Entry-Level Firefighter Study Guide:

City of Richmond
Department of Fire and Emergency Services

Provided by Fire & Police Selection, Inc.
Welcome to the Department of Fire and Emergency Services!

I am excited to welcome you to the City of Richmond’s Department of Fire & Emergency Services application process. You can easily see that The City of Richmond is dynamic and unique, rich with history and changing rapidly to ensure our customers a bright future. The Department of Fire and Emergency Services is a vital part of that history and we continue to be innovative and aggressive in our approach to ensure that our Department is a community partner in fire and life safety.
Nature of the Job

Every year, fires and other emergencies take thousands of lives and destroy property worth billions of dollars. Firefighters help protect the public against these dangers by rapidly responding to a variety of emergencies. They are frequently the first emergency personnel at the scene of a traffic accident or medical emergency and may be called upon to put out a fire, treat injuries, or perform other vital functions.

During duty hours, firefighters must be prepared to respond immediately to a fire or any other emergency that arises. Because fighting fires is dangerous and complex, it requires organization and teamwork. At every emergency scene, firefighters perform specific duties assigned by a superior officer. At fires, they connect hose lines to hydrants, operate a pump to send water to high pressure hoses, and position ladders to enable them to deliver water to the fire. They also rescue victims and provide emergency medical attention as needed, ventilate smoke-filled areas, and attempt to salvage the contents of buildings. Their duties may change several times while the company is in action. Sometimes they remain at the site of a disaster for days at a time, rescuing trapped survivors and assisting with medical treatment.

Firefighters have assumed a range of responsibilities, including emergency medical services. In fact, most calls to which firefighters respond involve medical emergencies, and about half of all fire departments provide ambulance service for victims. Firefighters receive training in emergency medical procedures, and many fire departments require them to be certified as emergency medical technicians.

Firefighters work in a variety of settings, including urban and suburban areas, airports, chemical plants, other industrial sites, and rural areas like grasslands and forests. In addition, some firefighters work in hazardous materials units that are trained for the control, prevention, and cleanup of oil spills and other hazardous materials incidents. Workers in urban and suburban areas, airports, and industrial sites typically use conventional firefighting equipment and tactics, while forest fires and major hazardous materials spills call for different methods.

Between alarms, firefighters clean and maintain equipment, conduct practice drills and fire inspections, and participate in physical fitness activities. They also prepare written reports on fire incidents and review fire science literature to keep abreast of technological developments and changing administrative practices and policies.

Working Conditions

Firefighters spend much of their time at fire stations, which usually have features common to a residential facility like a dormitory. When an alarm sounds, firefighters respond rapidly, regardless of the weather or hour. Firefighting involves risk of death or injury from sudden cave-ins of floors, toppling walls, traffic accidents when responding to calls, and exposure to flames and smoke. Firefighters may also come in contact with poisonous, flammable, or explosive gases and chemicals, as well as radioactive or other hazardous materials that may have immediate or long-term effects on their health. For these reasons, they must wear protective gear that can be very heavy and hot.
The work schedule for the Richmond Fire Department is based on a 21 day cycle that is posted on our website under the “Operations” menu choice. It will require you to work ten 24-hour shifts over the course of one month. You will know your schedule one year in advance. In addition, firefighters often work extra hours at fires and other emergencies and are regularly assigned to work on holidays. Fire lieutenants and fire captains often work the same hours as the firefighters they supervise. Duty hours include time when firefighters study, train, and perform fire prevention duties.

**Employment**

According the United States Fire Administration, nearly 70 percent of fire companies are staffed by volunteer firefighters. Paid career firefighters held about 282,000 jobs in 2002. First-line supervisors/managers of firefighting and prevention workers held about 63,000 jobs; and fire inspectors held about 14,000.

About 9 out of 10 firefighting workers were employed by municipal or county fire departments. Some large cities have thousands of career firefighters, while many small towns have only a few. Most of the remainder worked in fire departments on Federal and State installations, including airports. Private firefighting companies employ a small number of firefighters and usually operate on a subscription basis.

In response to the expanding role of firefighters, some municipalities have combined fire prevention, public fire education, safety, and emergency medical services into a single organization commonly referred to as a public safety organization. Some local and regional fire departments are being consolidated into countywide establishments in order to reduce administrative staff and cut costs, and to establish consistent training standards and work procedures.

**Training, Qualification, and Advancement**

Applicants for municipal firefighting jobs generally must pass a written exam; tests of strength, physical stamina, coordination, and agility; and a medical examination that includes drug screening. Workers may be monitored on a random basis for drug use after accepting employment. Examinations are generally open to persons who are at least 18 years of age and have a high school education or the equivalent. Those who receive the highest scores in all phases of testing have the best chances for appointment. The completion of community college courses in fire science may improve an applicant’s chances for appointment. In recent years, an increasing proportion of entrants to this occupation have had some postsecondary education.

As a rule, entry-level workers in large fire departments are trained for several weeks at the department’s training center or academy. Through classroom instruction and practical training, the recruits study firefighting techniques, fire prevention, hazardous materials control, local building codes, and emergency medical procedures, including first aid and cardiopulmonary resuscitation. They also learn how to use axes, chain saws, fire extinguishers, ladders, and other firefighting and rescue equipment. After successfully completing this training, they are assigned to a fire company, where they undergo a period of probation.
Among the personal qualities firefighters need are mental alertness, self-discipline, courage, mechanical aptitude, endurance, strength, and a sense of public service. Initiative and good judgment are also extremely important because firefighters make quick decisions in emergencies. Because members of a crew live and work closely together under conditions of stress and danger for extended periods, they must be dependable and able to get along well with others. Leadership qualities are necessary for officers, who must establish and maintain discipline and efficiency, as well as direct the activities of firefighters in their companies. Most experienced firefighters continue studying to improve their job performance and prepare for promotion examinations. To progress to higher level positions, they acquire expertise in advanced firefighting equipment and techniques, building construction, emergency medical technology, writing, public speaking, management and budgeting procedures, and public relations.

Opportunities for promotion depend upon written examination results, job performance, interviews, and seniority. Increasingly, fire departments use assessment centers, which simulate a variety of actual job performance tasks, to screen for the best candidates for promotion. The line of promotion usually is to engineer, lieutenant, captain, battalion chief, assistant chief, deputy chief, and finally to chief. Many fire departments now require a bachelor’s degree, preferably in fire science, public administration, or a related field, for promotion to positions higher than battalion chief. A master’s degree is required for executive fire officer certification from the National Fire Academy and for State chief officer certification.

Job Outlook

Prospective firefighters are expected to face keen competition for available job openings. Many people are attracted to firefighting because it is challenging and provides the opportunity to perform an essential public service, a high school education is usually sufficient for entry, and a pension is guaranteed upon retirement. Consequently, the number of qualified applicants in most areas exceeds the number of job openings, even though the written examination and physical requirements eliminate many applicants. This situation is expected to persist in coming years.

Employment of firefighters is expected to grow about as fast as the average for all occupations through 2012 as fire departments continue to compete with other public safety providers for funding. Most job growth will occur as volunteer firefighting positions are converted to paid positions. In addition to job growth, openings are expected to result from the need to replace firefighters who retire, stop working for other reasons, or transfer to other occupations.

Layoffs of firefighters are uncommon. Fire protection is an essential service, and citizens are likely to exert considerable pressure on local officials to expand or at least preserve the level of fire protection. Even when budget cuts do occur, local fire departments usually cut expenses by postponing equipment purchases or not hiring new firefighters, rather than through staff reductions.
Overview

This written test that will be administered by the City of Richmond Department of Fire & Emergency Services for the entry-level firefighter recruitment process consists of a variety of sub-tests designed to measure critical constructs required for successful job performance as a firefighter. The components of this test have been developed and validated by firefighters and Fire Captains who have experience performing the essential functions of the firefighter job. Each construct measured by this test has been carefully linked to a national job description and identified as a critical skill or ability necessary for performance of the job.

The entry-level firefighter written tests are called the Comprehensive Examination Battery (CEB) and Work Styles Inventory (WSI) tests. Constructs measured by the CEB Test include:

- Reading Ability—10 items
- Mathematical Reasoning—16 items
- Interpersonal Competencies—74 items (to include: interpersonal skills, teamwork, commitment, honesty, integrity, emotional stability)

The WSI measures a variety of interpersonal competencies or personality work behaviors. There are a total of 85 items on the WSI.

Subject-matter experts in our validation workshops have endorsed every item on the test and have confirmed that the reading level of the passages and the test items are appropriate based upon the materials found on the job and in the academy.

How to Prepare for the Tests

CEB Preparation

All of the constructs measured on the CEB are based upon basic skills and abilities that a minimally qualified applicant should possess. There are a variety of preparatory publications available that may be helpful to those candidates who could use a refresher in basic reading and math skills. FPSI cannot endorse any particular publication in terms of preparing for the CEB Test.

WSI Preparation

There is no preparation for the WSI. The personality traits measured by this device are work styles and traits that you possess and there is no way to prepare for this portion of the test. We strongly encourage you to respond truthfully to the WSI items. Failure to respond honestly, or attempts to “fake good” on this portion of the test will result in a very low score.

Test Yourself for Success with the CEB Practice Test Items

Listed in the back of this study guide are sample questions from the three constructs being measured on the CEB written test. These sample test items are very similar to the types of items found on the actual CEB Test. There are no practice test items for the WSI Test.
Prepare for Your Test Day

One way to help alleviate any apprehension you might have about the test is to visit the site, if possible, where the test will be administered. This will allow you to become familiar with the setting and the location of the testing. Obtain directions to the test site and determine the parking situation prior to the day of the test.

If you do visit the testing site in advance, be aware that on the day of the test administration your movements to certain areas of the building where the test is being held might be restricted. Do not make absolute plans on where you want to sit or which restroom you wish to use. Just familiarize yourself with the location and the facilities. You will be instructed on the test day of any limitations on your movements during the test session.

Carefully read all of the instructions and directions you receive from the agency conducting the test and follow them. Failure to follow the instructions may affect your score or even eliminate you from the testing process.

The Day of the Test

Arrive early on the day of the test. Applicants who are late are often denied permission to take the test. Be sure to bring all materials and/or information that the testing agency requested you to bring. For example, many testing agencies require that you bring some form of government issued photo identification such as a driver’s license or a state identification card. Failure to bring required materials might result in your NOT being able to take the test. Wear comfortable clothing in layers so you can remove layers if the room becomes too warm or add layers if there is air conditioning or a cold draft. This strategy will help you to be comfortable throughout the exam. You can also use your sweater or jacket to cushion your seat in the test room if it is too hard or uncomfortable. Even though you should dress comfortably, you should also keep in mind that this test is part of the overall selection process. Check with the agency that is administering this test to see if there are any dress requirements.

When you are given the test instructions on the test day, you will be informed how much time you have to answer the questions. Take your watch off and put it on the table in front of you where you can see it. This will help you to keep track of your time and progress. You should be supplied with all materials you need to respond on the test, including test answer forms, scratch paper, and pencils. Leave all of your test preparation materials or notes outside of the testing area. You may NOT refer to any other study materials during the test.

Once you begin to take the test, make sure you clearly mark your answers to each corresponding question. If you skip any questions during the test, make sure you continue to put your answers next to the correct answer number on the answer sheet. It is easy to put answers next to the wrong question number on the answer sheet if you do not pay close attention. When you have reached the end of the test, make certain to go back and check that you have answered ALL of the questions.
During the test, you will be instructed to choose the “best” or “most correct” alternative from four different alternatives. Most applicants find it helpful to read the entire question and all four of the alternatives before choosing the best or most correct alternative. It is better to read all of the alternatives as you may find one that is a better answer than the one you first thought was correct.

If you have time after you have answered all of the questions, go back and review your answers. You may have recalled something later that may help you to correctly answer earlier questions.

**DO NOT LEAVE ANY ANSWERS BLANK.** You are scored on the number of correct answers you give in response to the questions. In other words, you will be penalized for any answers left blank. Even if you are not certain of a correct answer, you should **GUESS** at what the correct answer might be. Try to eliminate alternatives that you know are wrong and guess from the ones that remain. This will increase your chances of guessing the correct answer. **Answers left blank will NOT be counted towards the number of correct responses in your final score and therefore guessing is much better than leaving blanks on your answer sheets.**

Some items on the CEB Test carry different points compared to other items on the test. A breakdown of the points associated with each test construct is listed below:

- Reading ability items (2.66 points each)—A total of 26.60 points total
- Mathematical ability items (1.21 points each)—A total of 19.36 points total
- Interpersonal competency items (.73 points each)—A total of 54.02 point total

It is important to try to make a good impression throughout the entire testing process since command level officers and administrators from the department that are administering this test sometimes visit the test site on the day of the test. Horseplay and loud joking before or after the test may create a poor impression of your ability to properly perform the job of a firefighter officer. You should also remain quiet during the test unless you have permission to do otherwise from those who are administering the test.

**Dealing with Anxiety**

The CEB and WSI Tests are not a measure of your self-worth or your intelligence. These tests are designed to measure your levels of reading ability, math skills, and interpersonal competencies. If you have performed poorly on other tests in the past that does not necessarily mean you will perform poorly on the CEB and/or WSI Test. Because, unlike many other types of tests, the CEB and WSI Tests were designed to measure a variety of critical skills and abilities that are essential to successful firefighter job performance in a way that does not overestimate the importance of cognitive skills and other constructs which, historically, result in lower passing rates. There are no trick questions on the CEB and WSI Tests. Each and every question on the test tests can be answered based upon basic skills, abilities, and tendencies you should have developed throughout your life.

We certainly wish you the best of luck with your endeavors to secure a firefighter position with the City of Richmond Department of Fire & Emergency Services!
For this section of the CEB test, you will read a one-page passage containing fire-related materials and will then answer five multiple-choice questions for each passage. All of the answers for these questions are found in the corresponding reading passage. You are encouraged to read the fire passage first and then answer the questions. You are allowed to refer back to the passages if needed.

Proceed to the next section when you are finished.
Ladder Usage

Questions 1-5

Proper climbing angle, 70 degrees, allows safety while climbing and working on the ladder. To determine the 70 degree angle, take the height to be laddered, divide this by 5, and add 2. Place the foot of the ladder this number of feet away from the building and adjust the extension of the ladder to reach the desired location. For example, to determine proper foot placement of a ladder to reach 30 feet high, \(30 \div 5 = 6\), and then \(6 + 2 = 8\). Therefore, with the ladder placed eight feet from the building, a 70 degree climbing angle would be obtained. The ladder is extended to reach a location 30 feet above the ground.

When placed at a proper climbing angle, a 35 foot ladder will reach less than 35 feet up the side of a building. Another method for determining a safe and proper climbing angle is as follows: place the toes of your shoes at the spur plate of the ladder; then with both arms outstretched, the fingers should rest on the rung most level to the shoulders.

When climbing a ladder, a firefighter should climb with a straight back and at arms length from the ladder. Pushing with leg power rather than pulling with arm strength has proven most efficient. With arms straight and hands resting lightly on the rungs, the firefighter should look straight ahead and only occasionally look up.

Only a limited number of people can safely be on a ladder at the same time. The rule of thumb regarding the number of people on a ladder at a given time is as follows. Basically, for each 10 foot section of ladder, one person is allowed. The following is the recommended safety work load for fire department ladders.

<table>
<thead>
<tr>
<th>Length (feet)</th>
<th>Load Limit</th>
</tr>
</thead>
<tbody>
<tr>
<td>10 to 16</td>
<td>1 person</td>
</tr>
<tr>
<td>20 to 26</td>
<td>2 people</td>
</tr>
<tr>
<td>30 to 35</td>
<td>3 people</td>
</tr>
<tr>
<td>40 to 50</td>
<td>4 people</td>
</tr>
</tbody>
</table>

When sizing up a fire scene, it is very important that the ladder length estimates are correct. To help with this determination, a firefighter should allow 12 feet for each story and three feet as the distance from the floor to the window sill.

Ladders requiring two or more individuals to spot and raise are under the command of the person located at the foot of the ladder, away from the bed. That person gives the command for preparation and execution for all movements. This is done to increase the efficiency of the movements and to avoid confusion and possible injury.

Normally ladders are carried parallel to the ground with one beam above the other by two or more people. The ladder is carried with the firefighter's arm extended through the rungs. The beam rests on the firefighter's shoulder. The exception is the one man straight-side ladder. When only one firefighter is carrying a ladder, the ladder is carried in the middle for increased convenience and maneuverability.
1. When calculating the distance to place a ladder away from a building, you should take the length of the ladder and divide by _____ and add _____.
   A. 5, 2
   B. 5, 3
   C. 6, 2
   D. 6, 3

2. An alternate method for determining the appropriate climbing angle is to place your toes at the spur plate of the ladder and rest your outstretched arms and fingers on the rung _____.
   A. most level with your head
   B. most level with your shoulders
   C. most level with your eyes
   D. above your shoulders

3. The maximum number of people who could safely stand on 24 foot ladder at one time is _____.
   A. one
   B. two
   C. three
   D. four

4. When determining the appropriate ladder length, the firefighter should allow _____ feet for each story.
   A. eight
   B. ten
   C. twelve
   D. fourteen

5. The firefighter should allow _____ feet at the distance from the floor to the window sill when determining the appropriate ladder length.
   A. 2
   B. 2 ½
   C. 3
   D. 3 ½
Math Section

For this section of the CEB test, you will answer five (5) fire-related math questions. These math questions require basic mathematic calculations and you will not need a calculator. Calculators are not allowed for this test. You may not use any scratch paper for this test. YOU ARE FREE TO WRITE IN THIS TEST BOOKLET TO MAKE YOUR CALCULATIONS.

Proceed to the next section after you are finished.
6. A firefighter determines that 350 feet of hose is needed to reach a particular building. If the hoses are 60 feet in length, what is the minimum number of lengths of hose needed?
A. 3
B. 4
C. 5
D. 6

7. Office sprinkler heads spray water at an average of 25 gallons per minutes (GPM). If 4 sprinkler heads are flowing at the same time and at the same rate, how many total gallons of water will be released in 15 minutes?
A. 100
B. 315
C. 375
D. 1,500

8. What is the total weight of four firefighters who weigh 202 pounds, 186 pounds, 133 pounds and 211 pounds?
A. 682
B. 712
C. 732
D. 742

9. An adult victim has one-quarter (1/4) of his back burned, all of his arm burned, and half (1/2) of his head burned. Using the burn chart below, determine what percent (total) of the victim is burned.

Entire Back: 20%
Entire Front: 20%
Entire Head: 15%
Entire Arm: 15%

What percent of the victim is burned?
A. 25.5%
B. 27.5%
C. 30.5%
D. 35.5%

10. The fire captain asks you to lay out hose line. The hose line comes in 85-foot sections. How many 85-foot sections will you need in order to lay out 1,150 feet of hose line?
A. 10
B. 12
C. 14
D. 16
Contextual Simulation Section

For this section of the CEB test, you will read one short fire-related situation and will then answer two multiple-choice questions relating to that situation. You will be asked to identify both the “most appropriate” response and the “least appropriate” response.

For example:

*You are transporting an injured and intoxicated male who has a large amount of money protruding from his pockets. While transporting him to the emergency room you notice that the money falls out of his pocket.*

A. Pretend you didn’t see the man drop the money.
B. Wait until you go back outside and take the money if nobody else has found it.
C. Pick up the money and give it to the emergency room staff for safekeeping.
D. Pick up the money and place it next to the victim’s hand.

1. WHAT IS THE **MOST** APPROPRIATE RESPONSE?
2. WHAT IS THE **LEAST** APPROPRIATE RESPONSE?

You are allowed to review your responses to any test section with any remaining time.
John is a new firefighter at a station for the first time where there is a food fund. This fund is used to pay for lunch and dinner for the firefighters. At the beginning of the shift, $6.00 is paid into the fund and a “check mark” is placed next to each firefighter’s name. By eating meals together, teamwork is built. John forgets to bring his $6.00 for the shift. What is the best way for Firefighter John to handle this situation?

A. John should leave the station quickly and run to the nearest bank.
B. John should place a check mark on the chart and pay for his food later.
C. John should not eat with the rest of the group since he couldn’t pay the $6.00.
D. John should ask another firefighter if he could borrow $6.00 for the day.

11. WHAT IS THE MOST APPROPRIATE RESPONSE?
12. WHAT IS THE LEAST APPROPRIATE RESPONSE?

Firefighter Green is a new firefighter and feels left out when the other firefighters talk at the station. He feels that the other firefighters ignore him on purpose and treat him as if he’s not part of the team. What is the best way for Firefighter Green to handle this situation?

A. Firefighter Green should take interest in the conversations and spend time getting to know the other firefighters.
B. Firefighter Green should tell his supervisor that the other firefighters are ignoring him.
C. Firefighter Green should ignore the other firefighters and allow time to pass before doing anything.
D. Firefighter Green should confront the other firefighters and ask why they are ignoring him.

13. WHAT IS THE MOST APPROPRIATE RESPONSE?
14. WHAT IS THE LEAST APPROPRIATE RESPONSE?
Firefighter Garcia finished the fire academy at the top of his class and acted arrogant about his accomplishment. After receiving his station assignment, he put very little effort into station and district drills. Firefighter Garcia was perceived as an arrogant know-it-all. This perception prompted his fellow firefighters to treat him as a non-team player. What is the best way for Firefighter Garcia to handle this situation?

A. Firefighter Garcia should continue with his work and not address the issue.
B. Firefighter Garcia should try to participate a little more with the other firefighters.
C. Firefighter Garcia should apologize for his attitude and make an effort to learn new concepts.
D. Firefighter Garcia should inform his supervisor that the other firefighters are picking on him.

15. WHAT IS THE MOST APPROPRIATE RESPONSE?

16. WHAT IS THE LEAST APPROPRIATE RESPONSE?

Your partner pulls the fire truck out of the truck room to wash it and a compartment door is severely damaged because it has been left open. You see this and recall that you left the compartment door open. You know that your partner will be blamed for this and that it was not entirely his fault. What is the best way to handle this situation?

A. You should tell your partner to always check the compartment before pulling the engine out.
B. You should tell your partner that you left the door open and suggest that you both discuss this accident with your supervisor.
C. You should begin working on another task and wait for your partner to discuss the accident with you.
D. You should inform your supervisor that your partner damaged the vehicle.

17. WHAT IS THE MOST APPROPRIATE RESPONSE?

18. WHAT IS THE LEAST APPROPRIATE RESPONSE?
While on a fire safety inspection at a local high school, a teacher approaches you and asks if you can help build a bonfire at the football game. The teacher has received permission from the fire department and school principal so long as a firefighter is present. You agree to be present at the bonfire. After talking further, you discover that the game is on your scheduled day off. What is the best way to handle this situation?

A. Inform the teacher that you cannot attend the bonfire as you are not scheduled to work.
B. Encourage the teacher to proceed without a firefighter as you have already approved the site.
C. Attend the bonfire considering that your entire department will be represented by your actions.
D. Ask a fellow firefighter to attend the bonfire in your absence.

19. WHAT IS THE MOST APPROPRIATE RESPONSE?
20. WHAT IS THE LEAST APPROPRIATE RESPONSE?
Answer Key

1. A
2. B
3. B
4. C
5. C
6. D
7. D
8. C
9. B
10. C
11. D
12. A
13. A
14. B
15. C
16. D
17. B
18. D
19. C
20. B