

## DESCRIPTION OF THE APPLICANT PHYSICAL ABILITY TEST

**To be completed by a Medical Doctor licensed to practice in the Applicant's State of Residence**

Firefighting is among the nation's most physically demanding occupations requiring high levels of muscular strength, endurance and above average levels of cardiovascular conditioning.

Consistent with the tenants of the Americans with Disabilities Act (ADA), our department is administering a three-part physical ability test before making an offer of employment or conducting a medical examination to determine if there is a medical condition that contraindicates a career in this field. The applicant whose name appears on this document has elected to present this material to you seeking an indication that the applicant is fully capable of performing the essential physical functions of the job, as indexed by the physical ability test described herein. A description of the 6-event timed test follows. Note that applicants will wear a turnout coat, helmet, gloves, long pants, athletic shoes and a weighted self-contained breathing apparatus (SCBA) – total weight of outfit is 52 pounds.

### TIMED TEST

#### Task 1 – Ladder Carry

A 20 foot, 53-pound aluminum roof ladder is positioned flat on the ground just in front of the test start line. The applicant, who is standing behind the ladder at the start line, at the word "Go,"



Ladder Carry

picks up the ladder using both hands. Holding the ladder in a manner that prevents it from touching the ground at any time, applicant walks with the ladder 59 feet toward the tower, applicant hangs the ladder on the brackets secured to the external stairway railing about 56" above the ground. Applicant then proceeds to Task 2, the Hose Advance.

#### Task 2 – Hose Advance

Applicant walks about 39 feet from the Ladder Carry task to the nozzle end of an S-laid, charged 1 3/4-inch attack line. Applicant lifts the nozzle end of the hose, drops to all fours and drags the hose 25 feet while crawling. At the 2-foot mark, applicant rises and, walking or jogging, drags the charged line an additional 50 feet using an over-the-shoulder grip. Once the hose nozzle crosses the task finish line, the applicant drops the hose and moves to Task 3, the Forcible Entry task.

### Task 3 – Forcible Entry

Applicant walks from the Hose Advance about 50 feet to the Keiser Force Machine. Applicant will mount the Force Machine (facing in the direction he/she was walking, pick up the shot mallet and hit a 160-pound steel beam until it has moved five feet horizontally (the timer should tell the applicant when this has been accomplished.

For this task the applicant will use a 9-pound shot mallet. Once the beam has been moved the required distance; applicant drops the mallet and walks to Task 4, the Stair Climb/Hose Load Carry task.



Hose Advance



Forcible Entry

### Task 4 – Stair Climb/Hose Load Carry

Applicant walks 74 feet, picks up a 46.5 pound hose pack to shoulder or at chest height and walks 13 feet into the training tower to the base of the stairs and climbs three stories to the third floor, a vertical distance of 23 feet, 6 inches. On the third floor landing, applicant drops the high rise pack and descends to the ground floor where applicant proceeds to Task 5, the Crawl task.



Stair Climb/Hose Load Carry

### Task 5 – Crawl

After completing the Stair Climb event in Task 4, the applicant walks 32 feet to the Crawl Task start/finish line. Applicant drops to all fours and crawls along a 60 foot long L-shaped out-and-back course. Applicant crawls 10 feet to a barrier. Applicant climbs over the barrier and crawls 10 feet to a 180-degree turn-around (a traffic cone) and then returns to the task start/finish line by the same path, going under the barrier this time. Total crawl course distance is 60 feet. When applicant's hands cross the finish line, the applicant rises, walks to Task 6, the Victim Rescue task.

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### Task 6 – Victim Rescue

Applicant walks from Hose Advance about 95 feet to the two traffic cones marking the entrance to the Victim Rescue task. Applicant walks between the cones, turns left or right – depending on where the mannequin is positioned, and walks 26 feet to the Victim Rescue task start line approaching the 165-pound mannequin from the dead end.

The applicant must lift and carry the mannequin in a manner such that only the heels of the mannequin are touching the ground. Lifting and carrying/dragging the mannequin requires the applicant to squat at the mannequin's head and place his/her hands under the mannequin's head/neck, and raise the mannequin's torso into a seated position.



The applicant then grasps the mannequin by hooking both arms under the mannequin's armpits and clasping his /her hands in front at the chest if possible. The applicant next lifts the mannequin using a "squat" type of lift involving his/her legs and maintaining the natural curve of the back in a safe lifting motion. Once the applicant has elevated the mannequin, he/she begins a rearward walking movement keeping the torso of the mannequin at chest level with the mannequin's feet dragging the ground, dragging the mannequin 50 feet to the finish line until the mannequin's feet cross the end of the line. Once the mannequin's feet are across the line, the applicant drops the mannequin and the test ends.

**CERTIFICATE OF MEDICAL EXAMINATION**

Physician's Clearance

With regard to (applicant name): \_\_\_\_\_

I am not aware of any condition that would preclude his/her participation in the Hampton Division of Fire & Rescue Applicant Physical Ability Test (APAT) described.

Title & Name: \_\_\_\_\_  
(Print)

Signature: \_\_\_\_\_ Date: \_\_\_\_\_

Office Number: \_\_\_\_\_

Please note: Pages 1, 2, and 3 **MUST** be initialed by the physician signing this form and all pages **MUST accompany the Risk, Release, and Waiver Form at time of testing.**

## HDFR APPLICANT'S ASSUMPTION OF RISK, RELEASE, AND WAIVER FOR THE PHYSICAL ABILITY TEST (APAT)

Applicant/Releasor's Name: \_\_\_\_\_

PRINT

Date of Birth: \_\_\_\_ / \_\_\_\_ / \_\_\_\_ Emergency Contact # ( \_\_\_\_ ) \_\_\_\_ - \_\_\_\_\_

I, Releasor, am aware that in participating in the APAT there is the potential risk of serious injury or death due to physical exertion, my own physical condition and/or any existing health defects, both known and unknown. I also understand that participation in the APAT is a requirement for employment/volunteering with the Hampton Division of Fire & Rescue. **I hereby acknowledge and accept notice of the intrinsic dangers of the Applicant Physical Ability Test and** that this waiver shall remain valid unless expressly revoked by me, in writing, with receipt acknowledged by the City of Hampton. With the knowledge of the foregoing, I do for myself, my spouse, my heirs, executors, administrators and assigns hereby agree to and acknowledge each of the following for myself and anyone claiming through me.

1. Initial	I wish to participate in Hampton Division of Fire and Rescue's APAT on the ____ /day of ____ / ____ , at ____ AM/PM  <div style="display: flex; justify-content: space-around; font-size: small;"> <span>Day</span> <span>Year</span> <span>Month</span> <span>Time</span> </div>
2. Initial	The nature of the APAT and instructions has been fully explained to me. I have examined the location and equipment to be used and find them safe and suitable to my needs. I recognize that participating in the APAT requires physical exertion and may involve risks and dangers which could result in serious bodily or personal injury from such causes as heart attack, stroke, falls, and other dangers. I voluntarily assume any and all risks and dangers arising or associated with the APAT.
3. Initial	I agree to obey all rules and safety procedures of the APAT and to obey the instructions of staff members directing the APAT. I agree that the City of Hampton, its officers, agents, employees and volunteers, (collectively referred to as "The City") may dismiss me from the APAT at any time without further obligation to me if, in the City's sole discretion, my participation poses a direct threat to me or others or my participation is otherwise incompatible with the PAT.
4. Initial	I have taken all actions necessary to ensure my health conditions is satisfactory for participation in the APAT including consultation with my physician, and I have no health problems that would present a danger during the APAT. I agree to inform instructor (s) if my health condition changes at any time during the test. Listed as follows are any accommodations required to make participation in the APAT possible and I agree that the City of Hampton, in its sole discretion, may determine whether it can reasonably supply such accommodations: _____ (use back if needed)
5. Initial	I agree to provide medical documentation or undergo physical examination if the City requires such to determine whether accommodation is reasonable. I permit the City to contact my health care providers to inquire of medical needs and agree the City may copy and release my medical information to those with a need to review it for purposes related to the APAT. If required by the Health Insurance Portability and Accountability Act (HIPAA) to execute Medical Releases, I will execute such releases.
6. Initial	I agree to release the City of Hampton, its officers, agents, employees and volunteers from any and all liability for loss, injury or damage to person or property arising from the APAT and hold them harmless for same. I authorize the City of Hampton to seek medical attention for me and transportation to a health care facility in any emergency.

I have carefully read this Assumption of Risk, Release, and Waiver, and fully understand its terms and that the terms are contractual and not a mere recital, that I have given up substantial rights by signing it, and sign it freely and voluntarily as my own free act without inducement. If one or more portions of the Waiver are found unenforceable, the remainder of the Waiver shall remain enforceable.

\_\_\_\_\_ / \_\_\_\_\_ / \_\_\_\_\_      \_\_\_\_\_  
 APPLICANT'S NAME – PRINT      DATE      APPLICANT'S CITY/STATE/AND ZIP CODE  
 \_\_\_\_\_ / \_\_\_\_\_ / \_\_\_\_\_  
 APPLICANT/PARENT OR GUARDIAN SIGNATURE      DATE

## WELCOME TO THE APPLICANT PHYSICAL ABILITY TEST INTRODUCTION

### NOTE

**Please review this packet of information and the video online prior to testing and the practice sessions.**

The Hampton Division of Fire & Rescue is providing you, the “applicant,” with this test information package so you can determine and improve, if necessary, your readiness for taking our APAT for the position of firefighter. In order for you to prepare for a position in this demanding occupation, this package provides you with a description of the APAT and diagnostic self-tests so that you can measure your current fitness level. Once you have determined your present level of fitness you can assess whether you need to improve before attempting our APAT.

Employment with the Hampton Division of Fire & Rescue has many rewards. Foremost is a great sense of satisfaction in serving our city and in creating, through your actions, an environment where life and property are safe and secure.

Firefighting is an exciting and rewarding career. However, it is also one of the more physically demanding professions in the United States. Unlike other labor-intensive jobs that are designed around the capabilities of the workforce, firefighting responds to the demands of the emergency. This means that a high level of physical fitness is absolutely essential in all firefighters.

### BACKGROUND

The duties of a firefighter are many and varied. The work environment is frequently hazardous, involving climbing, jumping, and pulling, pushing and carrying heavy items often in hostile environments. While the protective equipment worn by firefighters is vitally important, it is also heavy and limits performance. On the job, while wearing their protective gear, firefighters often may have to respond quickly to incidents and possibly carry or drag heavy objects, such as removing from danger arrears victims that weight well over 200 pounds. That is why being in top physical condition is a prerequisite for employment. An equally important reason for staying in top physical condition is that it is the best possible protection against on-the-job injuries. Physical fitness also increases longevity and enhances quality of life.

Much of what firefighters do in emergency situations requires both muscular fitness and aerobic fitness. A commitment to life-long fitness is an essential part of being a Hampton Division of Fire & Rescue firefighter, it is even more important to maintain fitness one on the job.

The purpose of this information packet is to provide you with an overview of the Hampton Division of Fire & Rescue APAT to better help you prepare for or sustain performance in the challenging career of firefighting. Considerable research has been conducted to measure accurately the necessary levels of fitness needed to perform properly and safely the duties of a Hampton Division of Fire & Rescue firefighter. High levels of anaerobic and aerobic fitness has been identified as important determinates of job performance.

There is no such thing as a “standard” emergency call. Fires can vary significantly in size and duration. People needing assistance can also vary significantly in size, strength, mental state and aggressiveness.

The Hampton Division of Fire & Rescue’s APAT has been designed to provide the Department with an important piece of information: a list of prospective employees who possess the highest probability of success as a firefighter over a 20+ year career. The test has two parts – one that is pass/fail, and one that is time-based. You will be required to pass the pass/fail test before you can take the timed test. When you

take the times test, remember that the faster you complete it, the more likely you will be to meet the Hampton Division of Fire & Rescue APAT standard. However, to qualify for employment as a firefighter, performance on the timed test is on a pass/fail basis; meaning that you must complete the test as fast or faster than the cut score of 5 minutes and 17 seconds.

Your level of fitness will be the primary determinate in how long it takes you to complete the times test. Research has shown that the fastest performers have the highest level of fitness. In addition, individuals with the highest overall fitness have the greatest level of reserve when performing tasks that don't necessarily require high levels of fitness.

While it may be difficult to practice precisely each test evolution or task, you will increase your likelihood of passing the test and obtaining a high score if you maintain a high level of fitness by training with weights and engaging in regular cardiovascular conditioning.

#### **NOTE OF CAUTION**

*The Hampton Division of Fire & Rescue does not assume responsibility for any medical consequences that may arise from participating in the applicant testing process. Firefighting requires that you be in top physical condition. From a health risk perspective, an existing medical condition might preclude your participation.*

***Prior to taking the test, applicants will complete a medical examination with a physician and have him/her verify the applicant's current health status. There is a form included in this packet for you to use in obtaining the physician's clearance to attempt this APAT. The APAT must be attempted within 30 days of the date you received medical clearance.***

*If, for any reason, you feel that you might have a pre-existing medical condition that could cause injury, lead to illness or result in a health emergency during physical ability testing, you are strongly urged to share this information with your physician. **If while training for or performing the applicant physical ability test you experience shortness of breath, dizziness, nausea, severe muscular pain, vomiting or chest pain, you should stop all activity immediately and seek medical advice before continuing.***

#### **DIAGNOSTIC SELF-TESTING**

Prior to taking the applicant physical ability test, there are two tests you should give yourself to assess your fitness. These two tests are described in the following sections.

A validation study conducted for Hampton Division of Fire & Rescue found that aerobic fitness and muscular strength were the two major fitness factors required to achieve successful performance on the APAT. Two simple diagnostic tests that pre-employment applicants can have administered are the 1.5 mile Run/Walk test and the Grip Strength assessment.

##### **1.5 MILE WALK/RUN SELF-TEST**

A good way to determine if you have an adequate level of cardiovascular fitness is to assess yourself on the 1.5 mile walk/run test. The test consists of six laps around a standard ¼-mile track. To complete the test you should run as fast as you can on a sustained basis for the entire 1.5 miles. As you finish the sixth lap, record your time.

It is permissible to walk, but this will significantly increase your time to complete the 1.5 miles. People who need to walk during the test should be discouraged from taking the APAT until they improve their level of

aerobic fitness. So if you need to walk during the 1.5 mile walk/run test, you should probably put off attempting the APAT until you are in better shape.

To improve running performance a progressive program leading from walking to jogging to running should be implemented. Below is a diagnostic chart you can use to determine your fitness category from the 1.5 mile walk/run. However, we recommend that you consult a certified personal trainer and have him/her generate an aerobic training program that is effective, progressive and safe. After 12 weeks of training, retake the 1.5 mile walk/run test.

Use the data in Table 1 to score yourself on the 1.5 mile walk/run test and to assist in structuring a running program designed to help you improve your performance on this very critical dimension of fitness. If you chose not to consult a certified fitness trainer, you can select a training program from Table 2 and follow the recommendations listed therein.

**TABLE 1**

<b>CATEGORIES OF AEROBIC FITNESS BASED ON 1.5 MILE RUN TIME</b>	
<b>1.5 Mile Run Time Minutes</b>	<b>Fitness Category</b>
15:00	Very Poor
14:00 < 15:00	Poor
12:00 < 14:00	Fair
11:00 < 12:00	Good
10:00 < 11:00	Excellent
< 10:00	Superior
<b>SYMBOL &lt; = Less Than</b>	

TABLE 2

<b>JOGGING AND RUNNING TRAINING PROGRAMS</b>				
<b>CATEGORY</b>	<b>GOAL 1</b>	<b>GOAL 2</b>	<b>GOAL 3</b>	<b>GOAL 4</b>
<b>VERY POOR</b>	Able to jog 3 miles in 36 minutes. Reduce time by 30 seconds each week for 6 weeks. Run 3 times per week	Able to jog 3 miles in 33 minutes. Reduce time by 30 seconds each week for 6 weeks. Run 4 times per week.	Able to jog 3 miles in 30 minutes. Add $\frac{1}{4}$ mile to run each week for 4 weeks. Continue running 4 times per week.	Able to run 4 miles in 36 minutes. Reduce time by 15 seconds per week for 8 weeks. Run a minimum of 4 times per week.
<b>POOR</b>	Able to jog 3 miles in 33 minutes. Reduce time by 30 seconds each week for 6 weeks. Run 3 times per week.	Able to run 3 miles in 30 minutes. Reduce time by 30 seconds each week for 6 weeks. Run 4 times per week.	Able to run 3 miles in 27 minutes. Add $\frac{1}{4}$ mile to run each week for 4 weeks. Continue running 4 times per week.	Able to run 4 miles in 32 minutes. Reduce time by 15 seconds per week for 8 weeks. Run a minimum of 4 times per week.
<b>FAIR</b>	Able to jog 3 miles in 30 minutes. Reduce time by 30 seconds each week for 6 weeks. Run 3 times per week.	Able to run 3 miles in 27 minutes. Reduce time by 20 seconds each week for 6 weeks. Run 4 times per week.	Able to run 3 miles in 24 minutes. Add $\frac{1}{4}$ mile to run each week for 4 weeks. Continue running 4 times per week.	Able to run 4 miles in 30 minutes. Reduce time by 15 seconds per week for 8 weeks. Run a minimum of 4 times per week
<b>GOOD</b>	Able to run 3 miles in 27 minutes. Reduce time by 30 seconds each week for 6 weeks. Run 3 times per week.	Able to run 3 miles in 24 minutes. Reduce time by 20 seconds each week for 6 weeks. Run 4 5times per week.	Able to run 3 miles in 22.5 minutes. Add $\frac{1}{4}$ mile each week for 4 weeks. Continue running 4 times per week.	Able to run 4 miles in 28 minutes. Reduce time by 10 seconds per week for 6 weeks. Run a minimum of 4 times per week.

### GRIP STRENGTH ASSESSMENT

A handgrip dynamometer should be used to assess your maximal grip strength of both your dominant and non-dominant hands. For this grip strength test you will need a grip dynamometer (e.g., Smedley or Jamar). The following is the protocol that should be followed to correctly administer a grip strength assessment.

- Adjust the grip width so that the subject feels comfortable. The grip width setting is determined by placing the proximal end of the instrument in the space formed by the "V" between the thumb and fingers when the wrist is in a neutral un-flexed position. Grip setting width should be such that the angle of the second knuckle of the second finger is approximately 90 degrees or to the subject's preference. This setting shall be noted and used for all subsequent testing. The grip setting for the dominant hand should be recorded and used for both dominant and non-dominant trials.
- You should complete the test in a standing position.
- You should execute the test by moving through the full range of motion around your elbow joint in a slow chopping motion. You should exhale during each grip trial. The elbow of the test limb should not be braced against the body.
- Two trials with each hand are permitted (alternating hands). Record the highest value obtained in kilograms for each hand.
- You should move your arm smoothly and steadily through a range of motion to elicit the best results. Quick movements are not allowed. Proper technique involves keeping the hand of the

active arm free from contact with the body during the actual test; also you should not stabilize the active hand/arm with the other hand or arm. Your uninvolved arm should remain inactive, bent at the elbow with the palm resting on the navel throughout the active arm’s effort.

- The indicator dial of the dynamometer should face away from your body and the instrument should not be permitted to contact the body at any time during the movement.
- You should not hold your breath and should exhale slowly upon exertion.

You will probably need to find a gym or exercise facility in your area that can administer this test. You might also contact Hampton Division of Fire & Rescue to inquire regarding the availability of such testing. Once you have the results of the test, you can use either Table 3 or Table 4 to predict your APAT test time. If your predicted time does not allow for a probability of passing of at least 68%, you should initiate a muscular strength training program.

While a comprehensive guide to strength training is beyond the scope of this information packet, seeking the advice and assistance of a conditioning specialist or personal trainer is recommended before embarking on a program of weight training.

Weight exercises that will build strength appropriate for the Hampton Division of Fire & Rescue APAT include, bench/chest press, lateral pull downs, arm curls, leg squats/leg press, lunges, dead lift, dumbbell flies, hamstring curls, bar dips, and rope climbing. The APAT requires total body strength.

**PREDICTING YOUR APAT TIME**

The following pages contain a table that will allow you to predict what your APAT time might be, based on fitness testing. Table 3 uses the 1.5 mile Walk/Run and Grip Strength to predict potential APAT performance. You should strive to attain fitness levels that will give you at least 68% chance of obtaining a passing APAT time of 5:17 or faster, based on one of the tables.

**TABLE 3**

**TABLE TO PREDICT APAT TIME STANDARD OF 5:17  
Based on 1.5 Mile Walk/Run and Grip Strength**

1.5 Mile Minutes	PREDICTED APAT TIME											
	8	5:20	5:02	4:42	4:23	4:04	3:45	3:36	<b>3:17</b>	<b>2:58</b>	<b>2:40</b>	<b>2:20</b>
9	5:33	5:15	4:56	4:37	4:18	3:59	3:50	<b>3:31</b>	<b>3:12</b>	<b>2:53</b>	<b>2:35</b>	<b>2:15</b>
10	5:47	5:29	5:11	4:51	4:32	4:13	4:03	3:45	<b>3:29</b>	<b>3:07</b>	<b>2:48</b>	<b>2:30</b>
11	6:05	5:42	5:24	5:05	4:46	4:27	4:18	3:59	3:40	<b>3:22</b>	<b>3:02</b>	<b>2:44</b>
12	6:15	5:57	5:38	5:19	5:01	4:41	4:32	4:13	3:54	3:35	<b>3:16</b>	<b>2:57</b>
13	6:30	6:11	5:52	5:33	5:14	4:56	4:46	4:27	4:08	3:50	3:45	<b>3:12</b>
14	6:44	6:25	6:06	5:47	5:28	5:27	5:00	4:41	4:22	4:03	3:59	3:26
15	6:57	6:39	6:20	6:01	5:42	5:23	5:14	4:55	4:36	4:17	4:12	3:40
16	7:12	6:53	6:34	6:16	5:56	5:38	5:28	5:09	4:50	4:32	4:27	3:54
17	7:26	7:07	6:48	6:30	6:11	5:51	5:42	5:23	5:05	4:45	4:41	4:08
18	7:40	7:21	7:02	6:43	6:24	6:06	5:56	5:37	5:18	5:00	4:55	4:22
19	7:54	7:35	7:16	6:57	6:38	6:20	6:10	5:51	5:32	5:14	5:09	4:36
20	8:08	7:49	7:30	7:11	6:53	6:34	6:24	6:05	5:47	5:27	5:09	4:50