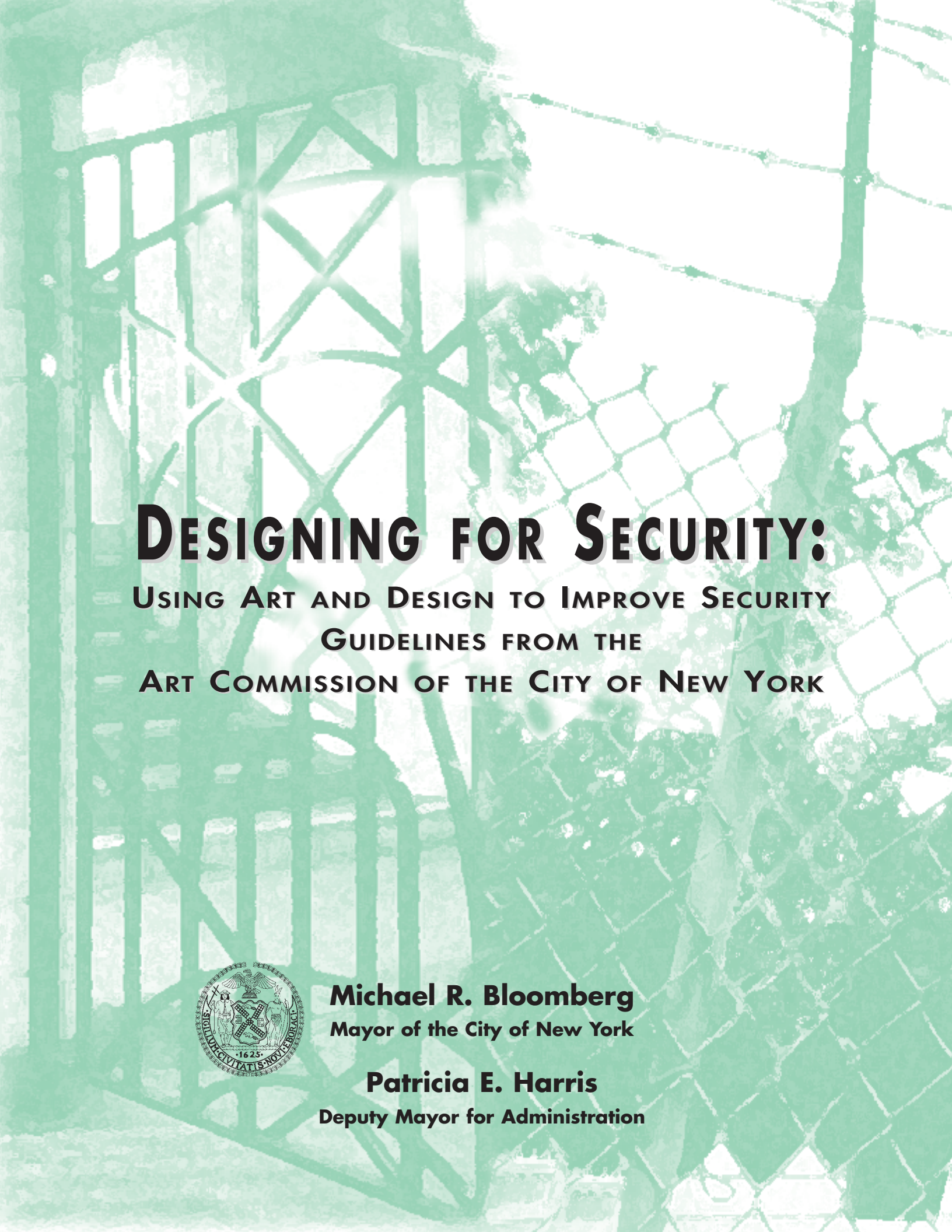

Designing for Security:

Using Art and Design to Improve Security

Guidelines from the Art Commission of the City of New York

Michael R. Bloomberg
Mayor of the City of New York

Patricia E. Harris
Deputy Mayor for Administration

DESIGNING FOR SECURITY

by
James S. Russell, senior fellow and author
Elizabeth Kennedy, senior fellow
Meredith Kelly, adjunct fellow
Deborah Bershad, editor

Including *Uneasy Spaces*
a photographic contribution by Elizabeth Felicella

A Project of the Art Commission of the City of New York
and the Design Trust for Public Space

March 2002

Designing for Security is a project of the Art Commission of the City of New York
and the Design Trust for Public Space

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Preface

In response to a request in 1997 from the Art Commission of the City of New York, The Design Trust for Public Space researched issues in security and public design, and organized workshops to bring designers together with City agencies to address these concerns. This document is the result of that partnership.

The Design Trust awarded four fellowships to design professionals with the necessary expertise to undertake the project. Elizabeth Kennedy led the Art Commission in a year-long educational process, including extensive research, participatory workshops, and interviews. Based on Ms. Kennedy's work, James S. Russell wrote the text, which is interspersed with successful security design solutions compiled by Meredith Kelly. In conjunction with the *Designing for Security* project, the Design Trust also sponsored a separate photographic survey by Elizabeth Felicella that documents the actual effect of security measures on public spaces throughout New York City.

Art Commission of the City of New York

The Art Commission is the City's design review agency, and is responsible for the review and approval of works of art, architecture, and landscape architecture on City-owned property. The Commission reviews a wide variety of projects for their aesthetic appropriateness, including distinctive sidewalks, construction and restoration of buildings, parks and playgrounds, installation of lighting, and the design, installation, and conservation of artwork. The agency consists of eleven members and three full-time staff.

According to Chapter 37 of the New York City Charter, the Art Commission includes an architect, a landscape architect, a painter, a sculptor, and three lay members who are nominated by the Fine Arts Federation (an arts consortium) and appointed by the Mayor. The Commission also includes representatives of The Metropolitan Museum of Art, The Brooklyn Museum of Art, The New York Public Library, and the Mayor.

Design Trust for Public Space

The Design Trust's mission is to improve the creation and understanding of public space in the five boroughs of New York City. It was founded in 1995 in response to a growing appreciation in the architectural profession of urbanism and a heightened general consciousness of the irreplaceable value of New York City's public realm. The Design Trust is unique in its practice of awarding fellowships to design professionals to work in partnership with New York's public sector building agencies, community groups and civic organizations on projects that address real, practical problems of public space in imaginative new ways.

Project Team

Elizabeth Kennedy was the chief investigator, researcher, and the Design Trust Fellow for

Research for this project. She is principal of EKLA, a Brooklyn-based landscape architecture firm that focuses on research and design for community redevelopment.

She was assisted by *Jennifer Ward*, now the Manager of Collections, Education and Research at the Queens Botanical Garden, and Design Trust Fellow for the African American Settlement Mapping Project, a joint EKLA/Design Trust publication.

James S. Russell, AIA, the writer, is editor-at-large at *Architectural Record* Magazine, where he has written frequently on security topics. He also writes for the *Philadelphia Inquirer*, the *New York Times*, and other publications, and teaches at Columbia University's School of Architecture. He is principal of WorkDesign, a consulting firm that helps businesses align innovative workplace practices with suitable facility design.

Meredith Kelly was the Design Trust Adjunct Fellow in charge of the Sketchbook of Security Design Solutions, which is an ongoing file of exemplary security design solutions submitted to the Commission by agency liaisons.

Deborah Bershad, the editor, is the Executive Director of the Art Commission of the City of New York. Her publications include essays, critical reviews, catalogues, and research articles on critical theory, design review, photography, architecture, and the history of the Art Commission.

Madina Fassassi graduated from E.N.T.P.E. (Ecole Nationale des Travaux Publics de l'Etat, Lyon, France) and holds a Master of Science in Management from Robert F. Wagner Graduate School, NYU (September 2001). She specializes in urban issues and has carried out a study as a consultant for the sanitary agency of Rio de Janeiro, Brazil, to reorganize the cooperatives of scavengers.

Florence Thomas is currently working on a Bachelor of Science degree in Engineering and Architecture at the E.N.T.P.E. (Ecole Nationale des Travaux Publics de l'Etat, Lyon, France)

Alyssa Tramposch is currently working on her Bachelor of Arts degree in Politics and Metropolitan Studies at New York University.

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Thanks also to the Department of Citywide Administrative Services. Brochure designed by Jane Volpe, CityGraphics.

LETTER FROM THE MAYOR

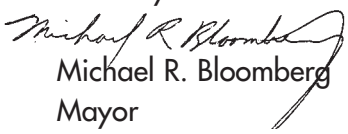
March, 2002

Dear Friends:

As part of this administration's efforts to make New York City a safer place to live, as well as a more beautiful place to live, the Art Commission has commissioned the following publication *Designing for Security: Using Art and Design to Improve Security*. I commend the Art Commission, in partnership with the Design Trust for Public Space, for their foresight in addressing this important issue.

Excellence in design can and must play a pivotal role in strengthening our City's spirit, economy, and quality of life. I encourage you to work with the Commission members and staff to ensure that the design of all art, architecture, street furniture, and landscape architecture on public property addresses the concerns of security and meets our City's high aesthetic standards.

Sincerely



Michael R. Bloomberg
Mayor

INTRODUCTION

In 1997, the Art Commission became concerned that well-intentioned responses by City agencies to security threats too often took forms that negatively affected project design. This concern led to the development of this project. The Art Commission never intended that security should take a back seat to aesthetics, but believed that there should be an investigation to determine if aesthetics and measures taken to physically secure a facility would be mutually exclusive. Common sense suggested otherwise: appealing design and security should go together.

Indeed, the Commission hopes that needed security measures can take aesthetic forms, make the use of City facilities more pleasurable, and help those facilities positively affect the neighborhoods in which they are located. Given recent events, and our increased sensitivity to security concerns, it seems even more important that designers, landscape architects, and architects integrate those concerns into their own design processes. We believe that the thoughtful assimilation of security theory and techniques — for example, surveillance and defensible space — will mitigate future needs for fortress-like construction to achieve reasonable security goals.

The Art Commission understands that the use of increasingly fortifying strategies — including chain-link fencing, razor wire, window and door grilles — is widespread and not confined to City agencies. Nevertheless, the Commission believes that the ubiquity of such security measures degrades the urban environment unnecessarily. Moreover, as the City's design review agency, the Commission believes that its mandate to review projects on public land to assure that they are aesthetically appealing, have an appropriately civic aesthetic, and are suitable to specific neighborhoods, is not being met by approving such installations.

Realizing that design strategies that affirm security goals are not always obvious, the Art Commission undertook research with the aim of identifying means by which art and design can play an important role in making facilities safe. In addition, the Commission realized that art and design can help users, agency personnel, and the wider public enjoy their experience with a City facility, and thus engage affirmatively with facilities. The Commission believes that a positive aesthetic experience (for example, enjoyment of a mural in a school or hospital) gives the public a personal stake in assuring the security of a public space. This personal stake, in turn, would hopefully amplify both the perception and reality of safety.

This document is the result of a partnership between the Art Commission and the Design Trust for Public Space. Based upon the Art Commission's proposal for a series of workshops addressing the issue of security and design, the Design Trust awarded four fellowships to design professionals with the necessary expertise to undertake the project. Elizabeth Kennedy led the Art Commission in a year-long educational process, including extensive research, participatory workshops, and interviews. Based on Ms. Kennedy's work, James S. Russell wrote the document's text, which is interspersed with successful security design solutions compiled by Meredith Kelly. In conjunction with the *Designing for Security* project, the Design Trust also sponsored a separate photographic survey by Elizabeth Felicella that documents the actual effect of security measures on public spaces throughout New York City.

The aims of this document are threefold: (1) to convey the findings of research undertaken on the topic of design's relationship to security; (2) to offer guidance to designers, applicants, and client agencies in the theory and practice of design that may further security goals; and (3) to provide guidance to the Art Commission itself during the course of its ongoing reviews of proposed project designs.

Some topics in this document – particularly in the theoretical realm — may touch on areas that appear to be beyond the purview of the Art Commission. This information is supplied in the interests of encouraging a comprehensive review of security issues as part of the design process. While the Commission cannot dictate either the adoption or deletion of any security measure, members will question the use of measures that appear to be inappropriate or that appear to unnecessarily impair design quality. The Art Commission hopes to encourage the creativity of City agency designers and consultants who grapple with these difficult problems.

In order to address these issues adequately, *Designing for Security* includes three different approaches. The first, "Using Art and Design to improve the City of New York" is a study researched and written by Design Trust Fellows who reviewed existing literature; developed a series of workshops that successfully facilitated discussion among the Art Commission, City agencies, and design professionals. The resulting text explores design criteria and general theoretical concerns for all agencies that have projects reviewed by the Art Commission

The second, more concrete approach is reflected in the specific examples that appear throughout the book as a counterpoint to the theoretical text. These examples were provided by City agencies with the goal of eventually developing a "Sketchbook of Security Design Solutions" – a compilation of case studies of exemplary design solutions submitted to the Art Commission by City agencies. This portion of the project offered each City agency interested in participating in the project an opportunity to publish examples of its finest work in the area of designing for security.

The final approach, "Uneasy Spaces: A Photographic Survey, " is a photography project sponsored by the Design Trust and appears as a separate section. This visual investigation by an artist includes both planned and unplanned security measures in publicly accessible spaces throughout the five boroughs. It is an exploration of how security measures affect the perceived aesthetics of a given site.

The Art Commission views this publication as an introduction only to the gravely critical issues that we are currently confronting. There is obviously much more work to be done. We hope that the theoretical information included in the text, the practical examples provided, as well as the bibliography and Internet information will serve as a starting point for all of us who are interested in integrating security concerns into the design and design review process.

Deborah Bershad
November, 2001

CHAPTER 1
CONCEPTUAL WAYS OF LOOKING AT CRIME

Although it may seem self evident that the design of a building or site can affect how secure it is, the scientific basis for this is relatively recent. Oscar Newman first made a research-based case that environmental design could affect crime in *Defensible Space: Crime Prevention Through Urban Design* (1973). In this seminal work, Newman spelt out a conceptual framework that designers and owners could use to evaluate the security consequences of site configuration and building design. In ensuing years, researchers have both questioned and amplified Newman's findings, creating a body of work that is now called Crime Prevention Through Environmental Design (CPTED). Some of these efforts are briefly summarized below to help agencies and designers see their new construction or alteration projects through the conceptual lenses used by those who study the relationship between crime and environmental design.

DEFENSIBLE SPACE

Although Newman's research was mostly concerned with public housing sites, he advocated the use of the concepts he had developed in other kinds of projects. The conceptual framework he proposed consists of four parts: territoriality, surveillance, avoidance of stigma, and safe location.

•*Territoriality.* Newman used this term to mean the subdivision of an environment into zones capable of being influenced by users or managers. His concept was to encourage people to exercise a kind of proprietary "ownership" of public or semi-public space (through use, maintenance, surveillance, and quick notification to authorities when inappropriate activity is witnessed). If the designer makes this assumption of territoriality evident, s/he demarcates zones that invite appropriate users to make use of the space while clearly indicating that inappropriate users will not be tolerated.

•*Surveillance.* Newman terms surveillance the "capacity of the physical design to provide surveillance opportunities." Residents, users, or managers of a facility should be able to view public areas and to make potential perpetrators aware that areas are being watched. An example of the effect of surveillance on deterring crime would be the difference between an entrance to a residential building located in a recess with no windows overlooking it and a similar entrance faced by many apartment windows and visible from a busy street. Clearly the former would be more appealing to a mugger than the latter.

•*Avoidance of stigma.* Newman argued that design that conveyed the notion that public housing was only for poor people also rendered it less safe. More broadly, he stated that it is important to decrease the perception by owners, tenants or users that they are vulnerable to crime or are physically isolated. In other words, environments should convey a sense of security. People should feel confident that if they need aid it will be promptly available.

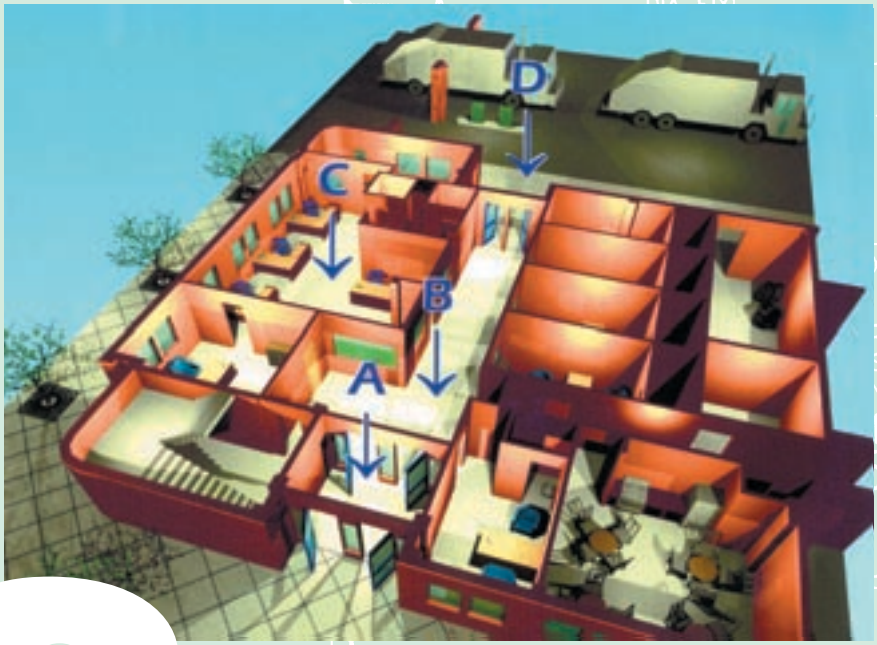
•*Safe location.* This term was also originated through Newman's study of the siting of housing, but may be more broadly applied to the importance of site choice and site configuration in assuring security. Newman argued that the design of a project could affect the security of the surrounding neighborhood, and the surrounding neighborhood could affect the security of a new facility.

THREAT ANALYSIS

Stuart Knoop, a Washington-based security expert who has consulted on many government projects, including anti-terrorist efforts as well as anti-crime efforts, has undertaken related work in the field of design and security. Knoop, who has also worked on recent anti-terrorist embassy design guidelines, has developed an environmental-design analysis based on the nature and kind of threat that is posed to the facility or to its users. By understanding the nature of threats, he argues, suitable means can be devised to resist them. Knoop argues (1992) that any design for

GARAGES

building security, deterring graffiti and vandalism



Location: **District 13B Garage Facility, Dept. of Sanitation, Queens**
Security Issues: **Building security, deterring graffiti/vandalism**
Design Solution: **Passive Security Design in Building Layout**
Sponsor Agency: **Department of Sanitation**

The Department of Sanitation (DOS) District 13B Garage Facility is located in a deserted industrial section of Queens. The typically remote locations of its buildings require DOS to design for security. Although architectural "add-ons", such as razorwire, CCTV systems and bollards, are sometimes necessary to protect the garage facilities, DOS emphasizes that the first line of defense must come from the facility's general layout and circulation routes.

At the District 13B Garage Facility, the layout of work spaces and circulation for both personnel and vehicles lends ease to operations and monitoring of the facility. At the main entrance to the building (area A), a vestibule with two sets of doors provides an extra barrier against unwanted visitors. The main doors are glass, allowing views of people entering and exiting the building.

In the lobby/mustering area (area B), access is available to the General Office (area C), the Garage Floor (area C), the main stair to the second floor and the Section Offices. The Section Offices are located along the right side of the corridor allowing Officers to keep track of workers and visitors inside the building as they pass by.

The General Office, (area C) is a vantage point from which the entire facility can be monitored by the District Supervisor. Vehicles and pedestrians entering and exiting the main Garage Floor area and the fuel dispension area are in plain view from the District Supervisor's office. Supervisors post worker assignments on a window in the wall between the General Office and the lobby/mustering area. A sliding window, facing the hallway, exists to allow workers to discuss assignments and other issues with staff members. Both windows provide General Office personnel clear views of people entering and exiting the building and using the main stair.

The Garage Floor (area D), where Sanitation vehicles and equipment are stored, is always located adjacent to the General Office, allowing for observation and communication between the inside and outside.

security must include a threat analysis. The elements of the analysis include:

- *Identifying the types of threat*
- *Identifying the potential perpetrator (which could include employees or users, not just people from outside)*
- *Identifying the likely means of perpetrating*
- *Identifying the likely targets*

A detailed consideration of the kind Knoop proposes is usually deemed necessary for a court, police, or detention facility, but will not be called for in smaller projects that are not obvious targets. However, an attempt to correlate the real threats (through facility-management records or police statistics) posed by a facility's use, location, or configuration could potentially be useful in shaping any project's design.

Reducing crime opportunities

The work of R.V. Clarke has had an important impact on the security and environmental-design nexus. Clarke (1997) focuses on reducing crime *opportunities* through four methods*:*

- *Increase the perceived effort of offending*
- *Increase the perceived risk in offending*
- *Decrease the perceived reward of offending*
- *Remove the excuses, or opportunities, for offending (for example, lax enforcement or attitudes towards criminality)*

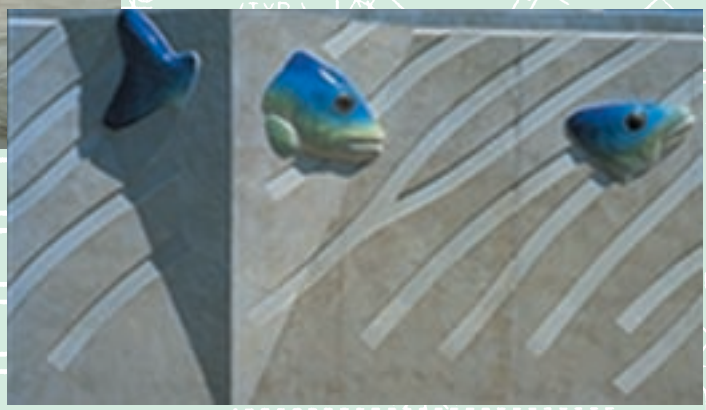
Clarke's chief criticism of Oscar Newman's work is that by focusing primarily on design issues, it thoroughly addresses only the first item. It is clear from research that environmental design alone cannot be counted on to change crime patterns. Analysts have concluded that *environmental design together with suitable facilities management has the greatest environment-related crime-reduction impact.* Since building costs and management costs are inevitably limited, a structured consideration of what can be accomplished through design and what can be accomplished through traditional management or anti-crime strategies — guards, police visits, patrols by staff or volunteers — should offer important insights.

"Broken Windows"

James Q. Wilson and George L. Kelling (1982, 1998; Skogan, 1990) have documented the powerful role maintenance and management can have on reducing crime. The term "broken windows," which has now become shorthand for the concepts described below, comes from the title of an article in *The Atlantic Monthly* in which Wilson and Kelling first spelled out their ideas. As discussed in that article, the authors found that when vandalized or broken-into facilities are promptly repaired and secured, the offender detects a spiral of increased risk, and reduced reward in offending. As crime is reduced, confidence grows, and neighborhood residents and users begin to participate in resisting crime by reporting inappropriate behavior when they see it because they perceive that reporting will be acted on. These actions further progress towards greater safety.

Conversely, in the absence of maintenance, management, and policing, a downward spiral of greater vulnerability of the facility and reduced risk to the offender begins to come into play. Local residents or casual users who might once have kept an eye out for inappropriate use, or might have taken action when they witnessed such use, become demoralized or avoid the area. Criminals perceive the lowered chances for detection, the reduced risk of arrest, and the reduced consequences if they are caught, and step up their activities.

From this research comes the concept that reducing low-level crimes and expelling low-level criminals from a neighborhood has the effect of "exposing" the more serious crimes and criminals, making them more readily apprehended. The concept underlies the crime-fighting strategy that has been put into practice in New York City over the last few years and is substantially credited with dramatic reductions in crime.



WALLS

controlling perimeter access, deterring graffiti and vandalism

Location: **The New York Aquarium, Boardwalk and West 8th Street, Coney Island**
Security Issues: **Controlling perimeter access, deterring graffiti/vandalism**
Design Solution: **First Symphony of the Sea Wall relief**
Sponsor Agency: **Department of Cultural Affairs, Percent for Art**

In 1982, the New York City Council passed the "Percent for Art" law which requires that 1% of the budget for eligible City-owned capital construction projects be spent on art work. Eligible projects include City-owned facilities that are accessible to the public or provide a public service. The Department of Cultural Affairs (DCA) oversees the Percent for Art Program and works with City agencies to implement Percent for Art projects.

With the installation of the Sea Cliffs Exhibit, a 332-foot-long wall needed to be constructed along the perimeter of the New York Aquarium facing the boardwalk at Coney Island. Department of General Services (now the Department of Citywide Administrative Services) and the Percent for Art Program commissioned artist Toshio Sasaki to work with the architectural firm Goldstone and Hinz on a design for the wall. Sasaki's *First Symphony of the Sea Wall* received an Art Commission Award for Excellence in Design in 1992.

Along the vast wall, Sasaki used sea imagery and motion to develop the themes of space and time as they evolve in a marine environment. At the beginning of the wall, three-dimensional fish appear to be swimming within the concrete. Forms become increasingly abstract further along the wall, as if revealing the history of ocean life. Capsules, zygotes and egg-like forms seem to represent the birth and development of marine organisms while geometric shapes and inverted cones suggest the vortex of a wave.

Four tons of concrete rise ten feet above the boardwalk and face the ocean to form the sculpture wall. The wall was cast in twenty-six sections from molds custom designed by Sasaki. Additional elements, such as egg, shell, and fin shapes, were made from terrazzo and ceramic tiles and attached to the wall after fabrication. Unlike the rest of the boardwalk, the wall has not been marred by graffiti.

Interestingly, this theory supports the Art Commission's concerns with issues of maintenance and design. While the Commission is not charged with evaluating facility maintenance *per se*, the relationship of maintenance to the design under consideration has on occasion become a topic of discussion. The "Broken Window" theory suggests that keeping a facility "looking good" has more than simply an aesthetic impact.

Crime Prevention Through Environmental Design (CPTED)

As the body of research has increased on the relationship between crime and design, a new conceptual framework has come to be accepted that integrates the proven elements of Newman's and Clarke's analyses. Crime Prevention Through Environmental Design (CPTED) has many facets and recommended strategies, but fundamentally it proposes that design elements should avoid or reduce crime *opportunities* through the following strategies:

• *Natural access control.* By controlling access, the facility denies entry to the offender and raises the offender's perception of risk. Controlling entry can be accomplished by "organized" means (a guard), "mechanical" means (such as locks), or "natural" means (the way the space is defined or configured).

• *Natural surveillance.* Design that enhances the observation of possible criminal activity can have a deterrent effect (offenders become aware of the watchers) as well as make it easier to catch offenders in the act. The means are, again, "organized" (police, staff or voluntary patrol), "mechanical" (lighting, cameras), and "natural" (windows, open vistas or lines of sight).

• *Territorial reinforcement.* A design configuration that helps users adopt or extend a sphere of influence can deter crime. Playground users who develop a proprietary relationship to a playground may "defend" it simply by using it. (An empty playground is more appealing for, say, gang appropriation.) Parents may then more actively observe what goes on in the playground and report inappropriate use. They may even contribute to the maintenance of a facility by, for example, voluntarily restoring a park or library garden damaged by vandals.

CPTED: some limits

There is hardly unanimity about the role or utility of design in preventing crime. Certainly physical factors alone can neither cause nor prevent crime. Indeed, some critics argue that there are too many physical and social variables to attribute crime reduction primarily to physical factors.

R. Linden (1990) pointed out that the following questions about measuring the effect of physical factors have yet to be answered: What specific security measures work best? By how much does increased surveillance reduce crime rates? When is territorial reinforcement of the kind proposed by Newman essential for success in crime reduction? Is there a threshold below which any changes have no effect and above which changes have diminishing returns? We might also ask if there are valid scientific measures by which these questions may be addressed.

Researcher Sally E. Merry (1981) tried to understand the conditions under which residents of an inner-city housing project acted or failed to act to defend domains that she considered to be either architecturally defensible or indefensible (as Newman would define these terms). She concluded that while design can provide preconditions for effective control, it cannot create such control if the social fabric of the community is fragmented.

Others have criticized the concept of territoriality specifically, especially as it applies to the rapidly changing mosaic of cultures, incomes, and social structures in an ethnially diverse place like New York City. Hillier (1973) and Reppetto (1974) object to the

concept of territoriality, arguing that race and socio-economic characteristics of a community are much more important to both crime and social cohesion than the manner in which the environment is designed. Based on their argument, the implication is that volatility in racial or income makeup within a neighborhood may make it much more difficult to develop the proprietary relationship to place that is key to the idea of territoriality. On the other hand, a dominant group can take the idea of territoriality too far, claiming a public place and excluding use by other neighborhoods or ethnic groups. And what is a gang after all, but a group of unrelated citizens exercising "territoriality" by appropriating a public place — street corner, block, or playground?

In conclusion, research has not established a definite pathway for designers, nor substantiated measures of success. But it has, by and large, validated the idea that design can affect the security of facilities. The criminal-justice community increasingly joins the consensus that physical design does play an important role in crime prevention. New research and design on the subject has recently been commissioned by the federal Housing and Urban Development Corporation and the Department of Justice, and it is hoped that useful guidance will be increasingly available from these sources.

CHAPTER 2

How does environment affect behavior ?

The aesthetic aspects of design are not prominently associated with enhancing the security of facilities. But the literature of crime prevention through environmental design (CPTED) does recognize that environment can cue behavior. If designers recognize the mechanisms of environmental design that cue either a sense of security or a sense of danger, they can make sure that their design enhances the former.

Research demonstrates that street criminals perpetually evaluate situations. They calculate the risks of offending (potential for getting caught) versus the rewards (venting of rage, value of the contents of a handbag, value of a car to a chop shop). Brantingham and Brantingham (1981) summarize the way criminals select targets as follows:

- *The offender learns to "read" the physical, spatial, cultural, legal and psychological character of the environment.*
- *The offender evaluates, compares, accepts, and rejects cues.*
- *The offender learns from success, inventing a useful template for future crimes.*

Research confirms the common-sense notion that criminals find the shortest route, spend the least time, and seek the easiest means to accomplish their task. In a residential burglary, for example, the offender first locates a general area where targets exist, then locates sub-areas that offer anonymity, little likelihood of detection, and easy entry and exit by way of the street (Schneider and Pearcey, 1996).

While the research cited above confirms the conventional wisdom that "hardening the target" (i.e., security apparatus, such as grilles, alarms, etc.) can deflect criminal intent, it also suggests that easy opportunity encourages an offender who might not have crime on his mind at a given time. While Brantingham and Brantingham's research focused on the actions of those already criminally inclined, a substantial body of research has also demonstrated that even those who rarely resort to criminal behavior can be induced to commit crimes (Clarke; Brantingham and Brantingham, 1991; Samdahl and Christenson, 1985).

A research team (Zimbardo, 1973) abandoned a car on a New York City street. As the investigators watched surreptitiously, the car was stripped little by little until all that remained was a useless hunk of metal. The team observed that some of those involved in vandalizing the vehicle appeared to be "ordinary" people as opposed to hardcore offenders. "Thus it seems that opportunity itself motivated the offense," concluded Gabor (1991, from Schneider and Pearcey, 1996).

Zimbardo concludes that anyone has the potential to offend under certain circumstances. An obvious example is the otherwise law-abiding employee who steals office supplies for personal use. A company's actual exposure to loss of such items may be small, but tolerance for such thefts can lead to large-scale "appropriation" of computers and other costly equipment. On a larger scale, crime can get out of control even in an environment designed along defensible-space or CPTED principles if the perception of residents is that drug-dealing or other crimes are tolerated.

The "Broken Windows" research by Wilson and Kelling (described in Chapter 1), holds that environmental signs of decline — broken windows, trash-strewn grounds, graffiti-covered walls, abandoned cars, discarded syringes — invite crime. But the perception that a neighborhood is ripe for criminal activity can develop, perversely, from the presence of overt security measures such as high chain-link fences, openings protected by bars or shutters, and parapets festooned with razor wire. Wilson and Kellner, as well as others (Clarke for example) found that such areas which appear to be under siege are, to the criminal, a welcome sign. These elements suggest that the environment is indeed already crime-ridden, and that the

surveillance exercised by residents, business proprietors and passersby is probably only minimally present. Under such circumstances, the offender feels free to search for the weak link in the defenses.

Designers of City facilities should, therefore, take care that they do not present an image of fortification that is inconsistent with its neighborhood context or crime rate. By so doing they run the risk of encouraging others to add defensive apparatus, setting off an "arms race" that could encourage criminals to think the neighborhood is out of control, and furthering a spiral of greater defensive measures followed by increased criminal activity.

Encouragingly, researchers have found that the ratio of opportunity to crime cuts both ways. While some environments can cue the release of otherwise inhibited behavior, others appear to "qualify" behavior, conveying clear distinctions between appropriate and inappropriate behavior. Such places have the result of making the offense more visible, thus raising the risks of offending. It is easier to ignore someone spray-painting a wall in a neighborhood awash in graffiti than in one where care is taken and the depredations of vandals are removed. Designers who create "qualifying" types of environments can move beyond reliance on fortifying strategies to provide security for their facilities.

The design of City facilities can convey either an excessively defensive face — a message of capitulation — or it can, through an artistic and civic expression, convey the idea that care is taken and attention is paid. In short, the design can express the City's intention to bulwark a neighborhood against the forces of decline. Such a positive message is not necessarily clearly understood by the perpetrator, but it is understood by those most likely to undertake neighborhood defense — facility users, staff, and neighbors. An effort as small as adding wastebaskets to a street can convey that people care and that a constituency exists that is willing to defend the neighborhood.

CHAPTER 3

What role do facility users, the public and facility managers play ?

Design that enhances the community values that the Art Commission encourages through its review process may also enhance a facility's security. When users, managers, and other members of the public embrace or find value in a public facility, it tends to become a less-appealing crime target. People who use it or live near it also have less to fear.

This is consistent with the theories that come out of the "Broken Windows" research, other research in the crime-prevention community, and the interviews and personal observations undertaken for this document. Trash and graffiti denote a crime-ridden neighborhood — one that is out of the control of its inhabitants and police, but a facility that evokes community pride, involvement, and use indicates that the neighborhood cares about itself and will defend itself against crime.

These affirmative values are expressed through thoughtful and sensitive design. Building designers can take a reactive approach, adding security measures as threats or actual instances of crime occur, or they can attempt to transform environments to discourage crime. With a proactive approach, the building's design aspires to establish and possibly raise norms of behavior to encourage appropriate use. In other words, designers should encourage people to take a stake in facilities they use.

One way to make a facility that inspires pride and "ownership" is to focus on three key groups, each of which presents separate opportunities.

- *Facility users:* the students enrolled in a school, for example, and their parents.
- *A broader public:* a neighborhood club that meets in the school or neighbors who only walk by it.
- *Facility managers and staff*: the management, maintenance, and teaching staff at the school as well as the agency that runs it.

The following sections show how design can help enlist each group in securing a facility.

Make stakeholders of patrons or users

• *The facility should be inviting.* This is an observation that sounds obvious, but it is an idea that can get lost as functional complexities multiply or budget-limits loom. Substantial benefits can accrue at small or no cost, however.

Example: The reconstruction of Straus Park, at the intersection of Broadway, West End Avenue and West 106th Street, in Manhattan (Department of Parks and Recreation, architect), addresses a common problem in the City. This small park occupies the left-over space of a triangular intersection, the kind of place people often avoid if for no other reason than that it is not convenient to cross traffic to visit it.

Straus Park, before and after renovation.

The park prior to renovation offered few attractions. The forms and colors of plantings were little distinguished from the grayness of the palette of the architectural elements, conveying the perception that little reward would be gained by entering the park. Plantings did not look well tended, which also reduced the triangle's appeal. Those who ventured in found that the statue and its fountain basin, the focus of the park's original design, had become a urinal and trash receptacle. Pedestrians would actually go out of their way to avoid the triangle, which permitted colonization of the park by miscreants and loiterers.

In refurbishing the park, the Department of Transportation enlarged the island, allowing the Department of Parks and Recreation to widen the perimeter sidewalks along West 106th Street and portions of the Broadway and West End Avenue frontages.

With this added area, the Department of Parks and Recreation was able to zone the park into an exterior pedestrian circulation loop and an interior fountain-centered piazza. To further the distinction, the grade elevation of the piazza was raised and a 28-inch-high fence was installed to discourage shortcuts. Both buttressed the attractiveness of the center while keeping it completely visible to assure that any undesirable activity could be readily observed.

The area of the fountain basin was reduced to create a planter and thereby discourage trash accumulation. The planter's new configuration also makes it more difficult to enter the fountain. Handsome "World's Fair" benches with armrests were installed along perimeter sidewalks, which invite sitters to engage in conversation with those strolling by.

The spaces and circulation within the park are now highly structured. There is not a sense that walking by will take one into a path from which one cannot readily escape. It is shrubby and green, yet easy to see into all parts of the park, and no visual barrier is higher than the back of a bench. Some park elements, like the benches and perennial flowerbeds, require regular maintenance. That they get it is a clear signal that the park is cared for and that vandalism will not be tolerated.

Enhancing the design of the park has attracted greater and more appropriate use, which in turn has made the park safer. It is enjoyed by a wide variety of people, so there is no longer the presumption that anyone using the park has nefarious intent.

• *Facilities should not demean users.* While designers never intend to make the public feel unwanted, certain strategies, usually reactive, have a demeaning effect. Removing public benches in front of buildings to discourage loitering, for example, may be successful initially. But it adds a burden to people with ambulatory limitations, who may have to struggle from street to lobby. And people who might have used the benches to socialize and, thereby keep eyes on areas that otherwise might attract undesirable activity, are discouraged as effectively as those with criminal intent.

• *Facility design should clearly distinguish between legitimate and illegitimate use.* Legitimate use of a facility should not look like illegitimate use. Design, especially in those facilities or landscapes readily accessed by a wide public, can help people distinguish when someone's presence is appropriate.

Example: At a number of transitional housing projects studied, neighbors felt threatened by children congregating on stoops or streets. Transitional housing is intended to provide a structured transition from homelessness and shelter life to sustained independent living. These young people appeared threatening because they were

usually short-term residents and not known to neighborhood residents, although their presence was entirely legitimate.

As they would not reside in a neighborhood long enough to get to know permanent-resident children, these children might not feel comfortable using a public park or playground (or might not be allowed by family members to stray far from the facility). Since they used spaces in inappropriate ways, they presented a perceived rather than an actual threat.

One solution to this perceived threat was the provision of play space or community gardens clearly accessory to transitional housing. This amenity offers children and adolescents a structured recreational space where they can safely interact with siblings, parents and peers. It is a space where they know they belong, and because its use and users are clearly identifiable to neighbors, it is less threatening to neighborhood residents than seeing unfamiliar children wandering the streets or congregating on stoops.

Design can also make inappropriate use obvious, either by rendering the potential perpetrator visible to observers (as a teenager might look out of place at an elementary school playground) or, to borrow a term from marketing parlance, "qualifying" the user, that is providing environmental cues that specifically invite desired users.

Example: The Palisades Playground in Riverside Park, at West 148th Street, Manhattan, was created within an area of the Riverside Park esplanade to serve a nearby community daycare center. The playground fits into the architecture of the esplanade, with fence, gatepost and urn-finial details borrowed from elements of historic walls and fences. But it hardly disappears. The playground incorporates brightly colored play components, which draw the eye of passers-by and even drivers on busy Riverside Drive. A low fence delineates the border of the playground. High gates or chain-link fences would also have kept undesirable users out, but the park instead is a visual magnet. Walkers enjoying the promenade can stroll all around it and are invited to look into it as well as over it towards the river. Since this high visibility attracts the eyes of passersby, inappropriate use by teenagers or adults is immediately obvious.

Palisades Playground

A facility should not appear overly defended. The idea of qualifying users relies on people's readiness to commit to an activity within a specific facility that has, conversely, "declared" its fitness to meet the user's needs. For example, someone who wants to improve her job skills might wonder if the library is an appropriate place for such adult education. Walking by the library and seeing adults engaged in such activity can encourage her to use the library.

In using environmental devices or cues to "invite" users, the designer must take care to define who is being addressed and to address possible users in as broad and all-encompassing a way as possible. It is one

GATES

controlling perimeter access, deterring graffiti and vandalism

Location: Swedish Cottage, Central Park West at 79h Street, Central Park, Manhattan

Security Issues: Building security, deterring graffiti/vandalism

Design Solution: Lexan glass windows

Sponsor Agency: Department of Parks and Recreation

Since the Swedish Cottage was purchased by New York City's Department of Parks at the 1876 Centennial Exposition in Philadelphia and moved to Central Park, the building has had a variety of purposes. It has functioned as a library, a comfort station, a nature study room, and during World War 11, as District Headquarters of the Civil Defense. In 1947 the Cottage was adopted as the official workshop of the Parks Department's Marionette Theatre.

When the Cottage was restored in 1998, special attention was paid to enhancing the windows to allow the maximum amount of natural light into the building. Before the restoration, the windows were covered by steel cages to prevent breakage and they held the building's air conditioning units. The windows permitted very little natural light to enter the building, they were inaccessible to the building's users, and they were the least attractive feature of the Cottage. Architects from Beyer Blinder Belle removed the metal grates and replaced the window air conditioners with central air conditioning. The existing doublehung windows remained intact and were protected by a second layer of windows made of lexan, a hard plexiglass that is graffiti resistant and shatter-proof. The lexan windows are clear and significantly improve the amount of natural light that enters the building and they can be opened and closed to allow fresh air into the Cottage.

thing to indicate that a facility is intended for children or the elderly, when such limitations are suitable. It is not appropriate, however, to design for a single ethnic group or age group (categorically excluding teenagers, for example, because some are rowdy) if there is no compelling programmatic need to do so. Generally, the wider the public that can find a facility inviting, the more people there are who in some fashion adopt it.

Unfortunately, security measures themselves may discourage the public from using or embracing a public facility.

Example: Some years ago, expanded-metal-mesh window protections were added to the Swedish Cottage, in Central Park, to discourage vandalism. The structure is a rustic, wood-framed building once used as a marionette theater. Unfortunately, park users shunned the building, reading the unembellished window guards as a clear indication that the area around this otherwise appealing work of architecture was not safe. The Cottage became more isolated.

The grilles were removed in a recent Department of Parks and Recreation rehabilitation and replaced with hinged wood frames with breakage-resistant Lexan plastic fitted over the existing windows. (Although yellowed or heavily scratched acrylic or polycarbonate glazing can contribute to the sense of security failure, the clarity and scratch-resistance of these products have improved in recent years.) The exterior was cleaned as part of the work, considerably lightening the exterior surface. The ability to see in (or at least see lights on inside) has encouraged passersby to use and appreciate the playful architectural style of the structure building again. Park patrons now see the building as "exuberant" rather than "dark and frightening."

Make Stakeholders of the General Public

While a designer's first obligation is to make the project suitable to those who use it, the "non-user" public can be invited to help the facility contribute in a positive way to the street, neighborhood and city.

Example: Many of the libraries and post offices that dot the city's neighborhoods have become much loved, emblematic civic structures. Many feared that universal-access requirements, entailing ramps, wheelchair lifts, and other façade alterations, would detract from their character. But some of the rehabilitations, especially of the Carnegie-era branch libraries, have been able to integrate improved access while maintaining the character of the building. New landscaping helps to focus the eye on the renovated entranceways, while removing possible hiding places. These designs also further security objectives by inviting a broader public to use the facilities and enlarging the constituency that values and lays claim to the building.

Dekalb Branch Carnegie Library, Brooklyn

It may not be obvious how to address such an anonymous, heterogeneous entity as "the public." Considering the broader public only in defensive terms (i.e., who among the public is likely to be a perpetrator) closes off a positive avenue of design exploration. There is, however, a security benefit to be derived from considering how the public could value a facility, even if they don't use it. Trying to make people stakeholders

DOORS

building security, deterring graffiti and vandalism

Location: **Cypress Hills Library, Sutter Avenue and Crystal Street Brooklyn**

Security Issues: **Controlling perimeter access, deterring graffiti/vandalism, marking the entrance**

Design Solution: **Family Library Table Gate**

Sponsor Agency: **Department of Cultural Affairs, Percent for Art**

The Cypress Hills Library is located in East New York, one of Brooklyn's roughest neighborhoods. Graffiti and vandalism are a problem for public buildings here, and a barrier between the street and the library was needed to prevent defacement of the building. *The Family Library Table* gate transforms the cold steel barrier into a welcoming symbol to the community.

Together with the Brooklyn Public Library, Percent for Art commissioned artist Rolando Briseno to design the entrance gate to the library. The design for *The Family Library Table* grew from Briseno's desire to integrate his art with the form of the building. The fence adopts the arabesque form that appears on the building in colored tile within a band of bricks that extends around the library. On the gate, the *The Family Library Table* design is a bird's-eye view of a family seated at a library table surrounding a book. One of the figures is inside a computer monitor, symbolizing contemporary modes of communication and information technology.

The fence and gate are made of solid steel bars instead of hollow steel bars, which are easy to bend or cut through. The gate allows visibility onto library property, and its penetrations and texture discourage graffiti. The gate weighs about 3,500 pounds and is supported by large ball-bearing casters so that it opens and closes easily.

in a facility, while not necessarily easy to do, may create a broader constituency willing to defend the facility against crime, if by no other means than reporting inappropriate activity.

In defensible-space and CPTED literature, much is made of *territoriality*, the idea that physical design can help users develop a sense of proprietorship to a space, to encourage them to exercise influence over the use of it. Potential offenders who recognize this influence are discouraged from engaging in negative behaviors. In very homogeneous neighborhoods, with long-term residents, the extension of proprietorship can be palpable. In Carroll Gardens, Brooklyn, front yards that are presided over by statues of the Madonna, or those storefronts in other neighborhoods that are lettered in Spanish, Korean, Greek or Hebrew, can convey a sense of group belonging. In many neighborhoods in New York, a stranger will be subject to intense scrutiny by people on the sidewalks, in yards, or people watching the street from windows. This experience can be unnerving, but is effective.

However, public facilities cannot be designed solely for the benefit of tight-knit social groups. Instead the methods such groups use offer lessons. Also, facilities that serve a wide range of populations can become social magnets and neighborhood unifiers if this goal becomes an explicit one during the design process.

How does one address a neighborhood that is more heterogeneous and less socially cohesive? Much of the defensible-space literature (Hillier [1973], Reppetto [1974], Merry [1981]) proposes that the adoption of territory by people depends on whether social conditions permit it. Establishing territories that may be adopted, especially in public buildings or spaces normally used by a wide public—such as parks or playgrounds—is certainly a more complex task in neighborhoods swamped by crime or in which a facility could become territory over which a turf war is fought.

Example: The parks and promenades of Battery Park City invite inclusion because such attractions as waterfront views amid a pleasing yet durably constructed and well-maintained environment are generally appealing to the public at large. Similar to such borough-wide attractions as Central Park, Van Cortland Park, Flushing Meadows, and Prospect Park, Battery Park City offers a wide choice of free activities.

Facilities can appropriately invite the public to observe and to act on inappropriate behavior. The appealing and distinctive design of the 148th Street playground, Riverside Park, for example, defines for whom the playground is appropriate, which also clarifies for whom it is inappropriate. The site is visible to all passersby, as well as to drivers on Riverside Drive. Facilities embraced by the community are often treated differently from those that are not.

King Manor Museum, Queens before and after

Example: Simple gestures like opening the doors and windows of homesteads and other historic residences make them appear welcoming. However, the windows of the King Manor Museum in Jamaica, Queens, became targets for vandalism when left unprotected. Encircling the Manor with chain link fencing failed to reduce the vandalism.

GUARD BOOTHS

campus security, marking the entrance

Location: **Hollis Avenue Daycare Center 201-30 Hollis Avenue, Queens**

Security issues: **Building security, deterring graffiti/vandalism**

Design Solution: **Reflective metal double-doors, glass block masonry**

Sponsor Agency: **Department of Design and Construction**

Daycare centers are often broken into and vandalized. The facilities' kitchens are the main targets of these break-ins. The centers' facades are also often defaced with graffiti and windows are frequently smashed. The design for the Hollis Avenue Daycare Center needed to include safeguards against this type of vandalism while creating a nurturing environment for children and maintaining an appropriate presentation to the street.

The well-monitored entrance on 202nd Street and all windows on that façade did not require security grilles or window guards. Highly reflective metal double-doors are used at the entrance. They give the appearance of glass but are far more durable. On the Hollis Avenue side, glass block masonry is introduced in the remaining street level fenestration. Only one window required a security grill. Although it is on a main thoroughfare, this side of the building is monitored less by the center's staff and is considered to be at a higher risk for vandalism because of the increase in street traffic. The large area of solid glass masonry allows light into the interior hallways of the first floor as well as offices in the cellar. No security grilles were installed on the second floor windows.

The playground in the courtyard is insulated from the Hollis Avenue traffic by the building's L-shape design. All windows facing this sheltered play area are free of security grilles because of their secure location. A vaulted mesh screen system enclosing the rooftop play space eliminates the need for rooftop fencing.

To secure the building without impairing the cultural significance of the structure, the Department of Parks and Recreation decided to put up an architecturally styled wrought-iron picket fence. It was installed far enough away from the house that thrown stones could not reach it. The defensive nature of this fence was altered by a simple, continuous black-steel ribbon, on which Rufus King's words in the Constitution are lettered. His quill, represented in bronze, adorns the fence.

The decision to use interpretive ornament was controversial, but the wrought iron fence is reported by the Department of Parks and Recreation to be successful, encouraging greater community interest while deterring vandals. Indeed, the vandals have not chosen other routes to do damage as they often do.

Some credit needs to go to the improved appearance of the security measure. From a design standpoint, wrought iron is more appropriate to a house of this stature and era than chain link fencing. The added element of wrapping the manor in the words of its famous resident has transformed a security measure into an ornamental element that reaches out to the neighborhood, not just to visitors already intent on entering the house. The fence also provides added information for those who might not have known about Rufus King. The Department of Parks and Recreation reports that they feel more confident about publicizing the house's open hours and committing a caretaker to it.

The public will allow itself to be enlisted to defend City facilities if it gets the cooperation of those who run the facilities. If someone reports a problem, it is important that the report be acted on. People quickly get discouraged if they sense that their contribution is not taken seriously, and so will not continue to act in ways that help defend a space. They may avoid the place or fail to report more serious transgressions for fear of retribution.

Make Stakeholders of Facility Managers and Staff

Research shows that it takes both design and management together to create a secure place. Those who manage and work in City facilities have a substantial stake in the security of these facilities. During the design process, managers and staff need to be involved in determining security measures. A consensus should be developed concerning the following:

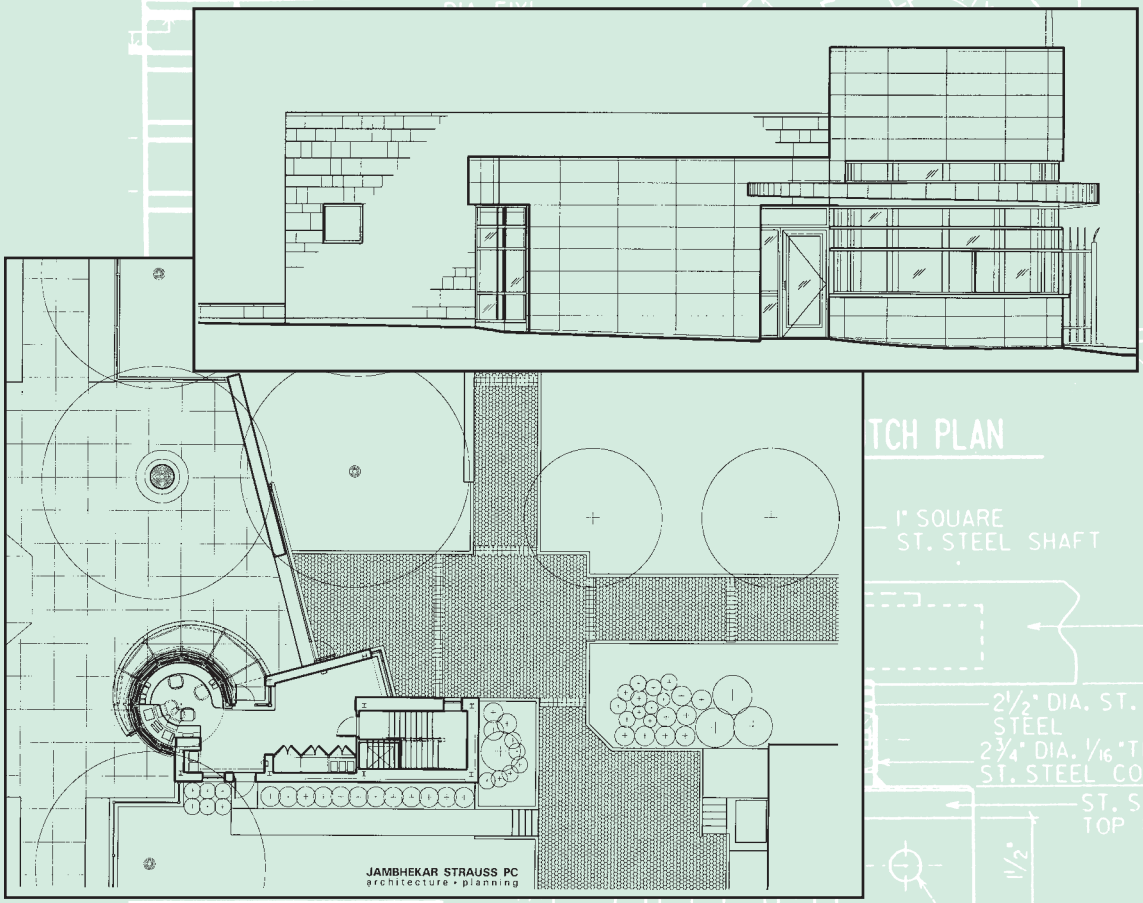
- *The security measures incorporated into a design are appropriate to its use.*
- *The programming of a facility is realistic, and does not leave underutilized spaces that inappropriate users can colonize.*

Example: For years, designers incorporated amphitheater-like spaces into parks and playgrounds. The idea was that groups of people would, in a spontaneous or semi-organized way, create their own performances in such spaces, but this almost never happened. Some of these spaces are used for organized activities, but during periods of little use they have often become places where gangs congregated or drug selling flourished.

Such spaces may be welcomed or creatively used by people. But the dynamic that would foster such use needs to be understood. Such places need to have activities that are positively sanctioned and supervised. Although no one designed the staircase fronting the Metropolitan Museum of Art as a street-theater stage, this use evolved out of the recognition by artists that the thousands who paused on the steps before entering or leaving presented an opportunity. Out of this alchemy came activity that is a spontaneous and pleasing addition to city life. Moreover, this activity is sanctioned by the Museum, which allows it to continue, and under the supervision of its security guards, who prohibit other, deleterious uses of the site.

GUARD BOOTHS

campus security, marking the entrance



Location: **Lehman College, Bronx**

Security Issues: **Campus security, improving visibility, marking the entrance**

Design Solution: **Central Communication Station**

Sponsor Agency: **City University of New York**

Campus security is a foremost concern of the City University of New York (CUNY). Each college has a detailed security plan and a staff of professional security officers. Lehman College is surrounded by an attractive residential neighborhood near the New York Botanical Garden and Van Cortlandt Park. The new guard booth will make Lehman College campus safe, accessible, and inviting to the surrounding community.

Architects from Jambhekar Strauss, PC designed the Central Communication Station to function as both a 24-hour security headquarters and a prominent entrance on the western side of the campus. The cylinder shape of the western part of the station allows the widest possible views for monitoring people entering and leaving campus grounds. The metal-clad structure pushes just beyond the campus edge, breaking the fence line and opening up onto a gracious gatehouse plaza with an entry gate and freestanding stone wall with a sign identifying Lehman College.

The building's facades will consist of stainless steel panels and yellow limestone veneer. For added security without compromising visibility, bullet-resistant 1-1/16" thick, ballistic level I glass by Advanced Glass Systems Corp. will be used for the station windows. The perimeter fence will be I"x1" 16-gauge steel tube pickets and 2" x 2" 11-gauge steel tube rails with a black matte powdercoat finish. A cantilevered, aluminum, all-welded roll-gate, also with a black matte powdercoat finish will be installed at the entry gate. Both the gate and the fence will be manufactured by Buffer Systems. To ensure that personnel can adequately monitor the entrance to the campus and surrounding areas, 35- watt recessed metal halide downlights by Kramer will be used for the canopy lighting.

• *Security measures should not be excessively complex.* Harried staff or users often undermine elaborate password procedures or complex technology. Everyone has seen exit doors propped open, alarmed locks that have been disabled, guards who are too distracted to check people entering a facility. Agency managers should review designed-in security procedures to be sure that the staff who would use and implement the measures accepts them as reasonable and understands their value.

• *A facility must have appropriate maintenance resources.* Research undertaken for this document indicated that most managers feel constrained to consider only the cheapest and lowest-maintenance assemblies and materials, even if they may be inappropriate for functional reasons. In terms of security, this can mean reliance on "hard" assemblies like window guards, roll-down gates, and elaborate security fencing, even when no analysis demonstrates a clear need for such elaborate measures. Window grilles may indeed entail little maintenance, but if, for example, they keep window glass from being cleaned the facility projects an uninviting image of uncaring and poor maintenance, suggestive of an environment in which criminals, not users or the public, have the upper hand.

This is not to say that real threats must not be matched by suitable security measures, but that the tradeoffs among security, maintainability, and the projection of an appropriate neighborhood presence need to be considered and balanced. A dialogue among designers, users, and managers may uncover measures that address real threats and are readily maintained, but which look neither reactive nor overly defensive. In interviews, agencies said that they were unhappy with fortress-like facilities, but said that these security measures were often added in reaction to specific incidents.

• *The facility must have resources sufficient to respond to problems and complaints.* Facility maintenance must convey a sense that the facility is indeed cared for, and that there is appropriate surveillance of the facility and surroundings. Users and neighbors must perceive that threats and complaints will be acted on.

Example: In response to budget constraints, the City stopped employing playground attendants. From within small rooms in playground comfort stations, the attendants had been able to offer active supervision as well as encouraging surveillance by families using the facilities and passersby. With constituents no longer able to rely on a non-essential but vitalizing community service, they began to perceive the playgrounds as less safe, and used them less, which began a spiral of neglect and fear. The unsafe perception was exacerbated as vandals began painting graffiti and otherwise defacing the no-longer-supervised comfort stations.

This in turn inspired an effort to reduce vandalism by shuttering and sealing the structures. Unfortunately, the sealed stations further added to the sense that the playgrounds were neglected and unsuitable for safe play.

The Department of Parks and Recreation decided to try a different strategy, altering the design of the comfort stations to convey a sense that they were occupied and watched over even when they were not. A prototype in development is the Whitestone Playground, Queens. Ornamental grilles, depicting fallen leaves of local flora, are to

Prototype ornamental grille

be installed over existing openings, so that station windows and doors may be left open and briefly unattended during playground hours. The grillwork will be painted green to contrast with the existing decorative shutters, which will be left open adjacent to the openings and which are usually painted black.

The redesign offers a number of benefits. By creating a sense of penetrable, three-dimensional form to the buildings, it makes them more visually appealing, while reducing graffiti-attracting flat surfaces. The grille encourages natural ventilation. The grille design makes it difficult without close inspection to determine whether an attendant is present or not, with the result that the building conveys an impression that it is activated all the time. The transparency of the door grille allows the attendant to observe the play-ground from within the structure, yet offers personal protection and protection of property within the attendant's office.

By making a proactive effort to enlarge the universe of stakeholders, a process can be set in motion by which a facility design can catalyze a neighborhood's best sense of itself. Carefully considered, a project and its management can help raise the norms of acceptable behavior in public facilities, in a sense altering the social as well as physical environment so that it may inhibit criminal activity, not merely defend against it. Borrowing from crime-prevention methodology, the idea is to encourage behaviors that:

- *Increase the perceived effort to contravene social norms (the sanctioned "status quo");*
- *Increase the perceived risk, or punishment, of contravening social norms;*
- *Decrease the perceived reward in contravening social norms.*
- *Remove the excuses for contravening social norms.*

CHAPTER 4

How can design discourage crime?

The treatment of specific design elements has been the focus of much of the defensible space and CPTED literature. To be successful, security considerations must become an explicit part of the conceptual design process. Carefully considered massing, siting, and circulation can render unneeded the more costly and less appealing trappings of security. The concepts and examples in this chapter and throughout the text are intended for the design team to consider the symbolism of security measures in terms of users and a larger public. An appropriate symbolism offers comfort and encourages people to take a stake in securing a site and project.

From the point of view of security, the fundamental design concept of a project — whether by intention or inadvertently — creates *realms,* including barriers, thresholds, and circulation. How these are designed and arranged has a powerful impact on both the sense of security and its actuality.

Barrier

Some kind of barrier intuitively seems the first line of defense against criminals. But the way a barrier is made, whether a low garden fence or a high guarded wall, has important security consequences. A barrier can make people safe or can put them in danger if it prevents escape from an encounter with a robber. And the opacity of a barrier may be unwelcome if it eliminates effective surveillance, creating a crime opportunity where there otherwise would not be one.

Architectural barriers have security consequences whether their ostensible purpose is security (a window grille on a school) or some other purpose (a wall needed to hold up a building). In planning, the design team must recognize that when they create barriers, they must understand how these barriers will work, and what their consequences will be from a security standpoint.

Some of the often-unrecognized aspects of barriers are:

The tradeoff between opacity and visibility. While an opaque barrier can be readily reinforced to prevent entry, its opacity also cuts off surveillance opportunities. Approaching a pair of glass doors in a public place is generally more appealing and creates less apprehension because one can see what's on the other side. A person approaching a pair of solid metal doors festooned with dead bolts and pry-resistant cover plates not only perceives a clear sense of threat, but may also become apprehensive about who or what is beyond the door.

Similarly, high walls surrounding a parking lot or loading area may discourage a robber or mugger, but they also reduce surveillance, offering a lowered chance of detection for anyone who does manage to breach them.

Barriers raise fears when they obscure visibility. If such fears are justified, the barrier itself, however well intentioned, contributes to a security problem. Clearly barriers are needed. But how they work and what their purpose is in terms of security must be explicitly understood and agreed to by the design team.

The degree to which a barrier is visually permeable affects its security consequences. In some facilities it is useful to make the security measures explicit as a way of deterring offenders. A guard visible behind glass doors helps the legitimate user feel safe and conveys a warning to others. (The glass doors also let the guards see farther.)

Example: The Department of Design and Construction recently began a restoration of the Kingsbridge Regional Library, Bronx, a modest, modern-style library dating from the 1950s. Consultant architect Rogers Marvel replaced the open, glass-fronted entrance window wall with a new entrance that meets today's disabled-access requirements. In replacing the surrounding window wall, the architects recognized the security advantages of the architecture's large expanses

Location: **Townsend Harris High School, 149th St. and Melbourne Ave., Queens College, Queens**

Security Issues: **Controlling perimeter access, deterring graffifi/vandalism**

Design Solution: **Pangea fence**

Sponsor Agency: **Department of Cultural Affairs, Percent for Art**

Townsend Harris High School

It is the policy of the Board of Education and the School Construction Authority to surround the property of all New York City schools with a perimeter fence. Townsend Harris High School is a newly constructed high school located in a residential section of Queens. A fence was needed to control access to the campus and to deter graffiti and vandalism on school buildings. The Board of Education, the School Construction Authority, and Percent for Art selected artist Fred Wilson to work with the architectural firm HOK to design a perimeter fence. Wilson designed *Pangea*, creating a theme for the fence using images of the world.

Pangea means "all earth" and refers to a hypothetical supercontinent that included all the landmasses of the earth before the Triassic Period (200 million years ago). The world images on the painted steel fence and gate are silhouetted in black with the spokes representing latitude lines. The continents are in varying scales and are arranged according to the artist's design. The arrangements are metaphors for ideas about various countries' relationships and positions of importance In the world, and some of the continents are inverted. The design is a commentary on the arbitrariness of the standard orientation of world maps, suggesting that while nature creates continents, man creates borders.

FENCES

controlling perimeter access, deterring graffiti and vandalism

P.S. 234

Location: **P.S. 234, 300 Greenwich Street, Manhattan**

Security Issues: **Controlling perimeter access, deterring graffiti/ vandalism**

Design Solution: **Dreaming of Far Away Places: The Ships Come to Washington Market steel fence**

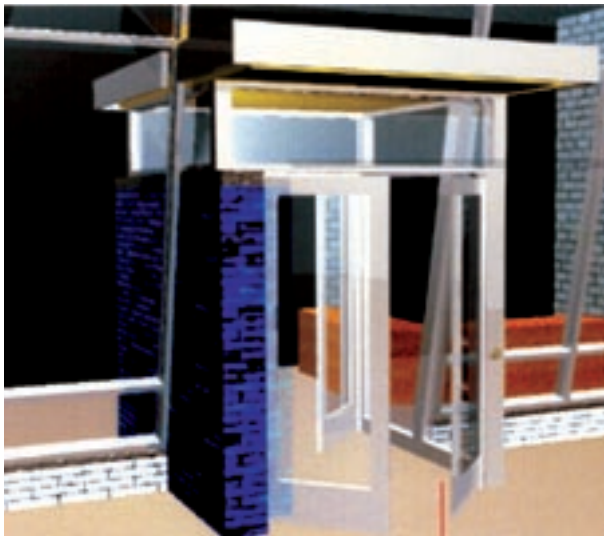
Sponsor Agency: **Department of Cultural Affairs, Percent for Art**

Located in Tribeca in a landmark neighborhood, P.S. 234 is the focal point of the community. A new fence was needed to control access to school grounds. The Board of Education and Percent for Art program commissioned artist Donna Dennis to work with architect Richard Dattner on the design for the fence. Dennis' *Dreaming of Far Away Races: The Ships Come to Washington Market* won an Art Commission Award for Excellence In Design in 1986.

The fence encloses the schoolyard with a procession of silhouetted ships. Images on the fence illustrate the history of Washington Market and its surrounding neighborhood and capture the vitality of the City's shipping industry. The fence is safe for children and gaps between the ground and all solid imagery on the fence allow views from one side of the fence to the other.

The 224-foot fence consists of fourteen steel panels of grade ASTM A36 set into arches and piers designed by the architect. The ships are layered flame and saw cut steel plate of varying thicknesses (7/8" - 5/16"). Steel bars of grade ASTM MI 020 are used for the vertical balustrades at 5/8" thick and for the wave patterns at 5/16". The fence was fabricated by an architectural metal firm based on Dennis' fullscale templates.

of glass. They replaced the old wall with a new one that slopes outward as it rises, which makes the view both inside and out more transparent. The new wall permits the librarians who work at the security desk just inside the door to monitor not only the interior of the library, but the sidewalks outside. In this case the "barrier" aspect of the street wall was considered carefully from a security standpoint.



Kingsbridge Public Library, Bronx

Under other circumstances, full "disclosure" of the security measures in place may permit the perpetrator to find a weak link. Disguising security measures (placing them behind a barrier) is then desirable. Either obscuring or displaying a security strategy is legitimate depending on circumstances. To disclose to shoppers that a store is under video surveillance may deter shoplifting, but making the precise location of every camera obvious may permit shoplifters to undermine the surveillance strategy.

Barriers can encourage or discourage "stakeholding." The nature of the architectural treatment of a barrier can alter its meaning, allowing it to achieve desired ends. By clearly delineating who a space is appropriate for, a barrier can encourage users to take a stake in keeping it secure.

By contrast, spaces that are rendered inaccessible by barriers convey a message, whether or not intended, that "I can't use this space," "I can't affect the condition of it or what goes on in it," "It's not meant for me." Under such circumstances it is difficult for people to feel they can defend these kinds of places (by using them, reporting suspicious activity, demanding greater police protection).

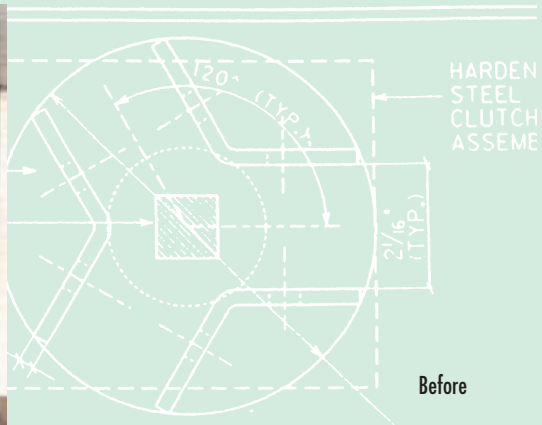
Example: The brightly painted enclosure of the pedestrian pathway on the Williamsburg Bridge forms what is clearly a barrier, confining pedestrians to the walkway. It comprises wire-cloth panels bolted to the red-painted, metal-tube enclosure. And yet it is open, visible to vehicular traffic to the south and subway patrons to the north. Indeed, the bright color draws attention from passing traffic, assuring a higher level of surveillance than would otherwise be likely. By transforming a security requirement into an aesthetic addition to the lacy structure of the bridge, the design makes a witty comment, which is itself appealing. The pedestrian's passage across the bridge becomes a kind of artistic event, which in turn invites more people to use the pathway.

Williamsburg Bridge

TURNSTILES

fare evasion, passenger security, improving visibility

After



Before

XED ARM ASSEMBLY

Location: **New York City Subway Stations**

Security Issues: **Fare evasion, passenger security, improving visibility**

Design Solution: **High Entry Exit Turnstiles (HEETs)**

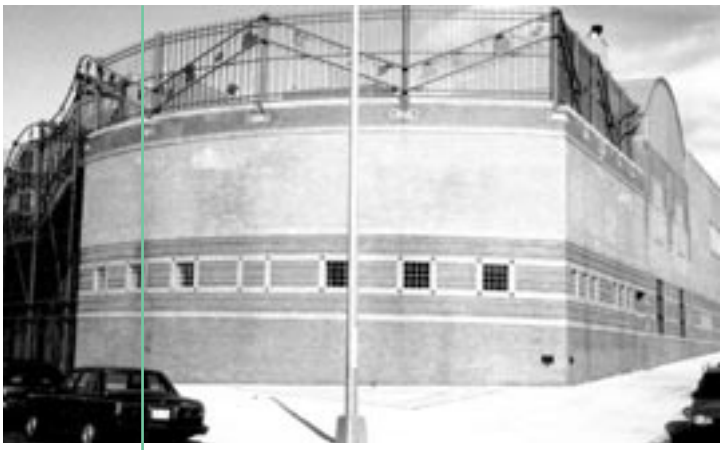
Sponsor Agency: **Metropolitan Transit Authority, Arts for Transit**

The Metropolitan Transportation Authority's agencies service approximately 13.2 million people in their daily commute. In the 1980s, commuters were afraid to use the subway with its graffiti-covered cars, poor lighting, insufficient signage and crumbling stations. Arts for Transit was among the programs initiated to turn the city's transit system around. Ridership has risen sharply since the creation of Arts for Transit, whose goal is to encourage the use of mass transit by enhancing the environment for passengers.

At subway station turnstile entrances, people jumping the turnstiles to avoid paying fares had become an increasing problem. High Entrance Turnstiles (HEETs) were installed in many stations to reduce the incidence of fare evasion. HEETs were tall, solid, enclosed structures that riders entered by inserting tokens. They did not accept MetroCards and were used for entry only. Vandals repeatedly jammed the token slots putting the HEETs out of service. A new design was needed to Improve passenger flow.

Arts for Transit commissioned Laura Bradey to design the new High Entry Exit Turnstiles. The new HEETs allow two-way operation and accept MetroCards. They are located in high fare evasion areas and part-time entrances. HEETs allow visibility between the paid and unpaid areas within the station. They provide an elegant and secure passage to the subway platform.

HEETs are brighter and friendlier than the older structures. A 16-gauge perforated curved stainless steel shield is used for the fixed barrier, which provides customers greater security by allowing them to see through to the other side of the HEET. HEETs can be locked and unlocked by a station agent from the booth if necessary. They are less likely to be vandalized because they only accept MetroCards. The structural components of the HEETs were fabricated and supplied by Tornsed Corporation of North Carolina, and the electronic components and software are supplied by Cubic Transportation Systems of California.



PS 8, Amsterdam Avenue, Manhattan

Example: A recently built school on a tight site, P.S. 8, at Amsterdam Avenue and West 168th Street, integrates its very demanding enclosure requirements into its architecture. A high, fuschia-painted metal fence large enough to contain bouncing balls and climbing children surrounds its two-level outdoor play areas. This is not a delicate design, but the architects have attempted to mitigate the height and massiveness of the construction through color and the use of playful cut-metal philodendron leaves and cheerful finials. Stairs and a porch offer a welcoming architectural gesture, which is countered by the intimidating size of the gateway and "no trespassing" signs pasted on several surfaces. The structure's exterior wall and fence together form a contiguous envelope, but the design obscures the entrance when the gates are closed. The designer's intent is exemplary, but the overall image conveyed by this project is still more fortress than the intended kid's castle.

THRESHOLD

Threshold is the means by which people pass from one realm to another, for example, the transition from a public street to a school playground. Thresholds are important because all too often they are made but not recognized by designers or facilities managers. When a threshold is not clearly delineated, it creates an opportunity for space to be improperly "read" and colonized by undesirable users. A threshold can replace a barrier when people recognize what the threshold separates. This recognition relies on the designer clearly signaling the appropriate use for the two sides of the threshold.

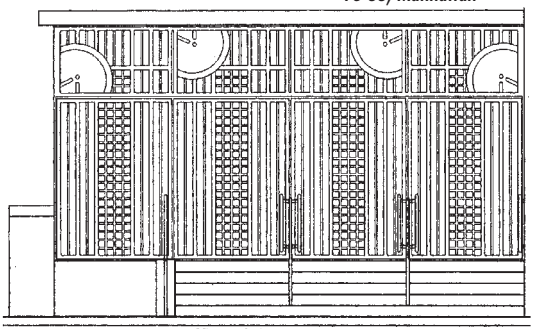
A carefully shaped threshold can delay and thereby perhaps prevent perpetration of a crime simply by being large enough to offer an avenue of escape or a spatial separation between perpetrator and victim. A large courtyard entranceway allows a victim to anticipate a possible purse-snatcher, where-as a narrow entrance passage provides little time to react to the approach of a stranger and provides the perpetrator with a reason to move close to the victim.

A doorway is a threshold. It can inspire fear if a person does not know that the space beyond the door is safe. Or it can inspire a sense of safety if the person can see a group of people who clearly belong in the space conversing beyond the door.

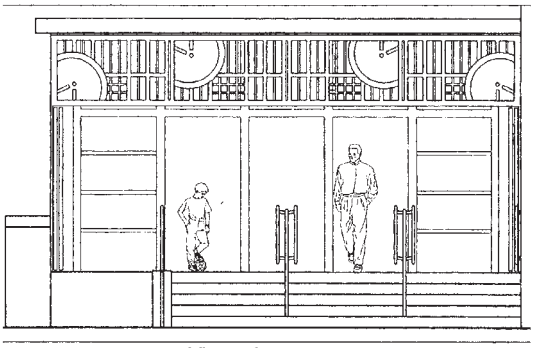
Thresholds are important because they can clearly delineate who should occupy each side of the threshold and under what circumstances people are allowed to cross.

PS 33, Manhattan

Example: School authorities believed that an entrance recess at PS 33, in Manhattan provided a location for inappropriate loitering and could conceal criminal activity. A conventional metal roll-down gate had been considered to seal the space. This would have defined an ambiguous entrance as a barrier, which would have been an effective



View of closed gates



View of open gates

STAIRS

improving visibility, passenger security

After

Before

Location: **New York City Subways**

Security Issues: **Passenger security, improving visibility**

Design Solution: **Open Riser Stairs**

Sponsor Agency: **Metropolitan Transit Authority**

The Metropolitan Transportation Authority's agencies service approximately 13.2 million people in their daily commute. MTA's design goals for reconstructing the City's subway stations include improving sightlines and the perception of openness.

People loitering around the stairs in subway stations contributed to passengers' unease while they waited for trains. The solid mass of concrete and tile that form the traditional stairs in subway stations obstructed the customers' views of the platform and created opportunities for crime. Open riser stairs would improve visibility on the platform, but the American Disabilities Act (ADA) regulations prohibit a completely open riser. The MTA's modified open riser stairs use a perforated metal screen to replace the conventional riser, thereby improving visibility on the platform. Stainless steel handrails and guard rails that are mounted to the floor rather than to walls enclosing the stairways further contribute to the sense of openness.

The stairs are made of structural self-supporting tread castings of nickel and bronze with a toe-flange and cross-hatched finish by Safe T Metal Company, Inc.; the risers are perforated I I-gauge stainless steel plates manufactured by McNichols Company.

method of sealing the space. But it also would have conveyed a clear message to students, parents, and staff that this was a place that required fortification. The school instead chose to make a decorative steel picket gate. The solution was visually appealing and accomplished its task.

In fact the decorative gate offers a number of advantages. The ambiguity of the space is eliminated, but the visual appeal of the gate engages passersby positively. It encourages neighbors to feel good about the decorative open picket gate rather than to consider what crimes spurred the addition of a roll-down gate. Moreover, passersby can naturally observe what occurs at the entrance, thereby potentially providing a higher level of surveillance than the alternate solution did.

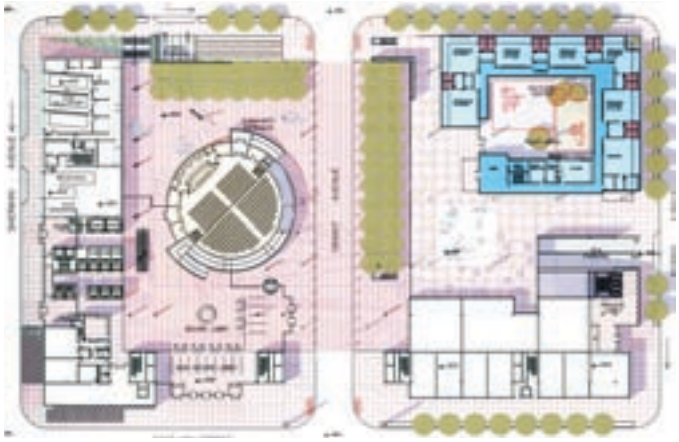
CIRCULATION

Considering circulation in security terms means thinking in terms of who is allowed into which realms of a building or site and the controls that either permit or prevent passage. The handling of a public-housing site is a circulation concern, for example. Should only residents be allowed to use walkways and playgrounds or should they be available for neighborhood use? Can a building with many entrances be adequately secured? The gate at P.S. 33, described above, is an example of how the careful delineation of a threshold condition separates two distinct kinds of circulation. The public on the street is separated from the children, teachers, staff, and parents entitled to use the realm of the school building and playground.

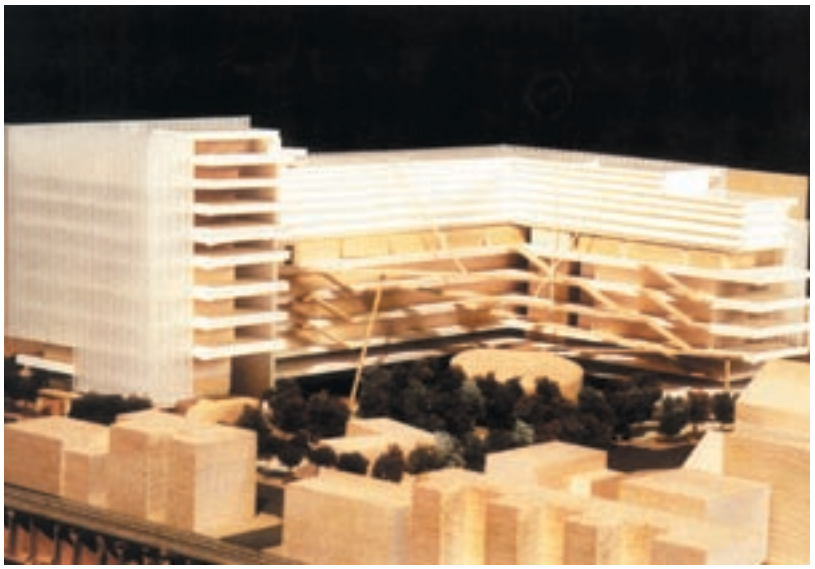
Example: Circulation control is critical in projects like courthouses. Generally, planners lay out the building with three kinds of circulation. The public and jurors have access to courtrooms and jury-holding areas. Judges have a path from office to courtroom separated and secured from the public, from attorneys and from detained defendants. Defendants themselves have a path from holding cell to courtroom that must be highly secured. A designer whose plan inadvertently breaches these separate paths has done a poor job.

Many layers of "authorized" circulation can be accommodated in a project if called for. A hospital may need to separate only visitors and other members of the public from staff and patients (though a regime to secure drugs may also involve design of circulation). An embassy, however, may have a whole array of circulation systems to permit uses as varied as trade-related public events (highly public), secret intelligence analysis (highly restricted), and safe refuges in event of terrorist attack (highly fortified).

• *Some projects use circulation to handle security concerns in a subtle way.*



Bronx Criminal Courthouse, site plan and view of model



GATES

building security, deterring graffiti and vandalism

Location: **Kings Bay Branch Library, 3650 Nostrand Avenue, Brooklyn**

Security Issues: **Building security, deterring graffiti/vandalism Kings Bay Branch Library**

Design Solution: **Sliding entrance gate, glass block installations**

Sponsor Agency: **Department of Design and Construction**

Graffiti often appears on the exterior of the Kings Bay Branch Library and the windows are frequently broken by vandals. Brooklyn Public Library requested a security roll-down gate at the building's entrance, window guards, and graffiti-resistant exterior finishes. Instead, Department of Design and Construction (DDC) consultant architects designed a sliding entrance gate, designed perforated stainless steel panels to protect the glass storefront, and installed glass block on the second story so that window grilles were only needed on the ground level.

The sliding gate at the library entrance gives the building character. When closed the building's façade is as welcoming as when it is open. Two panels covered with a festive red and silver arced design join together when the sliding entrance gate is closed. When the gate is open, perforated stainless steel panels protect the glass storefront and their porous surface discourages graffiti. A compromise was reached concerning the installation of security grilles on the ten front windows of the library. At waist level to pedestrians, the five ground floor windows are most susceptible to vandalism. The five windows on the upper level windows were installed without security grilles. Glass blocks were used for second story fenestration on the south side of the library as an alternative to security grilles. The use of these blocks maximizes the amount of natural light into the reading area below while minimizing the risk of breakage.

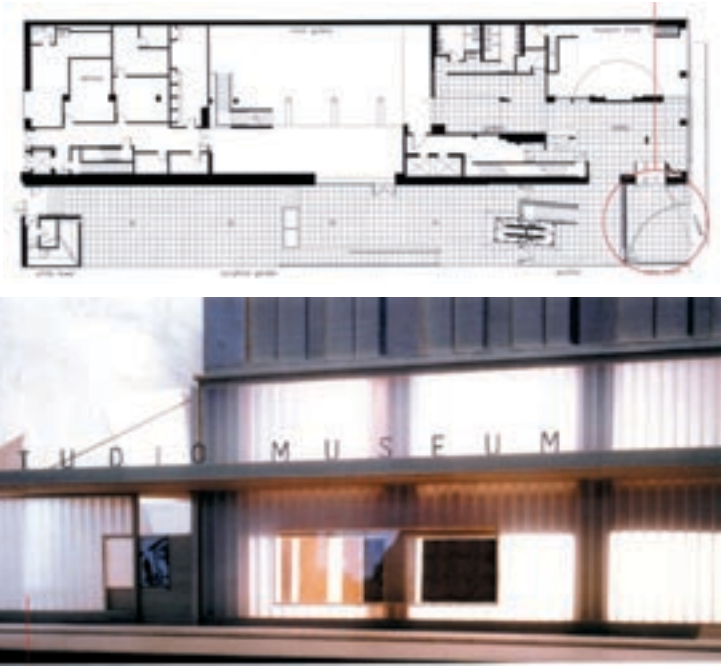
The front of the sliding gate is 1/8" thick stainless steel. The field is painted perforated stainless steel with 50% perforation of the surface area. Standard solid glass block was used for the second story fenestration.

Example: In the proposed Bronx Criminal Court Complex at 161st Street near the Grand Concourse, architect Rafael Viñoly effectively handles complex hierarchies of circulation. The building is ranged along the street edge of its two-block frontage, with a high opening framing the way into a public civic plaza that occupies the side of the site facing residential streets and a school. A landscaped space, the plaza ties together such public functions as jury assembly and daycare, each shaped as highly expressive parts of the building that ease identification by users who may have little familiarity with the complex. The space is easily observed by guards within the building and by surrounding residents, and is activated by traffic among the courts building and the daycare center. Because of its use, the building is highly secure, but the metal detectors and inspection stations at the entrance appear to be carefully integrated into the building design. In too many other courthouses, necessary security procedures make prospective jurors and witnesses feel as if they under suspicion — an experience that is not conducive to securing public cooperation with vital law enforcement activities.

Viñoly's design activates the elevations facing the civic plaza with extensive glazing and a series of ramps connecting various levels. Rather than the confusing warren of corridors that courthouses so often prove to be, the ramps make the movement of people within the building an exciting part of the architecture and open the interior of the building. On the street elevation, a portion of the building primarily occupied by private corridors serving courtrooms and jury rooms, the folded-glass façade adds sparkle to the street and makes a moving sculptural tableaux out of the passage of people within the corridors. The building is exemplary because strict security needs and consequent separation of circulation paths too often turns courthouse buildings into forbidding hulks.

Threshold, barrier and circulation are not concepts that are mutually exclusive to each other. If one can be deployed effectively, the other might be eliminated, for example. Some projects require mixing and matching of concepts.

Example: A recent design by architect Rogers Marvel transformed a vacant lot next to the Studio Museum in Harlem (on 125th Street, in Manhattan) into a sculpture court and gathering space. This project creates a street-fronting transition space that is at times either a threshold or a translucent barrier. The 25-foot width of the court is protected at the street by a full-width pivoting gate of Reglit glass panels. A relatively new product, these panels are translucent and durable, like glass blocks, but can be mounted in longer units. The broad gate can be swung open during open hours so that the sculpture court is visible through the transparent barrier and invites passersby to enter the museum and then the sculpture court. For private events a normal-size door within the gate can be used to limit access to the garden and building. The Reglit panels will also be used to glaze the street frontage of the existing building, replacing existing roll-down metal security gates with warm light as a beacon to passersby rather than a blank building wall.



Studio Museum in Harlem, plan and view of model

GATES

controlling perimeter access, improving visibility, marking the entrance

Blue Heron Park Nature Center

Location: **Blue Heron Park Nature Center, Staten Island**

Security Issues: **Park and Center building security, deterring graffiti/vandalism**

Design Solution: **Decorative Cattail and Heron Gate**

Sponsor Agency: **Department of Parks and Recreation**

The Nature Center is located in a fairly remote wooded section of the island. Before the center was constructed, there had been attempts to crash the existing gate with a vehicle. A strong gate was needed to keep out vehicles when the center is closed. The gates were designed in-house. Since the site is a nature center and the park was named after the blue heron, the herons were chosen as the theme of the artwork on the gates. The double gate was needed to span the full width of the driveway. The gate panels, which are 11′ wide by 3′6″ high, are made of handforged. steel. The panels are painted a very dark, almost black-green. The steel posts are able to support the weight of the gates so they swing easily. The company that manufactured the gate, Green Mountain Gate Company from Lincoln Massachusetts, was selected because of their experience with designing and manufacturing security gates for the White House and for embassies.

Location: **P.S. 15, Andrews Avenue North and Hall of Fame Terrace, Bronx**

Security Issues: **Controlling perimeter access, deterring graffiti and vandalism, marking the entrance**

Design Solution: **“Hall of Fame” Gates**

Sponsor Agency: **Department of Cultural Affairs, Percent for Art**

P.S. 15 is located across the street from the renowned Hall of Fame for Great Americans. It is the policy of the Board of Education (BOE) and the School Construction Authority (SCA) to surround the property of all New York City schools with a perimeter fence. The Hall of Fame Gates mark the two main entrances to P.S. 15.

Together with BOE and SCA, Percent for Art commissioned artist Brinsley Tyrrell to design the entrance gates. Tyrrell designed the Hall of Fame Gates with the intention of creating a more relevant, less austere Hall of Fame that students of P.S. 15 could relate to. The gates contain 36 images honoring outstanding individuals, including many ethnic minorities. They articulate the relationship between the school and its neighborhood by referring to local landmarks and by representing prominent minority figures in this largely minority community.

The gates are two-sided bronze pierced reliefs painted the same green patina color as the Hall of Fame for Great Americans. Because they are not completely solid, the gates allow some visibility into the schoolyard. The penetrations and texture of the gates also discourage graffiti.

P.S. 15, Bronx

Specific security-oriented construction elements are repeatedly reviewed by the Art Commission. This chapter offers guidance in the handling of security measures in order to enhance effectiveness without compromising the project's civic image or positive relationship to the public realm.

GENERAL ISSUES

The Art Commission advises agencies and consultants to seek an integrated versus an added-on approach to security. The following steps should be included in the programming and design process.

• *Evaluate security needs* and consider explicitly the threats that have been encountered or those managers might reasonably be expected to encounter in a new or altered facility. Such a consideration might seem self-evident, but may not occur due to the press of issues in the designing and building process. CPTED literature (discussed in Chapter 1) offers many ways to structure an assessment.

• *Map out the full range of suitable responses.* Looking at the threats identified and how likely they are to occur often suggests a strategic response. Reasonable security measures should not be overshadowed by other concerns, but those measures should be in proportion to the anticipated threats. As indicated in earlier chapters, an over-fortified structure sends a message that criminals have the upper hand. Security measures that are needed should be consistent with the architectural expression of the project; nearly any security requirement can be gracefully integrated into an overall design. Recognize that different building types present different security issues.

• *Increase the stake that users, the public, and staff have in keeping the facility secure.* The very act of discussing threats and responses helps people recognize the necessity of security. But proactively seeking constituents' recognition of the need for security measures and security procedures can make a facility safer, perhaps avoiding the need to build in additional "mechanical" measures. (Staff, for example, will not undermine inconvenient security measures if persuaded of their usefulness.)

Community members can participate in helping to secure the facility, whether by primarily passive means (observing areas of concern, reporting inappropriate activity) to active participation (community groups helping to maintain or patrol a facility or neighborhood). To achieve such commitment, the community must be persuaded of the value of the facility (through Community Board participation or by other relevant means) and of the commitment to security on the part of its managers.

• *Test whether security measures are successful.* Ideally, each agency and facility would maintain a database of crime-related incidents in order to evaluate past strategies and take action on problems. This may not prove realistic, but there are other ways to assess the validity of security measures. The agency can conduct a peer review of a design or strategy with other agencies that have faced similar circumstances. It can compare its experiences by using databases that others have maintained.

• *Consider the response to threats as an integral part of the design process.* While the application of window grilles might be an initially obvious solution, for example, the consideration of window configuration or materials (laminated glass versus float glass, for example) may obviate the need for a grille. Well-designed exterior lighting may offer protection from vandals and muggers alike. A well-placed building entrance can transform a public no-mans-land — readily appropriated for drug selling — into a focus of community activity.

SITE-SPECIFIC ISSUES

The use and configuration of the site is one of the most crucial security-design issues. Much of the literature of crime prevention

GATES

fare evasion, passenger security, improving visibility

Medallion

Long Division

Wave

Location: **New York City Subway Stations**

Security Issues: **Fare evasion, passenger security, improving visibility**

Design Solution: **Long Division, Wave, and Medallion Railings**

Sponsor Agency: **Metropolitan Transit Authority, Arts for Transit**

At subway station turnstile entrances, people jumping the turnstiles to avoid paying fares had become an increasing problem. A method of separating paid and unpaid customers was needed to keep fare evaders out. The *Long Division, Medallion,* and *Wave* gates function as physical barriers tempered with elegant designs that avoid creating a hostile atmosphere for the paying customer.

Artist Valerie Jaudon was commissioned by Arts for Transit for her *Long Division* gates located at the 23rd Street station. The railings incorporate a symphony of curves in the grilles that divide the paid and unpaid spaces of the station. Visibility was important in Jaudon's design. Her intention was to create a barrier "that allows you to see the entire station through which people can see where they are going and where they have been." Jaudon's *Long Division* gates were so successful that Arts for Transit commissioned another artist, Laura Bradley, to design railings for incorporation throughout the system. Bradley's designs include the *Wave* gate installed at IND stations and the *Medallion* gate installed at IRT and BMT stations.

through design is devoted to site considerations, if for no other reason than that courtyards, sidewalks, and other public or semi-public areas can be the most difficult spaces to secure. Important site considerations include:

• *The degree to which a site is integrated into or is physically isolated from a viable neighborhood.* A site that fronts a street animated by pedestrian activity generally feels safer than one isolated by freeway ramps or surrounded by empty lots or buildings. A large building or project that itself generates little activity may require mitigating action through design to keep it from being a magnet for offenders searching for isolation.

• *The suitability of the facility for the site.* A vibrant urban neighborhood may look upon a power substation, firehouse, or Emergency Medical Services (EMS) facility as an enervating factor. And residential neighborhoods may also fear a facility, such as a hospital or clinic, which draws high numbers of people to a once-quiet area. When a controversial or difficult site is unavoidable, careful design can mitigate many concerns. A recycling facility in Holland, for example, won approval from skeptical neighbors because it was configured so that its operators were accessible to the public and each other. Spectacular design made it a neighborhood landmark, and the shed-like building was designed for future conversion to a recreational facility.

• *Try to anticipate consequences.* Buildings or projects that work independently may create new problems if their relationship to context is not thoroughly explored. This is especially important in campus environments such as hospitals, schools, and colleges where separations between public and non-public areas inadvertently can be rendered ambiguous. Buildings or construction elements can obscure clear lines of sight or create dead ends where there were previously passages.

Program and Building-layout Issues

Ambiguity in programming building space or site layout often invites appropriation of space by offenders. The most commonly cited examples are the plazas created around high-rise slab public buildings that followed Modernist design concepts. Sometimes plazas extended under public buildings because the body of the building was raised on columns. The laudable idea of providing additional public space was often undercut by the lack of clarity in how these spaces were defined and little thought as to how they might be used.

Plazas and other public spaces should have a clear public purpose, and the design team should thoroughly consider both desirable and undesirable scenarios in deciding on how a space is designed.

As discussed in Chapter 5, the intended hierarchy of use and circulation needs within a facility needs to be explicitly understood by the designers and explicitly expressed. The function of barriers and thresholds must be understood, and, when relevant, expressed in the design.

The design should respond explicitly to identified security issues so that security measures do not have to be retrofitted later.

Security Technology and Tactics

Managers face more security-strategy choices than ever. Traditionally people have performed security-related tasks, whether as informal patrols or as uniformed, hired guards. But the real explosion of choice is in security-oriented technology. This greater choice poses greater challenges to the designer in incorporating the technology and techniques appropriately into the project's structure. The following is a consideration of commonly employed technologies and tactics.

• *Window grilles and entrance gates.* Such opening protections should be used only after consideration of other more publicly

FENCES

controlling perimeter access, deterring graffiti and vandalism

Location: **Coney Island Water Pollution Control Plant, Knapp Street, Brooklyn**

Security Issues: **Controlling perimeter access, deterring graffiti/vandalism**

Design Solution: **Wavewall in Green**

Sponsor Agency: **Department of Cultural Affairs, Percent for Art**

Department of Environmental Protection's Coney Island Water Pollution Plant is a sewage treatment complex in a residential neighborhood. A perimeter boundary was needed to control access to the building, to keep it free from graffiti and vandalism, and to soften the edge of this industrial facility. The Department of Environmental Protection (DEP) and Percent for Art sponsored artist Ned Smythe to work on a design with the engineering firm Pirnie- Baker. Smythe's *Wavewall in Green* received an Art Commission Award for Excellence in Design in 1989.

Wavewall provides security for the plant, but it is also an attractive sculptural element that has symbolic significance and serves as a buffer between the plant and the community. *Wavewall* is a symbol of the relationship between water, life, and our planet. It represents the important function of the plant cleaning and protecting our water and environment. The chain link wave undulates from a three-dimensional curl to a two-dimensional wall and back to three dimensions. Plants obscure much of the fence at ground level. Along residential streets, special attention was paid to planting more sweet smelling and flowering shrubs and trees.

Wavewall consists of standard small gauge (1/2" spacing) chain link fences with PVC coating ranging from 10 to 25 feet in height and painted green. Bends in the pipe and top rails were custom designed by Smythe and manufactured by MS Steel, a fence installer and fabricator specializing in correctional facilities.

appealing technologies, such as impact-resistant glazing and heavier-duty opening hardware. Should such protections be deemed a necessity, they should be as unobtrusive as possible (retractable when not needed) and receive an architectural treatment consistent with the building's overall design. They should obscure visibility as little as possible, not compromise life safety (specifically emergency exiting), and allow easy performance of regular maintenance, such as window cleaning.

• *Bollards, fences, walls.* Agencies should carefully consider the purpose of such barrier devices and should select the least visually disturbing option that meets identified needs. In a landscape situation, a "haha" (a kind of ditch that resists scaling) is a classic tactic for separating two areas without resorting to a visually obtrusive wall or fence. It is essential to balance the tradeoffs between the opacity of a wall and the transparency of a fence or window. Bollards intended to prevent auto access should not prevent free pedestrian circulation. Architectural treatment of any barrier — even one so humble as a playground fence — mitigates the visually blighting and dispiriting appearance of so many barriers, such as the acres of chain link one encounters throughout the city. Overtly fortifying elements like barbed wire or razor wire should be considered only as a last resort because of the image they convey of a structure or site under siege by criminality.

• *Lighting.* A careful consideration of lighting needs — especially street, parking lot, and site-lighting needs — will obviate the need to make obtrusive and expensive retrofits later. Quality of lighting and quantity of lighting are not the same thing. Powerful fixtures mounted on the sides of buildings are often a poor solution because they are blinding to those entering, allowing an offender to lurk in shadows. Generally, surfaces and pathways should be evenly lit, with sources shielded to avoid blinding glare. Lower levels of lighting will often be acceptable if fixtures are deployed in a pattern that lights without excessively bright or dark areas. Lighting that is esthetically appealing confers a sense of security. Detention- or warehouse-style lighting palpably conveys the environment's risk to personal security.

• *Cameras, other surveillance technology, and entry technology.* The need for security-oriented technology should always be carefully evaluated, if for no other reason than that it is costly, entails significant maintenance resources, and may become outdated rapidly by technological advances. Cameras can be placed where they will be seen, yet need not be intrusive. Card readers, driveway gates, X-ray machines and similar systems can all be integrated into the larger architectural scheme if such needs as enclosure, utility runs, and outlets are considered at the appropriate time.

• *Guards and other "human resources" for security.* Too often the means to accommodate security guards or a security-monitoring station is considered after the fact. Whether a shack, a lobby desk, or elaborate security console, such facilities can be integrated into the architectural whole. The designers must be sensitive to the need to supply these stations with power, telephone, or even elaborate telecommunications infrastructure. Cameras and monitors should be made as unobtrusive as possible.

Civic and Artistic Expression

Artists and designers should not hesitate to use aesthetic tools as part of the arsenal of security. Light and color, changes of scale, texture — even creative use of sound or smell, temperature and climate control — can convey a sense of safety and help to engage users, staff, and the public. Site relationships, scale relationships, transparency, and opacity may be appropriated to meet expressive, functional, and security needs.

The ideal qualities of public buildings are often vaguely discussed. It is often said that buildings and other projects should inspire

ELEVATORS

improving visibility, passenger security

Location: **Church Avenue Station, Brooklyn**

Security Issues: **Visibility**

Design Solution: **Prototype elevator enclosure**

Sponsor Agency: **New York City Transit Authority**

Metropolitan Transportation Authority's design goals for reconstructing the City's subway stations include improving sightlines and the perception of openness. Elevators are being installed in more subway stations to improve circulation. The design for the elevator cabs and shaft uses tempered glass panels for as much of the structure as possible to allow maximum visibility. The use of tempered glass is required by the American Disabilities Act (ADA) for surveillance reasons, but glass also helps to reduce the bulkiness of centrally located streetscape and platform obstructions. Because glass is an uncommon subway material, passengers can easily recognize the glass structures as elevators without additional signage.

The elevators consist mostly of aluminum and stainless steel sheets and plates. The glass panels are clear laminated glass consisting of two layers of 1/4" thick clear tempered glass laminated with a clear PVC interlayer.

pride, should be a civic ornament, and should represent the best spirit of the city's residents. These are appropriately broad notions because the city is a diverse place with many opinions, aspirations and esthetic expectations. While there are esthetic aspects of design that serve security and other functional needs (appropriateness in scale to the neighborhood, for example), an inspiring design has security consequences in the way that it invites users, the public, and managers to take a proprietary interest in it. Nevertheless, a great design cannot transcend poor management or lack of maintenance; nor can an enervating design be saved by excellent management, maintenance, and good intentions.

James S. Russell
1999

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Uneasy
SPACES
SPACES

Uneasy Spaces is a photography project sponsored by the Design Trust for Public Space which considers the visual consequences that security measures have on public space throughout the five boroughs of New York City. The photographs document and illustrate individual security devices and situations as they arise in everyday existence. The project's process was generated by larger questions about public space and security as a condition of contemporary urban existence. While security measures sometimes involve prison-like structures surrounded by fencing and wiring, everyday life can be drastically altered or disrupted by security planning without it being recognized as such. The role of photography in this project wass to expose these "hidden" security measures and literally "to make visible."

Uneasy Spaces is structured as a mapping project in which each of the five boroughs is fully represented. Design Trust Fellow Elizabeth Felicella imposed a grid over New York City using an MTA bus map, and chose evenly, though randomly, distributed points so that no coordinate was a previously known value. This structure was based on the assumption that security concerns are ubiquitous to urban existence and every location should be viewed as a source of equally valuable information. By implementing a less subjective selection process, Ms. Felicella hoped to bypass typical preconceptions about public space and move toward a more open and, at the same time, more detailed scale of examination. She granted careful attention to actual devices that were intentionally designed for security purposes, but also perceived and recorded unplanned elements that have come to serve a similar function. Where overt security measures were implemented, Ms. Felicella documented the local repercussions of those interventions. Where no security measures were immediately apparent, Ms. Felicella examined whether other elements might be serving a similar function in an unofficial capacity or why no measures had been deemed necessary. These less apparent measures, whether accidental or organic, have the potential to provide important insight into dangerous situations and suggest less invasive means of intervention.

SECURITY AND THE PUBLIC REALM: ARTIST'S STATEMENT

This project grew out of concern that we are witnessing a general hardening of the public realm, whereby the aesthetic quality of our public spaces is compromised, contributing to an atmosphere of insecurity. Initially, the aim of the survey was to document architectural security measures that are implemented in public spaces throughout the five boroughs. For the purposes of the project, security architecture was defined as any element of a site that was designed, added or has come to function as a security/safety measure. Based on a literal interpretation of the definition, the category includes things like fences, lighting, and surveillance systems. Once work began, I realized that the question of security was often more elusive than an identifiable architectural structure-that it had to do with further reaching systems which set the rules or order of a space. In order to accommodate this broader working definition of security, I adopted the title, Uneasy Spaces.

In order to give the survey an identifiable structure, I treated it as a mapping project in which the five boroughs of New York City were represented. Fifty coordinates were taken from the MTA bus maps, each of which was documented as it pertains to the question of security and public space. This arbitrary division was intended to force a more detailed scale of examination and thereby challenge my own understanding of the physical and symbolic construction of security. Where blatant security measures have been implemented, my aim was to document the particular effect in that context-for instance, does a given fence or lighting installation prevent people from gathering in a space that is theoretically there for their use? If so, has another area been taken up to serve that local function? Where no security measures can be identified, my aim was to examine whether other elements might be serving similar functions in an unofficial capacity or why no measures have been deemed necessary.

In photographing, it became immediately apparent that not only were architectural security measures, as such, often difficult to identify but that the very grounds of the project raised fundamental and unanswerable questions-namely, what is security and who is the public? When talking about public space, security is largely a psychological construction and one that has everything to do with an individual's expectations of a neighborhood, if not the world, and his or her place in it-each of which are conditioned by the socioeconomic and the political. It is generally accepted that there is no one who may go absolutely anywhere at any time without any concern for his or her safety. There are boundaries and limits and territories and this is also generally accepted. This being the case, my difficulty arose in trying to establish criteria with which to understand the places that I documented. How could I determine whether a place "felt" secure if I had no way of circumventing my own sense of fear and security? And this was further problematized by the fact that photographing with a large format view camera is not a common entry in any list of public activity.

These were problems not only of method, but of perception itself, and as such were inescapable. However, the constant frustration of the limits and blind spots they imposed helped me to recognize aspects of security and public space that I had never considered. The most fundamental was the claiming and marking of space. I realized that the things that mark a neighborhood are both expressions of home and general indications of who sets the order. They serve to inform. Whether or not these signs actually insure the order they propose, this information is the first step in creating a sense of place and security. In terms of photographing, this meant that I looked for signs of whose neighborhood I was in and often documented these as the most preliminary and fundamental of security measures.

By accepting such things as security measures, I was also forced to reconsider what amounted to a general prejudice on my part that security measures were controls imposed on communities by outside powers. And while I would still not underestimate the detrimental controls to which many communities are subjected, I have come to understand security to be a more organic question of well-being within the active realm of sharing. This opened the field of subject matter even further, so that even the birthday decorations on a tree or a series of playing fields had something to do with security. It is also meant recognizing that although the category of safety is often exploited to gain control public of public space, there are, of course, legitimate and necessary safety precautions that foster the secure use of a space. Along these lines, I came to understand traffic divisions and guard rails as forms of security.

The photographs in the series refer to a ranging definition of security architecture – from this more abstract idea of marking and sharing to actual architectural devices, such as lighting or fencing. And within this range there are no clear categories into which the tota; 140 images of the project can be sorted. When I began the project I imagined finishing with both definite conclusions about security and public space and a detailed overview of the subject. I cannot say that I possess either. Instead, I've developed a deep respect for the enormous complexity of the problem as it pertains to city planning and modern subjectivity. My hope now is that the project will continue to grow through the response of others and my own additional photography. I also hope that time will fill in some of the gaps, so that each image will be able to serve some purpose in the ongoing attempt to understand this organism that is our city.

Elizabeth Felicella
1997

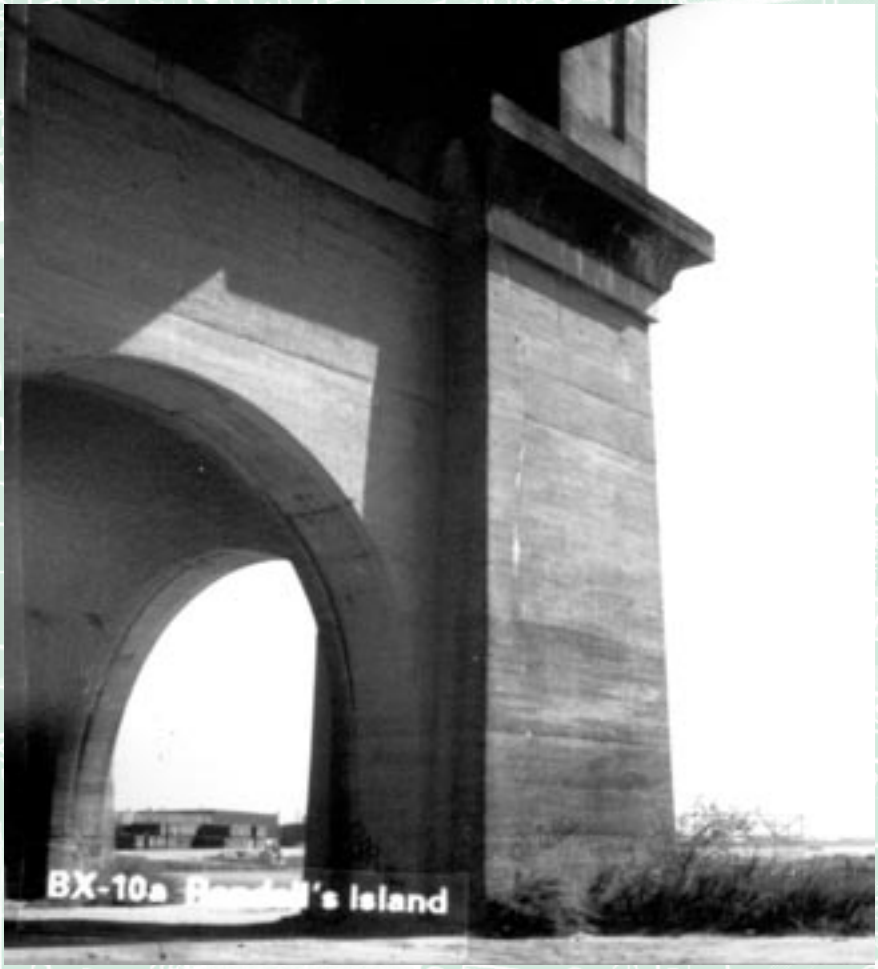
BROOKLYN

BROOKLYN

STATEN ISLAND

STATEN ISLAND

BRONX


BX-10a
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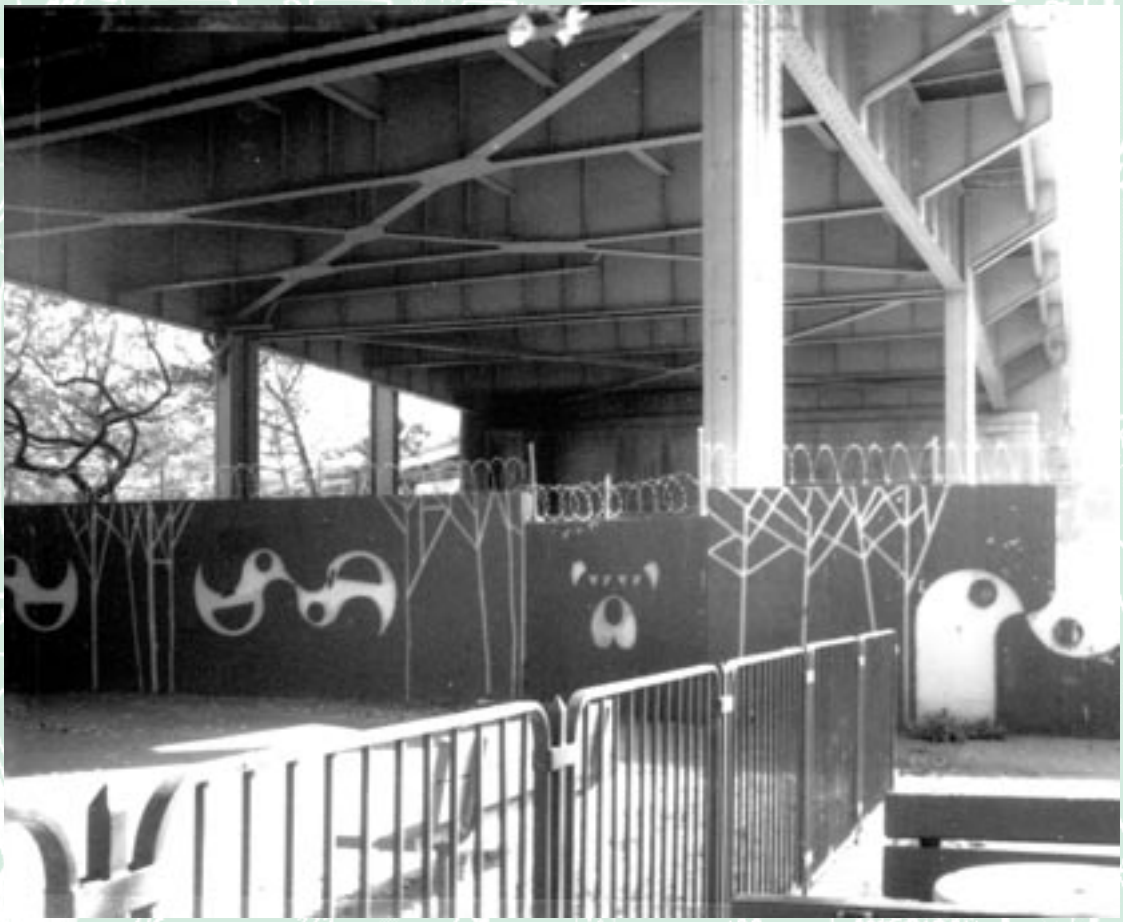
BRONX


BX-05a Fordham Plaza

QUEENS

QUEENS



BROOKLYN

Page 50:

Above: The houses are fenced so that the stoops are private. I think of the neighborhoods where the stoops have been removed. Does that mean there are no neighbors anymore?

Below: BK-07 163rd Avenue at 1st Street. Photographed from the bridge. I was interested in the space below the bridge because it is insecure and as such very intriguing.

Page 51:

Above: Coney Island is home of the single most absurd and unfortunate security measures-the sand fill of the space beneath the boardwalk. They left the steps and railings and small facilities and simply filled it with sand. No place to sit in the shade, I wonder how long the fill will last.

Below: Harborview at Shore Parkway.

Page 52:

Evergreen Park Saint Felix at 60th Street.

STATEN ISLAND

Page 53:

Above: Richmond Road at Raritan Avenue. Gated or partially gated communities under construction.

Below: Goethals Bridge.

Page 54:

Above: Arthur Kill Road at Outerbridge Crossing.

Below: St. George Ferry Terminal. This parking lot is guarded by the display of a security booth.

Page 55:

Amboy Road at Swinerton Street. The flags are here from the spring through fall.....Marked territory.

BRONX

Page 56:

Above: East 155th Street at Harlem River Drive.

Below: Co-op City Blvd at Carver Loop. My sense here is that although the planning had everything to do with security and community, the result is just the opposite. The shared spaces don't appear to be used, not even by pedestrians who seem to be walking along the road, even where the sidewalk is in bad condition. Is it the volume or people? Or the fact that their private spaces are so far removed from the shared ground space?
Decided to shoot the chain stores and parking lot. This breakdown of locally owned stores and public transportation seems to pose the greatest threats to a scene of security. While photographing, I realized that many of the cars parked along the outskirts of the lot were occupied. One waits in a parking lot.

Page 57:

Above: Foot bridge to the Bronx.

Below: Randall's Island is my favorite discovery of this project. During weekends there are numerous games going at once. Not all the fields are clearly demarcated, but the rules of each game set a general order. It is by far the most heterogeneous public space, in terms of activities and communities. Perhaps that has something to do with the fact that nobody actually lives here-everyone has equal claim.

Page 58:
Above: 249th Street at Henry Hudson Parkway.

Below: Zerega Avenue at Turneur Avenue.

Page 59:
Above: Fordham Plaza is a bus stop. It almost seems embarrassing to walk across its center.

Below: Ferry Point Park under Whitestone Bridge. In winter when I came to photograph under the Whitestone, I was afraid to stay. Instead, I shot from Zerega Avenue. I was pleasantly surprised to return and find the park full of families playing soccer and picnicking. This community is able to transform a dusty outpost into an actual park, because they are, in fact, a community.

QUEENS
Page 60:
Above: Steinway at Ditmar Avenue.
The same park design-concrete block with chain link fence that is falling apart in most neighborhoods is a well-used center here. The Greek men play boccie ball and hang out at the picnic tables.
Returned in winter and noticed the houses across from the park-gated windows and fenced-in driveways. Literally the other side of homogeneous neighborhoods.

Below: Union Turnpike at Francis Lewis Blvd. It is interesting that when the fields are unpopulated they seem very vulnerable. But when they are populated in the summer, the parked cars provide protection from the fast road.

Page 61:
Above: Rockaway Beach Blvd at 145th Street. Is the height of this wall necessary? Again, the question of water access. Why isn't there some place for people to fish from? The other side of the island is interestingly unprotected. The houses line the beach without fences or dividers –leaving them vulnerable to both water and beach public.

Below: 80th Street at 77th Road.

Page 62:
Above: 39th Avenue at 138th Street.

Below: Beach Channel Drive at 145th Street.

MANHATTAN
Page 63:
Above: Louis Gulliver Park under Triborough Bridge. I've never seen anybody at this park. I like the outdated plywood graphics, but perhaps they function as a sign of disregard.

Below: John Murphy Park, Avenue C at East 17th Street

Page 64:
Above: The Cloisters Fort Tyron Park. Children's birthday party announced on a tree. The decorations are both invitation and reservation of the space.

Below: West 186th Street at Laurel Hill Terrace.

Page 65:
Above: Dewitt Clinton Park West 52nd Street at West Side Highway. A very unsettling park.

Below: West 113th Street at Amsterdam Avenue.