

## **ANNEX A:      PHYSICAL FITNESS TEST 1**

Physical fitness is critical to satisfactory job performance as a Firefighter. Test 1 measures an applicant's overall cardio-pulmonary endurance and strength against their body weight and condition. The following provides information on the rationale, purpose, testing and procedures, standards of performance and fitness activities to prepare for the Physical Fitness Examination. It is intended to answer the basic questions pertaining to all aspects of the fitness testing process.

### ***What is Physical Fitness?***

Physical fitness is a health status pertaining to the individual officer having the physiological readiness to perform maximum physical effort when required.

Physical fitness consists of three areas:

- Aerobic capacity or cardiovascular endurance pertaining to the heart and vascular system's capacity to transport oxygen. It is also a key area for heart disease in that low aerobic capacity is a risk factor.
- Strength pertains to the ability of muscles to generate force. Upper body strength and abdominal strength are important. Areas in the low strength levels have a bearing on upper torso and lower back disorders.
- Flexibility pertains to the range of motion of the joints and muscles. Lack of lower back flexibility is a major risk area for lower back disorders.

### ***Why is Fitness important as a job-related function?***

It has been well documented that firefighting personnel (as an occupational class) have serious health risk problems in terms of cardiovascular disease, lower back disorders and obesity. Firefighters have the responsibility of minimizing known risk. Physical fitness is a health domain, which can minimize the known health risks for firefighters.

Physical fitness has been demonstrated to be a bona fide occupational qualification. Job analyses that account for physical fitness have demonstrated that fitness areas are underlying factors determining the physiological readiness to perform a variety of critical physical tasks. These four fitness areas have also been shown to be predictive of job performance and absences for firefighters. Data also shows that fitness level is predictive of trainability and job performance.

Physical fitness can be an important area for minimizing liability. The unfit firefighter is less able to respond fully to strenuous physical activity. Consequently, the risk of not performing physical duties is increased.

### ***How will physical fitness be measured?***

The Physical Fitness Examination consists of 4 basic tests. Each test is a scientifically valid test. The tests will be given in the following sequence with a rest period between each test.

#### ***1.      1-PULL-UP IN 1-MINUTE TEST***

This is a measure of the fitness (strength and endurance) level of the muscle groups involved in the chest, upper arms and shoulder girdle. It is an important area for performing firefighting tasks requiring upper body strength; such as the necessity for a firefighter to pull their body weight, and equipment out of a hole. The applicant must grab the bar with their hands, palms

facing away from the body (the back of the hands facing the candidate), arms fully extended in a “dead hang.” The Applicant is not permitted to swing, kick, or bicycle legs during the upward movement. The Applicant is to raise their body until the jaw line is parallel to the ground and above the horizontal bar. Returning to a “dead hang” position completes the repetition. The score is in the successful proper completion of one (1) pull-up within 1 minute.

## **2. 1-MINUTE PUSH-UP TEST**

This is a measure of the fitness (strength and endurance) level of the muscle groups involved in the chest, upper arms and shoulder girdle. It is an important area for performing firefighting tasks requiring upper body strength. Starting from the up position, the Applicant must keep elbows extended, hands placed slightly wider than shoulder width apart and flat on the ground; fingers pointing forward. The applicant must keep the back straight at all times and lower the body to the floor until the chest breaks the horizontal plane with the body parallel to the floor (approximately four inches from floor), elbows at a ninety-degree bend and then returns to the up position, elbows extended, to be scored as a completed push-up. Resting should be done only in the up position. Both hands must remain in contact with the floor at all times. There will be no sway backs or arched backs during the test. At any point during testing, should an Applicant rest on their knees, the count will stop and the test will end. The total number of correct push-ups in 1 minute is recorded and scored.

## **3. 1-MINUTE SIT UP TEST**

This is a measure of the muscular endurance of the abdominal muscles. It is an important area for performing firefighting tasks that may involve the use of force and is an important area for maintaining good posture and minimizing lower back problems. The Tester will hold the Applicant’s feet firmly. The Applicant will start by lying on their back, knees bent, heels flat on the floor, with the fingers laced and held behind the head. The Applicant is to avoid pulling on the head with the hands. The buttocks must remain on the floor with no thrusting of the hips. In the up position, the Applicant should touch elbows to knees and then return until the shoulder blades touch the floor. The Applicant will then perform as many correct sit-ups as possible in one minute. Any resting will be done in the up position. At any point during testing, if the Applicant should rest in the down position or hands come off their head, they will be disqualified. Breathing should be as normal as possible and the applicant should not hold their breath. The score is in the number of correct bent leg sit-ups performed in 1 minute.

## **4. 1.5 MILE RUN**

This is a timed run to measure the heart and vascular system capability to transport oxygen. It is an important area for performing firefighting tasks involving stamina and endurance and to minimize the risk of cardiovascular problems. The score is in minutes and seconds. You are required to run, walk or jog one and a half miles within the allotted time limit.

### ***What are the Standards?***

- The actual performance requirement for each test is based upon norms for a national population sample.
- The applicant must pass every test during a single session.
- The required performance to pass each test is based upon gender and age bracket by decade. While the absolute performance is different for the categories, the relative level of effort is identical for each age and gender group. All applicants are required to meet the same percentile rank in terms of their respective age/gender group. The performance

requirement is that level of physical performance that is approximately 30<sup>th</sup> percentile for each age and sex group.

**PHYSICAL FITNESS CHART**

TEST	MALE		FEMALE	
	Ages		Ages	
	20-29	30-39	20-29	30-39
1 Minute Pull-Up	1	1	1	1
1 Minute Push up (Minimum)	26	20	20	15
1 Minute Sit Up (Minimum)	35	32	35	32
1.5 Mile Run (Maximum)	13.22	14.08	15.57	16.35

