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Forcible Entry Techniques for Roll-Down Security Gates

BY DANIEL M. TROXELL

Commercial occupancies such as strip stores and taxpayers are among the most challenging to firefighters when it comes to performing forcible entry operations. Because they are often targeted by criminals during nighttime nonbusiness hours, these buildings are usually heavily secured. Members may encounter many forcible entry obstacles when operating at fires in these occupancies. These obstacles can include, but are by no means limited to, the following:

- Roll-down security gates.
- Scissor gates.
- Heavy-duty locks.
- Heavy steel doors in the rear.
- Drop bars on rear doors.
- Security bars on rear doors and windows.

Of the obstacles listed above, the roll-down security gate is one of the most common found in urban areas. These gates are usually on the street side of the structure and are often the first obstacle members encounter when trying to gain entry from the front. These gates must be opened first to gain access to storefront doors and windows to begin horizontal ventilation and to place hoselines into position. This article concentrates on the forcible entry techniques that can be used to gain access through roll-down security gates.

TYPES OF ROLL-DOWN GATES

As stated above, roll-down gates are mainly used to secure the front windows and doors on taxpayer and strip store commercial occupancies during nonbusiness hours. They can also be found on storage units, parking garages, and other occupancies. When not being used, these gates roll or coil up onto a spool in a housing or a "drum" at the top of the opening they are securing. At the conclusion of the business day, they are rolled down and locked in position. There are many types of gates in use throughout towns and cities all over the country. Two of the most common types are described below.

Interlocking Steel Slat Gates. Steel slats use a tongue-and-groove system to interlock with each other (photo 1). These slats slide up and down and are supported by steel channel rails. Every other slat may have end or "wind" tabs to keep the gate from pulling out of the channel rail. You can identify these tabs by looking for the rivets that hold them in place at the ends of the slats (photo 2). Several separate gates may be used to protect an entire storefront, which will necessitate each gate being forced separately. Most gates can be manually operated by pulling up on the lift handles and pushing them back up into the drum. However, some may be operated by chain hoist or electric motors, which can be identified by the large boxes at the end of the drums. Steel slat gates are normally secured by hasps, which are welded to the channel rails, along with pins and heavy-duty or standard padlocks on both of the rails. Round padlocks may also be found. If round padlocks are used, they are often in protective steel guards that are welded to the channel rail. Gates can also be secured by slide bolts and other devices (photos 3-4). Slide bolts can often be found on the gates operated with a chain hoist. On these gates, padlocks are used along with the slide bolts to secure the gates, and additional padlocks are often used to separately secure the chain-hoist mechanism.



1 Photos by author.



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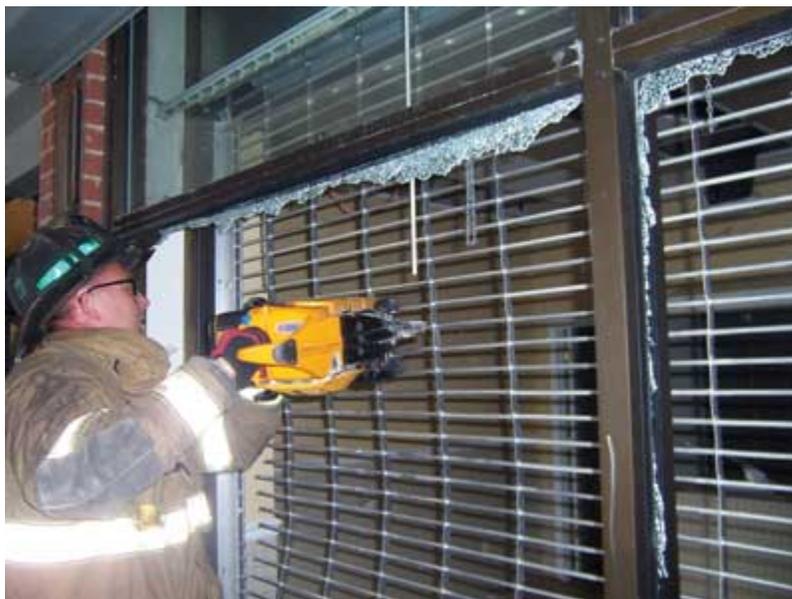


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Open-Grille Gates. These gates consist of a network of horizontal hollow steel or aluminum tubes and vertical flat plates, which form an open-grille gate. As with the steel slat type, this gate also slides up and down in steel or aluminum channel rails (photo 5). When positioned on the outside of a structure, the gate is usually secured in the same manner as the steel slat gates. However, open-grille gates can also be on the inside of the structure behind the storefront windows and doors. This is often the case when you are operating at fires in newer or renovated taxpayers and strip stores. In this situation, the gates are often locked on the inside with a sliding-bar locking mechanism, which secures the bottom of the gate to the channel. These gates can be operated manually, by a chain hoist, or electrically.



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SIZE-UP

Before initiating a roll-down gate forcible entry operation, you must perform a size-up. First, determine the location of the fire. This is especially necessary at strip stores and row taxpayer fires. Several roll-down gates may be present; they can span across several storefronts. Because of mushrooming and migration into the exposure occupancies, smoke may be issuing from behind all of the gates, and the exact location of the fire may not be evident from the street. In this case, reports from the roof team and companies in the rear can assist in pinning down the exact location of the fire. In addition, a thermal imaging camera (TIC) can be used to discern which gate has the highest amount of heat behind it.

Once you determine the exact location of the fire and which gates need to be opened, size up the gates themselves. What type of gate is it? What types of locks does it have? Are there multiple locks? Are the locks engaged? Is the gate manually or electrically operated? What is the quickest way to gain entry? Once you have the answers to these questions, you can begin forcible entry operations.

REMOVING THE PADLOCKS

Most often, the fastest way to gain entry through these gates is to remove the padlocks. This is also the preferred method because it allows the gate to be raised intact to completely clear the opening. Size up the locks as well. Check to see if the locks are attached to the pins. Sometimes the locks are in place but the pins are not. Also, the pins may be in place, but they may not be inserted into the channel rail and gate. In addition, if locks with long staples are used along with short pins, you may be able to pull the pin out of the pinhole in the gate without removing the lock.

You basically will find a standard or a circular type of padlock during the size-up. Standard padlocks are portable or detachable locking devices that consist of a lock body and movable U-shaped staple. The lock can be regular or heavy duty. Regular padlocks have a staple that is one-quarter inch or less in diameter and lock on only one side of the staple. Heavy-duty padlocks (case-hardened steel) have staples with a diameter larger than one-quarter inch and may lock on both sides of the staple—known as "heel and toe" locking (photo 6). These padlocks can be operated by keys or numerical combinations, and they are

available in a wide variety of shapes and sizes.



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As the name implies, circular padlocks have a circular-shaped lock body and are often protected by circular steel guards that are welded to the channel rails. These locks are extremely difficult to access and usually cannot be forced by the same methods used for standard padlocks. Some common circular padlock brands are the following:

- Abus Disc.
- American 2000 or "hockey puck" (photo 7).



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- Master 6271 series.
- Master 736 series.
- Brinks R70.
- Locks by other manufacturers that are similar to the Brinks and Abus locks.

Usually, the quickest method for removing padlocks is to cut the locks with a saw equipped with an aluminum oxide or diamond-segmented blade. If possible, these locks should be held in a stable position before cutting begins. You can accomplish this by clamping a pair of locking pliers (with a chain or a rope attached) to the body of the lock. The chain can then be tensioned so that the lock is in a parallel position and held steady. You can also use the pike end of the halligan to steady locks with long staples by placing the pike end through the staple. Once the lock is steadied, position the saw blade so that both sides of the staple will be cut. As with any metal-cutting operation, begin with a low revolution per minute (rpm) on the saw until a groove is started in the staple; then increase to full rpm to complete the cut through both sides (photo 8). Once the cuts are complete on all of the locks, pull out the pins, and roll up the door. If no other means are available to steady the lock, pin the lock itself up against the channel rail with the saw blade, and cut.



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Some truck companies carry a tool known as the "duck bill" lock breaker. This tool is quite effective in removing padlocks if a saw is not available. Place the "bill" of the lock breaker in the staple of the lock, with the bottom of the bill resting on the lock body. Strike the back of the bill with a sledgehammer or flathead ax, using as much force as necessary to separate the staple from the lock body (photo 9). Note that if the lock is attached to a chain, the duck bill lock breaker may not develop enough force to break the lock because of the slack between the chain links and the stretching of the chain. Regular padlocks can be forced in a similar manner by driving the pike of a halligan bar into the space between the staple and the lock body. This method is effective only if the diameter of the pike is larger than the space between the staple and the lock body.



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As mentioned previously, you may encounter gates secured with circular padlocks that are set in steel guards. It is quite difficult to cut the staples on these locks because they are recessed in the guards and protected by the pin and bracket. However, these locks can be defeated by using a saw to cut the channel rails above and below the locks. Make the cuts at about a 45-degree angle to form a triangular-shaped section in the channel rail; the narrow side of the cut should be toward the outside of the channel rail (photo 10). After completing the cuts, drive the fork end of the halligan bar around the cut section. On thicker channel rails, you may have to use the flathead ax or sledgehammer to drive the fork around the cut section. After the fork is driven into the cut section, use the bar to bend the cut section of the channel rail out and away from the gate to pull out the pin (photo 11). The pike end of the halligan can also sometimes be placed between the lock and the guard and used to bend the cut section away from the gate.



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You can defeat the American 2000, Master 6271, or Master 736 hockey puck locks by using a saw to cut through the lock body and guard, if present. For the American 2000, make a cut through the lock at a point just below and parallel with the "2000" lettering on the lock body. For the Master locks, make a cut three-quarters of the way up on the lock body from the keyway. These cuts must be completely through the lock body to cut the staple (on the back side of the lock) and defeat the lock (photos 12-13). If no saw is available and the hockey puck locks are not in guards, you can remove them with a pipe wrench with an extended handle and twist the lock off the bracket (photo 14). Hockey puck-type locks, especially the Master Lock 736 version, can often be found along with guard plates securing the rear doors of commercial vans and work trucks. For a fire in these types of vehicles, remove these locks by cutting

them with a saw as described above.



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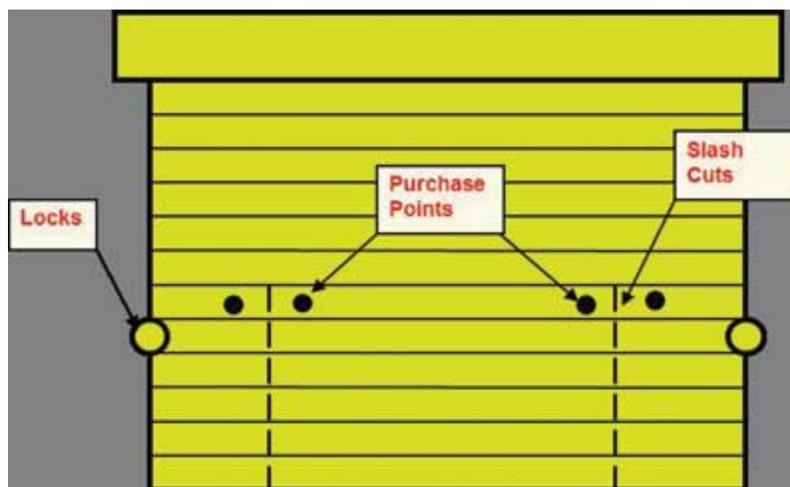


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CUTTING STEEL SLAT GATES

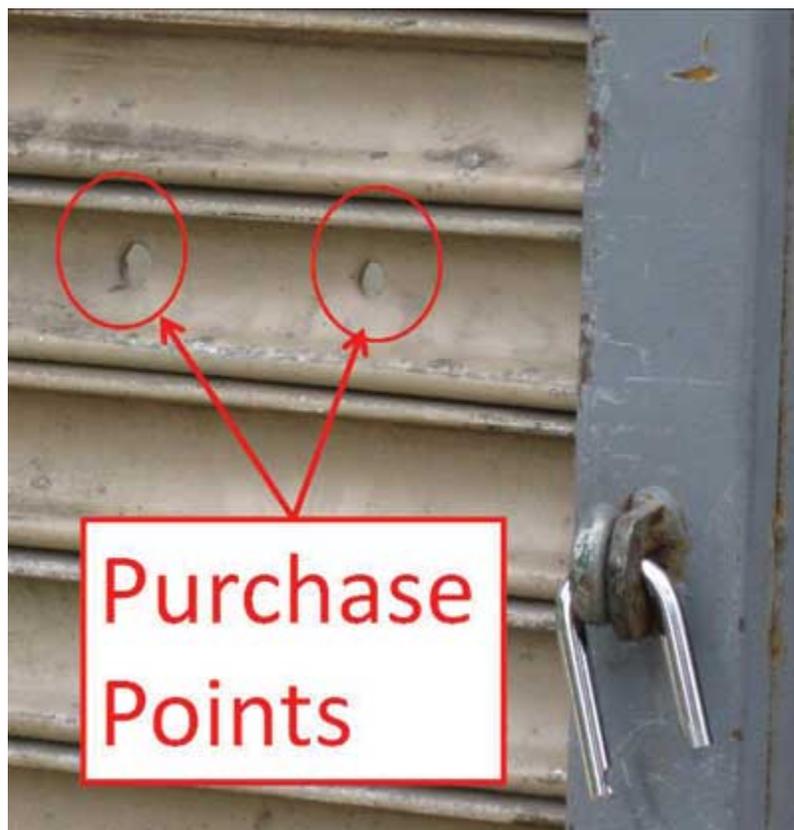
Steel slate gates may be recessed into a wall pocket or corner, which can restrict access to the locking devices, and there may be multiple locking devices on a single gate. In these cases, it may be faster to cut the steel slats instead of the locks. You can do this in several ways. Three methods are described below.

1 Slash Cut Method (photo 15). This is the fastest and easiest method of the three.



15

- Locate the slat just above the locks on both sides of the gate that does not have wind tabs attached to it. With the pike of the halligan bar, make a purchase point approximately one to two feet in from the channel rail. Make another hole six to 12 inches in from the first hole, toward the channel (photo 16).



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- Repeat this process on the other side of the gate.
- With the saw, starting at a point two slats above the slat with the purchase points, make a "slash" cut down between the purchase point holes and through (if possible) the bottom edge of the gate (photo 17).



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- Repeat this process on the other side of the gate. When these cuts have been completed, the slat above the locks with the purchase points will have been cut into three sections (two side sections and a center section).
- Place the pike of the halligan into one of the holes in one of the side sections and pull the slat out of

the channel rail toward the center of the gate, guiding it past the center section (photo 18).



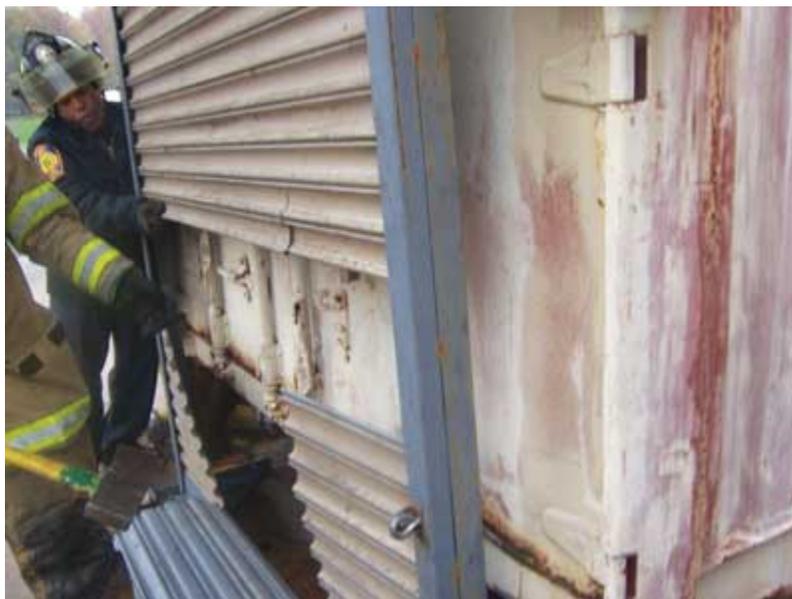
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- Repeat the process on the other side of the gate to remove the other side section. When this is complete, use one of the holes in the center section to pull that section toward one of the channel rails. If necessary, you can drive this section out with a flathead ax while using the halligan bar to guide the section around the channel rail (photos 19).



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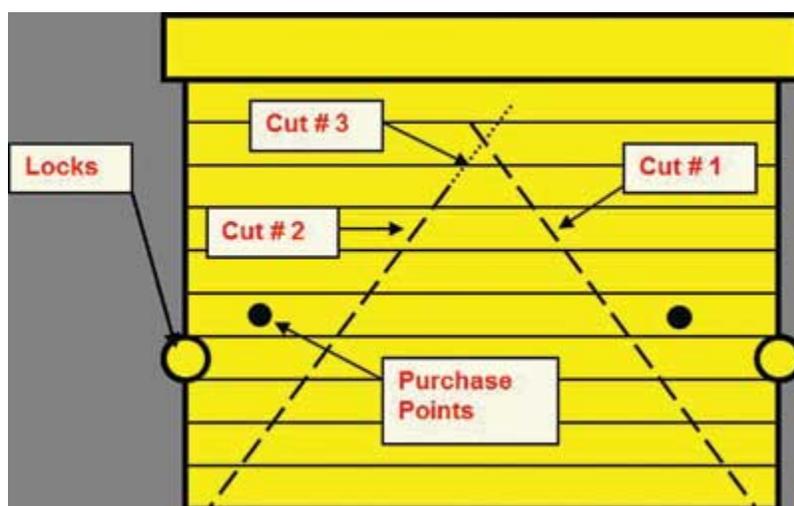
Once this section is removed, the section below it will fall to the ground, and the remaining portion of the gate above can be raised up and out of the way. The cut section on the ground can then be removed and cleared out of the way to gain access (photo 20). This is extremely important because the storefront doors that are usually behind these gates typically swing outward, and any remaining portion of the gate that remains after cutting may prevent the doors from opening fully.



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Use caution when performing this operation, as the spring-loaded upper section of the gate may pull upward violently as the doors coil back up into the drum when released. This action can exert a lot of force on the entire gate system, which is usually attached by lag bolts to the wood or masonry walls of the structure. If these points of attachment are weak or compromised, the force of the door coiling up into the drum may cause the entire door system (channel rails, gate, and drum) to separate from the building and fall on the members working in the area. The heat of the fire can also cause the springs to lose their tension and allow the gate to close unexpectedly. To prevent this, secure the gate in the open position by placing a pike pole under the bottom edge or by clamping locking pliers on the channel rail directly below the bottom of the gate. If the gate is in a recessed pocket that would prevent the center slat from being pulled out to one side, you may have to make an additional cut in the slat to divide it in two, which will allow the two sections to be pulled toward the center of the gate and removed.

2 Tee-Pee Cut Method (photo 21). This method, also known as the "Inverted Vee" method, involves making longer and more difficult cuts than those in the Slash Cut method.



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- Drive the pike end of the halligan bar into the slats above the locks on both sides to make holes for purchase points, similar to the procedures outlined in the Slash Cut method.
- Make a 45-degree cut from the center of the door, starting as high up above the level of the locks as the saw operator can safely reach, and continue the cut down to and through the bottom outside edge of the gate.
- Make a second 45-degree cut starting about six inches below the top of the first cut. This will allow the gate to maintain some stability while the second cut is being completed. Extend this cut down to the opposite bottom outside edge of the gate (photo 22).



22

- After completing the second cut, go back and cut the remaining six-inch section at the top. After this is completed, the entire Tee-Pee-shaped cut section will drop out of the gate.

Don't make the mistake and think that the operation is complete at this point and use this opening to enter and operate. Although it can be used to gain an initial knockdown of the fire with a hoseline in some instances, this opening usually is not large enough to be safely used as a means of ingress and egress from the building. Taking a few more steps, you can make this opening much larger.

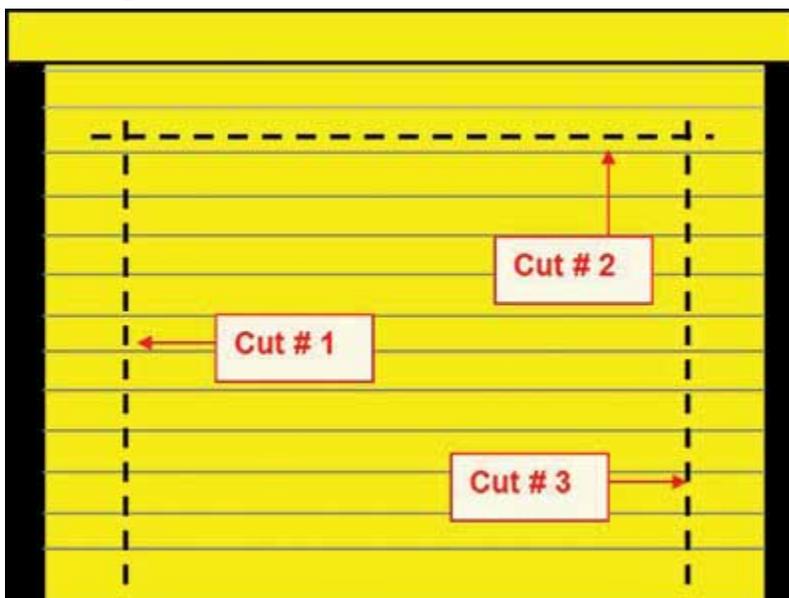
- Place the pike end of the halligan into one of the purchase points in the section of the slat remaining above the lock and used to slide the section toward the center of the tee-pee cut to remove it (photo 23).



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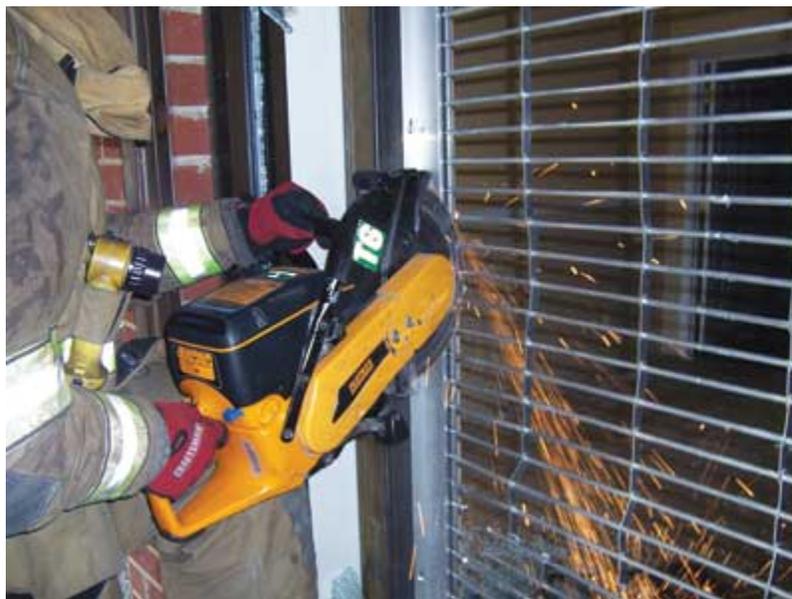
- Repeat this procedure on the slat section on the other side of the gate. Once the sections are pulled out, the upper portion of the door will be free of the locks and can be rolled up. Again, use caution when performing this operation on spring-loaded doors. They may pull upward violently when released from the locks and cause the door system to separate from the building.

3 Box Cut Method (photo 24). The procedures used for cutting steel slat gates cannot be used on open-grille gates because they differ considerably in construction. As mentioned above, these gates consist of a network of horizontal hollow steel tubes and vertical flat steel plates. The only way to effectively cut these gates is to perform a box cut.



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- Starting on either the left or right side of the gate near the channel rail, make a vertical cut from the top to the bottom of the gate (photo 25).



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- When this is complete, make a horizontal cut across the top of the gate, intersecting with the vertical cut.
- Make another vertical cut on the opposite side of the gate, also intersecting with the horizontal cut. When completed, the entire box-shaped section will drop out of the gate.

Note that since these gates are often inside of occupancies, the storefront glass may have to be broken to gain access to them. This can sometimes create an uncontrollable ventilation opening. If this is the case, ensure that hoselines are in position and that vertical ventilation has been completed before breaking any glass on occupancies actively involved in fire. The box cut method can also be used on steel slat gates that are electrically operated or are of the type that do not allow the slats to be separated, such as the sheet-curtain roll-down gates commonly found on self-storage units. The box cut method can also be used on steel slat gates that have been severely warped by the heat of the fire, in which case it will be extremely difficult and often impossible to slide out the slats or raise any portion of the gate.

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Forcible entry through roll-down gates on commercial occupancies is a challenging and labor-intensive operation for firefighters, especially if they are not familiar with the types of gates they encounter or the procedures that can be used to gain entry through them. Go out into your response area after business hours and check out the types of roll-down gates and other security devices out there. Size up the gates you find, and conduct regular drills on the tools and procedures you can use to get through them quickly and efficiently.

DANIEL M. TROXELL, a 35-year veteran of the fire service, is a captain with the Washington, D.C., Fire Department (DCFD). A Pro Board-certified level III instructor, he serves as an adjunct instructor with the DCFD Training Academy and has developed and taught courses for in-service company training and probationary firefighter training. He is an instructor for Traditions Training, LLC, a company specializing in "combat ready" street-smart firefighter training. In addition, he manages Troxfire Training Solutions, LLC, which specializes in the development of realistic training props and classes for truck company operations. He has a bachelor of science degree in fire protection engineering and a master of science degree in applied management, both from the University of Maryland at College Park.

Daniel Troxell will present "Commercial Building Forcible Entry Challenges" on Thursday, April 19, 2012, 10:30 a.m.-12:15 p.m., at FDIC in Indianapolis.

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