

## **BIDDLE PHYSICAL ABILITY TEST DESCRIPTION**

Candidates will wear the following mandatory safety equipment: turnout coat, breathing apparatus (shell and empty bottle), helmet, and structure fire fighting gloves. Kneepads are recommended, but not required. Candidates may use their own equipment, with the exception of the breathing apparatus provided it is inspected and approved by the instructor. All mandatory equipment, in various sizes, will be available at the test site. It is the candidates' responsibility to make sure they are all wearing all mandatory equipment before they begin the test. If any candidate cannot locate suitable equipment for the test, he/she must notify the instructor before he/she begins the test. Tennis shoes, shorts or sweat pants, and tee shirts are recommended. All candidates are encouraged to proceed as quickly as is safe within each event, but are required to walk between events.

- **Event 1: Dry Hose Deployment**

Description: Candidate advances 3 sections of uncharged pre-connected 1.75-inch hose 150 feet around 2 obstacles and 1 corner placing the hose nozzle in the marked box.

Muscles Involved: Legs and trunk.

Suggested Exercises: Walking lunges, split squats, squats, hip sled, leg press, calf raise, resistance sprints (uphill), stair running.

- **Event 2: Charged Hose Deployment**

Description: Candidate advances 3 sections of charged pre-connected 1.75 hose 70 feet. Thirty-two feet of hose deployment involves stooping or crawling while advancing the hose into a narrow hallway. The nozzle of the hose is placed in the marked box and the candidate walks to the next event.

Muscles Involved: Legs, trunk, upper back, and biceps.

Suggested Exercises: Bent knee dead lift, pull over, resisted trunk rotations (e.g. medicine ball or dumbbell resisted), hammer biceps curls.

- **Event 3: Halyard Raise**

Description: Candidate raises and lowers the fly section of a 35-foot aluminum extension ladder. The resistance for each pull is approximately 45 pounds. Candidates must use a hand over method to raise the ladder using the upper body only as the lower body is positioned to stabilize the ladder. If the rope slips through the candidate's hand while either raising or lowering the ladder, the candidate will be required to lower the ladder and restart the event. If the rope slips a second time, the candidate will be disqualified.

Muscles Involved: Trunk, shoulders, upper back, chest, lats, biceps, triceps, and forearms.

Suggested Exercises: Lat pull owns using a narrow grip, one arm rowing, forward and lateral shoulder raises, pull ups, chin-ups, wrist curls, wrist rolls, weight plate hand squeeze, and gripper device.

- **Event 4: Roof Walk**

Description: Candidate ascends and descends a 12-foot distance walking/crawling on the rungs of a 12-foot roof ladder while carrying a simulated 20-pound chain saw. The candidate must hit every rung while ascending the ladder. If the candidate misses a rung on the way up the ladder, he/she will be required to back down and restart the event. Candidates will be required to descend the ladder backwards and will not be allowed to turn around at the top of the ladder and face forward to descend. Skipping a ladder rung on the way down the ladder is allowed.

Muscles Involved: Legs and trunk to balance the body, arms, hands to grip chain saw.

Suggested Exercises: Training with exercises that require balance walking lunge with dumbbells.

- **Event 5: Attic Crawl**

Description: Candidate crawls a distance of 20 feet across an attic prop while carrying a simulated flashlight in his/her hand. Candidate is required to either crawl on hands and knees or "crab walk" on his/her hands and feet as long as he/she stays below the barriers. If the candidate goes over a barrier, he/she will be required to restart the event. When the candidate's hand reaches the end of the simulated attic, he/she will exit the prop and walk to the beginning point to return the flashlight in the space provided. The flashlight must be replaced properly, before the candidate is allowed to proceed to the next event.

Muscles Involved: Whole body.

Suggested Exercises: Crawling on hands and knees or hands and feet in a low crouched position.

- **Event 6: Roof Ventilation**

Description: Candidate will pick up an eight pound sledgehammer from the designated area and step up on to the slanted roof prop. The candidate will place one foot on the footrest provided or stand closer to the strike area if necessary. The candidate must raise the hammer above the helmet for each of the 30 strikes and must maintain control of the sledgehammer at all times. Failure to strike properly will result in the repetition not being counted.

The following are examples of three methods that may be used by the candidates. With the first method, the candidate slides his/her top hand to the top of the sledgehammer and back down to the bottom of the sledgehammer for each strike. In the second method, the candidate places both hands at the bottom of the sledgehammer for each strike and does not slide the

hands. With the third method, the candidate separates the top and bottom hand and swings the sledge without sliding the top hand down. The first method described is the preferred method. A candidate may not crouch or place one knee on the prop while striking the roof.

Muscles Involved: Trunk, shoulders, chest, upper back, biceps, triceps, and forearms.

Suggested Exercises: Chopping wood, striking solid objects with sledgehammer, chest press, shoulder press, upper body rowing (upright row, bent over row), hammer curls, tricep extensions, forearm curls, gripper device, trunk rotations.

- **Event 7: Victim Removal**

Description: Candidate carries or drags a 154 pound dummy for 13 feet and maneuvers around a cone and returns the dummy to the space provided. Total distance of drag is 26 feet.

Muscles Involved: Legs, trunk, upper body, and forearms

Suggested Exercises: Drag a sandbag or a friend. Dead lift, squat, lunge, backwards running with resistance, trunk extensions, shoulder shrug, reverse arm curls, forearm curls, gripper device.

- **Event 8: Ladder Removal/Carry**

Description: Candidate removes a 24-foot aluminum extension ladder (72 pounds) from mounted hooks, carries the ladder 54 feet around a diamond shaped course, and replaces the ladder to the mounted hooks in the same place that it was previously hung. There are three acceptable methods of carrying the ladder. With all methods, the candidate should begin by finding the balance point marked in red on the ladder.

The first method is a "high shoulder carry". The entire ladder sits on the top of the candidate's shoulder. Candidates may place the ladder directly on their shoulder from the mounted hooks and proceed around the designated area, replacing the ladder to the hooks directly from the shoulder.

The second method is the "low shoulder carry". In the low shoulder carry, the top beam of the ladder sits on the top of the candidate's shoulder. Candidates may place the ladder directly on their shoulder from the mounted hooks and proceed around the designated area, replacing the ladder to the hooks directly from the shoulder.

The third method is the "suitcase carry". In this method, the top beam of the ladder is held in one arm like a suitcase.

While performing this event, candidates are allowed only two interventions. If a candidate requires a third intervention, the candidate will be disqualified. An intervention includes any of the following:

1. Candidate grounds the ladder. Grounding means placing the ladder on the ground to gain stability.
2. Candidate drops the ladder.
3. Candidate loses control of the ladder and the proctor assists in grounding.
4. The rungs of the ladder fall over the head and neck of the candidate. In this case, the proctor will assist in the removal and grounding of the ladder.

Muscles Involved: Legs, trunk, upper back, shoulders, and arms.

Suggested Exercises: Front squats, lunges, split squat or squat with weight held over head, back extensions, overhead press, incline press, dumbbell raise, triceps extension, and side bends with overhead pulley for trunk.

- **Event 9: Stair Climb With Hose**

Description: Candidate climbs 4 flights of stairs with a 50 pound hose bundle and the bundle on the landing of the fourth floor. The bundle may be placed over the left or right shoulder and will be placed in the designated area on the fourth floor. Candidates may skip steps when going up the steps of the tower, but this will be disallowed when descending the tower.

Muscles Involved: Legs, trunk, and shoulders.

Suggested Exercises: Power clean (for lifting bundle to shoulder), dead lifts, split squats, lunges, sprints, tower or stair runs with weight, and calf raises.

- **Event 10: Crawling Search**

Description: Candidate crawls on hands and knees on the platform of the fourth floor for a distance of 60 feet. Candidate picks up the hose bundle and returns to the ground floor, placing the bundle in the designated area.

Muscles Involved: Whole body.

Suggested Exercises: Crawling.

- **Event 11: Hose Hoist**

Description: Candidate picks up 2 air bottles weighing approximately 29 pounds (connected at the nozzle with a strap) and places the air bottles over his/her shoulder. Candidate carries bottle to the third floor placing the bottles in the designated area on the third floor balcony. The candidate then hoists up a rope attached to a nozzle and 100 feet of 1.75 inch hose. The candidate must pull up the rope without letting it rub against the balcony rail. If the candidate pulls the rope against the rail, he/she will be given a warning. If this behavior continues, the candidate will be disqualified. This rule does not apply when placing the hose nozzle in the designated spot. Once he/she reaches the hose nozzle, he/she pulls it over the railing and sets

the nozzle down in a designated box eight feet from the railing. The candidate then returns to the rail to pull the remaining 100 feet of hose. The hose must be lifted up and over the balcony rail. The candidate will not be allowed to use the rail as a support as he/she walks the hose back or pulls it up. The hose however, may touch the railing as it is pulled over the rail. After completing the hoist, the candidate must pick up the bottles and return to the ground floor to end the test. Candidates must hit every step when descending the tower but may skip steps when ascending the tower stairs.

Muscles Involved: Trunk, upper back, biceps, shoulders, and forearms.

Suggested Exercises: Upright row, one arm bent over dumbbell rows, horizontal rows, external rotation cable pull, forward dumbbell shoulder raise in bent over position, bicep curls, and forearm curls.

**ALL 11 EVENTS MUST BE SUCCESSFULLY COMPLETED IN A TIME OF 9 MINUTES AND 34 SECONDS OR LESS.**

**General Conditioning Recommendations:**

- **Metabolic Conditioning to Improve Aerobic and Anaerobic Capacity: Interval training using a running mode:** alternating running near maximal intensity for 20 to 40 seconds with an active rest period of 40 to 80 seconds. Repeating this cycle 5 to 15 times. Stair running or hill sprinting is excellent substitutes for flat surface running. This is a very intense workout and should be done one to three times per week with adequate recover between workouts. Less fit individuals will need longer rest and recovery periods. This method of training will improve both anaerobic (high intensity efforts of short duration) and aerobic (low to moderate intensity activities of longer duration) fitness.
- **Muscle Conditioning to Improve Muscular Strength, Power, and Endurance:** Include exercises for the trunk stabilizers such as trunk extensions and hyperextension for the low back and crunches and rotational exercises for the abdominal. Free weights are preferred for training over machine weights because they place a muscular demand on the body that more closely simulates the work demands on the fire ground. Free weights also develop better balance and coordination while lifting than machine weights. Lifts that involve multiple joints and muscles such as squats, lunges, bench press, military press, lat pull down, and bent over row are more similar to real life lifting situations. Wrist, forearm, and grip exercises are also beneficial because fire fighters rely on grip strength to perform many of their tasks.
- **Nutritional Recommendations:** Do not fast for more than eight hours before the test. Do eat a light meal approximately two hours before the test or a larger meal approximately four hours before the test. Carbohydrates and small amounts of protein and fat are recommended for pre-event meal. Proper hydration is essential; drink two to three cups of fluid before test. Avoid alcohol and caffeine on the day before and day of the test.