# C H A P T E R

# Understanding Rapid Intervention

## **Learning Objectives**

#### Upon completion of this chapter, you should be able to:

- identify the five main goals that a RIT tries to accomplish.
- explain the importance of training as it relates to rapid intervention.
- explain the meaning of surveillance and reconnaissance as they pertain to the fire building and the suppression activities taking place within and around it.
- explain proactive behaviors that can be accomplished by the RIT.
- explain and identify some of the ways a RIT can provide the means for rapid egress if needed by interior working companies during fire-suppression activities.
- explain how time plays a role in the outcome of a rapid intervention operation.
- identify the possible resources needed to carry out rapid intervention operations.

#### CASE STUDY

On January 28, 2004 at 2341 hours, the Hinsdale, Illinois Fire Department responded to the report of a house fire in a building under construction. Police officers had been patrolling the neighborhood on a report of a smell of smoke for approximately ten minutes prior to the neighbor's 9-1-1 call confirming a fire.

Units enroute included one engine with three personnel, a truck with three personnel, and an ambulance with one person. In addition, a still alarm was called out the door by the responding captain that included an additional engine, two trucks, an ambulance, an incident safety officer, a rapid intervention team (RIT) officer, and a chief officer. This timely still alarm request would prove invaluable later.

Upon arrival, the shift captain reported that sectors A and B were clear, but there was fire in a protrusion of the D sector of the home, including some exterior fire in that sector at the roofline. The captain ordered the crews to switch to fireground red (a tactical radio channel) and had the engine lead out, dropping both beds, which included a 3-inch supply line to a wye with an 1<sup>3</sup>/<sub>4</sub>-inch preconnected line and a 2<sup>1</sup>/<sub>2</sub>-inch line. The other bed contained the 5-inch supply line. The truck took the front of the building and assumed command and accountability.

The first crew took the 1<sup>3</sup>/<sub>4</sub> to the A/D corner where there was a door that led into a library. From the doorway, the crew was able to knock almost 90 percent of the fire. In the meantime the 2<sup>1</sup>/<sub>2</sub> was connected and the crew switched lines and began to enter the library to continue suppression efforts.

At this point, the first mutual aid company, a truck company, arrived on the scene and was assigned to a second line to work fire at the roofline. An upgrade of the alarm was requested per Command. The crews had now been on the scene for approximately ten minutes.

What occurred next is every fire chief's nightmare. The interior crew consisting of two firefighters had made entry with the 2½ line. They were approximately 25 feet into the library when the lead fire-fighter fell through a hole in the floor. At the time he went through the floor, both he and his partner were attempting to pull more line into the building. The firefighters were only 3–5 feet apart.

When the lead firefighter fell through the hole, he fell approximately 10–12 feet and landed on his hands and knees. There was fire evident at the ceiling line off to his right, but the fire had no direct contact with him. His partner did not initially know what had happened. However, the first thing the downed firefighter did was inform his partner to hold his position exactly where he was because there was a hole. He then radioed a Mayday call. The fallen firefighter communicated that he was capable of assisting in his own rescue and that there was fire at the basement ceiling but not in direct contact with him at that time.

His partner, due to the short distance they were into the structure, crawled back to the door to ensure that the captain had heard the Mayday call, which had been acknowledged by the shift lieutenant. The shift lieutenant relayed this information to the captain. An exterior hoseline was used to protect the downed firefighter. At this time, the deputy chief arrived on the scene and had all companies, except the rescue companies, switch to fireground white (a tactical radio channel) for operational communications.

As the mutual company came up the front walk to take their assignment as the second line, they were immediately reassigned to the RIT along with the remaining crews. A 20-foot roof ladder was taken into the structure and the plan was to get it into the hole as quickly as possible so the downed firefighter could self-rescue. At the same time, the shift Lieutenant was in search of another entrance to the basement from the exterior.

The visibility in the library at this point was zero and the fire was growing and threatening to cut off the access hole from below. The fallen firefighter's partner used voice contact to direct the RIT's effort to ladder the hole. The first couple of attempts were unsuccessful due to hitting debris or overshooting the fallen firefighter, who was struggling with limited visibility and whose low-air alarm was activating at this time.

Finally, the ladder made its way through the hole, and the fallen firefighter saw it go over his head and grabbed it. His first attempt to ascend the ladder was met with great heat and fire and he had to retreat while the area was cooled. A second attempt met with the same frustration. Finally, the third attempt was successful, and as the firefighter came though the hole, he was grabbed by the RIT and pulled from the building, where he was handed off to the mutual aid ambulance company on the scene.

The deputy chief called for a personnel accountability report (PAR) at that time and was able to confirm that all companies were out of the building and accounted for. The time from the Mayday call until the confirmation of the PAR was approximately six minutes.

—Case Study by Chief Patrick Kenny, Hinsdale Fire Department, Hinsdale, Illinois

2

3

#### Introduction

It goes without saying that the protection of life is and always will be the priority of the fire service. It is also common knowledge that the occupation of firefighting is one of the most dangerous, high-risk jobs available. When we define the word *dangerous* in the scope of an occupation, we are most often referring to the environment in which a person is trying to perform a task. In the case of rapid intervention, it is fighting fire and facilitating rescues under the most extreme conditions that causes us to place our own lives on the line.

Societal factors such as demographics, economics, and technology have made our jobs as firefighters increasingly more difficult and hazardous through the years. Historically, numerous firefighters have given the supreme sacrifice in efforts to protect and save the lives and property of the public. Unfortunately, it was not until the 1990s that the ideas of saving our own firefighters and rapid intervention began to take a prominent foothold in the profession. Some of the earliest concepts of self-survival techniques and rapid intervention were in departments that had formed rescue squads, such as the New York Fire Department (F.D.N.Y.). These rescue companies dedicated themselves to devising ways of rescuing civilians as well as other firefighters. Rapid intervention came into being as a result of the devastating losses of firefighters in precarious situations who were without properly trained, dedicated personnel readily available to help them. This led to the recognition that serious change was needed to better the odds for firefighters' well-being.

It should be realized that there are many degrees of danger on the fireground. The need for the eyes and ears of RITs is now, as it should be, a priority for every fireground situation. There are so many different risks present in a fire situation that it is improbable as well as impractical to think that one or even a handful of individuals can account for the safety of all. The permanent need for rapid intervention should now be a mainstay within the fire service in order for firefighters to survive the multiple dangers of firefighting.

#### **Rapid Intervention Teams**

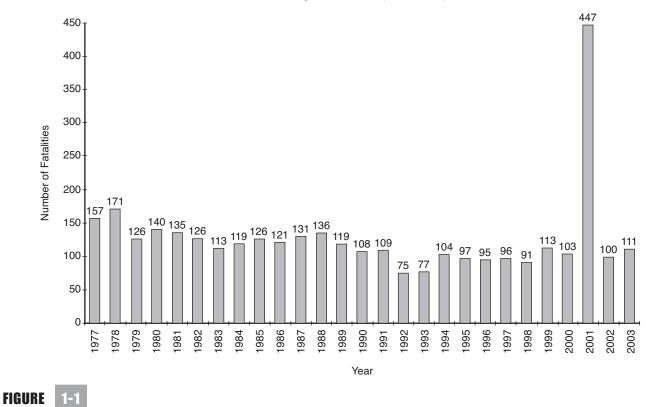
Each year, an average of 100 firefighters die in the line of duty, and thousands succumb to other types of injuries (Figure 1-1). Collapse of fire buildings, disorientation within smoke-filled environments, getting into trouble when operating on the floors above the fire, flashovers, backdrafts or smoke explosions, fires involving below-grade applications, falling through floors, and many other unforeseen events are reasons why we must diligently apply rapid intervention concepts and the ability to rescue our own in the event of any operation going bad. It should be realized that it is important to be creative and open-minded in order to move forward to generate new ideas and concepts aimed at improving our ability to bring our members home safely at the end of their tour of duty.

It should be understood that the rapid intervention team is derived from many different terms and concepts. Rapid intervention encompasses specialized teams involving the use of rescue techniques under the most adverse conditions. These teams are referred to by many names and descriptions, such as rapid intervention team (RIT), rapid intervention crew (or company) (RIC), firefighter assist and support team (FAST), rescue assist team (RAT), and many other acronyms that have been given to them by various departments across the country. (To simplify, the term *RIT* will be used throughout this text.) The actions of these teams are summarized by the term RICO, which stands for rapid intervention company operations. The names and other related jargon are not important; it is the task and purpose of these teams on the fireground that is vitally important.

Rapid intervention operations can save firefighters' lives, but they should not give a false sense of security to those firefighters operating on the fireground. As firefighters, we should realize that we are not indestructible, and we should not take extreme chances just because we feel an extra cushion of safety exists in the form of a RIT.

A true understanding of what a rapid intervention operation consists of is critical for all involved. These operations are resource-intensive and will require multiple RITs to complete. 4

Firefighter Fatalities (1977-2003)



Each year an average of 100 firefighters die in the line of duty, and thousands succumb to other types of injuries. The number for 2001 is abnormally high due to the loss of 344 firefighters at the World Trade Center. (Source: US Fire Administration)

Command and company officers must prepare and think ahead when setting up rapid intervention operations at an incident.

#### **Goals and Objectives of Rapid Intervention Teams**

Though it may be possible for one team to successfully remove a distressed firefighter, it will more than likely take two or three teams to get the job done. Teams, however, must be made up of four to six well-trained firefighters. Two firefighters standing by as the RIT will not be adequate. Rescuing a downed firefighter is labor-intensive. Sufficient personnel must be on-scene and in position to act at any moment.

This realization is the first rule of thumb: Ensure that there are adequate resources available to dedicate to a RIT operation. If one team is ready and waiting, then there should be another one in staging. Any RIT members deployed to the scene should know their roles and responsibilities. Their initial mission is to prepare themselves by evaluating the fireground. They will also stage tools to make certain they are equipped for potential situations that may be presented. The RIT should be in a constant state of readiness. If a distressed firefighter needs assistance, the RIT should function with five goals in mind:

- 1. Locate the downed firefighter.
- 2. Assess the firefighter's condition and the environment.
- 3. Provide an emergency air supply.
- 4. Call for additional teams or resources.
- 5. Attempt to remove the firefighter to safety.

Once these goals have been accomplished, additional teams can concentrate on the rescue and removal effort.

#### **Rapid Intervention Readiness**

Training is an essential part of RIT operations. Training helps identify what works and what does not work. It identifies the tools and resources that will be needed and also demonstrates the need for solid procedures to deal with fireground emergencies. Training creates readiness.

Training should begin by introducing the basics and then proceed to advanced skills and techniques. It should also concentrate on equipment that may be used during these operations. Identifying tools and equipment that may need to be purchased increases the chances of success during an actual operation (Figure 1-2).

The RIT should be as self-sufficient as possible when preparing for action on the fireground. When the time comes for the team to go to work, members should not be looking for tools or resources to be used for the rescue. This will delay the overall operation and may affect the final outcome.

RITs should be established on the fireground and should assemble the equipment needed based on the particular type of incident. These tools should be exclusive and available only for use by the RIT. These tools might include:

- forcible entry tools
- RIT pack or spare breathing apparatus with mask
- saws
- fire extinguishers
- thermal imaging cameras
- search rope
- individual ropes and webbing
- pulleys and carabiners





Specialized tools such as thermal imaging cameras, rescue litters, large-area search kits, RIT packs, and hydraulic forcible entry tools may be needed in addition to basic tools such as irons, hooks, and saws for RIT operations.

- hydraulic rescue tools
- ladders of various size
- charged hoseline

It is also important for team members to have portable radios and individual light sources.

The complexity and size of an incident will determine how many teams will be needed. This is especially true when dealing with larger incidents. As the situation escalates in complexity, it will become apparent that a separate branch in the Incident Management System (IMS) (organization system used to manage resources at an emergency incident) will have to be established in order to provide for the safety of everyone involved. Teams will work under a separate RIT operations chief or branch officer in the command system. During Mayday operations—operations in which a person is in a life-threatening situation—it is unreasonable and unsafe to expect one person to command both the fire suppression and rapid intervention operation simultaneously. It is very important for officers to adjust their standard operating procedures when these types of scenarios are presented. They must take control of communications and maintain accountability.



A **safety officer** involved in the safety of the fire-suppression situation should not be expected to oversee a response to a fireground Mayday. An additional safety officer should be put in place to be exclusive to the RIT operation.

# **Proactive Behavior**

When the RIT arrives on scene, the team leader should report to Command to collect information and determine a setup or staging area that will work to the team's advantage. This will allow the team to gain a clear view of what is taking place.

The RIT should begin to recognize significant hazards and dangers developing on the fireground and communicate those dangers to the proper divisions and Command personnel. The RIT should develop a solid rescue plan should one be needed.

#### **Chapter 1 Understanding Rapid Intervention** 6

RITs are often underutilized and held to one place on the fireground throughout an incident. Most of the time they are in the wrong place, have an improper vantage point, or are too close to the Command vehicle to be of any real assistance if



#### FIGURE

The RIT should be positioned in an advantageous place on the fireground and be ready to go to work at a moment's notice.





RIT teams must be in constant reconnaissance, monitoring fire conditions and egress hazards.

an emergency occurs (Figure 1-3). This often occurs because the firefighters assigned as the RIT do not like the assignment because they want to be involved in the "action." It is easy for complacency to develop within the team when this occurs. The fact is, the RIT position is one of the most important positions on the fireground. The best-trained and best-equipped firefighters should make up the RIT.

The fireground operation of a RIT starts with the immediate surveillance and reconnaissance of the fire building and the ground around it. The RIT should prepare the fireground by taking measures that will increase firefighter safety and survival (Figure 1-4 and Figure 1-5).





The RIT will need to clear all glass from windows that may be used by interior crews for escape. Coordination must always take place with interior crews before venting windows to prevent unwanted fire spread.

# Firefighter Rescue—Safety and Survival

As stated previously, the primary philosophy of rapid intervention is the safety and survival of the firefighters working on the fireground. The RIT must be aware of the locations of the different fire companies and firefighters and must know the various assignments. The team should be responsible for monitoring all radio transmissions and necessary frequencies. Likewise, it is the responsibility of Command to disseminate as much information as possible to the RIT. The accountability system in place should be well understood by the **RIT leader** or **officer (RITLO).** (The RIT officer will be discussed in greater detail in Chapter 3.)

It is very important that the RITLO establish good "face-to-face" communications process with Command. The RIT should be aggressive in seeking out information while being careful not to interfere with Command's ability to run the fireground. A properly completed **tactical worksheet** can be used by the RITLO to facilitate this (**Table 1-1** on page 9). The RIT should take immediate action to eliminate or correct any hazards that may cause injuries or harm to firefighters operating on the fireground.

### On the Outside

The RIT is responsible for continuous surveillance of the fireground to identify immediate hazards (Figure 1-6). This allows the team to estimate the size of the incident and to recognize any irregular fireground or construction features that may create potential problems (Figures 1-7A and 1-7B).

#### Escape

The team should not hesitate to remove any obstructed means of escape or egress for firefighters working on the interior. They should make certain that all windows are clear of obstructions such as burglar bars, gates, plywood coverings, or any other materials (Figure 1-8). Glass should remain intact in windows unless removal is coordinated with interior companies to directly change fire conditions or aid in rescue (venting for life). The RIT should be proactive and raise ground ladders to windows for potential egress and escape (Figure 1-9).



# FIGURE 1-6

Smoke conditions can tell the RIT a great deal about what is taking place inside of the structure. Density, velocity, volume, and color are conditions that the RIT should pay particular attention to.





#### FIGURE 1-7

Getting a read of all four sides of a building is very important. How does size up change when all sides of this single family dwelling are viewed? What appears from the front (A) may be totally different from what is presented in the rear of the building (B). 8



### FIGURE 1-8

This building is a RIT team's nightmare when it comes to rapid escape. In addition to the burglar bars, notice the boxes blocking the egress path from the door as well as the hazard that is presented by the air conditioning units placed in the windows. Access to some of the windows with ladders will also present a challenge due to limited space.

### Construction

The RIT should recognize the main type of building construction and the impact the fire is having on the structure. Specifically, the RIT should recognize any type of weaknesses, misalignments, or faulty areas that exist **(Figure 1-10)**.



Understanding how loads are imposed and resisted by structural components will also aid in predicting how stable the building is.





Ladders should be proactively placed at windows as secondary egress points for interior crews.





It is important for the RIT to be able to point out flaws or renovations in construction that could affect operations on the fireground. The visible plates on this masonry wall signify that this wall may be compromised.



Tactical Objectives	Fireground Tactical Worksheet						
Size Up	Incident Location Box Card # Temperature						
Call for Help (Upgrade Alarm)			-	e			
Save Lives (Search/Rescue)	Strategic Priorities           1) Occupant Removal				Fire Flow GPM		
Cover and Contain	<ol> <li>2) Life Safety / Incident Stabilization</li> <li>3) Conserve Property</li> </ol>				L × W / 3 (per floor) Benchmarks		
<ul><li>Fire Attack</li><li>Exposures</li></ul>	4) Safety / Accountability of Personnel						
Ventilation	Company	any Task / Assignment			□ All Clear		
<ul><li>Horizontal</li><li>Vertical</li></ul>						condary Search	
Rapid Intervention Team IRIT RIT						nt. Complete ss Stopped	
						Additional	
Extinguish Water Supply Back Up Line						countability equate EMS	
Overhaul					🗆 Sta	iging Est. lities Cont.	
Salvage						ice	
Calvage					🗆 Inv	estigator	
PAR         Structural Stability Check           10 min2030405060         10 min202530354045505560						5560	
С							
		U					
В						D	
		^					
		Α					

TABLE 1-1

Tactical worksheet.

# Chapter 1 Understanding Rapid Intervention 10

It is the responsibility of the RIT to report immediately anything suspicious in these areas to the sector to which they pertain or the safety officer.

#### Hazards

Another important area of service for the RIT is identifying different types of hazards that may exist on the fireground. Hazardous material in-



#### FIGURE 1-11

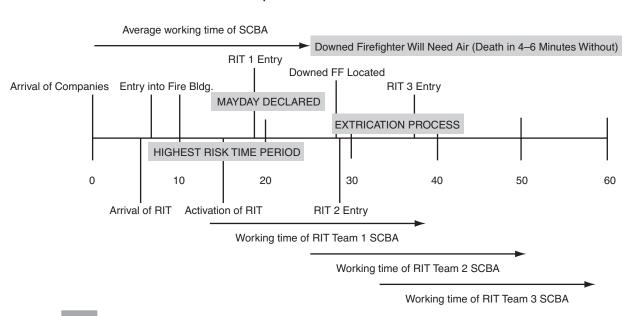
NFPA 704 markings can provide information to the RIT that additional hazards may be present.

formation such as **NFPA 704 System** markings found on the building or auxiliary buildings tell of hazards or hazardous materials that may be used or stored on the premises (**Figure 1-11**). Teams should also identify natural gas and propane products that may exist.

It is a good idea for the RIT to establish a checklist to help organize the mentioned information. This can be accomplished by establishing some type of abbreviated method, printing it on a laminated card, and attaching it to a rapid intervention equipment bag. Information to record on this card should include that shown in **Table 1-2**.

#### The Value of Time

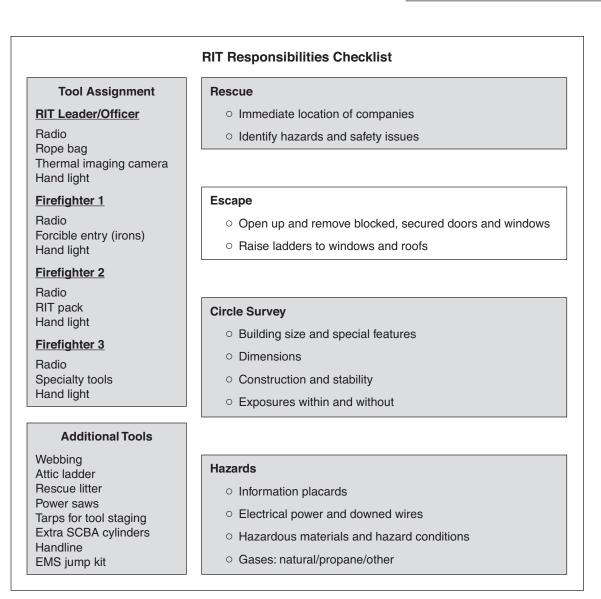
Time is a major limiting factor during a fireground emergency. Valuable time can be gained by ensuring that all firefighters are trained in the techniques of self-survival. This training should include information about how to anticipate problems. Additional training in rapid intervention operations will allow crews in the immediate vicinity of a fireground emergency to attempt to solve the problem. This immediate action can reduce the overall time required by the RIT to deal with the emergency. Time affects all aspects



**Rapid Intervention Timeline** 



Rapid intervention timeline.



### TABLE 1-2

RIT responsibilities checklist.

of fireground operations. Time components have a tremendous impact on the overall outcome of the incident (Figure 1-12).

#### Sample Fireground Timeline

- 1. First-arriving fire-suppression companies.
- 2. Establishing attack offense/defense/search.
- 3. First RIT arrival.
- 4. RIT reports to Command, sets up at division.
- 5. The communications process of a Mayday received.
- 6. Response of RIT.

- 7. Identifying who and where.
- 8. Locating/identifying resources needed.
- 9. Extrication and rescue process.
- 10. Complete removal, hand over to EMS.

The Case Study at the beginning of this chapter illustrates how quickly things can happen on the fireground and the benefits of having well-trained firefighters as part of the RIT. It also proves that yes, rapid intervention does work! But again, everything mentioned in the Case Study took place in a matter of only six minutes. It can not be stressed enough that time is of the essence when we have to save one of our own. The value of time during RIT operations is further revealed in a series of studies that were conducted by the Phoenix, Arizona Fire Department and Dr. Ron Perry of Arizona State University. These studies were conducted as a result of the tragic loss of firefighter Bret Tarver at the Southwest Supermarket fire on March 14, 2001.

The studies consisted of over 200 rapid intervention drills that were held in three buildings sized between 5,000 and 7,500 square feet. A scenario of a hoseline extended into the structure 150 feet with two firefighters off the line 40 feet was presented to the participants.

Throughout the studies, it took an average of eight to nine minutes for the RIT to reach the downed firefighter from the time that the Mayday was called. This included briefing, entry preparation, and search. The average time to find, package, secure an air supply, and remove the downed firefighter was approximately twenty-two minutes. Also worth mentioning is the fact that it took an average of twelve firefighters to rescue each downed firefighter, while one in five, or 20 percent, of the rescuers experienced a Mayday of their own.

The times obtained in these studies were not under heat and smoke conditions as may be experienced in a real incident. An involved, lengthy extrication process was also not required for the downed firefighter (under a partial collapse, entanglement, etc.). The Phoenix studies illustrate the resources and time that may be involved in rescuing one of our own. If there is doubt in these numbers, set up a similar exercise at your department. In our experiences of conducting scenarios and drill sessions, even under different circumstances, we have consistently noticed time intervals that are very similar in nature.

# Additional Issues Concerning Rapid Intervention

Fire departments should establish a rapid intervention plan for fireground operations to produce and activate true RITs. Many fire departments are forced to consider the "risks versus the benefits" of establishing rapid intervention capabilities. They must alter their standard operating procedures or rely on other fire departments to help them establish the capability. Other fire departments that have the manpower and apparatus available may have specific procedures that assign incoming units to perform RIT. Some fire departments may establish regional teams made up of individuals from many departments. In order for any of these configurations to work, cooperation among fire departments is needed. This entails training together, practicing skills, and attaining the competencies necessary to perform firefighter rescues.

Injuries and fatalities continue to occur on the fireground. Firefighters may become lost and disoriented. Firefighters may be injured and killed in collapses, especially those involving truss construction. Firefighters may get caught in backdrafts and flashover conditions. Fire departments and incident commanders must deal with inadequate resources. The aggressive nature of our business seems to have us continuously charging in when probably the best thing to do is to stay out. Protective clothing, which has improved tremendously over the years, hides the true dangers of the environment in which firefighters operate. Firefighters continue to go too deeply into structures without the use of safety lines. Repeated alarms with "nothing showing" create complacency. For these reasons and many more, rapid intervention must become a mainstay in the fire service. For those departments that rely on mutual aid, it may be better to withhold members when a fire attack is marginal to allow additional help to arrive and establish an acceptable safety margin.

Fire departments and incident commanders must exceed the National Fire Protection Association (NFPA) standards and Occupational Safety and Health Administration (OSHA) regulations pertaining to RIT and the 2-in-2-out rule in order to be successful. The minimum size of a rapid intervention team should be four members. Remember, the actual rescue of a downed firefighter will require the efforts of several teams.

# Summarv

Fire departments should stress training programs that emphasize basic fireground skills, self-survival techniques, and RIT competencies. Rapid intervention training should involve studying and reviewing incidents to learn from the lessons of others. After proper training, RIT members should be able to identify the fire main goals of rapid intervention, how to use surveillance and reconnaissance techniques to effect a positive outcome, and the proactive behaviors that will create a climate of success.

When a Mayday occurs, a firefighter is either lost or trapped and is running out of time. It is unfortunate that when this suddenly happens, many departments will painfully realize that they are not prepared to deal with the situation. Many resources, such as the proper tools, are needed for a successful RIT intervention; foremost among them is time. Be aggressive, be proactive, be safe, and be trained; don't just simply be.

#### **KEY TERMS**

Firefighter assist and support team (FAST) Incident Management System (IMS) Mayday National Fire Protection Association (NFPA) NFPA 704 System Occupational Safety and Health Administration (OSHA) Rapid intervention

# **REVIEW QUESTIONS**

- 1. The initial step in the RIT's mission is to prepare themselves by
  - a. staging.
  - b. evaluating the fireground.
  - c. communicating with interior companies.
  - d. securing the tools they need from other companies.
- 2. The RIT should function with five goals in mind. They are:
  - 1.
  - 2.
  - 3. 4.
  - 5.
- 3. The and will determine the number of RITs needed at an incident.

Safety officer Tactical worksheet 4. A well-trained incident commander

Rapid intervention company operations (RICO)

Rapid intervention crew (or company) (RIC)

Rapid intervention team (RIT)

RIT leader or officer (RITLO)

Rescue assist team (RAT)

**RIT** operations chief

should be able to effectively manage both the suppression and rapid intervention efforts.

True False

5. A safety officer put into place to oversee fire-suppression operations can also be utilized to help supervise the fireground Mayday.

False

- 6. RITs are one of the most underutilized resources on the fireground. This is often true because the RIT
  - a. is not equipped.

True

- b. does not have an aggressive officer.
- c. is positioned poorly.
- d. is assigned to poorly skilled firefighters.

- 7. The best communication process to allow the RIT officer to obtain information needed from Command is through
  - a. a radio network.
  - b. face-to-face communications.
  - c. portable radios.
  - d. summaries from Dispatch.
- 8. The minimum size of a RIT should be members.
  - a. two
  - b. three
  - c. four
  - d. five

- 9. NFPA 704 markings can give the RIT information regarding to
  - a. construction type.
  - b. number of occupants.
  - c. possible hazards.
  - d. water supply.
- 10. Training identifies
  - a. tools and resources needed.
  - b. what works and what does not.
  - c. the need for procedures.
  - d. all of the above

- **ADDITIONAL RESOURCES**
- Cobb, R. (1996, July). Rapid intervention teams: They may be your only chance. *FireHouse*, pp. 54–57.
- Cobb, R. (1998, May). Rapid interventions teams: A fireground safety factor. *FireHouse*, pp. 52–56.
- Coleman, J., and Lasky, R. (2000, January). Managing the Mayday. *Fire Engineering*, pp. 51–62.
- Dodson, D., *Fire department incident safety officer.* Clifton Park, NY: Thomson Delmar Learning, 1999.
- *Firefighter's handbook,* 2nd ed. Clifton Park, NY: Thomson Delmar Learning, 2004.

- Jakubowski, G., and Morton, M. *Rapid intervention teams.* Fire Protection Publications, Stillwater, OK: Fire Protection Publications, 2001.
- Kreis, S. (2003, December). Rapid intervention isn't rapid. *Fire Engineering*, pp. 56–66.
- Lamb, P. (2002, August). The rapid intervention time line and crew survivability. *Fire Engineering*, pp. 93–95.
- Smith, M. (2001, August). Rapid intervention: What is it? *Firehouse*, pp. 18–19.