



TRAINING NOTES

DIVISION OF TRAINING

Residential Garage Doors

Resources:

SFFD Vimeo: Forcible Entry Hinge Method



SCAN ME

SFFD Vimeo: Vienna St. Fire and Tactical Considerations



SCAN ME

Training Bulletin: 95-7 Garage Door Precautions and FE



SCAN ME



Residential Garage Doors

The SFFD regularly responds to fires in residential buildings that have garage and overhead doors. These doors provide crucial access into structures and enable interior/defensive operations and egress/ingress points. This edition of Training Notes will focus on residential garage and overhead doors commonly found in apartment complexes and single-family homes.

Incident Priorities and Size Up:

The first arriving company is tasked with implementing the initial tactical decision at a working fire given the incident priorities. This decision is made based on information gathered regarding life safety, incident stabilization and property conservation. Clear communication and commitment to incident priorities will lead to successful suppression operations and lives saved.

Units arriving on scene presented with fire on the second floor of a single-family home may be inclined to make their initial lead to the second floor, however, it is imperative the garage is checked prior to committing hose lines to the second floor to avoid moving above and past uncontrolled fire. Confirm if there is fire present in the garage by looking through a mail slot, taking out a small glass panel or cutting a small inspection hole in the garage door. The presence of fire in the garage must be relayed to the I.C.

If the decision to force entry into the garage is made, follow the tactical considerations below:

1. **Verify opening the garage is in line with the incident priorities.**
2. **Clearly communicate plans to open garage doors to notify companies of changes to fire behavior that will affect them.**
3. **ALWAYS have a charged hose line in place prior to opening a garage door.**
4. **Try BEFORE you pry. Attempt to open garage and adjacent side door.**
5. **Immediately secure the garage door after opening.**

Vertical ventilation cuts on roofs, such as a 4'x4' hole creating a 16 sq. ft. ventilation opening, have a significant effect on interior conditions within a building. By extension, garage doors are almost four to seven times larger than a common vertical vent hole, approximately 9'x7' to 16'x7' which creates a 63 sq. ft. to 112 sq. ft hole or greater. Be cautious and aware of the influence a garage ventilation hole will have on flow path and the ventilation profile of a building. Building layout, fire conditions, and wind direction will determine whether the opening is an intake or exhaust. This will have a dramatic effect on the fire conditions and outcomes.

Two Main Types of Garage Doors:

Successful forcible entry of any door begins at size up. There are two main types of garage doors commonly associated with residential buildings: sectional, also known as panel doors, and tilt up slab garage doors.

Sectional or panel garage doors are made up of paneled construction held together by metal hinges between panels and heavy-duty steel vertical bracings called stiles that run the length of the panels to provide stability. Tilt up slab garage doors are made up of a singular piece of material or wood that pivots along a track. Tilt up slab garage doors occasionally swing out past the stationary tracks that support them and require more headspace inside the garage. Both sectional and tilt up slab garage doors can be made up of various materials such as solid wood, composite, or metal. Both types of doors can be operated manually with the use of springs or coils, mechanically by ceiling or wall mounted motors, or with a combination of both.

Location of lock sets, handles and the external display of carriage bolts may indicate whether a door is manually operated or mechanically operated and is important information to collect before forcing entry.

Electrical mechanically operated doors will have carriage bolts in the middle towards the top of the door where the metal arm from the motor connects to the door. These doors do not traditionally have external handles or lock sets on the outside of the door because when the door is closed, the electric motor locks into place. However, the absence of external lock sets does not always imply there are none in place. Some lock sets are internally placed such as slide bolts in tracks, hand turn rod locks that span the width of the door and floor anchored locks. Manually operated doors present externally with one or more handles on the outside of the door with a lock set.

With all forcible entry... TRY BEFORE YOU PRY. If there is a side door next to the garage and conditions allow, attempt to open that door and consider whether cutting through the garage or opening the garage manually is necessary. If the side door is not an option, attempt to raise the garage door in case it was left unlocked.

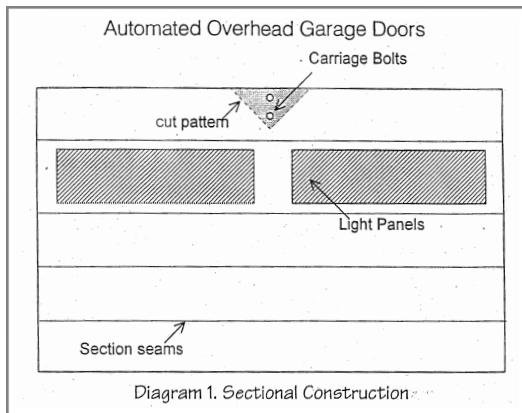
Cutting v. Opening:

Many factors come into play while deciding between cutting through a door or opening and somewhat maintaining the integrity of the door. Current fire conditions, situational urgency, and door type are things to consider in this decision. Cutting through the door provides access to the ceiling of the garage for hose lines and to check for extension. In addition, cutting avoids having a heavy garage door suspended above fire personnel, which could pose a fall or entrapment hazard if accidentally closed or effected by fire conditions. Opening a garage door by disabling or isolating the opening mechanism requires fewer cuts and possibly a quicker entry depending on the resiliency of the door and the location of security measures. Opening allows the door to remain somewhat intact for residents to secure their garage. A downside of opening the garage is that when an overhead door is raised, the coil springs holding up the door are loaded with tension and can become a dangerous projectile if they fail. If the garage door is raised, it needs to be secured in the open position with electrical motors disabled.

Tool Capabilities:

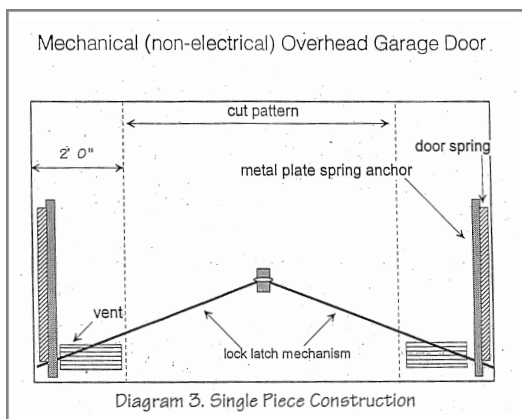
Once a size up has been made, fire conditions have been verified, and a working line is in place, choose the tool that will produce the best results based on the construction of the door. Be aware of the limitations of the tool being used to accomplish your task. The present fire conditions will dictate whether a gas-powered saw is able to be used based on the ability to obtain enough clean air to operate the saw.

Tool	Strengths	Weaknesses/ Limitations
Chainsaw: Husqvarna 14" W/ wood cutting chain	<ul style="list-style-type: none"> • small jobs, overhaul, or trees down, wood products 	<ul style="list-style-type: none"> • Be aware of cut depth, as it cannot cut the metal angle iron associated with the bracing on these doors.
Chainsaw: Husqvarna 20" W/ duel raker carbide tip	<ul style="list-style-type: none"> • capable of cutting through thin metal and wood 	<ul style="list-style-type: none"> • Cannot cut the thick metal angle iron associated with the bracing on garage doors.
Ventilation Rotary Saw: W/ wood cutting carbide blade	<ul style="list-style-type: none"> • great for cutting wood products, thin metal and some other thick non-metal building materials 	<ul style="list-style-type: none"> • Cannot cut the thick metal angle iron associated with the bracing on garage doors
Forcible Entry Rotary Saw: W/ Desert Diamond	<ul style="list-style-type: none"> • easily cut thick metals, will do serviceable job on wood components 	<ul style="list-style-type: none"> • Guard may limit cut depth, can be mitigated with relief cuts (see FE Hinge Cut Method video)
Reciprocating Saw: W/ metal cutting blade	<ul style="list-style-type: none"> • good options for wood, composite and metal members 	<ul style="list-style-type: none"> • Should not be used under fire conditions • Corded saws limit working area and require establishing power source which delays operation



Opening by Isolating Mechanism: Automated Garage Doors

The goal of forcible entry by opening the door is to isolate the opening mechanism attached to the door. This can be done by making a "V" cut surrounding the carriage bolts. These cuts need to be made completely through all material to ensure connections to the mechanical arm are severed. Once the "V" cut is complete, the bracing holding the triangular piece to the door will need to be popped out using a striking tool. After the opening mechanism has been disabled, the door is able to be opened. (Diagram 1)



Cutting Through: Garage Doors

The goal in cutting through a garage door is to separate the main body of the door from the structures that keep them in place. Refrain from cutting within 6 inches of the vertical framing of the door to avoid solid metal stiles or springs. On paneled door construction, cut through the midsection of the panels to avoid stiles and hinges (Diagram 3). Visit the link "SFFD Vimeo: Forcible Entry Hinge Method" above for a video on how to cut a sectional garage door.

Securing/Disabling Garage Doors:

Once a garage door has been opened, the next step is to secure or disable the door in order for it to not become a fall or entrapment hazard. Vise grips and wedge blocks can be secured in the tracks directly under a suspended door to impede vertical movement of the door. Ceiling hooks and ladders can also be wedged under the garage door, but be aware that they can easily be bumped and dislodged by hose lines and personnel. In addition, disabling door tracks by denting or twisting the tracks prevents the door wheels from moving freely up and down.

Failure to secure garage doors has resulted in the line of duty deaths of multiple firefighters including SFFD member Lt. Louis Mambretti in 1995. Lt. Mambretti perished and multiple others were injured when an unsecured garage door unexpectedly closed, trapping them inside. This unfortunate event reinforced the importance of safe garage door forcible entry practices.

Conclusion:

Garage doors provide crucial access to a building for suppression and rescue operations. Commitment to incident priorities, tactical considerations, comprehensive knowledge of tool capabilities and cut sequences will lead to successful and safe outcomes.