National School
Resource Network

TRAINER'S GUIDE

COURSE 6

Course Overview

Course 6 - Environment

Purpose

This course is based on the premise that outdoor and indoor spaces can be designed so they are less vulnerable to vandalism, do not provide opportunities for crime, and do not support fear of crime. At the same time security-conscious design can enhance the overall climate of the school. The purpose of the course is to increase awareness of comparatively low-cost approaches to crime prevention through environmental design.

Instructional Objectives

1. To introduce participants to the environmental approach to security and climate enhancement.

2. To define and provide specific examples of three strategies that can enhance environmental design: natural access control, natural surveillance, and territorial reinforcement.

3. To provide a rationale and procedure for accessing potential problems in the school environment.

4. To suggest specific approaches that schools may take to enhance environmental safety and security.

Target Audiences

Modules 6.1 and 6.2, which provide an introduction to the principles and strategies of environmental design, are core modules suitable for a broad mix of participants. Module 6.3 is an advanced module which will appeal to those who can be actively involved in environmental solutions.

Course Overview (continued)

Course 6 - Environment

Activity/Content Summary by Module	Apprx. Time Required
Module 6.1 - Designing Safe School Environments A slide show introduction presents numerous visual examples demonstrating the role of environmental design in creating school climate and improving security. Three environmental design strategies--natural access control, natural surveillance, and territorial reinforcement--are presented.	20 minutes
Module 6.2 - Assessing Environmental Design Transparencies and background materials will supplement a minilecture on environmental design assessment, followed by a small group work-through of a design problem. A "Design Accountability Check List" will provide the basis for workshops and back-home assessment.	1 hour
Module 6.3 - Environmental Design Strategies (Advanced) Physical design strategies are presented that schools can apply in renewing and regenerating interior and exterior space. Slides showing solutions for specific "trouble areas" complement minilectures and discussions.	1½ hours

Course 6 - Environment

Module

Audiovisuals

THE AMERICAN SCHOOLS: FLUNKING THE TEST

To many young people, schools is a place to get out of. Along with many of these young people, have the American schools flunked the test? Have they become babysitters who graduate people who cannot read a newspaper or map, fill out a job applibation, or file an income tax form? Many would say yes...including "Peter Doe" who sued the San Francisco School District for educational mal practice. The reasons offered for this sad state of affairs range from the adverse impact of television on reading, to teacher tenure, to public apathy, to unions. But it is not that simple. Today, more than ever, people are asking why education is costing more but the results are less satisfactory. This ABC News Closeup film brings us important interviews with students, teachers, parents, union leaders, testers, school administrators and school board directors in an attempt to determine where the accountability for this condition rests. The perplexing conclusion appears to be there is no accountability. And there won't be any accountability until people become involved in the critical issues raised in this film which is a must for anyone interested in the present and future of American education. Recommended for secondary grade levels and adults.

Two Color Films (Part I and II), 51 minutes
Purchase: $695
Rental Fee: $51
Videocassette Purchase: $525
Distributor: Deborah Richmond
McGraw-Hill Films
McGraw-Hill Book Company
110 - 15th Street
Del Mar, CA 92014
Call Collect: (714) 453-5000, ext. 34

Previewed by NSRN staff.

Course 6 - Environment

Module 6.1 - Designing Safe School Environments

Module Synopsis

Purpose

This module introduces, through numerous visual examples, the importance of environmental design in school environments. A slide show with audiotape is presented showing the relationship between the role of environmental design in creating school climate and the role of design in improving security.

Objectives

Participants will be able to--

1. Identify three environmental design strategies for improving school safety
2. List at least five specific techniques that schools have employed to improve school safety through environmental change

Target Audiences/Breakouts

This is a core module targeted at the preoperational and operational levels. It is, therefore, appropriate for a broad mix of participants.

Module Synopsis (continued)

Course 6 - Environment

Module 6.1 - Designing Safe School Environments

Media/Equipment

Slide projector
Screen
Audiotape player (synchronized with slide projector)

Materials

Audiovisuals

6.1.1 Slide Tape, "Designing Safe School Environments"

Participant/Trainer Background

6.1.1 Professionals Who May Assist
6.1.2 Some Things To Think About
6.1.3 An Environmental Design Example: Girls' Bathroom Mural

Course Agenda by Module

Course 6 - Environment

Module 6.1 - Designing Safe School Environments

Total Time 20 minutes

Module Summary

A slide show presentation on "Designing Safe School Environments" is the focus of this module. The vital role that environmental design has in creating a positive school climate and in improving school security is also discussed.

Activity/Content Summary	Time
1. Introduction to the Course	5 min.
A. Purpose of the Course This course explores the relationship between physical design characteristics, school security, and a positive school climate. Our focus will be to implement marginal changes in already-built schools to make them safer, rather than a total redesign of the school environment.	
B. Interconnection of Climate, Security, and Environment Climate and security go hand in hand. Unsafe schools are also places that tend to be dull, gray, confining, and unyielding to human needs. An explosive situation exists when school people feel alienated, and the physical environment can contribute to that alienation.	
2. Slide Show Presentation, "Designing Safe School Environments"	10 min.
3. Conclusion Background materials offer more information on environmental strategies and approaches.	5 min.

Materials/Equipment	Sequence/Activity Description
Screen Slide projector Audiotape player	1. Preliminary Comments and Introduction to Slide Show (5 min.) A. Overview of Purpose of Environmental Course Trainer should make the following introductory points: o This course explores the relationship between physical design characteristics and security. o One focus will be to implement marginal changes in already built schools to make them safer rather than a total redesign of the school environment. B. Discussion of Interconnection of Climate, Security, and Environment Trainer should make the following points: o Climate and security go hand in hand. It is no accident that unsafe schools also happen to be places that are dull, gray, confining, unyielding, and, as Robert Propst said, "committed to everyone's sameness, and dedicated to the proposition that tomorrow will be no different from yesterday." o An explosive situation exists when students and teachers feel alienated--and the physical environment can contribute significantly to that alienation. Too many schools are constructed in ways that support alienating forces--the long double-loaded corridors, the impersonal quality of classrooms, the large number of people, and overcrowded spaces. o Environmental improvement must thus look at both security improvement and climate improvement. In this presentation, therefore, we will suggest ways to minimize environmental conditions that lead to conflict, violence, and vandalism, while at the same time showing how educational opportunities and climate can be enhanced through design.

Materials/ Equipment	Sequence/Activity Description
Slide/tape 6.1.1, "Designing Safe School Environments"	2. Show Slide/Tape Presentation, "Designing Safe School Environments" (10 min.) 3. Trainer Conclusion (2 min.) Point out the background materials included in the Participant Guide--Professionals Who May Assist, Some Things to Think About, and An Environmental Design Example: Girls' Bathroom Mural.

Course 6 - Environment

Module 6.1 - Designing Safe School Environments

Background I-D 6.1.1

Background Materials

Professionals Who May Assist

in Modernizing a Facility for Health and Vitality and for Reducing Violence, Vandalism, and Crime

Acoustical Design Engineers
Audiovisual Design Engineers
Behavioral Scientists
Building Systems Designers
Community and Press Relations Specialists
Ecological Advisors
Electronic Data Processing Hardware Specialists and Programmers
Facilities Use Trainers and Managers
Financial Planners
Food Service Planners
Graphic Designers
Health Care Planners
Information Management Specialists
Installation Supervisors
Interior Designers, Landscape Planners
Laboratory Planning Engineers
Lighting Designers
Management Consultants
Project Planners and Directors
Safety Engineers
Site Planners
Technical Equipment Specification Experts
Urban Planners
Vocational Planning Specialists

Propst, Robert. High School: The Process and the Place. Ruth Weinstock, ed. A Report from Educational Facilities Laboratories, August 1975, p. 107. Adapted by Jean Chen, August 1979.

Course 6 - Environment

Module 6.1 - Designing Safe School Environments

Background I-D 6.1.2

Background Materials

Some Things to Think About

Think about the various physical environments within your school. Do you have places which can accommodate various groups and activities or might you be able to modernize an underused area to stimulate new activities, channel the flow of traffic, and provide a sense of territorial identification? Think about ways in which you might alter your built environment in order to reduce and prevent violence, vandalism and crime and to make your school a safer place for students, teachers, and the community.

1. If class sizes are large, are there carrels, seminar rooms, study lounges, partitions or miniareas where some students may work, thereby allowing the teacher to work with a smaller number of students?

2. Does the environment maintain a rigid time schedule by giving a message to students and teachers, "Get out at the end of the day"? Students, teachers, and community members who are involved in school-based activities round the clock will serve to protect the environment. The environment may be modified to accommodate small groups after school hour activities.

3. Do students feel they have places of their own? Have they been encouraged to design their own display areas, social interaction areas, classrooms, cafeterias, restrooms, and courtyards? Territorial reinforcement will result in protection for the school environment.

4. Are teachers and students able to see from their classrooms out to hallways? This natural surveillance of the corridors will result in another type of protection for students, their lockers and the environment.

5. Have there been projects involving community/parents lately in modernizing and improving school grounds, spaces, and activities?

6. Have you asked students about the specific areas in the school which they avoid; where they are afraid they'll be harrassed; and what might be done to protect them in these areas?

7. What specific ways may students be allowed to personalize their spaces in and outside of the school? Would the enlisting of an architect/designer to work with students and teachers help to produce some projects which would improve the environment as well as enrich the students' curriculum?

8. Do your students feel they have one of the better schools around or do they feel that theirs is inferior to other schools in the vicinity? Pride in one's school will result in more protection than a situation where students think that the facility in which they learn isn't worth protecting.

9. Are there places in the school where students may put their feet up, argue loudly or listen to loud music, as well as spaces where they might have visual and auditory privacy to meet a stranger and make a new friend?

10. Have you invited parents and community members in to take a fresh look at the existing facility and to suggest things that might be changed? Invite some neighboring group of teachers over to exchange ideas on facilities built for diverse and educational purposes.

Course 6 - Environment

Module 6.1 - Designing Safe School Environments

Background I-D 6.1.3

Background Materials

An Environmental Design Example

A Tale Describing the Modification of the Physical Environment and Its Result

GIRLS' BATHROOM MURAL

Initiation of Project:

In November, I overheard Sheila and Nutricia, two third graders, arguing over who could claim credit for which scatalogical scrawl on a closet in the girls' bathroom. The girls, who had been frequent visitors at my free time center, were quite willing to show me their work and to try to erase it. I said that some people paint on walls to make places more pleasant, that if they wanted to try to make the bathroom more attractive, I could help them paint a mural on the closet doors. I checked with the principal and he gave his permission.

Process:

We met at our mutual convenience for half hours after school. First we looked at pictures, then we measured the cabinet and made a scale drawing. Nutricia's younger sister Kendra joined the project and came up with the drawing that the girls liked best. It showed two girls jumping rope under a cherry tree. We painted it during a week in early January.

Results:

Soon after the work was completed, I arrived at school one day and was stopped numerous times in the halls by second graders who told me, "Kendra took Nicole to the principal's office!" in awed voices. It transpired that Kendra had discovered one of her classmates scratching at the paint and, outraged, had hauled her off promptly to Mr. Akery. No one has defaced the mural since that time.

Comments:

The girls all enjoyed the painting process and are proud of the results, but seem to regard the undertaking as one of my more bizarre ideas. Occasionally they say fondly, "Remember when we did that painting...."

Contributed by the AIS/Artists-in-Schools, Architects-in-Schools Program, Educational Futures, Inc., Philadelphia, Pennsylvania.

Course 6 - Environment

Module 6.2 - Assessing Environmental Design

Module Synopsis

Purpose

This module shows participants how to study their own school environments and identify design features that may be providing opportunities for crime and vandalism due to inadequate access control, natural surveillance, or territorial reinforcement.

Objectives

Participants will be able to--

1. Identify design features that provide opportunities for crime and vandalism as a result of inadequate access control, natural surveillance, or territorial reinforcement
2. List a large number of access control strategies for a specific "problem" environment
3. List a large number of natural surveillance strategies for a specific "problem" environment
4. List a large number of territorial reinforcement strategies for a specific "problem" environment
5. Apply an assessment methodology to their back-home problems.

Target Audiences/Breakouts

This is a core module targeted at the preoperational and operational levels. It is, therefore, appropriate for a broad mix of participants.

Course 6 - Environment

Module 6.2 - Assessing Environmental Design

Module Synopsis (continued)

Media/Equipment

Overhead projector
Screen
Pens/pencils

Materials

Transparencies

6.2.1 Environmental Design Strategies
6.2.2 Sample Access Control Questions
6.2.3 Sample Natural Surveillance Questions
6.2.4 Sample Territorial Reinforcement Questions

Participant Worksheet

6.2.1 Design Checklist for Assessing School Environment

Background (Trainer/Participant)

6.2.1 Basic Concepts

Resource Materials

R6.2.1 Basic Concepts
R6.2.2 Parking Lots
R6.2.3 Bus Loading Zones
R6.2.4 Social Gathering Areas
R6.2.5 Informal Play Areas
R6.2.6 Walkways and Landscaping
R6.2.7 Exterior Lighting
R6.2.8 Structure
R6.2.9 Entrances
R6.2.10 Corridors and Stairwells
R6.2.11 Classrooms
R6.2.12 Physical Education Locker Rooms

Graphic Display

6.2.1 Outdoor View

6 - Environment

6.2 - Assessing Environmental Design

Handouts

6.2.1 Outdoor View (One per Group)

Bibliography

"Synthesis of Research on Environmental Factors Relevant to Crime and Crime Prevention Behaviors" (with Module 6.3)

Course Agenda by Module

Course 6 - Environment

Module 6.2 - Assessing Environmental Design

Total Time 1 hour

Module Summary

A presentation on the benefits of environmental design assessment is supplemented by small group work on a design problem. A "Design Accountability Checklist" provides the basis for small group work and back-home assessment.

Activity/Content Summary	Time
1. Introduction and Review of Concepts	10 min.
A. Preliminary Comments	
B. Review of Basic Concepts	
Environmental design strategies concerning access control, natural surveillance, and territorial reinforcement are reviewed briefly, and additional resource materials are suggested.	
2. Presentation of Assessment Checklist	5 min.
A. Overview of Design Accountability Checklist Topics	
Use of Worksheet 6.2.1, "Design Accountability Checklist" is explained.	
B. Example of Use of Checklist for Assessing Corridors	
An illustration of use is drawn from Section 3-1, "Corridors," in Worksheet 6.2.1.	
3. Introduction to Design Problem	5 min.
A. Explanation of Activity	
A description is given of the drawing of school building and grounds that everyone will work on.	
B. Example of How to Proceed	
Group analyzes graphic display in terms of checklist section 1-1, "Parking Lots," (Worksheet 6.2.1).	

Notes

Activity/Content Summary	Time
4. Small Group Activity: Design Problems Participants divide into groups consisting of 4 to 8 persons. Trainer distributes Handout 6.2.1, which reproduces the graphic display. Group selects group leaders and recorders. Trainer selects subsections within worksheet that each group will begin with so that each group addresses a different set of design issues.	25 min.
5. Reporting Out of Small Group Solutions Participants reconvene and display design solutions. Group leaders briefly review design decisions/recommendations of the groups. Discussion follows.	10 min.
6. Conclusion Applications of the Design Accountability Checklist are discussed; background resources are introduced.	5 min.

Notes

Course 6 - Environment

Module 6.2 - Assessing Environmental Design

Detailed Walk-Through

Materials/Equipment	Sequence/Activity Description
Overhead projector Screen	1. Introduction and Review of Concepts (7 min.) A. Preliminary Comments Trainer should make the following points: o The objective of this session is to show the participants how they can assess their own school environment and identify design features that provide opportunities for crime and vandalism. o Trainer explains that he/she will quickly review the basic strategies of access control, natural surveillance, and territorial reinforcement, because they are the basis on which the assessment rests. o Participants will leave the session with a checklist to help them assess their own schools and create appropriate design solutions. B. Review of Basic Concepts
Transparency 6.2.1	Show Transparency 6.2.1, Environmental Design Strategies.

Environmental Design Strategies

1. Natural Access Control
2. Natural Surveillance
3. Territorial Reinforcement

Materials/ Equipment	Sequence/Activity Description

Trainer defines each of the terms.

- o Natural--we use the word natural here to distinguish environmental strategies from security strategies. The term natural implies achieving control over who uses space and watching what happens as a by-product of normal and routine structures and activities. Thus, it is possible to adopt, through design and planning, normal and natural uses of school to accomplish security objectives.

- o Natural Access Control--access control strategies focus on creating symbolic or psychological barriers that reinforce the privacy and integrity of spaces. They discourage intrusion; they do not bar it.

- o Natural Surveillance--natural surveillance strategies involve channeling the flow of activity so that more potential observers are near a potential crime area. They also focus on improving observation capacity by using transparent barriers or improved lighting.

- o Territorial Reinforcement--territorial reinforcement strategies are based on the concept of defensible space; that is, the idea that if people perceive a space as somehow belonging to them, they will develop strong proprietary interest in it and will respect it.

    - As an individual proceeds from his most personal, private space--a locker, or desk, say--through increasingly public spaces--a classroom, a hallway, the main entrance to the public street--his territorial response changes accordingly. His sense of personal control over activities occurring in this space diminishes, and also his personal involvement and sense of responsibility.

    - The focus of territorial reinforcement strategies is on instilling a greater sense of territoriality and related protective behavior through physical design.

- o Each of these strategies is a helpful starting point for assessing physical design ... because they can help us ask the right questions.

Materials/ Equipment	Sequence/Activity Description
Transparency 6.2.2	Show Transparency 6.2.2, some sample questions we might ask based on a concern for access control. Review questions.

Sample Access Control Questions

Corridors: Are there "bottlenecks" causing congestion and fights?

Entrances: Can persons enter the school and steal equipment undetected?

Classrooms: Can students vandalize empty classrooms without anyone knowing?

Landscaping: Do students "short-cut" through landscaped areas?

Trainer should point out that these are only some examples to provide thinking.

Materials/ Equipment	Sequence/Activity Description
Transparency 6.2.3	Show Transparency 6.2.3 and review questions on natural surveillance.

Sample Natural Surveillance Questions

Playgrounds: Can assaults or robberies in playgrounds be seen from indoors?

Stairwells: Are there "blind spots" where extortion or intimidation can take place?

Windows: Are windows hard to see through?

Corridors: Is the lighting bright enough to see what is happening at the far end?

Transparency 6.2.4

Show Transparency 6.2.4 and review questions on territorial reinforcement.

Sample Territorial Reinforcement Questions

School: Do people in the school protect property and people in it?

Corridors: When something happens in the corridor, do you hope someone else will check it out?

Classrooms: Can students "put their stamp" on the classrooms they work in?

Beautification: Are students involved in improving the appearance of the school?

Materials/ Equipment	Sequence/Activity Description

Trainer concludes minilecture by pointing out that for those who wish to examine additional resource materials on improving design, there is additional background material in the Participant Guide.

- o There are also resource materials available on strategies to improve--
  - Basic Concepts
  - Parking Lots
  - Bus Loading Zones
  - Social Gathering Areas
  - Informal Play Areas
  - Walkways and Landscaping
  - Exterior Lighting
  - Structure
  - Entrances
  - Corridors and Stairwells
  - Classrooms
  - Physical Education Locker Rooms
- o However, in this session we will look at ways to assess existing problems as a first step toward change.

2. Presentation of Assessment Checklist (5 min.)

A. Overview of Design Accountability Checklist Topics

Worksheet 6.2.1

The procedures are as follows:

(1) Have participants turn to Worksheet 6.2.1, "Environmental Design Evaluation Checklist," and explain that it has been designed based on the principles outlined above.

(2) Explain that the checklist has 17 sections. There are three major sections. Each section is subdivided into general questions followed by a series of specific statements. The sections are outdoors, structural characteristics, and indoors.

(3) Explain that the checklist should be used during a site walk-through because within the context of real settings, the checklist not only helps identify problems but is useful for indicating realistic solutions.

Materials/ Equipment	Sequence/Activity Description

Worksheet 6.2.1

B. Example of Use of Checklist for Assessing Corridors

Participants should turn to Section 3-1, "Corridors." Trainer reads the first general question, "What has been done to prevent or reduce congestion or blind spots in the corridors?" and makes the following points:

- o The question is followed by several specific statements. For example, the first statement reads, "There are no lockers that stick out into the corridors."
- o Trainer explains the four response categories, "Yes", "No", "DK", and "NA".
  - "Yes," the statement is correct in the particular school; there are no lockers that stick out causing traffic flow problems, or providing blind spots.
  - "No," the statement is not true because lockers do stick out significantly.
  - "Don't know"--whether there are lockers in the corridor or whether they stick out too far.
  - "Not applicable," which would be checked because there are no lockers or because they pose no problem.
- o Now we would like you to apply a portion of the evaluation checklist to a specific design problem.

3. Introduction To Design Problem (5 min.)

A. Explanation of Activity

Graphic Display 6.2.1

Trainer shows Graphic Display 6.2.1.

Trainer explains that the audience will be divided into work groups. Each group will focus on the school in the displayed graphic. Using Sections 1 (Outdoors) and 2 (Building Design) of the checklist, each group will assess the physical design features of the school and suggest, for any problem identified, possible solutions.

B. Example of How to Proceed

Trainer starts the process by going through the first part of Section 1. The audience is instructed to assume that for each design weakness they identify there is a corresponding crime or vandalism problem. For example, in Section 1.1 (Parking Lots), assume that if outsiders can use the parking lot, they will do so. If participants are not certain about a particular design

Materials/ Equipment	Sequence/Activity Description

because the illustration is not clear, they can decide themselves whether there is or is not a problem. In the parking lot of the school shown, there is indeed a problem of detection of illegitimate users. The trainer then asks participants to suggest solutions.

(NOTE: While walking through the example, the trainer should not suggest design solutions because, for each design issue, there is more than one solution. If he/she suggests one, other design solutions may be unwittingly foreclosed.)

4. Small Group Walk-through of Design Problems (25 min.)

The procedures are as follows:

Handout 6.2.1, copies of Graphic Display

(1) Divide audience into several groups, consisting of no more than eight persons but no less than four, and distribute Handout 6.2.1 to each group, with markers.

(2) Group should choose one individual in each group to record design solutions.

(3) Assign each group to begin with a different sub-section in the checklist (1.1, 1.4, 2.1, etc.) to assure that as a whole they will cover full range of design issues. For example, Group 1 begins with subsection 1.2; Group 2 with 1.4; Group 3 with 2.1; and Group 4 with 2.3.

(4) Explain that as each group completes analyzing a subsection it should first suggest possible solutions, then proceed to the next subsection. Groups starting with subsections in Section 2 should move back to Section 1 rather than Section 3.

(5) Rotate among the groups facilitating discussion but offering no criticism of ideas. Allow the participants to determine the relevance and effectiveness of candidate solutions. Participants should be encouraged to behave like architects, using markers to sketch ideas on the illustration.

Handout 6.2.1, if needed

(6) Distribute extra copies of illustrations when needed.

5. Reporting Out of Small Group Solutions (10 min).

Trainer reconvenes the audience and sets up the "design products", i.e., the marked up illustrations.

One member from each group explains how they proposed to solve a given design problem.

Materials/ Equipment	Sequence/Activity Description

Trainer solicits alternative solutions or comments from other groups. Again, he/she does not critique.

Trainer attempts to spend no more than 2-3 minutes on the solutions generated by each group, assuring that everyone has a turn.

6. Summary (3 min.)

A. Review of Session

Trainer reiterates the following points:

- The design problem is artificial because not every design "weakness" has a corresponding crime or vandalism problem. If there isn't a problem, then a design solution isn't required. Thus, it is important to know what the problems are in your particular school.
- The checklist is best used during a site walk-through.
- The checklist is not exhaustive, so that as you study your school environment, you will think of additional design issues. NSRN would greatly appreciate hearing from you about ways the checklist can be revised and expanded.

B. Resources Available

For participants who would like more information on how to improve the design of various areas in the school, remind them of the resource materials available from NSRN.

Course 6 - Environment

Module 6.2 - Assessing Environmental Design

Worksheet I-D 6.2.1

Participant Worksheet

DESIGN CHECKLIST FOR ASSESSING SCHOOL ENVIRONMENTS

1. Outdoors

   1.1 Parking Lots
   1.2 Bus Loading Zones
   1.3 Gathering Areas
   1.4 Play Areas
   1.5 Walkways and Landscaping

2. Structural Characteristics

   2.1 Entrances
   2.2 Windows
   2.3 Walls
   2.4 Rooftops
   2.5 Fixtures

3. Indoors

   3.1 Corridors
   3.2 Stairwells
   3.3 Gathering
   3.4 Walls, Ceilings, and Floors
   3.5 Fixtures
   3.6 Assembly

About the Checklist

This design accountability checklist is a modified, expanded version of a checklist developed by John Ziesel in "Stopping School Property Damage." Also included are additional design issues which came to light during the Crime Prevention Through Environmental Design Project in Broward County, Fla.

Using the Checklist

The checklist has 16 sections in 3 major categories. Each section is subdivided into general questions followed by specific statements requiring response. For example, the general question--

> What has been done to prevent or reduce congestion or blind spots in the corridors?

is followed by specific statements such as--

> There are no lockers that sick out into the corridor.

YES	NO	DK	NA
( )	( )	( )	( )

"DK" stands for "don't know" and "NA" stands for "not applicable".

This checklist is intended to help you systematically evaluate design features in your school so that you can create appropriate design solutions. It will be of special value to you during a site walk-through, because the checklist will suggest what design features you should look for--and plan for--as you search for realistic solutions based on actual conditions in your school.

1. Outdoor Areas

1.1 Parking Lots

What provisions have been made to increase the security in and around parking lots?

	YES	NO	DK	NA
Illegitimate users cannot use the parking lot without being detected.	( )	( )	( )	( )
Only essential access points to public thoroughfares are provided.	( )	( )	( )	( )
The lot is close to the school building.	( )	( )	( )	( )
The lot is bordered by a low barrier, such as curbing, hedges, or some other "symbolic" barrier.	( )	( )	( )	( )
The lot is bordered by a wall, chain link fence, or some other "real" barrier.	( )	( )	( )	( )
The lot is overlooked by many windows.	( )	( )	( )	( )
Access points have gates.	( )	( )	( )	( )
Cars can be routed through internal spaces near school buildings to increase surveillance potential.	( )	( )	( )	( )
Cars are prevented from taking shortcuts with curbing, low hedges, chains.	( )	( )	( )	( )
The lot can be moved to (exchanged for) another outdoor space that requires less protection.	( )	( )	( )	( )

What have you done to increase the security for bicycle parking?

Bicycle parking is close to buildings.	( )	( )	( )	( )
Bicycle parking is overlooked by windows.	( )	( )	( )	( )
Bicycle parking is fenced with gates.	( )	( )	( )	( )

1.2 Bus Loading Zones

What provisions have been made to increase the security of bus loading zones?

	YES	NO	DK	NA
The number of buses parked in the zone is small.	( )	( )	( )	( )
The zone does not interfere with pedestrian traffic to school entries.	( )	( )	( )	( )
The zone does not interfere with vehicle traffic.	( )	( )	( )	( )
The line of buses does not create a visual obstacle to areas where crime may occur.	( )	( )	( )	( )
The bus zone is visible from school offices or other interior areas.	( )	( )	( )	( )
The bus loading zone is located near an entrance.	( )	( )	( )	( )
There are waiting areas near the bus loading zone.	( )	( )	( )	( )
There are durable benches in the waiting area.	( )	( )	( )	( )
There are no fixtures or hardware items in the bus waiting area.	( )	( )	( )	( )
School entry areas are planned as hangout areas with limited hardware, glass, and fixtures.	( )	( )	( )	( )

1.3 Gathering Areas

What provisions have been made for formal gathering areas and the security of these areas?

There are specific formal areas, such as mini-plazas, patios, or courtyards.	( )	( )	( )	( )
The formal areas provide natural surveillance for other outdoor areas, such as an entrance to the school, a parking area, or playgrounds.	( )	( )	( )	( )

	YES	NO	DK	NA
Activities in the formal gathering area can be easily overseen.	( )	( )	( )	( )
The formal gathering area cannot be easily preempted by nonschool people.	( )	( )	( )	( )

What provision has been made to minimize damage when students sit on--hangout on--convenient walls, steps, planters, ledges, and near play areas, pickup play places, entries, and pathways? What has been done to minimize damage in areas around schools which students use after hours as clubhouses--partially hidden places adjacent to buildings which are large enough for small groups?

There are no fixtures in or near hangout areas.	( )	( )	( )	( )
All fixtures in hangout areas have tamperproof screws.	( )	( )	( )	( )
All hardware and fixtures in hangout areas are extra durable.	( )	( )	( )	( )
There are no windows in or nearby hangout areas.	( )	( )	( )	( )
Windows in hangout areas are specially protected.	( )	( )	( )	( )
Planting in hangout areas is flexible, resilient, and grows quickly.	( )	( )	( )	( )
There is no stiff, breakable planting in hangout areas.	( )	( )	( )	( )
Wall surfaces are extra durable.	( )	( )	( )	( )
Walls can be easily cleaned.	( )	( )	( )	( )
Walls can be painted.	( )	( )	( )	( )
There are benches, steps, or ledges for sitting in hangout areas.	( )	( )	( )	( )
All probable sitting places in hangout areas are far from breakable windows and fixtures.	( )	( )	( )	( )

	YES	NO	DK	NA
Low walls, ledges, and steps in hangout areas are made of extra durable material.	( )	( )	( )	( )
There are heavy-duty trash containers in hangout areas.	( )	( )	( )	( )
Trash containers in hangout areas are designed and located to act as targets for litter.	( )	( )	( )	( )
There are no planters in hangout areas which can be used as trash baskets.	( )	( )	( )	( )
Replacements for small units of the building materials used in hangout areas, like bricks, or panels, can be easily stored.	( )	( )	( )	( )
There are no modular wall panels.	( )	( )	( )	( )

What has been done to eliminate or minimize damage in small niches created by recessed doorways, loading docks, fire stairs? If use of particular spaces or niches is undesirable, what has been done to discourage such use?

All niches around buildings are essential for purposes of safety when doors are open.	( )	( )	( )	( )
There are no nonessential niches.	( )	( )	( )	( )
There are no fixtures in niches.	( )	( )	( )	( )
There is no reachable hardware in niches.	( )	( )	( )	( )
Doors in niches are glass-free.	( )	( )	( )	( )
There is no exterior door hardware on doors in niches.	( )	( )	( )	( )
Spaces not desired for use as niches have been blocked off with barriers.	( )	( )	( )	( )
Spaces not desired for use as niches have been made less comfotable by using plants that prick or rough-surfaced materials.	( )	( )	( )	( )

1.4 Play Areas

What has been done to minimize breakage of objects around playgrounds and basketball courts?

	YES	NO	DK	NA
There is sufficient space around formal play areas for normal play.	( )	( )	( )	( )
Ground surfaces in and around formal play areas have no major irregularities or other hindrances to play.	( )	( )	( )	( )
Wall surfaces around formal play areas can be used to bounce balls back to players.	( )	( )	( )	( )
Low lighting fixtures and other hardware are out of the way of ball playing.	( )	( )	( )	( )
Lines on walls and on the ground accommodate local street games.	( )	( )	( )	( )
There is a buffer between formal play areas and the school building.	( )	( )	( )	( )
There are no windows or glass doors around formal play areas.	( )	( )	( )	( )
Glass around formal play areas is specially protected.	( )	( )	( )	( )
There is no damageable planting immediately adjacent to formal play areas.	( )	( )	( )	( )

What have you done to be sure that playground equipment can withstand the especially rough treatment it receives?

Playground equipment needs special tools to be disassembled.	( )	( )	( )	( )
Official play equipment can accommodate extra rough play by groups sometimes older than those for whom equipment is officially specified.	( )	( )	( )	( )

What has been done to be sure that objects will not be broken around pickup play areas--for example, an entryway or a pathway near a building with a hard ground surface, a wall, and enough room to throw or hit a ball?

	YES	NO	DK	NA
There are consciously designed areas for pickup play.	( )	( )	( )	( )
There is no low lighting or other fixtures that can be hit by balls in pickup play areas.	( )	( )	( )	( )
Walls and ground surfaces in pickup play areas are the same as in formal play areas.	( )	( )	( )	( )
There are no windows in pickup play areas.	( )	( )	( )	( )
Any windows near pickup play areas are protected from balls and sticks.	( )	( )	( )	( )

What provisions have been made to accommodate informal pickup play in parking lots?

What have you done to be sure that there will be no damage to grass and other soft materials next to formal parking areas caused by extra cars and cars turning around?

Parking lots are planned to accommodate pickup play games.	( )	( )	( )	( )
There are fences in selected spots around the parking lot to protect nearby windows.	( )	( )	( )	( )
Parking lots are big enough for both partial parking and pickup play.	( )	( )	( )	( )

What has been done to predict, avoid, or accommodate legitimate graffiti, for example, the lines students paint on walls so they are able to play informal pickup games?

Some walls in pickup play areas, such as parking lots, formal playgrounds, and entryways, have been planned to accommodate legitimate graffiti in the form of game lines.	( )	( )	( )	( )

	YES	NO	DK	NA
Students have been consulted to determine needed pickup game lines.	( )	( )	( )	( )
Game lines for local pickup play games, like street hockey and stickball, have been painted on walls.	( )	( )	( )	( )
Stencils have been prepared so that local street groups can apply their own pickup game lines to walls where they are appropriate.	( )	( )	( )	( )

1.5 Walkways and Landscaping

What has been done to minimize trampling of grass adjacent to paved pathways and along natural shortcuts?

Paved pathways are located so that they provide the shortest walk between the two points they connect.	( )	( )	( )	( )
Natural shortcut paths have been predicted.	( )	( )	( )	( )
There are subtle barriers between hard paved pathways and adjacent soft grass or dirt areas.	( )	( )	( )	( )
There is no grass or other soft material immediately adjacent to narrow pathways.	( )	( )	( )	( )

What has been done to minimize damage to shrubs, bushes, and trees?

Near active areas, all planting is flexible and resilient.	( )	( )	( )	( )
There is no thick planting which will be difficult to clean around.	( )	( )	( )	( )
There is no climbable planting near edges of buildings.	( )	( )	( )	( )

2. Structural Characteristics

2.1 Entrances

What has been done so that people can see from a distance that the school is closed when it is closed--but open when it is open?

	YES	NO	DK	NA
There are large sliding grills or garage-type doors to cover transparent doorways in the main entrance which are visible from a distance when school is closed.	( )	( )	( )	( )
Deep recesses at entries are inaccessible when school is closed.	( )	( )	( )	( )
The entryway looks open when it is open--but closed when school is closed.	( )	( )	( )	( )
There are no blind spots near entrances.	( )	( )	( )	( )

What has been done to minimize unnecessary damage to exterior door hardware, especially potential problems caused by highly visible and easily accessible panic hardware?

All doors that are primarily exit doors have no locks or door handles.	( )	( )	( )	( )
Where there is a series of connected doors, only one of these doors has exterior door hardware.	( )	( )	( )	( )
There are astragals on all single doors.	( )	( )	( )	( )
Double doors are extra-duty strength.	( )	( )	( )	( )
Double doors have astragals.	( )	( )	( )	( )
Double doors have sturdy center mullions.	( )	( )	( )	( )
Panic hardware requires a minimum amount of mechanical movement.	( )	( )	( )	( )
Panic hardware is easily repaired.	( )	( )	( )	( )

2.2 Windows

What has been done to increase natural surveillance?

	YES	NO	DK	NA
Classroom windows provide easy and convenient visual access to the outdoors for teachers and students.	( )	( )	( )	( )
Office windows provide easy and convenient visual access.	( )	( )	( )	( )
There are no clouded (translucent) window-panes.	( )	( )	( )	( )
Windows are not too small or too narrow to see out of.	( )	( )	( )	( )
Windows are not too high in the room to see out of.	( )	( )	( )	( )
There are interior windows providing surveillance between corridors and classrooms.	( )	( )	( )	( )

What has been done to minimize potential damage to vulnerable windows?

There are no windows in formal play areas.	( )	( )	( )	( )
In vulnerable areas windows are made of several small panes - rather than one large one.	( )	( )	( )	( )
There are no windows less than 3 feet from the ground.	( )	( )	( )	( )
There is no acrylic or plexiglass in windows in hangout places.	( )	( )	( )	( )
Ground-floor windows are made of extra-thick tempered glass.	( )	( )	( )	( )
Ground-floor windows are made of thick acrylic or plexiglass.	( )	( )	( )	( )

	YES	NO	DK	NA
Ground-floor windows are covered with protective screens.	( )	( )	( )	( )
Windows adjacent to interior hangout areas on upper floors, as well as on ground floors are especially durable.	( )	( )	( )	( )
There is extra-thick tempered glass or double-layered glass where acrylic or plexiglass is not advisable.	( )	( )	( )	( )
There are no windows in student stores.	( )	( )	( )	( )
There are no windows in administration storage offices.	( )	( )	( )	( )
There are no windows in industrial arts storage areas.	( )	( )	( )	( )
There are thin wire mesh screens over specially vulnerable ground-floor windows.	( )	( )	( )	( )

2.3 Walls

What has been done to minimize the possibility of damage to exterior walls and to fixtures and signs attached to exterior walls?

Large expanses of easily marred wall space are composed of small, easily replaced sections.	( )	( )	( )	( )
Wall surface materials in vulnerable areas are inexpensively and easily repaired.	( )	( )	( )	( )
Paint on walls is the same color as the material underneath.	( )	( )	( )	( )
Epoxy paint, glazed tile, or other highly durable, easily cleaned material is used as high as students can reach in high-damage areas.	( )	( )	( )	( )
Quick drying paint is used in high-damage areas.	( )	( )	( )	( )

What have you done to plan for expressive and decorative graffiti and to minimize the negative consequence of such forms of self-expression?

	YES	NO	DK	NA
There are some walls for possible graffiti, lighter in color than other walls and with blocked-out sections, in hangout areas, and entryways.	( )	( )	( )	( )
There are some formally labeled graffiti boards in high-use public areas.	( )	( )	( )	( )
There are designated informal graffiti walls which have easily and inexpensively cleaned or painted surfaces.	( )	( )	( )	( )
Walls on which graffiti is to be discouraged have inexpensively and easily cleaned or painted surfaces.	( )	( )	( )	( )
Informal and formal graffiti walls have surfaces on which sections can be selectively cleaned.	( )	( )	( )	( )

2.4 Rooftops

What has been done to be sure that rooftops accessible from the ground are able to withstand rough play?

What has been done to be sure that people cannot climb onto vulnerable rooftops from the ground or from accessible parts of the roof?

	YES	NO	DK	NA
Glass on accessible rooftops is ground-floor type.	( )	( )	( )	( )
Fixtures on accessible rooftops are ground floor type.	( )	( )	( )	( )
Hardware on accessible rooftops is ground-floor type.	( )	( )	( )	( )
Doors on accessible rooftops have minimum exterior hardware.	( )	( )	( )	( )
Windows on accessible rooftops have no exterior hardware.	( )	( )	( )	( )

	YES	NO	DK	NA
There is no climbable planting, or planting which will grow to be climbable, located near building walls.	( )	( )	( )	( )
There are no built-in footholds on telephone poles adjacent to the building.	( )	( )	( )	( )
Walls are too high to be climbed with 12-foot two-by-fours or other ladder substitutes, i.e., walls are over 14 feet high.	( )	( )	( )	( )
Fixtures on buildings do not provide footholds for getting onto roofs.	( )	( )	( )	( )
Incinerators and incinerator housing on roofs cannot be climbed upon or used to get from one roof to another.	( )	( )	( )	( )
Gas meters cannot be climbed upon.	( )	( )	( )	( )
Fixtures on rooftop walls cannot be used as footholds for climbing to other parts of the roof.	( )	( )	( )	( )
Permanent custodian ladders are replaced by convenient storage for portable ladders.	( )	( )	( )	( )
Heights of roofs adjacent to rooftops accessible from the ground are too high to be climbed using 12-foot two-by-fours.	( )	( )	( )	( )

2.5 Fixtures

What has been done to accommodate the rough use given to fixtures and hardware reachable from the ground--both on walls and scattered around the site, like lampposts, bike racks, and guardrails?

Highly visible fixtures on otherwise blank walls are covered by extra heavy grills.	( )	( )	( )	( )
Highly visible fixtures on otherwise blank walls are recessed.	( )	( )	( )	( )
All fixtures are out of reach of students on each other's shoulders or holding sticks.	( )	( )	( )	( )
All fixtures are higher than ground level so they cannot be kicked or stood on.	( )	( )	( )	( )

	YES	NO	DK	NA
There are no unnecessary fixtures on building exteriors.	( )	( )	( )	( )
All fixtures are recessed.	( )	( )	( )	( )
All fixtures are covered with heavy-duty protective plate.	( )	( )	( )	( )
There are no vulnerable rainwater pipes less than 6 feet from the ground.	( )	( )	( )	( )
There are no lighting fixtures with plastic covers.	( )	( )	( )	( )
Lighting fixtures are covered with armor-plate glass.	( )	( )	( )	( )
Site fixtures are sturdy enough to be climbed on and used as targets.	( )	( )	( )	( )
Site fixtures do not challenge students to damage them.	( )	( )	( )	( )

3. Indoors

3.1 Corridors

What has been done to prevent or reduce corridor congestion and blind spots?

	YES	NO	DK	NA
There are no lockers that stick out into the corridors.	( )	( )	( )	( )
There are no benches that stick out into the corridors.	( )	( )	( )	( )
The doors in the corridors are large enough so that they do not cause bottlenecks.	( )	( )	( )	( )
There are no open-sided corridors outdoors that are adjacent to public thoroughfares.	( )	( )	( )	( )
There are no right angles in the corridors.	( )	( )	( )	( )
Right angles in the corridors have good surveillance because of interior windows in classrooms or offices, or see-through wall panels.	( )	( )	( )	( )
There are designated hangout areas that support natural surveillance but do not interfere with traffic.	( )	( )	( )	( )
Classrooms are located along corridors in ways that do not allow classes to see other classes.	( )	( )	( )	( )
Offices and teacher assignment areas are located in places that provide corridor surveillance.	( )	( )	( )	( )
Corridor spaces are clearly defined, through visual treatment, as part of supervised zones.	( )	( )	( )	( )
There are no windows between the classrooms and corridors.	( )	( )	( )	( )
Corridors have see-through panels.	( )	( )	( )	( )
Classroom doors have see-through panels.	( )	( )	( )	( )

	YES	NO	DK	NA
Corridors have sufficient light so that everything that happens can be seen.	( )	( )	( )	( )

3.2 Stairwells

What provisions have been made to prevent or eliminate blind spots or isolated areas at stairwell landings?

Blind spots in stairwells have been eliminated by being converted into locked storage areas.	( )	( )	( )	( )
Blind spots have been converted into teacher assignment planning cubicles.	( )	( )	( )	( )
Blind spots have been converted into sanctioned hangout areas.	( )	( )	( )	( )
See-through wall panels provide visual access to potential blind spots.	( )	( )	( )	( )

3.3 Gathering Areas

What has been done to be sure that students have places to meet in public and to be sure that damage will be minimized in informal, active hangout areas?

What has been done to accommodate behavior in and minimize damage to out-of-the-way places where students gather for more private discussions?

Hangout areas are consciously identified and prepared for heavy use.	( )	( )	( )	( )
There are no wall fixtures and adjustments located in hangout areas.	( )	( )	( )	( )
There are some wall fixtures in hangout areas, but these are out of reach of students on each other's shoulders or holding sticks.	( )	( )	( )	( )
Fixtures within reach in hangout areas are extra durable.	( )	( )	( )	( )

	YES	NO	DK	NA
There are convenient and durable trash containers in hangout areas.	( )	( )	( )	( )
There are planned seating places in hangout areas.	( )	( )	( )	( )
Walls are painted with epoxy paint.	( )	( )	( )	( )
Walls are covered with glazed tile.	( )	( )	( )	( )
Some walls in watering holes are lighter than other walls and have blocked out surfaces in order to attract and thereby channel graffiti.	( )	( )	( )	( )
Fixtures and ledges in hangout areas which might be used as seats by groups of students are durable enough for this use.	( )	( )	( )	( )
Fixtures and hardware on hangout area walls and ceilings which might be hung upon or climbed upon have reinforced attachments.	( )	( )	( )	( )
Both formal and informal sitting places in hangout areas are far from breakable windows and equipment.	( )	( )	( )	( )
There are some walls in hangout areas which are lighter and more evenly scored than other walls and which can be predicted to attract graffiti.	( )	( )	( )	( )
There are formally identified graffiti boards in hangout areas.	( )	( )	( )	( )
Equipment in student hangout areas likely to be used as benches are reinforced and made extra durable.	( )	( )	( )	( )
There are no glass and no windows in potential watering holes.	( )	( )	( )	( )
There is no glass in student hangout areas which is less than 3 feet from the floor.	( )	( )	( )	( )

	YES	NO	DK	NA
There are trash containers in potential student gathering areas.	( )	( )	( )	( )
There are alternative legitimate lounges for students to use as an alternative to student gathering areas.	( )	( )	( )	( )
Legitimate student lounges are not visible from offices or classrooms and are accessible without having to pass through such places.	( )	( )	( )	( )
There are legitimate ways for students to personalize student gathering areas, for example, on graffiti-receptive wood or painted walls.	( )	( )	( )	( )

What has been done to minimize the probability of damage in niches, small hidden doorways, and corners?

There are no niches around doorways, under stairwells, or other places within the school.	( )	( )	( )	( )
Where there are niches within the school, they are necessary for reasons of safety.	( )	( )	( )	( )
There are no fixtures, windows, or door glass in necessary niches.	( )	( )	( )	( )
Walls in necessary niches are tiled or painted with epoxy paint.	( )	( )	( )	( )
Ceilings in necessary niches are solid.	( )	( )	( )	( )

What has been done to maximize cleanliness in cafeterias and maintenance of furniture?

There are trash receptacles at the ends of each row of tables in the cafeteria.	( )	( )	( )	( )
Cafeteria furniture cannot be disassembled with conventional hand tools.	( )	( )	( )	( )

What has been done to minimize potential damage to restrooms?

	YES	NO	DK	NA
There are no exposed plumbing pipes.	( )	( )	( )	( )
There are no exposed bathroom accessories.	( )	( )	( )	( )
Bathroom fixtures can be easily and inexpensively repaired if damaged.	( )	( )	( )	( )
Air vents are located so they cannot easily be used as ashtrays.	( )	( )	( )	( )
Walls are completely covered with heavy-duty material.	( )	( )	( )	( )
Floors in lavatories are extra durable.	( )	( )	( )	( )
Ceilings in lavatories are solid.	( )	( )	( )	( )
Ceiling elements in lavatories are specially specified to withstand poking with a stick.	( )	( )	( )	( )
Vertical elements holding up toilet partitions are attached to structural members in floors and ceilings.	( )	( )	( )	( )
Toilet partitions have tamper-proof screws.	( )	( )	( )	( )
Toilet partitions can be easily painted without looking shoddy.	( )	( )	( )	( )
There is some formally identified place in lavatories on which students can legitimately write--wood plank, painted wall, chalkboard.	( )	( )	( )	( )
There are designated, private social places for students--other than lavatories.	( )	( )	( )	( )
There are durable benches in alternative social places for students.	( )	( )	( )	( )

	YES	NO	DK	NA
Any drop-in ceiling is made of firmly attached, heavy ceiling tiles that give only slightly when under pressure.	( )	( )	( )	( )
Ceilings are painted with epoxy paint.	( )	( )	( )	( )
Paint on ceilings is the same color as the subsurface.	( )	( )	( )	( )
Paint on ceilings is quick drying.	( )	( )	( )	( )

What has been done to minimize damage to floors in wet, dirty, and particularly rough places?

Carpeting is installed in small squares or other easily replaced units.	( )	( )	( )	( )
All floor material can be repaired easily and quickly if damage occurs.	( )	( )	( )	( )
There are hard-surfaced floors where rough or dirty activity will be taking place.	( )	( )	( )	( )
In quiet areas, there are soft-surface floors.	( )	( )	( )	( )
There are no carpets in arts and crafts areas, in snack areas, or near sinks or easels in classrooms.	( )	( )	( )	( )
Carpets specified for noise reduction in work areas are attached to walls instead of floors, or accoustical tile is used.	( )	( )	( )	( )

3.4 Walls

What has been done to be sure that walls can be easily repaired and cleaned--in order to minimize the possible "epidemic" effect of wall damage?

	YES	NO	DK	NA
Large expanses of walls are made of small wall sections which can be individually repaired or inexpensively replaced.	( )	( )	( )	( )
Paint on walls is the same color as the sub-surface.	( )	( )	( )	( )
In damage-prone areas, walls are made of harder materials.	( )	( )	( )	( )
Walls in highly traveled areas are covered with epoxy paint or glazed tile.	( )	( )	( )	( )
Quick-drying paint is used.	( )	( )	( )	( )

What has been done to accommodate students' need to personalize their surroundings and to have some public recognition of what is theirs in a school--thus avoiding random graffiti?

Walls on which graffiti is to be channeled are lighter colored than other nearby walls and have regular lines or squares as patterns to minimize an appearance of chaos.	( )	( )	( )	( )
Walls on which graffiti is to be discouraged are easily painted or washed.	( )	( )	( )	( )
There are some strategically placed, formal graffiti boards for students to write on.	( )	( )	( )	( )
Walls in areas prone to graffiti are painted with epoxy paint or are tiled from floor to ceiling.	( )	( )	( )	( )

What has been done to minimize damage to ceilings, especially active passageways, informal gathering places, and lavatories?

There are hard-surfaced ceilings in lava-tories, and hangout areas,	( )	( )	( )	( )
There are no drop-in ceilings in lavatories, or hangout areas.	( )	( )	( )	( )

3.5 Fixtures

What has been done to minimize the probability of damage to doors and door hardware, and to maximize easy maintenance of these items?

	YES	NO	DK	NA
Door knobs and door closures are specified to withstand especially rough use.	( )	( )	( )	( )
Door closures cannot be disassembled with ordinary hand tools.	( )	( )	( )	( )
Built-in door hardware can be easily repaired if damaged.	( )	( )	( )	( )

What has been done to minimize damage to glass on interior walls and doors, and to windows in informal gathering places?

There is no glass in the lower half of doors.	( )	( )	( )	( )
There is no glass less than 3 feet from the floor in passageways and other highly used areas.	( )	( )	( )	( )
There is no acrylic or plastic used as a glass substitute in heavily used areas.	( )	( )	( )	( )
Extra-thick tempered glass or metal panels are specified in heavily used areas where thin glass is inappropriate.	( )	( )	( )	( )
Windows adjacent to interior hangout areas on upper floors, as well as on ground-floors, are especially durable.	( )	( )	( )	( )
There is extra-thick tempered glass or double-layer glass where acrylic or plexiglass is not advisable.	( )	( )	( )	( )
There are no windows in student stores.	( )	( )	( )	( )
There are no windows in administration storage offices.	( )	( )	( )	( )
There are no windows in industrial arts storage areas.	( )	( )	( )	( )
There are thin wire mesh screens over specially vulnerable ground-floor windows.	( )	( )	( )	( )

What has been done to accommodate predictable sitting, climbing, and rough use of attached wall fixtures?

	YES	NO	DK	NA
All fixtures or equipment which protrude from walls are extra heavy duty.	( )	( )	( )	( )
There is no hardware or fixtures that can be climbed upon or played with in informal gathering or formal play areas.	( )	( )	( )	( )
All equipment has tamper-proof screws.	( )	( )	( )	( )
Light fixtures are located out of reach of students on each other's shoulders or carrying sticks.	( )	( )	( )	( )
Light fixtures are recessed.	( )	( )	( )	( )
Thermostats are located out of reach of passing students.	( )	( )	( )	( )
Thermostats are recessed.	( )	( )	( )	( )
Air conditioners are placed out of view on an inaccessible part of the roof.	( )	( )	( )	( )
Fixtures and hardware do not make loud sounds when hit, touched, or damaged.	( )	( )	( )	( )
Fixtures and hardware do not remain in one piece when damaged, and thus do not provide students with trophies.	( )	( )	( )	( )

3.6 Assembly

What has been done to minimize damage to seats, walls, stage and equipment during informal and formal use of auditorium?

	YES	NO	DK	NA
The design of auditorium takes into account special informal uses as well as standard activities.	( )	( )	( )	( )
Auditorium seating is comfortable but does not offer materials to play with like string, buttons, knobs, or leather.	( )	( )	( )	( )
Auditorium seating is assembled with tamper-proof screws or sunken bolts.	( )	( )	( )	( )
Walls as high as can be reached in auditoriums are painted with epoxy paint or tiled.	( )	( )	( )	( )
Fixtures around the stage, especia-ly at foot level or along the stage apron, are especially durable.	( )	( )	( )	( )
All control boxes are covered with heavy-duty lockable grilles.	( )	( )	( )	( )
Fixtures in auditorium are located out of reach of students standing on seats or armrests.	( )	( )	( )	( )

What has been done to be sure that wall hardware and floors in gymnasiums will be damaged as little as possible?

There are large uncluttered walls in the gymnasium for impromptu ball playing.	( )	( )	( )	( )
There are no wall fixtures within reach of people sitting on the bleachers.	( )	( )	( )	( )
Wall fixtures in the gymnasium are located in corners or on side walls out of the way of stray balls.	( )	( )	( )	( )
There are no clocks behind the basketball backboard.	( )	( )	( )	( )
Equipment storage lockers are visible to permanent staff offices.	( )	( )	( )	( )
Gymnasium floor surfaces can stand up to non-sport uses involving contact with tables, chairs and walking shoes.	( )	( )	( )	( )

	YES	NO	DK	NA
If gym floors requiring special maintenance are installed, commitments have been secured for ongoing maintenance training programs.	( )	( )	( )	( )

What has been done to be sure that community programs can be run effectively and with least probability of conflict with the rest of the school?

The school is zoned for different evening and weekend community uses as well as for alternative daytime school uses.	( )	( )	( )	( )
Different zones are separated by gates strategically placed at corridor entrances.	( )	( )	( )	( )
Zones, when separated, have separate entries from the outside.	( )	( )	( )	( )
Offices of school and community supervisory personnel are located near multiple-use entries to the school building.	( )	( )	( )	( )
Some supervisory offices are located near entries to recreational facilities.	( )	( )	( )	( )
There are places for people to gather comfortably near entrances and exits so that groups can serve as potential "people locks."	( )	( )	( )	( )

Basic Concepts

When the environmental design approach is used, the design and use of school facilities can produce behavioral results that reduce the likelihood of inappropriate activities. In designing physical space, the needs of legitimate users of a given space, the normal or intended use of that space, and the predicted behavior of legitimate users and offenders are taken into account. Acts that are destructive to the physical and social environment as well as acts that engender fear and loss of confidence in security can be prevented by using environmental design strategies.

The double emphasis on both design and use means that security-conscious architecture and planning need not lead to constraints on use, access, and enjoyment of the environment. It also means that the focus is on creating opportunities for natural access control and surveillance. The term "natural"[1] refers here to achieving control over who uses space and being able to monitor what happens in the space as a consequence of the normal and routine use of such space. Thus, it is possible to adapt the normal and natural uses of the school to accomplish security objectives.

Prevention

Although the term "prevention" can encompass all strategies taken to forestall the commission of an offense, in the environmental design approach it is useful to distinguish between efforts to forestall the development of offender motives and efforts to frustrate offender opportunities. This distinction also may be characterized as corrective versus mechanical prevention.[2] In mechanical prevention, the strategy is to place obstacles in the way of the potential offender. In corrective prevention, the strategy is more fundamental and focuses on preventing or eliminating criminal motives. Environmental design can be corrective to the extent that design encourages the formation of territorial cognitions and behaviors that function to establish and maintain desired environmental uses and treatment.

1 Tien, J.M., Repetto, T., Hanes, L.F., Elements of Crime Prevention through Environmental Design, Arlington, Va.,: Westinghouse Electric Corporation, 1976.

2 Lejins, P., "The Field of Prevention," Delinquency Prevention: Theory and Practice (Englewood Cliffs, N.J.: Prentice-Hall, 1967).

Defensible Space

Until recently the only crime prevention model that focused on the role of the physical environment was "defensible space".[3] Defensible space postulates that in any setting a person who uses that setting perceives the system of outdoor and indoor spaces as forming a territorial hierarchy. The first level of the hierarchy is space that users consider private and toward which they adopt strong proprietary attitudes, such as desks or lockers. Next in the hierarchy is space that are semiprivate in character, such as classrooms, where use is limited to a particular subpopulation. Third is the semipublic corridor shared by several classes, followed by the main entry, which is shared by all legitimate users and the exterior grounds, which may fall within the domain of other community users who do not necessarily use any of the interior spaces. The last level is the public streets. As individuals proceed from their personal desks to the public streets their territorial responses change accordingly. As their sense of intimacy with the features of the space and with personal control over events in that space diminish, so do their personal involvement and sense of responsibility.

These hierarchial zones are separated by transition spaces. If the transition of zones is not an apparent part of the hierarchy, then the environment becomes more vulnerable, because users will perceive all spaces as public in character and, hence, belonging to everyone and no one at the same time. However, if the territorial hierarchy is supported by design, users will not only feel confident that undesired intrusion can be controlled but will also be inclined to ensure the continued security and maintenance of that setting. Transition spaces can, in theory, be affected by changes in elevation, scale, visual separation, traffic control, and the manipulation of other environmental elements. These elements need not be used to construct real barriers, but, rather to create symbolic barriers - that is, boundaries that are easily penetrated in a physical sense but nevertheless operate to inhibit intrusion.

Types of Strategies

A strategy is a design method for affecting the nature of interaction between the physical environment and human behavior through the creation, redesign or elimination of environmental features. A tactic describes the means by which a given strategy can be implemented. Since tactics must be considered within the context of a specific site, we will not attempt to offer a complex list of tactics, but instead give examples of tactics for illustrative purposes.

Three overlapping strategies are involved: access control, natural surveillance, and territorial reinforcement.

Access Control: These strategies are to be distinguished from deterrence measures that involve site or target hardening. Although the objective is the same--keeping unauthorized persons out of a given area when they do not have legitimate reasons for being there--access control strategies focus on the creation of symbolic barriers that reinforce the privacy, integrity, or uniqueness of spaces. Symbolic barriers are effective in demarcating areas that are intended for specific uses of specific groups, thus promoting physical and social control of these areas.

Natural Surveillance: These are design techniques that involve channeling the flow of activity so that more potential observers are near a potential crime area or creating improved observation capacity by using transparent barriers. Lighting can facilitate surveillance. Proper handling of walkways and landscaping can channel pedestrian traffic away from dangerous areas through areas where natural surveillance is likely. Moreover, appropriately designed and placed amenities can attract legitimate users to gather in easily observed areas for social purposes.

Territorial Reinforcement: Here the focus is on instilling proprietary attitudes and related territorial cognitions and behaviors through improved quality of built elements, alteration of scale, and reinforcement of school identity and desired image. The appearance of the school might be upgraded to promote school pride and a sense of cohesiveness, thus reversing conditions that appear to attract vandalism and support fear of crime.

Although these categories of strategies are distinct in theory, it is important to realize they tend to overlap in practice. Territorial reinforcement may be thought of as the umbrella concept, embodying all natural surveillance principles; and natural surveillance principles in turn embody all access control principles. It is not practical to think of these as independent strategies, because, for example, access control, as defined here, operates to denote transitional zones, rather than impenetrable barriers. If these symbolic or psychological barriers are to succeed in controlling access by demarcating specific spaces for specific individuals, potential offenders must perceive that unwarranted intrusion will elicit protective territorial responses from those who have legitimate access.

Similarly, natural surveillance operates to increase the likelihood that intrusion will be observed by individuals who care but are not officially responsible for regulating the use and treatment of spaces. If people observe inappropriate behavior but do nothing about it, then the most elegant natural surveillance tactics are useless in terms of stopping crime and vandalism.

In thinking about tactics that can be implemented, there are four basic environment/behavior principles that should be considered. The term "environment/behavior" refers generally to the relationship between architectural design and human activities. In more specific terms, we are concerned about ways the design of schools can reinforce territorial attitudes and behavior.

1. Sphere of Influence: People adopt proprietary attitudes toward their immediate personal spaces, even in the most public settings. For example a student becomes territorially attached to his seat in an auditorium for the period of occupancy. If someone tries to take his seat, the legitimate occupant, however temporary his status, will defend his space. In spaces occupied for longer periods and serving multiple functions, the individual implicitly defines boundaries and establishes a sphere of influence--an area over which he or she has interest in regulating intrusion and use. The larger the sphere of influence adopted by an individual or group, the safer the environment.

   Architectural design can influence user perception of spheres of influence. For example, the positioning of buildings and subdivision of grounds can convey to users that all outdoor areas are within their sphere of influence, thus requiring users to act on any observed inappropriate activities. Entry paths approaching buildings, parking lots and play areas, should be within these perceived spheres to encourage bystander intervention when needed. The location of building entries and the use of symbolic barriers can help reinforce this perception.

2. Number: As a general rule, the fewer people sharing a space, the stronger is each person's personal involvement in what happens in that space. This number principle applies to all of the territorial zones described earlier in relation to defensible space. It is important to consider how many students share a classroom, how many classrooms share a corridor, how many people use a particular stairwell or entrance. If it is possible, the number of people in a given location at a given time should be reduced to increase the security of that location. This can be accomplished by rescheduling the use of indoor and outdoor spaces by a formally established policy. Access control strategies can support policy through the construction of real of symbolic barriers.

3. Placement of Activities and Amenities: The location of smoking areas, snack bars, and other activities that serve as a natural magnets for students can influence the degree to which users will extend their territorial concerns and provide continual surveillance. The juxtaposition of activities can also effectively decrease or increase the use of passages. For example, because people can enter a building at one place, use one stairwell to get to their floor and use another stairwell and entrance to leave, security people find it difficult to keep track of who comes and goes. The environment becomes vulnerable because there are critical intensity zones,[5] that is, unsupervised passages used frequently enough to attract offenders but too little used to provide adequate natural surveillance. Teacher planning cubicals can be built under stairwells, or informal gathering areas can be designed in under-used corridors and entry lobbies. With the latter, students can meet relatively free from formal supervision yet themselves watch who comes and goes. Although there is a risk that these spaces may be preempted by individuals for illegitimate purposes, such as intimidation or extortion, it is also likely that the increased number of people using these spaces will discourage such activities.

4. Visual Access and Functional Distance: People are more likely to watch their environment if it is convenient for them to do so and they can easily get to the location where an event is observed. This is an important issue in assessing where windows face, where doors are located, and how spaces with windows are structured. Windows can be effective in creating a sense of apparent surveillance from the outside: but instructional areas in schools, such as classrooms and libraries, are usually designed to use windows as light sources rather than to provide visual access. As a result, there is little natural surveillance. When an event is observed, the functional distance from the point of observation to the location of the event comes into play. If observers feel that the distance is too far in relation to their perceived need to intervene, they will probably choose to ignore what is happening. For example, in some new schools windows cannot be opened, so that when teachers see li-tering or some minor rule infraction they are less likely to leave their classrooms and walk down the

5 Shlomo Angel, Discouraging Crime Through City Planning, (National Aeronautics and Space Administration, Working Paper No. 75, 1968).

corridor to the nearest entrance to intervene. Aware of this inconvenience, teachers may not bother to look out of their windows. In effect, the design of the environment has discouraged them from adopting areas outside of their windows as part of their sphere of influence.

Additional References:

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Kaplan, H.M., Bickman, L., Pesce, E.J., Szoc, R., CPTED: Final Report on Schools Demonstration (Arlington, Va.,: Westinghouse Electric Corporation, 1978).

Zeisel, John, Stopping School Property Damage: Design and Administrative Guidelines to Reduce School Vandalism (Boston, Mass.: American Association of School Administrators and Educational Facilities Laboratories, 1976).

PARKING LOTS

Parking lots tend to have several access points to public thoroughfares and are often located some distance from the main school facilities. As a result, the design and location of these lots usually provide unclear definition of transitional zones (i.e., the public can use these lots freely without detection). At Deerfield Park High School in Broward County, Florida, has a similar situation with the additional problem of an informal gathering to provide access control through natural border definition and to close specific gates at scheduled intervals. The combination of landscaping and wooden pole gates reinforced the perception that the lot was no longer public. Natural surveillance was improved by requiring cars before entering the lot to go directly to internal spaces near the main facilities. These tactics were effective in discouraging nonstudent use of the lot. South Plantation High School in Broward County, Florida, had a similar situation with the additional problem of an informal gathering (smoking) area located next to the parking lot yet out of view from the primary activity areas. The gathering area attracted outsiders and sustained a good deal of vandalism. The gathering area was relocated to an unused internal courtyard bordered by two rows of windows on one side and by an open corridor on the other side, thus providing natural surveillance.

At Boyd Anderson High School, the student parking lot was relocated to the fenced enclosure used for driver education. In turn, the driver education area was relocated to the old student lot. Since driver education is always supervised, it does not require a fenced lot; whereas the existing fence adds to the privacy and security of the relocated student lot.

Similar issues pertain to bicycle theft and vandalism. Often there are no official bicycle lots and the areas used are not easily watched. In Broward County, two types of bicycle compounds were created, both with ground level locking cups. One type was an open area defined with low hedges located in a place with good natural surveillance, and the other was an area defined with medium-high chain-link fencing because of poor natural surveillance.

Some attention should be given to how the borders of parking lots are defined. Often adjacent grassy areas and hedges between the lot and public thoroughfares are damaged because drivers take short cuts. Landscaped borders can be reinforced with curbs or other low barriers. Small decorative patches of grass in the lot should be avoided because drivers use them as convenient turn-arounds and they usually end up as dirt areas. Judiciously located bollards can influence how cars are driver in the lot.

Design Issue

Parking Lot Boundaries: *In many schools, automobiles will be parked on grassy areas adjacent to parking lots or driveways. Unpaved areas are often used to turn around on when leaving. If this is done continually, the result is an unintended dust or mud pond.*

Possible Design Responses

1. *Curbs:* Erect a curb, a change in level, or some other similar low barrier to keep cars on paved surfaces and off soft grassy areas.
2. *Turn-arounds:* If drivers need a place in which to turn around, design a paved, curbed turn-around area to meet the need.
3. *Grass:* Between parking lots and buildings, avoid small decorative patches of grass which will soon be destroyed by cars.

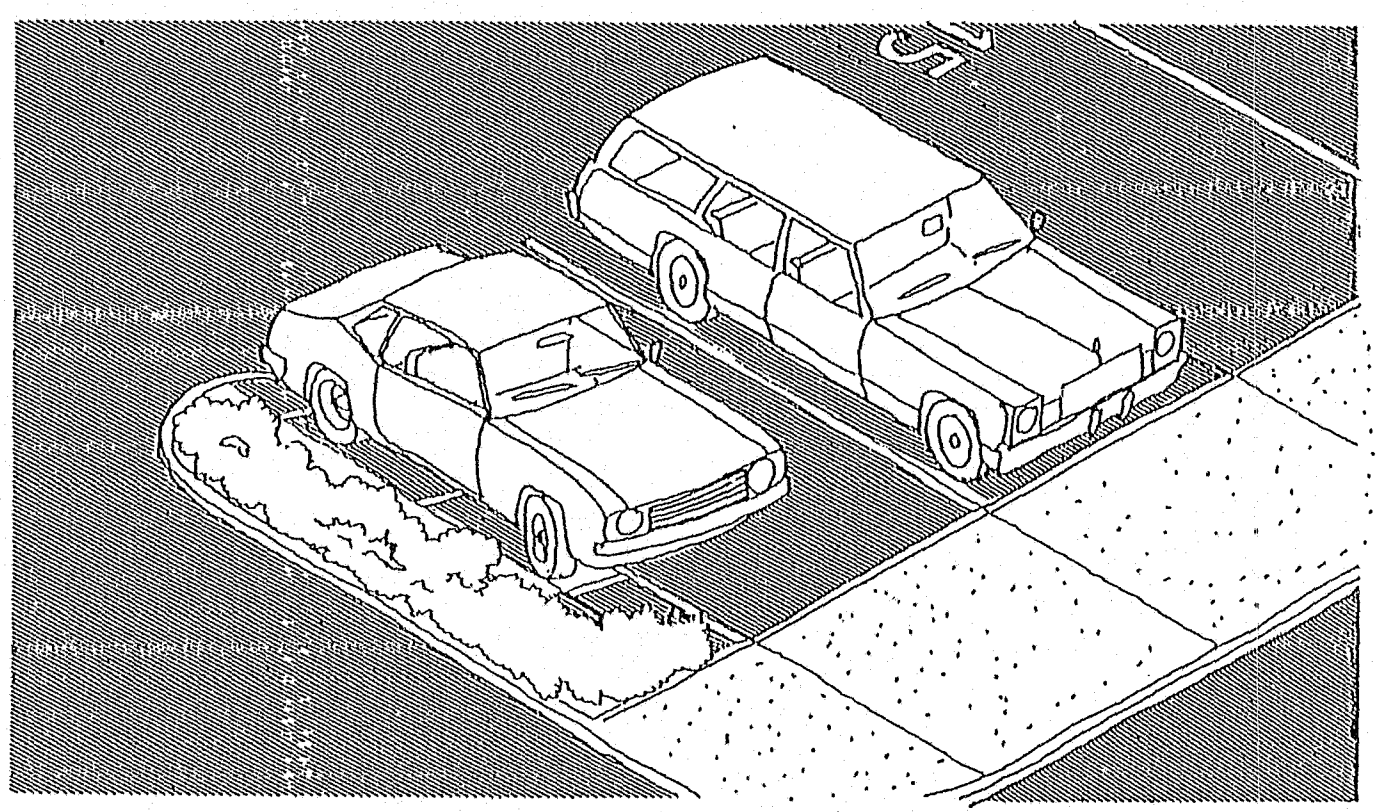
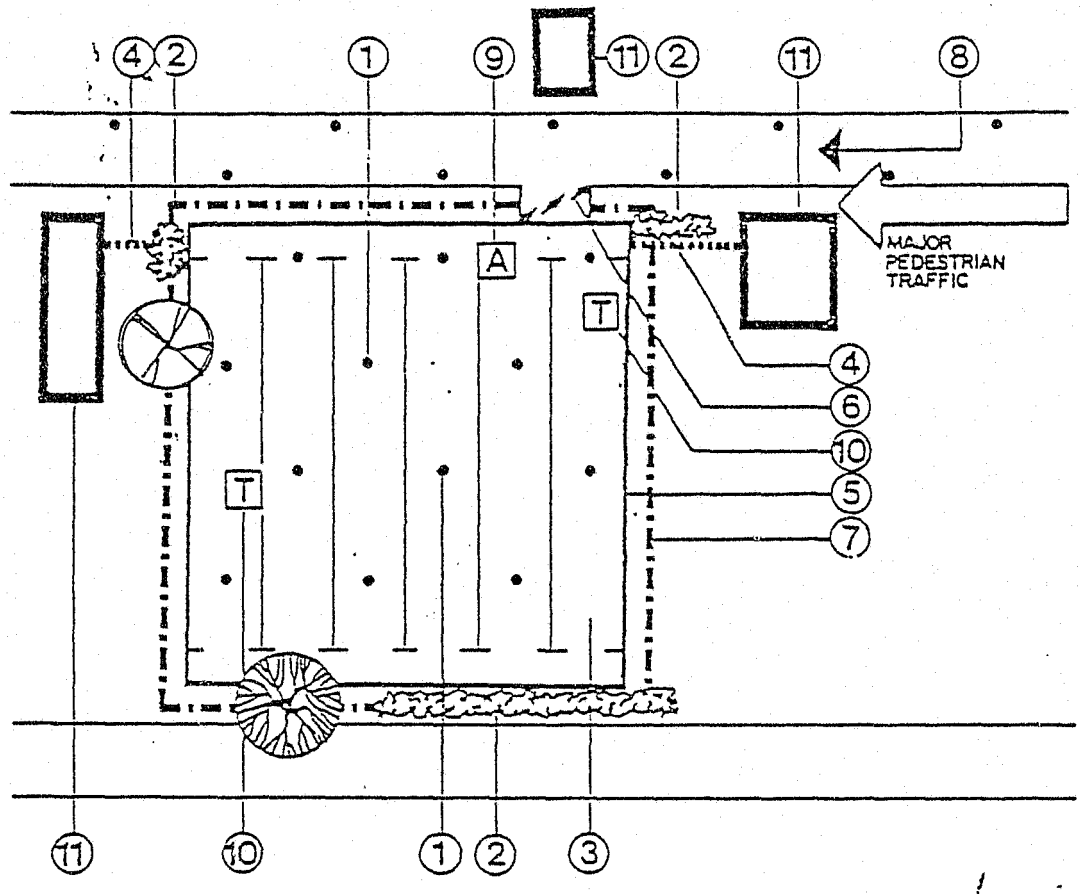


ILLUSTRATION #1

Source: Stopping School Property Damage



DESIGN ALTERNATIVES

Improve lot lighting.

Trim/remove plants and clean-up trash that interfere with good natural surveillance and obstruct lighting.

Orient parking lot rows along lines of sight from principal vantage points when possible to optimize natural surveillance.

Use fencing or shrubbery to block routes of quick escape such as alleys adjacent to the parking lot.

Enclose the lot with a fence. Close the lot at night and post directions to more secure lots.

Enclose the lot with a fence and restrict access to authorized users by locking devices at pedestrian and vehicular entrances.

Block three sides of the lot with a fence, allowing access through the most secure access route.

Provide a "safe" pedestrian corridor to the lot by upgrading street lighting and security.

Provide a parking lot attendant as an observer in the lot.

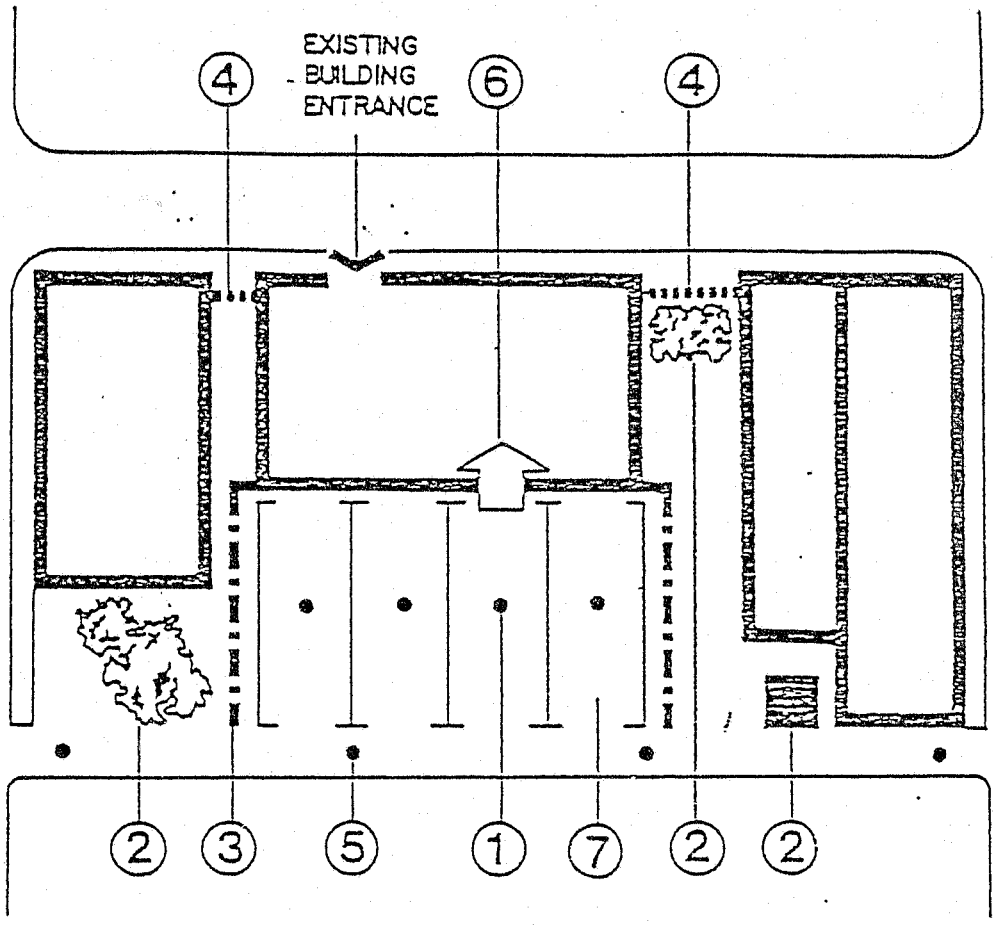
Provide electronic surveillance devices, such as closed-circuit television, and post signs warning surveillance to discourage criminal attempts.

Encourage the relocation of user activities to locations nearer the lot and draw new user activities to the vicinity of the lot.

Relocate the lot, if feasible or necessary.

ILLUSTRATION #2 Possible Tactics for Remote Parking Lots

Source: L. Bell



DESIGN ALTERNATIVES

Improve lot lighting.

Trim/remove plants and clean-up trash that interfere with good natural surveillance and obstruct lighting.

Block three sides of the lot, allowing access through the most secure route.

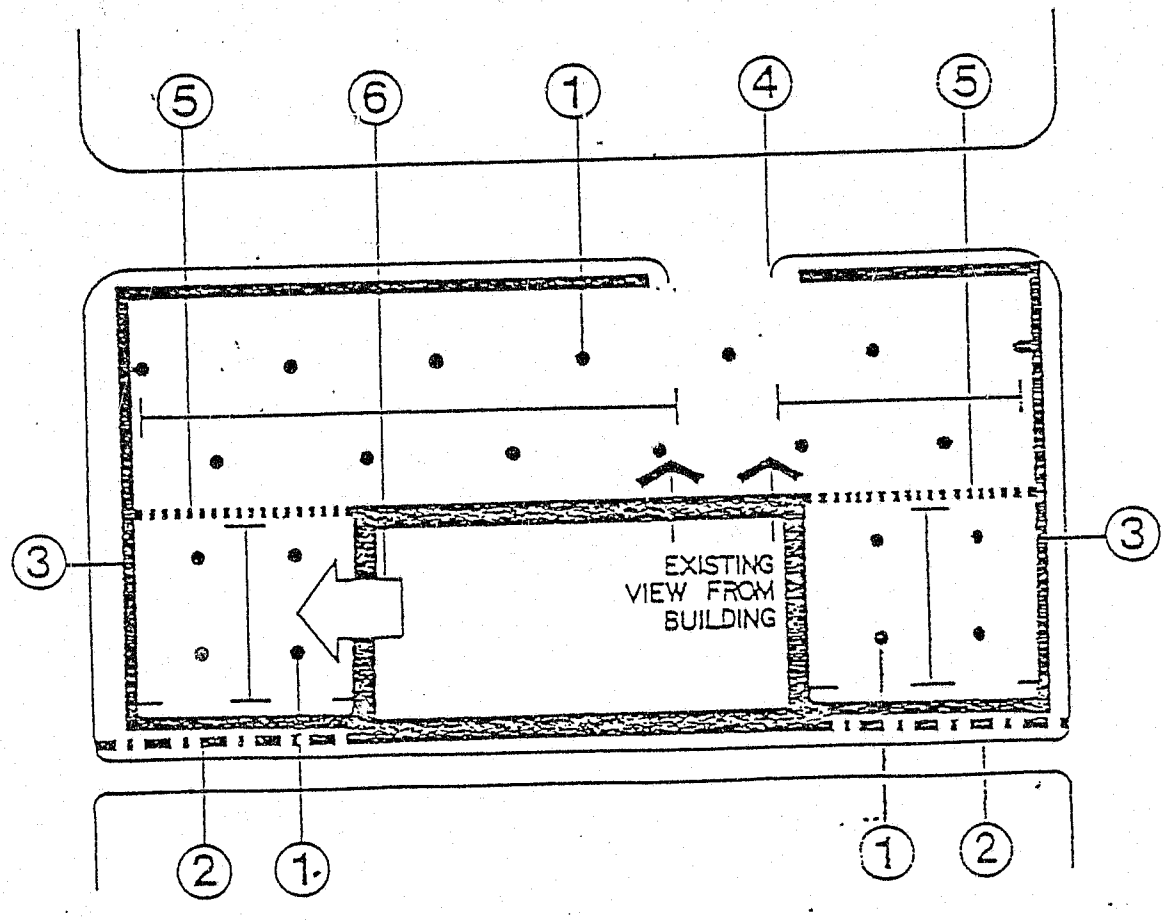
Close off unsafe access routes between buildings and open lots.

Provide a safer access route by upgrading access lighting and security.

Create new, more direct entrances to user buildings and provide lot surveillance from building interiors.

ILLUSTRATION #3 Possible Tactics for Parking Lots Behind Buildings

Source: L. Bell



DESIGN ALTERNATIVES

Improve lot lighting.

Use fencing or shrubbery to block routes of quick escape such as alleys adjacent to the parking lot.

Block three sides of the lot with a fence, allowing access through the most secure route.

Use fencing and/or shrubbery to focus entry to those points of highest surveillability.

Close those sections of a lot at night that are most crime prone and difficult to survey.

Provide lot surveillance from building interiors.

ILLUSTRATION #4 Possible Tactics for Parking Lots Surrounding Buildings

Source: L. Bell

RESOURCE
R6.2,3

BUS LOADING ZONES

The design of and procedures for bus loading areas often interfere with teachers' ability to supervise loading and unloading, create congestion among students, and block pedestrian and vehicular traffic flow. Confrontations leading to assault, theft, and vandalism frequently occur. For example, at Boyd Anderson High School in Broward County, Florida, usually 17 buses queued in a semicircle around the student parking lot. Bus loading and unloading occurred at the same time students drove in and out of their lots (about 200 cars). Moving cars, buses, and pedestrians were interspersed in a seemingly uncontrolled manner.

The design response was to establish one loading zone in a surveillable area, limiting the number of buses to five. Adjacent to this zone was a bus queuing zone where no loading or unloading was permitted. This plan made supervision easier.

When loading zones are in front of one entrance, there are additional congestion problems. All of the bussed students are entering the school at one place along with many nonbussed students. As such, these entrances receive much use and wear and tear, particularly in the afternoons when students have nothing to do but wait for their bus and, to occupy themselves, often become involved in mischievous behavior, fights, climbing walls and graffiti. Supervision is made more difficult if there are no windows directly facing the entrance.

Possible design tactics are to relocate the loading zone so that it is in full view of the windows and not directly in the mainstream of pedestrian traffic, thus reducing congestion. The bus waiting areas should not be next to such built elements as hardware or lights that can be easily removed or broken. If there are planters, both they and the plantings should be durable enough to withstand climbing and sitting or used as trash receptacles.

Design Issue

School Bus Drop-Off at Entry: *When entrance areas are used for loading and unloading school buses, they become extra heavily used student hang-out areas. As such, they often receive more use and abuse than they were designed to withstand.*

Possible Design Responses

1. *Location:* Locate bus stop areas near entrances but in open and visible areas, away from windows.
2. *Waiting Areas:* Provide conveniently planned waiting areas as far as possible from hardware, windows, and other equipment at building entrances.
3. *Fixtures, Windows, Hardware:* Treat hardware and fenestration at entries according to recommendations for hang-out areas.
4. *Glass:* If possible, avoid large amounts of glazing in entrance doors and around entry areas.

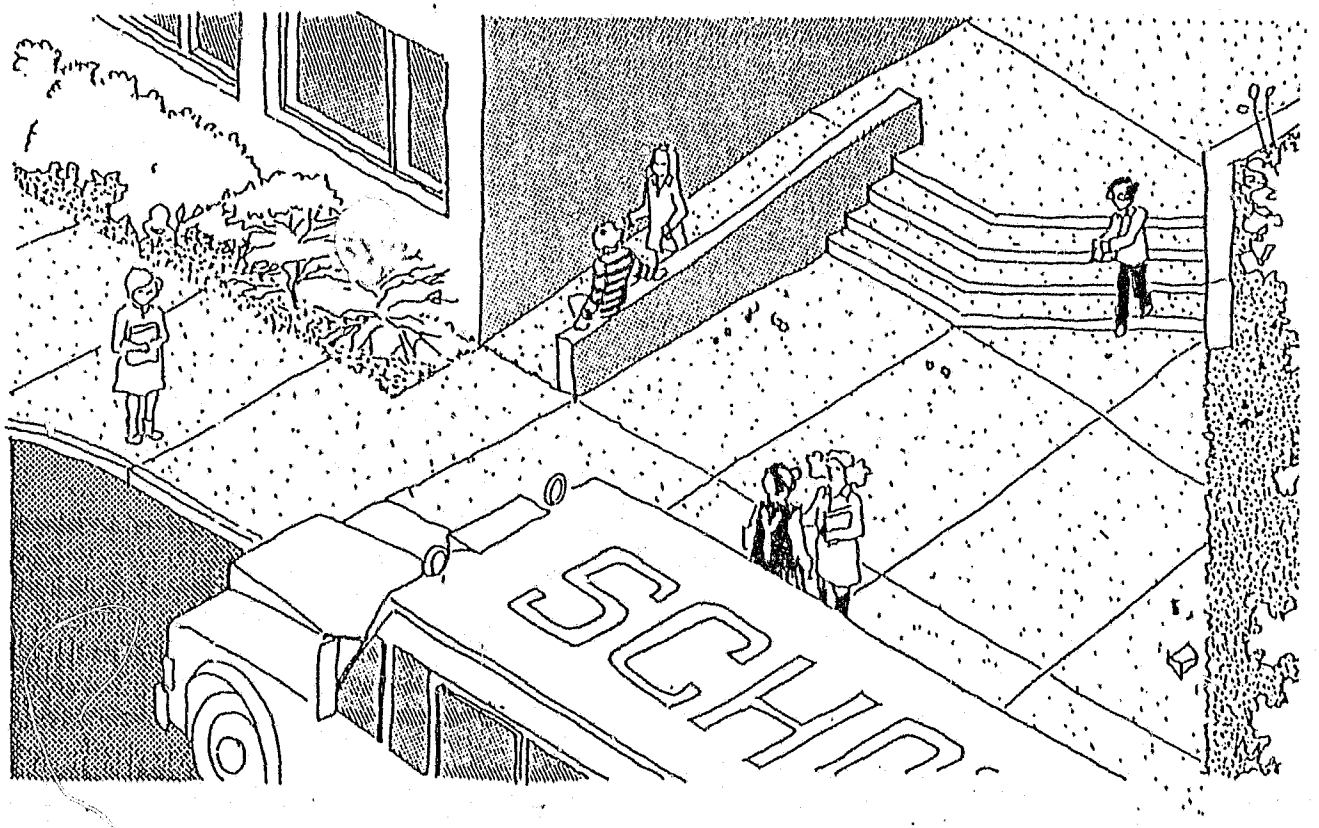


ILLUSTRATION #1

Source: Stopping School Property Damage

RESOURCE
R6.2.4

SOCIAL GATHERING AREAS

A distinction can be made between formal and informal gathering areas. Formal areas are outdoor places intended for specific functions and groups, such as student smoking areas, bus loading zones, and courtyards with benches. As school administrators and custodians are fully aware, there are numerous informal gathering areas that are abused because they were not designed for such use. Walls, steps, trash containers, and plants are typically used as furniture. Students will also select less visually accessible locations to establish territorial "watering holes" to do things that are not necessarily permitted in formal gathering areas, such as drinking beer, smoking pot. There are also niches, small spaces with room enough for two or three to one side of an entrance, under a stairwell, or at the corners of a wall.

One strategy is to analyze areas used for informal gatherings and redesign the environment to accommodate such uses by providing built elements and surfaces that will withstand being used as furniture--replace fixtures that can be easily taken apart or damaged; protect nearby windows; plant trees and shrubs that are pliant and grow quickly; use durable materials for planters, steps, low walls, and provide trash containers that cannot be easily turned over and are difficult to start fires in. Walls and surfaces should be treated so that they can be used for graffiti and cleaned later on.

If it is desirable to eliminate such informal areas, a number of tactics can be used to eliminate or discourage use. Niches can be closed off with barriers, and other areas can be made less comfortable by using plants that prick and surface materials that are rough to sit on.

At the same time, formal gathering areas can be created or redesigned to meet some of the needs provided by informal areas and enhance general security. At South Planation High School Broward County, Florida, miniplazas or patios were located in places with natural surveillance and within the school grounds but isolated from the view of public thoroughfares to discourage use by outsiders. In some cases, the miniplazas were subdivided for specific functions (smoking, eating). These courtyards were built with aesthetically attractive, quality materials (tables, benches, planters, trash receptacles) to attract students, but designed to prohibit preemption by large groups.

Design Issue

Hang-out Areas: *Hang-out areas are places next to formal and informal play places and near active walkways, where people sit to watch games, to be seen by others passing by, and to talk to one another. These areas are distinguished by having walls, steps, benches, or tree stumps to sit upon; by being points from which to observe and comment on games nearby; and generally by being visible to adjacent public areas.*

Possible Design Responses

1. *Location:* Predict, identify, and prepare appropriate hang-out areas for inevitable informal use.
2. *Fixtures:* Avoid nearby fixtures which can be easily removed or damaged by kids sitting. Use tamper-proof screws in this location, and strengthen hardware and fixtures which must be there.
3. *Windows:* Remove or protect nearby windows.
4. *Planting:* Specify planting which bends easily and grows quickly. Avoid planting which will be easily damaged by being scratched, burned or broken.
5. *Benches:* Provide benches for sitting far away from breakable windows, hardware, or planting.
6. *Planters and Steps:* Specify extra durable materials for steps, low walls, and planters in hang-out areas, because they will probably be used to sit upon.
7. *Trash Containers:* Install heavy trash containers which will be emptied regularly and which make burning of rubbish difficult, i.e., not the open basket type.
8. *Trash Containers:* Use garbage cans which seem like targets for beer and soda cans, as an attraction for litter disposal.
9. *Planters:* Avoid planting containers which can be easily used as trash baskets in hang-out areas.
10. *Materials:* If bricks or other small-unit building materials are used in hang-out areas, maintain a stock of spares to allow quick and easy repair. This cuts down "epidemic" vandalism in which slight damage quickly leads to greater damage.

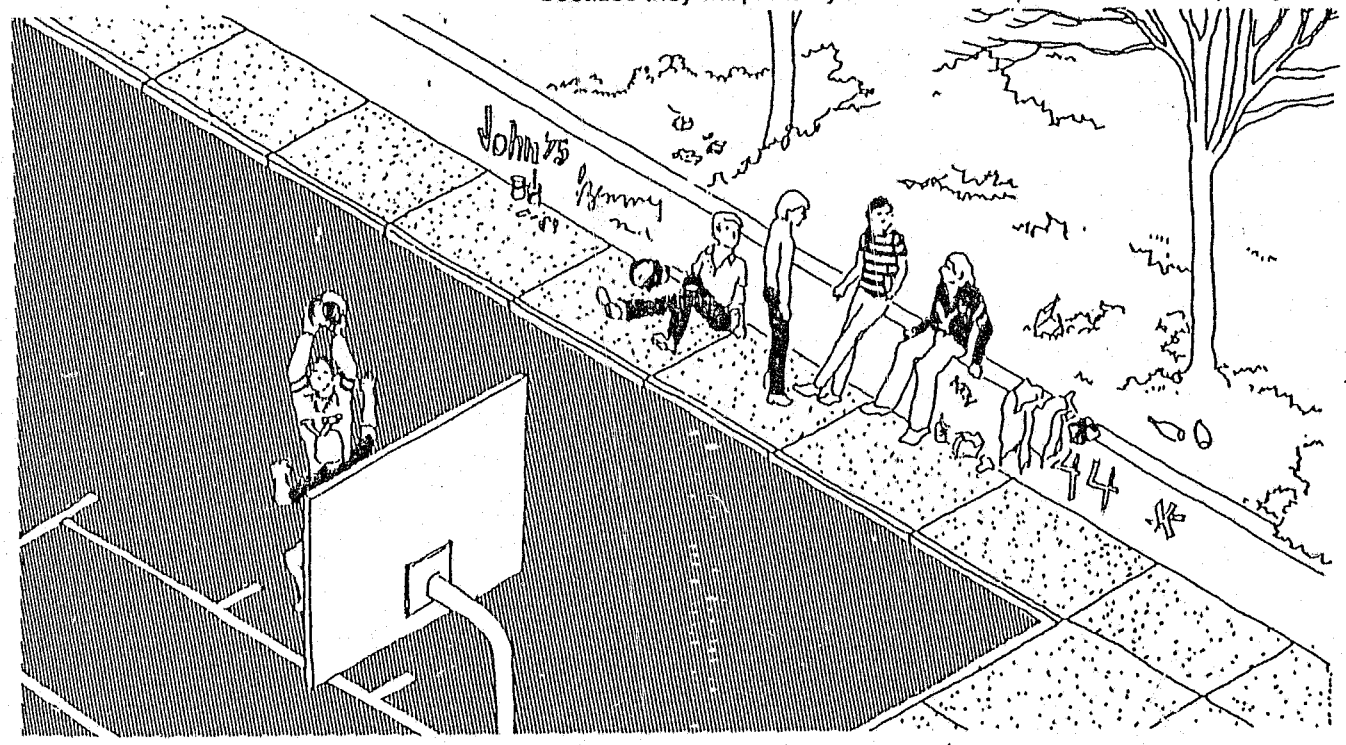


ILLUSTRATION #1

Design Issue

Watering Holes: *Partially hidden areas around schools which are large enough for small groups of children and teenagers to sit in together provide groups of local kids with informal clubhouses. These places are the least officially sanctioned play areas and are often considered trouble spots by custodians and school administrators. Property damage occurs in these places ranging from graffiti to broken bottles; from broken hardware to destroyed trees; from burnt and broken windows to breaking and entering.*

For urban teenagers, such places are the club's turf. "Watering holes" adjacent to schools are places for get-togethers. Kids do not have any place else. They can't have parties at home; formal social clubs are too structured.

People just sit and talk there; sometimes they drink beer (hence the name "watering hole") or smoke. They almost always rough-house and write their names on the walls.

Possible Design Responses

1. *Location:* Identify "watering holes" and design such areas to withstand sustained and often destructive use and abuse.
2. *Fixtures and Hardware:* Specify highly durable hardware and fixtures in these areas, and locate them out of reach.
3. *Windows:* Avoid fenestration in watering holes.
4. *Walls:* Install wall and ground surfaces here which can be written on, which can withstand abuse, and which can be easily maintained and painted.
5. *Planting:* Specify planting which cannot be easily damaged by being scratched, burned, or broken. Specify pliable fast growing shrubs, rather than trees in such areas.
6. *Planters:* Avoid planting containers which can be easily used as trash baskets.
7. *Trash Containers:* Install heavy trash containers which seem like targets for litter and which cannot be used for burning trash. Empty them regularly.
8. *Materials:* If small-unit building materials like bricks are used in watering holes, there is a good chance for "epidemic vandalism" in which slight damage attracts attention and leads to cumulative damage. Having a stock of bricks and mortar available for quick repair of small damage and getting custodians to do so can reduce "epidemic vandalism."
9. *Wall Panels:* Avoid modular wall panels in watering holes. These are often removed just to prove that the school is vulnerable, even if not used to enter the building.

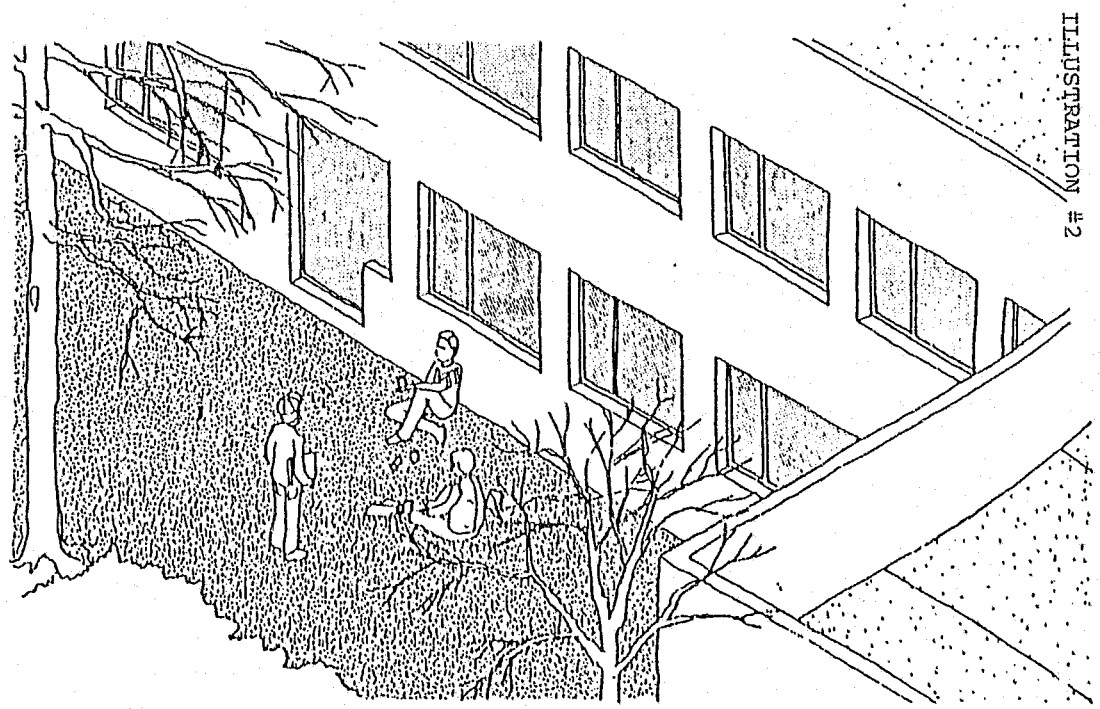


ILLUSTRATION #2

Design Issue

Niches: *Small spaces just large enough for one or two people are called "niches." For example, they are created by fire stairs adjacent to walls, depressed entrances, or delivery docks. These places are used for, among other things, prying at windows or picking locks, smoking, or drinking secretly.*

Possible Design Responses

1. *Doorways:* Avoid useless doorway niches by extending existing doors to building perimeter.
2. *Fixtures and Hardware:* Specify as few reachable fixtures and as little hardware as possible in niches.
3. *Door glass:* Specify glass-free doors through which locks cannot be seen.
4. *Door Hardware:* When possible, avoid all exterior hardware on doors in niches.

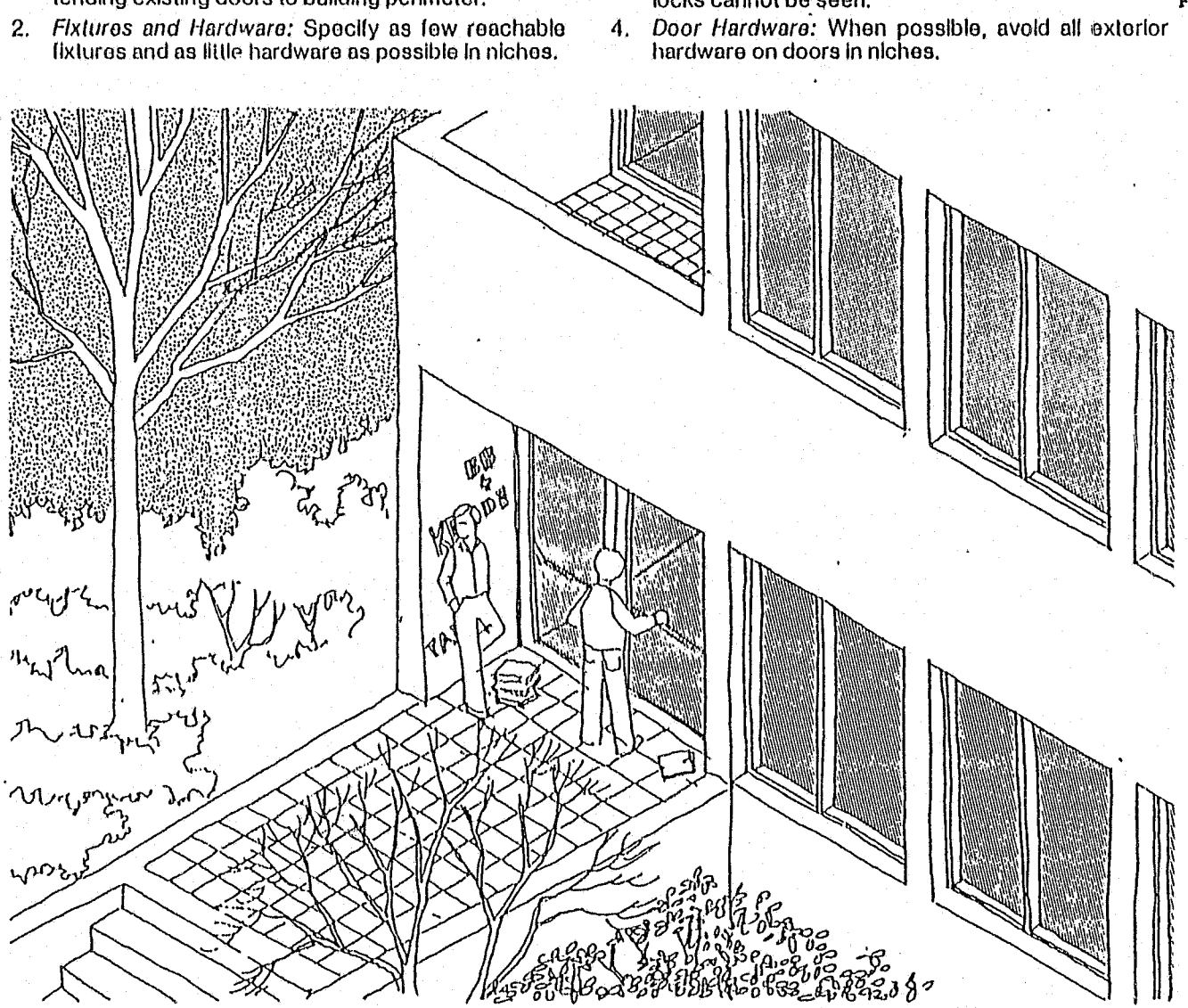


ILLUSTRATION #3

Design Issue

Planting: *Planting on school grounds is often specified with a direct but misguided logic: "Because damage may occur to plants, have stiff, unbreakable plants." Unfortunately, stiff also means brittle, and these plants break more easily than do more pliable ones.*

Another logic dictates: "Since kids mess up bushes by running through them, have thorny bushes which keep kids out." Unfortunately, thorns collect debris and also keep out custodians who might otherwise clean up around the plants.

Possible Design Responses

1. *Planting:* Near active areas, specify bendable, resilient planting and avoid stiff, breakable planting like unprotected young trees.
2. *Planting:* In decorative areas specify planting such as trees or bushes with no thorns, which does not readily collect litter, and is easy to rid of litter.
3. *Planting:* Avoid climbable planting near edge of building.
4. *Planting:* Avoid planting in predictable pick-up play and hang-out areas, and in watering holes.

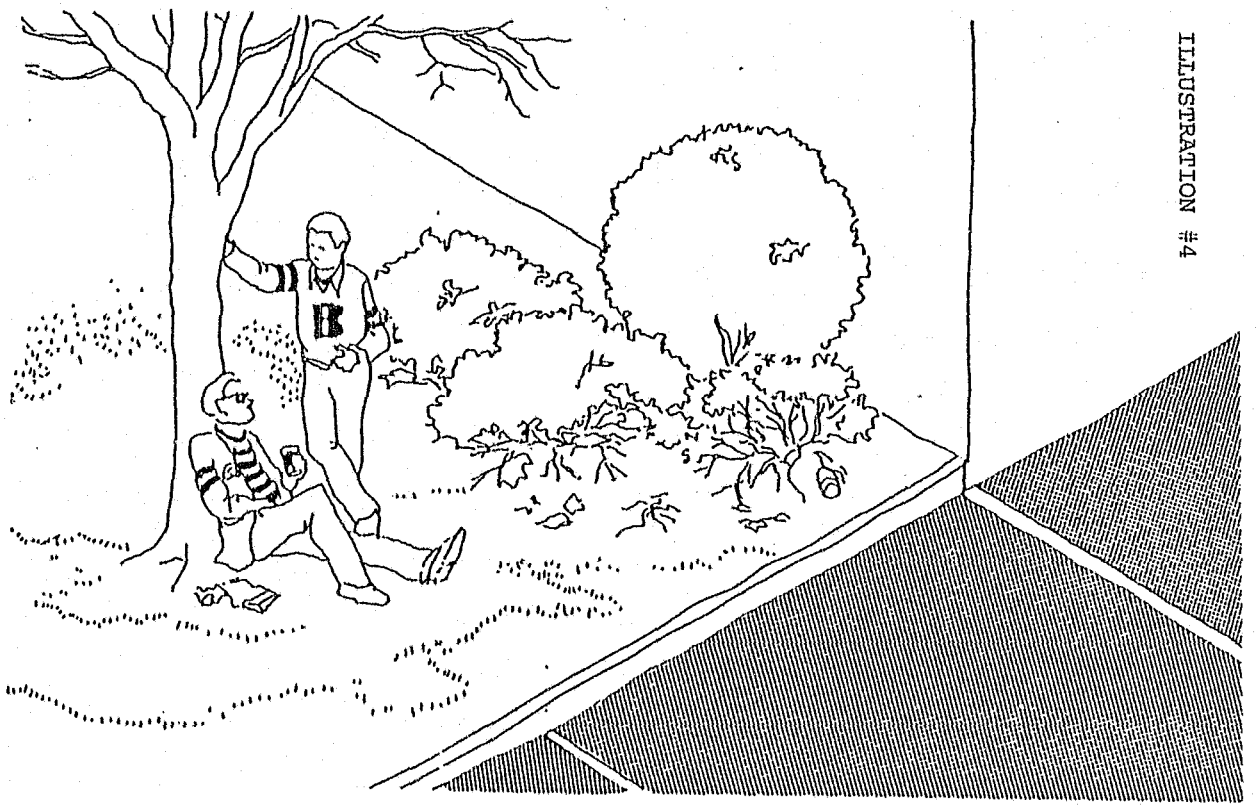
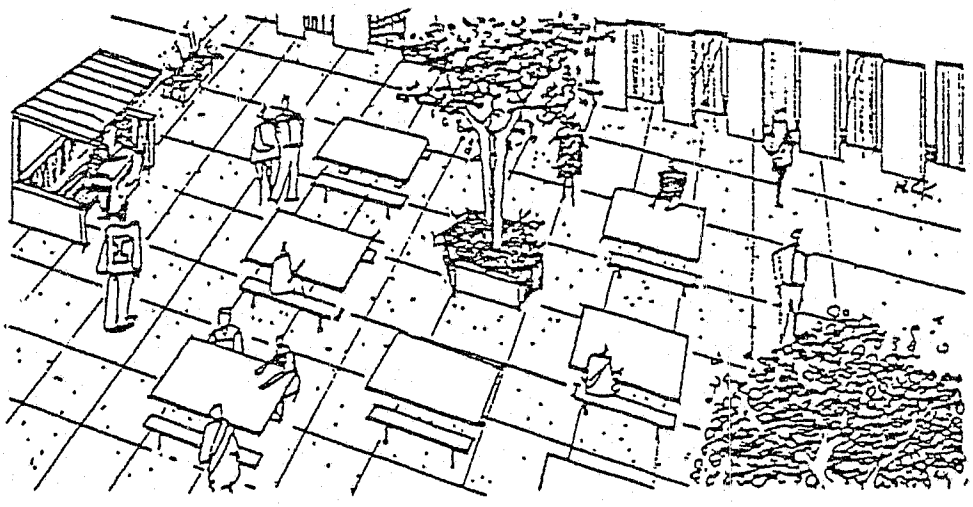


ILLUSTRATION #4



Short vandal-resistant benches and tables are to be provided to restrict group sizes and encourage relaxed conversation. Planters divide large spaces into smaller areas to break down institutional scale and introduce soft greenery and shade in paved places. A snack/ticket sales facility can provide a surveillance point for supervisory personnel.

INFORMAL PLAY AREAS

Students use school grounds for informal games (stickball, soccer, handball, softball) in places that were originally not intended for such purposes. Formal play areas may even be misused; for example, if a basketball court were used for stickball, broken lights and cracked windows might result. If certain types of rough play need to be eliminated from specific areas, tactics can be employed that essentially function as obstacles to play, such as subdividing an open space with built elements intended for passive use (benches, curbs, changes in elevation, hardy trees). Surfaces and walls can be made irregular so that balls do not bounce predictably.

On the other hand, many underused spaces with good natural surveillance can be converted into play areas by removing or redesigning lights and other fixtures that can be damaged, protecting windows, eliminating hindrances to play (wall and ground surface that are smooth), painting lines, and providing sitting areas for game watchers.

When parking lots are partially empty, they are often used for ball games, hockey, and soccer. Several tactics can be employed to protect remaining cars, fixtures, and adjacent spaces. Barriers can be erected in strategic locations to prevent balls or other play objects from breaking windows. Painted lines will suggest ways opposing teams should line up (e.g., the location of home plate determines which way the batter will face).

Design Issue

Pick-up Play in Parking Lots: *Students often use parking lots to play street hockey or other pick-up games.*

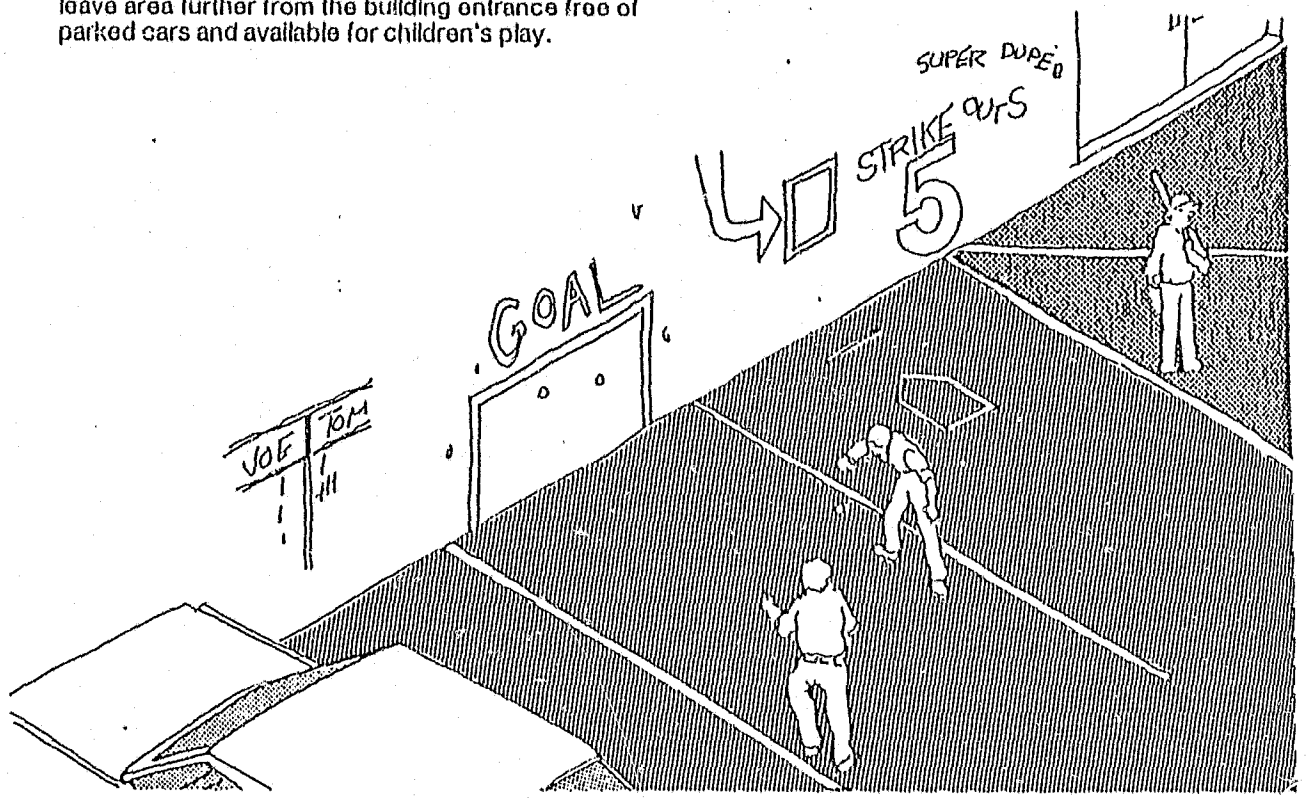
If a few cars are parked haphazardly throughout a lot used for play, one or more cars are likely to be in the midst of a play area and therefore be likely to be damaged unintentionally.

Also, parking lots rarely have the fencing necessary to prevent a ball from travelling out of the lot and through a neighbor's or the school's window.

Possible Design Responses

1. *Location:* Plan parking lots as informal pick-up play areas.
2. *Closure:* Specify fixtures so that parking lots can be closed to automobiles on weekends and during evenings when there are no planned activities at the school.
3. *Fences:* Erect a fence in strategic locations around the parking lot to prevent balls, pucks, or other objects from breaking windows or entering adjacent private property; not to keep children out.
4. *Size:* Design larger parking lots so that parking will be concentrated in obviously more convenient spaces nearest the building entrance. This will leave area further from the building entrance free of parked cars and available for children's play.

ILLUSTRATION #1

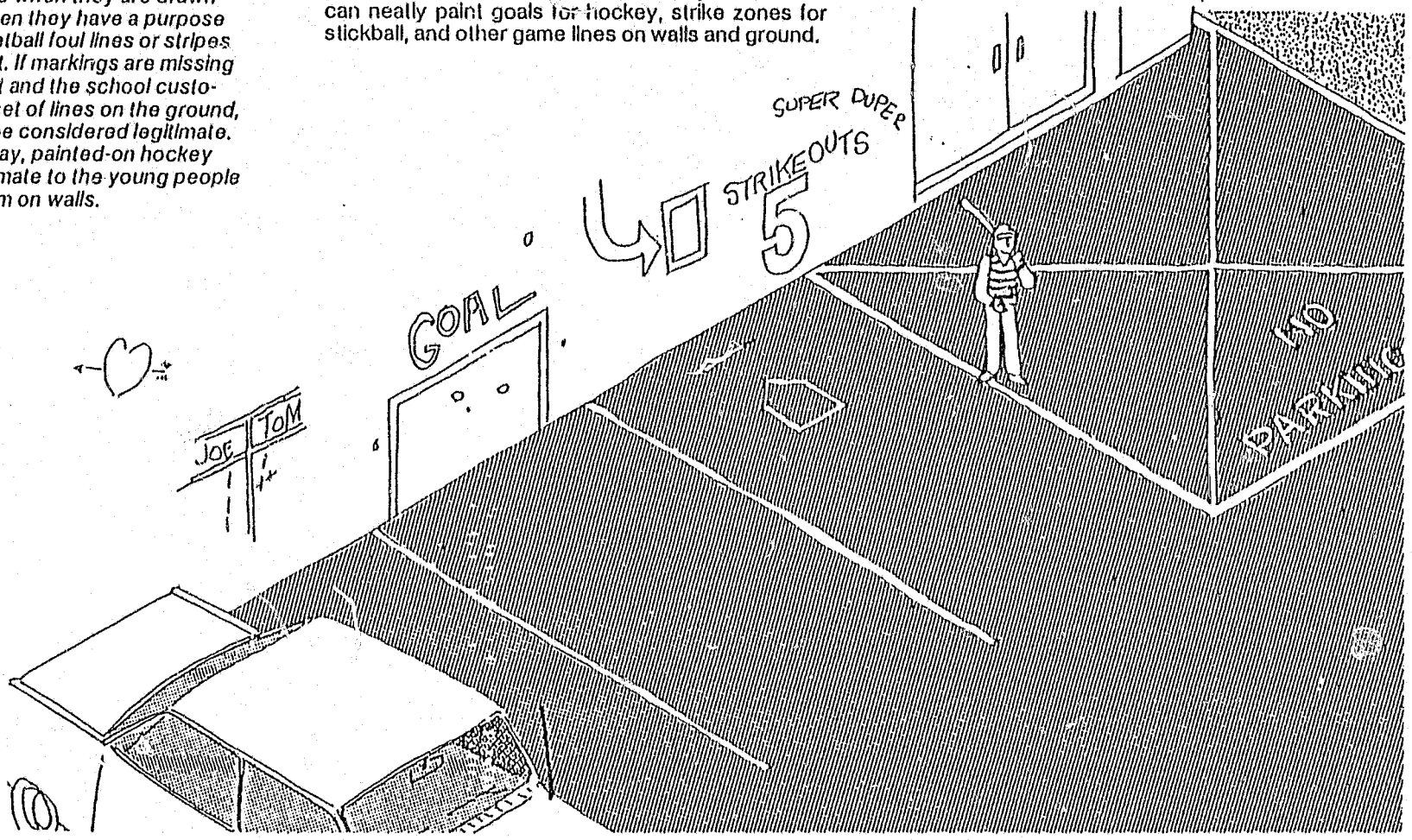


Design Issue

Legitimate Graffiti: *Legitimate graffiti is the simplest, yet most often overlooked type of marking. When there is no hockey net in the school yard and children paint one on the wall, this is considered graffiti and vandalism. Yet, lines on paving or on a wall are considered legitimate when they are drawn neatly and when they have a purpose such as basketball foul lines or stripes in a parking lot. If markings are missing in a parking lot and the school custodian paints a set of lines on the ground, these would be considered legitimate. In the same way, painted-on hockey nets are legitimate to the young people who paint them on walls.*

Possible Design Responses

1. *Location:* Acknowledge, predict, and accept "legitimate" graffiti painted by children.
2. *Game Lines:* Paint necessary game lines on appropriate walls and ground surfaces after consultations with game players.
3. *Game Lines:* Work together with street groups to provide them with stencils so that they themselves can neatly paint goals for hockey, strike zones for stickball, and other game lines on walls and ground.



Design Issue

Pick-up Play: *Much recreation in school open spaces takes place during recess, after school, or on weekends. Children or teenagers gather around the school for informal games of street hockey, basketball, stick ball, soccer, or catch. These games generally require minimal equipment which participants bring from home, a hard ground surface large enough for throwing ball, and a wall to serve as an impromptu backstop.*

Formal play areas are sometimes used as pick-up play places — for instance basketball courts may be used to play a game of stick ball. At other times pick-up games take place on the plaza in front of a school, or in the children's play yard — if these provide a backstop and a hard surface. Different parts of the country and different areas of a city will have their own special pick-up games and most neighborhood groups do have some kind of pick-up games.

Possible Design Responses

1. *Location:* Consciously identify and develop places well suited to informal pick-up play.
2. *Lighting and Fixtures:* Move lighting and other fixtures out of the way of potential pick-up ball playing.
3. *Walls and Ground Surface:* Treat ground and wall surfaces in informal game areas as if they were formal play areas: install wall surfaces which bounce balls back to players; remove ground surface irregularities; paint lines on walls or ground for street games.
4. *Glass:* Eliminate glass around areas predicted to attract informal pick-up games, or protect glass there attractively.

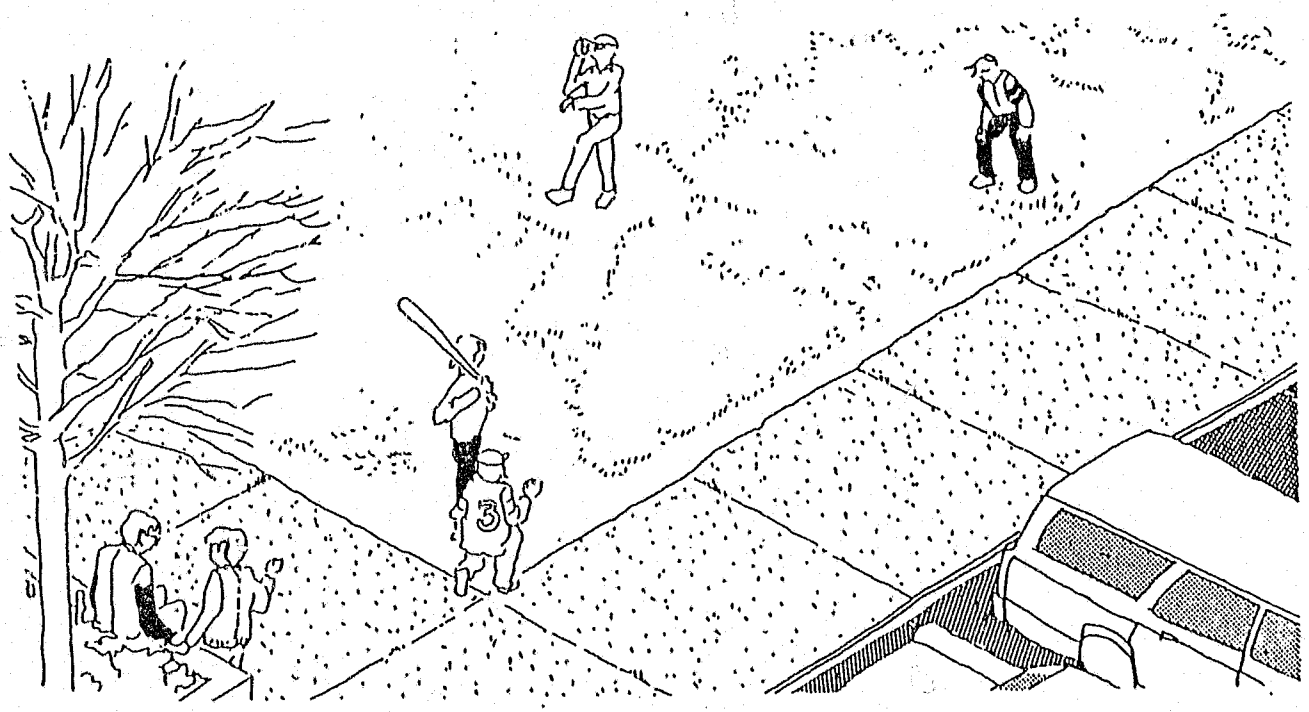


ILLUSTRATION #2

RESOURCE
R6.2.6

WALKWAYS AND LANDSCAPING

Landscape treatments can influence the use of the outdoors in positive and negative ways. Landscaping can create unsurveillable pockets along walkways which provide opportunities for crime and heighten fear. Landscaping can also effectively reduce fear and encourage safe, desired uses by legitimate users. Trees and shrubbery can be used to reinforce existing walkways or to rechannel pedestrian flow through areas where there is better natural surveillance. Plantings can also be used for subdividing spaces into smaller activity areas if so desired. Shrubbery should not be more than 3 feet high; at thid height, cross traffic is discouraged and surveillance is not blocked. Plantings used to define play areas should be resilient and must grow fairly quickly.

Although landscaping is effective in reinforcing walkways, the walkways should nevertheless follow logical and fairly direct routes. Some tactics are to accept as legitimate the paths naturally made when walkways change direction at right angles. Walkways can also be perpendicular rather than parallel to buildings, or planned according to a spider web configuration so that the routes provide the shortest distances between the most frequently used points. Plantings may require routine trimming to maintain free visual corridors. The visual focus of pedestrians is normally about 35 feet ahead, so people tend to feel more secure when path conditions allow clear views at that or greater distances.

Design Issue

Pathways: *Official pathways around school grounds often reflect the designer's wishful thinking, rather than the students' and teachers' needed circulation links. As a result, a route crossing the grass is often chosen as a path rather than the misplaced official paved walkway. In addition, soft surfaces and planting next to heavily used paved areas are readily trampled.*

Possible Design Responses

1. *Location:* Plan paved pathways so that they provide the shortest walk between the two points they connect.
2. *Location:* Accept as legitimate and predict location of naturally made shortcut paths.
3. *Paving:* Pave pathways where natural shortcuts have developed, after the building has been in use for six months.
4. *Barriers:* Install or landscape subtle but real barriers, like a change in level, between hard traveled pathways and adjacent soft areas, like grass. This will not prevent people from walking there, but it will decrease it.
5. *Grass:* Remove soft materials like grass or flowers which are immediately adjacent to narrow paths or parking lots.

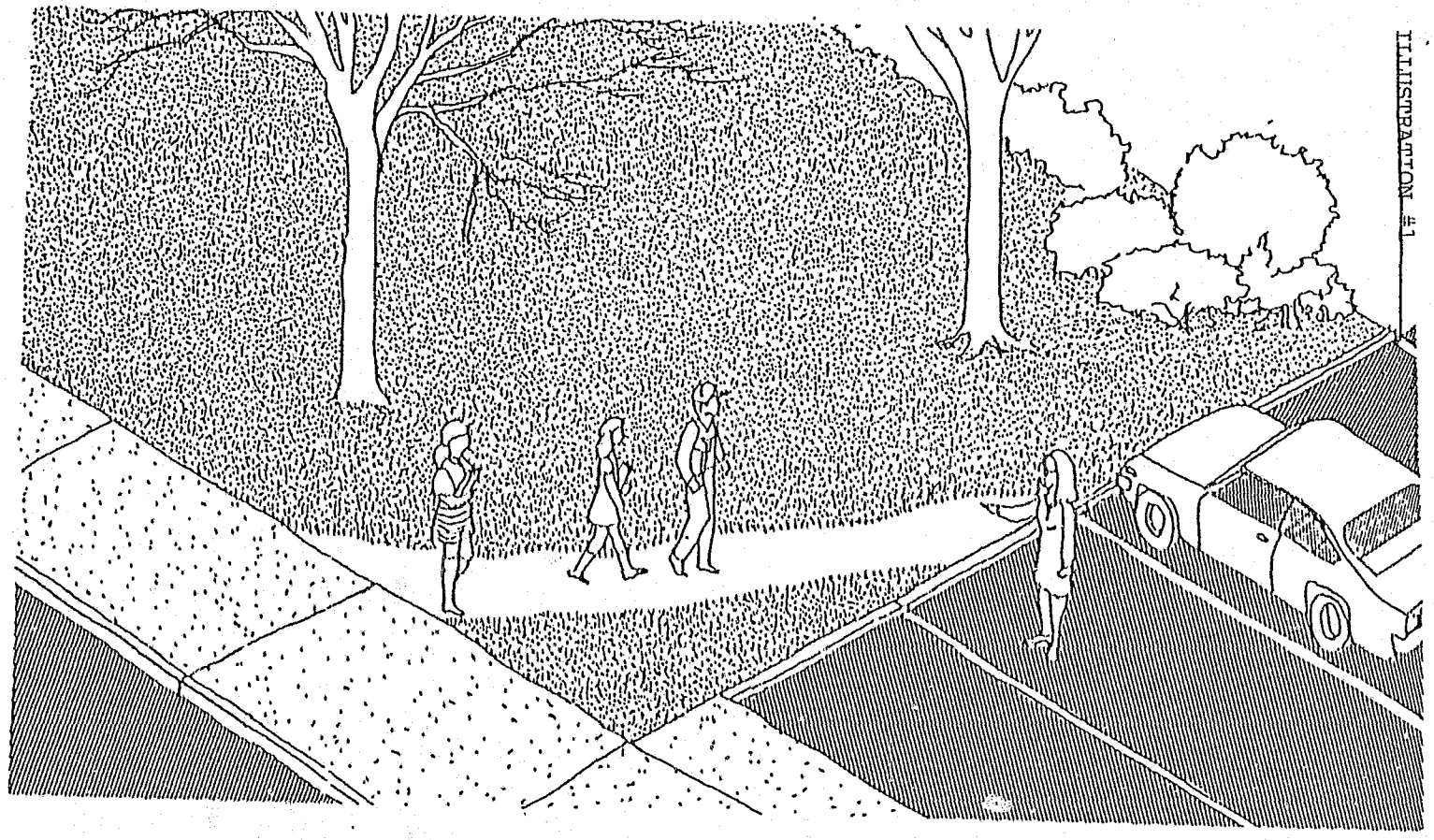


ILLUSTRATION #1

Source: Stopping School Property Damage

EXTERIOR LIGHTING

If school grounds are used after dark, well-designed lighting can make open spaces appear safe. The diffusion pattern of lighting can also be effective in defining areas for active use. Fixtures come in widely varying shapes and sizes for different applications and requirements. Properly planned lighting is diffuse, illuminating the horizontal rather than the vertical plan, and if possible, illumination should come from several directions to facilitate surveillance. Fixtures on buildings should be high and should light areas away from the building. While in general it is desirable to have fixtures above 14 feet, it is important that lights contribute to the scale and aesthetics of the environment; thus, for example, shorter fixtures with attractive globes may be more desirable for courtyards in spite of the possibility that they may become targets for vandalism.

At present, there is some controversy over whether outdoor lights should be left on or off when the school is closed to prevent vandalism. One argument is that when lights are off, hangout areas on school property are less likely to be used, and windows, light fixtures, and other built elements will not appear as targets for rock throwing. The counter argument is that lights provide surveillance and thus increase risk to offenders. When potential hangout areas are brightly lit, youngsters stay out because they do not like being too visible.

STRUCTURE

The location of buildings on a site and their orientation to one another can influence offender behavior. The structure can be thought of as a physical barrier defining spheres of influence. Thus, for example, an "L" shaped building suggests different spatial uses inside from those outside of the "L." The construction of real and psychological barriers can reinforce zones defined by the buildings.

Building exteriors can be weak barriers against intrusion. For example, youngsters may find ground-to-roof access easy because the exterior surface and window fixtures permit footholds, or there may be trees and telephone poles close to a roof's edge. Covered walkways near buildings or wall heights less than 12 feet can be readily scaled with one youngster boosting another. Also, walls less than 8 feet from buildings, once climbed, can be used to jump to a landing or window sill.

It may seem obvious that windows provide visual access to the grounds, but in many cases windows simply are not used this way. Classroom windows are usually designed to let daylight in but discourage outside viewing because it interferes with instruction--hence, the use of clouded glass and clerestory openings. Moreover, since it is desirable not to have ground windows near an entrance (so as not to facilitate breaking and entering), blind spots are created where offenders can locate themselves unobserved near the entrance. The situation becomes more problematic if the doorway is recessed or if there is an outside vestibule.

It is also usually recommended that ground-story windows be at least 6 feet above ground level, but again, this provides adjacent unobservable areas which become candidates for hangout locations.

Walls with few or no windows are likely targets for graffiti. It may be "legitimate" in the sense that the adjacent area has been converted by students into an informal ball playing zone because glass breakage is less likely and wall markings are used for defining strike zones and goal posts There may also be considerable decorative and expressive graffiti if the surface is smooth and light. Graffiti can be discouraged with the use of dark and rough surfaces, but school officials might consider that graffiti as a problem can be better handled if certain walls for self-expression are officially sanctioned.

Design Issue

Ground-to-Roof Access: *Playing on rooftops is a problem if these are not consciously planned as recreation places. Problems of damage to rooftop equipment, hardware, windows, and skylights can be minimized if getting onto roofs from ground level is difficult, or if hardware on accessible rooftops is specified to accommodate rough play.*

Possible Design Responses

1. *Windows, Hardware, Fixtures:* On accessible roof areas, use ground floor type glazing, hardware, and fixtures. Avoid exterior hardware on roof doors and windows.
2. *Surfaces:* Plan exterior surfaces with no footholds.
3. *Fixtures:* Avoid unnecessary exterior fixtures on building wall that provide footholds for climbing. Place such hardware at another convenient location.
4. *Planting:* Near buildings use planting which cannot be climbed and which will not grow to a height or strength suitable for climbing.
5. *Planting:* Locate planting which can be climbed far from walls.
6. *Telephone Poles:* Remove built-in footholds from telephone poles adjacent to building.
7. *Wall Heights:* Design walls too high to be climbed with readily accessible ladder substitutes like standard 12-ft. 2x4's.

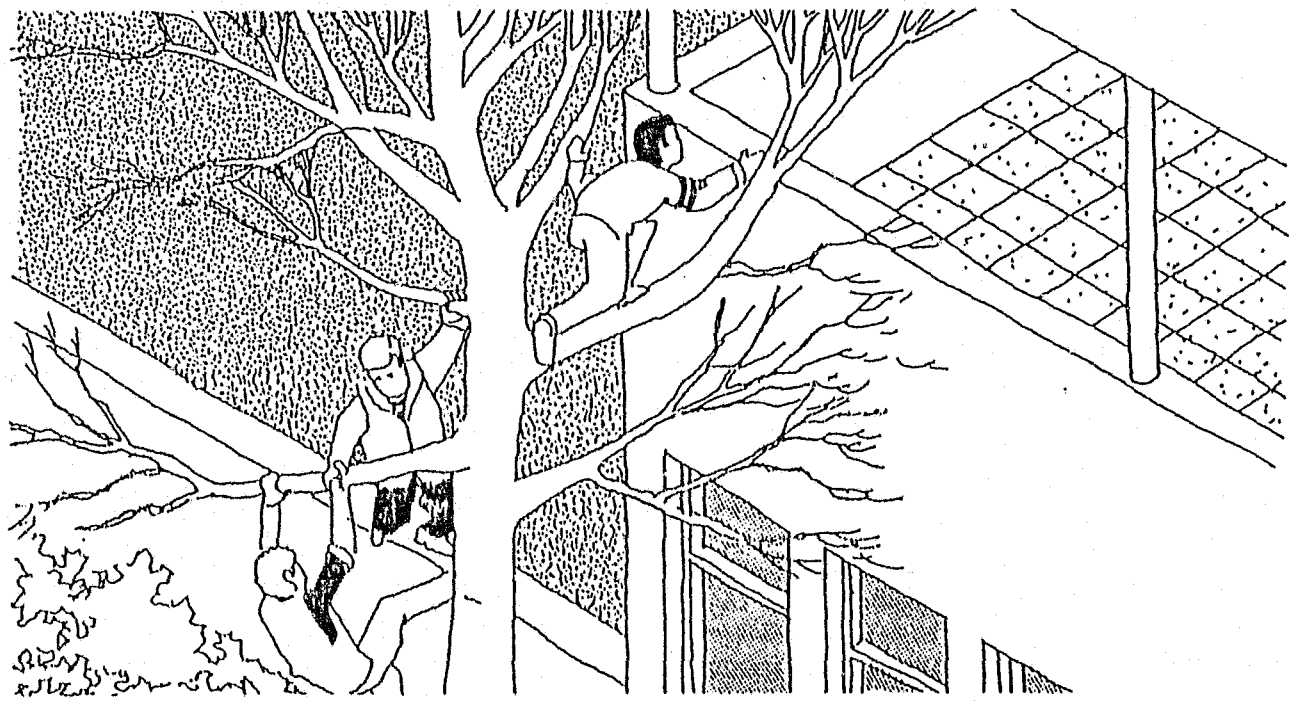


ILLUSTRATION #1

Source: Stopping School Property Damage

CONTINUED

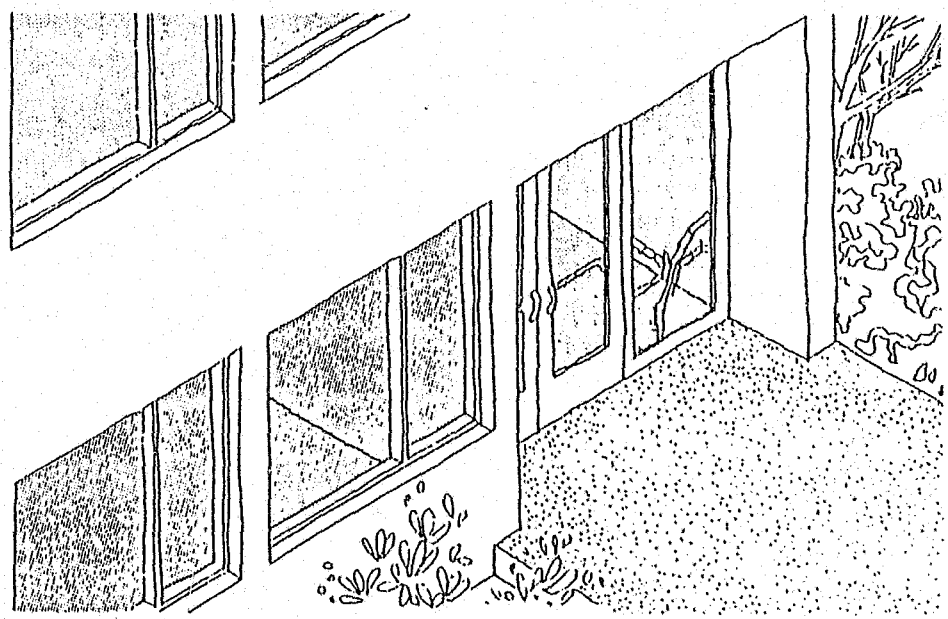
1 OF 3

Design Issue

Windows: *Glass breakage in schools is the largest property damage problem and expense. While some glass breakage is malicious and related to theft, much glass breakage is not malicious vandalism. For example, a student sitting on a ledge may swing his legs, kicking and cracking vulnerably placed glass panels in an adjacent door. Or, during a fight, one student pushes another into a window, resulting in damage. While damage to the child is malicious, the damaged window is an unintentional consequence, non-malicious in character. Much of this damage could be avoided if those playing near glass had a different attitude; but as long as kids are kids, such dangerous play will take place, and fragile environments will be damaged.*

Possible Design Responses

1. *Window Location:* Identify and avoid windows which are vulnerably placed in formal or informal gathering and play areas.
2. *Window Size:* Specify small panes of glass so that one break can be inexpensively and easily repaired.
3. *Non-glass Panels:* Specify solid non-glass panels and avoid all glass up to three feet from the floor, as this area is most vulnerable to damage.
4. *Glass Substitutes:* Where acrylic or plexiglas is used instead of glass, avoid placing it in watering holes or hang-out areas within reach of people standing on the ground. Problems with these materials include: carving, burning, scratching, and fading. In addition, while a pane of plexiglass or acrylic may not break, it may be entirely knocked out of its frame.
5. *Glazing Material and Location:* Specify increasingly sturdy glass as windows are closer to ground. On the ground floor, specify thick tempered glass, possibly thick acrylic or plexiglass, and if necessary screens or grills in non-visible areas. On floors two to four, specify thinner tempered, acrylic, or regular plate glass. On the fifth floor and above, specify plate glass. All these specifications vary by the nature of the interior use.
6. *Glazing Material and Location:* When interior areas are to be highly used, such as informal hang-out areas in hallways, then specify sturdier glazing, regardless of floor level.
7. *Window Thickness:* Use double-layer glass or extra thick tempered glass where plexiglass is inadvisable.
8. *Windowless Locations:* Avoid useless windows entirely in: student stores, administration stores, offices, and industrial arts storage areas.
9. *Security Screens:* When all other possibilities have been tried and proved unsuccessful, install thin wire mesh security screens over ground floor windows.



Design Issue

Expressive Graffiti: *Self-expressive graffiti takes the form of names and street numbers, love declarations, or verbal attacks. While self-expressive graffiti is often meant to be offensive, some self-expressive graffiti is an attempt by teenagers and younger children to communicate with their friends, just as adults often do through more acceptable channels. New teachers see their name in the school paper, administrators talk over the loudspeaker, and custodians sometimes have their names on the door. When students advertise themselves, they are called vandals.*

Decorative Graffiti: *Decorative garffiti, though very similar to the self-expressive type, is usually more elaborate, more colorful, and often does not contain words. Graffiti on New York City subway cars is a combination of decorative and self-expressive graffiti.*

Possible Design Response

1. *Wall Color and Texture:* Allow some walls in appropriate places to attract graffiti. These walls may be formally labeled or they can just be informally made easier to write on than surrounding surfaces. Lighter surfaces with large blocks attract more graffiti than dark surfaces. Formally labeled graffiti walls may remove the challenge aspect of graffiti, and thus may not work in specific settings.
2. *Materials:* Develop informal "graffiti walls" around front and back entries and in "watering holes." It is important that these walls be easily painted or cleaned at long but regular intervals, like every six months.
3. *Tile and Paint:* Where graffiti is to be discouraged, specify certain walls with glazed tile or epoxy paint to reduce cost of washing.
4. *Materials:* Specify surfaces so that during daily maintenance, only abusive graffiti may be removed, allowing non-abusive messages to remain until the bi-yearly cleaning or repainting.

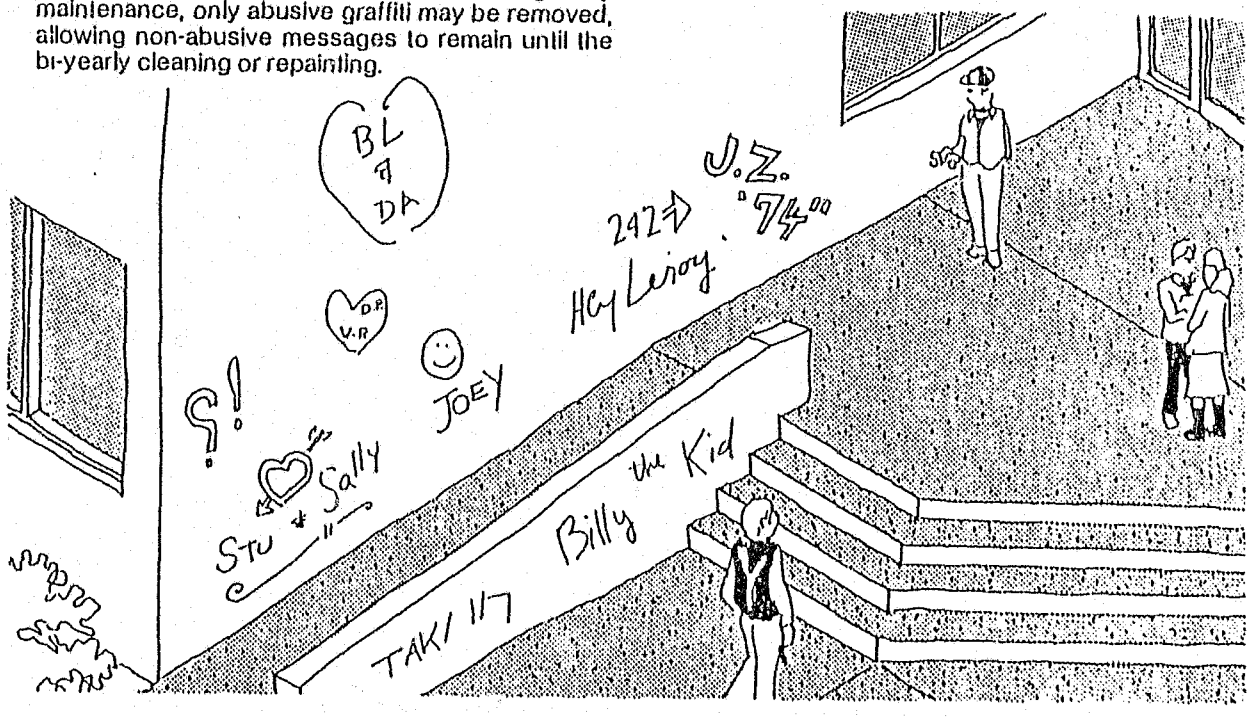


ILLUSTRATION #3

ENTRANCES

A major concern is controlling access to those who wish to use the property for illegitimate purposes. It is extremely difficult to design out crime when most of the offenders have a right to enter the building. Outsiders can be discouraged if they have the impression that someone will detect their presence, particularly if they are uncertain where to go after entering. Continual surveillance is apparent if the entry lobby is clearly visible from several functional areas, such as departmental offices, libraries, teacher planning areas, and other functions that remain active during school hours. It may also enhance security to create an informal gathering area just inside the entrance but out of the way of traffic flow, thereby providing additional natural surveillance.

If schools offer their facilities to the community at large (gymnasiums, auditoriums), these areas, including restrooms, should be close to and, if possible, within view of one entrance defined specifically for community use. Thus, legitimate users will have no reason to use other parts of the building.

Design Issue

Joint Community-School-Use Entries: *Programs in some schools encourage community members to use the gymnasium or swimming pool on weekends, to hold adult education classes at night, and to conduct community meetings in the auditorium. While such multiple use can result in cooperation, it can also cause conflicts. One way conflicts arise is when property damage occurs in community schools and each group blames the other. Careful planning and renovation can better accommodate multiple use and lessen conflict over property damage.*

Possible Design Responses

1. *Internal Gates:* Install built-in flexible internal gates to be able to selectively zone off specific corridors or parts of school while other parts, e.g., the auditorium or a set of classrooms, are open for use. Flimsy gates which are only symbolic barriers are not useful because they challenge young people to get by them.
2. *Separate Entries:* Provide separate exterior entries to the different school zones: community-use and school-use.
3. *Office Location:* Locate offices of supervisory personnel near multiple use entries so that these adults may serve as informal surveyors of people coming in and out of the school. This is especially useful around recreational facilities.
4. *People Locks:* People gathering at entrances serve as a "human lock" for the rest of the school. Therefore, provide places for informal meeting and activity near entrances and exits on the inside of school, e.g., benches or soft-drink machine.

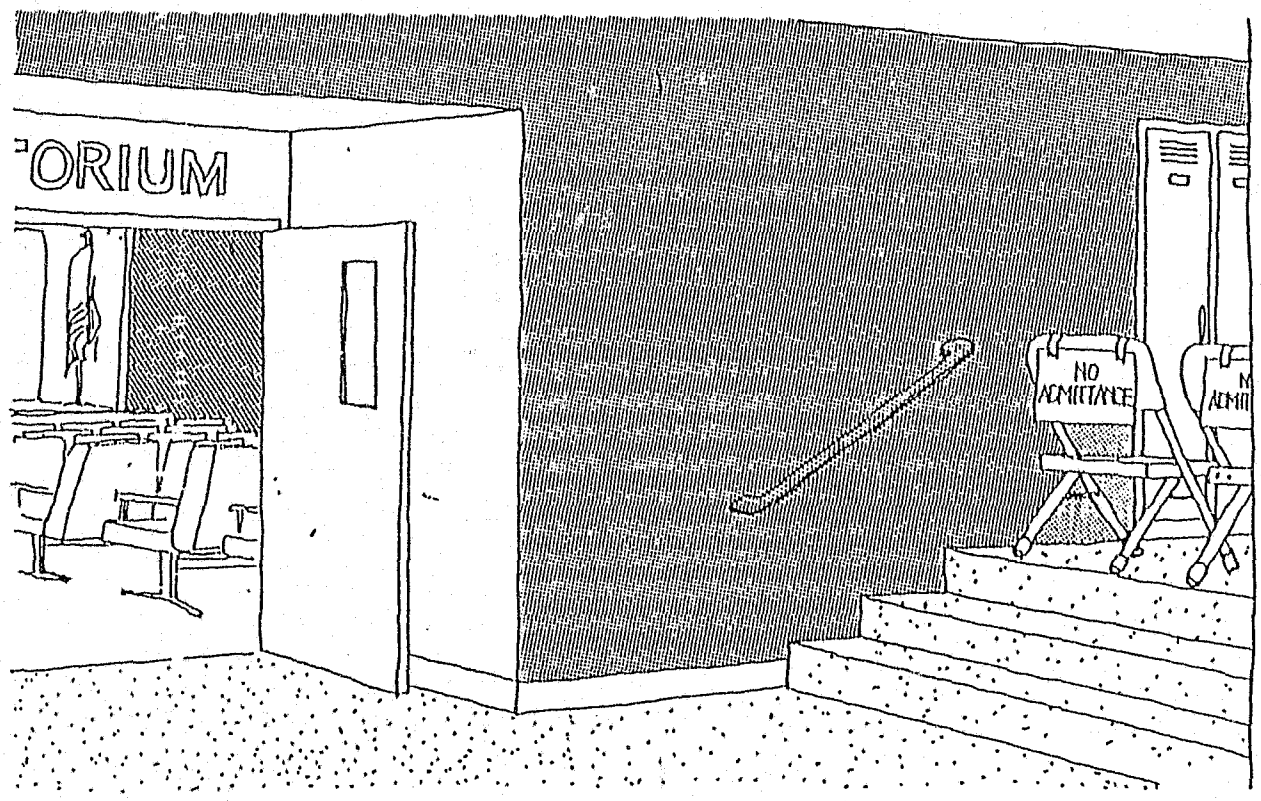


ILLUSTRATION #1

Design Issue

Panic Hardware: *There is a conflict between the need for school users to get out in case of fire and the need for custodians to keep everyone out when school is closed. Panic hardware usually meets the first need, but dismally fails in meeting the second. A bent coat hanger often opens panic hardware from the outside.*

When this problem is not resolved, custodians in existing schools eventually buy bicycle chains, locks, and five foot long 2x4's to make fire exits impermeable at night. These may get left on during the day, creating a dangerous situation for fire safety.

Possible Design Responses

1. *Door Glass:* Avoid clear glass or acrylic panels on doors and near doors which may give a clear view of accessible panic hardware.
2. *Astrigals:* Specify astrigals on single doors with panic hardware, where regulations allow.
3. *Center Mullions:* Specify extra duty double doors with center mullion and astrigals.
4. *Panic Hardware:* Specify panic hardware which requires a minimum amount of mechanical movement to operate successfully.
5. *Panic Hardware:* Specify panic hardware which can be easily repaired if damaged.

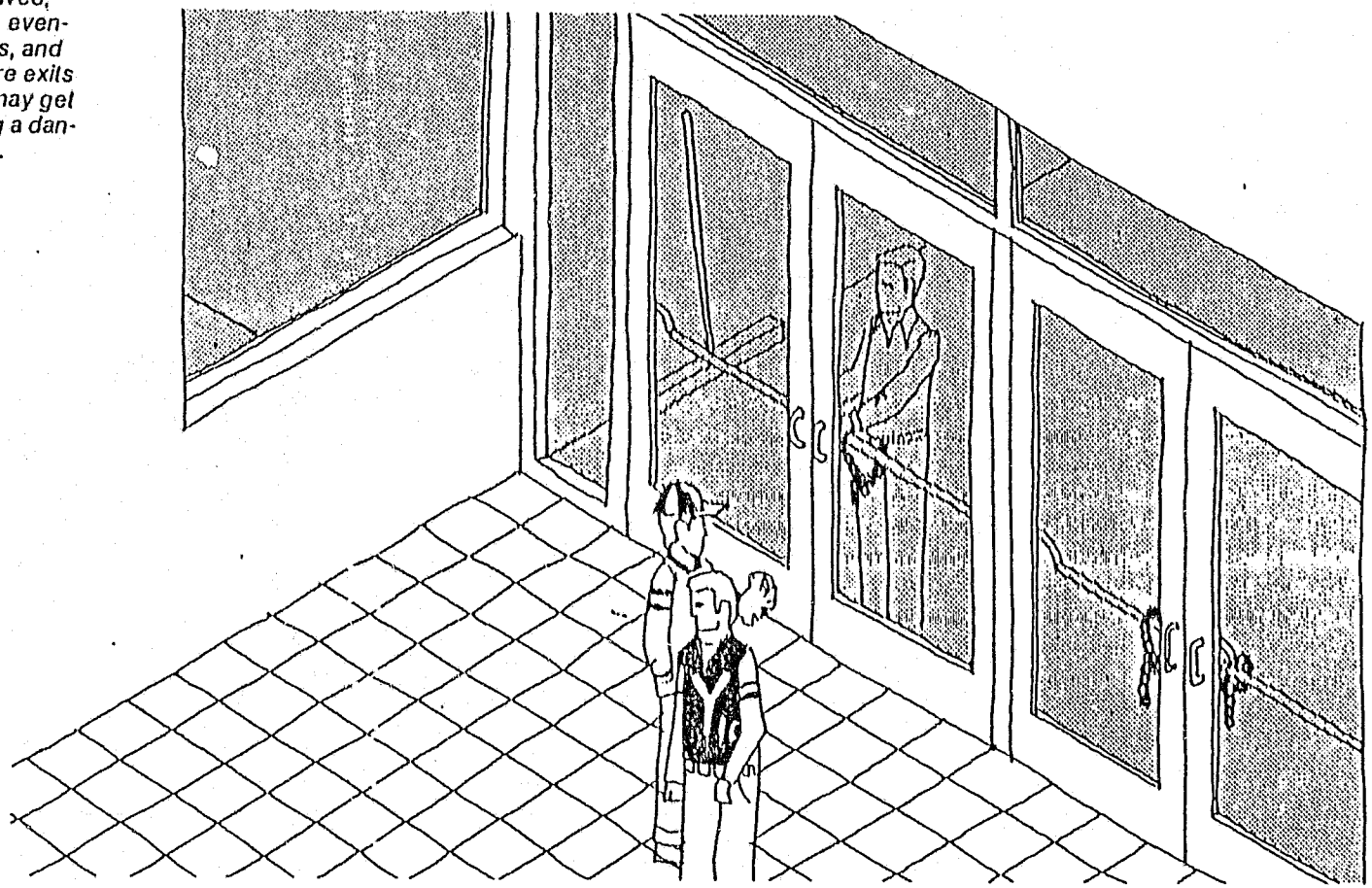


ILLUSTRATION #2

ENTRY: Clarity of "Come In" and "Stay Out" Statements

Design Issue

Clarity of "Come In" and "Stay Out" Statements: *School architects sometimes feel that major building doorways represent the "face" of the school towards the community. Wanting to involve the community in the life of the school, these planners design doorways which are often seen as inviting when the school is closed, as well as when it is actually open. Easily broken glass panels are the only barriers to interior door locks. Because of their accessibility, some school entrances designed originally to be inviting are soon either covered with chain-link fencing, plywood, or locked with bicycle chains during the night. To avoid this, the building must be designed to be inviting when the school is open, and to express the fact that the school is tightly shut after school hours, evenings and weekends.*

Possible Design Responses

1. *Sliding Grills:* Install sliding grills or garage-door type gates which can be pulled down over transparent doorways when the building is closed.
2. *Gates:* If deep recesses are planned, at building entries, avoid their being accessible when school is not in use.
3. *Doorways:* Design doorways so that it is clear from a distance that the school is closed when it is closed, but that it is open whenever the school is in session or a program is being conducted inside.

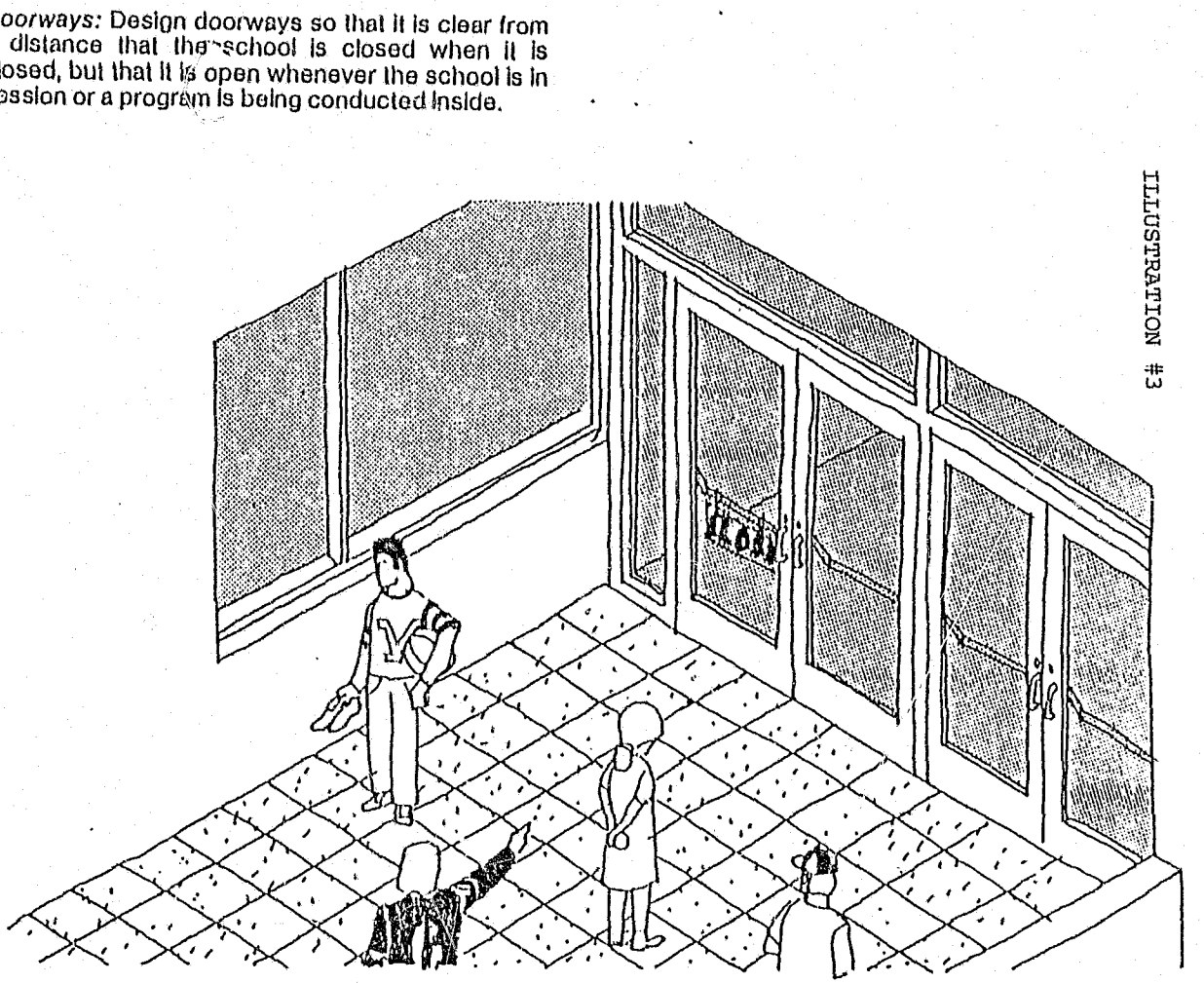


ILLUSTRATION #3

Design Issue

Glazing: *Glass on interior walls and doors are prone to both misdirected as well as casual damage. This is true especially for glass near the floor which can be easily kicked and glass in hang-out areas and watering holes, where it serves as a diversion. Exterior windows in heavily used areas are also particularly damage-prone.*

Possible Design Responses

1. *Solid Panels:* Specify solid panels in the lower half of doors and in walls along passageways. Avoid glass that can be easily kicked. This is especially true in areas where students tend to congregate.
2. *Glass Substitutes:* While acrylics and plastics may sometimes be suitable substitutes for glass, they are easily marred by scratching and burning. Thick glass or metal and enamel panels may be more appropriate for heavily used areas.

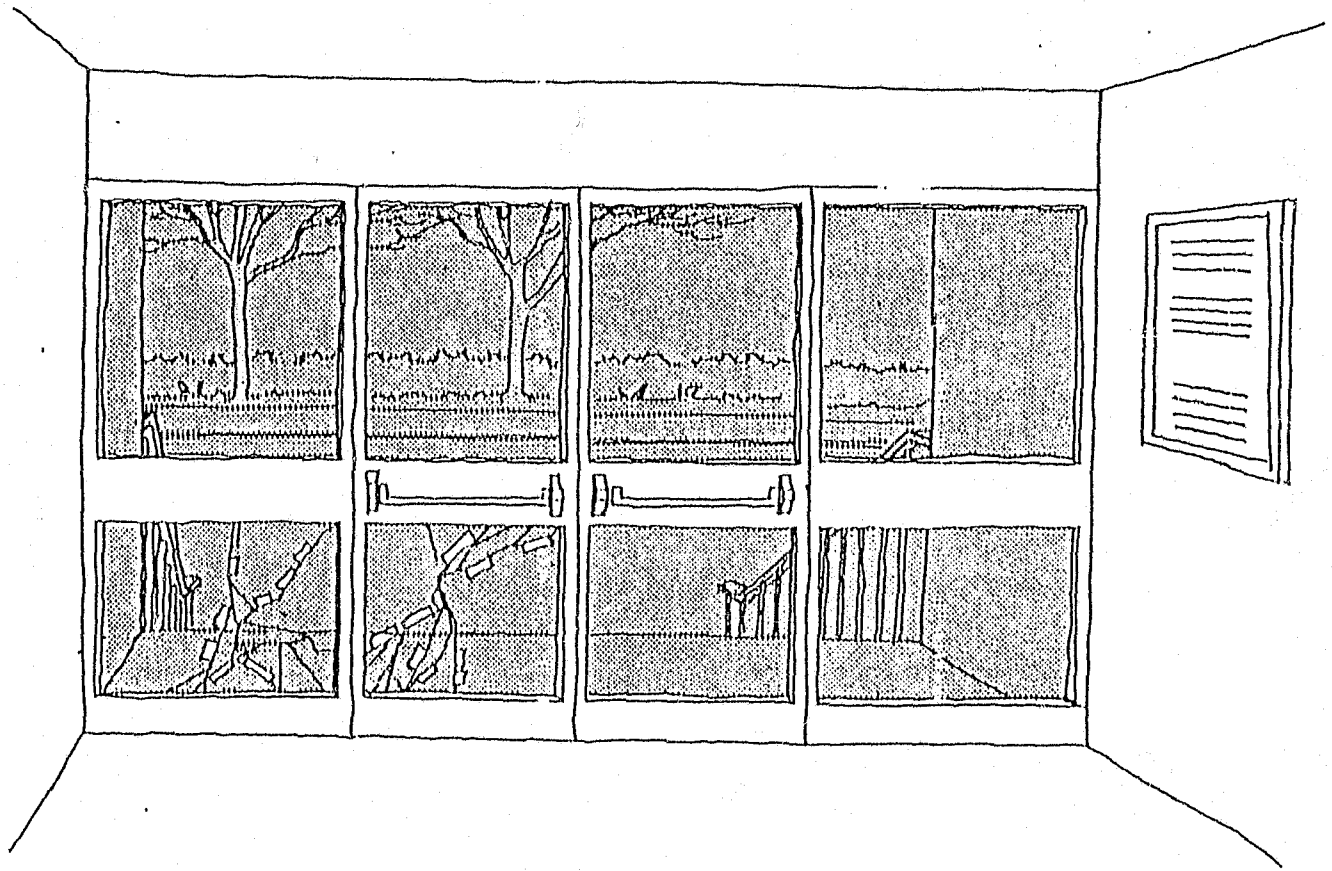


ILLUSTRATION #4

CORRIDORS AND STAIRWELLS

Corridors and stairwells are adapted by students for functions other than passage. Blind spots and isolated areas provide opportunities for hang-out areas where threats, extortion, and assaults occur. Benches, water fountains, and lockers become gathering places that cause traffic congestion and assaults and property damage resulting from accidental or playful pushing. Often objects in the corridor create visual blocks so that surveillance is difficult. Many corridors, because of their design and location, represent a blurred transitional zone so that no one is quite sure who belongs or what activities are legitimate. Many students avoid using certain corridors and stairwells because they fear victimization.

The exterior fire stairewells at Deerfield Beach High School, in Broward County, Florida, were completely enclosed with blind spots at each landing. Students were afriad to use these stairs so few used them; often they were closed to access from the ground floor, which reinforced the perception of them as a dangerous zone. The design strategies were aimed at eliminating the blind spots by creating storage spaces for clubs and the administration. It was also proposed, although never implemented, to install windows in the exterior walls so that people on the school grounds would be able to observe stairwell activities and users would be less fearful because of the apparent surveillance.

At South Plantation High School, Broward County, Florida, there were three problem corridors. The first, a corridor leading to the cafeteria, was a problem because it contained benches that, when used during lunch periods, caused congestion. A small door at one end created a bottleneck and hampered surveillance. The design response was to decrease congestion by reestablishing the dominant use of that space for passage. The benches were removed and more doors were added at one end. Graphic designs were put on the walls to improve the aesthetic quality and to support the definition of passage and movement.

The second problem area was an open-sided corridor adjacent to the student parking lot. Students and outsiders used it as a smoking zone. Surveillance was hampered by the presence of enclosed fire stairwells and a wall separating part of the cafeteria corridor from this area. The design tactic was to establish an official smoking zone in a miniplaza, located in a nearby interior courtyard.

The third problem concerned an "L" shaped corridor between the boys' physical education room and the custodian's office. The corridor was seldom used, and monitoring by the custodian was difficult with no windows and infrequently used doors at each end. The proposed solution was to install a window with louvered screens in the wall of the custodian's office, thus increasing apparent surveillance.

Another design tactic opted for Boyd Anderson High School was to relocate a teacher planning area to a back corridor to provide a functional activity in an underused, isolated spot. At MacArthur High School, with its double loaded corridors which were dark and made narrow with rows of lockers, windows were installed in the walls between the classrooms and the passage. The windows, it was thought, would provide two-way natural surveillance, but, as it turned out, the window spaces on the classroom sides were reestablished as display surfaces for posters, etc., thus precluding natural surveillance. However, the additional light and apparent surveillance have enhanced students' sense of security.

Some hang-out areas in corridors and stairwells may be desirable because they support natural surveillance (e.g., main entrance lobby, locker rooms) and do not interfere with traffic. Abuse of these spaces may be reduced if the school recognizes them and prepares them for heavy use by providing comfortable yet durable seating, trash containers, and perhaps designates, and prepares accordingly, a section of a wall for decorative graffiti. Although there is a risk that some of these spaces may be preempted by students for illegitimate purposes, it is important to recognize that students need and will find hang-out areas that are unsupervised, semiprivate spaces if the school does not plan for them.

Design Issue

Hang-Out Areas: *Many areas inside schools provide places for groups of students to sit together to be seen, and to watch others go by. These hang-out areas are places where students meet each other informally. When school is not in session, students might meet at the corner drug store. Teachers know they will meet other teachers in the administrative office during the day. But during school, students have neither the right to go to the corner store nor the formal office to serve as a visible social gathering place.*

Not much malicious property damage takes place in hang-out areas such as the main entrance lobby, the gym bleachers, or near the main student locker area. Rather, these places tend to be underdesigned for the great amount of sitting, jumping, roughhousing, graffiti, and other action they get. One result is that hang-out areas become marked up and marred faster than other areas.

Systematic planning for predictable activity in such places can appreciably reduce property damage.

Possible Design Responses

1. *Location:* Identify hang-out areas throughout the school and prepare them for the heavy use they will receive. Hang-out areas can be identified by their location near highly used traffic or recreation areas, by the availability of places to sit or lean, and by the number of students there.
2. *Fixtures and Hardware:* For fixtures and hardware in hang-out areas which can be reached, specify those which cannot be easily unscrewed, snapped off, poked into, or broken.
3. *Wall Fixtures:* Plan all wall fixtures and adjustments — thermostats, fire alarms, light switches — far from convenient and comfortable hang-out areas, or out of reach if they must be located there.
4. *Fixtures and Hardware:* For all fixtures attached to walls and ceilings which might be hung from or climbed upon, specify reinforced attachments.
5. *Equipment and Fixtures:* Identify equipment and fixtures which will be used to sit on in such area radiators, window-sill, garbage cans. Specify clally sturdy equipment suitable for sitting. As equipment is damaged, replace it with equipr which is still sturdier and which can be wo tached to the wall or floor.
6. *Seating:* In hang-out areas, provide comfortable durable seating far from any breakable wind and equipment.
7. *Trash Containers:* Provide convenient trash tainers which are emptied regularly.
8. *Walls:* Plan for writing on some walls near han sitting areas. Formal message boards in these ly visible places might help channel informal sages onto one wall.
9. *Agreement:* Make an agreement with studen formally acknowledge their right to use han areas.

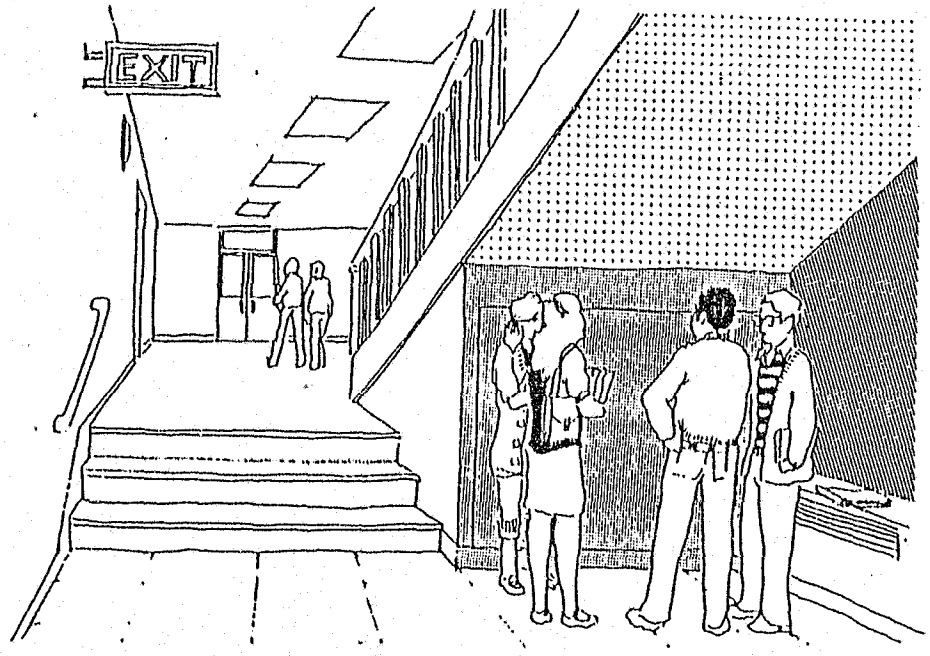


ILLUSTRATION #1

Design Issue

Watering Holes: *Few schools have authorized places where students can meet out of view of staff and faculty. However, most school building interiors provide partially out-of-the-way places which act as informal, unauthorized lounges for students more secluded than "hang-out" areas. Places used for informal gathering are usually located out of sight of office and classrooms, are usually among the least supervised places in the school, and are often considered trouble spots by custodians, teachers, and school administrators. For students, these lounges provide an important and necessary refuge from surveillance by those in positions of authority. The area may act as a place for uncensored discussion, as a smoking lounge, or as a place to show off to a small group of friends.*

Watering holes are established in out-of-the-way places large enough for groups of people: stairwells, ends of corridors, lavatories, back door entry lobbies.

Some watering holes become the territory or "turf" of a particular group, and are soon therefore as the group's clubhouse. Because clubhouses represent specific groups interests, they are often personalized by wall graffiti, in addition to receiving normal rough use.

Possible Design Responses

1. *Location:* Identify watering holes and plan specifically for the rough use they are sure to get. Do not "harden" these areas so that they are no longer comfortable for this purpose. If this is done, students will move to another area of the school, into a watering hole which has neither been hardened nor planned for.
2. *Walls:* Use epoxy paint or glazed tile on all surfaces which will be subject to graffiti so they can be easily washed.
3. *Wall Color and Texture:* On walls where graffiti predictably will occur, provide light blocked out surfaces for the graffiti. These should contrast sharply in color and texture with surrounding surfaces, and thus will attract and channel the graffiti.
4. *Fixtures and Hardware:* Specify that all fixtures and hardware like lamps and handrails be firmly attached. If the hardware is unnecessary, remove it altogether from the watering hole area.
5. *Glass:* Avoid glazing — especially below three feet from the floor — which will be easily damaged by being broken, burned, or scratched.
6. *Equipment:* Identify equipment which will most likely be used as a bench — radiator, window-sill, cabinet — and specify that it be reinforced to accept this use.
7. *Trash Containers:* Provide convenient trash containers which are emptied regularly and which do not make burning rubbish or papers attractive.
8. *Alternative Lounges:* Develop legitimate, i.e., authorized, lounge areas — non-visible from offices and classrooms and accessible to students without having to pass through offices and classrooms.
9. *Equipment:* Possibly provide legitimate ways for students to personalize watering holes, such as attaching unfinished wood planks to walls for carving initials; or large white painted panels for writing. These would have to be replaced regularly.

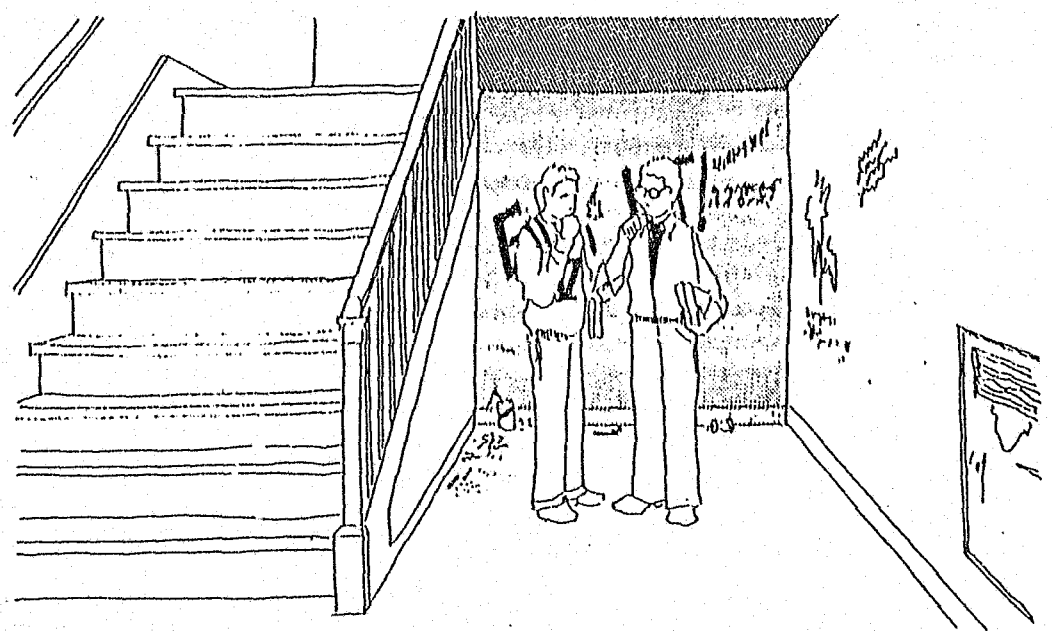


ILLUSTRATION #2

Design Issue

Niches: *Interiors of school buildings provide many small gathering places large enough for one or two people. These places are created by indented exit doors, stairwells, fire hose attachments, and corners of lockers.*

Niches like these tend to be used more for destructive than social purposes.

Possible Design Responses

1. *Location:* Wherever possible, design away niches.
2. *Hardware and Glazing:* If niches must be left, specify no damageable hardware, glazing, and wall materials.
3. *Ceilings:* Ceilings in necessary niches must be solid.

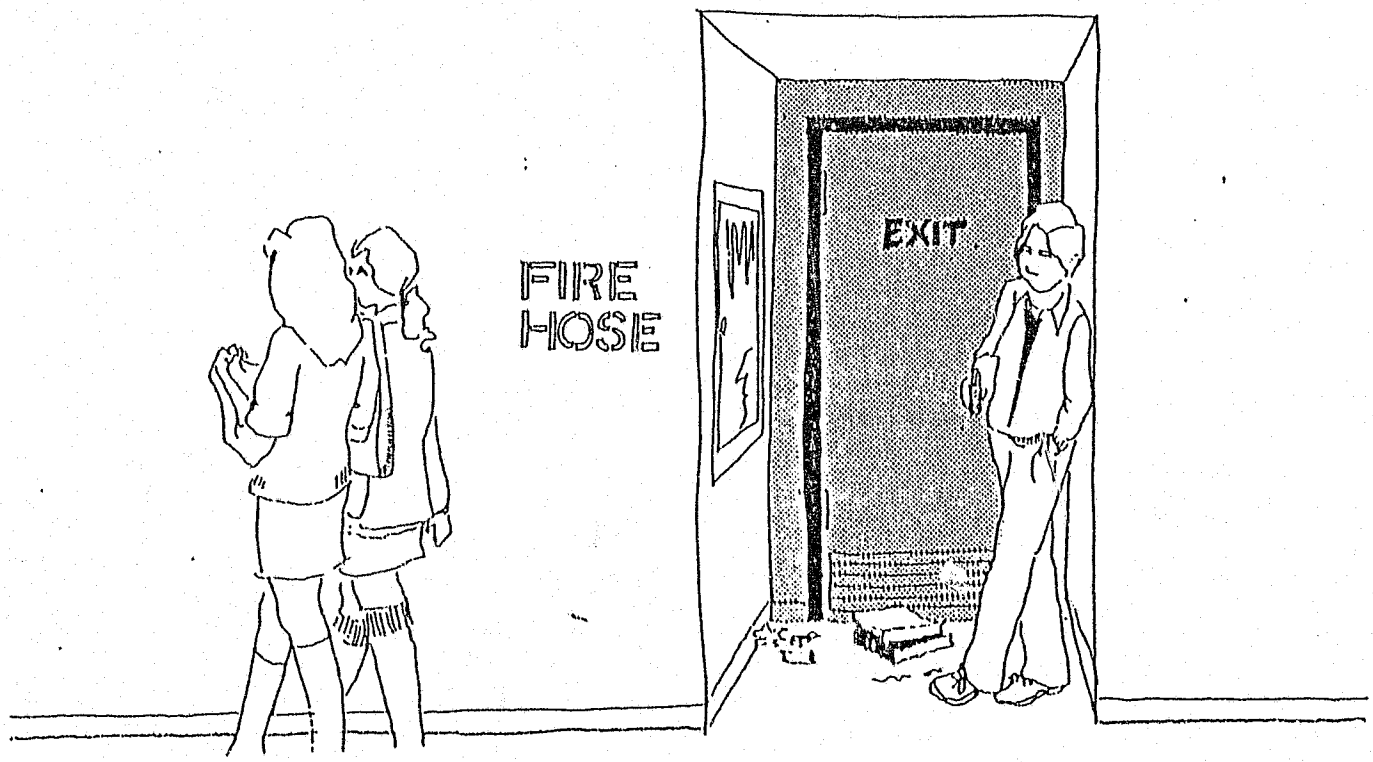


ILLUSTRATION #3

CLASSROOMS

The classroom is a critical zone because if the student does not feel safe or feel that his belongings are safe in the classroom he is less likely to be concerned about what happens in the corridors, the school grounds, or other, more public spaces. In Broward County, Florida, it was found that classrooms represented the third most frequent location for assaults and thefts. Examination of environmental characteristics that may be contributing to the problem revealed several possibilities. Classrooms were large with high student-teacher ratios. Their location along corridors tended to isolate the individual classes, resulting in little external natural or apparent surveillance. Additionally, the use of these spaces for multiple purposes, thereby requiring that they be open at all times, created unclear transitional zones for the users, decreasing their territorial attachment. At Boyd Anderson High School the analysis showed, not too surprisingly, that thefts were unusual in classrooms assigned to, and located near, a department office or one particular teacher. It was thought that, in addition to the surveillance potential, offenders stayed away from these classrooms because their juxtaposition to offices or teacher assignment areas gave the appearance that surrounding spaces fell within their sphere of influence. Spaces further removed might therefore be safer if they were visually defined as belonging to a controlled zone. Thus, in combination with using graphics to define corridor areas, attention was given to redefining, through graphic subdivision, semipublic areas shared by classrooms to increase the perception of territorial control and extend the apparent sphere of influence of offices and teacher assignment areas. The surveillance potential was increased by installing windows in classroom doors and in interior classroom walls.

RESOURCE
R6.2.12

PHYSICAL EDUCATION LOCKER ROOMS

Physical education locker rooms suffer a high incidence of breaking and entering and theft. These problems extend to the area surrounding the rows of lockers. Sports equipment belonging to the school is often stored in (and stolen from) locker rooms. Design and use analyses suggested that the practice of multiple assignment tended to disperse students throughout the area, making it difficult to determine legitimate from nonlegitimate users. Natural surveillance was weakened because during classes in the gym or on the field no one is left to observe intruders. The basic design strategies were to clearly define transitional zones and, through graphics, establish that specific locker room corners and rows were for easily recognized, legitimate users; and to establish functional activities in or near the locker rooms to increase natural surveillance. One tactic is to assign locker sections by class and color-code the lockers to define specific zones for specific physical education groups. In principle, the color-coding takes from the offender "legitimate" reasons for being in a given space at a given time, and legitimate users will have stronger grounds for challenging someone who appears to be in the wrong zone. A second tactic is to designate for each physical education class an adjacent teacher assignment area. With the proper design and use amenities, the teacher's planning function is not disturbed and his presence supports the perception of a supervised zone.

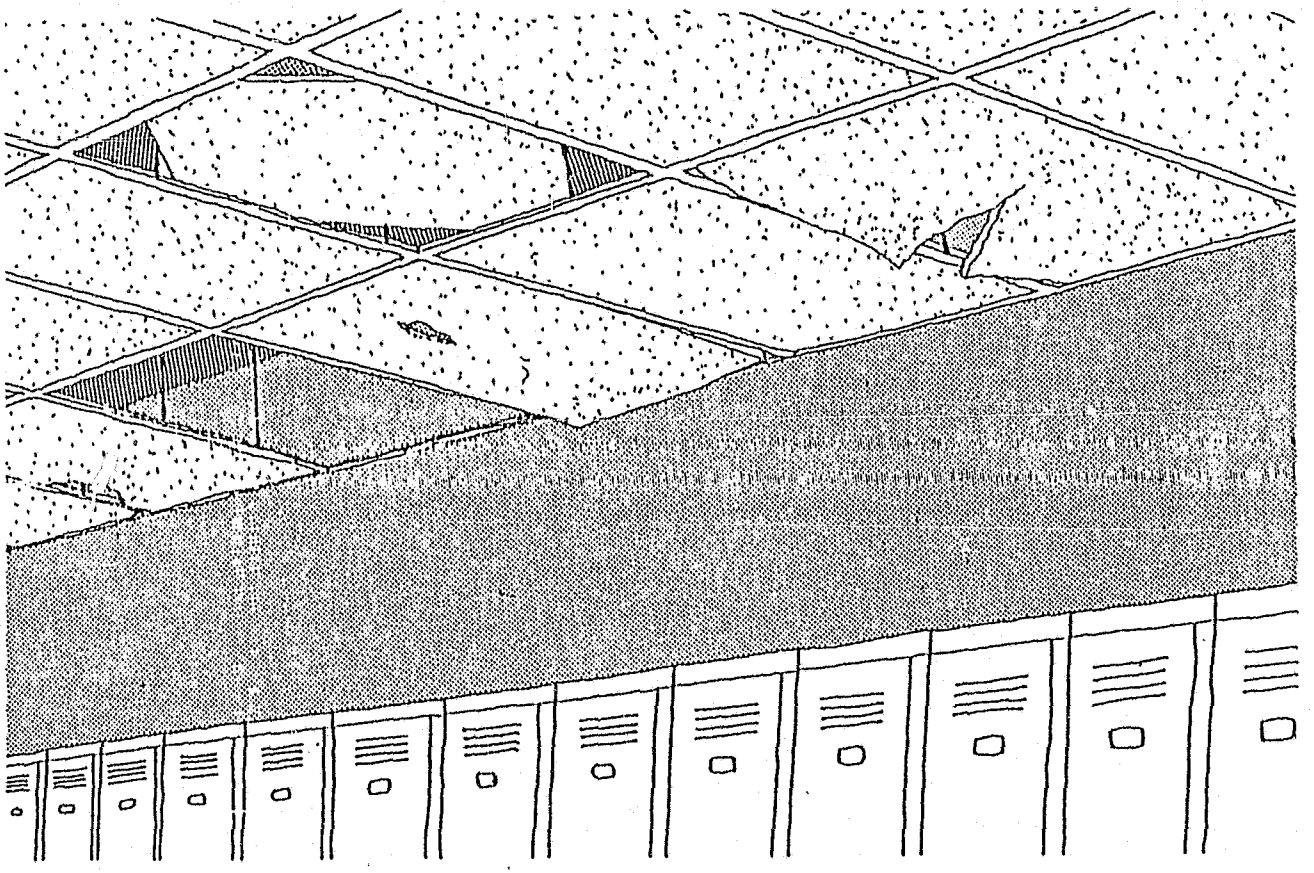
Design Issue

Ceilings: *Kids often find ceilings a challenge to jump up and touch and to hit with rulers or sticks. This is especially true for drop-in ceilings which offer the interest in finding out what is above the tile, and the chance of having a trophy to take home — a full tile. This is particularly true in hallways, informally used social areas, lavatories, and other heavily used places.*

Drop-in tiled ceilings are prone to the "epidemic effect" of vandalism. If one tile is left pushed in for a long time, there is a high probability that further damage will occur around the same spot. On the other hand, quickly repaired damage is less likely to recur.

Possible Design Responses

1. *Ceilings:* Specify hard surfaced ceilings in lavatories, watering holes, and hang-out areas. Avoid large expanses of drop-in ceiling tiles in such areas.
2. *Tiles:* When ceiling tiles are imperative in areas where students can reach the ceiling by jumping or using sticks, specify firmly attached, heavy ceiling tiles that give way only slightly under pressure.
3. *Surface Finish:* Resist damage from marking by using an easily cleaned surface material, like epoxy paint or glazed tile, even on the ceilings.
4. *Paint Color:* When painting, use a color that does not contrast with the sub-surface color. This is so that if ceiling paint is marred, the sub-surface color will not noticeably show through.
5. *Paint:* Use quick-drying paint so that custodians can keep touch-up paint in stock.



Typical conditions

Source: J. Zeisel

Course 6 - Environment

Module 6.3 - Advanced Module: Environmental Design Strategies

Module Synopsis

Purpose

This module shows examples of environmental modifications in already built schools. The focus is largely on changes that can be implemented by school people themselves. Some of the strategies require technical assistance from architects and facility planners, but the participants should leave the session feeling that they, too, can articulate and apply the design principles.

Objectives

Participants will be able to--

1. Define design strategies of natural surveillance, access control, and territorial reinforcement
2. Identify design concepts of natural, mechanical and corrective prevention, defensible space, territorial hierarchy, and transition spaces
3. Identify four principles of environment and behavior affecting environmental design
4. Be able to list examples of environmental modifications that can be effectively used in promoting greater school security.

Target Audiences/Breakouts

This is a core module targeted at the preoperational and operational levels. It is, therefore, appropriate for a broad mix of participants.

Course 6 - Environment

Module 6.3 - Advanced Module: Environmental Design Strategies

Module Synopsis (continued)

Media/Equipment

Overhead projector
Slide projector
Screen

Materials

Transparencies

6.3.1	Decisions About Design and Use
6.3.2	Definition of "Natural"
6.3.3	Definition of "Mechanical Prevention" and Definition of "Corrective Prevention"
6.3.4	Definition of Defensible Space
6.3.5	Territorial Hierarchy
6.3.6	Transition Zones
6.3.7	Words Displayed: Access Control, Natural Surveillance, and Territorial Reinforcement
6.3.8	Access Control
6.3.9	Natural Surveillance
6.3.10	Territorial Reinforcement
6.3.11	Interrelation of Design Strategies
6.3.12	Environment/Behavior Interaction

Slides/Credit

6.3.1	Cars in parking lot w - Westinghouse National Issue Center
6.3.2	Empty lot with poor surveillance from building w
6.3.3	Close up of pole gate (J. Grealey)
6.3.4	Parking lot pole gate closed w
6.3.5	Bicycle lying down (J. Grealey)
6.3.6	Bicycle attached to pole (J. Grealey)
6.3.7	New bicycle lot (J. Grealey)
6.3.8	Security lot for bicycles w
6.3.9	Poorly defined parking lot borders
6.3.10	Use of bollards w
6.3.11	Busses lined up w
6.3.12	Students waiting for busses w
6.3.13	Students unloading (J. Grealey)
6.3.14	Students walking between busses (J. Grealey)
6.3.15	New fence separating bus zone from lot w

6.3.16 Another angle of new fence w
6.3.17 Students gathered (J. Grealey)
6.3.18 Side of building; hang out area
6.3.19 Courtyard before - worn grass w
6.3.20 Courtyard before - passage w
6.3.21 Courtyard before - long view (J. Grealey)
6.3.22 Courtyard after #1 w
6.3.23 Courtyard after #2 (J. Grealey)
6.3.24 Courtyard after #3 w
6.3.25 Courtyard after #4 w
6.3.26 Courtyard after #5 w
6.3.27 Courtyard after #6 (J. Grealey)
6.3.28 Furniture in courtyard w
6.3.29 Interior hall looking on to courtyard w
6.3.30 Outdoor amphitheater, Pontiac, Michigan - EFL
6.3.31 Landscaping in courtyard #1 (J. Grealey)
6.3.32 Landscaping in courtyard #2 (J. Grealey)
6.3.33 Crockett, Texas, School - EFL
6.3.34 Entrance landscaping - before (J. Grealey)
6.3.35 Entrance landscaping - after (J. Grealey)
6.3.36 Stadium landscaping - after (J. Grealy)
6.3.37 Steps w
6.3.38 Cherry Creek, Colorado - AIS
6.3.39 Inside of right angle of buildings
6.3.40 Breezeway w
6.3.41 Passage way outdoors w
6.3.42 School without windows - AIS
6.3.43 Clerestory windows - EFL
6.3.44 Newark school windows - URC
6.3.45 Library - EFL
6.3.46 Broken windows - Woman's Eye
6.3.47 School entrance w
6.3.48 Inside entrance - URC
6.3.49 Broward County interior entrance w
6.3.50 Newark security person - URC
6.3.51 MacArthur High School entrance w
6.3.52 Entryway from inside - J. Carlson
6.3.53 Surveillance from inside - AIS
6.3.54 Andrews Armory - AIS
6.3.55 Staircase blind spot - w
6.3.56 Students under staircase - URC
6.3.57 Newark corridor - URC
6.3.58 Outdoor cooridor - w
6.3.59 Teachers assignment planning area w
6.3.60 Cafeteria (J. Grealey)
6.3.61 Entrance to cafeteria (J. Grealey)
6.3.62 Benches in corridor (J. Grealey)
6.3.63 Corridor - before (J. Grealey)
6.3.64 Classroom window #1 (J. Grealey)
6.3.65 Entrance hall - before (J. Grealey)
6.3.66 Classroom window #2 (J. Grealey)
6.3.67 Classroom window #3 - AIS
6.3.68 Classroom window #4 - AIS
6.3.69 Exterior stairwell (J. Grealey)
6.3.70 Stairwell with windows - AIS
6.3.71 Stairwell with glass wall - EFL
6.3.72 Snack bar (J. Grealey)

6.3.73 Landscaping under stairwell - w
6.3.74 Graphic #1 (J. Grealey)
6.3.75 Graphic #2 w
6.3.76 Graphic #3 w
6.3.77 Graphic #4 w
6.3.78 Graphic #5 w
6.3.79 Graphic #6 w
6.3.80 Graphic #7 w
6.3.81 Graphic/well lighted hall - AIS
6.3.82 Natural surveillance in hall - AIS
6.3.83 Carrels - EFL
6.3.84 Natural surveillance in hall - EFL
6.3.85 Glass panels in corridors - AIS
6.3.86 Skylight - EFL
6.3.87 Lockers - before (J. Grealey)
6.3.88 Drawing of lockers - EFL
6.3.89 Lockers painted - EFL
6.3.90 Raised lockers - EFL
6.3.91 Graphic #1 (J. Grealey)
6.3.92 Graphic #2 (J. Grealey)
6.3.93 Graphic #3 w
6.3.94 Graphic #4 - AIS
6.3.95 Graphic #5 - AIS
6.3.96 Graphic #6 - w
6.3.97 Staircase in main entrance #1 (J. Grealey)
6.3.98 Staircase in main entrance #2 (J. Grealey)
6.3.99 Staircase in main entrance #3 (J. Grealey)
6.3.100 Security station #1 - (J. Grealey)
6.3.101 Entry path to Boston school - J. Carlson
6.3.102 Curbs - J. Carlson
6.3.103 Attractive fencing - J. Carlson
6.3.104 Gallery - J. Carlson
6.3.105 Greenhouse - J. Carlson
6.3.106 Headmaster's office - J. Carlson
6.3.107 Cafeteria - J. Carlson
6.3.108 Corridor - J. Carlson
6.3.109 Sitting area - J. Carlson
6.3.110 Window - J. Carlson
6.3.111 Semi-public areas

Resource Materials

R6.2.2 Parking Lots
R6.2.3 Bus Loading Zones
R6.2.4 Social Gathering Areas
R6.2.5 Informal Play Areas
R6.2.6 Walkways and Landscaping
R6.2.7 Exterior Lighting
R6.2.8 Structure
R6.2.9 Entrances
R6.2.10 Corridors and Stairwells
R6.2.11 Classrooms
R6.2.12 Physical Education Locker Rooms

Resources/Bibliography

R6.3.1 "Synethesis of Research on Environmental Factors Relevant to Crime and Crime Prevention Behaviors"

Course Agenda by Module

Course 6 - Environment

Module 6.3 - Environmental Design Strategies (Advanced Session)

Total Time 1 hour and 15 minutes

Module Summary

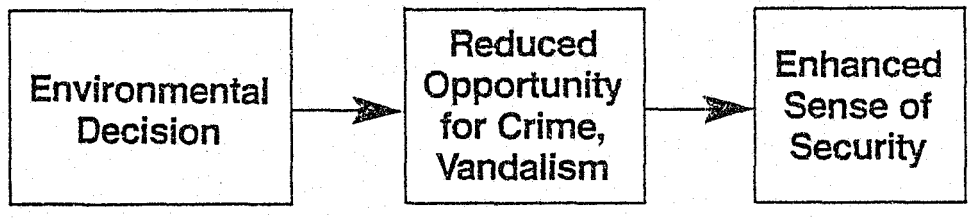
This module provides examples of environmental modifications in schools that are already built. The focus is largely on changes that can be implemented by school people themselves. Some of the strategies require technical assistance from architects and facility planners, but the participants should leave the session feeling that they, too, can articulate and apply the design principles.

Activity/Content Summary	Time
1. Introduction	5 min.
A rationale is presented for using an environmental design approach to prevent or reduce opportunities for violence and vandalism.	
2. Design Concepts	10 min.
Definitions of five basic design concepts are presented.	
A. Natural	
B. Prevention	
C. Defensible Space	
D. Territorial Hierarchy	
E. Transitional Zones	
3. Design Strategies	5 min.
A. Access Control	
B. Natural Surveillance	
C. Territorial Reinforcement	
4. Environment/Behavior Principles	10 min.
A. Design Principle One - Spheres of Influence	
B. Design Principle Two - Numbers	

Activity/Content Summary	Time
C. Design Principle Three - Placement of Activities/Amenities	
D. Design Principle Four - Visual Access and Functional Distance	
5. Slide Show Presentation: Problems and Solutions	35 min.
A. Parking Lots	
B. Bus Loading Zones	
C. Social Gathering Areas and Courtyards	
D. Landscaping	
E. Building Design	
F. Entrances and Entry Ways	
G. Corridors and Stairwells	
6. Conclusion	10 min.
A. Illustration of a Security Conscious Environment	
B. Some More Solutions	
C. Final Comments	

Materials/Equipment	Sequence/Activity Description
Screen	1. Introduction (2 min.)
Overhead Projector	Trainer should make the following introductory point: o Environmental design strategies can prevent acts that are destructive to the physical and social environment as well as prevent acts that engender fear and loss of confidence in security.
Transparency 6.3.1	Show Transparency 6.3.1 and make the points below.

Impact of Environmental Design/Use Decisions



- o In an environmental design approach, the way we design and use school facilities can eliminate or reduce opportunities for crime and vandalism.
- o This approach does not mean hardening the environment--that is, imposing constraints on the use, access, or enjoyment of the school.

Screen	2. Design Concepts: Minilecture Using Transparencies (10 min.)
Overhead Projector	Trainer should make the following points:

Materials/ Equipment	Sequence/Activity Description
	o We need to know how to look at design features in terms of their potential for fostering--or preventing--crime and vandalism in the school environment. o First, let's look at five basic concepts of design. A. NATURAL
Transparency 6.3.2	Show Transparency 6.3.2 and make the points below. **"Natural"** **Achieving control over who uses space and observing what happens as a byproduct of the normal and routine use of that space**
	o This concept emphasizes creating opportunities for natural access control and surveillance. o By designing and planning, we can adapt normal and natural uses of school facilities to accomplish security objectives. B. PREVENTION
Transparency 6.3.3	Show Transparency 6.3.3 and make the points below.

Materials/ Equipment	Sequence/Activity Description

Mechanical Prevention

Obstacles placed in the way of the potential offender to make it more difficult for him

Corrective Prevention

Elimination of motives to commit crimes and destroy property

- The concept of prevention encompasses all strategies to forestall the commission of an offence, but for the environmental design approach it is useful to distinguish between efforts to forestall the development of offender motives and efforts to frustrate offender opportunity.
- Environmental design can be corrective--encouraging the formation of territorial attitudes and behavior that will function to protect the environment and the people in it.

C. DEFENSIBLE SPACE

Transparency 6.3.4

Show Transparency 6.3.4 and make the points below.

Materials/ Equipment	Sequence/Activity Description

Defensible Space

Physical design features can encourage proprietary attitudes and territorial prerogatives which will protect the school and people in it

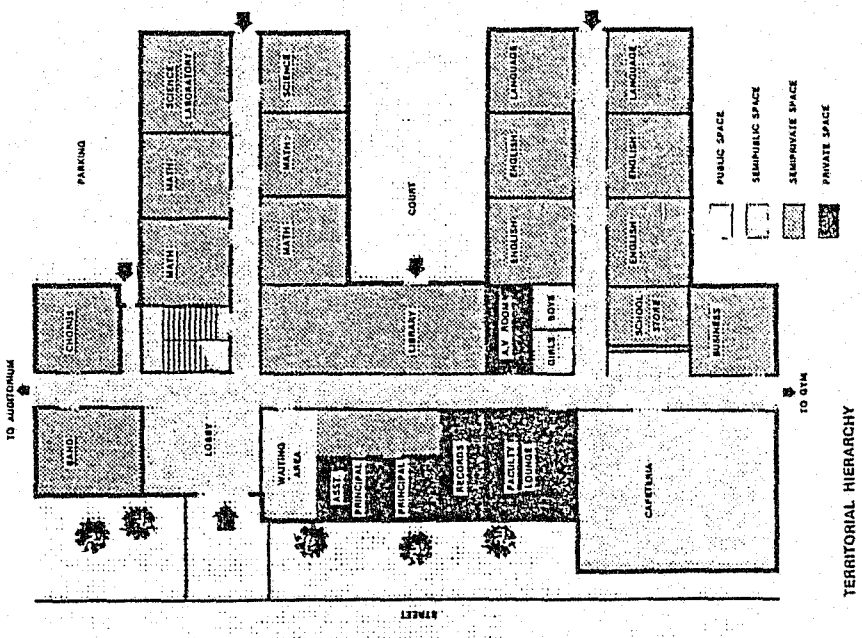
- The concept of defensible space incorporates architectural design into crime prevention.
- Defensible space postulates that in any setting an individual perceives a territorial hierarchy.

D. TERRITORIAL HIERARCHY

Transparency 6.3.5

Show Transparency 6.3.5 and make the points below.

Materials/ Equipment	Sequence/Activity Description



- o As individuals go from their most personal, private spaces to the public street, their responses change accordingly.

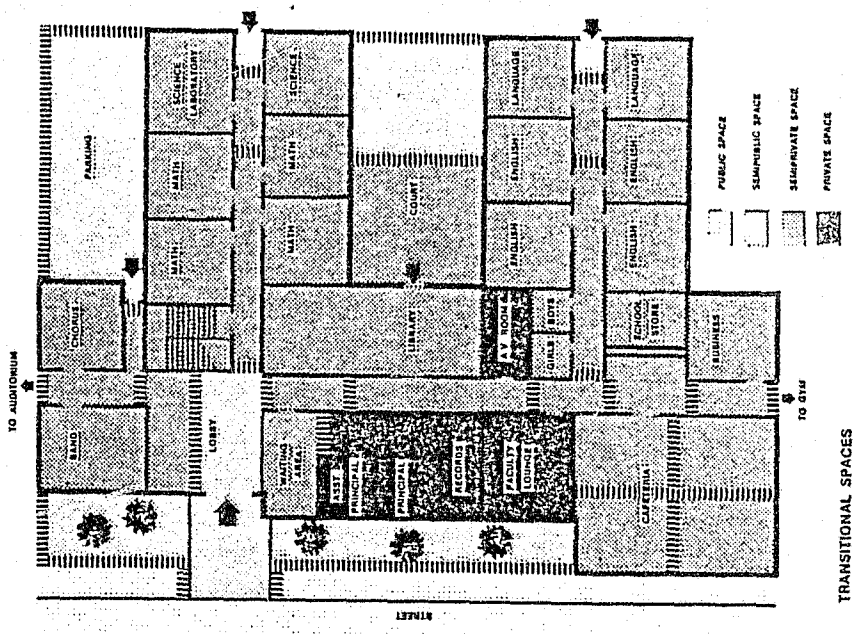
- o An individual's personal control diminishes at each outward zone--and so does his or her sense of personal involvement and personal responsibility.

E. TRANSITIONAL ZONES

Transparency 6.3.6

Show Transparency 6.3.6 and make the points below.

Materials/ Equipment	Sequence/Activity Description



- o If our individual territorial hierarchies are supported by transition spaces built into physical design, we feel more confident that undesired intrusion can be controlled and we feel more responsible for the security of the area.

- o Symbolic barriers can mark transition zones as effectively as real barriers.

Screen

Overhead Projector

Transparency 6.3.7

3. <u>Design Strategies: Minilecture Using Transparencies</u> (5 min.)

Trainer should show Transparency 6.3.7 and make the following point:

Materials/ Equipment	Sequence/Activity Description

Design Strategies

- Access control
- Natural surveillance
- Territorial reinforcement

o Three overlapping environmental design strategies are built on the concepts we have just talked about: these are access control, natural surveillance, and territorial reinforcement.

A. Access Control

Transparency 6.3.8

Show Transparency 6.3.8 and make the points below.

Materials/ Equipment	Sequence/Activity Description

Access Control

Create symbolic or real barriers that reinforce the privacy, integrity, or uniqueness of spaces

- o Access control strategies, unlike deterrence tactics, do not harden the environment.
- o Access control strategies involve symbolic barriers for demarcating areas intended for specific uses by specific groups.

B. Natural Surveillance

Transparency 6.3.9

Show Transparency 6.3.9 and make the points below.

Materials/ Equipment	Sequence/Activity Description

Natural Surveillance

- Channel activity so that more observers are near a potential crime area
- Create improved observation by using transparent barriers

o Natural surveillance can be facilitated by lighting and by appropriately designed and situated amenities which can attract people to gather in easily observed places.

C. Territorial Reinforcement

Transparency 6.3.10

Show Transparency 6.3.10 and make the points below.

Territorial Reinforcement

Instill territorial attitudes and related protective behavior

Materials/ Equipment	Sequence/Activity Description

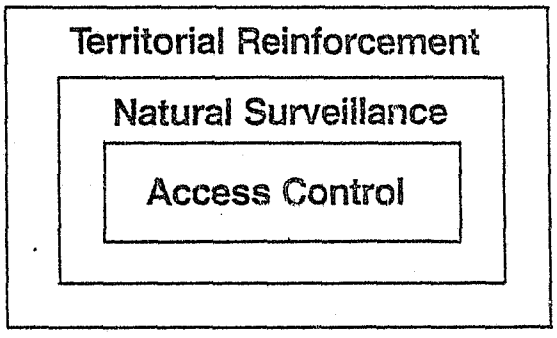
- A beautification project that promotes school pride and a sense of cohesiveness is an example of territorial reinforcement.

- Territorial reinforcement is the umbrella principle, embodying natural surveillance principles, which in turn embody access control principles.

Transparency 6.3.11

Show Transparency 6.3.11 and make the points below.

Interrelation of Design Strategies



(1) If symbolic barriers are to succeed in controlling access by demarcating specific areas, potential offenders must perceive that unwarranted intrusion will cause territorial responses from those who have a right to be there.

(2) In the same way, natural surveillance increases the likelihood that intrusion will be observed by people who care.

- If there is no territorial reinforcement, if people observe but don't do anything, then even the most elegant natural surveillance strategies--and access control strategies--are useless.

Screen

Overhead Projector

4. Minilecture Using Transparency: Environment/Behavior Principles (10 min.)

Trainer should make the following points:

Materials/ Equipment	Sequence/Activity Description

- The design strategies we have just been talking about are based on four fundamental principles governing the ways architectural design influences our behavior and the ways we respond to environmental cues.

- The fundamental principles are: sphere of influence, number, placement of activities/amenities, and visual access and functional distance.

A. Design Principle One - Spheres of Influence

Transparency 6.3.12

Show Transparency 6.3.12 and make the following points.

Environment/Behavior Interaction

The relationship between architectural design and human behavior

Four Environment/Behavior Principles Related to Security Design

- Sphere of influence
- Number
- Placement of activities/amenities
- Visual access and functional distance

- The first principle is that in any setting people implicitly define personal boundaries and establish spheres of influence in which they have an interest in regulating intrusion and type of activity.

  - The larger the sphere of influence adopted by an individual or group, the safer the environment.

  - The positioning of buildings and subdivisions of grounds can convey to people that all outdoor areas are within their sphere of influence.

  - Entry paths approaching buildings, parking lots, and play areas should fall into perceived spheres of influence for security.

Materials/ Equipment	Sequence/Activity Description

B. Design Principle Two - Numbers

- o The second principle is numbers: the fewer people sharing a space, the stronger is each person's concern about what happens in that space.
- o An important security consideration, therefore, is how many students share a classroom, and how many classrooms share a corridor, and so on.

C. Design Principle Three - Placement of Activities/Amenities

- o The third principle is the placement of activities and amenities and concerns the location of those activities that serve as natural magnets.
  - The location of smoking areas and snack bars and other spaces where students gravitate influences the degree to which students will extend their territorial concerns and provide continual surveillance.
  - The juxtaposition of functional areas influence the number of persons in various parts of the school, which in turn influences security.

D. Design Principle Four - Visual Access and Functional Distance

- o The fourth principle, visual access and functional distance, means that people are more likely to watch over their environment if it is convenient for them to do so--and if they can easily reach the location of an event.
  - If windows in instructional areas are placed as light sources only and give no visual access, there is little or no natural surveillance.
  - If windows cannot be opened and entrances are not convenient, teachers are not likely to perceive a need to intervene when minor rule infractions are seen. In fact, if the distance from the point of observation to the location of the event is not functional, teachers may stop looking out the window at all.
  - Physical design can discourage--or encourage--teachers from extending their speres of influence.

Screen

Slide Projector

5. Slide Show Presentation: Problems and Solutions (35 min.)

Trainer makes the following points:

Materials/ Equipment	Sequence/Activity Description
	o Based on the concepts, design strategies, and environment and behavior principles we have just covered, let's look at different locations in the school environment. o Each location has its own problems and solutions. o The examples of specific solutions to meet specific problems to be presented are based on a demonstration program in Broward County, Florida. A. Parking Lots (5 min.)
Resource Material 6.2.2	Trainer should refer to Resource Material 6.2.2, Parking Lots, and show S.6.3.1 and S.6.3.2.
S.6.3.1 S.6.3.2	o The problem: School parking lots for cars tend to have several entry points from public streets and are often located some distance from the main facilities. As a result, the public can use these lots freely without detection. Show S.6.3.3 and S.6.3.4
S.6.3.3 S.6.3.4	o A solution: At Deerfield Park High School, gates were installed at entrances to provide access control. Natural surveillance was improved by requiring cars to drive through internal spaces near the main facilities before entering the lot. o Another solution: An exchange of parking areas can improve security. At Boyd Anderson High School, the student parking lot was relocated to the fenced enclosure used for driver education. In turn, the driver education area was relocated in the old student lot. Since driver education is always supervised, it does not require a fenced lot; whereas the existing fence adds to the privacy and security of the relocated student lot. Show S.6.3.5 through S.6.3.8, Bicycle Lots
S.6.3.5 S.6.3.6	o The problem: Bicycle lots have problems with theft and vandalism, too. Often there are no official bicycle lots, and the areas used are not easily watched.
S.6.3.7 S.6.3.8	o A possible solution: If the area has poor natural surveillance, define the area for bicycles and enclose it with fencing. If natural surveillance is good, an open area can be defined with low hedges or some other symbolic barrier. o Other solutions: These two types of bicycle lots, open and closed, were used differently, depending upon whether

Materials/ Equipment	Sequence/Activity Description
	the student parked his or her bicycle for part or all of the school day. - Part-day students were assigned to the closed lot because, throughout the day, students would be returning to the lot to pick up their bicycles, thereby providing frequent surveillance of an isolated area. - All-day students were assigned to an open area with good natural surveillance. Since it was expected that a bicycle would be parked for a full day, anyone in the lot during the day would, according to the rules, be there illegitimately and might be asked to account for himself or herself.
	Show S.6.2.9 and S.6.2.10 - Parking Lot Borders.
S.6.3.9	o <u>The problem</u>: Attention should be given to how borders of parking lots are physically demarcated. Often grassy areas between the lots and public streets are damaged because drivers take short cuts.
S.6.3.10	o <u>Solution</u>: Landscaped borders can be reinforced with curbs or bollards.
Screen Slide Projector Resource Material 6.2.3 S.6.3.11 S.6.3.12 S.6.3.13 S.6.3.14	B. <u>Bus Loading Zones</u> Trainer should refer to Resource Material 6.2.3, Bus Loading Zones. Show S.6.3.11 through S.6.3.14. o <u>The problem</u>: The location and design of bus loading zones often interfere with the ability of school staff to supervise loading and unloading, create congestion among students, and block pedestrian and vehicular traffic flow. At Boyd Anderson High School, usually 17 buses queued around the student parking lot. Bus loading and unloading occurred at the same time students drove in and out.
	Show S.6.3.15 and S.6.3.16 o <u>The solution</u>: Establish one loading zone in an easily supervised area, limiting the number of buses to five. Adjacent to this zone was a bus queuing zone where no loading was permitted. This plan made supervision easier.
S.6.3.15 S.6.3.16	o To avoid congestion, a fence was erected between the bus loading area and the student parking lot.

Materials/ Equipment	Sequence/Activity Description
	o An alternative solution: Relocate the loading area so that it is not in the mainstream of traffic. o Other considerations: (1) The bus waiting area should preferably be in full view of windows, and should not be next to such elements as hardware or lights that can be easily removed or broken. (2) If there are planters, both they and the plants inside should be durable enough to withstand climbing or sitting or being used as trash receptacles.
Screen Slide Projector Resource Materials 6.2.4 and 6.2.5 S.6.3.17 S.6.3.18	C. Social Gathering Areas and Courtyards (10 min.) Trainer should refer to Resource Materials 6.2.4 Social Gathering Areas, and 6.2.5, Informal Play Areas. Show S.6.3.17 and S.6.3.18 o One problem: many places used by students for gathering are not designed for such use. Walls, steps, trash containers, and plants are typically used as furniture. Students also select less visually accessible locations to establish territorial "watering holes." o Another problem: There are often niches, or small places with room enough for two or three persons, to one side of an entrance or under a stairwell. o A solution: Eliminate such niches by closing them off with barriers. o A solution: Analyze areas used for informal gatherings and provide fixtures and surface materials that will withstand being used as furniture. (1) Replace fixtures that can be easily taken apart or damaged. (2) Put security screens on nearby windows. (3) Plant trees and shrubs that are pliant and grow quickly. (4) Provide trash containers that cannot be easily turned over and are difficult to start fires in. (5) Treat walls and surfaces so they can be used for graffiti and cleaned later on.

Materials/ Equipment	Sequence/Activity Description
	(6) Use plants that prick and surface materials that are rough to sit on, making such areas more uncomfortable.
	Show S.6.3.19 through S6.3.21.
S.6.3.19 S.6.3.20 S.6.3.21	o Yet another problem: Buildings are sometimes constructed with courtyards or interior open spaces that are not used at all. Even if attempts are made to landscape them, in all cases they are wasted spaces. But if these spaces could be converted into functional areas, the security of surrounding spaces, such as entry areas and corridors, would be enhanced.
	Show S.6.3.22 through S.6.3.30
	o The solution:
S.6.3.22	(1) Miniplazas can be created in areas with natural surveillance from within school and subdivided for specific functions and groups. These spaces, built with attrative quality materials, are isolated from the view of public thoroughfares and discourage use by outsiders.
S.6.3.23 S.6.3.24	(2) In these first sets of examples, the design treatment is fairly simple.
S.6.3.25 S.6.3.26	(3) The furniture can be designed in a variety of ways using durable materials, and landscaping can be more elaborate.
S.6.3.27 S.6.3.28	(4) Strategically located gathering areas can provide natural surveillance for problem spaces.
S.6.3.29	(5) Areas along corridors are less fear inducing--in part because they now fall within the sphere of influence of those using the courtyards.
	(6) Once developed, these spaces were used intensively by students and, as intended, small groups of students define individual turfs.
	(7) Students' attachment to these spaces is facilitated by the natural subdivision of areas within the courtyards and, in several cases, by the students participation in designing, building, and landscaping these courtyards.

Materials/ Equipment	Sequence/Activity Description
	(8) While there has been no vandalism, there is considerable evidence of environmental marking behavior, i.e., attempts through the use of graffiti to establish particular tables for particular groups.
S.6.3.30	(9) Of course, these outdoor areas can also be used for curricular activities during class hours, thereby adding to the surveillance potential. For example, this small circular area in Pontiac, Michigan, is used for instruction and for social gathering, both activities providing natural surveillance for the main entrance.
Screen	D. Landscaping (3 min.)
Slide Projector	Trainer should refer to Resource Material 6.2.6, Walkways and Landscaping.
Resource Material 6.2.6	Trainer makes the following points: o An important part of the courtyard changes is the direct participation of students. o Let's look at some examples of areas in front of school entrances.
	Show S.6.3.31 through S.6.3.35
S.6.3.31 - S.6.3.32	(1) A very important reason for the success of the courtyard is that students directly participated in design decisions and implementation. The fact of their participation strengthened their territorial attachment and desire to protect property.
S.6.3.33	(2) Here is another example at a school in Crockett, Texas. Students were also involved in decorating the corridors and landscaping the grounds. We will talk about the corridors later.
S.6.3.34 S.6.3.35	(3) The grounds already had plantings, but they suffered from abuse with students taking short cuts and, in general, being inconsiderate. After the students assumed responsibility for the use and treatment of these landscaped areas, their appearance improved.
	Show S.6.3.36 and S.6.3.37 o Here is an example of an area next to a stadium.

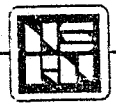
Materials/ Equipment	Sequence/Activity Description
S.6.3.36	(1) An open area adjacent to the school stadium was selected and redefined in order to channel the flow of traffic to and from the stadium without erecting real barriers.
	(2) The students came up with some creative solutions to discourage intrusion into the newly planted area: they built small, undulating hills to discourage through traffic.
S.6.3.37	(3) In other places, the nature of their treatment was quite elaborate.
Screen	E. Building Design (5 min.)
Slide Projector	Trainer should refer to Background Materials 6.2.7, Exterior Lighting, and 6.2.8, Structure.
Resource Material 6.2.7 and 6.2.8	Trainer should make the following point:
	o Building exteriors act as barriers, and their orientation influences behavior and security.
	Show S.6.3.38 and S.6.3.39
	o Symbolic barriers can reinforce definition as well as the extent of areas defined by buildings.
	(1) The location of buildings on a site and their orientation to one another can influence offender behavior. The structure can be thought of as a physical barrier defining spheres of influence. Illegitimate activities occur most frequently in spaces perceived by users as public and anonymous in character.
S.6.3.38	(2) An "L" shaped building suggests different spatial uses inside from those outside of the "L." As you can see in this picture of the area outside of the "L" shape, the grounds appear unrelated to the structures, whereas inside the "L," the grounds
S.6.3.39	appear to be part of the building.
	(3) The construction of real and psychological barriers reinforces zones defined by the buildings.
	Show S.6.3.40 and S.6.3.41

Materials/ Equipment	Sequence/Activity Description
S.6.3.40 S.6.3.41	o Ground-to-roof access control is important. Building exteriors can be weak as barriers against intrusion. For example, students may find ground-to-roof access easy because the exterior surface and window fixtures permit footholds. Covered walkways or wall heights less than 12 feet can be scaled with one student boosting another.
	Show S.6.3.42 through S.6.3.46
	o The design and location of windows affects orientation.
	(1) People are more likely to watch their environment if it is convenient for them to do so.
S.6.3.42 S.6.3.43 S.6.3.44 S.6.3.45	(2) Visual access is important to consider in assessing where windows face and whether they are in fact used for surveillance. Too many new schools are built with no windows or with clerestory windows. Instructional spaces, such as classrooms and libraries, are often set up to minimize interest in outside activities.
S.6.3.46	(3) There is concern about the size and number of window panes and vandalism. In the interest of security, architects find themselves in a damned-if-you-don't situation. But the current trend to design windows with vandalism in mind may decrease the security of outdoor areas.
Screen	F. <u>Entrances and Entry Ways</u>
Slide projector	Trainer should refer to Resource Material, 6.2.9, Entrances
Resource Material 6.2.9	Show S.6.47 through S.6.3.54
S.6.3.47 S.6.3.48 S.6.3.49	o <u>The problem</u>: Designing and locating entrances to control access so those who wish to use school property for illegitimate purposes cannot do so.
S.6.3.50 S.6.3.51 S.6.3.52	o <u>A solution</u>: Outsiders can be discouraged if they have the impression that someone will detect their presence. If the entrance area is clearly visible from several functional areas, such as departmental offices, libraries, and teacher planning areas, continued surveillance is apparent.
S.6.3.53 S.6.3.54	o <u>Another solution</u>: Creating a student gathering area inside the entrance provides additional natural surveillance and enhances security.

Materials/ Equipment	Sequence/Activity Description
Screen Slide projector Resource Materials 6.2.10, 6.2.11, and 6.2.12 S.6.3.55 S.6.3.56 S.6.3.57 S.6.3.58 S.6.3.59 S.6.3.60 S.6.3.61 S.6.3.62	G. <u>Corridors and Stairwells</u> (10 min.) Trainer should refer to Resource Materials 6.2.10, Corridors and Stairwells; 6.2.11, Classrooms; and 6.2.12, Physical Education Locker Rooms. Show S.6.3.55 through S.6.3.58 o <u>The problem in general</u>: (1) Corridors and stairwells are used by students for activities other than passage. Blind spots and isolated areas provide opportunities for hangout areas. (2) Many corridors, because of their design and location, represent a blurred transition zone so that no one is quite sure who belongs or what activities are legitimate. (3) Many students avoid using certain corridors and stairwells because they fear victimization. In Broward County, a security survey showed that one-fifth of the student population reported never using certain corridors or stairwells because of their concern for personal safety. Show S.6.3.59 o <u>The teacher planning area solution</u>: One design strategy adopted at Boyd Anderson High School was to provide natural surveillance by relocating a teacher planning assignment office in an underused, isolated spot. Show S.6.3.60 through S.6.3.63 o <u>The bottleneck problem</u>: At South Plantation High School there was a congestion problem with the corridor leading to the cafeteria. The corridor contained benches that created obstacles to traffic flow. There were 3,200 students in three lunch shifts. The doors to the cafeteria were small, creating bottlenecks and hampering supervision. o <u>The solution</u>: Congestion was decreased by establishing the dominant use of that space for passage. (1) The benches were removed and more doors were added at one end.

Materials/ Equipment	Sequence/Activity Description
	(2) Graphic designs were put on the wall to visually improve the aesthetic quality of the space and to support the definition of passage and movement.
S.6.3.63	o <u>The classroom window/problem</u>: MacArthur High School had dark, double loaded corridors.
	Show S.6.3.64 through S.6.3.68
S.6.3.64 S.6.3.65 S.6.3.66	o <u>The solution</u>: Windows were installed in the walls between the classrooms and the passage. They were supposed to provide two-way natural surveillance. But the window spaces on the classroom sides were restablished as display surfaces for posters and eliminated natural surveillance in a strict sense. Now, however, additional light and apparent surveillance have enhanced students' sense of security.
S.6.3.67 S.6.3.68	o <u>More solutions</u>: Here are some examples from other schools around the country that have effectively used this idea of windows between classrooms and corridors.
	Show S.6.3.69 through S.6.3.71
S.6.3.69	o <u>The exterior stairwell problem</u>: At Deerfield Beach High School, exterior stairwells were completely enclosed and had blind spots at each landing. Students were afraid to use these stairs. Often the stairwells were closed to access from the ground floor, which reinforced the perception of them as a dangerous zone.
S.6.3.70 S.6.3.71	o <u>A solution</u>: Install windows in the exterior walls so that people on school grounds are able to observe stairwell activities and users will be less afraid because of the apparent surveillance. Although Deerfield Beach High School did not do this, in these next pictures you can see how windows can make stairwells appear safer.
	Show S.6.3.72
S.6.3.72	o <u>The snack bar solution</u>: The location of functions that serve as natural magnets for students, such as snack bars, can influence natural surveillance and the degree to which users will extend their territorial concerns.
	Show S.6.3.73
	o <u>The plants under the stairwell solution</u>:
	(1) Creating storage spaces under stairwells can eliminate blind spots.

Materials/ Equipment	Sequence/Activity Description
S.6.3.73	(2) These are also more solutions for discouraging use of these spaces.
	Show S.6.3.74 through S.6.3.86
	o The classroom theft problem: The security of classrooms is related to the security of corridors. Their location along corridors tends to isolate the individual classrooms, resulting in little natural surveillance.
	o The solution: Very few classroom thefts occurred in classrooms assigned to, and located near, a department office, or one particular teacher at Boyd Anderson High School. Offenders seemed to stay away from these classrooms because of the expanded sphere of influence created by their juxtaposition to offices or teacher assignment planning areas. If space is visually defined as belonging to a controlled zone, it seems safer.
S.6.3.74	o Other solutions for safe passages:
S.6.3.75 S.6.3.76 S.6.3.77	(1) Graphics can define corridor areas.
S.6.3.78 S.6.3.79 S.6.3.80	(2) Redefining semipublic areas shared by classrooms increases the perception of territorial control and extends the apparent sphere of influence of offices, classrooms, libraries, and so forth.
S.6.3.81	(3) A major component of this strategy is to involve students in designing areas.
S.6.3.82 S.6.3.83 S.6.3.84 S.6.3.85 S.6.3.86	(4) Natural surveillance and territorial reinforcement tactics can be combined. These examples of interior windows, carefully planned lighting, study carrels installed in underused corridors, and skylights between floors are from new schools. Each example shows physical design solutions that encourage people to expand their spheres of influence.
	Show S.6.3.87 through S.6.3.90
S.6.3.87	o The locker room problem: Locker rooms and rows create problems in identifying legitimate users.
S.6.3.88 S.6.3.89	o A solution: Graphic treatment increases the security of physical education locker rooms by establishing, through color codes, that specific locker room corners and rows are for easily recognized legitimate users.



Materials/ Equipment	Sequence/Activity Description
	In principle, the color-coding takes from the offender excuses for being in a given space at a given time; and legitimate users have stronger grounds for challenging someone who appears to be in the wrong zone.
S.6.3.90	o Another solution: Lockers can be raised off the floor to increase the observation potential.
	Show S.6.3.91 through S.6.3.96
S.6.3.91 S.6.3.92 S.6.3.93 S.6.3.94 S.6.3.95 S.6.3.96	o More graphics solutions: Graphics are effective in improving the visual appearance of the school, not only for indoor and outdoor walls but also for such places as restrooms. Here is another example of what can be done to an outside wall.
	Show S.6.3.97 through S.6.3.99
S.6.3.97 S.6.3.98 S.6.3.99	o Graphics also provide directional cues to avoid traffic congestion. Here is an example of an open central staircase where traffic problems occurred because it was used by over 3,000 students. These simple arrows significantly reduced the number of injuries that occurred on these steps.
	Show S.6.3.100
	o The problem: Underused semipublic spaces under stairwells are not in influence spheres.
S.6.3.100	o The solution: Security stations can be constructed under the stairwells in the main entrance lobbies. The glass partitions permit good surveillance, and more importantly, the station itself is visible from many points, indicating a large sphere of influence controlled by the surveillant.
	6. Conclusion (10 min.)
	A. Illustration of a Security Conscious Environment
	Trainer ends the module with Cambridge Ridge and Latin High School.
	Shows S.6.3.101 through S.6.3.111
	o As a final illustration of the application of security conscious environmental design, you will see a new school, Cambridge Ridge and Latin. This school has about 1,600 students. It is a merger of a classical and vocational high school. The outdoor traffic

Materials/ Equipment	Sequence/Activity Description
S.6.3.101 S.6.3.102 S.6.3.103 S.6.3.104	flow is regulated by walls, walkways, trees and shrubs, and a glassed-in gallery.
	B. Some More Solutions
S.6.3.105	o The main entrance has a greenhouse built out from the second floor that provides natural surveillance opportunities and is a clever use of space.
S.6.3.106 S.6.3.107	o A window in the headmaster's office looks out on the cafeteria, which does not look at all institutional.
S.6.3.108	o The corridors are bright and imaginatively lighted.
S.6.3.109 S.6.3.111	o There are numerous places for students to gather in semipublic areas.
S.6.3.110	o The generous use of glass opens up the interior to the greenery outside, and supports the appearance of natural surveillance.
	C. Final Comments
	o For physical security planning, there are many design alternatives to target or site hardening.
	o Good environmental design can facilitate desired human behavior and encourage people to protect their schools.
	o Security conscious design need not impose constraints on use, access, or enjoyment.
	o Effective design solutions follow a careful consideration of how the environment is used and what functions it serves.
	o If you are aware of design approaches and the concepts, principles, and strategies on which they are built, many security problems can be creatively solved.
	Trainer should refer to Resources/Bibliography, 6.2.1.

R6.3.1

Synthesis of Research on Environmental Factors Relevant to Crime and Crime Prevention Behaviors

Special Report #1
(Revised)

Inventory of Topic Area Research Studies

Submitted to: Allan Wallis
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and

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January 22, 1979

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FOREWORD

The following is the first of a series of Special Reports prepared by the staff of the American Institutes for Research as part of the study "Synthesis of Research on Environment Factors Relevant to Crime and Crime Prevention Behaviors." This report has been prepared under Contract J-LEAA-026-78 with the Law Enforcement Assistance Administration (LEAA).

The objectives of this project, as defined by LEAA, include a review and methodological assessment of the empirical studies that investigate the relationship between the physical characteristics of the built environment and crime and crime prevention behaviors. The goals of the project include identifying the strengths and weaknesses of the studies reviewed and the development of a synthesis that summarizes the knowledge in the field.

The first task in the project was to identify and collect a complete inventory of "topic area" studies that were to receive detailed assessment by AIR. This task involved the development of selection criteria, which are discussed in detail in this report. The other tasks of this project will be: (1) to design a classification scheme and classify the topic area studies; (2) to conduct a preliminary assessment of the methodologies used in each study; (3) to prepare a commentary on each study reviewed; (4) to select from the studies reviewed a subset of the studies that appear to be well conceived and methodologically sound and to conduct a detailed assessment of these; (5) to synthesize the entire crime-environment literature and produce a final report documenting the previous work.

Special Report Number 1 summarizes the work completed in the first phase of the project -- selecting and collecting the topic area research reports. This is a revised version of the first report, and incorporates the helpful suggestion of Allan Wallis

and Dr. Richard Rau of the National Institute for Law Enforcement and Criminal Justice and Richard Titus, currently on leave from the National Institute at the University of California at Berkeley.

INTRODUCTION

The major goal of the first phase of this project was to conduct a comprehensive search for empirical studies that investigate hypothesized relationships between physical characteristics of the built environment, crime, and crime prevention behaviors. The relevant literatures surveyed include fields such as architecture, psychology, criminology, sociology, urban planning, and urban geography.

This report includes a discussion of the selection criteria used to determine if a study merits detailed review and assessment by AIR for this project. The studies selected for such review are referred to in this report as "Tier I" studies. In addition to performing methodological assessments of the empirical studies, AIR will produce a state of the art review of the knowledge of the relationship between crime and the physical environment. While this review will draw primarily on the empirical studies reviewed by AIR, it will also incorporate concepts, theories, and knowledge found in other, non-empirical works. Therefore, the bibliography presented in this report includes studes that will not receive careful review on methodological grounds, but that may be relied upon in the final task -- the state of the art review. These studies are referred to as "Tier II" and "Tier III" studies.

In addition to discussing the selection criteria, this report outlines the approaches used to search the literature. Finally, this report includes two appendices. Appendix I is the bibliography of topic area ("Tier I") and related studies. Appendix II includes the names of persons successfully contacted as part of the literature search. Each of the appendices has addenda. Addendum B of the bibliography includes studies that have come

to the attention of AIR since the submission of the first draft report in December 1978. Addendum A of the phone list includes the names and affiliations of persons who have been contacted since that time.

Selection Criteria for Topic Area Studies

The key criterion used in selecting topic area studies for subsequent review ("Tier I" studies) was whether a study was an *empirical investigation* of the relationship between the *physical characteristics* of the built environment and crime or crime prevention behaviors. Studies exclusively investigating the relationship between the *social environment* and crime-related behaviors were therefore excluded from a Tier I classification.

Further, it was decided that all studies selected for further evaluation must investigate the *effect of the physical environment on human behavior or human perceptions* (i.e., fear of crime). This would include investigations of such physical elements as lighting, locks, landscaping, or alarm systems, and their effect on actual or potential offenders, victims, or bystanders. Target hardening studies focusing on the types of force, weapons, or techniques necessary to defeat a particular type of lock, window, door, or alarm system were considered inappropriate for further review.

Target studies selected include a variety of empirical research methodologies. Most of the studies employ quantitative analytic methods (e.g., analysis of variance, correlation, multiple regression techniques, etc.). In addition, non-quantitative studies that used mapping techniques were included among the "Tier I" studies.

Another criterion used in selecting studies for future review was the *type of environment* analyzed. The various bibliographic searches included studies of residential areas, shopping districts, recreational areas, schools and school grounds, public buildings, transportation facilities, and other urban and rural environments. Types of environment excluded from further consideration were those with idiosyn-

cratic characteristics and overriding security needs: i.e., prisons, mental hospitals, army bases, and other "total" institutions, nuclear test sites, banks, and other such environments with unique security requirements and physical characteristics.

A final criterion used in selection of "Tier I" studies was the *type of crime* analyzed. Included are studies that focus on crimes against property (e.g., burglary, vandalism, and shoplifting), and crimes against persons (e.g., murder, assault, rape, robbery, and purse snatching). White collar crime was excluded.

After applying these criteria to a broad range of crime-environment studies, two major types of empirical studies have emerged. The first type investigates how the physical environment directly intervenes between the offender and potential target or victim. Studies that investigate the deterrent effects of target hardening fit into this category. The other group includes those that investigate the manner in which physical characteristics of the built environment serve as a moderating element indirectly affecting the actual or potential offender or victim. Studies that investigate the relationship between surveillance and crime-related behavior fit into this category, because they purport to investigate the offender's perceived sense of risk or the potential victim's perception of control. The majority of studies selected for future consideration treat physical characteristics as moderating elements rather than as elements that directly intervene between the offender and potential victim.

The "Tier I" studies, as defined above, represent a subset of the crime-environment literature. These studies are noted in the bibliography with an asterisk preceding the author of the article, paper, or book. They will receive careful scrutiny.

Tier II and Tier III Studies

In addition, the crime-environment literature is composed of a wide variety of theory papers, non-empirical research efforts, planning documents, "security analysis" studies, and other efforts that are intrinsically related to the subset of empirical studies defined above. In Phase Six of our study, AIR will write a synthesis of the entire crime-physical environment literature. For that phase, we will draw on theory papers and other related literature in addition to those empirical research efforts that have been selected for detailed assessment.

These studies (included in the bibliography without an asterisk) fall into two general classes. One group, which we refer to as "Tier II" studies, included empirical studies investigating crime-social environment relationships. These studies do not address the physical environment to a sufficient extent to warrant inclusion in the core literature. Studies in this group include empirical studies generally found under such headings as "man-environment relations," and "social-psychological and social relations" and cover such topics as citizen participation, crowding, sense of community, etc., and their effects on crime-related behaviors.

The final group of studies, "Tier III" studies, consists of theoretical or non-empirical works on the crime-physical environment relationship. These studies include the theoretical works and planning documents of Jacobs, Wood, Gardiner, Newman, Brill, and others, and are an important source of the concepts and theories underlying the empirical research in this field.

Thus, the bibliography in Appendix I contains both topic area and supportive studies. AIR will classify the studies, assess the methodologies, and write commentaries on topic area

("Tier I") studies in subsequent reports. These, in combination with "Tier II" and "Tier III" studies, will serve as the basis for the development of the final state of the art report.

Every effort has been made to provide a comprehensive list of "Tier I" studies for this report. We fully expect that in the course of our study a few additional studies will come to our attention that meet the criteria of "Tier I." These studies will be given full review and assessment, regardless of when during the project they come to our attention. In contrast, the listing of "Tier II" and "Tier III" studies is not to be considered comprehensive, but only illustrative of the population of related studies.

Approaches Used in Literature Search

Empirical crime-environmental studies arise from numerous disciplines, including architecture, psychology, criminology, sociology, and urban planning. In addition to the many published studies, there exists a substantial amount of unpublished material that deserves careful review. In order to develop a comprehensive list of topic area studies, a variety of approaches were used in our literature search.

One primary search method included the use of a variety of computer and manual searches of relevant journals, indices, bibliographies, conferences proceedings, etc. As books and articles were collected, each of their bibliographies were searched for further references. Any reference that suggested that it might meet the "Tier I" criteria was then collected.

The second method used to identify "Tier I" studies included a telephone survey of approximately 130 of the leading researchers and federal, state, and local officials with experience in the crime-environment area. We originally called a list of 50 to 60 persons whose writings, attendance at conferences, and other past achievements and efforts made them obvious choices for contact. During each phone interview, we described the scope of our study and asked our contact if he or she had conducted research in this area. In addition, we asked the person to nominate other studies for inclusion and to suggest names of other individuals to contact. This process led to the development of a substantial list of key persons who were successfully interviewed between November 1978 and January 1979.

Below, we list the library and computer searches, bibliographies, indices, journals, conference proceedings, and other sources searched by AIR. The list of phone contacts is included in Appendix II.

Library and Computer Searches

In conducting the computer and manual searches, we focused on titles that dealt with:

- Crime/Environment Factors
- Environmental Design
- Architectural Design for Crime Prevention
- Defensible Space
- Territoriality and Crime Prevention
- Transportation Patterns and Crime
- Spatial Configuration of Criminal Victimization
- Target Hardening.

The computer-assisted searches undertaken included:

- National Criminal Justice Reference Services
- PROFILE/LEAA
- National Technical Information Service
- Smithsonian Social Science Information Exchange
- Datrix-University Microfilms (Dissertation Abstracts)
- National Institutes for Mental Health
- Department of Housing and Urban Development

Bibliographies

The manual searches were conducted using the following bibliographies, indices, journals, and conference proceedings as starting places:

- American Institutes for Research -- "Crime and Public Housing," October 1978. Annotated Bibliography.
- Northwestern University -- "Reactions to Crime Project: An annotated bibliography." July 1976.
- Rand Corporation -- "Designing Safe Environments," May 1978.
- U. S. Department of Housing and Urban Development -- Defensible Space and Security: A partially annotated bibliography." November 1976

- Westinghouse National Issues Center--CPTED Project 1977. Annotated Bibliography.
- Whyte, A. B. "Physical Design and Urban Crime: A selected bibliography." November 1976.

Indices

- Avery Index to Architectural Periodicals
- Art Index
- Psychological Abstracts
- Sociological Abstracts

Journals

- American Behavioral Scientist
- American Institute of Architects Journal
- Criminologica
- Criminology
- Design and Environment
- Ekistics
- Environment and Behavior
- Journal of Criminal Justice
- Journal of Criminal Law, Criminology and Police Science
- Journal of Housing
- Journal of Research in Crime and Delinquency
- Journal of the American Institute of Planners
- Urban Design
- Urban Studies

Conference Proceedings

- American Criminological Society
- American Sociological Association
- American Psychological Association
- Environmental Design Research Association

Summary

The methods used in the literature search yielded a broad range of published and unpublished studies investigating the crime-environment relationship. At present, almost all of the "Tier I" studies have been collected by AIR. These studies that have been collected are marked with a "+" in the margin of the bibliography. The remaining studies are presently on order and expected to be in-house shortly.

We present a list of all studies identified as "Tier I," "Tier II," or "Tier III" in Appendix I -- the bibliography attached to this report. The original bibliography and Addendum A include those studies listed in the original draft of Special Report Number 1, delivered to LEAA on 22 December 1978. Addendum B lists the additional studies identified since the submission of our first report.

The phone contacts are listed in Appendix II. The first list of phone contacts includes the names of those persons listed in the original draft, while the supplemental list, Addendum A, lists the additional phone contacts made since the submission of our first report.

As we have stated earlier, though we have made every reasonable effort to be thorough, there are two types of additions that may be made to our list of topic area studies during the course of the project. First, some studies may be in their preliminary stages and will not become known to us until they have progressed further. Second, it is possible that some studies conducted in foreign countries or in local areas of the U.S. may have escaped our attention. We will make reasonable efforts, through every phase of the study, to ensure that we stay current with topic area research projects and pursue any title that appears to merit inclusion in "Tier I."

Appendix I

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Appendix II

The following persons and institutions were contacted by telephone in order to locate new or unpublished material on crime and the built environment, not previously generated by manual or computerized reference lists.

PERSON CALLED	NON-FEDERAL AGENCIES PLACE/INSTITUTION
Archibald Allen	Temple University
Irwin Altman	University of Utah
Tribid Banergee	University of S. California
Mike Barker	American Institutes of Architecture
James Baxter	University of Houston
Leonard Bickman	Westinghouse
Richard Block	University of Chicago Department of Sociology
Paul Brantingham	Simon Fraser University British Columbia
Sidney Brower	Baltimore City Planning Office
D. K. Brown	Office of the Sheriff Jacksonville, Florida
James Bull	Western Behavioral Sciences Institute
Tom Byerts	University of Chicago
D. L. Capone	University of Miami
Ronald Carter	University of Houston
Eleanor Chelimsky	MITRE Corporation
Phillip Clay	Lower Roxbury Community Center

PERSON CALLED	PLACE/INSTITUTION
Scott Danford	University of Buffalo
Habib Data	Ohio University
Barbara Dietrick	Bureau of Social Sciences Research
Dennis Dingemans	University of California
Fred Dubow	Northwestern University
Peter Engstad	Ministry of the Solicitor General
John Evans	Ministry of the Solicitor General
Floyd Feeney	Center for the Administration of Criminal Justice University of California, Davis
Floyd Fowler	Center for Survey Research
Karen Franck	Institute for Community Design Analysis
Douglas Frisbee	Minnesota Community Crime Prevention Center
Mel Gray	Crime Control Planning Board, St. Paul
Meg Gwaltney	Rand Corporation
D. Hailey	Arthur Young & Company
Lewis Hanes	Formerly of Westinghouse
Steven Hughes	Library of Congress
Al Hunter	Northwestern University Department of Sociology
Ben Issacson, et al.	Environmental Planning/ Research
Dr. Jakowski	Florida State University

PERSON CALLED	PLACE/INSTITUTION
C. Ray Jeffrey	Florida State University
Don Kane	Director, Chicago Economic Development Committee
Janet Kegg	American Association for the Advancement of Science
Imre Kohn	Westinghouse
Kathleen Korbelik	Department of Community Planning, Chicago
George Kreps	Agricultural Technical Institute
Fred Kringold	National Science Foundation
Paul Lavrakias	Northwestern University
Powell Lawton	Philadelphia Geriatic Center
Dr. Lessey	Ministry of the Soliciter General, Canada
Richard Locasso	Formerly of Westinghouse
Mary Helen Lorenze	Skidmore, Owens & Merrill, Boston
Harold Malt	Harold Lewis Malt Associates
Dennis McCarthy	CUNY School of Environmental Psychology
Sally Engel Merry	Department of Anthropology Wellsley
Michael Mertha	Association for the Study of Man - Environment Relations
Thomas Molumby	St. Embrose Davenport, Iowa
Mike Moskoff	Wisconsin State Planning Agency
Fred Moyer	University of Illinois Department of Archeology

PERSON CALLED	PLACE/INSTITUTION
Gerhardt Mueller's Office (Bill Bunnham)	Crime Prevention & Criminal Justice Branch, United Nations
Oscar Newman	Institute for Community Design Analysis
W. Nichols	North Carolina State
Thomas Nutt-Powell	School of Urban Design Massachussetts Institute of Technology
Larry O'Krent	Skidmore, Owens & Merrill Chicago
Ed Ostrander	Cornell University
Pavel Pablent	University of Houston
John Palen	University of Wisconsin
Lynne Palkovitz	Westinghouse
A. H. Patterson	Penn State University
Don Perlgut	University of California. Berkeley
George Phelan	Southeastern Massachusetts Criminal Justice Agency
Howard Phillips	Ohio State
Phillip Phillips	Kentucky University
Gerald Pyle	University of Akron
Amos Rapoport	Temple University
Albert Reiss	Yale University
Thomas Reppetto	John Jay College
Ann Riordan	Smithsonian
Mario Rizzo	NYU, Economic Department

PERSON CALLED	PLACE/INSTITUTION
Susan Saegert	CUNY, Department of Environmental Psycnology
Andrew Seidel	University of Buffalo
Sol Shuster	Ministry of Solicitor General, Canada
David Smith	CUNY, Buffalo Geography Department
Jeff Sobel	Ghettysburg College
Robert Sockwell	AIA Research Corporation
P.A. Stanely	ARA Consultants, Canada
Don Stokols	University of California Urvine
Ralph Taylor	John Hopkins University
Richard Taub	Department of Sociology University of Chicago
James Tien	Rensselaer Polytechnical
Richard Titus	University of California Berkley
Jack Utano	University of Akron
Clifford Van Meter	University of Western Illinois
Jean Warholic	Cornell, Urban and Regional Studies
Jay Williams	Research Triangle Institute
Gary Winkel	CUNY, Environmental Psychology Department
Robert Woodson	American Enterprise Institute
Robert Yin	American Institutes for Research

CONTINUED

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PERSON CALLED	FEDERAL AGENCIES PLACE/INSTITUTION
Francis Bentae	National Bureau of Standards
Richard Burk	HUD
David Celleste	LEAA (NCJRS)
Phil Cotton	LEAA (Profile)
Lynn Curtis	HUD
Skip Duncan	LEAA (NCJRS)
Tom Lalley	NIMH, Center for Crime & Delinquency
Peggy Lentz	HUD
Winfield Reed	NILECJ
Robert Shipley	Department of Defense
Jerry Wahell	Department of Transportation
Richard Wakefield	NIMH, Metro Center

ADDENDUM II-A

Phone Contacts

Al Baugher	Department of Development and Planning Chicago, Illinois
Walter Bogan	Office of Environmental Education Department of HEW
Paul Bohannon	Western Behavioral Sciences La Jolla, California
Barbara Bomar	National Crime Prevention Institute Louisville, Kentucky
James Brandes	Human Resources Division Alamo Area Council of Governments San Antonio, Texas
Fred Campbell	University of Washington Department of Criminology Seattle, Washington
John Conklin	Tufts University Department of Sociology Boston, Massachussetts
Pierce Eichelberger	Department of Planning and Community Development Miami, Florida
Dr. Feeney	University of California (Davis) Center for the Administration of Criminal Justice
Carl Evans	Criminal Justice Planning Office Alamo Area Council of Governments San Antonio, Texas
Edward Goldsmith	Minneapolis Housing and Redevelopment Authority
Fred First	Department of City Planning New York, New York
James Frank	Brentwood, California Police Department

William Greenberg	Department of Planning and Development Trenton, New Jersey
William Hofstrom	Denver Anti-Crime Council Denver, Colorado
Peter Hart	Urban Design Group Department of City Planning New York, New York
Donald Ingram	Downtown Development Authority Jacksonville, Florida
John Jones	Denver Anti-Crime Council Denver, Colorado
Kathleen Korbelik	Department of Development and Planning Chicago, Illinois
Peter Kartye	Research Triangle Institute North Carolina
Jon Lang	University of Pennsylvania Department of Criminology
Paul Newhouse	St. Louis, Missouri Commission on Crime and Law Enforcement
Maria Padraho	Dade County Criminal Justice Planning Group Miami, Florida
George Rand	University of Southern California
Roger Rager	Fremont, CA Police Department Director, Community Relations Department
Richard Rau	National Institute for Law Enforcement and Criminal Justice
Lawrence Severy	University of Florida at Gainesville Department of Psychology

Jeff Schrink	Indiana State University Department of Criminology
Dr. Shye	Kentucky State University Department of Criminology
Dr. James Taylor	National Clearinhouse on Criminal Justice, Planning and Architecture Champaign, Illinois
Lt. Taylor	THOR Project Atlanta, Georgia
David Ward	University of Minnesota Criminal Justice Studies Minneapolis, Minnesota
Joe Weiss	Washington State University Institute for Crime and Delinquency Seattle, Washington
Bill Windham	S.W. Texas State University Department of Architecture

Course 6

Environment

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