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# crime prevention review

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The Challenge to Medicine and Law Enforcement*

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RESOURCE DIRECTORY  
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Compendium of Resources and Programs in California*

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# CRIME PREVENTION REVIEW

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The CRIME PREVENTION REVIEW is a professional forum for the Criminal Justice System in California designed to provide discussion of varied concepts and issues of crime prevention and useful resources for the practitioner in the field.

The Attorney General's office does not necessarily endorse opinions set forth in signed contributions or the listed training programs and resources.

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## Crime Prevention Through Environmental Design: A Compendium of Resources and Programs in California

*This excerpted report to the Attorney General's office offers a summary of environmental crime prevention activities in California and available literature on the topic. Its aim is to review some existing successful programs and provide a guide to the resources currently available to those criminal justice and law enforcement agencies that wish to initiate or improve programs. This project has been made possible by support from the Kellogg Program at the University of California at Davis in cooperation with the Attorney General's Crime Prevention Unit.*

*This report was prepared by Dennis Dingemans, Ph.D., and Terry Westover, M.A., of the University of California, Davis, Department of Geography, who have been working with the Crime Prevention Unit in this area since the environmental crime prevention symposiums were held in January-February 1978. (Editor's note: Dingemans and Westover are currently involved in compiling an exhaustive directory of community crime prevention resources for environmental crime prevention which we hope to include in future issues of the Review.)*

### INTRODUCTION

In the past ten years there has been a growing interest in environmental design as a possible means to prevent crime and reduce the fear of crime. From the academic perspective, it has long been recognized that the physical environment can influence human behavior.<sup>1</sup> One academic study has played an especially important role in alerting criminal justice professionals to the potential of environmental crime prevention. That study, Oscar Newman's *Defensible Space: Crime Prevention Through Environmental Design*, has become a handbook for police, planners and scientists alike. The Law Enforcement Assistance Administration (LEAA) has funded and published subsequent studies by Newman in an effort to translate the defensible space theories into usable guidelines.

Interest in environmental design for crime prevention was strong in California even before Newman's findings were published. Former Fremont Police Chief John Fabbri, for example, was an early proponent of active police involvement in planning and urban design.<sup>2</sup> Fabbri has been credited with leading the way in establishing cooperation among the departments and agencies responsible for local physical planning. Many of the people we contacted in preparing this report have been inspired and trained by John Fabbri.<sup>3</sup> Another important work that predated Newman was the *Handbook*

<sup>1</sup> Professor Robert Sommer of the University of California at Davis has been instrumental in developing the field of environmental psychology with his books *Design Awareness*, Corte Madera, CA: Rinehart, 1971, and *Personal Space: The Behavioral Basis of Design*, Englewood Cliffs, N.J.: Prentice-Hall, 1969.

<sup>2</sup> John Fabbri, "Crime Prevention Through Physical Planning" in *Crime Prevention Review*, Volume 1, No. 3, April 1974, pp. 1-7.

<sup>3</sup> For example, Chief James Frank of the Brentwood Police Department and Dennis Dalton at the Fremont Police Department worked closely with Fabbri for many years.

of *Crime Prevention Bulletins: Crime Prevention Through Physical Planning*, prepared and published through the Southern California Association of Governments. This handbook remains one of the best available guidelines for evaluating site designs from a crime prevention perspective.

Many of California's local police and sheriffs' departments have a crime prevention unit and engage in some kind of environmental crime prevention activities. Design review may be the responsibility of one officer in large departments, but in most departments environmental design evaluation work is just one of many responsibilities held by the crime prevention officer. Providing training and guidance for these crime prevention officers is an important task if environmental measures are to live up to their theoretical potential. The single most important source of training has been the California Crime Prevention Institute's programs. Supported by the California Commission of Peace Officers Standards and Training (P.O.S.T.), these classes have been held at California State Polytechnic University at Pomona. Training is also available at the National Crime Prevention Institute in Louisville, Kentucky.

In our interviews with community groups, academicians, planners and crime prevention officers throughout the state we found a variety of programs and approaches to environmental design for crime prevention. The initial step in many communities is to enact a security ordinance specifying minimum standards for construction, materials and locking hardware. The details of these codes and the responsibility for their enforcement varies from one community to another. Another frequent and highly recommended approach (often used in conjunction with security ordinances) is police review of proposed new development. The degree of police involvement in plan reviews ranges from voluntary consultation on request to mandatory attendance at regular development review meetings. These meetings or committees usually consist of representatives from each department with concerns relating to the physical design of the community (public works, planning, parks and recreation, police, etc.). Different communities organize and refer to their committees differently, e.g., Simi Valley's Development Advisory Board, Davis' Development Review Committee, Sacramento's Subdivision Review, etc. All of those interviewed stressed the importance of a cooperative approach and extensive communication among all levels of local government in implementing successful crime prevention programs. Overcoming differences among departments was cited as the first and most important task of plan review committees.

Among the people interviewed there appears to be consensus on certain issues. First, there are few readily available guides to literature on crime prevention through environmental design. Second, more and better instruction and information is needed—not only for crime prevention officers but also for planners, developers, public works, etc. Third, police officers need more instruction in reading and interpreting blueprints and plans. Lastly, all concerned recognize the need for community crime prevention programs to support good design and alleviate some of the problems inherent in poor design. No one feels that design alone can solve crime problems, all those consulted agreed that people within the community must be aware of measures they themselves can take to protect themselves and their property.

The following resource guide is designed to fill the first mentioned need. It includes selected literature and human resources. It is not exhaustive, but rather represents works and people we have found and think are especially useful.

## RESOURCE GUIDE

### *National Level Resources*

1. The Law Enforcement Assistance Administration (LEAA) of the U.S. Department of Justice has demonstrated an early and continuing interest in crime prevention through environmental design. The LEAA has sponsored some of Oscar Newman's publications (*Architectural Design for Crime Prevention*, stock #2700-00161, price \$2.60, and *Design Guidelines for Creating Defensible Space*, stock #027-000-00395-8, price \$2.95, both available from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402) and a recently concluded crime prevention through environmental design pilot project program carried out by the Westinghouse Consortium. These pilot projects include studies of two residential areas, one commercial setting and a school. *Nation's Cities*, December 1977, includes a preliminary report on these projects (pp. 14-28). The November 1977 issue of *Planning* (Volume 32, No. 10, pp. 3-13) contains an article by Larry Bell and Kenneth O'Kane, "Portland Curbs Crime Through Urban Design," describing the commercial area project.

Also available from the Superintendent of Documents and published by the LEAA is *Policy Development Seminar on Architecture, Design and Criminal Justice: Rochester, Michigan, 1975 Proceedings* (\$2.00). This seminar covers a wide spectrum of design concerns including prison design, the Westinghouse Consortium demonstration projects, airport security, mass transit security, Newman's defensible space concepts, school security, commercial security, hardware technology and problems in implementing design changes.

Within the LEAA, Allan Wallis has responsibility for the "Crime Prevention Through Environmental Design" program, phone (202) 376-3994. Emily Johnson is the librarian at the National Criminal Justice Reference Service (NCJRS) where many of the LEAA documents are deposited, phone (202) 862-2900. Some materials are available free of charge, others only through inter-library loans. Unless there is one specific document desired, the best strategy is to write to NCJRS and request an application for their reference service mailing list. The address is:

National Criminal Justice Reference Service  
Law Enforcement Assistance Administration  
United States Department of Justice  
P.O. Box 24036, S.W. Station  
Washington, D.C. 20024

They will return a form on which to indicate specific interest areas, for which they will send materials abstracts and order cards.

2. Another national level organization is the Crime Prevention Institute at the University of Louisville, Shelby Campus (9001 Shelbyville Rd., Louisville, Kentucky 40222). Barbara Bomar at the Institute (which was estab-

lished with LEAA funding) reports that their courses deal with all aspects of crime prevention, particularly target hardening and physical security, and include a section on environmental design, phone (502) 588-6987. The courses carry college credits and draw students from all over the country. Tuition ranges from \$300 for a one-week program to \$750 for four weeks.

#### *California State Government Resources*

1. At the statewide level, the California Attorney General's office includes a Crime Prevention Unit. Within the unit, Anthony Francis (555 Capitol Mall, Suite 802, Sacramento, California 95814, phone (916) 322-2574) heads the Environmental Crime Prevention team. The Crime Prevention Unit organizes seminars and symposiums, participates in projects and research efforts, provides information and resources to local agencies, and publishes the *Crime Prevention Review*.

2. The California Crime Prevention Institute offers courses in many aspects of crime prevention including security codes, physical hardware, environmental design and police participation in the planning process. As mentioned previously, the training sessions, usually held in Pomona, are POST-sponsored. A private corporation, headed by Paul DuBois, Loss Prevention Inc. (Box 613, Sonoma, California, phone (707) 938-5656) provides the instructors and materials for the Institute.

3. Ron Bedford, Design Review Office, California Housing Finance Agency (2351 Powell Street, #502, San Francisco, California 94132) reviews multi-family housing designs at the state level. He agrees with many others who do security design reviews that there are no comprehensive guidelines available. He relies on background knowledge, experience and common sense in his evaluations and finds that Newman's *Defensible Space* is the most useful reference available.

#### *Local Agency Resources*

Throughout the state, there are many people in local agencies with considerable experience and expertise in the area of environmental design for crime control. The following are some people we have contacted and who agreed to be listed as resource people:

1. Chief James Frank, Brentwood Police Department, phone (415) 634-3558.

Chief Frank has been active in the practice and teaching of techniques for crime prevention through environmental design for many years, and his experience constitutes one of the nation's best resources in this field. His familiarity with commonly encountered design defects stems in part from his extensive work with the innovative Fremont Police Department design review procedures. A recent *Crime Prevention Review* article (October 1978) discussed some of the design defects that Chief Frank urges his students and fellow design reviewers to detect: establish a logical and legible street numbering and labeling system in all high density housing; permit emergency or patrol vehicles access to parks and open spaces; require adequately illuminated house numbers.

2. Dennis Dalton, Fremont Police Department, phone (415) 791-4444.

Fremont is a planned community with a twenty-year history of coopera-

tion between the planning department and law enforcement. Security concerns are addressed in planning documents, a security ordinance which is part of the building code (applying to commercial, residential and industrial development) and during weekly meetings of department representatives, all new development plans are reviewed. Dalton feels that the review process is effective in the rapidly growing community of Fremont, and that the history of cooperation among departments has generally raised the consciousness of all participants regarding good design elements and mutual concerns.

3. Lt. Frank Jordan, phone (415) 474-7318, and Hollis Devine, phone (415) 553-1345, San Francisco Police Department.

San Francisco, while not far geographically from Fremont, presents a different environment to the crime prevention officer. Here, new construction is largely commercial, offices (often high-rise), motels and apartments. Redevelopment or renovation is more common than new construction of single family homes, and public housing projects assume an importance not found in more suburban communities. Currently, San Francisco is developing a security ordinance applying to hotels, motels, and apartments (projected for 1979 enactment). The Bureau of Building Inspection checks these structures annually and is now consulting the police department regarding criminal security elements. The police department has developed an informal communication network with other city departments as well as with designers and architects and is often asked to review plans and provide design related input. Devine specializes in business security and has many specific suggestions for design of commercial and office buildings.

4. Sgt. Haddock, phone (714) 236-6821, San Diego Police Department.

For the last four years, Sgt. Haddock has been reviewing subdivision plans for the city of San Diego. For a closer look at new developments he requests building plans from the building codes division. During this time he has developed his own review methods based on considerable experience regarding design elements to promote public safety and deter criminals. San Diego has experienced both extensive new construction and increased interest in renewal and redevelopment in the past few years. Haddock pays close attention to street patterns in new developments—long, straight streets often lead to speeding problems while short cul-de-sacs and loop streets reduce traffic while promoting community identity among residents. He also points out that new higher density residential developments (such as townhouses and condominiums) often sacrifice good defensible space elements for increased privacy. Police in San Diego give particular attention to senior citizen developments in evaluating the security features provided. Haddock advocates "seniors only" housing with highly legible territorial boundaries and controlled access.

5. Gloria McGregor, Director, Davis Community Development Department, phone (916) 756-3740.

Gloria McGregor provides the planner's point of view in environmental design for crime prevention. In Davis (a moderately sized, reluctantly growing, college-based community), it was McGregor who initiated communication among departments regarding community design. Davis now has a Development Review Committee, made up of representatives from all departments, which reviews and makes recommendations on all proposed de-

velopments before they are seen by the planning commission. Davis has a security ordinance requiring deadbolt locks (or the equivalent) on all rental units and new construction. Another ordinance dealing with sliding glass door security is pending. McGregor stresses, however, that it is the communication and support among departments and at all local government levels that provides the greatest impetus to good security design in Davis. She acknowledges that there are sometimes conflicts between law enforcement's design preferences, stressing visibility and security, and the planning department's concern with community aesthetic standards. This is where good communication and understanding lead to workable compromises.

She also points out that planning schools often do not provide the kind of practical "nuts and bolts" instruction (such as numbering systems in apartment complexes, kinds of lighting, etc.) that the local planner needs. Here again, experience and communication are the teachers.

#### *Guidelines for Reviewing Proposed Construction*

None of the crime prevention officers interviewed use a specific set of written guidelines when reviewing plans. All rely on experience and previous training in making evaluations. Most officers feel that better written guidelines would be helpful, although flexibility in analyzing each individual setting is necessary. The following is a list of the guidelines that are presently available:

1. *The Southern California Association of Governments, Handbook of Crime Prevention Bulletins: Crime Prevention Through Physical Planning, September 1971.*

This collection of guidelines predates Newman's defensible space postulates, although it includes many of the same aspects of visibility and territorial definition. It is a compilation of many individual qualitative checklists for evaluating various types of developments in terms of design for security. Included are guidelines for industrial parks, commercial developments, residential subdivisions, apartment complexes, public buildings, schools, public parks and open space, closing streets and alleys, mobilehome parks, second home developments, commercial recreation, personnel training, and building permits and codes. This document is currently out of print, but inquiries regarding its availability and/or revision may be directed to Rube Diamond, Chief of Human Services, Southern California Association of Governments, 600 S. Commonwealth Avenue, Los Angeles, California 90005, phone (213) 385-1000.

2. *Crime Prevention Institute, Crime Prevention Officers Handbook (The Commission of Peace Officer Standards and Training, Department of Justice, State of California).*

This manual is provided to each graduate of the Crime Prevention Institute's courses. The sections on design, physical security and lighting serve as reminders of materials covered in the training sessions and, in some cases, provide specifications and standards.

3. *Design Guidelines for Creating Defensible Space (National Institute of Law Enforcement and Criminal Justice, Law Enforcement Assistance Administration, Department of Justice, 1976) Stock #027-000-00395-8, \$2.95 (213 pages).*

In this document, Oscar Newman presents the basic tenets of his defensible space concepts. The underlying patterns and factors of residential crime are explored, the evolution of multi-family housing is traced, and specific design guidelines for various types of housing are offered. Buildings are classified by architectural type and living unit density (single family detached through elevator high-rise apartments), and by type of occupants (families with children, elderly, singles and working couples). Newman offers suggestions for site planning, design of mailboxes, doors and windows, construction materials and methods, and gives specific examples of good and poor design as well as a comparative cost analysis for different building types. This and the following two reports by Newman are available from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402.

4. *Architectural Design for Crime Prevention (Law Enforcement Assistance Administration, 1973), Stock #2700-00161, \$2.60 (214 pages).*

Here are the findings on which *Defensible Space* is based. The study, written by Oscar Newman, involves primarily public housing in New York and contrasts high-rise and low-rise developments, and examples and recommendations are included.

5. *The Center for Residential Security Design (853 Broadway, N.Y. 10003), A Design Guide for Improving Residential Security (U.S. Department of Housing and Urban Development, Washington, D.C., 1973), Stock #023-000-00251-5, \$1.65 (85 pages).*

This is an abbreviated version of Newman's other work with specific recommendations regarding architectural design, security hardware, electronic devices, and security personnel.

6. *Isaac Green and Gordon Bugbee, Security Guidelines (Michigan State Housing Development Authority, Lansing, Michigan, 1975).*

This publication presents, in a useable format, standards for security hardware, visibility and police access and design and for facilitating territoriality. The guidelines apply only to residential structures. General guidelines as well as discussion of specific types of housing (detached homes, townhouses, apartments, housing for the mentally retarded and elderly) are offered. Sections on design standards, equipment/material specifications and security programs are included. Oscar Newman's influence is visible throughout. It can be obtained from David L. Froh, Executive Director, Plaza One, Fourth Floor, 401 South Washington Square, P.O. Box 30044, Lansing, Michigan 48909, phone (517) 373-1385, \$10.00.

7. *California Crime Technological Research Foundation, A Technological Approach to Building Security, Second Edition, Phase I, 1974 (86 pages).*

This is the basic research report on the hardware aspects of building security. Extensive laboratory tests of materials and designs are included as well as illustrations of possible threats to these materials and designs. This is a report to the Office of Criminal Justice Planning (7171 Bowling Drive, Suite 750, Sacramento, CA 95823) from the California Crime Technological Research Foundation (7171 Bowling Drive, Suite 190, Sacramento, CA 95823).

This information is contained in a document printed by the Department of Justice, Office of the Attorney General, October 1978. Included in this

report is a California Model Building Security Ordinance prepared by the California Crime Prevention Officers' Association, January 1978.

8. *Subcommittee on Housing and Consumer Interests of the Select Committee on Aging, In Search of Security: A National Perspective on Elderly Crime Victimization* (Comm. Pub. No. 95-87, U.S. Government Printing Office, Washington, D.C. 20402, 1977).

This extensive report on crime and elderly victimization offers insight into victimization patterns and environmental security for the elderly. Hardware security is discussed and defensible space recommendations are offered. It is an excellent resource for agencies interested in providing housing for the elderly or with design review responsibilities.

9. *Midwest Research Institute, Crime Prevention Handbook for Senior Citizens* (National Institute of Law Enforcement and Criminal Justice, Law Enforcement Assistance Administration, U.S. Department of Justice, 1977). Available free from the National Criminal Justice Reference Service (address previously provided).

This 53-page handbook, written for the senior citizen, advises how to be less vulnerable to burglary, robbery, larceny and fraud. It includes physical security (from burglary) and practices/habits to avoid victimization. It is well written with many illustrations, but the typeface may be too small for some seniors' eyes. Midwest Research Institute has also prepared a report entitled "Crimes Against the Aging: Patterns and Prevention." For further information or copies contact Cindie Unger or Mary Simister, MRI Analyst, Midwest Research Institute, 425 Volker Boulevard, Kansas City, Missouri 64110.

#### *Academic Perspectives: Defensible Space*

Oscar Newman's work in environmental design for crime prevention has stimulated the interest of academicians in a variety of fields. The following examples illustrate the range of response to Newman's ideas and attempts to replicate his findings (entries are in chronological order of publication):

1. *Bill Hillier, "In Defense of Space" in Royal Institute of British Architects Journal, Volume 80, No. 2, November 1973, pp. 539-544.*

Hillier is critical of current efforts to extrapolate studies of animals' territorial instincts to human behavior. He is particularly critical of Newman's *Defensible Space: Crime Prevention Through Urban Design* (New York: MacMillan, 1972). He finds Newman's hypotheses simplistic and his findings contradicted by his own data. Hillier points out intervening social influences in Newman's comparison of low-rise and high-rise housing.

2. *Franklin D. Becker, "The Effect of Physical and Social Factors on Residents' Sense of Security in Multi-Family Housing Developments" in Journal of Architectural Research, Volume 4, 1974, pp. 18-24.*

In a study of seven housing developments, Becker finds that "residents more often attributed a sense of security to the presence of guards than to design factors *per se*, but analysis of different developments indicated that design factors can influence guards' effectiveness. Being able to identify a person as a neighbor did not correlate significantly with residents' sense of security, but the number of 'good friends' that residents had in the development did. Territorial delineation of semi-private spaces and exterior person-

alization are discussed as means of increasing residents' sense of community and strengthening a mutual support structure." Increased outside lighting levels and suburban rather than urban locations were also found to decrease residents' fear of crime. Becker warns, however, against designing low-income housing with good defensible space but very different in appearance from middle-class housing. This can be perceived as another design stigma, enforcing social barriers between low-income people and the middle-class lifestyles to which they aspire.

3. *R. I. Mawby, "Defensible Space: A Theoretical and Empirical Appraisal" in Urban Studies, Volume 14, No. 2, pp. 169-179.*

Mawby tests Newman's defensible space theories in Sheffield, England and finds no strong support for Newman's hypothesis. He calls for a more rigorous measurement and definition of defensible space characteristics and notes weaknesses in the studies done to date. He does find that areas with high offender rates (many local offenders are residents) and areas of high social class have high offense rates. Further, in investigating burglaries, he finds that where shops are integrated into the housing stock they experience fewer burglaries (being more easily surveyed from surrounding residential areas), and that burglaries are more common on the periphery of developments than in the middle.

4. *Dennis J. Dingemans of the University of California Geography Department, phone (916) 752-0794.*

Dr. Dingemans has written several articles on evaluating non-public housing in terms of defensible space. In "Defensible Space Design of Housing for Crime Prevention" (with Robert Schinzel in *Police Chief*, November 1977, pp. 34-36), specific improvements in defensible space characteristics of multi-family housing are called for. For example, less isolation of garages and parking areas and raising houses a few feet above ground level to allow good surveillance from windows sacrificing privacy is suggested. Developers (or development review boards) are cautioned to consider possible changes in tenancy as units age or change management. Specifically, housing designed for adults only may develop crime problems if children are allowed to live there without significant design modifications. "Evaluating Housing Environments for Crime Prevention" (*Crime Prevention Review*, Volume 5, No. 4, July 1978, pp. 7-14) offers a format for measuring surveillance and territoriality in townhouse developments. Problems involved in applying defensible space design principles and in implementing design changes are discussed.

#### *Other Academic Perspectives*

The relationship between crime and the environment has been investigated from several perspectives. The physical characteristics of the crime site are often evaluated and, in many studies, the spatial distribution of criminal offenses and/or offenders' home areas are analyzed. The following books and articles represent a selected sample of these works:

1. *C. Ray Jeffrey, Crime Prevention Through Environmental Design, 2nd Edition* (Sage Publications, Inc.: Beverly Hills, CA, 1977).

Jeffrey surveys past and present models of criminal behavior and criminal justice practices and presents a convincing case of the ineffectiveness of the

latter. He reviews and critiques work to date on crime prevention through design and develops a model of prevention based on understanding human behavior from a biological and social-psychological viewpoint. His ideas are progressive, persuasive and controversial. Although the book is very theoretical, it is highly recommended for anyone interested in criminology, human behavior or sociology.

2. Robert Sommer and Franklin D. Becker, "The Old Men in Plaza Park: Inept City Effort to Design Out the Drunks Backfires in Sacramento" in *Landscape Architecture*, January 1969.

Sommer and Becker demonstrate an attempt to solve a behavioral problem (or perceived problem) through environmental design. The effort fails due to a simplistic approach that does not consider the many other factors contributing to the situation. While the city hoped to discourage public drunkenness by making a popular gathering point uncomfortable, an alternative location or behavior possibility was not provided. Furthermore, legitimate park users were made uncomfortable. This study provides a good cautionary note to enthusiastic application of physical design solutions to social problems.

3. Thomas A. Reppetto, *Residential Crime* (Ballinger Publishing Co.: Cambridge, Mass., 1974).

This detailed study of robberies and burglaries in the Boston metropolitan area profiles burglars, robbers and their targets. Reppetto finds that "the probability of an area's residential burglary victimization follows in ascending order: (1) Areas with a highly cohesive population or a concentration of access-secure buildings regardless of location; (2) outlying, non-affluent areas; (3) outlying affluent areas; (4) inner areas that are not highly vulnerable; and (5) inner areas that are highly vulnerable." Recommendations for deterrents and planning are offered. This book is a good source of detailed information on these specific crimes.

4. Gerald F. Pyle, *The Spatial Dynamics of Crime* (University of Chicago, Department of Geography Research Paper No. 159, 1974).

Pyle illustrates and develops a "procedure for adequate accumulation of statistics about crime so that local communities contributing the information could in turn help design a criminal justice program that would better meet their needs." He examines theories of crime, statistical correlates of crime, spatial dimensions of criminal behavior, adequacy, availability, and meaning of crime statistics, and includes a case study from Ohio using the methods he recommends. The paper is available from the Department of Geography, University of Chicago, 5828 S. University Avenue, Chicago, IL 60637, for \$5.00.

5. Patricia L. Brantingham and Paul J. Brantingham, "Residential Burglary and Urban Form" in *Urban Studies*, Volume 12, 1975, pp. 273-284.

In a case study of Tallahassee, Florida, the Brantinghams find higher burglary rates in zones of transition between one neighborhood and another than within either neighborhood. They suggest that transition areas between apartment house and single family home neighborhoods are especially susceptible, and recommend a very gradual transition rather than abrupt delineation. A methodological appendix is included.

6. *The 1976 November/December issue of American Behavioral Scientist*, Volume 20, No. 2.

The issue devoted to "Criminal Behavior and the Physical Environment." C. Ray Jeffrey, a prominent proponent of crime prevention through environmental design, edits this issue which contains articles by many well-known researchers. Copies are available from Sage Publications, 275 South Beverly Drive, Beverly Hills, California 90212. It includes the following articles:

"*Criminal Behavior and the Physical Environment: A Perspective*" by C. Ray Jeffrey: Jeffrey reviews different disciplines' views of the human-environment interaction and selected criminology studies that deal with the physical environment. He outlines his psycho-biological learning theory point of view and addresses methodological issues relevant to crime studies that deal with the physical environment.

"*Convenience Stores, Armed Robbery and Physical Environmental Features*" by Dennis C. Duffala: Duffala finds that convenience store vulnerability to robbery is related to the store's proximity to major transportation routes (making the criminal's escape easier), the amount of street traffic (making the robbery more likely to be observed—this factor was statistically significant in correlation matrices), the surrounding land uses and commercial activities (again, affecting the likelihood of observation). Duffala observes that the interaction of these four factors is complex and may be regarded as a single variable relating to surveillance opportunities.

"*Patterns of Crime in a University Housing Project*" by Thomas Molumby: In a study of property crimes in 527 university apartments Molumby finds that over 65% of all crimes occurred in 39% of the apartments—those having no buildings opposite for surveillance and located along the main access routes. He also notes that design and landscaping elements of individual apartments affect the type of crime occurring there. Apartments where surveillance opportunities were poor experienced more external thefts while those with sliding glass doors and two-story design had more burglaries.

He recommends restricting traffic flow into the housing areas, providing better lighting and territorial definition, and keeping shrubbery from obstructing windows.

"*Crime Seen Through a Cone of Resolution*" by Paul J. Brantingham, Delmar A. Dyreson, and Patricia L. Brantingham: Crime maps from the national to the neighborhood level point out that different crimes exhibit different spatial patterns of offense location. The authors suggest that neighborhood crime maps can be used to pinpoint trouble spots, provide defensible space analysis, and assist in understanding individuals and actions within target areas.

"*Crime Prevention Through Environmental Policy*", a critique by Thomas A. Reppetto: Problems of integrating urban design and criminology (such as differences in jargon, approach, methodology and philosophy between professional groups) are discussed. Reppetto points out that many monetary and social problems in implementing design changes and the difficulty of evaluating the effects of these changes. He, nevertheless, urges continued cooperation of law enforcement and urban designers in guiding new construction and renewal, determining police deployment and acquiring more research data. He suggests that the environmental characteristics of criminal sites be included in police crime reports.

7. Sholomo Angel, *Discouraging Crime Through City Planning (Working Paper No. 75, Center for Planning and Development Research, University of California, Berkeley, February 1968)*.

This early, speculative paper has been widely cited as a pioneer effort to relate urban design to crime control. Angel emphasizes reducing the opportunity to commit violent street crimes. Behavioral characteristics of offenders and victims are discussed, as well as social deterrents of crime. A case study of Oakland, California, is presented as an example of his "critical intensity zone" concept. Angel says that most street crimes occur in "critical intensity zones" where there are enough people to provide criminals with victims but not enough to provide safety through mutual surveillance. He recommends manipulating land uses and channelling pedestrian traffic to maintain safe pedestrian levels.

8. David Stea, "Space, Territory and Human Movements" in *Landscape, Volume 15, No. 1, Autumn 1965, pp. 13-16*.

Stea discusses territorial hierarchies, the ways they are defined and their importance in group formation, stability and morale. He remarks on the need for clear, unambiguous territorial definitions to provide a satisfying environment for users of designed spaces.

9. Robert Gold, "Urban Violence and Contemporary Defensive Cities" in *Cities Fit to Live In and How We Can Make Them Happen*, Walter McQuade, ed., *The MacMillan Co.: New York, 1971, pp. 4-19*.

Gold discusses how urban design may interact with social factors to encourage, discourage, or fortify against violence. He outlines both traditional and current approaches and warns against trends to barricade affluent areas at the expense of social fragmentation and the victimization of the less fortunate.

10. Jacqueline M. Zito, "Anonymity and Neighboring in an Urban, High-Rise Complex", *Urban Life and Culture, Volume 3, No. 3, October 1974, pp. 243-263*.

The study of an upper middle class high-rise apartment complex in New York finds that residents are concerned with security but depend on technology and institutional measures rather than on their neighbors. Few people were acquainted with their neighbors and few expressed a desire to be—privacy was found to be highly valued.

11. Theodore Leibman, J. Michael Kirkland, and Anthony Pangaro, "Housing Criteria Drawn from Human Response" in *American Institute of Architects Journal, March 1974*.

General guidelines to designing space to meet human needs are presented. They mainly contrast high-rise to low-rise high density housing based on New York's Urban Development Corporation study.

12. Clare Cooper Marcus, "Children in Residential Areas: Guidelines for Designers" in *Landscape Architecture, October 1974, pp. 372-377 and 415-419*.

Clare Cooper Marcus has worked extensively in evaluating user satisfaction with residential environments. This article contains specific qualitative recommendations for age groups from tots to teens. Many of the suggestions are compatible with defensible space recommendations and since children are often sources of concern, both as victims and perpetrators of crimes, the

information should be useful to people with responsibilities in both planning and law enforcement.

13. Clare Cooper Marcus and Lindsay Hogue, "Design Guidelines for High-Rise Housing" in *Journal of Architectural Research, Volume 2, August 1976, pp. 34-49*.

Marcus and Hogue address several issues relevant to high-rise housing and user satisfaction with particular attention to family needs. They provide specific recommendations for design, redesign and management.

14. Franklin D. Becker, *Housing Messages: Community Development Series 30*, (Dowden, Hutchinson, and Ross, Inc.: Stroudsburg, PA, 1977.)

Becker gives an indepth treatment to the images of various types of housing in our culture. He discusses the importance of recognizing the nonverbal implications of various designs and management approaches. He points out the importance of allowing individuals control over their home environment through personalization of their space and participation in design and decor decision-making. Vandalism as a form of protest and territorial markers as a form of security are discussed. Recommendations for better management of multi-family housing are offered. This book is excellent reading for policy-makers and designers.

15. *The Environmental Research and Development Foundation (2030 E. Speedway, Suite 116, Tucson, Arizona 85719), Post-Occupancy Evaluations of Residential Environments: An International Bibliography*, (U.S. Department of Housing and Urban Development, Office of Policy Development and Research, Washington, D.C. 20410, April 1977.)

This bibliography can provide further information on specific residential environments.

#### SUMMARY

The issue of crime prevention through environmental design has received increasing attention during the last decade. Through state and local crime prevention leadership in California attention is being increasingly focused on this subject.

As more communities institute design review committees with representatives of each agency concerned with physical planning, the increased communication and cooperation will give us safer and more livable environments. Academic interest in the area is increasing and, while research results are not conclusive, they are encouraging. It will require more time and communication between the researchers and the people who carry out crime prevention responsibilities, but the future holds great promise in increasing our knowledge of how humans relate to their environments and each other.

**END**