargo unleashed a profound sense of vulnerability in America. A colleague of mine recalls, without fondness, her quaint Connecticut community's response to the embargo: joining many other communities in banishing windows from new schools. To a society single-mindedly focused on conserving energy, that windowless school symbolized patriotism and civic responsibility. In retrospect, that school also symbolized an aberration, a sense that energy conservation required doing away with the qualities that make schools nurturing places for learning. As with any issue, measures that make sense from one perspective can be disastrous from another.

The response to September 11 by the American Institute of Architects (AIA) provides an informative glimpse into how security approaches are being shaped, and by whom. In the wake of tragedy, the AIA made a fundamental commitment in taking a leadership role in shaping America's response to terrorism. AIA has also committed the profession to respond quickly through a series of publications and conferences, which have focused on three areas: increasing architects' awareness of security issues and related planning and design tools; increasing awareness within the larger community of the profession's role in enhancing security; and participating with other disciplines in defining new planning and design standards to create more secure buildings and environments.

The AIA moved quickly to organize meetings between leading design and building professionals and public officials in Washington in December 2001, and a national conference on "Building Security through Design," co-sponsored by Sandia Laboratories.[1] The AIA produced a pamphlet, "Building Security by Design," to suggest how the architectural profession could contribute to fighting terrorism. Discussion at both the Washington meeting and Albuquerque conference was lively and conveyed the AIA's deep commitment to the quality and character of American cities. However, professionals who showed the most interest in this topic—for example, by preparing the AIA's pamphlet—and who over the course of 2001 and 2002 have shaped emergent policy recommendations, have largely included the architects, engineers, security consultants, and others—practitioners who have worked for years to make embassies and courthouses safer. These practitioners, many of whom had become deeply concerned about security following the 1995 Oklahoma City bombing, brought to the discussion a heightened commitment to enhancing security, but very little focus on the impact their recommendations could have on larger issues of urban development.

No one within the AIA and allied organizations (nor for that matter, our larger society) consciously sought to address the threats associated with terrorism from a narrow perspective. A constricted viewpoint, however, naturally emerged from the resulting dialog, which was largely confined to like-minded architects, engineers, and security consultants who got involved out of longstanding interest in these concerns—an interest that had stemmed from a shared history of dealing with the impacts of terrorism on places like American embassies.

The potential regulations under discussion at local, state, and federal levels threaten to endow America with a new generation of buildings like the windowless school in Connecticut: civic structures hidden behind blank, blast-resistant walls; important public buildings quarantined inside lifeless zones free of vehicles or people; public employees scattered to greenfield sites; downtowns in need of revitalization, but deprived of new courthouses or federal office buildings; and city streets rendered more dangerous by the elimination of the windows and doorways that promote interaction between buildings and streets. It is perhaps the greatest irony that in recent decades much of our urban environment was rescued from fear—and made cities and society far safer—by consciously creating more open buildings, blurring the separation of public and private space, promoting community, and drawing people back to our streets and squares. A single-minded focus on defending against terrorism threatens all of these hard-won gains.

Forging approaches that better balance the response to terrorism with the equally essential need for buildings and public spaces that promote vitality, community, and a civic spirit in America's cities, will require new participants in the dialog. A broad range of people for whom this is not a familiar issue must step forward to participate, including architects, planners, community leaders, elected officials, real estate professionals, and others with a direct stake in the character and quality of cities.

Concerns about terrorism are here to stay, and they have raised a heightened awareness about security in the American psyche. The odds of being harmed by terrorism may be dwarfed by the odds of suffering from conventional hazards like fires, sick building syndrome, and workplace accidents. Nevertheless, the new focus on terrorism means that unions will press for safer places to work, insurers and lenders will lobby to reduce risks, air travelers will demand greater security, and a long list of others in our society will continue to call for tangible responses to terrorism threats.

A very large part of our built environment will be shaped by concerns about terrorism. This is true particularly in urban environments, where the kinds of deep perimeter setbacks and windowless ground floors that characterize the counterterrorism approaches most often discussed, are the most difficult to accommodate. All symbolic buildings and spaces can be perceived as potential targets. No one can predict where terrorists will strike, because no one can determine precisely which structures have the desired symbolic value to a terrorist. The long list of targets begins with emblems of economic and military power, such as the office towers and government buildings attacked on September 11. From there, the list expands to include: symbols of government—courthouses, embassies, federal office buildings, state houses, city halls, and other public facilities; infrastructure—airports, utilities, hospitals, power grids, water systems, and highways; reminders of America's educational and cultural influence—universities, research facilities, and museums; symbols of American history and values—historic monuments and houses of worship; and places where people gather in large numbers,

including theme parks and athletic events, festivals, and concerts. Because the list is endless, the impact of new regulations can be limitless.

Post September 11 Approaches to Enhanced Security

The new sense of American vulnerability unleashed by September 11 is leading to the creation of a web of planning and design regulations intended to help defend against terrorism. The potential regulations themselves appear relatively straightforward. The following list—not exhaustive—includes the planning and design tools most often recommended by architects, engineers, and security consultants for enhancing security (and often used in combination; the tools are described in order of decreasing impact on civic quality, sense of community, and vitality of cities).

Protect Building Perimeters

Initially conceived to protect buildings against vehicle-borne bombs, this concept has grown to account for pedestrian- and boat-borne bombs. Protecting building perimeters is primarily associated with significant public buildings, but the proliferation of Jersey barriers and bollards around office buildings and other potential targets after September 11 suggests potential wider applications. Proposed measures for protecting perimeters have taken three principals forms.

The most pervasive measure, already implemented by the federal government following the Oklahoma City bombing, has been to remove parking and servicing lots from beneath buildings, where possible, and require that all new parking facilities be located in surface parking lots or in freestanding parking garages. While federal agencies had already begun to focus on creating deep setbacks to protect buildings from bomb blasts following Oklahoma City, this measure has received far more focus following September 11. A distance of 100 feet has generally been suggested as the minimum setback to protect a building from a blast associated with a car or small truck, but hardened walls can reduce the distance. While security professionals initially recommended vehicle-free setbacks,

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there have also been increasing calls for pedestrian- and/or boat-free zones. Barriers, ranging from relatively unobtrusive installations (for example, well-designed bollards, streetscape elements, or even parked cars if by permit—all used in the Federal Triangle in Washington, D.C.) to far more intrusive installations such as the Jersey barriers placed in front of the Sears Tower in Chicago following September 11, can be used to create deep setbacks or to transform sidewalks or small landscaped areas into shallow setbacks. In some cases, public streets have been closed to protect buildings; the most notable example is Pennsylvania Avenue at the White House. The third measure focuses on increased use of approaches associated with "crime prevention through environmental design," which focuses on observation zones, free of plantings or other obstacles to surveillance, increased lighting for surveillance cameras, increased security staff, and similar steps to monitor activity around a building perimeter.

Harden Buildings

The most dramatic example of a "hardened" building is probably the J. Edgar Hoover Federal Bureau of Investigation building in Washington, D.C. The federal government became far more interested in hardening courthouses and other potential federal targets after the Oklahoma City bombing. The initial focus, which was on land-based bombings, has been expanded to include air-borne bombs since September 11. The focus on resisting the impact of bomb blasts has expanded from a building's exterior walls to include its internal structural system and finishes.

Proposed measures for hardening buildings primarily fall into two broad areas. The most visible measure involves strengthening street-level walls to the point at which they can sustain bomb blasts for defined levels—a standard that has risen as the perceived power of potential bombs has increased—or at least reduce internal damage and harm to inhabitants. Eliminating or severely reducing the amount of glass and the number of entryways at street level represents an important aspect in strengthening street levels.

A less visible, but just as important measure, is strengthening structural systems to limit loss of life and property for defined blast levels, particularly by greatly increasing blast and fire resistance and incorporating emergency stairs and exits capable of withstanding blast and fire damage. Closely related steps include increasing fire suppression systems, employing films and other technologies designed to strengthen glass and minimize shattering, and installing stronger window frames and other structural elements intended to reduce the risk of window systems' detachment from building walls in the event of an explosion.

Control Access

The most visible response to September 11 for most people has been the introduction of airport-like security measures at entrances to city halls, major office buildings, and other important buildings and spaces. Perhaps less obvious has been the closing of many entry points to create single points of entry and exit that can be monitored efficiently. Major sporting events, theme parks, and other places where people gather in large numbers have also greatly increased their control at entry points. In addition, the many other points at which a bomb could be introduced into a building—mail systems, utility corridors, and other less obvious points of entry—have become subject to much greater control. Proposed measures for controlling access fall into three broad areas.

A sharp increase in the number of buildings that limit entry points and monitor all entrants has been the most visible change in access control since September 11. (A single entry is usually suggested as a way of maximizing the ability to monitor while minimizing related labor and other costs). Monitoring usually consists of computerized identity checks and can also include scanning people's bodies and personal effects, plus occasional searches. Efforts to increase control of entry points have also extended to locking manholes and other potential entries to underground access points and to controlling and monitoring non-"front door" entries, such as loading docks, utility corridors, and other potential points of entry.

(This monitoring can require additional staff for buildings that receive frequent deliveries).

The second, less visible, but also widespread measure, involves collecting more complete information about all employees—permanent as well as temporary (including construction and maintenance workers)—who regularly staff a building. The proliferation of photo identification cards worn by employees is the most evident sign of this trend. The third measure involves greatly increased monitoring of mailrooms using observation cameras and similar devices. These mailrooms may also need to be hardened to protect adjacent building areas from potential blasts associated with mail-bombs.

Strengthen HVAC Systems

Perhaps the most difficult task ahead is to prevent biological and chemical hazards from being introduced into the air supply, drinking water, or other systems within buildings or within larger communities. A closely related and equally difficult challenge involves limiting the damage to human life once these hazards have been introduced. Proposed measures to strengthen HVAC systems primarily fall into two broad areas.

The less expensive measures focus on: locating air intakes where they are not readily accessible from the street, adjacent roofs, or by construction or similar workers; controlling access to utility rooms and monitoring them; and providing triggers that immediately shut down, or in other ways shift operation of air-handling systems once a threat has been detected. To avoid significant loss of life, it is important to shut down ventilation systems or, in some cases, greatly increase air changes within a minute or less. Far more expensive measures involve providing HEPA filters and/or irradiated air for buildings. Though highly effective, such measures can add 20-40 percent or more to the cost of operating a typical office building, taking into account full maintenance and regular replacement of worn-out and costly filters. The chief problem to date with these measures has been inadequate maintenance and replacement—which greatly diminishes effectiveness—due to high costs.

Enhance Emergency Capabilities

The emergency preparedness protocols introduced for the World Trade Center Towers (WTC) following the 1993 bombing, which included emergency drills, have been credited with saving many lives on September 11. Proposed measures to further enhance emergency capabilities primarily fall into three broad areas.

The first set of measures includes: separating emergency exit/access stairways and emergency exits to enable fire department and other emergency personnel to enter a building without interference from building inhabitants who are exiting; providing intermittent "safe" floors—hardened and provided with enhanced fire and smoke suppression—for tall buildings; and enhancing emergency preparedness for individual buildings and public spaces with regular safety drills. The second set of measures, which has received particular attention following analysis of the structural failures that led to the WTC towers' collapse, focuses on strengthening structural systems' protection from blast and heat, preventing collapse altogether or delaying collapse long enough to shore up damaged structural systems, and prolonging the period during which people can be evacuated. The third set of measures focuses on increased maintenance budgets to allow frequent replacement of air filters, cameras, and other equipment.

Create Designated Security Zones

These zones, which normally include buildings and public spaces adjacent to potential targets, such as the blocks immediately surrounding courthouses, require increased investment to harden buildings or undertake other measures to limit damage and loss of life that might result from an attack on a nearby target. Proposed measures to create designated security zones involve extending the protective measures to applied potential target buildings to nearby buildings as well. Proposals for security zones focus on combining perimeter protection and hardening efforts to buildings located close to courthouses, federal office buildings, or other potential targets, generally within 100 feet. These measures could significantly increase

the construction and operating costs for buildings that are not themselves considered likely targets. Buildings in these zones would also be heavily impacted by street closures or other measures to keep vehicles and pedestrians away from potential target buildings.

The measures taken to fight terrorism will not be static. One of the most significant challenges will be to create performance-based regulations for protecting buildings and public spaces that will reflect changing technology and increased experience. A number of measures that could significantly reshape approaches to enhanced security are on the horizon:

Protect building perimeters. New technologies are becoming available to scan vehicles or people and to detect bombs, possibly reducing the need to set back or harden buildings. Increased surveillance capabilities, related to on-site cameras and even to satellite photography, can provide increased protection around high-profile buildings.

Harden buildings. New materials and construction practices are emerging that significantly enhance fire protection and suppression for structural systems. New glass coatings and strengthened window frames reduce the dangers of shattered and flying glass associated with bomb blasts.

Control access. One of the most controversial and far-reaching changes in technology is the increased ability to verify personal identities— and associated personal histories—using analysis of facial images, identity cards, and related techniques. These techniques could greatly diminish the need for time-consuming monitoring of building entries—and even the need to reduce the number of entries—but they also raise significant privacy and civil rights issues.

Strengthen HVAC systems. New technologies are becoming available to more rapidly detect hazards in air and water systems.

How Can Steps to Fight Terrorism Affect Cities?

Approaches to fighting terrorism are already beginning to tangibly affect the vitality, sense of community, and civic quality of urban America. The impacts threaten to become visible in every major American city.

Vitality

Much of the economic strength has been drained from America's cities because of the transition from an industrial economy to one based on service delivery and technology. Closely related—in fact, almost a ghostly twin—is the problem of sprawl. Many older cities lost their economic base with the departure of industrial jobs and the emergence of new economic activity in suburbs. For example, the value of Detroit's tax base, in constant dollars, shrank by more than 75% between 1950 and 1990 as the city's economy, based on manufacturing, collapsed. At the same time, sprawl continues to claim open space (Massachusetts has lost half its farmland since 1950); boost congestion (total miles driven in the Boston area have increased roughly fifteen times faster than population since 1970); and increase social fragmentation (80% of children living in poverty are concentrated in a few older urban areas in the Boston area and cut off from their middle-class peers). How do potential regulations to fight terrorism potentially make it more difficult to revitalize older cities and fight sprawl?

Revitalizing Older Communities

For years, the General Service Administration (GSA) brought the only significant new investment to many older communities by locating post offices on older main streets, courthouses and federal office buildings in older downtowns, and federal office buildings in high-unemployment communities. In Boston, the creation of Government Center, which houses federal, state, and city employees, sparked revitalization of Boston's Financial District; twenty years later, the O'Neil Federal Office Building led to a revitalization of the city's Bullfinch Triangle area. Two decades after that, a new federal courthouse has opened the door to redevelopment of Boston's Seaport District.

This pattern is repeated around the country. For many older downtowns, new public buildings represent the only hope for new investment.

The GSA's federal courthouse program is the source of significant new investment in many older cities. The most striking new building of the past decade in Cleveland is its new federal courthouse. In Wheeling, West Virginia, a new federal courthouse is helping to galvanize downtown revitalization efforts. The largest office development anticipated for central Birmingham, Alabama, in the foreseeable future is a new Federal Bureau of Investigation building. This pattern is even more critical for smaller cities across the country.

Much of the private investment in older cities is subsidized to reduce the risk of entry into questionable markets, particularly in the first round of new private investment. Projects like Quincy Hall Marketplace in Boston, new sports stadiums in cities like Cleveland and Baltimore, and other nationally recognized projects that have led the way in bringing private investment back to older downtowns were heavily subsidized. The costs of fighting terrorism threaten to do just the reverse—increase rather than subsidize the cost of these investments. In January 2002, *Newsweek* quoted financier Warren Buffett as saying that the costs of development associated with terrorism "…could slowly but surely lead to the de-urbanization of America and the closing of any iconic buildings."[2] He was particularly concerned with spiraling insurance costs associated with terrorism.

Fighting Sprawl
In December, Steven Johnson, writing in *Wired* magazine, suggested that "If there are to be new rules for the new warfare, one of the first is surely this: Density kills."[3] A few months later, in an issue of *Architectural Record*, noted architect Leon Krier suggested that the high death toll associated with the attack on the World Trade Center argues for lower buildings. There appeared to be a strong sentiment against building towers in city centers.

Yet, high-rise buildings represent an important alternative to sprawl because they help achieve urban densities. The choice between creating density versus sprawl is a difficult one. In most regions, sprawl is the real enemy. Suburban shopping centers continue to drain life from older main streets, and sprawl has reinforced racial and economic segregation. Security-driven steps, such as decentralizing public employees, isolating major buildings within large, empty setbacks, and avoiding height when land is scarce all undermine essential tools for fighting sprawl: focusing growth toward developed areas and reestablishing densities traditionally needed to support urban main streets and public transit.

The Bureau of Alcohol, Tobacco, and Firearms decided to locate a new office building to help revitalize a part of downtown Washington, D.C. The building is proceeding, but the Bureau has asked for a 100-foot setback that is free of vehicles *and* pedestrians. No matter how attractively designed, such pedestrian-free zones are a serious threat to pedestrian-oriented downtowns. In April 2000, the Federal Reserve Bank announced plans to begin moving employees out of denser urban centers to limit the damage that would be caused by an attack on a single major facility. This decentralization will export jobs, disposable income, demand for housing, indirect tax revenue, and many other benefits out of urban cores.

Community
The 2000 census reported the stark reality of a country in which the gap between rich and poor has grown dramatically, and patterns of racial and economic fragmentation have increased just as dramatically. Despite a widely reported influx of young professionals and older empty nesters into urban neighborhoods, core communities emerged with family income levels that dropped to less than half the levels found in outer suburbs. In region after region, a growing majority of suburban residents rarely go into downtown to live, work, or shop, with few exceptions: cities as diverse as Denver, Albuquerque, Cleveland, and other urban centers report sustained increases in people from across their regions bucking the suburban trend and rediscovering the city as a place of entertainment, arts, and culture. Every city in America is heavily invested in efforts to draw larger numbers of people to reacquaint

themselves with its streets and squares—mixed-use environments where they can rediscover the forgotten pleasures of urban life. As a society, Americans are heavily invested in rediscovering the common ground that these streets and squares provide in an era dominated by economic and social fragmentation. The alternative is even greater isolation between city and suburb, poor and rich.

There are several key strategies for making city streets and squares vibrant: promoting "eyes on the street"—fostering a sense of safety by lining streets and squares with buildings that have extensive windows; concentrating as much employment as possible along and near these streets and squares to create the economic critical mass needed to support shops and restaurants (in reviving cities, the only option is often public employment); and opening streets and buildings onto each other in ways that promote interaction, dissolving the boundary between buildings and the public realm with shops, multiple entries, and other methods that encourage interaction.

Regulations intended to fight terrorism threaten to stifle rather than promote community in urban zones. The architect of Boston's new federal courthouse, which occupies a magnificent waterfront site at Fan Pier, designed a winter garden overlooking the harbor and downtown to house public events. I was asked at a conference of architects whether the events of September 11 had diminished public use of this space. The immediate answer was yes. The more important answer, however, was that the courthouse already represented ways that security concerns can diminish a lively public realm. Sitting on the principal pedestrian route between the Financial District and the new Seaport District, the courthouse turns a blank wall to the street for an entire block, placing the building in splendid isolation, dampening nearby public life, and severing the two districts it was meant to connect. During planning for the courthouse, the city and many others had asked the GSA to incorporate shops and galleries into this blank wall to enliven the street and reflect the area's character as an arts district. The GSA responded that security concerns precluded these uses.

In sharp contrast, Boston's State Transportation Building, which opened in 1984, embodies a community-friendly design: a mix of uses, including shops, services, and restaurants to revitalize Boston's Park Square; parking hidden below the building; and a fully public interior "square," enlivened by cafés, entertainment, and steady pass-through traffic from multiple entrances.[4] These qualities also happen to be the hallmarks of "defensible space," which promote safety by fostering a vital, people-filled public realm.

Eli Naor, a California architect who grew up in Israel, told me that throughout its years of crisis Israel has remained committed to buildings and public spaces that promote community. Faced with terrorist bombings, the great public buildings of cities like Madrid and Paris have not closed important public buildings off from streets and squares. America should consider these approaches.

Civic Quality
In the wake of the Oklahoma City bombing, Senator Daniel Patrick Moynihan urged Americans to commit themselves to continuing to create buildings and public spaces that convey our values as an open and democratic society. He spoke following the Oklahoma City tragedy, but his words resonate more strongly today. American civic values are at stake in this time of new regulations to fight terrorism.

The State Department and architects designing embassies and other federal buildings abroad have long wrestled with the apparent contradictions between a society that prides itself on openness and freedom, and the bunker-like architectural qualities that most readily meet security concerns. While both the State Department and these architects deserve significant credit for keeping the debate alive and for continuing to seek a balance between security and the expression of an open society, the results hold little promise as a model for America's cities. Although the State Department has worked hard to enhance the architectural quality of its facilities abroad and to minimize the intrusiveness of measures intended to promote security—the deep setbacks, hardened street levels with visibly heavy walls and few windows, fences, heavy

security at limited entry points, and security measures—represent disturbing models for the courthouses, city halls, and other public buildings that constitute civic architecture in America. Yet these are the approaches being promoted to enhance security after September 11. Within the dense confines of many cities, architects will be challenged to create symbolic buildings that, despite their reliance on obvious security measures do not communicate a sense of fear, isolation, discrimination among different groups of people, or other messages inappropriate to a democratic society.

This concern extends to a broad range of values that shape the civic quality of our cities. To the extent that concerns about security supersede other values—commitment to historic preservation, meeting the needs of people with disabilities, energy conservation, preserving the environment, and life safety—these other values become more difficult to maintain. Creating barriers around historic buildings alters their character and diminishes a sense of connection to our historic values and traditions. Reconfiguring air handling to protect internal air supplies can significantly increase energy use. Encouraging large zones of quarantine around buildings may lead to the establishment of more greenfield sites. Isolating buildings from parking forces people with disabilities to walk much longer distances. While a single point of entry can still allow multiple points of exit for fire safety, there is the danger of complicating fire safety. The list of potential contradictions is very long.

Avenues to Resolution: Next Steps

There are no easy ways to balance security and the livability of cities. America cannot afford to ignore the threats of terrorism, but it can even less afford to undermine its cities at a time when they already face many critical economic and social challenges. Five important questions emerge as starting points for further dialog.

Design: Are there good urban design models?
Following Oklahoma City, the GSA organized a panel of architects, planners, and others to devise an approach to protect federal buildings

in Washington that remained sensitive to Senator Moynihan's admonition about creating buildings worthy of a democratic and open society. The panel suggested approaches based largely on protecting buildings with street furniture. Subsequently, architects designed artful "hardened streetscapes" for the Federal Triangle in Washington, D.C., that made innovative use of benches, bollards, and streetlights, together with more street trees (a hardened tree presumably is a larger tree) to protect civic buildings and enhance the public realm, preempting far more drastic proposals to ban vehicles and people and erect walls around public buildings. It is worth noting that without the added rationale of security, these streetscapes would never have benefited from the more generous budget, with accompanying increases in quality of materials and design, which became available when enhanced security became part of the program.

Risk Management: Are there ways to insure investors against the catastrophic costs of terrorism?
Unlike "conventional" disasters like fires or earthquakes, the potential costs associated with terrorism cannot be quantified, because the threat cannot be defined. This uncertainty is translating into extraordinary insurance premiums. Randall J. Larsen, director of the ANSER Institute for Homeland Security, a government-funded think tank, was quoted by *BusinessWeek* in June 2002, as saying "The problem with security spending is, how do you define 'enough?'"[5] In his early 2002 interview with *Newsweek*, Warren Buffett argued for government-sponsored insurance programs for terrorism that would enable the federal government to mediate between the unknowable risks associated with terrorism and the need to establish insurance protection for those who would become liable following acts of terrorism. The alternative is insurance so expensive that it becomes a brake on development, buying or selling, refinancing, or even continued occupancy of buildings perceived as possible targets.

Priorities: How should one balance costs and benefits?
Buffet's concern needs to be broadened to address the challenge of creating new tools to

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balance the costs and benefits of responding to the risks of terrorism. The costs of prevention are sometimes hard to see as well. Several commentators have noted, for instance, that by choosing to drive over the Thanksgiving holiday in 2001, large numbers of Americans actually placed themselves in greater danger than they would have faced in an airplane, given the far lower mortality rate associated with flying (even with terrorism factored in). It is clear that our society cannot afford to "harden" every potential target—and, far short of this goal, in a world of finite resources, how much of our building dollars does society want to dedicate to security at the expense of design, sustainability, durability, and other essential qualities? *BusinessWeek* reported in June 2002, that the Brookings Institute has projected that "improved major building security" will cost $2.5 billion per year. Those dollars would be sufficient to build enough homes to house 50,000 Americans every year.[6] Worse, the historic interplay between offensive and defensive strategies suggests that the very steps taken to counter terrorism will simply lead terrorists to search for new targets or new means to threaten current targets. Architects and planners can play a leadership role in assessing the real costs and benefits of fighting terrorism, given competing values and claims on resources.

Technology: How can finding new tools protect against terrorism?

Technology can play a larger role in enhancing security. The first step is to establish a performance-based approach to regulations intended to reduce the threat of terrorism and its impacts. Performance-based regulations would, for example, specify the blast level that a building must withstand, rather than setting the thickness of its walls, amount of glass, or other structural characteristics. In turn, the entity charged with administering building regulations would need to certify that a proposed design meets the appropriate standards. Traditional building codes are not performance-based. A new generation of codes, shaped to counter terrorism, can now be crafted to take advantage of rapid technological progress. New technologies will likely reduce the negative impacts on cities of many of the planning, design, and engineering-driven approaches to enhancing security discussed above.

The tools becoming available through advancing technology are already making a difference. In some cases, new technologies obviate undesirable physical design measures. For example, the widely reported photographing and scanning of faces of those attending the 2002 Super Bowl, while raising significant privacy concerns, eliminated the need for highly visible barriers and elaborate checkpoints that, from a design perspective, would have been far more drastic and would also have conveyed a sense of fear. The extent to which security officials can use technology to know who is entering a building or space can make it much easier to open buildings onto public spaces and in other ways to enliven the public realm.

Technology and design can also advance in tandem. Films and other techniques for strengthening glass and minimizing the hazards of shattering represent a far more benign way to "harden" the edges of buildings facing streets than eliminating all windows. Similarly, hardening parking structures to resist an explosion has already reduced the post-September 11 separation required between parking facilities and airport terminals and offers flexibility in locating parking for potential target buildings in urban settings. The principles of good urban design call for parking to be located below public buildings rather than in freestanding structures. Similarly, hardening structural systems and improving emergency-exit and life-protection systems offer distinct advantages over a moratorium on future towers.

Values: Should privacy be sacrificed to preserve community?

Woven into every aspect of the above discussion is the direct or indirect need to find the right balance between values. Enhancing security can diminish privacy, community, freedom of access, convenience, and other values. However, in many cases, if Americans are willing to sacrifice privacy, the nation can preserve other values and address security concerns. At the heart of this discussion lies this trade-off: if authorities know the identity of people entering a building or public space, and can quickly gain sufficient information about their histories, the public can operate with much freer and more convenient access to buildings and spaces—and much greater openness between symbolic buildings spaces, and the adjacent public environment.

American society is already choosing to make these trade-offs. People tolerate the fact that airlines make it quicker and easier for passengers they know—through frequent flyer programs in most cases—to board airplanes. Most people tolerate "cookies" from Internet sites that provide information about which sites they visit in return for greater convenience in gaining access to those sites. While many commentators expressed concern at photographing spectators at the Super Bowl, the practice was largely accepted with the understanding that this allowed much more convenient and open access to the stadium. There is no need to keep pedestrians 100 feet from a high-security office building if it is possible to know who those pedestrians are. Architects can locate shops and cafés in public buildings facing public sidewalks if it is possible to know who is entering those shops and cafés. There are privacy tradeoffs that Americans should and would never make—for example, those that sacrifice freedom. It very well may be, however, that gaining a new understanding of the balance between privacy and other values may unlock the ability to promote security without sacrificing those other values.

Conclusion

No American city is faced more directly with the dilemma of enhancing security while also promoting urban values than New York. As Mayor Michael Bloomberg stated in his January 2002 inaugural address, "We will rebuild, renew and remain the capital of the free world… New York is safe, strong, open for business and ready to lead the world in the 21st century. We will continue to improve our quality of life and attract visitors, tourists and businesses in record numbers. We will focus on public safety. We will work tirelessly to provide safe streets and homes for all New Yorkers. We will go forward. We will never go back."[7] In this address and in subsequent statements, Mayor Bloomberg stressed that the rebuilding of the devastated World Trade Center site and of lower Manhattan should be focused around people, not fear, honoring the memory of the victims by creating a plan that unites people and fosters renewed urban vitality. Echoing his call, a lead editorial in the *New York Times*

urged that proposals to rebuild the WTC site incorporate "…features, which make an urban area live and breathe."[8]

Terrorism and enhanced security are concerns now firmly planted in the American psyche. It is difficult for most Americans to accept the need to balance the risks associated with terrorism against the costs and benefits of responding to these risks. In the absence of quantitative measures for most risk assessments, Americans will need to establish qualitative measures for deciding where and how to respond to terrorism. Architects, planners, and others who deal daily with the qualitative issues of city building can play an important leadership role in this effort, in part because the people who traditionally make risk assessments cannot. This qualitative assessment will need to address such issues as competing claims for scarce dollars in building projects, finding a balance between enhanced security and lively public realm—a balance that will probably be different in every case, depending on the security and urban context—and even determining which buildings and spaces should be viewed as potential targets in the planning and design process.

As with the response to any crisis, a thoughtful response will leave our society stronger and our public realm more vital. Just as the initial narrow responses to the energy crisis matured into much more complex thinking about sustainability, which in turn has enriched large aspects of our built environment, a fully nuanced response to concerns about terror can provide new understanding and resources to enrich our ability to foster community. To date, the debate about new policies and regulations to shape our fight against terrorism has been dominated by professionals with backgrounds in designing buildings where security is the paramount concern. The key to the Federal Triangle outcome was participation by a far wider array of practitioners who focused on the quality, character, and vitality of cities. America needs a similarly broad-based national dialog to ensure that there is a commitment to building livable communities and to avoid the kind of single-minded responses that brought a small Connecticut town its windowless school.

NOTES

1 The conference, "Building Security Through Design" took place in Albuquerque, New Mexico, on January 10-13, 2002. For a summary of the keynote session and additional information please access <www.aia.org/security/>

2 Steven Brill, "Osama's Hidden Tax," *Newsweek*, Vol. 138, No.2 (January 14, 2002) p. 50-51.

3 Steven Johnson, "Blueprint for a Better City," *Wired Archive* (September 12-December 2001) at <www.wired.com/wired/archive/9.12/mustread_pr.html>

4 Paul McGinn and Theresa A. Mitton, *10 Massachusetts State Transportation Building* (Boston, MA: Massachusetts Port Authority, 1990)

5 Lee Walczak et. al, "America's Biggest Job: Is the U.S. any less vulnerable to terror these days? Here's the good news—and the bad," *BusinessWeek,* Vol. 3786 (June 10, 2002) p. 34-36

6 Ibid.

7 Inaugural Address of Mayor Michael R. Bloomberg (January 1, 2002). For the complete transcript, please access <www.studentvoices.org/news/index.php3?NewsID=2220>

8 "The Downtown We Don't Want," *The New York Times* (July 17, 2002) p. A18

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