Securing the Perimeter

The "best" modern architecture is that which is prepared for the "worst" catastrophe.[1] In his critical examination of the rise of mechanical systems in The Architecture of the Well-Tempered Environment, Reyner Banham argues that "working conditions of men in industrialized societies gave rise to environmental problems of the utmost urgency and baffling novelty. The sheer size and human density of settlements posed problems of waste disposal, and threat of epidemic (a threat tragically often fulfilled) that called for powerful legal action."[2] Implicit in Banham's indictment of architecture's inadequacy for managing the complexities of industrial urbanization is a recognition of the need to protect architecture, and its expanding purview, from itself.

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Just as industrialization introduced new threats to the city (electricity, speed, explosives) while also dramatically increasing the scale of historical perils (flood, fire, theft), the magnified scale of contemporary urbanism has in turn enhanced the role that architecture is expected to fulfill in sustaining the security of the city. Set against this historical narrative of escalation between expanding urbanism on the one hand and increased risks for catastrophe on the other, this panel aims to explore both the legacy of architecture's response to emergency and insecurity and its potential for agency in the uncertain conditions of the global city, out of which security and sustainability have emerged as major design concerns.

On the one hand, both security and sustainability could be seen as conservative forces - in the broadest sense of the term - operating in resistance to increasingly unpredictable global conditions. On the other, the responses to these changes presented in the papers - from informal networks of satellite dish technicians in Tehran to design proposals for "soft," flexible infrastructures - recognize that architecture's historic preoccupation with stable boundary conditions (literal and disciplinary) is currently open for reevaluation. Each of the presenters identifies urban security as an extra-architectural concern for which traditional spatial boundaries are at best marginal, but in which architecture nevertheless plays a central role. Julia Larsen puts forward a series of landscape-based design

proposals for Tokyo Bay designed to "react to climatic dynamics and fluctuations" protecting the coast through systematic, planned "failure." Rudabeh Pakravan navigates between Tehran's competing perimeters: the insular, "public" space of the home, which, through banned satellite television, becomes a loophole in the ideological circumscriptions of the government. In turn, Bimal Mendis and Joyce Hsiang contrast the environmental and organizational challenges of the Maldives in the face of global warming, arguing that the islands' "perimeters that are multiplied and dispersed creates a challenge in establishing a fixed or definable idea of boundary for the country, offering instead a new planning strategy… based on networks, resources, and efficiency." Collectively, the authors present urban security in terms of resilience, contingent on openness, flexibility, and improvisation.

That security and sustainability might both be most effectively addressed by such measures is, it should be noted, a timely proposition given convergences in design trajectories tied to environmentalism and public safety that have metastasized since the end of the 20th century. In general, the proliferation of security measures and sustainability solutions in recent decades has been piecemeal and equipment-based, largely undertaken through the application of discrete products (and accompanying checklists for these products) to be appended to otherwise conventional buildings or urban conditions. A notable development within these recent trends - which could be seen as a complementary counterpoint to the work presented by the panelists - is the emergence of the "security landscape." Combining a neo-medieval gauntlet of perimeter security hardware with the visual affirmation of recognizable forms and materials, the security landscape employs design as visual subterfuge. Aestheticizing security within an environmental balm by merging predictability with playfulness and plantings, these landscapes of safety seek to render fortification as picturesque (foregoing the ruins) through crypsis and mimesis.

To understand the identity of the security landscape as a contemporary design condition, it is helpful to consider its recent codification in the various design standards produced by federal agencies in the United States over the past ten years.[3] Specifically, the primary documents used to frame this study are the *Reference Manual to Mitigate Potential Terrorist Attacks Against Buildings (FEMA-426/BIPS-06)*, produced by the Department of Homeland Security's Science and Technology Division; *The Site Security Design Guide*, produced by the U.S. General Services Administration in 2007; and the *National Capital Urban Design and Security Plan*, initially released by the National Capital Planning Commission in 2002. Drafted as an updated collection of guidelines to those first issued in 2003 (as FEMA-426), the *Reference Manual* is an expansive collection of recommendations intended to "provide guidance to designers and decision makers" working in the banking and finance, commercial facilities, communications, critical manufacturing, government facilities, healthcare and public health, information technology, and postal and shipping sectors. In turn, *The Site Security Design Guide*

**The National Capital
Urban Design and Security Plan**

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presents "the evolving need for security as an opportunity—to achieve the best design, contribute to the sustainability of the environment, create a portfolio of buildings that will endure into the future, provide safe and productive federal workplaces, and improve the communities in which we work."[5] Finally,

> The National Capital Urban Design and Security Plan addresses the alarming proliferation during the last decade of unsightly and make-shift security barriers that are negatively impacting the historic beauty of Washington, D.C. The Plan reflects our strong conviction that we can have both good urban design and good security; that as we invest to make our streets and public spaces safer, we can also make them more beautiful. Our goal has been to seamlessly integrate building perimeter security into consistent, coherent, and welcoming streetscapes that are truly worthy of the Nation's Capital. If we are to be a free and open society, then our public realm must express those values and at the same time offer the protections mandated by today's security concerns.[6]

All three documents present site design as an exercise in securing the building perimeter, wherein landscape, security equipment, and risk management coalesce with architecture to form an integrated whole. "A comprehensive site design plan treats the site, the building, and the sur-rounding neighborhood as a single, integrated place."[7] What is more, the integration of landscape design and security is treated as a decora-tive undertaking aimed at the production of a unified and comfortable visual experience. This synthetic approach to site conditions, marked by the aesthetic coherence of architecture and landscape in the service of visual continuity and "openness," is consistently presented as an idealized design strategy for the integration of safety and sustainability measures throughout these and similar design manuals.

There is little discussion about the reasons that this is a recipe for desir-able design outcomes. That fact is simply treated as an a priori of design in the service of expressing the "vitality of the public realm."[8] Where

Figure 1: Cover: The National Capital Urban Design and Security Plan (Pennsylvania Avenue at the White House) [The National Capital Planning Commission, "The National Capital Urban Design and Security Plan" (Washington, D.C.: The National Capital Planning Commission, First Printing October 2002, Second Printing, November 2004)]

STREETSCAPE SECURITY ELEMENTS

Hardened Street Furniture

Seat Bollard

Fence Wall

Decorative Fence

Fence and Bollard

Plinth Wall

Bollards

Planters

Seat Planter

Hardened Light Fixtures

Streetscape Security Elements

The Monumental Core of Washington, D.C. is composed of distinct areas that have distinguishable boundaries and unique characteristics. Streetscape design is intended to reinforce or establish (in the case of areas with less recognizable features) urban design and architectural character.

The goal of *The National Capital Urban Design and Security Plan* is to seamlessly incorporate building perimeter security into a beautifully designed streetscape. The Plan broadens the palette of perimeter security elements into an attractive streetscape, including a range of street furnishings and elements, such as streetlights, walls, planters, fences, and seats. These elements have been studied to determine the feasibility of "hardening" them so that they function as both amenities and as components of physical building perimeter security. The structural design, spacing, shape, and detailing of the perimeter security components must be designed to address the required level of protection for a particular building.

While some elements may apply universally, others must respond to contextual areas, reflecting the unique character through use of appropriate materials, scale, and design detail. Though a family of streetscape elements has been designed for each contextual area or street, there are seven basic security design concepts. These include hardened street furniture, fences or fence walls, plinth walls, hedges and bollards, planters, bollards, and custom-designed solutions. While one or more of these concepts are used in multiple areas, the style of the elements will vary based on the character of a particular area.

The Plan's Streetscape Element Catalogue includes an array of streetscape components and landscape solutions developed for each Contextual Area and Monumental Street. The application of these elements is illustrated in the Area Concept Plans as they apply to various conditions found throughout the Monumental Core.

Tested and installed streetscape components have served as the basis for the security design concepts proposed in the Plan. In general, proposed solutions use materials and capabilities as those applied in proven elements such as the Presidential Bollard. This bollard has been integrated with new streetscape and security designs for light poles, newspaper racks, and benches.

Many of these new designs will need to be engineered and crash tested to verify that they are effective. The feasibility and cost of implementing these solutions will be determined as individual assessments are conducted and design of the components are tested to prove their effectiveness in defending against a variety of specified threats.
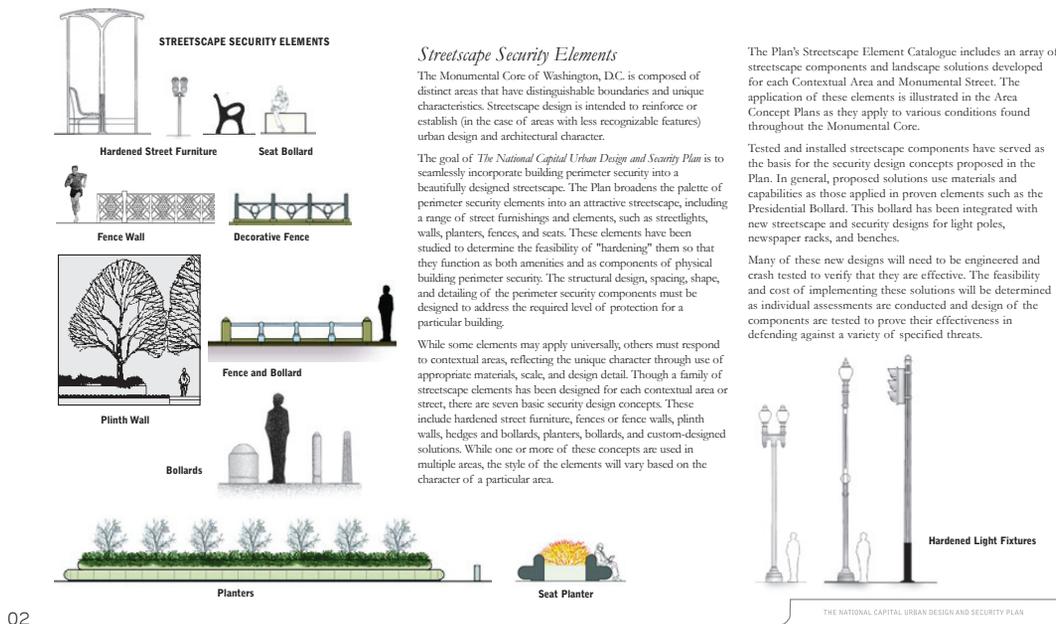
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Figure 2: Streetscape Security Elements [The National Capital Planning Commission, "The National Capital Urban Design and Security Plan" (Washington, D.C.: The National Capital Planning Commission, First Printing October 2002, Second Printing, November 2004)]

clarification does occur, it is to contextualize the integrated approach, as represented by case studies shown in Pugin-style contrasts to "piecemeal" measures frequently found in security retrofits of existing projects, with "jersey barriers" - the enfants terribles of public space and the security state - consistently cited. However, the underlying strategy of deploying monolithic, perimetric security measures is never in question; rather it is the visual coding of these measures for public visual consumption that is the challenge design is enlisted to address. In particular, landscape design is presented as a field with tools that offer opportunities to produce secure sites that "don't look like bunkers."

But the crafted landscapes and "open public spaces" proposed and represented in public-friendly watercolor renderings (Figure 1) accompanying the design guidelines invite architects and landscape architects to participate in a specific visual expression of collective insecurities: fortification without the negative visual imagery. The exhortation, for example, to "gracefully provide perimeter security in a manner that does not clutter the public realm, while avoiding the monotony of endless lines of jersey barriers or bollards, which only evoke defensiveness"[9] is more akin to Victorian fig-leafing than it is to, say, the proposition that plate glass is a material expressive of democratic processes. Reconciling the desire for visual innocuity and the raison-d'etre for the projects presented (security), the examples cited in all three design guides offer ideas for "providing security in the context of streetscape enhancement and public realm beautification, rather than as a separate or redundant system of components whose only purpose is security."[10] It is from this hybridization of componentry that the security landscape emerges, featuring mutant street furniture and picturesque landscape techniques repurposed to explosive-inhibiting ends.

P3 Heavy Objects and Trees (cont.)

Design Implications:

The use of natural features, such as rocks, or manmade objects, such as sculpture, provide opportunities for creating barriers that enhance the visual environment, effectively delineate pathways, clarify public and private space, and provide protection in an unobtrusive manner.

Specially designed objects that also serve a practical and aesthetic purpose can be used as effective barriers. For example, existing dense thickets of mature trees can be incorporated into a perimeter system.

Landscape barriers on a courthouse plaza built on a parking garage roof. The design refers to the State's cultural and natural history: earth mound and logs. The earth mounds are almost impossible to drive over but if any vehicle surmounts it the mound will collapse into the void. The huge logs also limit the possibility of direct access but also provide pedestrian seating and lead them towards the main entry.

P4 Wall and Ha-ha's

The hardened (or engineered) wall group includes retaining walls and freestanding walls. These may be constructed of reinforced or mass concrete, concrete masonry, brick, and natural stone, or other materials typically reinforced with steel.
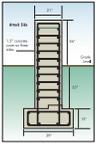
Typical reinforcing for a low-wall barrier SOURCE: DOS

The ha-ha originated for aesthetic purposes in 17th-century England to prevent cattle from wandering up to a country mansion. The same strategy has been used in security barriers.

Ha-ha principle (left). Ha-ha and bollards (right). SOURCE: FEMA 430

Spaced engineered walls (left). Retaining walls on sloping site (right). SOURCE: PHOENIX, ARIZONA, POLICE DEPT., TODD WHITE (LEFT)

Wall and Ha-ha's (cont.)

Installation:

Although the mass alone of heavy masonry walls installed in a ha-ha design may provide an effective barrier, typical concrete walls require heavy reinforcing.

Design Implications:

Unless carefully placed and designed, barrier walls can be intrusive elements. A ha-ha is an effective way of providing a nonintrusive barrier. Walls and ha-ha's should be carefully studied in configuration, dimension, and materials in relation to the types of vehicles expected to be encountered. Spaced walls allow for pedestrian penetration. Retaining walls, if sufficiently high, can create an effective barrier and also be aesthetically pleasing.

Water Obstacles

Water, in the form of the moat, around a medieval castle is one of the oldest methods of site security design. A modern example is of their use is around selected water "palaces" in Iraq.

Artificial or natural lakes, ponds, rivers, and fountains can also be effective and beautiful choices for barriers. The configuration of a channel can be designed as an effective "tank trap," or the walls of the pool or mass of the fountain can be engineered to stop a vehicle. Water barriers can be designed in a variety of formations, flat and smooth or enhanced with movement by falls or fountains. Water features generally require ongoing maintenance with filters, pumps, and cleaning.

This proposed un-built design for the re-design of the Washington Monument grounds uses water to create a barrier. SOURCE: MICHAEL VAN VALKENBURGH AND ASSOCIATES

That landscape design has spawned so fecund a collection of strategies for security hybridization is notable given developments in landscape design pedagogy contemporaneous with the federal security design guidelines discussed. Surveying, in 2006, the rise of landscape urbanism as the organically evolved successor to the fragmentary fields of urban design, landscape architecture, and architecture itself, Charles Waldheim, current Chair of the Department of Landscape Architecture at the Graduate School of Design, proposes that "landscape urbanism offers an implicit critique of architecture and urban design's inability to offer coherent, competent, and convincing explanations of contemporary urban conditions. In this context, the discourse surrounding landscape urbanism can be read as a disciplinary realignment in which landscape supplants architecture's historical role as the basic building block of urban design."[11] That landscape so conceived may prove as suitable to the visual enhancement of security measures as to conditions of decentralization, infrastructural development, and industrial remediation may be attributed to one of "the implicit advantages of landscape urbanism: the conflation, integration, and fluid exchange between (natural) environmental and (engineered) infrastructural systems."[12] There is, however, a subtler but critical distinction that could be drawn between landscapes that reveal, expose, or represent these processes and those which sublimate, censor, or conceal them.

This is not to confuse the possibility of performance-based formal expression with a fetishization of visual "honesty." It is to propose, however, as Banham did, that new design conditions might in turn inspire new forms consistent with the cultural and technological realities that spawned them, rather than being aestheticized "in borrowed finery, but not inspired by that same breath of intelligence that had created the new technology that had delivered the new forms."[13] Such is the ambition shared in the work comprising this panel. Across the papers, failure, redundancy, adaptive systems, and open, pluralist urbanisms are

Figure 3: Heavy Objects and Trees Department of Homeland Security - Science and Technology Division, "Reference Manual to Mitigate Potential Terrorist Attacks Against Buildings" (Washington, D.C.: FEMA-426/BIPS-06/October 2011, Edition 2)

Figure 4a:. Wall and Ha-Ha's Department of Homeland Security - Science and Technology Division, "Reference Manual to Mitigate Potential Terrorist Attacks Against Buildings" (Washington, D.C.: FEMA-426/BIPS-06/October 2011, Edition 2)

Figure 4b: Water Obstacles Department of Homeland Security - Science and Technology Division, "Reference Manual to Mitigate Potential Terrorist Attacks Against Buildings" (Washington, D.C.: FEMA-426/BIPS-06/October 2011, Edition 2)

ENDNOTES

1. Rem Koolhaas, *Delirious New York*, (New York: Monacelli Press, Second Edition, 1994), p. 254.

2. Reyner Banham, *The Architecture of the Well-Tempered Environment* (Chicago: University of Chicago Press, Second Edition, 1984), p. 29.

3. These are, in general, representative of a second or even a third generation of federal design guidelines for building security. While September 11, 2001 is frequently cited as a source of major new security measures for buildings, substantial federal reports and guidelines were already being issued in the preceding decades, including perhaps most notably "Urban Design Guidelines for Physical Perimeter Entrance Security: An Overlay to the Master Plan for the Federal Triangle," issued by the General Services Administration (GSA) in the mid 1990s and frequently cited as the principal contemporary source for security setbacks or "blast zones" and the definitions for concentric security zone design widely used in current literature.

4. Department of Homeland Security - Science and Technology Division, "Reference Manual to Mitigate Potential Terrorist Attacks Against Buildings" (Washington, D.C.: FEMA-426/BIPS-06/October 2011, Edition 2), p. ii.

5. U.S. General Services Administration - Public Buildings Service, "The Site Security Design Guide" (Washington, D.C.: GSA, Office of the Chief Architect, June 2007), p. 5.

6. The National Capital Planning Commission, "The National Capital Urban Design and Security Plan" (Washington, D.C.: The National Capital Planning Commission, First Printing October 2002, Second Printing, November 2004), p. iii.

7. U.S. General Services Administration - Public Buildings Service, "The Site Security Design Guide" (Washington, D.C.:GSA, Office of the Chief Architect, June 2007), p. 13.

8. The National Capital Planning Commission, "The National Capital Urban Design and Security Plan" (Washington, D.C.: The National Capital Planning Commission, First Printing October 2002, Second Printing, November 2004), p. iii.

9. The National Capital Planning Commission, "The National Capital Urban Design and Security Plan" (Washington, DC: The National Capital Planning Commission, First Printing October 2002, Second Printing, November 2004), p. 2.

10. Ibid.

11. Charles Waldheim, in Charles Waldheim, Ed., *The Landscape Urbanism Reader* (New York: Princeton Architectural Press, June 2006), p. 37. It should be noted that Waldheim is also generally credited with first using the term "Landscape Urbanism."

12. Ibid, p. 43.

13. Banham, p. 311.

presented as counter-processes to stable, monolithic infrastructures and regimes. Focusing on the ways in which social and architectural conditions could coalesce to make cities more open and, in turn, more resilient, the authors argue for architectures which privilege informality, adaptability, and social fluidity. The contrast between this work and prevailing modes of engagement between design and security, exemplified by the federal design guideline-inspired security landscapes presented, is striking, and speaks to the professional and pedagogical stakes in play as architects and designers navigate their roles within the fundamental uncertainties of globalized urbanism. ◆