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Exerpts from FDNY Forcible Entry Manual

ROLL-DOWN SECURITY GATES

Roll-down security gates are becoming quite common throughout many cities. These gates protect storefronts, factories, warehouse and residential occupancies. They are also used to secure occupancies **inside buildings**, vacant buildings and roof bulkhead doors in vacant buildings.

Adjacent to the opening (window or door) two channel rails are secured to the exterior wall. These are known as the “**guide rails**.” Above the guide rails is a drum which houses the **curtain** (interlocking slats of metal or fiber glass). The **slats** ride up and down in the guide rail covering the opening. The curtain may be raised manually, mechanically (with a chain assist) or through electricity. All roll-down gates are constructed the same, except for the opening mechanism.


FIRE GROUND PROBLEMS

Designed for security, they have added to our fire ground problems by:

- Delayed discovery.
- Intense fire upon arrival.
- Extension of fire throughout.
- Very high heat and heavy smoke condition.
- Potential for back draft.
- Ventilation delayed and limited.
- Potential for wall collapse.
- Difficulty in locating the seat of the fire.
- Time consumed in extended forcible entry.
- Need for power saws to gain entry.
- Difficulty in determining the exact entrance door, when numerous gates are present.
- May block entrance to sidewalk cellar door, upper floors and FD Siamese connection.
- Gates may be secured from the inside, and occupants use another exit to leave building or worse yet, lock themselves inside.

TYPES OF GATES:

- Sliding Scissor Gate.
- Manual Roll-Down Gate.
- Mechanical Roll-Down Gate.
 - Chain Operated
 - Gear Operated
- Electric Roll-Down Gate.

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SLIDING SCISSOR GATE

This is the oldest type of security gate. These are among the first barriers that owners put in place to discourage vandalism and break-ins. Unlike the more common gates we encounter today, **these gates slides in a track to open.**

Construction Features


- ☐ The bottom track usually picks up and secures the gate in the open position; some pivot ninety degrees to achieve the maximum opening.
- ☐ These gates may be secured with numerous padlocks.
- ☐ These locks will be located in the center of the opening of the gate cover or off to one side, attached to the frame.



Forcible Entry Operations

- ☐ Locate and remove all padlocks and / or other locking devices.
- ☐ Slide the gate manually.
- ☐ Lift the bottom track and secure in open position. If possible, rotate gate ninety degrees to achieve maximum opening.



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MANUAL ROLL-DOWN GATE

Usually found on the front of smaller occupancies. These gates can cover an entire storefront or just a doorway.

Construction Features

- Gates ride up and down a channel rail on each side of the gate.
- The slats may be wider on the older gates.
- The gate is attached to a winding drum.
- At the top of the gate (on larger manual gates), the drum may have a spring counter-balance to assist in the opening.
- The winding drum is concealed behind sheet metal housing or inside the building wall.
- These gates are secured with metal pins that pass through the channel rail and the gate. These pins are secured to the channel rail with a padlock that attaches to a metal clip or staple welded to the channel rail.
- Each gate may be secured with numerous padlocks.
- The manual gate is easily recognized by the absence of a raising mechanism housing on the side of the winding drum (top of the gate).
- Lifting handles are usually attached to the bottom rail of the gate.
- Slide bolts may be attached to bottom rail and may be secured into the channel rail with a padlock.
- The curtain may be constructed of:
 - Inter-locked, solid sheet metal slats.
 - Open grill metal bars, connected with metal tabs.
 - Fiber glass.



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MANUAL ROLL-DOWN GATE

Forcible Entry Operations

- Locate and remove all padlocks and/or other locking devices.
- Pull (slide) all metal pins and slide bolts out.
 - Most of the padlock points will have a removable pin.
 - Bottom rail usually has a slide bolt to disengage.
- Raise gate with lift handle or bottom bar.




MECHANICAL ROLL-DOWN GATE (CHAIN HOIST)

All of the same features as the manual gate. These types of gates are generally found on wider openings.

Construction Features

- Gates ride up and down a channel rail on each side of the gate.
- The slats will be narrower, span a wider opening.
- On gates mounted on the exterior walls of buildings, the chain hangs from a narrow metal housing attached to the side of the winding drum housing. The chain is secured behind a hinged piece of angle iron. The chain is attached to a hold-down device such as a bolt to prevent pulling the chain out from the top of the angle iron. The angle iron is secured to the channel rail with one or more padlocks.
- On gates mounted with the winding drum concealed in the building wall, the chain will not be visible. The chain will be secured in a small access panel on the building wall adjacent to the channel rail. A key operated latch type lock will secure the access panel.
- The hoisting chain is secured behind a piece of angle iron and usually secured with padlocks.
- Each gate may be secured with numerous padlocks and slide bolts similar to the manual gates.
- The gate is usually larger, hence heavier.

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MECHANICAL ROLL-DOWN GATE (CHAIN HOIST)




Forcible Entry Operations

- Locate and remove all padlocks and/or other locking devices.
- Pull (slide) all metal pins and slide bolts out.
- Free the chain hoist from its hold-down device and raise the gate with the chain.
 - The angle iron covering the chain hoist is usually hinged and has to be pivoted out and away from the rail to access the chain hoist.
 - If the angle iron is not hinged you may have to pry it open to access the chain.
- If the gate cannot be raised with the chain hoist assemblies, cut the chain near the top and raise it manually.



Notice the different housings for the pull chain.

Note: This may take several firefighters since it will be much heavier.

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MECHANICAL ROLL-DOWN GATE (GEAR OPERATED)

All of the same features as the manual gate, this is another version of a mechanical gate. The difference in this gate is in how it is raised. The size of the opening is not necessarily an indication if this version of mechanical gate is present.

Construction Features

- ☐ Same construction features as the other gates.
- ☐ These gates are raised by turning a gear assembly with a crank handle.
- ☐ The gear assembly will be located at the top of the hoisting drum, in the same area as the chain hoist version.
- ☐ This version of mechanical gate will be able to be determined by what appears to be an eye bolt visible at the bottom of the housing assembly, off to one side.



Forcible Entry Operations

- ☐ If the crank handle is not readily available, or housed in the side rail assembly, similar to the chain, cut the gate.


ELECTRIC ROLLDOWN GATE

Same basic features as the other types of gates with the exception that it is operated electrically. It can be found in any occupancy, but usually is found on occupancies with large openings such as department stores and commercial buildings.

One gate may be used to cover multiple levels of an occupancy.

Construction Features

- ☐ Similar to mechanical roll-down but are usually recognized by a large metal motor housing adjacent to the winding drum.
- ☐ There may be a key switch located on the building wall on either side of the gate. This switch may also be located in a remote location inside the building. This key switch panel may contain a stop button; others stop with the switch in the center position of the key switch.
- ☐ All electrical operated gates are equipped with an auxiliary chain hoist to be used in case of a power failure. This chain will be located in the motor housing and may not be visible from the outside.
- ☐ Either a bottom hatch or a front panel, which is secured with sheet metal screws, may access this chain hoist.
- ☐ The chain hoist assembly may have a clutch cable or chain that must be pulled first to engage the assembly to open the gate. This electrical gate has now been converted to a mechanical one.

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ELECTRIC ROLL-DOWN GATE

- These gates may also be secured with padlocks, pins and slide bolts similar to manual and mechanical gates.



Auxiliary Chain




Forcible Entry Operations

- Locate and remove all padlocks and/or other locking devices.
- If power is ON, operate the electric switch to open the gate.
 - This may be possible in the early stages of the fire.
- Pull the cover off the box to expose the control lever on the back of the switch.
 - Even when the screws are removed, the inner plate must be pried off.

Note: This box may have to be broken to gain access.

These methods of gaining entry may only work if there is **not a large fire or high heat behind the gates**. Once the gate is exposed to high temperatures it may begin to distort and jam as it rides up the winding drum.

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ELECTRIC ROLL-DOWN GATE



There is no one, simple method of gaining entry through these obstacles. Each operation has to be treated accordingly. Size-up and the correct tools will dictate the method of entry.


OPEN-GRILL OR DESIGNER GATE (Variation of a Roll-Down Gate)

Same basic design as the other types of roll-down gates. The variation is that sections of the gate, either all or partial, are constructed of small, tubular pieces of metal or metal bars, connected with metal tabs. This type of gate is open so that you may see what is behind it.

This type of gate is generally used where high security is not vital or where the owner wants the public to view the display and also provide some security.

Construction Features

- ☐ All the same construction features of the other style gates.
- ☐ The curtain may be all or partial of a grid like design.
- ☐ Operation of gate will be the same as any other. It can be manually, mechanically or electrically operated.

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OPEN-GRILL OR DESIGNER GATE

Construction Features

- ☐ Each gate may be secured with numerous padlocks.
- ☐ Slide bolts may be present at the bottom.

Forcible Entry Operations

- ☐ Locate and remove all padlocks and /or other locking devices.
- ☐ Pull (slide) all metal pins and slide bolts out.
- ☐ Operate gate based on the type of design, either manual, mechanical or electric.




LOCKING DEVICES FOUND ON ROLL-DOWN GATES

There are many ways to secure these gates. Having some knowledge as to how the locking devices are installed will aid you in removing them.

- ☐ Generally there is some kind of opening made into the channel rail and the curtain. Through this opening a “pin” may be inserted which prevents the curtain from moving up.
- ☐ There could also be an “eye” buried into the sidewalk to secure the bottom rail.



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LOCKING DEVICES FOUND ON ROLL-DOWN GATES



Steps for Removal:

- ☐ Cut or open padlock and remove.
- ☐ Remove PIN.
- ☐ Raise curtain.




GATE LOCK (Bolt Lock)

Another popular device for securing roll-down security gates, fire doors, counter doors and shutters.

Features

- ☐ No hasps.
- ☐ No shackle.
- ☐ No pin.
- ☐ Resists cutting, drilling.
- ☐ Pick Proof.

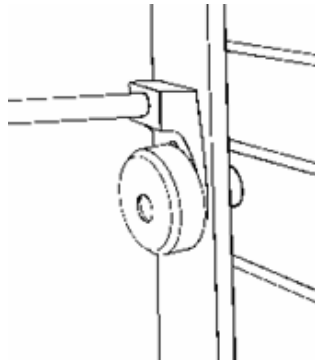


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GATE LOCK (Bolt Lock)

Forcible Entry

Go for **the weakest point** of this lock, which is the **brass pin which rotates the cam**. One way to force this device is to apply **pressure outward** and try to snap the brass pin.



Note: With many of these locks being covered (shielded) with steel, another method would be to try and cut the body of the lock on an angle between the rail and curtain.

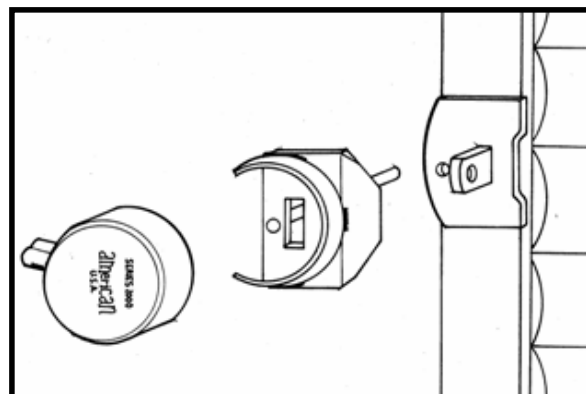



EXTERNAL SHIELDS

Most any type of padlock can be found with an external shield. They are used to protect the padlock and to make forcible entry more difficult.

Types of Shielding For Padlocks

- ☐ Wrapped shield **welded to padlock**.
- ☐ Fixed shield to padlock attachment point.
- ☐ Removable shield.
- ☐ Welded box.



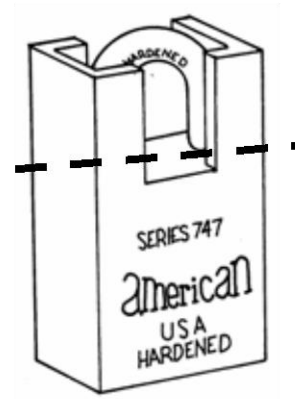
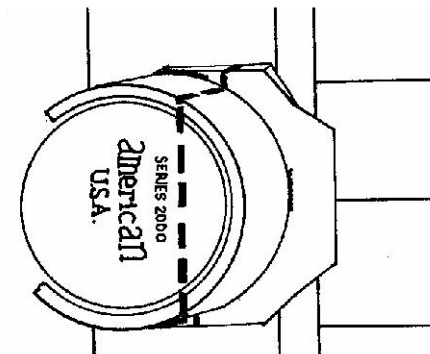
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EXTERNAL SHIELDS



Forcible Entry Operations

- ☐ Utilizing the Power Saw or Torch, cut through the shield and lock.
- ☐ Cut the gate.



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CUTTING THE ROLL-DOWN CURTAIN

There are many ways to cut roll-down security gates to gain access. There are just as many theories to justify these cuts. Each has its own merits but for simplicity, we are showing just a few.

Remember, each fire situation will dictate the appropriate cut.

Note: Always check to see if the bottom rail is covering a street-level cellar door. Once a cut is made, it will cover over that means of access/egress.



Triangular Cut

This is the quickest and fastest to get water on the fire. The key to this cut is the overlapping of cuts as **high as you can get and bringing the cuts down to the ground.**


Advantages:

- ☐ Only two cuts.
- ☐ Ability to put water on the fire immediately.

Disadvantages:

- ☐ Large pile of cut gate in front of opening.
- ☐ Unable to cut all the way to ground.
- ☐ The cut can only be made as high as the saw operator's reach.



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CUTTING THE ROLL-DOWN CURTAIN

Triangular Cut



Drive Pike of Halligan into Slat to Remove

Box Cut

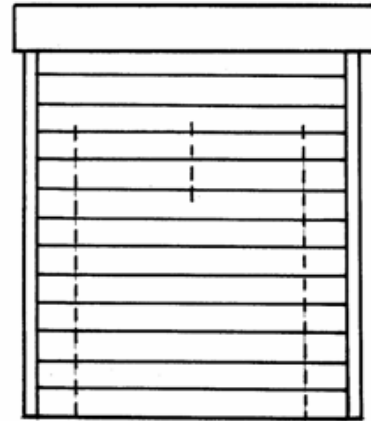
This operation requires three vertical cuts. The key to this evolution is ensuring the outside cuts are **at least a foot away from the guide rail**. Again, the cuts have to be made as high as possible and down to the ground. Unlike the triangular cut where gravity brings the cut to the ground, here a couple of slats must be removed manually pulling them from the rail side toward the middle.


Advantages:

- ☐ Less of a pile in front of the opening.
- ☐ Can be used on very wide openings.
- ☐ If done correctly, the opening will be squared.

Disadvantages:

- ☐ Requires more time.
- ☐ Requires more than one member.
- ☐ **Must** remove slat **above** the locking pin.



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CUTTING THE ROLL-DOWN CURTAIN

Box Cut




**Note: Drive the PIKE end of Halligan into slat to remove.
If slats are tight, drive the Halligan with the axe.**

OPEN-GRILLE OR DESIGNER GATE

When faced with the necessity to cut the open grill or designer gate a variation of the box cut would be used as shown below.



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CUTTING THE ROLL-DOWN CURTAIN

Rail Cut

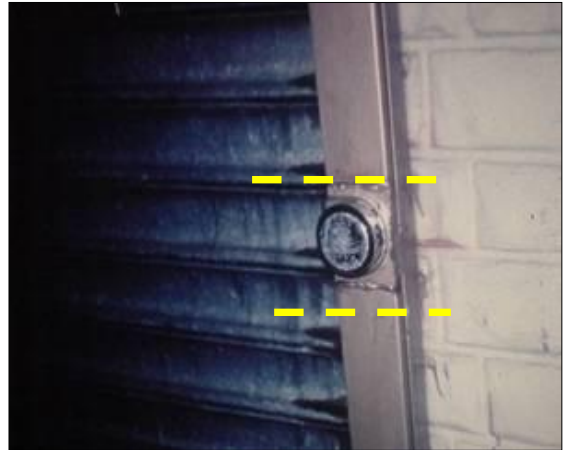
This opening, making two horizontal cuts in the guide rail above and below the locking device, has been used with limited success. The cut section is pried away from the gate pulling the locking device with it.

Advantages:

- ☐ No long cuts into the curtain.
- ☐ Faster.

Disadvantages:

- ☐ Can only be used where there are only **two** locking devices, one on each rail.
- ☐ **May not** pry away with the locking device thereby delaying the operation by then having to do either the Triangle or Box cuts.



ADDITIONAL TYPES OF LOCKS AND WAYS TO SECURE AND PROTECT



747 Lock




Covered Lock



Earring Lock



Long Bow

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ADDITIONAL TYPES OF LOCKS AND WAYS TO SECURE AND PROTECT



Master Lock



Short Bow



Shielded Lock



Soda Machine



Rubber Coated



Different Locks



Lock Box



Shield



Bottom Lock Cover



Bottom Lock Holder



Bottom Rail Lock



Mushroom Lock



Horseshoe Lock




Bottom Rail Slide



Bottom Lock



Bottom Slide Lock

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ADDITIONAL TYPES OF LOCKS AND WAYS TO SECURE AND PROTECT



Non Removal Shield



No Shield



Removal Shield



Lock Holders



Welded Lock Cover



Lock Cover



Static Bar



Secured Slate