



## FORCIBLE ENTRY (1.1)

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- NFPA 1001

### FORCIBLE ENTRY OPERATIONS

The objective of this manual is to provide the reader with a comprehensive study of forcible entry. Although it cannot cover every aspect or technique of this demanding skill, it does cover those techniques that have proven to be successful.

In the fire service, the term "**forcible entry**" is defined as the act of gaining entry into a building or occupancy via a door, window or even through a wall, by the use of force. Again it is important to understand that the fire cannot be extinguished, searches cannot be made, and extension of fire cannot be checked until entry is made. The firefighter assigned the job of gaining entry is given that responsibility. To accomplish this task, there are an assortment of tools and techniques. This manual will introduce to you. Some techniques are basic, others are more difficult, but all are achievable.

Proficiency: Why all firefighters should be proficient in the basic forcible entry skills.

- ✓ The need for speed in gaining entry. It is important to realize that most fire and emergency operations start at the front door or main entrance. Before any tactical moves can be made (e.g. search, rescue or the stretching of a hand line to the seat of the fire) the entry door has to be opened.
- ✓ Reduce damage resulting in improper techniques. Most people given tools can gain entry. A door can be "battered" down with an axe (the movie version). However, until we take into account what is behind that door, we want to ensure the door's integrity. Why destroy a perfectly good door for a non-fire emergency? With the proper training, most firefighters will be able to open a door with minimal damage.
- ✓ Professionalism. This is the benchmark of a good firefighter. The firefighter represents the department and ultimately the city. Pride in our work will reflect pride in the department. By reducing the damage to a minimum, we ensure the safety of the people we serve. Remember that when we leave the fire scene, the doors we destroy leave the occupants vulnerable to further loss from vandalism. The people we are sworn to serve rely on our good judgment. As a firefighter, you have an obligation to get the job done safely, efficiently and with the least amount of damage. At times, brute force must be combined with skill, technique and knowledge. You control that action.

For situations such as: water leaks, steam leaks, lock-ins, etc, consider the least damaging means of gaining entry. In some instances, you may be able to enter through a window or by using a "Through the- Lock" method of entry. Always use common sense when forcing your way into any premises; you never know what is behind that door or window. You must also consider what will happen once your job is done. Who will provide security for the occupancy after you leave? In order to become proficient in the skill of forcible entry, you should have a mixture of:

- ✓ Hands on training- this is the primary way to sharpen your skills.



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- ✓ Experience: Firefighters learn by going to fires and emergencies and actually "forcing the door."
- ✓ Knowledge-This may be gained by experience, reading, observing, attending training seminars, and also by exchanging information and ideas with other firefighters.
- ✓ Common sense- Sixing up an incident and trusting your instincts; they are usually correct. "Why Are You There?" What are the reasons for entry? Is it a tactical response? That is, for a fire and/or life-threatening emergency, or is it a routine response for a non-life-threatening emergency? In either situation, control, speed and effectiveness of access to the area of operations will justify the amount of damage done by the firefighter. Remember, the goal is to: save life, extinguish fire and control all hazards.

**Forcible entry**- Gaining access to a structure when normal means of entry are locked, secured, obstructed, or unable to be used for some other reason.

Most important factor in forcible entry is "Try Before You Pry!"

## TASK SKILL DESCRIPTION AND DETAIL

### General Safety Points

- ✓ Always wear appropriate level of personal protective equipment
  - This includes helmet, gloves, structural gear, and eye protection
- ✓ Position away from potential products of combustion
- ✓ Preserve body mechanics for tool use
- ✓ Observe conditions around forcible entry point at all times
- ✓ Ensure that forcible entry operations do not negatively affect fire operations
- ✓ Control the force of object being forced (door, window, garage door, ect)
- ✓ Ensure that once entry point is forced, it remains open

Here is a general list, but not limited to, of forcible entry tools used by Loveland Fire Rescue:

- ✓ Striking tools
  - Flat head axe
  - Sledgehammer or maul
  - Denver tool
- ✓ Prying/Spreading tools
  - Halligan
  - Pry bar
  - Crow bar
  - Hydraulic tools
- ✓ Cutting tools
  - Axe



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- Bolt cutters
- Circular saws
- Chainsaws
- BROCO torch
- OXY-Acetylene torch
- ✓ Lock/Specialty tools
  - K tool
  - Shove knife
  - Bump keys
  - Chained pliers

General rule of thumb for sizing up a forcible entry situation

- ✓ Door/Window
  - Which way does the door/window open?
  - What type of construction is the door/window?
  - What type of frame is the door/window installed in?
  - What type of material is the frame installed in?
  - What type of locking mechanism is being used?
  - Will forcing this door/window negatively affect the fire conditions on the other side?

### Doors

Care must be taken to successfully size up the door construction prior to forcing. The material of the door, door frame, and hardware are all items that need to be considered. In some cases the best option may be to force the wall adjacent to the door.

#### **Steps for forcing an inward-opening door**

1. Firefighter #1 places the fork end of the halligan between the door and the jamb, just above or below the lock. (Figure 1)
2. Firefighter #2 stands on the same side as Firefighter #1 and strikes the back end of the halligan on the command of Firefighter #1. The command to initiate the strike is "Hit." (Figure 2)
3. When the halligan is struck, Firefighter #1 will maneuver the halligan until the fork end is driven past the interior door jamb. Firefighter #1 is careful not to drive the fork end into the interior door jamb. (Figure 3)
4. When the forks are driven past the interior door jamb, Firefighter #1 will exert force toward the door to force it open. Precautions need to be made to control the opening of the door. For example, the use of webbing or chained pliers. (Figure 4)



Figure 1



Figure 2



Figure 3



Figure 4

### Steps for forcing an outward-opening door

1. Firefighter #1 places the adz end or forks of the halligan tool between the door and the jamb, just above or below the lock. (Figure 5)
2. Firefighter #2 stands on the same side as Firefighter #1 and strikes the back end of the halligan on the command of Firefighter #1. The command to initiate the strike is "Hit."
3. When the halligan is struck, Firefighter #1 will maneuver the halligan until the adz or forks are driven past the interior door jamb. Firefighter #1 will be careful not to drive the adz or forks into the interior door jamb. (Figure 6)
4. When the adz or forks are driven past the interior door jamb, Firefighter #1 will exert force away from the door to force it open. Precautions need to be made to control the opening of the door. For example placing a foot or shoulder against the door. (Figure 7)



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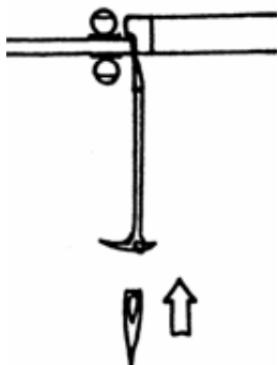


Figure 5

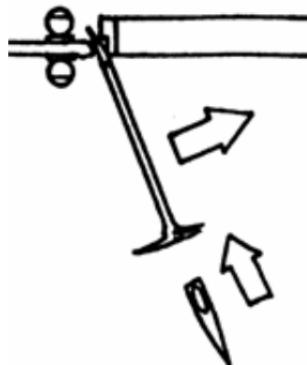


Figure 6

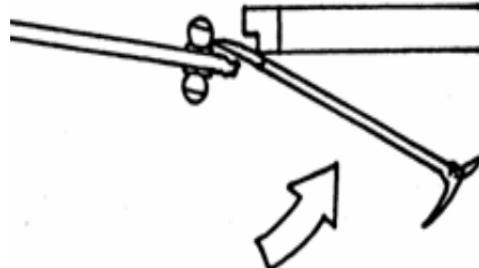


Figure 7

#### Steps for forcing a door containing panic hardware

1. Firefighter #1 begins by placing the pike end of the halligan tool against the door approximately six to eight inches above the location of the panic bar.
2. Firefighter #2 strikes the back end of the halligan on the command of Firefighter #1. The command to initiate the strike is "Hit." Firefighter #1 continues until the pike end is through both exterior and interior layers of the door.
3. Firefighter #1 will then readjust the halligan so that the adz portion is placed right next to the hole created from the pike end. This is done to enlarge the existing hole. Firefighter #1 will then resume the striking commands until the adz has increased the holes to properly fit the fork end of the halligan.
4. Firefighter #1 will then place the fork end into the created hole, catch the panic bar, lift vertically on the halligan, and activate the panic hardware allowing the door to open.

#### Steps for forcing entry through the locking mechanisms

##### Usage of the K Tool

The K tool was created for pulling a lock cylinder

1. Firefighter #1 places the cutting edge of the K tool on the top of the lock. (Figure 8)
2. Firefighter #1 then places the adz of the halligan tool into the slot of the face of the K tool. Firefighter #2 will then strike the top of the halligan upon the command of "Hit." (Figure 9)
3. Firefighter #1 will continue calling for hits until the K tool has achieved a substantial bite on the locking cylinder. At this time, Firefighter #1 will lift



vertically toward the door until the cylinder has been removed from the exterior of the door.

4. Once the cylinder has been removed off the front of the door, Firefighter #2 will then insert the supplied tool into the lock and turn the correct direction to draw back the locking bolt. (Figure 10)

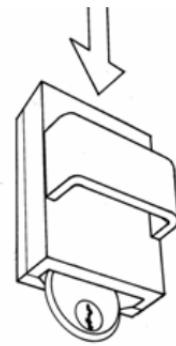


Figure 8

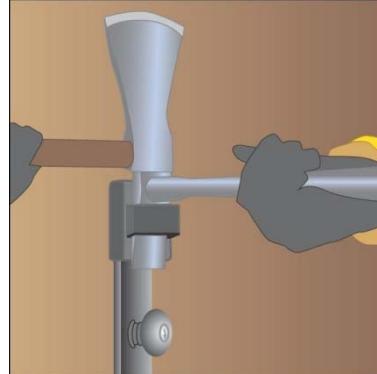


Figure 9

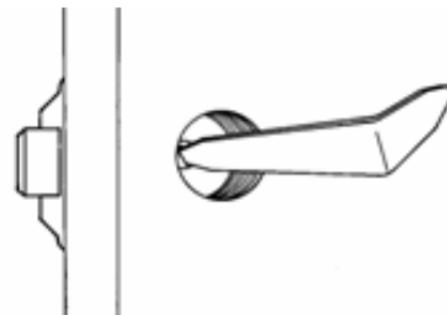


Figure 10

### Usage of locking pliers

1. The firefighter will adjust the pliers to grip the outside of the locking cylinder and place them in the locked position. (Figure 11)
2. The firefighter will twist the locking cylinder until the cylinder is removed.
3. The firefighter will utilize the specialty tool from the K tool kit to enter the lock and turn the correct direction to draw back the locking bolt.

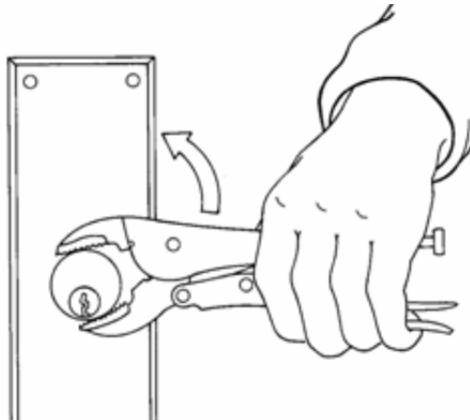


Figure 11

### Steps for using non-destructive tools

#### Usage of the bump keys

1. The firefighter will utilize the key legend to match up the brand/type of key to be used.
2. Once the correct key is found the firefighter will then place the key into the lock. The firefighter will pull the bump key back one notch.
3. The firefighter will determine which direction the key will turn to unlock the door. The firefighter will apply slight pressure in the direction of travel while gently striking the back of the bump key.

#### Usage of the shove knife

1. The firefighter will slip the knife between the door and the frame. (Figure 12)
2. The firefighter will pull down and towards the exterior. This movement should force the latch back allowing the door to be opened. (Figure 13)



Figure 12



Figure 13



## Steps for removing the exterior hinges

### If hinges are not sealed in place

1. Firefighter # 1 will place the pike end of a halligan beneath the hinge pin so it can be driven out from the bottom of the hinge. (Figure 14)
2. Firefighter #1 will place the adz or the fork end of the halligan under the top portion of the hinge pin. Firefighter #2 will then strike the underside of the halligan upon command to drive the hinge pin completely out of the hinge. (Figure 15)
3. The firefighter can place the fork or adz end of the halligan tool between the door and the frame and use force to remove the door away from the jamb. (Figures 16 and 17)



Figure 14



Figure 15



Figure 16



Figure 17

### If the hinges are sealed

1. The firefighter will place the fork end on the halligan on the bottom of the hinge. (Figure 18)
  - a. The firefighter may also use a circular saw to cut the hinges away from the door and frame.



2. The firefighter will apply upward force to remove the hinges from the door and the door frame. (Figure 19)
3. The firefighter will place the fork or wedge end of the halligan tool between the door and the frame and use force to remove the door away from the jamb.

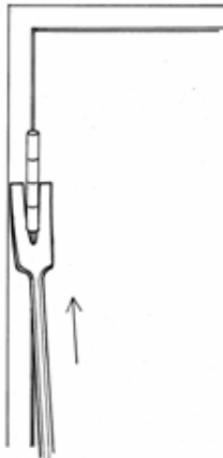


Figure 18

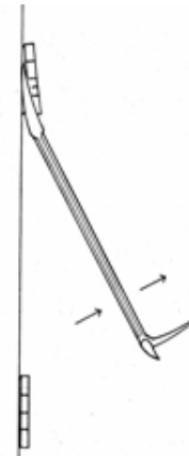


Figure 19

#### Steps for using hydraulic tools

1. Firefighter #1 can use the halligan tool to create a gap between the door and the frame. (Figure 20)
2. Firefighter #1 then places the hydraulic rabbit tool in the gap just created. (Figure 21)
3. Firefighter #2 then forces the door utilizing hydraulic pressure. (Figure 22)



Figure 20



Figure 21



Figure 22

#### Mechanical entry



A rotary saw may be plunged between the panels on the double doors to lock the locking mechanism. (Figure 23 and 24)



Figure 23

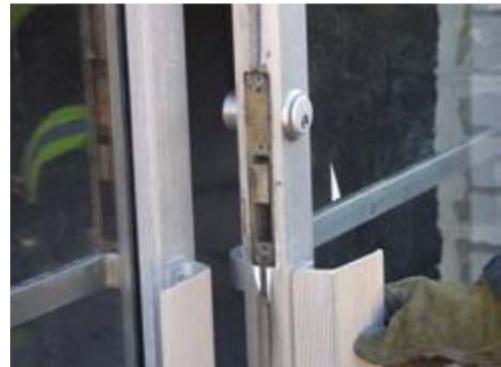


Figure 24

#### **Forcing a regular residential garage door**

Prior to forcing this type of door, special consideration should be given to find an adjacent service door that may accompany this type of door. Forcing this door and activating the lifting mechanism is preferred.

#### **Performing entry through the locking mechanism**

1. The firefighter shall size up the garage door to determine the location of the interior locking mechanism and if windows are installed. (Figure 27 and 28)
2. If windows are installed in the garage door, the firefighter may force entry through the window to determine the best method for gaining access. (Figure 25)
3. If there is a garage door opener installed, the firefighter may manually or utilize a tool to activate the release located on the overhead track. (Figure 26)
4. If there is no garage door opener installed, the firefighter may utilize a tool to activate the door cable located on the locking mechanism. (Figure 27 and 28)
5. Once the door has been opened, special care needs to be taken to prevent the garage door from going back down. Locking pliers may be applied to the track at the bottom of the garage door. This action will not allow the door to return to the down position. (Figure 29)



Figure 25



Figure 26



Figure 27



Figure 28



Figure 29



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#### Performing a three sided cut (Refer to Figure30)

1. The firefighter shall begin the first vertical cut, the black line, one foot from the inside of the left edge. The cut should start at or above head height.
2. The second cut, the blue line, will be a forty five degree angled cut from the initial vertical cut through the bottom edge of the door. This cut will enable the firefighter a purchase point when removing the door.
3. The third cut, the red line, is a horizontal cut at shoulder height. The firefighter needs to make sure to cut as close to the middle of a panel as possible to avoid cutting through a hinge. The firefighter will then continue the cut to the first vertical cut stopping one foot from the edge of the door.
4. To finish the sequence the firefighter needs to make sure that all cuts are to depth and through structural members. A pike pole, halligan, or axe will be used to pull the door away from the opening.



Figure 30



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#### Performing a four sided cut (Refer to Figure 31)

1. The firefighter shall begin the first vertical cut, the black line, one foot from the inside of the left edge of the door. The cut should start be at or above head height.
2. The second cut, the blue line, is a horizontal cut at shoulder height. The firefighter needs to make sure to cut as close to the middle of a panel as possible to avoid cutting through a hinge. The firefighter will then continue the cut to the first vertical cut stopping one foot from the edge of the door.
3. The third cut, the red line, is a vertical line cut one foot from the right edge of the door. This cut needs to be cut all the way to the bottom of the door.
4. The fourth and final cut, the green line, is a forty five degree angle that connects cuts number two and three. This allows a purchase point for the firefighter when removing the door from the opening.



Figure 31



### **Performing a triangular or teepee cut**

1. This type of cut is primarily performed by utilizing a rotary saw with a metal blade.
2. The firefighter shall begin the triangular cut as high as possible to provide substantial room for ingress or egress. (Figure 32)
3. The firefighter will then make the first cut toward the ground at a forty five degree angle.
4. The second cut will begin at the top once again and proceed down the opposite side at the same forty five degree angle. Make sure that the cut does not overlap excessively to maintain material strength within the door. (Figure 34)
5. The material that has been cut away now can be laid down in front of the door or removed.



Figure 32

### **Forcing a commercial roll-up door**

Prior to forcing this type of door, special consideration should be given to find an adjacent service door that may accompany this type of door. Forcing this door and activating the lifting mechanism is preferred.

### **Performing a triangular or teepee cut**

1. This type of cut is primarily performed by utilizing a rotary saw with a metal blade.



2. The firefighter shall begin the triangular cut as high as possible to provide substantial room for ingress or egress. (Figure 33)
3. The firefighter will then make the first cut toward the ground at a forty five degree angle.
4. The second cut will begin at the top once again and proceed down the opposite side at the same forty five degree angle. Make sure that the cut does not overlap excessively to maintain material strength within the door. (Figure 34)
5. The material that has been cut away now can be laid down in front of the door or removed. (Figure 35)



Figure 33



Figure 34



Figure 35

#### Performing a vertical cut

This technique is used when fire conditions allow for a single cut and ample time to remove the slat by hand.

1. This type of cut is primarily performed by utilizing a rotary saw with a metal blade.
2. The firefighter will begin by cutting down the center of the roll up door. (Figure 36)
3. Once the vertical cut has been made, the firefighter can remove the horizontal slats. This can be accomplished by placing a pair of locking pliers on the cut slant, applying sideways pressure against the door slats and pulling out the slats from the other side. Another alternative is using the pike end of the halligan to pierce the slat, and then pulling the halligan to remove.
4. If necessary, another vertical cut can be made to assist with larger slats.



Figure 36

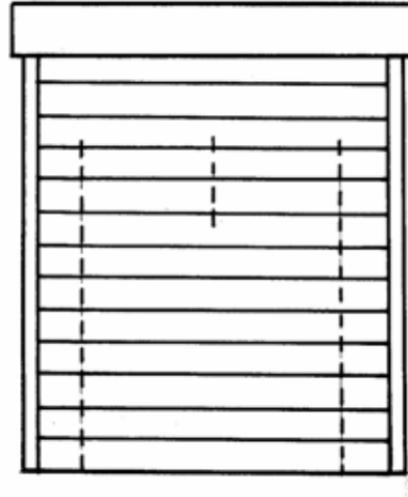


Figure 37

### Performing a horizontal cut

This technique is used when fire conditions do not allow for a single cut.

1. This type of cut is primarily performed by utilizing a rotary saw with a metal blade.
2. The firefighter will begin by cutting a horizontal line approximately six feet off the ground and one foot on either side of the doorframe.
3. The firefighter will then cut vertical lines on each end of the cut allowing the large section of door to fall away.

### Padlocks

Padlocks can be removed by the following ways.

- ✓ Bolt cutters- The shackle of most padlocks can be cut with bolt cutters.
  - If the padlock is locking a chain, the chain should be cut instead of the padlock.
- ✓ Rotary saw- A rotary saw may be used to cut the shackle of a padlock. This should only be attempted in conjunction with chained pliers. The pliers will be locked on to the lock so the padlock can be held in place.
- ✓ Halligan- Firefighter #1 will place the pike end of the halligan into the shackle of the padlock. (Figure 38) Firefighter #2 will strike the top of the halligan with a sledge hammer or maul. Firefighter #2 will continue striking the padlock until the shackle is removed from the lock. (Figure 39)



Figure 38



Figure 39

## Windows

### Window Size up

- ✓ Type of window
  - Double hung
  - Hinged or casement
  - Projected or factory
  - Awning or jalousie
- ✓ Type of glass
  - Plate
  - Tempered
  - Security
    - Lexan or thermoplastic
    - Laminated
    - Wire mesh
- ✓ Type of frame or casement
- ✓ Type of locking mechanism
- ✓ Type of security devices

### Steps for forcing double hung window

1. The firefighter shall size up the window for safety hazards and locate the locking mechanism.
2. The firefighter will remove the window screen if installed. (Figure 40)
3. The firefighter will place the fork end of the halligan under the bottom sash in line with the locking mechanism. (Figure 41)
4. The firefighter will push down on the end of the halligan lifting upward on the sash thus displacing the locking mechanism. The firefighter must be prepared for the unsuspected breaking of the window glass.



Figure 40



Figure 41

The same process can be applied to a slider window



Figure 42



Figure 43

### Removing window bars

1. The firefighter must size up the situation to determine if cutting the bars away from the frame or removing the frame from the building is the best option.
2. The bars may be cut away from the building by using the following ways.
  - a. The bars may be cut by using a circular saw with a metal blade.
  - b. The bars may be cut by using a cutting torch.
  - c. The bars may be cut by using bolt cutters if the material is suitable.
3. The frame may be removed from the building by using any of the prying tools stated above. This is a very viable option if the material surrounding the window allows.
4. In any case when a set security bars are to be removed, the entire building should then be cleared of all security bars.



## Special considerations with specialty glass

- ✓ Plate glass- This type of glass is easily cut with a pike pole or trash hook but when it is broken it breaks into large sharp pieces called shards. These shards can penetrate personal protective equipment.
- ✓ Laminated glass- Laminated glass is molded with a sheet of plastic between two sheets of glass. This plastic is used to prevent the glass from shattering causing injury. This glass can be cut with an axe or glass saw.
- ✓ Tempered glass- This type of glass is specially heat treated that allows the glass to break into small pellets without sharp edges. The best way to break tempered glass is by using a sharp pointed object in the corner of the frame.
- ✓ Wire glass- This type of glass is tempered glass with wire reinforcing. This glass is difficult to break. The glass must be broken and the wire cut in order to be removed from the frame.
- ✓ Polycarbonate/Lexan- This type of material is a thermoplastic window. This type of window can be broken by two ways. The first being removed with a circular saw with a carbide-tipped blade. The second being scoring an 'X' in the middle of the glass and then striking the middle of the 'X' with a striking tool.

## Walls

### Steps for breaching a standard wall with hand tools

1. Careful consideration should be made to size up the wall looking for hazards. These hazards are but not limited to electrical outlets, signs of plumbing, and load bearing members.
2. Using a striking or cutting tool, the firefighter should sound the wall to locate the studs.
3. The firefighter then can cut as close as possible to the studs to make as much room as possible for travel.

### Steps for creating a door out of a window with a chainsaw (Refer to Figure 44)

1. Careful consideration should be made to size up the wall looking for hazards. These hazards are but not limited to electrical outlets, signs of plumbing, and load bearing members.
2. The firefighter will plunge the chainsaw right underneath the bottom corner of the window where the exit is to be made. The firefighter will operate the saw down until they have successfully cut all members to the subfloor.
3. The firefighter will complete the same process on the opposite side of the window.
4. At the completion of both cuts, the firefighter may force entry through the window. This will allow the firefighter to remove the section of wall that was cut away.



Figure 44

#### Steps for breaching a masonry wall

1. Careful consideration should be made to size up the wall looking for hazards. These hazards are but not limited to electrical outlets, signs of plumbing, and load bearing members.
2. The firefighter will then select a row of masonry that is near the bottom of the area selected for entry/exit.
3. Using a striking tool, the firefighter shall strike holes into five consecutive horizontal blocks.
4. This process should be completed in the row above with the exception of the number of blocks. The number shall be reduced to four blocks.
5. This process will be completed in each row above until there is only one block penetrated. This process will create an upside down 'V.' At this time the rest of the remaining damaged block may be removed. If any rebar is found it may be cut with bolt cutters or a cutting torch.



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## REFERENCE INFORMATION

The following material was used for reference:

- ✓ NFPA 1001, *Standard for Fire Fighter Professional Qualifications*, 2008 Edition, Chapter 5.3.4
- ✓ New York Fire Department, *New York City Fire Department Forcible Entry Reference Guide Techniques and Procedure*, December 2008 Edition
- ✓ Brady/Prentice Hall Health, *IFSTA, Essentials of Fire Fighting and Fire Department Operations*, 5<sup>th</sup> Edition, First Edition January 2008
- ✓ Fire Protection Publications, *Structural Fire Fighting: Truck Company Skills and Tactics*, Second Edition August 2010
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