

## INSTRUCTOR GUIDE

TOPIC: BACK TO BASICS: EFFECTIVE FORCIBLE ENTRY

TIME REQUIRED: THREE HOURS

MATERIALS: ASSORTMENT OF HAND TOOLS AND POWER SAWS  
ACQUIRED STRUCTURE OR FORCIBLE ENTRY PROPS

REFERENCES: ESSENTIALS OF FIRE FIGHTING, FOURTH EDITION, IFSTA,  
CHAPTER 6

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### PREPARATION:

**MOTIVATION:** Efficient and effective forcible, when needed, can expedite making a rescue or controlling the fire. The time spent in making entry can directly affect the spread and intensity of the fire. With citizens becoming increasingly security conscious, knowledge and expertise in forcible entry are necessary to reach the victim and the fire quickly.

**OBJECTIVE (SPO):** The student will demonstrate a basic understanding of forcible entry tools and techniques by applying the material in a practical setting.

### OVERVIEW:

#### Effective Forcible Entry

- \* Entry through doors
- \* Entry through windows
- \* Entry through walls, ceilings, and floors
- \* Entry through doors and windows (practical)

## EFFECTIVE FORCIBLE ENTRY

- SPO The student will demonstrate a basic understanding of forcible entry tools and techniques by applying the material in a practical setting.
- EO 1-1 Describe the techniques to force entry through various wood and metal doors.
- EO 1-2 Describe the techniques to force entry through various windows.
- EO 1-3 Describe the techniques to force entry through various walls, ceilings, and floors.
- EO 1-4 Demonstrate the proper use of various hand and power tools to force entry through various doors and windows.

The purpose of this drill is to review and build on basic skills with the emphasis on improving efficiency and teamwork. It is assumed that the participants have some basic knowledge of the subject matter. The focus of the drill should include personal and team safety. The drill should include minimal instruction and maximum skills practice. The drill should also be conducted with the normal staffing that would respond on an engine, truck, or squad on a structure assignment.

## I. ENTRY THROUGH DOORS (1-1)

### A. When and Where to Enter

1. Rescue requires immediate ventilation to remove smoke and heat and decrease danger to victims
2. Firefighting ventilation can be delayed until hoselines are ready

### B. Basic Door Construction

1. Made of metal or wood
2. May be single doors or double doors
3. May be solid or lighted (with glass)
4. May be exterior (heavier and solid) or interior (lighter and hollow core)
5. Operate on hinges set in a frame of metal or wood
6. The stop on the door frame that is part of the frame is the jamb (usually metal frames)
7. The stop on the door frame that is attached to the frame is the stop (usually wood frames)
8. Either open in (hinges on inside) or open out (hinges on outside)

### C. Locking Devices in General Usage

1. Mortise lock - positioned in edge of door with keyway and opening device separate
2. Bore (cylinder) - keyway in door knob
3. Rim - lock mounted on back of door with cylinder through door
4. Adams-Rite – form of mortise lock used on commercial doors with metal frames and glass

### D. Entry Through Doors

NOTE: When forcing doors containing glass, there is always the possibility that the force will cause the glass to break. Proper protective clothing including eye protection must be used when forcible doors.

1. Wooden doors

- a. May have mortise or cylinder locks
- b. May also have rim lock as secondary locking mechanism
- c. Double doors may have one door bolted at the top and bottom with the other door locked to it
- d. May have center panels which can be broken out for entry or opening door
- e. May have hinges exposed that can be removed
- f. Can be cut with an axe

## 2. Steel doors

- a. Before attempting to force, checked for exposed locks or hinges
- b. If lock can be seen, drive pry tool between door and frame and force open
- c. If hinges exposed, pull hinge pins or drive tool between hinge and door facing
- d. Doors may be secured with a steel bar or fox lock (Steel bars may be conventional bars that are laid in slots or holders on each side of the door to prevent forced entry. They may also be a two-piece construction with a handle in the middle to allow the parts to slide to either side to secure the door similar to the securing mechanism for a residential garage door. The fox lock is a diagonal bar this is secured in a plate in the floor on one end and the middle of the door on the other. When a key is inserted or the door unlocked, the end of bar against the door is allowed to slide upward so that the door can be opened. For the two-piece bar and the fox lock, the locking mechanism on the face of the door is usually in the center of the door and appears as a rim lock. They may be forced if the lock cylinder can be pulled.)
- e. Doors with neither lock nor hinges exposed cannot be forced with standard tools (may have a bar holding the door from behind)
- f. Door that cannot be forced can be cut open with power saw
- g. Heavy steel door can be opened with a battering ram
- h. May have multiple locks
- i. Hydraulic spreaders may be used to separate double doors

## 3. Lighted doors

- a. In many older buildings, rear doors made of wood or light metal, reinforced with bars or fitted with several locks
- b. Main lock should be forced first
- c. Additional bolts or locks can usually be forced with hand tools
- d. If door has glass pane without bars, best to remove glass and attempt to open lock from inside
- e. Some lighted glass doors may be equipped with wire glass which will require the use of a cutting tool such as an axe for glass removal
- f. Door outer edge made of wood or metal

#### 4. Tempered-glass doors

- a. For all practical purposes tempered glass cannot be broken
- b. Attack at the lock or find some other means of entry
- c. Locks usually Adams-Rite type located at middle or both of door
- d. Double tempered door locks located in middle
- e. Use lock puller (K Tool or A Tool) to remove lock
- f. If lock puller not available, drive chisel end of pry bar between lock and frame or between two sections to force open
- g. Alternative method is to drive bar into space above lock and then dive down to destroy locking pins
- h. For bottom locks, drive tool under door to displace keeper
- i. Hydraulic tools can be used to force apart double doors or raise lock at bottom
- j. Quickest way may be to force plate glass window near tempered glass door
- k. If tempered glass door must be broken, strike at lower corner of door with pick end of axe

#### 5. Heavy plate-glass doors

- a. Treat same as tempered-glass doors
- b. Usually has bar across center or lower center of door
- c. Better to remove or force lock or enter nearby plate glass window

#### 6. Sliding doors

- a. Sliding glass with cylinder locks or some bolting arrangement at the edge, top, or bottom
- b. Locks or bolts should be forced with available tools
- c. If door particularly tough to force, drive pry tool between door and framing
- d. Sliding doors may be lifted at the bottom to dislodge the lock
- e. Two doors locked to each other can also be opened by driving pry tool between doors
- f. Break glass for entry only for immediate rescue or when glass already stained or damaged by heat or smoke
- g. When bar or rod holds sliding section, glass will have to be broken

#### 7. Roll-up doors

- a. Doors opening upward might be locked in several ways
- b. First step in forcing metal doors to pry it up at both sides
- c. Some, usually wood, locked with modified two-piece lock - open by knocking out panel and reaching in to rotate handle

- d. Wood door might be secured with pins from sides of door to track - door should be pried at bottom
- e. Ring on door may be padlocked to ring set into floor - force with tool under door against ring
- f. Doors can be cut with power saw or axe
- g. Metal doors do not usually have built-in locks - can be padlocked to floor or locked into their rails
- h. Motorized door rigidly connected to operating mechanism; break glass or panel and activate emergency door release mechanism
- i. Force doors locked with pins or through chain by prying
- j. Manually operated commercial doors often locked through raising chain
- k. If commercial metal door must be opened, cut door in center of door with power saw and remove slats

## E. Occupancies

### 1. Commercial

- a. Look for door that property owner uses to exit since it will be the easiest to force
- b. In older buildings, front door might be constructed of wood or wood frame with ordinary glass
- c. In modern structures, front door made of tempered glass or heavy plate glass in strong frame
- d. Rear doors usually made of steel or reinforced with steel
- e. Front door protected by metal shutters, accordion-type barred grating, or similar devices
- f. May have multiple locks

### 2. Residential

- a. Locked residential structures more easily entered than commercial structures
- b. Front and rear doors usually same type and of light construction
- c. Often have one or more glass panes

### 3. Apartments

- a. Might have to open individual doors
- b. In older buildings, doors made of wood - rim locks may have been added
- c. Frames of doors usually strong enough to support pry tool
- d. In modern buildings, doors made of steel or wood covered with steel - secured with cylinder locks and possibly one or more bolt-type locks
- e. Multiple-unit street doors at front often unlocked
- f. Lobby door may be secured by electric lock

- g. May have multiple locks
  - h. May be necessary to force entry through the wall near the door to reach in to unlock the door
4. Office buildings
    - a. Presents same problems as apartment units
    - b. Age of building determines type of inside office door, unless remodeled extensively
    - c. Most buildings open to street during day
    - d. Outside entrances usually similar to those found in stores of same general age
  5. Warehouses and factories
    - a. Usually have roll-up doors at loading platforms and heavy wooden or steel pedestrian doors
    - b. Windows on lower floors may be barred
    - c. Usually surrounded by chain-link fences - may require forcing padlock
    - d. Some occupancies protected at night by guard dogs
  6. Combination occupancies - may present double entry problem with forcing first into building and then into individual units

## II. ENTRY THROUGH WINDOWS (1-2)

### A. Double-hung windows

1. Allows simplest and quickest access to building
  - a. Forced by prying up bottom section at center of window
  - b. If top section made of small panes, pane nearest lock can be removed and window unlocked
2. If it must be used for entry and cannot be forced quickly, it should be completed knocked out
  - a. If at ground level, use axe or other appropriate tool
  - b. Above ground situations may be not be discovered until window is reached
  - c. Remove all splinters of glass before going through
  - d. Standard single pane glass may be replaced with thermal panes which are two panes with an air space in the middle for insulation

- e. Rather than individual panes, the window may have a single pane of glass with decorative wood, metal, or plastic framework to give the appearance of individual panes
3. When time and/or fire does not permit use of tool, knock out window with ladder
  4. Glass panes may be replaced with unbreakable plastic panes (Lexan or Plexiglas)
    - a. May be cut with power saw using a fine tooth blade
    - b. With other than steel frame, knock out entire window frame (may not work with Lexan)
    - c. May have knock out panel which can be removed by striking corner with pick of axe
    - d. If Lexan is encountered, there may be a need to find another means of entry
  5. Sliding windows
    - a. A variation of the double-hung window where the window slides horizontally rather than vertically
    - b. Frames may be metal or vinyl
    - c. Locking mechanism between two panels may be separated
    - d. Panes are generally thermal or two sheets of glass
    - e. May have locking device in track to prevent forced sliding
    - f. Glass may have to be broken for entry

#### B. Casement windows

1. Window hinged vertically with moving part of window attached to crank
  - a. Window crank usually light; can be easily forced
  - b. Window lock located in middle or bottom of window
2. Best way to open window is break out pane of glass, reach in and unlock window, and force it open with pry tool
3. Many casement windows too narrow to allow entry
4. Narrow windows often located at sides of large glass picture window

#### C. Factory – forced in the same manner as casement windows

#### D. Awning or Jalousie

1. Awning windows consist of large sections constructed with a metal frame around the glass
2. Awning window glass is usually double strength

3. Jalousie windows consist of small sections usually constructed without a frame
4. Both types of windows are supported on each end by a metal operating mechanism which may be exposed or concealed
5. Windows are opened using a crank located at the bottom of the window
6. Difficult to force
7. May not provide enough space for entry

#### E. Barred Windows

1. May consist of metal grating or bars
2. Bars or grating may be attached to building or built into structure
3. Removal of attached bars or grating will require a saw with a metal cutting blade or hydraulic cutting tools
4. Given the time for force entry, consideration should be given to locating another entry point

#### F. Plate Glass

1. Used in commercial store fronts
2. Generally very large sections of glass
3. If broken, comes out in large pieces
4. If necessary to remove, start by breaking at the top rather than the bottom
5. Stand to one side when breaking and attempt to get above the glass to prevent pieces of glass from following the tool handle and cutting the firefighter

#### G. Storm Windows

1. Consist of metal or vinyl frame holding glass panels
2. Glass panels inserted in metal or vinyl track
3. May be forced by prying track outward and removing panels
4. May also have screens in place

### III. ENTRY THROUGH WALLS, CEILINGS, AND FLOORS (1-3)

NOTE: When making entry through any walls, ceilings, or floors, be aware of the presence of utilities such as electricity which should be shut off prior to making entry to avoid electrical shock.

#### A. Walls

1. Wood
  - a. Exterior walls could be tongue and groove, overlapping panels, logs, or other methods of wood construction

- b. Wood could be fastened directly to framing or have some type of underlayment material such as insulation board
- c. Interior walls consist of boards or paneling
- d. Framing is 16 or 24 inches on center; could be metal or wood
- e. Material can be cut with conventional cutting tools or power saws
- f. Material can also be removed using a pry bar or point of pick axe

## 2. Metal

- a. Exterior walls could be aluminum siding or sheet metal
- b. Metal could be fastened directly to structural supports or have some type of insulation board behind it
- c. Framing is 16 or 24 inches on center; framing could be metal
- d. Siding could be covering other materials such as wood
- e. Siding can be cut with conventional cutting tools or power saws
- f. Sheet metal covering can be cut with power saws or air chisel
- g. Material may be removed by separating at the seams

## 3. Masonry

- a. Exterior walls could be concrete, brick, block, or stone
- b. May be veneer attached to wood or metal frame or solid masonry (look for header rows every seven rows on brick walls)
- c. Brick, block, and stone held together by mortar joints which are the weakest point in the wall
- d. Sometimes quicker to open wall than force steel door, especially concrete block or cinder block walls
- e. Use mauls, battering rams, and hammerhead picks to make openings
- f. Make opening in diamond or triangle sharp to avoid wall collapse
- g. Identify a key brick or block as the starting point and push everything else towards it
- h. Block walls can be cut with power saws
- i. If possible, open wall near doorway
- j. At first, make opening only large enough to permit stream to be directed inside
- k. Make sure blocks or bricks over opening are firmly in place

## 4. Plaster

- a. Plasters affixed to walls using lathe strips or mesh
- b. Walls fastened to framing 16 or 24 inches on center
- c. Plaster can be cut with conventional cutting tools such as an axe or pulled using a pulling tool
- d. Cutting or pulling should be done close to framing to reduce bouncing

## 5. Drywall

- a. Drywall generally in 4 foot by 8 or 10 foot sheets, 3/8- or 1/2-inch thick
- b. Drywall fastened to framing 16 or 24 inches on center
- c. Drywall can be cut with conventional cutting tools such as an axe or pulled using a pulling tool
- d. Cutting or pulling should be done close to framing to reduce bouncing

## B. Ceilings

### 1. Plaster

- a. Plasters affixed to ceiling using lathe strips or mesh
- b. Ceilings fastened to framing 16 or 24 inches on center
- c. Plaster can be pulled using a pulling tool
- d. Pulling should start at the room entrance and be done close to framing to reduce bouncing

### 2. Drywall

- a. Drywall generally in 4 foot by 8 or 10 foot sheets, 3/8- or 1/2-inch thick
- b. Drywall fastened to framing 16 or 24 inches on center
- c. Drywall can be pulled using a pulling tool
- d. Pulling should start at the room entrance and be done close to framing to reduce bouncing
- e. Drywall may be used during building renovation to cover other materials such as plaster

### 3. Acoustic tile

- a. Can be in metal strips or fastened to the ceiling using furring strips
- b. Tile in metal strips can be lifted for removal
- c. Tile fastened to the ceiling can be pull for access using pulling tools
- d. Tile may be used to cover other materials such as plaster
- e. There may be space between the tile ceiling and the original ceiling in a building
- f. Tile removal should start at the room entrance
- g. Metal strips are supported by aluminum wire which has little heat resistance

### 4. Metal

- a. Metal in ceiling use is generally tin found in older structures
- b. Ceiling material may be pulled using pulling tools
- c. Pulling should start at room entrance

d. There may be some type of material behind the tin

5. Masonry

- a. Masonry ceilings are either pre-cast or poured concrete
- b. If masonry ceilings are encountered, look for penetrations since making openings in masonry ceilings is very time consuming
- c. There should be little or no need to force entry through a masonry ceiling

C. Floors

1. Wood

- a. Could be either solid wood or wood laminate
- b. Solid wood is laid over wood underlayment
- c. Solid wood floor is fastened 90 degrees of the floor joists
- d. Floor joists are 16 or 24 inches on center
- e. Floor underlayment can be boards placed 45 degrees of the floor joists or particle board
- f. Laminate wood floors will have some type of underlayment, probably particle board
- g. Floors should be cut at 60 degrees of the floor joists using an axe or along the floor joists using power saws

2. Masonry

- a. Masonry floors are either pre-cast or poured concrete
- b. If masonry floors are encountered, reassess the need for entry because of the time required
- c. There should be little or no need to force entry through a masonry floor

3. Vinyl tile

- a. Vinyl tile is laid over some type of underlayment such as particle board
- b. It may be appropriate to remove the tile to determine the type and layout of the underlayment
- c. Floors should be cut at 60 degrees of the floor joists using an axe or along the floor joists using power saws

IV. ENTRY THROUGH DOORS AND WINDOWS (PRACTICAL) (1-4)

A. Introduction to Basic Tools

1. Pike Pole, Clemens Hook, et al

- a. Used for pulling ceilings, opening walls, or separating debris
- b. Carried with point forward and pointed downward
- c. Used by pointing hook away, poking the hook into the wall or ceiling, and pulling downward away from body with one hand on the upper part of the handle pushing downward and the other hand on the handle pulling downward

## 2. Pickhead Axe

- a. Used for cutting or pulling material apart
- b. Carried with blade under the arm and hand over pick
- c. Used by striking object with blade; more effective cutting at slight angle rather than straight

## 3. Flathead Axe

- a. Used for cutting, forcing, or striking other tools
- b. Carried with blade under the arm
- c. Used by striking object with blade or other object with flat portion of head

## 4. Haligan Bar

- a. Used for prying or forcing
- b. Carried with pointed end forward and slightly downward
- c. Forked end and adz end used for prying or forcing; pointed end used for punching holes to start cuts; forked end can be forced with use of flathead axe

## 5. K-Tool

- a. Used in conjunction with flathead axe and haligan bar to pull lock cylinders
- b. Carried in the pouch with key tools
- c. Blades placed snugly downward against lock cylinder, adz end of haligan bar placed in slot of K-tool and tapped snugly with flat end of flathead axe, haligan bar pushed downward to remove lock cylinder; once lock cylinder removed, appropriate key tool inserted into locked and turned from 5 to 7 o'clock position or vice versa to unlock

## 6. Rabbit Tool or Ram Tool

- a. Used to force door locks inward opening doors
- b. Carried in carrying bag with accessories including a hammer

- c. Blade placed between door and jamb near lock and tapped in place with hammer, hydraulic pump operated until door opens
7. Short Hook (short pike pole or Clemens Hook with D-handle)
- a. Used for pulling ceilings, opening walls, or separating debris
  - b. Carried with point forward and pointed downward
  - c. Used by pointing hook away, poking the hook into the wall or ceiling, and pulling downward away from body
8. Disk Saws
- a. Used for making openings in walls, floors, and roofs
  - b. Has different blades for cutting into wood or soft metals, masonry, or harder metals
  - c. Carried by carrying handle with saw shut off and blade not turning
  - d. Turn saw on and open choke, place foot in handle, and pull starting cord upward in a forceful manner
  - e. Once saw is running, close choke, and allow saw to warm up
  - f. Shut off by turning off
  - g. Determine area to be cut, start saw, reeve up saw to full speed and proceed to cut making sure that feet and legs are out of direction of cut.
9. Chain Saws
- a. Used for making openings in walls, floors, and roofs
  - b. Has either conventional chain for cutting wood or carbide tipped chain for cutting wood and soft metal
  - c. Carried by carrying handle with saw shut off and chain not running
  - d. Turn saw on and open choke, place foot in handle, and pull starting cord upward in a forceful manner
  - e. Once saw is running, close choke, and allow saw to warm up
  - f. Shut off by turning off
  - g. Determine area to be cut, start saw, reeve up saw to full speed and proceed to cut making sure that feet and legs are out of direction of cut.
10. Hydraulic entry tools
- a. Spreader – can be used forcing doors or tearing sheet metal in roofs or walls
  - b. Cutter – can be used for cutting bars on windows or locks
  - c. Ram – can be used for pushing or pulling building components
11. Pneumatic entry tools

- a. Air chisel – can be used for cutting sheet metal or lighter weight bolts
- b. Air ratchet or impact tools – can be used for removing bolts
- c. Jack hammer – can be used for cutting concrete

12. Electric entry tools

- a. Reciprocating saw with blades for cutting metal or wood
  - b. Drill – can be used for drilling out pins in lock cylinders
- B. Full protective clothing including eye protection is required for this session
- C. It may be appropriate to review the handling, use, and operation of the tools to be used prior to any student demonstrations
- D. Demonstrate the proper use of various hand and power tools to force entry through wood and metal doors
- E. Demonstrate the proper use of various hand and power tools to force entry through various windows
- F. Demonstrate the proper use of various hand and power tools to force entry through walls, ceilings, and floors

REVIEW:

Effective Forcible Entry

- \* Entry through doors
- \* Entry through windows
- \* Entry through walls, ceilings, and floors
- \* Entry through doors and windows (practical)

REMOTIVATION: Forcible entry is one of the skills that firefighters are supposed to know but do not get an opportunity to utilize very often in most areas. Practice is important so that the work can be performed efficiently and effectively when needed.

ASSIGNMENT:

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EVALUATION: