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## CRIME PREVENTION THROUGH BUILDING CODES

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**Abstract:** Recently, throughout the crime prevention field, there has been a great deal of discussion concerning the advantages of strategies that prevent crime by reducing the opportunity for criminal occurrence. These discussions encompass Crime Prevention through Environmental Design, Community Crime Prevention Planning, Police Roles in Crime Prevention, and the topic of this paper, Security Code implementation. This final topic encompasses the advantages of establishing minimum security standards, increasing citizen awareness of security, and legitimizing crime prevention as a responsibility of the community.

This paper will discuss the typology of building security codes and the processes of implementation and compliance. The evaluation of a code's effectiveness will be discussed and sources of resistance to code implementation outlined. Finally, recommendations are made for successful adoption of security codes in your community.

**Key Words:** building security, crime prevention, security codes, community awareness, code implementation.

During the past decade, the expenditure of funds on the criminal justice system has increased drastically; this is only exceeded by the skyrocketing crime rate. Officially reported property crime has risen 160 percent, and the violent crime rate has jumped up 190 percent [ 1 ]. The police recorded only 906,000 burglaries in 1965 but over 3,000,000 in 1974. The burglary rate rose 233 percent in the 10 years between 1965 and 1974 [ 1 ].

Burglary and property crime has become a national problem plaguing cities and law enforcement agencies [2,3]. However, it has been shown by some communities that up to half the burglaries are preventable. In up to one-third of the burglaries in the city of Seattle and in the state of Minnesota, the burglar simply walked in [4,5]. Another one-third of burglaries are accomplished with the use of minimal force, that is, breaking a window or jimmying a key in the knob door lock [5]. Almost 60 percent of burglars apprehended are persons under the age of 19 [4,5]. Opportunity allows these juveniles to gain easy entry for theft.

Reduction of opportunity to commit crime through controlled design of the physical environment should be an integral part of any crime prevention program. Many communities are attempting to reduce residential and commercial crime through security code adoption or the revision of building codes to include security provisions [3,6]. Approximately 500 cities have enacted minimum building security ordinances enforced by routine inspections during new construction. (The precedent set with fire inspection and prevention now encompasses security inspection and crime prevention.)

## **Background and Types of Building Codes**

Historians document building codes from the time of the Babylonian empire of Hammurabi, about 2000 B.C., through Nero's Rome, twelfth century Europe, seventeenth century England, and nineteenth century America. Building codes evolved in a progression of responses to death-dealing building collapses in each era. [3].

Model codes that govern regions of the country came from these early regulations. For example, the Uniform Building Code applies to communities on the West Coast; the Building Officials Code Administrators (BOCA) Code is used in the Midwest; the Southern Standard Building Code is used in the South. Major industry and professional groups have developed model building codes for use in local communities.

Building codes can be written as either performance or design specifications. Performance specifications do not limit the selection of methods and systems to a single type but establish the requirements of performance for building elements. For example, an outside wall would be required to support certain loads and forces and meet insulating and permeability requirements. Any system meeting the code requirements would be acceptable, regardless of materials and methods used [7].

In a security context, performance specifications are usually expressed in terms of the length of time that a barrier system must withstand a specific kind of attack [3]. True performance specifications are ideal, but not practical. A problem with performance specifications is that they may leave no room for the use of products or devices that can do the job as well. Performance provisions may tend to freeze out new developments in the area and thereby reduce competition. Performance standards must be carefully evaluated to ensure that they are applicable to the specific conditions considered.

Design specifications establish building construction requirements by reference to particular materials and methods of construction. These specifications may allow or define any one of a number of devices or systems in order to provide an accurate description of desired security. The National Advisory Commission on Community Crime Prevention suggests that standards should be set for security devices and materials in terms of effectiveness, not design. Pure design specifications are too rigid and do not allow for improvements and innovations in security hardware. Materials become obsolete as new and better products are developed [8].

A workable solution lies somewhere between performance and design specification codes. The effectiveness of the specification will be in the ability to get the job done. Empirical evidence from continued research and product testing will provide the feedback necessary for improved technology and methods of construction. The California Crime Technological Research Foundation, for example, has determined that a man who is 180 lb and 6 ft tall can lift 100 lb, grip 131 lb, and produce shoulder impact against a door of 1800 lb or 777 lb with his feet. This information, as well as data generated by the National Bureau of Standards and ANSI/ASTM F 476-76 (Tests for Security of Swinging Door Assemblies) Standards, provides the essential feedback for proper utilization of technology and construction methods.

## **Implementation**

The code approach is one of the strongest methods of implementing crime prevention policy. Other methods, voluntarily implemented, include: Operation ID, Neighborhood Watch, Lock-Your-Car/Pocket-the-Keys, Outside Lighting, and Officer Friendly programs. However, a security code is not voluntary. It is required by law and enforced

as part of the building code.

The concept of building security and protection of people and property against crime was originally not encompassed within the concepts of health and safety codes. In the early part of this century when most codes were written, the awareness of residential and commercial crime was not as it is today. Now we realize that many murders and sexual assaults have started with the commission of a burglary. Loss of property and bodily injuries resulting from crime in or around residences and businesses can be more severe than losses suffered from fire.

Physical design and planning decisions affecting crime have been generally ignored by cities. Cities thereby run the risk of perpetuating a physical environment which will facilitate the opportunity for crime [4]. The impact of a security code on the built environment would be in all-new construction and major renovations. Existing construction is not covered because of the financial expense of renovating in order to meet standards.

Security code compliance is assured by having the architectural plans for all new construction submitted to the regulating building department for approval. Normally this is done to ensure compliance with other regulations (for example: setbacks, water mains, structural soundness, parking requirements, exit requirements). A building permit would be issued to construction projects meeting building code requirements including those of security. Building inspectors and key police personnel might have to receive additional training. This can be done through in-service training or by community education.

### **Complications: Resistance to Compliance**

Implementation of a national model security code has been delayed by increased pressure from interest groups on the code networks. Four forms of resistance have evolved to oppose security codes. The strongest is from builders and developers. Their resistance is based on the increased cost of building low-cost housing. Builders fear this would ultimately result in less profits.

The second form of resistance is from building and zoning officers. Officials argue that enforcement is the problem. Enforcement of security codes, however, would require only minimal additional training, in our opinion.

The third form of resistance comes from citizens, often businessmen. The argument presented is that implementing security code requirements in the form of alarm systems, security hardware, and lighting is a financial burden. The businessman often conceives of security requirements as increased overhead and, perhaps, less profits.

The fourth form of resistance is from law enforcement agencies. On all levels of government, police officers feel burdened with each new law they must enforce [9,10]. In existing security codes, it is usually the responsibility of the local chief of police. Police have been traditionally uninvolved with the building process and are largely unfamiliar with security hardware and architectural techniques. Law enforcement agencies may not wish to take on another responsibility in addition to their already burdensome workload.

Arguments against implementation are sound, especially in short-term dollars and cents. However, many hundreds and thousands of dollars (not to mention lives and injuries) could be saved by more and better security equipment and crime prevention. Many developers and trade associations have lobbied against security codes, saying they do not believe codes should regulate social behavior, decrease their profit, or both, by specifying expensive security hardware. In the construction phase, the difference between installing normal hardware and installing burglar-resistant hardware is about \$200 to \$300 per average \$45,000 household [12]. To retrofit an existing residence would cost \$350 to \$600. This increase is due to double labor costs, retail purchasing power, and inflation. (In many condominium complexes, security features are becoming a strong selling point and may be actually increasing sales. Guard houses, doormen, special mirrors by mailboxes, and security hardware are examples of these security features.)

Building and zoning officials resist because of the cost involved in additional training and site inspections to require compliance. Many communities have recruited local locksmiths who were only too glad to consult for the city, or they asked for technical assistance from the National Crime Prevention Institute, state crime prevention associations, or local police. Since most local governments have cost incentives for continued education units, staff could use crime prevention continued education courses for job advancement. Taxpayers would pay for this education but would realize the benefits in future safe and crime-resistant construction.

Businessmen claim excessive cost and regulation are putting them out of business [13]. This is not so with security. While the initial cost is high, costs for capital improvements are deductible and depreciate for the life of the system. In addition, alarm and security systems earn premium discounts in twenty of the top insurance firms [14]. All of these advantages certainly offset the costs involved since they work to prevent the costly loss of merchandise and business resulting from crime.

Police personnel have resisted preventive strategies to reduce crime because of difficulties in proving positive results [15]. If police activity was reduced by proven cost-effective benefits of reduced burglaries and greater citizen participation, police would support security codes. The police have valuable insight to offer. They should and must

be involved in the code planning process [3]. Law enforcement agencies are given the responsibility of protecting and dealing with the community after the planning and development are completed. If further progress is to be made in crime prevention, especially security surveys and security ordinances, an effort documenting the impact of security codes is essential [6]. In cities where documentation has been available, a positive decrease in burglary with statistical significance has been shown (down 48 to 61 percent [5], down 22 percent [4], down 10 percent [16]).

## Evaluation

Evaluating the effectiveness of a crime prevention program is difficult due to the inability to control many environmental factors simultaneously. People's lives involve different time schedules, life-styles, moral commitments, and work requirements. One particular problem is the difficulty of obtaining an accurate accounting of crime. The Uniform Crime Reports statistics reflect those crimes reported to police, but do not reflect the true base rate. Victimization surveys show sometimes eleven times more crime - for example, rape - than reported [17]. When a crime prevention program is implemented, often community reporting and awareness are increased, as was the case in Portland, Oregon [18]. In Portland, a program in commercial crime prevention was implemented and resulted in a 30 percent increase in calls for service and reporting.

In Seattle, a 27 percent increase in calls for service resulted [5]. As a result, after a program is implemented, the data received look like a "crime wave." This may be a truer reflection of the actual crime rate [18]. This short-term rate increase is sometimes not understood by local politicians or police who may have to account for the increase.

Crime prevention programs involve political decisions to make policy changes in the community. They often involve considerable pressure to show statistical decrease in crime to justify the added expense and inconvenience. This statistical decrease is not likely at the beginning due to increased reporting and more accurate accounting of actual crime. It takes time for a program, especially a building code, to be initiated and implemented to the point that it shows a statistical impact on the crime rate.

The National Advisory Commission on Community Crime Prevention believes that the responsibility for determining the effectiveness of security standards based on performance lies with building, fire, and police departments and interaction with the community, criminal justice planners, architects, and businessmen. Effectiveness standards may be implemented through performance requirements that specify varying levels of compliance. Requirements must be differentiated for the type of structure involved; the level of compliance to these requirements would depend upon

the level of crime to be encountered [ 19].

One of the first United States security building codes was implemented in Oakland, California, in the mid-1960s. Enforcement of the Oakland ordinance has been mostly on a voluntary basis [20]. The only valuable information available is the number of commercial and residential burglaries by year. Commercial burglaries continued to rise on the average of 14 percent a year for 4 years after the Oakland ordinance was passed. Residential burglaries have been decreasing on an average of 7 percent per year [20].

In Dade County, Florida, a security ordinance was passed in the South Florida Building Code in 1973 [21]. Burglary was increasing quite steadily, but after the code was in effect about two years, a drop was recorded for the following two years (1976, 1977). Burglary reached a peak in 1980 of 3,092 burglaries per 100,000 Dade County residents. (1980 was the year of the Mariel Cuban refugee boatlift, which included thousands of released convicts.) From 1981 through 1983 there was a drop in burglaries, with a slow increase during 1984 and 1985. Burglary from 1975 to 1985 showed a 10 percent decrease in rate per 100,000 population, even though burglary in 1985 was 42 percent higher than 1972 (before the code went into effect).

The Miami building code apparently did not reduce robbery. Robbery increased 66 percent from 1975 to 1985 and reflects a 93 percent increase from 1972 to 1985. (1980 reflected a 74 percent increase in robbery over the prior year.) With increased enforcement, robbery dropped from 1981 through 1983. A small increase in robbery is noted for 1984 and 1985. The Dade County Public Safety Department confirmed that while violent crime against persons is on the increase, clearance rates remain high (80 percent).

Builders and contractors have a high compliance rate with the security regulations as all plans must receive approval from the building department. Windows, locks, and doors must meet the specifications elaborated in the security addendum. The building code used in southeast Florida is the South Florida Building Code, which affects six large counties in south Florida. Only Dade County has adopted the security ordinance addendum. Future study would be warranted to compare the success or failure in rates of burglary and robbery in those counties not adopting the security ordinance. (It is important to remember that Dade County bore the full effects of the Mariel refugee influx of 250,000 Cubans into Miami. Other counties did not feel effects of that influx until years later.)

Evaluation of a security ordinance is absolutely essential in determining cost effectiveness. Good logic and common sense are not enough to convince politicians, police administrators, city managers, or proprietors of the benefits of increased security

and crime prevention. Effectiveness of standards must be shown empirically to ensure full compliance by contractors and businessmen who bear the expense of the ordinance. The National Advisory Commission "believes that government and private construction and renovation loan sources should make adequate security measures and compliance with the security requirements of the building code condition for obtaining funds [19]." Evaluation should also be required as a condition for obtaining funds, according to the National Crime Prevention Institute:

"In the long run, evaluation may be the single most important task faced by the crime prevention program. Unless the program is capable of measuring its actual effect on crime patterns, the degree to which its plans and activities achieved results cannot be determined. Without this knowledge as to results, it is impossible to plan accurately for subsequent activities. Moreover, it may be difficult to convince the community that it is worthwhile to continue investing in and cooperating with the crime prevention program [3]."

## Summary

The impact of the environment upon the organism has been ignored too often and misunderstood. By ignoring the effect of physical design and planning decisions on crime, cities run the risk of perpetuating a physical environment which will facilitate criminal victimization.

Building codes are a tool for cities to implement security standards. With minimum security standards, there is the potential to improve the built environment so it is burglary-resistant. Security standards are written in either performance or design standard specification style. Either style individually is not totally effective, but the proper balance can provide positive results. Security standards are intended for use in new construction and major renovation.

The only way that security standards can be effective to the community is if they are valid and reliable, empirically tested and proven, and complied with to the fullest extent possible. By keeping good records of new construction and looking at burglary rates, cities can determine the degree of compliance. There may be strong resistance to compliance by builders, businessmen, building departments, and police agencies. In order to counter their resistance, it must be shown that the benefits outweigh any inconvenience. Therefore, evaluation is needed of those communities that have existing ordinances. Evaluation must be built in as a component of any further code developments.

The following recommendations are made:



1. Cities should support neighborhood crime prevention programs with emphasis on target communities, crimes, and victims.
2. Funds should be provided for planning of crime prevention programs as well as implementing, monitoring, and evaluating these programs.
3. City planners, building inspectors, architects, contractors, and other appropriate nonlaw enforcement personnel should receive training in the philosophy and techniques of crime prevention to facilitate city-wide integration. These non law enforcement personnel should give appropriate consideration to security issues in the planning, design, and review stages of residential and commercial developments.
4. Local police departments should participate in the formal review process of proposed commercial and residential developments as well as through the construction phase to ensure compliance with codes and installation of adequate security systems. This would require key personnel to receive minimum training in planning and architectural design so that they can actively participate in the design process.
5. As part of their crime prevention campaign, cities should develop an educational program to inform citizens of specific crime problems and increase their security awareness.
6. City, state, and national model codes should adopt security provisions which would expand minimum security standards to be adopted by the local communities. Application of these standards should be to all new and substantially remodeled construction.
7. An aggressive premises security survey program, to be undertaken by the city, should be pursued to identify present deficiencies and excesses and make recommendations to improve overall security. Identification of all valuables with a code number is also desirable.
8. Evaluation should be made annually of the implementation of security recommendations.

Further exploration is needed to determine what role all environmental and psychobiological factors have in the commission of crime, It is easy to approach problems with bigger and stronger locks, but there needs to be more levels of involvement, by citizens and government, in reducing opportunity for criminal behavior. However, since one-third of residential burglaries involve an unforced entry and another one-third a minimal forced entry, upgrading security requirements will

deter both the youthful and casual opportunity offender. Criminal assaults and property losses should be considered serious enough to warrant security standards to reduce burglary.

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