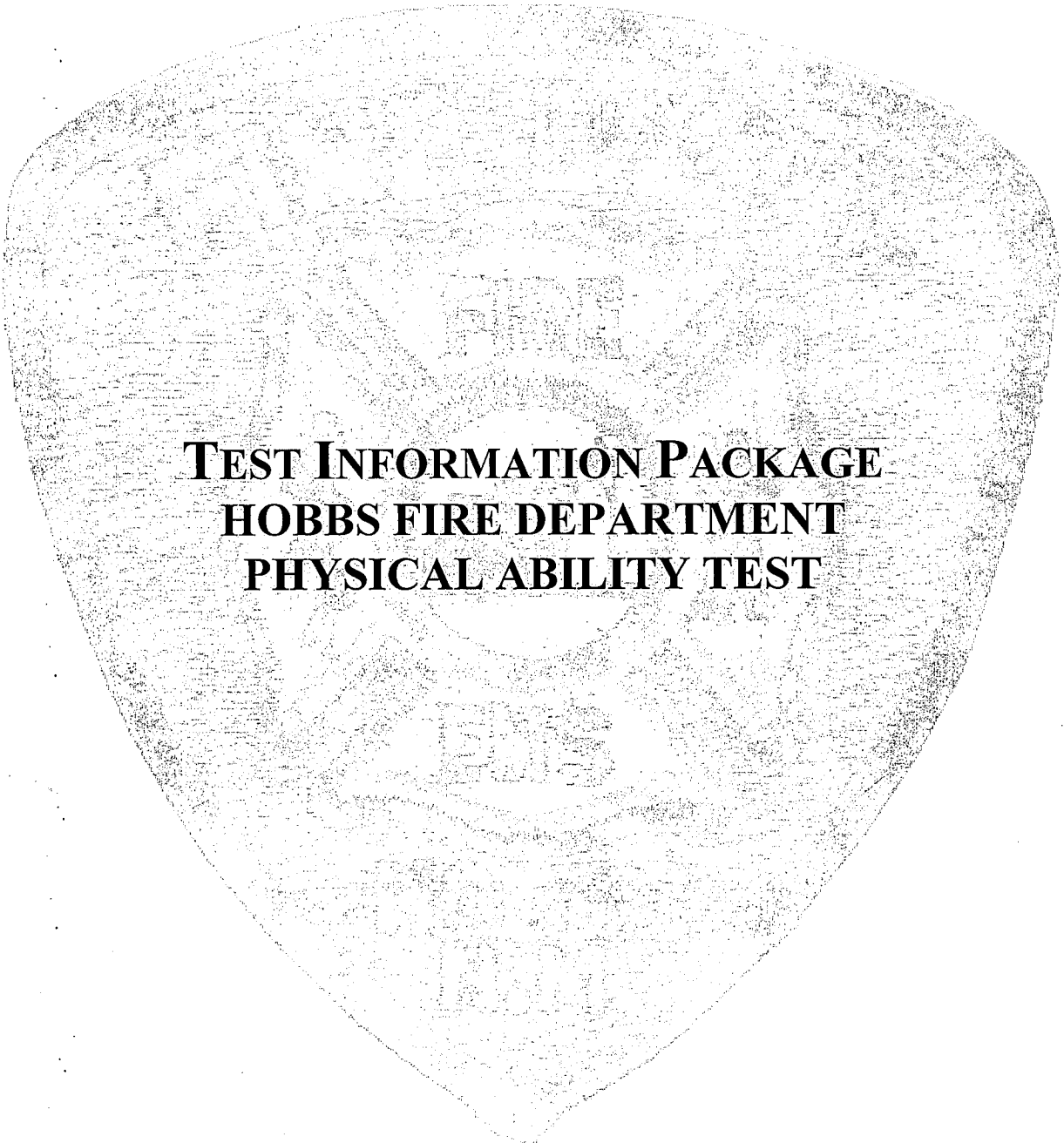


**CITY OF HOBBS
FIRE DEPARTMENT**



**TEST INFORMATION PACKAGE
HOBBS FIRE DEPARTMENT
PHYSICAL ABILITY TEST**

Hobbs Fire Department Test Information Package

WELCOME

The Hobbs Fire Department is providing you, the incumbent or qualified applicant, with this test information package so you can determine and improve, if necessary, your readiness for taking our physical ability test (PAT) 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 PAT and a diagnostic self-test so 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 physical ability test.

Employment with the Hobbs Fire Department (HFD) 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 areas victims that weigh 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 an HFD firefighter. Said another way, while it is important to have a high level of fitness to compete for the job of an HFD firefighter, it is even more important to *maintain* fitness once on the job.

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The purpose of this information packet is to provide you with an overview of the Hobbs Fire Department physical ability test 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 an HFD firefighter. High levels of anaerobic and aerobic fitness have 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 Hobbs Fire Department’s physical ability test has been designed to provide the Department with two important pieces of information: a list of prospective employees who possess the highest probability of success as a firefighter over a 20+ year career and the assurance that incumbents can fulfill the physical requirements of the job. The test is time-based. That means the faster you complete it, the more likely you will be to meet the HFD Physical Ability Test (PAT) standard. However, to qualify for employment or to certify/re-certify as a firefighter, performance is on a pass/fail basis.

Your level of fitness will be the primary determinate in how long it takes you to complete the test. Research has shown that the fastest performers have the highest levels of fitness. A recently completed validation study clearly showed that Hobbs Fire Department incumbent firefighters who passed the Physical Ability Test exhibited higher levels of aerobic fitness, muscular strength, agility, and leg power and less body fat than those incumbents who failed to meet the PAT standard. 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 Hobbs Fire Department 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

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perspective, an existing medical condition might preclude your participation. Prior to taking the test, applicants will complete a medical examination with a designated physician and have him/her verify the applicant's current health status. There is a form included in the last three pages of this packet for you to use in obtaining the physician's clearance to attempt this physical ability test. The physical ability test must be completed within thirty (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 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.***

THE PHYSICAL ABILITY TEST

The Hobbs Fire Department's (HFD) Physical Ability Test (PAT) was designed after an exhaustive job task analysis conducted by Health Metrics, Inc. The test accurately reflects the physical demands of a number of fire extinguishment and rescue activities. You might think of the test as a "sample" of firefighting and rescue tasks necessary for the safe and effective performance of the duties of a Hobbs Firefighter. You should pace yourself as you move from test task to test task. However, firefighters often need to move with dispatch, so it is advisable to perform the evolutions as quickly as possible. **The standard for passing this test is five minutes and zero seconds or less.**

It may not be possible to provide you with an opportunity to use the equipment at the testing site prior to the administration of the actual test. However, to familiarize you with the test tasks, a complete description follows, along with specific training regimens that can help you prepare for the test and improve your performance. The test requires no skills and has been specifically designed to assess only those physical capacities necessary for successful fire extinguishment operations.

Conditions

Each applicant will wear a turnout coat, helmet, self-contained breathing apparatus (SCBA) without the faceplate, sweat/athletic pants and court or cross-training shoes. After registering at the test site, each applicant will be outfitted as described above (net weight ~52 pounds, depending on size), which will be worn

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while taking the PAT. The test is a continuously timed exercise. Applicants may rest at any time during the performance of the test, but the clock continues to run. Research has shown that more fit individuals with greater cardiovascular and anaerobic reserves can perform the tasks faster than less fit individuals.

Task 1 – Hose Load Carry/Stair Climb – Climbing stairs under load is one of the most physically demanding tasks expected of firefighters, with MET levels approaching 12-14 for this task. Depending upon the rate of travel, the cardiovascular fitness level and size of the individual, the energy required to support this activity can be drawn from both aerobic and anaerobic metabolic systems. High rate or high intensity demand activities are normally more anaerobic than aerobic.

From the starting position, subject picks up a 50-pound hose pack (to shoulder or at chest height), walks about 10 feet to the base of the stairs and climbs to the fifth floor. On the fifth floor landing subject drops the pack and descends to the ground floor where subject exits the tower, turns 180 degrees to the left and proceeds to Task 2, the Forcible Entry Task.

Task 2 - Forcible Entry

Gaining access to buildings for the purpose of effecting rescue and extinguishment or performing ventilation is an essential function for fire suppression personnel. There are a variety of forcible entry tools and appliances used by fire departments across the nation. Despite technological advances in such labor saving devices as power saws, there are still significant requirements for human-powered equipment such as axes or shot hammers. The use of these tools is one of the most metabolically demanding tasks for firefighters in protective gear with energy requirements approaching 14 METs¹. In order to test the ability to perform forcible entry/ventilation tasks, the shot hammer is the safest and least skill-dependent tool. In addition, the act of chopping is one of the most basic of all fire ground evolutions. For a forcible entry/ventilation task the Keiser Force Machine, which requires a biomechanically correct chopping motion, is the most accurate simulation currently available.

From the bottom of the stairs, subject exits the tower, turns 180° to the left and walks about 5 feet to the Keiser Force Machine (total distance walked from bottom of the stairs is ~23 feet). Subject will mount the Force Machine (facing in the opposite direction he/she was walking), pick up the shot mallet and hit a 160-

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pound steel beam until it has moved five feet horizontally (the timer should tell the subject when this has been accomplished). For this task the subject will use a 9-pound shot mallet. Once the beam has been moved the required distance, subject drops the mallet and walks to Task 3, the Crawl.

Task 3 – Crawl

During extinguishment operations, it is common for firefighters to work in very hot, smoke-filled buildings or spaces. Since heat and smoke rise, the only areas with relatively clear visibility are near the floor. Thus, in many situations, firefighters must crawl while fighting structural fires. While crawling to locate victims or for extinguishment operations, firefighters must often negotiate obstacles, going over, under or around them.

After completing the forcible entry event in Task 2, the subject dismounts the Keiser Force Machine and walks straight ahead 24 feet to the start/finish line of the crawl. Subject drops to all fours at the start/finish line and crawls along a 65-ft L-shaped out-and-back course. Subject crawls forward 10 feet to a barrier (see Appendix C for barrier schematic). Subject climbs over the barrier and crawls 5 feet to a 90 degree left turn, crawls 10 feet to a second barrier. Subject crawls under the barrier and crawls 7.5 feet to a 180-degree turn around a traffic cone. Subject goes around the traffic cone and returns to the task start/finish line by the same path, going under and over the same barriers. Total crawl course distance is 65 feet. When subject's knees touch the finish line, the subject rises and walks to Task 4, Charged Line Advance.

Task 4 – Charged Line Advance

Large and small diameter hoses are universally employed to extinguish fires. Carrying, dragging, and advancing charged and uncharged hose lines are an essential function for firefighters. Water weighs 8.3 pounds per gallon and, accordingly, larger hose diameters, when charged, represent weights approaching 400 lbs. per 100-foot section.

The most commonly employed attack lines are 1^{1/2}, 1^{3/4}, and 2^{1/2} inches in diameter. Usually the attack scenarios include teams, while preliminary set-up involves a single firefighter stretching uncharged lines. However, all firefighters will frequently pull charged attack lines by themselves for short distances. There are many hose evolutions that can be standardized for the purpose of testing this

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essential function, a function that requires total body strength.

Subject walks about 48 feet from the Crawl task to the nozzle end of an S-laid, charged 1¾-inch attack line (see schematic in Appendix B). Subject lifts the hose and drags it (walking or jogging) 75 feet using an over-the-shoulder grip. Once the hose nozzle crosses the task finish line, the subject drops the hose and moves to Task 5, the Victim Rescue Task.

Task 5 - Victim Rescue

The most important and critical task expected of firefighters is the rescue of a member of the community or a fire suppression crew in a one-on-one situation. The importance of this task transcends all others and is directly responsive to the mission of the fire service: *the protection of life* and property. This task represents an essential function as defined in the ADA and is one of the most demanding tasks performed by firefighters.

The potential weight to be dragged or carried is equivalent to the average weight of the adult American male, about 176 pounds. HFD reported the average weight of a victim to be 195 pounds. There is one class of people, however, who are present at every fire - firefighters themselves. With an average body weight of 200 pounds, plus turnout gear and SCBA, the total weight of a firefighter can approach 260 pounds. In the best-case scenario, a rescue is accomplished through a team effort; however, there is a reasonable expectation for a single firefighter to accomplish this task, particularly if operating as a member of a two-person team.

Subject walks from the Charged Line Advance about 17 feet to the two traffic cones marking the entrance to the Victim Rescue task. Subject walks between the cones, turns left or right (depending on where the mannequin is positioned) and walks 40.5 ft to the Victim Rescue task start line approaching the 175-pound mannequin from the head end.

The subject must lift and carry the mannequin in a manner such that only the heels of the mannequin are touching the surface. Lifting and carrying/dragging the mannequin requires the subject 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 subject then grasps the mannequin by hooking both arms

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under the mannequin's armpits and clasping his/her hands in front of the mannequin's chest, if possible. The subject 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 subject 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 on the ground) dragging the mannequin 75 feet to a the finish line until the mannequin's feet cross the end line. Once the mannequin's feet are across the line, the subject drops the mannequin and the test ends.

(*) Note: The Victim Rescue is vital to assess the subject's potential to rescue/extricate a fellow firefighter or civilian and to manage the lift/carry functions defined in the survey responses.

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DIAGNOSTIC SELF-TESTING

Prior to taking the candidate entry level 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 HFD found that aerobic fitness and muscular strength were the two major fitness factors required to achieve successful performance on the PAT. Two simple diagnostic tests that a pre-employment candidate or an incumbent can administer to themselves are the 1.5-Mile Run/Walk (1.5 MRW) test and the Absolute Bench Press (ABP). Absolute Bench Press means the greatest amount of weight you can lift in a single repetition.

The table on page 10 contains instructions about how to estimate your potential score on the Physical Ability Test (PAT) by using the results of your 1.5 MRW test and your ABP.

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 run/walk test (1.5 MRW). The test consists of six laps around a standard 1/4-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 the time to complete the 1.5 miles. People who need to walk during the test should be discouraged from taking the PAT until they improve their level of aerobic fitness.

To improve running performance a progressive program leading from walking to jogging to running should be implemented. 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-MRW test.

Muscular Strength Assessment

You should ask a personal trainer to conduct a "1RM Assessment" for you on the Bench Press exercise. Free weights should be used, not selectorized weight machines. The PAT prediction table is based on a free weight bench press test. You should have two "spotters" assisting you with the test in case there is a problem during your lift. If you are experienced with free weight training, you

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probably already have a reasonable idea of where to start your self-test. For those less experienced or those unsure of themselves due to a long period since their last weight training session, the following guide is suggested.

Females should start with the bench press test using a weight equal to about 40% of their body weight; males should start with 70% of their body weight. You are trying to determine the maximum weight that you can lift only one time. Try to reach your maximum weight (1RM) in no more than 3 to 5 lifts. Ensuring at least a 90 second to 3 minute rest in-between trials, increase the weight about 10% from lift to lift during the test procedure until you cannot lift the weight two times.

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 physical ability test include: bench/chest press, lat pull downs, arm curls, leg squats/leg press, lunges, dumbbell flys, hamstring curls, bar dips and rope climbing. The PAT requires total body strength.

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TABLE 1
PREDICTED PAT TIME
THE HFD STANDARD IS SET AT 5:00 (MIN:SEC)
(Based on 1.5-mile Run & Absolute Bench Press)

1.5-mile R/W (minutes)	PREDICTED PAT TIME												
	3:46	3:39											
8	3:46	3:39											
9	4:03	3:56	3:48	3:41									
10	4:19	4:12	4:05	3:57	3:50	3:42	3:35						
11	4:36	4:29	4:21	4:14	4:18	3:59	3:52	3:44	3:38				
12	4:52	4:45	4:38	4:31	4:23	4:15	4:08	4:01	3:54	3:46	3:39		
13	5:09	5:02	4:54	4:47	4:39	4:32	4:25	4:17	4:11	4:03	3:51	3:48	
14	5:25	5:18	5:11	5:03	4:51	4:48	4:41	4:34	4:27	4:20	4:12	4:05	
15	5:42	5:35	5:27	5:20	5:12	5:05	4:58	4:50	4:43	4:38	4:27	4:21	
16	5:58	5:51	5:44	5:37	5:29	5:21	5:14	5:07	5:00	4:52	4:45	4:38	
17	6:15	6:08	6:00	5:53	5:45	5:38	5:31	5:23	5:17	5:09	5:02	4:54	
18	6:31	6:24	6:17	6:09	6:02	5:54	5:47	5:40	5:33	5:26	5:18	5:11	
19	6:48	6:41	6:33	6:26	6:19	6:11	6:04	5:56	5:50	5:48	5:35	5:27	
20	7:04	6:57	6:50	6:42	6:35	6:27	6:20	6:13	6:06	5:53	5:51	5:44	
	50	75	100	125	150	175	200	225	250	275	300	325	
ABSOLUTE BENCH PRESS (lbs)													

Background Shading:

- Dark Gray** Indicates at least a 50% probability of not passing the PAT
- White w/Bold Ltrs** Indicates a 68% probability of passing the PAT.
- White no Bold Ltrs** Between a 50% probability and a 90% probability of passing the PAT.
- Light Gary** Indicates a 95% probability of passing the PAT

DIRECTIONS for USING TABLE:

Use the results of the two fitness tests with the shading in the Table. The 1.5-MRW is located on the left side of the table. Note that the 1.5-MRW times in the left column are to the nearest minute. That means you will have to round off your 1.5-mile time to the closest full minute. For example, if you complete the 1.5 miles in 13 minutes and 48 seconds, you should use 14 minutes in the table; but if you ran it in 13 minutes and 22 seconds you should use the 13 minute row.

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The Absolute Bench Press (ABP) appears across the bottom. Again, you will have to round off your ABP to the nearest 25 pounds. For example, if your ABP is 178, you should use the 175-pound ABP column.

Once you have your two scores (the 1.5 MRW and the ABP) you can determine your predicted PAT time. To estimate your time, find the row of your 1.5-MRW time and the column for your ABP. Where they intersect you will find your predicted PAT time. For example, take a candidate who runs the 1.5 MRW in 12 minutes and 18 seconds and has an ABP (or 1RM) of 175 lbs. Since 12 minutes and 18 seconds is closest to the 12 minute line, follow the 12 minute row across Table 1. Now follow the 175-pound column up. Where the row and column intersect is the candidate's predicted time on the PAT (in this case it would be 4:15 (min:sec)).

The PAT cut score has been set by the HFD at 5:00 (min:sec) based on a validation research study. A score of 4:15 would provide this candidate with approximately a 68% probability of passing the actual PAT.

In conclusion, Table 1 clearly shows that the higher your aerobic capacity and muscular fitness (whether you are a pre-employment candidate or an incumbent), the greater the chance of passing the PAT.

SUMMARY

Top performance on the physical ability test has been positively correlated with high levels of aerobic fitness, muscular strength (bench press, grip strength, arm lift), leg power and agility.

While no single test or group of tests are always correct in their prediction of performance on a different performance measure (i.e., the PAT), our research has clearly demonstrated that the single best predictor of performance on PATs for fire departments is the 1.5-MRW. The predictive value of this test is enhanced when the individual also demonstrates muscular fitness performance levels as defined by the 1RM ABP test and an agility test.

The better the score (lower time) in the predicted PAT, the greater the probability of passing the actual PAT. Therefore, we recommend that persons scoring below the 68% probability of passing (that's a 2 out of 3 chance of passing) must train-up or risk a disqualifying performance.

To be stronger in one test than another certainly is reasonable as can be demonstrated with Table 1. However, successful performance on the PAT and in

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firefighting generally require all aspects of physical fitness to be reasonably strong. So, improving your cardiovascular fitness and your muscular strength along with speed, power, and agility are excellent methods of maximizing your performance on the physical ability test and increasing your chance of being hired as or excelling as a Hobbs Fire Department firefighter.

MEDICAL CLEARANCE FORM – PHYSICAL ABILITY TEST

TO: Examining Physician
FROM: Chief of Department, Hobbs Fire Department

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 continuously-timed, sequential physical ability test before making an offer of employment or conducting a medical examination to determine if there is a medical condition that contra-indicates a career in this field. However, we are asking that the examinee's physician provide an indication that the applicant is fully capable of performing the essential physical functions of the job. A description of the 5-event timed test follows. Note that applicants will wear a turnout coat, long pants, athletic shoes and a weighted self-contained breathing apparatus (SCBA) (total weight of outfit ~52 pounds).

Task 1 – Hose Load Carry/Stair Climb – From the starting position, subject picks up a 50-pound hose pack (to shoulder or at chest height), walks about 10 feet to the base of the stairs and climbs to the fifth floor. On the

fifth floor landing subject drops the pack and descends to the ground floor where subject exits the tower, turns 180 degrees to the left and proceeds to Task 2, the Forcible Entry Task.

Task 2 – Forcible Entry – From the bottom of the stairs, subject exits the tower, turns 180° to the left and walks about 5 feet to the Keiser Force Machine (total distance walked from bottom of the stairs is ~23 feet). Subject will mount the Force Machine (facing in the opposite 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 subject when this has been accomplished). For this task the subject will use a 9-pound shot mallet. Once the beam has been moved the required distance, subject drops the mallet and walks to Task 3, the Crawl.

Task 3 – Crawl – After completing the forcible entry event in Task 2, the subject dismounts the Keiser Force Machine and walks straight ahead 24 feet to the start/finish line of the crawl. Subject drops to all fours at the start/finish line and crawls along a 65-ft L-shaped out-and-back course. Subject crawls forward 10 feet to a barrier (see

Appendix C for barrier schematic). Subject climbs over the barrier and crawls 5 feet to a 90 degree left turn, crawls 10 feet to a second barrier. Subject crawls under the barrier and crawls 7.5 feet to a 180-degree turn around a traffic cone. Subject goes around the traffic cone and returns to the task start/finish line by the same path, going under and over the same barriers. Total crawl course distance is 65 feet. When subject's knees touch the finish line, the subject rises and walks to Task 4, Charged Line Advance.

Task 4 - Charged Line Advance – Subject walks about 48 feet from the Crawl task to the nozzle end of an S-laid, charged 1¾-inch attack line (see schematic in Appendix B). Subject lifts the hose and drags it (walking or jogging) 75 feet using an over-the-shoulder grip. Once the hose nozzle crosses the task finish line, the subject drops the hose and moves to Task 5, the Victim Rescue Task.

Task 5 - Victim Rescue - Subject walks from the Charged Line Advance about 17 feet to the two traffic cones marking the entrance to the Victim Rescue task. Subject walks between the cones, turns left or right (depending on where the mannequin is positioned)

and walks 40.5 ft to the Victim Rescue task start line approaching the 175-pound mannequin from the head end.

The subject must lift and carry the mannequin in a manner such that only the heels of the mannequin are touching the surface. Lifting and carrying/dragging the mannequin requires the subject 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 subject then grasps the mannequin by hooking both arms under the mannequin's armpits and clasping his/her hands in front of the mannequin's chest, if possible. The subject 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 subject 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 on the ground) dragging the mannequin 75 feet to a the finish line until the mannequin's feet cross the end line. Once the mannequin's feet are across the line, the subject drops the mannequin and the test ends.

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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 Hobbs Fire Department Physical Ability Test described.

Title/Name Printed: _____

Signature: _____

Date: _____

ⁱ Passmore, R. and J.V.G.A. Durnin. Human Energy Expenditure. *Physiological Reviews*. 35:801-48, 1955.