

**REPORT OF THE  
VIRGINIA STATE CRIME COMMISSION  
ON DEADBOLT LOCKS**

**REPORTED TO  
THE GOVERNOR  
AND  
GENERAL ASSEMBLY OF VIRGINIA**



**SENATE DOCUMENT NO. 18**

**COMMONWEALTH OF VIRGINIA  
Department of Purchases and Supply  
Richmond  
1976**

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# COMMONWEALTH OF VIRGINIA



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January 26, 1976

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TO: The Honorable Mills E. Godwin, Jr.  
Governor of Virginia  
and  
The General Assembly of Virginia

This report is pursuant to Senate Joint Resolution 160 of the 1975 Session of the General Assembly which directed the Virginia State Crime Commission to study the feasibility and necessity of requiring certain landlords to provide deadbolt locks and peepholes in the doors of units rented or leased by such landlords.

The findings and recommendations of the Commission's study are contained in this document.

Respectfully submitted,

Stanley C. Walker

SCW/ne

1                   AMENDMENT IN THE NATURE OF A SUBSTITUTE  
 2                                   FOR SENATE BILL NO. 859  
 3                                   SENATE JOINT RESOLUTION NO. 160  
 4           (Proposed by the Senate Committee for Courts of Justice)  
 5 *Directing the Virginia State Crime Commission to study the feasibility and necessity of*  
 6 *requiring certain landlords to provide dead-bolt locks and peepholes in the doors of*  
 7 *units rented or leased by such landlords.*

8       WHEREAS, the national and State rate of crime is constantly  
 9 on the rise, particularly in the area of crimes against the person; and

10       WHEREAS, dead-bolt locks and peepholes in the entrance door  
 11 or other doorways of a dwelling do afford a certain degree of  
 12 deterrence against criminals; now, therefore, be it

13       RESOLVED, by the Senate of Virginia, the House of Delegates  
 14 concurring, That the Virginia State Crime Commission is hereby  
 15 directed to conduct a study as to the feasibility of requiring  
 16 landlords to provide such dead-bolt locks and peepholes, at their  
 17 own expense, in units such landlords rent or lease as a dwelling.

18       The Commission shall report its findings to the Governor and  
 19 the General Assembly no later than November one, nineteen  
 20 hundred seventy-five.

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30	Official Use by Clerks	
31		<b>Passed By</b>
32	<b>Passed by The Senate</b>	<b>The House of Delegates</b>
33	with	with
34	without amendment	without amendment
35	Date: .....	Date: .....
36	Clerk of the Senate	Clerk of the House of Delegates
37		

VIRGINIA STATE CRIME COMMISSION

Report on

Deadbolt Locks

JANUARY 1976

The rate of residential burglaries in the United States has been increasing steadily during the last decade. The uniform crime reports issued by the FBI last year entitled Crime in the United States - 1974, states that residential burglaries rose 60% in the nighttime and 67% in the daytime during the period of 1969-1974. The Law Enforcement Standards Laboratory (LESL) of the National Bureau of Standards reports that losses from burglary totaled \$723 million in 1972, two-thirds of which were from private dwellings.<sup>1</sup>

The LESL, in reviewing available studies and statistics on burglary, discovered that 65% of all burglary entry attempts were directed at doors. Further, review of attack methods showed that 85% of all burglaries could be classified as "crimes of opportunity."

Such crimes are typically committed by the inexperienced or semi-skilled burglar, encouraged by the ready accessibility of doors and windows that are vulnerable to attack and are easily defeated with simple hand tools.<sup>2</sup>

In residential security systems the lock is considered the first line of defense. Vulnerability to attack and ease of defeat of doors and windows are the result of inferior and improper use of locking devices. Officer James Carlton, a crime prevention officer with the Richmond Police Department who evaluates residences and makes recommendations for security improvements, says that the average key-in-knob type lock can be defeated within 5-10 seconds with an ordinary pick and screwdriver.

Of the many different kinds of locking devices on the market the dead-bolt lock is considered the most effective as a security measure and as a deterrent to burglary. Construction of this lock is such that when properly installed and used the time required to gain entry, according to Officer Carlton, rises from the 5 second to the 4 minute category. The pick-resistant qualities of this lock reduce its vulnerability to attack particularly by the

simple hand tools used by the average burglar.

No security system is effective against intrusion unless it is employed. Therefore, the use of a peephole is generally recommended for inclusion in residential security systems. This device allows the resident to view the outside entry area while maintaining the security of the locking hardware.

Recognizing these facts, the 1975 Session of the General Assembly, in SJR 160, directed the Virginia State Crime Commission "to conduct a study as to the feasibility of requiring landlords to provide such deadbolt locks and peepholes, at their own expense, in units such landlords rent or lease as a dwelling".

The LESL defines a deadbolt as

a lock bolt which does not have a spring action as opposed to a latch bolt, which does. The bolt must be actuated by a key and/or a knob and becomes locked against return by end pressure when projected.<sup>3</sup>

The deadbolt lock may be installed either as a primary lock or an auxiliary lock.

Although there are many different varieties of the lock, the deadbolt has two main construction categories: the single cylinder and double cylinder. The single-cylinder deadbolt requires the use of a key for locking and unlocking on the outside but only the use of a thumb latch from the inside. The single-cylinder deadbolt is not recommended for doors having glass within 40 inches of the thumb latch since the lock may be defeated by breaking the glass and turning the latch. The double-cylinder deadbolt requires the use of a key for locking and unlocking from both inside and outside. This lock is generally considered preferable to the single cylinder although it has been criticized as potentially hazardous for emergency exits. The need to find and operate a key may delay escape which has caused some municipalities

to prohibit its use as a fire hazard.<sup>4</sup> The double-cylinder deadbolt lock may, however, be used as a single-cylinder device by leaving the key in the lock and using it as a thumb latch. This is recommended for convenience as well as safety but the key should be removed when the residence is vacant for maximum effectiveness.

The hardening qualities of the deadbolt lock come from the inability to force the latch bolt into the cylinder once the lock has been engaged. This allows the lock to resist attack by such methods as pushing back the bolt out of the strike with a credit card (loiding). This quality is absent in cylindrical or key-in-knob locks which are the most widely used in residential construction because they are inexpensive and easily rekeyed. (The simplicity of rekeying these locks makes them particularly popular in apartment construction.) Key-in-knob locks are generally made of light-weight metals with the cylinder located inside the knob. Some of the cheaper varieties of this lock do not even have a deadlatch. This combined with the spring action of cylindrical locks makes them especially vulnerable to the simplest of attacks including loiding and jimmying.

The proper use of a deadbolt lock offers several other advantages due to its hardening qualities in addition to delaying the time of defeat and subsequent entry into a residence. The inexperienced intruder is inclined to pass by a residence employing such locking hardware in favor of "easier picking". A properly locked double-cylinder deadbolt can prevent large items such as furniture, televisions and stereos from being removed from a dwelling even if entry is gained by another means (e.g. a window). If the key has been removed from the inside the intruder will be unable to open the door and may even find himself trapped inside.

In Virginia, the State Building code requires that any residence constructed after January 15, 1976 be equipped with deadbolt locks for all exterior



swinging doors. Specifications stipulate that such doors

be equipped with a horizontal bolt dead lock, or a dead bolt with not less than five-eighths inch (5/8") throw, and the lock on these exterior doors shall be capable of being locked or unlocked by key from the outside and by turn-knob from the inside.<sup>5</sup>

The building code further requires that comparable locks be provided for exterior sliding-glass doors and window latches for windows less than 10 feet from ground level.

For residential tenants not affected by the Building code revisions, the 1974 Landlord and Tenant Act permits the installation, at cost to the tenant, of burglary prevention devices such as deadbolt locks provided they do not damage the apartment and keys and instructions for the devices are left on file with the landlord. Until passage of this act tenants were not allowed to install additional locking hardware without the prior approval of the landlord.

During a public hearing conducted by the Commission and in letters submitted to the Commission, realtors cited the Landlord and Tenant Act provisions as adequately covering the matter of deadbolt locks. Since the act allows tenants to install the devices if they desire, the realtors felt forced compliance unfairly put the financial burden on the landlords. In addition they cited lack of requests by tenants for the locking hardware and implementation of other security measures such as better lighting and parking lot security as more urgent and more popular with tenants.

In order to obtain information on price and installation of deadbolt locks, a random survey was taken of locksmiths and lock shops in the Richmond, Roanoke, Northern Virginia and Tidewater areas. Price ranges on deadbolt locks varied from as little as \$4.50 for a single-cylinder deadbolt with a one-half inch throw up to \$40.00 for a double-cylinder deadbolt with a one-inch throw and other security features. More expensive and complicated

deadbolt locks are available but are seldom used or recommended for residential security.

In addition to the price of the lock the purchaser may have to pay an installation charge and/or a service charge to have deadbolt locks installed. Although it is possible for the purchaser to install the lock himself, the proper tools are required and many of the locksmiths surveyed do not recommend that it be installed by an amateur, especially on metal doors. Installation charges ran from free to \$30.00 for the lock shops surveyed and service charges ran from free to \$20.00. Installation charges also varied according to the type and complexity of the lock and service charges often varied with the distance required to travel from the shop to the residence.

According to Officer Carlton, deadbolt locks meeting the specifications recommended by the Richmond Police Department for residential security can be purchased within the \$16 - \$37.00 price range. These specifications include that the lock be a double-cylinder deadbolt with a one-inch throw and have a free-wheeling, solid, hardened-steel cylinder guard.

Locksmiths and lockshops were also surveyed on prices and installation charges for peepholes. Prices for the popular models ranged from as low as \$1.00 to \$7.95; installation fees ran as high as \$15.00; service charges usually ran about \$4.00. Many of those surveyed noted that peepholes are often installed at the same time as locks and the service charge is often absorbed into the fee for lock service.

Apartment complexes were surveyed to obtain information on types of locks used and policies regarding installation of additional locks, particularly deadbolt locks requiring additional keys. The vast majority of apartment managers responded that their apartment doors were equipped with the standard key-in-knob or latch lock installed during construction but additional locks including deadbolts were allowed if the tenant bore the expense and agreed

to leave a key on file in the office. The key-on-file stipulation was required in case of emergency. Despite provisions in the Landlords and Tenant Act, several apartment complexes do not allow installation of additional locks; one was found to prohibit it in the lease. Another complex allows its tenants to install deadbolt locks if they signed a document stating that the complex was not liable for damages incurred if the management was unable to enter the apartment in event of an emergency (e.g. fire). High-rise apartment buildings with a lobby entrance usually had deadbolt locks on the exterior doors and provided other security measures such as guards or intercom systems. One complex installs free of charge deadbolt locks if the tenant purchases the lock. Very few complexes provide deadbolt locks during construction or later at their own expense. The one notable exception is Arlington County which requires by law that landlords provide deadbolt locks on all apartment doors regardless of date of construction. All complexes surveyed in that county provided deadbolt locks with many noting they had been installed before the ordinance had passed. Only one complex in the city of Fairfax and two in Alexandria did not provide deadbolt locks.

None of the apartment complexes surveyed provided additional locks for sliding-glass doors although some did provide pieces of wood to be placed in the door tracks to prevent the door from sliding open if the lock had been defeated.

The majority of complexes provide peepholes in apartment doors and most of those which do not allow them installed by the tenants. Arlington County requires peepholes by ordinance.

The effectiveness of deadbolt locks in residential security has prompted several agencies on the federal level and localities in several states to adopt laws and regulations for their use. A HUD handbook on Security Planning for HUD-Assisted Multifamily Housing, for instance, stipulates that such dwelling be equipped with deadbolt locks since:

Locks equipped with spring latches only (but not deadbolt) are unsatisfactory, because an intruder can easily push back a spring latch with a celluloid strip. "Key-in-knob" locks should not be relied upon for primary exterior lock protection, since a determined burglar can break them with relative ease.<sup>6</sup>

A report entitled Residential Security put out by the Department of Justice and funded by LEAA, specifically notes the hardening qualities of deadbolt locks. Ordinances adopted in counties in California, Louisiana and Virginia (Arlington County) require the use of deadbolt locks on apartment doors.

Although the deadbolt lock is considered the most effective hardening device in residential security, many varieties of the lock are poorly constructed and offer little resistance to attack. A deadbolt lock having a throw of less than one inch may be defeated by pushing the door jambs thereby spreading the frame and releasing the bolt from the strike hole and permitting entry. Deadbolt locks made of cheap, soft metals will not resist force attacks with a hammer, pry bar or other heavy tools. Locks lacking a free-turning solid hard-metal cylinder guard can be pulled out of the door with a hammer or pry bar. Lack of hard metal security roller within the deadbolt may permit defeat by sawing through the bolt. Lack of a blank plate or permanent-type caps for installation bolts may permit removal of the cylinder and thereby access to the interior parts of the lock.

Installing a deadbolt lock, therefore, does not insure maximum security against intrusion. A single-cylinder deadbolt lock will not, for example,

effectively secure a dwelling if an intruder can reach the inside thumb latch by breaking nearby glass. A cheap model deadbolt lock will not withstand attack by common burglary tools.

In 1973, Atlas Testing Laboratories, Inc. tested nine popular models and makes of deadbolt locks against attack by a claw hammer. Locks were defeated in as little as one second.\*

It is important, therefore, that the purchaser of deadbolt locks be aware of these facts before installing the hardening hardware. Officer Carlton stressed during his presentation that any legislation or ordinance enacted requiring the use of deadbolt locks must specify minimum standards to avoid the cheaper and ineffective models. Any legislation adopted, he feels, must stipulate that the deadbolt lock be a double cylinder with a one-inch throw and contain a solid, hardened-cylinder guard that free-wheels. The HUD handbook states that:

Every exterior dwelling unit door should be equipped with a deadbolt mortise lock with a 'throw' of at least one inch, constructed of case-hardened steel, brass, zinc alloy or bronze . . . Protruding cylinders should be avoided, or protected by a spinner ring, a bevelled ring cylinder guard or excutcheon plate.<sup>7</sup>

The Alexandria Police Department is in the process of developing its recommendations for hardening devices for multifamily dwellings that will be specific in its requirements for locks.

It must be taken into consideration also that the use of a deadbolt lock will not provide effective security if the door into which it is installed offers inferior security. Lawrence K. Eliason, Program Manager, Security Systems of the Law Enforcement Standards Laboratory, writes

\*It must be noted, however, that manufacturers of those locks tested have since upgraded the quality and security features of the models tested.

Our studies of forcible entry have clearly demonstrated that simply specifying the use of a deadbolt does not insure the security of a door. The best deadbolt available is worthless if the door, strike, and jamb do not resist attack. . . . All too frequently, the strike plate is not designed in a manner which allows it to withstand the force that a bolt exerts upon it when a door is impacted. Similarly, the jamb and its surrounding wall may not be sufficiently rigid to prevent the door assembly from being spread by the use of a jimmy, crowbar, or jack. . . . Of course, the door too must withstand attack without permitting the deadbolt to be broken out of it.<sup>8</sup>

Many hollow-core doors popular in apartment construction will not withstand the weight or force of the better made deadbolts. In order to insure adequate protection against intrusion, then, minimum standards should be established for door assemblies corresponding to lock requirements.

In addition to doors, windows and sliding-glass doors offer easy means of entry to a residence. A total program of target hardening should include security measures for these areas also. A securely bolted door is little deterrence to a burglar who is able to lift a sliding-glass door out of its tracks or slide open a window. There are on the market many varieties of hardware which can effectively prevent entry if properly employed. These devices include various types of pins, hinge locks and other locks many of which can be keyed controlled. The prices vary according to complexity and construction but most are generally inexpensive. Use of such devices should be considered in residential security systems.

The Alexandria City Police Department conducted a burglary prevention experiment to test the effectiveness of various hardening devices against burglary. A total of 230 businesses, homes and apartments were selected as the test group and received security hardware including deadbolt and window locks. The test results showed that:

Not a single burglary was committed against a hardened unit

"where the hardening device was defeated". There were 86 burglaries committed against unhardened units (86 offenses vs 750 units = 11.5% burglar rate).<sup>9</sup>

The test results go on to say that:

The incidence of successful burglary can be reduced through the installation and use of physical and locking devices similar to those used in the test.<sup>10</sup>

In reducing residential burglary, then and in providing protection against intrusion, the deadbolt lock is an effective device. Like other locks, however, it is not "burglar-proof" but will succumb to prolonged and skilled attack. As a piece of hardening equipment its value is that it works to maximize the security of a door, resists attack by the unskilled burglar and delays entry by the skilled burglar.

The Crime Commission recognizes the security afforded by the use of the deadbolt lock in residential security programs. However, because of the State Building Code provisions regarding deadbolt locks effective in January 1976 and the Landlord and Tenant Act provisions regarding the installation of burglary prevention devices by tenants, the Commission feels a statewide regulation requiring landlords to provide deadbolt locks at their expense on all apartment doors is unnecessary. The Commission does, however, suggest that localities, particularly in the heavily populated areas of the state, which experience a high rate of residential burglary, consider the adoption of such a measure as a local ordinance.

## ENDNOTES

- <sup>1</sup>\_\_\_\_\_, "Establishing Security Standards the Government Way",  
Locksmith Ledger, July, 1974, p.39
- <sup>2</sup>Ibid.
- <sup>3</sup>\_\_\_\_\_, Physical Security of Door Assemblies and Components. U. S.  
Department of Justice, Law Enforcement Assistance Administration,  
1974, p.4
- <sup>4</sup>\_\_\_\_\_, Residential Security. U. S. Department of Justice, Law Enforce-  
ment Assistance Administration, Washington, D. C. 1973, p. 25  
  
\_\_\_\_\_, State Building Code, Section 612.5.6
- <sup>6</sup>\_\_\_\_\_, Security Planning for HUD-Assisted Multifamily Housing.  
U. S. Department of Housing and Urban Development, Washington,  
D. C., 1974, p. 24
- <sup>8</sup>Letter from L. K. Eliason, Program Manager Law Enforcement Standards  
Laboratory, Ltd., May 13, 1975
- <sup>9</sup>\_\_\_\_\_, Burglary Prevention Experiment, Alexandria City Police Department,  
Alexandria, Virginia, 1974 p. 4
- <sup>10</sup>Ibid. p. 8