

# Candidate Physical Ability Test

SECOND EDITION





## CHAPTER 4

### PREPARATION, ORIENTATION & PRACTICE SESSIONS

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The CPAT is a widely used, comprehensive physical ability test designed specifically for the fire service. Use of the CPAT now requires specific requirements for candidate preparation, orientation and practice sessions. Pursuant to the conciliation agreement with the EEOC, the CPAT program must provide all candidates an opportunity to attend at least two CPAT orientations. Additionally, all candidates must receive “hands-on” familiarity with the test apparatus and receive guidance on specific conditioning regimens and techniques to help them prepare for the test. Each candidate shall also be provided an opportunity to perform practice runs of the CPAT.

#### PREPARATION

The employer must provide all candidates with pretest materials to ensure that all candidates have an equal opportunity to compete for the job of fire fighter. Such a preparation guide provides all candidates, regardless of their background or experience in exercise principals and techniques, the same opportunity to succeed. Similarly, this helps the department avoid failing candidates who are physically capable but unprepared for testing.

The preparation guide must include information on:

- The physical demands of the Candidate Physical Ability Test (CPAT)
- The necessity of proper hydration
- Basic training principles
- Warm up techniques
- Flexibility techniques
- Muscular strength/endurance techniques
- Cardiovascular endurance techniques
- Training techniques for those without a gym or specialized equipment

A sample CPAT Preparation Guide is included in Appendix B.

It is mandatory that all candidates receive a preparation guide at least eight weeks prior to their CPAT date. The guide can be distributed at the time of application or at the orientation prior to the CPAT. In addition, departments may distribute the preparation guide during recruitment activities and such materials should be a part of all mentoring activities.

#### ORIENTATION

As initially designed and developed, the CPAT provided for *voluntary* orientation sessions intended to familiarize candidates with the test apparatus and requirements. However, increased orientation and practice opportunities significantly improve the ability of all candidates to complete the CPAT within the “cut off” time of 10 minutes and 20 seconds. Therefore, it is now *mandatory* that all candidates attend at least two (2) orientation sessions, with the first session taking place at least eight (8) weeks prior to the actual test date.

During the sessions, candidates will receive “hands on” familiarity with the actual CPAT apparatus. Also during the orientation sessions, Certified Peer Fitness Trainers, fitness professionals, and/or CPAT-trained fire fighters (proctors) shall familiarize all candidates with each task and apparatus, and shall advise all candidates concerning specific conditioning regimens and techniques to help them prepare for the CPAT. The comprehensive procedures for conducting CPAT orientation sessions are found in Appendix B.

#### PRACTICE SESSIONS

Fire departments utilizing the CPAT shall also ensure that all candidates have full and equal opportunity to perform at least two (2) timed practice runs, using actual CPAT apparatus and completing the entire course. These *mandatory* practice sessions shall occur within thirty (30) days of the official test date. Again, Certified Peer Fitness Trainers, fitness professionals and/or CPAT-trained fire fighters (proctors) shall help the candidates understand the test elements and how they can improve their performance and conditioning.

In order to reduce the burden on a department’s resources, it is permissible for a candidate to pass the CPAT during either of the practice sessions, provided that the department has fully staffed and administered the test as they would on the official test day. However, a candidate who passes the CPAT during a practice session *shall not* be rank ordered ahead of any candidate who requires both practice sessions and the official test to pass the CPAT.

## **WAIVER**

Although the two-phased orientation and practice program set forth above must be treated by the fire department as a mandatory condition for candidates taking the CPAT test, it is recognized that fire departments are likely to have candidates in their candidate pool who believe that they are capable of passing the CPAT without attending the orientation and practice program. It is also recognized that resources devoted to the orientation and practice program are best spent on those candidates who will truly benefit from this assistance. It is therefore permissible for fire departments to excuse candidates from this requirement upon receipt of a written and signed waiver from the candidate acknowledging that this orientation and practice program was made available to all candidates on an equal basis and that the candidate voluntarily and knowingly waives the opportunity to participate in the orientation and practice program.

It is required that all those that are licensed to use the CPAT must fully implement these orientation and pre-test procedures. The US Equal Employment Opportunity Commission (EEOC) has also agreed to not bring a lawsuit through April 2011, based upon any claim that the CPAT has an adverse impact for female candidates, against any fire department that utilizes CPAT in conformity with those conditions in their pre-test programs. For those fire departments that are utilizing another Licensee to conduct their CPAT, such fire department, as the employer, must ensure that these changes are incorporated. The EEOC Conciliation Agreement setting forth the foregoing is found in Appendix F. ■

# CHAPTER 5

## CPAT EVENTS

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### PRE-TEST PROCEDURES

The CPAT consists of eight separate events. This test is a sequence of events that requires the candidate to progress along a predetermined path from event to event in a continuous manner. This is a pass/fail test based on a maximum total time of 10 minutes and 20 seconds.

In these events, the candidate wears a 50-pound (22.68-kg) vest to simulate the weight of self-contained breathing apparatus (SCBA) and fire fighter protective clothing. An additional 25 pounds (11.34 kg), using two 12.5-pound (5.67-kg) weights that simulate a high-rise pack (hose bundle), is added for the stair climb event.

Throughout all events, the candidate must wear long pants, a hard hat with chin strap, work gloves and footwear with no open heel or toe. Watches and loose or restrictive jewelry are not permitted.

All props were designed to obtain the necessary information regarding the candidate's physical ability. The tools and equipment were chosen to provide the highest level of consistency, safety and validity in measuring the candidate's physical abilities. Schematic drawings and specifications for each prop and specific product information and product numbers are provided in Appendix C. Modification of props or substitution of tools/equipment may alter the content of the test and therefore are not permitted. The entire test is designed to be portable and allow for either indoor or outdoor setup. The floor of the venue must be consistent for all events and for all candidates.

The events are placed in a sequence that best simulates their use in a fire scene while allowing an 85-foot (25.91-m) walk between events. To ensure the highest level of safety and to prevent candidate from exhaustion, no running is allowed between events. This walk allows the candidate approximately 20 seconds to recover and regroup before each event. If the candidate runs between events they receive one warning. A second infraction constitutes a failure, the test time is concluded and the candidate fails the test.

To ensure scoring accuracy by eliminating timer failure, two stopwatches are used to time the CPAT. One stopwatch is designated as the official test time stopwatch, the second is the backup stopwatch. If mechanical failure occurs on the official stopwatch, the time on the backup stopwatch is used. The stopwatches are set to the pass/fail time and count down from 10 minutes and 20 seconds. If time elapses prior to the completion of the test, the test is concluded and the candidate fails the test.

### TEST PROCEDURES

The CPAT includes eight sequential events as follows:

- Stair Climb
- Hose Drag
- Equipment Carry
- Ladder Raise and Extension
- Forcible Entry
- Search
- Rescue
- Ceiling Breach and Pull

### EVENT 1 STAIR CLIMB

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#### EQUIPMENT

StairMaster StepMill — NOTE: Position the unit with one side up against a wall and the specified elevated platform on the side opposite the wall. The handrail on the side opposite the wall is to be removed. The handrail on the wall side is left in place for the candidate to grasp while mounting and dismounting the StepMill. Additional steps are to be placed at the base of the StepMill to reduce the height needed to mount the StepMill.

#### PURPOSE OF EVALUATION

This event is designed to simulate the critical tasks of climbing stairs in full protective clothing while carrying a high-rise pack (hose bundle) and climbing stairs in full protective clothing carrying fire fighter equipment. This event challenges the candidate's aerobic capacity, lower body muscular endurance and ability to balance. This event affects the aerobic energy system as well as the following muscle groups: quadriceps, hamstrings, glutes, calves, and lower back stabilizers.

#### EVENT

During this event, the candidate is required to wear two 12.5-pound (5.67-kg) weights on the shoulders to simulate the weight of a high-rise pack (hose bundle). Prior to the initiation of the timed CPAT, the candidate has a 20-second warm-up on the StepMill at a set stepping rate of 50 steps per minute [Level 3]. During this warm-up period, the candidate is permitted to dismount, grasp the rail or hold the wall to establish balance and cadence. If the candidate falls or steps off the StepMill during the 20-second warm-up period, the candidate is required to remount the StepMill and restart the entire 20-second warm-up period. The candidate is allowed to restart the warm-up period twice. There is no break in time between the warm-up period and the actual timing of the test. The timing of the test begins at the end of this warm-up period when the proctor calls out "START." For the test, the candidate is re-

quired to walk on the StepMill at a set stepping rate of 60 steps per minute [Level 4] for 3 minutes. This concludes the event. The two 12.5-pound (5.67-kg) weights are removed from the candidate's shoulders. The candidate walks 85 feet (25.91 m) within the established walkway to the next event.

The following practices are allowed:

- The candidate is allowed to *briefly* touch the handrails or wall for balance
- The candidate is given up to two warnings for grabbing the handrails or bearing their body weight on the handrails / wall
- The candidate is allowed to restart the warm-up period twice

The following practices constitute a failure:

- The candidate falls or voluntarily dismounts the Step Mill three times during the warm up.
- The candidate falls or voluntarily dismounts the Step Mill after the start of the test.
- The candidate commits a third infraction for grasping the handrails or bearing weight on the handrails / wall after the start on the test.

Reasons for failure

- Falling demonstrates poor balance or muscular endurance and could cause injury to the candidate.
- Using the handrails or wall for weight bearing gives the candidate a mechanical advantage that may not be available to them on the fire ground or demonstrates poor balance, conditioning or muscular endurance.

## EQUIPMENT

- 200 feet (60 m) of double jacketed 1 3/4-inch (44-mm) hose - hose is marked at 8 feet (2.44 m) past the coupling at the nozzle and at 50 feet (15.24 m) past the coupling at the nozzle
- Automatic Nozzle - 6 lbs (± 1lb), 3 kg (± .5 kg)
- Two 55-gallon (US) (208.2-liter) Drums secured together - bottom drum is filled with water or other ballast for weight

## PURPOSE OF EVALUATION

This event is designed to simulate the critical tasks of dragging an uncharged hoseline from the fire apparatus to the fire occupancy and pulling an uncharged hoseline around obstacles while remaining stationary. This event challenges the candidate's aerobic capacity, lower body muscular strength and endurance, upper back muscular strength and endurance, grip strength and endurance, and anaerobic

endurance. This event affects the aerobic and anaerobic energy systems as well as the following muscle groups: quadriceps, hamstrings, glutes, calves, lower back stabilizers, biceps, deltoids, upper back, and muscles of the forearm and hand (grip).

## EVENT

During this event, the candidate grasps an automatic nozzle attached to 200 feet (60 m) of 1 3/4-inch (44-mm) hose. The candidate places the hoseline over the shoulder or across the chest, not exceeding the 8-foot (2.44-m) mark. The candidate is permitted to run during the hose drag. The candidate drags the hose 75 feet (22.86 m) to a prepositioned drum, makes a 90° turn around the drum and continues an additional 25 feet (7.62 m). The candidate then stops within the marked 5 foot x 7 foot (1.52 m x 2.13m) box, drops to at least one knee and pulls the hoseline until the hoseline's 50-foot (15.24-m) mark is across the finish line. During the hose pull, the candidate must keep at least one knee in contact with the ground and knee(s) must remain within the marked boundary lines. This concludes the event. The candidate walks 85 feet (25.91 m) within the established walkway to the next event.

The following practices are allowed:

- The candidate is given one warning to keep one knee down.
- The candidate is given one warning to keep the knees in bounds.
- The candidate is given one warning for taking one step out of the box.
- The candidate is permitted to run during the hose drag

The following practices constitute a failure:

- The candidate fails to go around the drum.
- The candidate travels outside of the marked path.
- The candidate takes two steps out of the back of the box
- The candidate commits a second infraction for not keeping one knee in contact with the ground.
- The candidate commits a second infraction for the knees being outside of the marked boundary.

Reasons for failure:

- Running beyond the marked path gives the candidate a mechanical advantage by decreasing the distance required to pull the hose by hand. This advantage may not be available on the fire ground. This demonstrates a lack of upper body strength by using lower body strength to compensate.
- By not keeping their knee on the floor a candidate could compensate for a deficiency in grip and upper body strength by standing up.

## EVENT 3 EQUIPMENT CARRY

### EQUIPMENT

- Rescue Circular Saw  $32 \pm 3$  lbs ( $14.5 \pm 1.3$  kg); Chain Saw  $28 \pm 3$  lbs ( $12.7 \pm 1.3$  kg) (blades guarded, fluids drained, spark plugs removed)
- Tool Cabinet
- 55-gallon [US] (208.2-liter) weighted drum

### Purpose of Evaluation

This event is designed to simulate the critical tasks of removing power tools from a fire apparatus, carrying them to the emergency scene and returning the equipment to the fire apparatus. This event challenges the candidate's aerobic capacity, upper body muscular strength and endurance, lower body muscular endurance, grip endurance, and balance. This event affects the aerobic energy system as well as the following muscle groups: biceps, deltoids, upper back, trapezius, muscles of the forearm and hand (grip), glutes, quadriceps, and hamstrings.

### EVENT

During this event, the candidate removes the two saws from the tool cabinet, one at a time, and places them on the ground. The candidate then picks up both saws, one in each hand, and carries them while walking 75 feet (22.86 m) around the drum, then back to the starting point. The candidate is permitted to place the saw(s) on the ground and adjust the grip. Upon return to the tool cabinet, the candidate places the saws on the ground, then picks up each saw one at a time, and replaces the saw in the designated space in the cabinet. This concludes the event. The candidate walks 85 feet (25.91 m) within the established walkway to the next event.

The following practice is allowed:

- The candidate is given one warning for running.
- The candidate is allowed to set the tools on the ground to adjust and re-establish the grip.

The following practices constitute a failure:

- The candidate drops either saw during the carry.
- The candidate commits a second infraction for running with the saws.

Reasons for failure

- Dropping the saws could injure the candidate and demonstrates poor grip strength or muscular endurance.
- Running with saws could cause injury if the candidate trips.

## EVENT 4 LADDER RAISE AND EXTENSION

### EQUIPMENT

- Two 24-foot (7.32-m) aluminum ground ladders
- Pivoting bracket for ladder raise
- Retractable Safety Lanyard for ladder raise
- Attaching brackets for ladder extension

### PURPOSE OF EVALUATION

This event is designed to simulate the critical tasks of placing a ground ladder at a fire structure and extending the ladder to the roof or window. This event challenges candidate's aerobic capacity, upper body muscular strength, lower body muscular strength, balance, grip strength, and anaerobic endurance. This event affects the aerobic and anaerobic energy systems as well as the following muscle groups: biceps, deltoids, upper back, trapezius, muscles of the forearm and hand (grip), glutes, quadriceps, and hamstrings.

### EVENT

During this event, the candidate walks to the top rung of the 24-foot (7.32-m) aluminum extension ladder, lifts the first rung at the unhinged end from the ground, and walks it up until it is stationary against the wall. This must be done in a hand over hand fashion, using each rung until the ladder is stationary against the wall. The candidate must not use the ladder rails to raise the ladder. The candidate immediately proceeds to the pre-positioned and secured 24-foot (7.32-m) aluminum extension ladder, stands with both feet within the marked box of 36 inches x 36 inches (91.44 cm x 91.44 cm) and extends the fly section hand over hand until it hits the stop. The candidate then lowers the fly section hand over hand in a controlled fashion to the starting position. This concludes the event. The candidate walks 85 feet (25.91 m) within the established walkway to the next event.

The following practices are allowed:

- The candidate is given one warning for missing any rung during the raise.
- The candidate is given one warning for a boundary violation during the ladder extension.

The following practices constitute a failure:

- The candidate commits a second infraction for missing any rung during the raise.
- The candidate allows the ladder to fall to the ground during the raise.
- The candidate releases their grip on the ladder and the safety lanyard activates.
- The candidate commits a second infraction for not remaining within the marked boundary during the ladder extension.
- The candidate does not control the halyard in a hand over hand manner.
- The candidate allows the halyard to slip in an uncontrolled manner.



Reasons for failure

- Skipping rungs would give a taller candidate an advantage over a shorter candidate and is therefore not permitted. It would also allow the candidate to throw the ladder up in the air which is both unsafe and unavailable to the candidate at a fire scene when the base of the ladder is not hinged to the ground.
- Failure to completely raise the ladder demonstrates poor grip and muscular strength.
- A candidate could gain an advantage by walking the ladder backward to compensate for poor upper body strength. This compensation is not available on the fire ground where the ladder is not bolted to the fire structure.
- Failure to control the ladder indicates poor grip strength as well as muscular strength and endurance.

### **EVENT 5 FORCIBLE ENTRY**

#### **EQUIPMENT**

- Forcible Entry Machine
- 10-pound (4.54-kg) Sledgehammer
- Toe-Box

#### **PURPOSE OF EVALUATION**

This event is designed to simulate the critical tasks of using force to open a locked door or to breach a wall. This event challenges the candidate's aerobic capacity, upper body muscular strength and endurance, lower body muscular strength and endurance, balance, grip strength and endurance, and anaerobic endurance. This event affects the aerobic and anaerobic energy systems as well as the following muscle groups: quadriceps, glutes, triceps, upper back, trapezius, and muscles of the forearm and hand (grip).

#### **EVENT**

During this event, the candidate uses a 10-pound (4.54-kg) sledgehammer and strikes the measuring device in the target area until the buzzer signal is activated. The candidate's feet must remain outside the toe-box. After the buzzer is activated, the candidate places the sledgehammer on the ground. This concludes the event. The candidate walks 85 feet (25.91 m) within the established walkway to the next event.

The following practice is allowed:

- The candidate is given one warning for stepping inside the toe-box.

The following practices constitute a failure:

- The candidate fails to maintain control of the hammer while swinging.
- The candidate commits a second infraction for stepping inside the toe-box.

Reason for failure:

- Failure to maintain control of the hammer indicates poor grip strength and muscular endurance and could cause injury to the candidate and proctors.

### **EVENT 6 SEARCH**

#### **EQUIPMENT**

- Search Maze

#### **PURPOSE OF EVALUATION**

This event is designed to simulate the critical task of searching for a fire victim with limited visibility in an unpredictable area. This event challenges the candidate's aerobic capacity, upper body muscular strength and endurance, agility, balance, anaerobic endurance, and kinesthetic awareness. This event affects the aerobic and anaerobic energy systems as well as the following muscle groups: muscles of the chest, shoulder, triceps, quadriceps, abdominals, and lower back.

#### **EVENT**

During this event, the candidate crawls on hands and knees through a tunnel maze that is approximately 3 feet (91.44 cm) high, 4 feet (121.92 cm) wide and 64 feet (19.51 m) in length with two 90° turns. At a number of locations in the tunnel, the candidate navigates around, over and under obstacles. In addition, at two locations, the candidate crawls through a narrowed space where the dimensions of the tunnel are reduced. The candidate's movement is monitored through the maze. If for any reason, the candidate chooses to end the event, the candidate calls out or raps sharply on the wall or ceiling and the candidate is then assisted out. Upon exit from the maze, the event is concluded. The candidate walks 85 feet (25.91 m) within the established walkway to the next event.

The following practices are allowed:

- The candidate can return into the tunnel if they exit through the entrance.

The following practices constitute a failure:

- The candidate requests assistance from the proctor requiring the opening of an escape hatch or the entrance/exit covers.

Reasons for failure:

- Failure to finish the event indicates a lack of confidence in dark or confined spaces.

## EVENT 7 RESCUE

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### EQUIPMENT

- 165-pound (74.84-kg) Mannequin (unclothed)
- Mannequin harness
- 55-gallon [US] (208.2-liter) weighted drum

### PURPOSE OF EVALUATION

This event is designed to simulate the critical task of removing a victim or injured partner from a fire scene. This event challenges the candidate's aerobic capacity, upper and lower body muscular strength and endurance, grip strength and endurance, and anaerobic endurance. This event affects the aerobic and anaerobic energy systems as well as the following muscle groups: quadriceps, hamstrings, glutes, abdominals, torso rotators, lower back stabilizers, trapezius, deltoids, latissimus dorsi, biceps, and muscles of the forearm and hand (grip).

### EVENT

During this event, the candidate grasps a 165-pound (74.84-kg) mannequin by the handle(s) on the shoulder(s) of the harness (either one or both handles are permitted), drags it 35 feet (10.67 m) to a pre-positioned drum, makes a 180° turn around the drum, and continues an additional 35 feet (10.67 m) to the finish line. The candidate is not permitted to grasp or rest on the drum. It is permissible for the mannequin to touch the drum. The candidate is permitted to lower the mannequin to the ground to adjust their grip. The entire mannequin must be dragged past the marked finish line. This concludes the event. The candidate walks 85 feet (25.91 m) within the established walkway to the next event.

The following practices are allowed:

- The candidate receives one warning for grabbing or resting on the drum.
- The candidate is permitted to grab either one or both handles when dragging the mannequin
- The candidate is permitted to lower the mannequin to the ground to adjust their grip

The following practices constitute a failure:

- The candidate commits a second infraction for grabbing or resting on the drum.

Reasons for failure

- Use of the drum by either grasping or resting on it indicates a lack of muscular strength and endurance.

## EVENT 8 CEILING BREACH AND PULL

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### EQUIPMENT

- Ceiling Breach and Pull Device
- 6-foot (1.83-m) Pike Pole

## PURPOSE OF EVALUATION

This event is designed to simulate the critical task of breaching and pulling down a ceiling to check for fire extension. This event challenges the candidate's aerobic capacity, upper and lower body muscular strength and endurance, grip strength and endurance, and anaerobic endurance. This event affects the aerobic and anaerobic energy systems as well as the following muscle groups: quadriceps, hamstrings, glutes, abdominals, torso rotators, lower back stabilizers, deltoids, trapezius, triceps, biceps, and muscles of the forearm and hand (grip).

### EVENT

During this event, the candidate removes the pike pole from the bracket, stands within the boundary established by the equipment frame, and places the tip of the pole on the painted area of the hinged door in the ceiling. The candidate fully pushes up the 60-lb hinged door in the ceiling with the pike pole three times. The candidate then hooks the pike pole to the 80-lb ceiling device and pulls the pole down five times. Each set consists of three pushes and five pulls. The candidate repeats the set four times. The candidate is permitted to stop and, if needed, adjust the grip. Releasing the grip or slipping from pike pole handle, without the pike pole falling to ground, does not result in a warning or constitute a failure. The candidate may re-establish the grip and resume the event. If the candidate does not successfully complete a repetition (i.e. complete the up and down motion), the proctor calls out "MISS" and the candidate must push or pull the apparatus again to complete the repetition. The event and the total test time ends when the applicant completes the final pull stroke repetition as indicated by the proctor who calls out "TIME".

The following practices are allowed:

- The candidate receives one warning for dropping the pike pole on the ground.
- The candidate receives one warning for stepping out of bounds.
- The candidate is permitted to stop and to re-establish grip

The following practices constitute a failure:

- The candidate commits a second infraction for stepping outside of the boundary marked by the testing apparatus.
- The candidate commits a second infraction for dropping the pike pole.

Reasons for failure:

- Stepping out of bounds allows the candidate to use body weight to compensate for poor upper body strength, an advantage by that may not be an option on the fire ground.
- Failure to maintain control of the pike pole indicates poor grip strength and muscular endurance. ■



# APPENDIX B

## CPAT CANDIDATE PREPARATION GUIDE

The job of a fire fighter is one of the most physically demanding jobs in North America. It requires high levels of cardiopulmonary endurance, muscular strength and muscular endurance. The Candidate Physical Ability Test consists of eight critical physical tasks that simulate actual job duties on the fireground. This test is physically demanding and requires that you be physically fit to be successful. This guide was developed to assist you with physically preparing yourself for the test.

### ■ What is physical fitness in the Fire Service?

Physical fitness is the ability to perform physical activities, such as job tasks, with enough reserve for emergency situations and to enjoy normal activities when off duty.

### ■ What are the major areas of fitness?

The major areas of physical fitness include:

- flexibility
- cardiopulmonary endurance
- muscular strength
- muscular endurance

Body composition is also considered an area of physical fitness. It should be noted that excess body fat increases the workload placed upon the body and decreases the body's ability to dissipate heat.

A proper physical fitness program should be specific for the job of a fire fighter. It should include all of the major areas of physical fitness mentioned above and be a total body program. Although this is best accomplished at a gym with an array of equipment, this guide also includes exercises that require little or no equipment.

### ■ Hydration

Proper hydration is critical. All candidates should drink water before exercise, during exercise and after exercise. Additionally, you should drink at least one liter of water one hour before your CPAT.

### ■ Warm-up & Flexibility

A warm-up serves several functions, including:

- increased blood flow to working muscles and joints
- decreased likelihood of injury
- decrease in pre-event tension
- possible improved performance
- improved flexibility

A proper warm-up should begin with a few of minutes of the same type of activity you are about to do at a very light exertion level. For example, if you are preparing to go running you should run in place or for a short distance at a very easy pace.

The next step is to stretch to improve flexibility and further your warm-up. There are two phases of stretching. The first phase is the easy stretch. In this phase, you should hold the stretch for 10 seconds in a range of motion that produces only mild tension. This prepares you for the second phase, the developmental stretch. In this phase, you should move slightly farther to the point where you feel a little more tension. This should be held for another 10 seconds.

### ■ Flexibility

When stretching follow these basic rules:

- Stretch slowly
- No bouncing
- No pain
- Stretching is not competitive
- Breathe slowly to help you relax
- Stretching should feel good

#### 1. Knee to Chest

*Glutes, Low Back, Hamstrings, Quadriceps*

- Lay flat on back with knees bent.
- Grab under right thigh and pull knee toward chest until you feel mild tension.
- Hold for 10 seconds, then pull slightly farther until you feel slightly more tension.



- Hold this position for 10 seconds.
- Repeat with other leg.
- Repeat sequence 2 or 3 times.

#### 2. Knee to Chest - Leg Straight

*Glutes, Low Back, Hamstrings, Quadriceps*

- Lay flat on back with knees bent.
- Grab under right thigh and straighten right leg. Do not lock knee.
- Hold for 10 seconds, then pull slightly farther until you feel slightly more tension.
- Hold this position for 10 seconds.



- Repeat with other leg.
- Repeat sequence 2 or 3 times.

### 3. Knee to Chest — Diagonal

*Glutes, Low Back, Hamstrings, Quadriceps, Piriformis*

- Lay flat on back with knees bent.
- Grab under right thigh and pull right knee toward left chest until you feel mild tension.
- Hold for 10 seconds, then pull slightly farther until you feel slightly more tension.
- Hold this position for 10 seconds.
- Repeat with other leg.
- Repeat sequence 2 or 3 times.



### 4. Leg Cross

*Piriformis, Glutes, Low Back*

- Lay flat on back with knees bent.
- Place your right outer ankle on the top of right left thigh.
- Grab under left thigh and pull left knee toward chest until you feel mild tension.
- Hold for 10 seconds, then pull slightly farther until you feel slightly more tension.
- Hold this position for 10 seconds.
- Repeat with other leg.
- Repeat sequence 2 or 3 times



### 5. Side Quadricep Stretch

*Quadriceps, Hip Flexors, Abdominals*



- Lay on left side.
- Grab right shin, just above your right ankle.
- Slowly pull right foot toward right buttocks while pushing right hip forward.
- At the same time, push right hip forward.
- Hold for 10 seconds, and then pull slightly farther until you feel slightly more tension.
- Hold this position for 10 seconds.
- Repeat with other leg.
- Repeat sequence 2 or 3 times.

### 6. Butterfly Stretch

*Groin, Low Back*

- Sit upright with the bottoms of feet touching each other.
- Bend forward at the waist to a position where you feel mild tension.
- Elbows can be used to push down on thighs if you want more stretch.
- Hold for 10 seconds, then pull slightly farther until you feel slightly more tension.
- Hold this position for 10 seconds.
- Repeat sequence 2 or 3 times.



### 7. Straddle Stretch

*Groin, Hamstrings, Low Back*

- Sit upright with legs straight.
- Spread legs as far as you can comfortably can.
- Keeping legs straight, but not locking knees, bend forward at the waist.
- Hold for 10 seconds then push down slightly farther until you feel slightly more tension.
- Hold this position for 10 seconds.
- Return to starting position.
- Repeat sequence, but this time take chest toward left knee.
- Return to the starting position and repeat sequence toward right knee.
- Repeat entire sequence 2 or 3 times.



### 8. Cross Over Stretch

*Glutes, Iliotibial Band*

- Sit with legs straight in front of you.
- Bend right leg and cross it over so you can grab around the outside of right thigh.
- Slowly pull bent right leg toward chest until you feel mild tension.
- Hold for 10 seconds then push slightly farther until you feel slightly more tension.
- Hold this position for 10 seconds.
- Return to starting position and switch legs.
- Repeat sequence on opposite leg.
- Repeat sequence 2 or 3 times.



### ■ 9. Calf Stretch

Calves

- Squat down on ground with right foot slightly in front of left.
- Grasp right shin and rock forward until you feel mild tension.
- Hold for 10 seconds, then push slightly farther until you feel slightly more tension.
- Hold this position for 10 seconds.
- Repeat sequence on opposite leg.
- Repeat sequence 2 or 3 times.



### ■ 10. Upper Back Stretch

Upper back, Posterior Deltoids

- Sit with legs straight in front.
- Twist your upper back crossing left arm across chest and place right hand on the floor.
- Slowly twist until you feel mild tension.
- Hold for 10 seconds, then twist slightly farther until you feel slightly more tension.
- Hold this position for 10 seconds.
- Return to starting position and twist to the left side.
- Repeat sequence 2 or 3 times.



### ■ 11. Chest Stretch

Chest, Shoulders, Biceps

- Stand with right shoulder against a wall.
- Place right palm on the wall.
- Slowly turn your body away from the wall until you feel mild tension.
- Hold for 10 seconds, then twist slightly farther until you feel slightly more tension.
- Return to starting position and repeat sequence with left arm.
- Repeat sequence 2 or 3 times.



### ■ 12. Triceps Stretch

Triceps, Posterior Deltoids

- Stand upright and extend right arm over head.
- Grab right elbow with left hand and place right hand on right shoulder blade.
- Slowly push right elbow backward until mild tension is felt.
- Hold for ten seconds, then



push slightly farther until you feel slightly more tension.

- Return to starting position and repeat sequence with left arm.
- Repeat sequence 2 or 3 times.

### ■ 13. Forearm Stretch

Forearms

- Stand upright and grab right fingers with left hand.
- Slowly fold right wrist backwards until mild tension is felt.
- Hold for ten seconds, then push slightly farther until you feel slightly more tension.
- Repeat sequence, this time folding wrist forwards.
- Return to starting position and repeat sequence with left arm.
- Repeat entire sequence 2 or 3 times.



## General Principles of Exercise

To maximize the results from your training program, several exercise principles should be understood.

### ■ Adaptation

Adaptation means that the body can adjust to any overload as long as it is done in small increments. The amount of progress the body can make depends on adequate rest, consistency of workouts, adequate nutrition, and genetic makeup.

### ■ Overload

Overload, in exercise training programs, means that a training program causes the body to adapt only when the demands are greater than what the body is accustomed to doing. This does not mean that the overload is greater than your maximum; rather overload is generally greater than 75% of your maximal effort.

### ■ Progression

The principle of progression states that as the body adapts to the exercise program you must gradually increase the overload to continue to adapt. It is critical that all progressions are gradual and small in nature to prevent overloading the body's ability to recover.

### ■ Specificity

Specificity of training is the principle that your body will adapt to whatever exercises you perform. This means that if you only perform bench presses, your body will not adapt to sit-ups. It may, therefore, be beneficial for you to alter your training to prepare for the Candidate Physical Ability Test.



■ **Over-Training**

Over-training addresses the body’s need for adequate rest and nutrition following exercise to recuperate before the next exercise session. If recuperation is not adequate, over-training will occur. Signs of over training include: increased injury rate, increased resting heart rate, muscle soreness that does not subside after 48 hours, apathy, insomnia, loss of appetite, lack of adaptation to exercise, and loss of strength. Over-training must be avoided.

■ **Balance**

When developing a strength training program, it is important to balance muscle development by including exercises that train all major muscles groups of the body. This means that if the chest is trained so must the back; similarly if the upper body is trained so must the legs. When this principle is not followed, joints become imbalanced, and injuries occur.

■ **Cardiopulmonary Endurance Program**

Cardiopulmonary endurance is the ability of the cardiovascular and respiratory systems to deliver oxygen to working muscles. It consists of both aerobic and anaerobic energy systems.

■ **Aerobic Fitness**

During aerobic activities, the intensity of the exercise is low enough for the cardiopulmonary system to meet the oxygen demands of the working muscles. Aerobic activities include bicycling, hiking, swimming, climbing stairs, and running when performed at a low enough intensity.

■ **Anaerobic Fitness**

During anaerobic activities, the intensity of exercise is so high that the working muscle’s demands for oxygen exceed the cardiopulmonary system’s ability to deliver it. Because adequate oxygen is not available, waste products accumulate. This type of intense activity can only be short in duration. An example of an anaerobic activity is sprinting.

■ **The CPAT Training Program**

The CPAT Training program consists of two training programs. The first program is the aerobic training program and the interval program. Both of these programs complement each other and improve your aerobic and anaerobic fitness specific to the Candidate Physical Ability Test.

■ **Aerobic Training**

The cardiopulmonary endurance program should begin at a level that is considered “moderately difficult” but not “difficult.” Your intensity should not be so high that you cannot speak during the exercise. The program below consists of a series of progressive levels. As you adapt to each step, you should move up to the next level. This program should be done 3 to 5 days per week.

■ **Interval Training**

Interval training involves a repeated series of exercise activities interspersed with rest or relief periods. This is an excellent tool for improving both aerobic and anaerobic endurance. In this program running intervals are performed on Tuesdays and Thursdays. It is important that interval days have at least one day of slow easy running between them. This provides the recovery necessary to prevent over training.

Phase One					
	Monday	Tuesday	Wednesday	Thursday	Friday
Level 1	Run 1 mile at an easy pace. Be able to talk the entire time.	Run 30 seconds at a somewhat hard pace then walk for 30 seconds. Repeat this for a total of 1 mile.	Run 1 mile at an easy pace. Be able to talk the entire time.	Run 30 seconds at a somewhat hard pace then walk for 30 seconds. Repeat this for a total of 1 mile.	Run 1 mile at an easy pace. Be able to talk the entire time.
Level 2	Run 1.5 miles at an easy pace. Be able to talk the entire time.	Run 30 seconds at a somewhat hard pace then walk for 30 seconds. Repeat this for a total of 1.5 miles.	Run 1.5 miles at an easy pace. Be able to talk the entire time.	Run 30 seconds at a somewhat hard pace then walk for 30 seconds. Repeat this for a total of 1.5 miles.	Run 1.5 miles at an easy pace. Be able to talk the entire time.
Level 3	Run 2 miles at an easy pace. Be able to talk the entire time.	Run 60 seconds at a somewhat hard pace then walk for 60 seconds. Repeat this for a total of 2 miles.	Run 2 miles at an easy pace. Be able to talk the entire time.	Run 60 seconds at a somewhat hard pace then walk for 60 seconds. Repeat this for a total of 2 miles.	Run 2 miles at an easy pace. Be able to talk the entire time.
Level 4	Run 2.5 miles at an easy pace. Be able to talk the entire time.	Run 60 seconds at a somewhat hard pace then walk for 60 seconds. Repeat this for a total of 2.5 miles.	Run 2.5 miles at an easy pace. Be able to talk the entire time.	Run 60 seconds at a somewhat hard pace then walk for 60 seconds. Repeat this for a total of 2.5 miles.	Run 2.5 miles at an easy pace. Be able to talk the entire time.
Level 5	Run 3 miles at an easy pace. Be able to talk the entire time.	Run 90 seconds at a somewhat hard pace then walk for 90 seconds. Repeat this for a total of 3 miles.	Run 3 miles at an easy pace. Be able to talk the entire time.	Run 90 seconds at a somewhat hard pace then walk for 90 seconds. Repeat this for a total of 3 miles.	Run 3 miles at an easy pace. Be able to talk the entire time.

Phase Two					
	Monday	Tuesday	Wednesday	Thursday	Friday
Level 1	Run 3 miles at an easy pace. Be able to talk the entire time.	Run at an easy pace for 3 minutes then run stairs moderately hard for 1 minute.	Run 1.5 miles at an easy pace.	Run at an easy pace for 3 minutes then run stairs moderately hard for 1 minute.	Run 3 miles at an easy pace. Be able to talk the entire time.
Level 2	Run 3 miles at an easy pace. Be able to talk the entire time.	Run at an easy pace for 3 minutes then run stairs moderately hard for 90 seconds.	Run 1.5 miles at an easy pace.	Run at an easy pace for 3 minutes then run stairs moderately hard for 90 seconds.	Run 3 miles at an easy pace. Be able to talk the entire time.
Level 3	Run 3 miles at an easy pace. Be able to talk the entire time.	Run at an easy pace for 3 minutes then run stairs moderately hard for 2 minutes.	Run 1.5 miles at an easy pace.	Run at an easy pace for 3 minutes then run stairs moderately hard for 2 minutes.	Run 3 miles at an easy pace. Be able to talk the entire time.
Level 4	Run 3 miles at an easy pace. Be able to talk the entire time.	Run at an easy pace for 3 minutes then run stairs moderately hard for 2 minutes and 30 seconds.	Run 1.5 miles at an easy pace.	Run at an easy pace for 3 minutes then run stairs moderately hard for 2 minutes and 30 seconds.	Run 3 miles at an easy pace. Be able to talk the entire time.
Level 5	Run 3 miles at an easy pace. Be able to talk the entire time.	Run at an easy pace for 3 minutes then run stairs moderately hard for 3 minutes.	Run 1.5 miles at an easy pace.	Run at an easy pace for 3 minutes then run stairs moderately hard for 3 minutes.	Run 3 miles at an easy pace. Be able to talk the entire time.

#### ■ Muscular Strength/Endurance Program

This is a resistance program designed to improve your total body strength and endurance. This is not a bodybuilding or a power-lifting program. It is designed to prepare you specifically for the Candidate Physical Ability Test. If you are not familiar with lifting programs, have any joint pain or feel uncomfortable performing these exercises, you should seek the advice of a professional trainer.

This program is designed to be performed three days a week. This means that you will not be lifting 4 days a week. These rest days are just as important as your workout days. A critical mistake made by some applicants is over training when preparing for the Candidate Physical Ability Test. If you feel you are over training, refer back to the exercise principles, slow down your progression, reduce your overload, and allow for adequate rest between workouts.

This workout should follow the previously mentioned warm-up and stretching program. This program is designed to be a circuit workout. Circuit training has been proven to be a very effective and efficient way to improve muscular strength, muscular endurance and cardiovascular endurance. Once you begin this workout, you will lift at each station for 10 repetitions and then move on to the next exercise. Rest between exercises should not exceed 30 seconds unless you are experiencing some discomfort. For safety purposes, it is recommended that you lift with a partner and spot each other when necessary.

#### General Safety Tips While Performing Resistance Training

- Always lift with a partner.
- Ask for help from an expert if you don't know what you are doing.
- Progress slowly to avoid injuries.
- Never show off by attempting to lift more weight than you normally lift.
- Use proper lifting technique when lifting weight plates and dumbbells.
- Never drink alcohol or take medications that may cause drowsiness prior to lifting weights.
- Do not lift too quickly; always control the weights.
- Always use strict form. Proper technique is more important than the amount of weight lifted.
- Keep head in a neutral position, looking straight ahead and not upwards or downwards.

#### ■ Progression

Unless you are an experienced weightlifter, it is recommended that you begin by doing one complete cycle through this circuit. After the first week, if you are not still getting muscle soreness 24 to 48 hours after your workouts, you can progress to two cycles through the circuit. After the second week, if you are not still getting muscle soreness 24 to 48 hours after your workouts, you can progress to three cycles through the circuit. Although it is not critical, it is recommended that you follow the exercises in order. If, after progressing to the next level, you feel very sore, you may want to decrease the weights and the number of times you complete the circuit.

## ■ Weight Training Circuit Workout

### ■ 1. Seated Leg Press

*Quadriceps, Hamstrings, Glutes, Calves*

CPAT Events: Stair Climb, Hose Drag, Ladder Raise, Forcible Entry, Rescue, Ceiling Breach and Pull



Set appropriate weight to overload above muscles but not so heavy as to cause injury or failure.

- Place feet flat on push platform about shoulder width apart and toes pointed slightly outward.
- Adjust seat so knees are flexed at 90 degrees.
- Push weight up while exhaling.
- Stop just short of locking your knees.
- Keep knees in alignment with feet.
- Keep head in neutral position.

### ■ 2. DB Military Press

*Deltoids, Triceps, Trapezius*

CPAT Events: Ladder Raise, Search, Ceiling Breach and Pull

Pick appropriate weight to overload above muscles but not so heavy as to cause injury or failure.

- Raise two dumbbells to height of shoulders.
- With palms facing forward, alternate pressing each dumbbell upward toward the ceiling, one at a time.
- Exhale while lifting.
- Keep head in neutral position.
- Using slight leg push is acceptable.
- Repeat with other arm.



### ■ 3. Lat Pull Down

*Latissimusdorsi, Rhomboids, Posterior Deltoids, Biceps*

CPAT Events: Hose Drag, Ladder Extension Forcible Entry, Rescue, Ceiling Breach and Pull

Pick appropriate weight to overload above muscles but not so heavy as to cause injury or failure.

- Adjust seat and leg hold to allow full range of motion.
- Hold bar in chin up grip with hands close together and palms toward face.
- Pull bar straight down to just below the chin.
- Exhale while pulling weight down.
- Return to starting position.



### ■ 4. DB Split-Squats

*Glutes, Quadriceps, Hamstrings, Calves*

CPAT Events: Stair Climb, Hose Drag, Ladder Raise, Forcible Entry, Search, Rescue Ceiling Pull and Breach

Pick a light weight (many people can start with no weights at all). Do not start with more than 10 lbs.

- Stand with feet together then step backward with one foot about 26".
- Keep back straight and arms down at side with head neutral, slowly bend both legs.
- Lower yourself slowly until your left knee barely touches the floor.
- Forward leg should remain vertical throughout motion with knee directly over ankle. If knee tends to move forward over the toes, adjust back foot further backward.
- Return to the starting position.
- Inhale while lowering and exhale while pushing back up into upright position.
- Repeat with opposite leg.



### ■ 5. Bench Press

*Pectorals, Deltoids, Triceps*

CPAT Events: Ladder Raise, Forcible Entry, Search, Ceiling Breach and Pull

Pick appropriate weight to overload above muscles but not so heavy as to cause injury or failure.

- Lie on bench, feet flat on floor.
- Hold bar with arms shoulder width apart or slightly wider.
- Lower bar to middle of chest.
- Push bar up to starting position.
- Inhale while lowering and exhale while pushing back up.





## ■ 6. DB Row

*Latisimusdorsi, Rhomboids, Posterior Deltoids, Trapezius, Biceps*

CPAT Events: Hose Pull, Ladder Extension, Forcible Entry, Rescue, Ceiling Breach and Pull

Pick appropriate weight to overload above muscles but not so heavy as to cause injury or failure.

- Standing to right of bench, place left knee on bench and support upper body with left (nonlifting) arm.
- Keep head in neutral position.
- Pull DB from ground into waist area with right arm.
- Lower DB back to starting position.
- Avoid twisting at waist.
- Inhale while lowering weight and exhale while lifting weight.
- Repeat sequence on opposite side.



## ■ 7. Leg Extension

*Quadriceps*

CPAT Events: Stair Climb, Hose Pull, Ladder Raise, Forcible Entry, Search, Rescue

Pick appropriate weight to overload above muscles but not so heavy as to cause injury or failure.

- Adjust machine so that backs of knees are against pad and back pad is supporting lower back.
- Extend knees stopping just before the knees lock.
- Slowly lower weight to starting position.
- Exhale while pushing weight and inhale while lowering weight.



**Note: This exercise should not be performed by individuals who have undergone reconstructive knee surgery.**

## ■ 8. Leg Curl

*Hamstrings*

CPAT Events: Stair Climb, Hose Pull, Ladder Raise, Forcible Entry, Rescue



Pick appropriate weight to overload above muscles but not so heavy as to cause injury or failure.

- Lie flat on machine with top of knees just off the pad and ankle roller situated above the heels.
- Flex the knee until ankle roller reaches the buttocks. Keep hips down and stomach in contact with pad throughout the motion.
- Slowly lower weight to starting position.
- Inhale while pulling weight up and exhale while lowering weight down.

## ■ 9. DB Curl

*Biceps, Forearms*

CPAT Events: Hose Drag, Ladder Extension, Forcible Entry, Rescue, Ceiling Breach and Pull

Pick appropriate weight to overload above muscles but not so heavy as to cause injury or failure.

- Stand up with knees slightly bent.
- Begin with arms down at sides.
- Bend right elbow bringing the dumbbell toward right shoulder.
- Slowly lower dumbbell to starting position.
- Exhale while raising weight and inhale while lowering weight.
- Repeat sequence on opposite side.



## ■ 10. Tricep Extension

*Triceps*

CPAT Events: Ladder Raise, Forcible Entry, Search, Ceiling Breach and Pull

Pick appropriate weight to overload above muscles but not so heavy as to cause injury or failure.

- Stand up with knees slightly bent.
- Place hands on bar about 6" apart.
- Keeping upper arms at sides, extend the elbows until arms are almost straight and bar is at mid-thigh.
- Slowly return bar to an elbow flexed position at mid-chest level. Upper arms should remain in contact with sides. Do not allow elbows to move forward, away from body.
- Exhale while pushing bar down and inhale while returning bar back up.



## ■ 11. Abdominal Curls

*Abdominal Muscles*

CPAT Events: All Events



- Sit on ground with knees bent at 90 degrees.
- Keeping feet flat on floor and hands at your side, slowly curl your torso so chin approaches your chest.
- Do not raise torso to more than a 45-degree angle off the floor.
- Slowly return to slightly above your starting position, keeping tension on abdominal muscles at all times.
- Exhale while curling up and inhale while lowering torso back down.

## ■ 12. Swimmers

*Erector Spinae (Lower back), Glutes*

CPAT Events: All Events



- Lie face down on ground with feet together.
- Place arms straight out in front.
- Move the right arm and left leg up at the same time.
- As you return the right arm and left leg, move the left arm and right leg up at the same time.
- Continue alternating in a moderate cadence.

## ■ 13. Wrist Rollers

*Forearm muscles*

CPAT Events: Hose Drag, Equipment Carry, Ladder Extension,



Forcible Entry, Rescue, Ceiling Breach and Pull

- Stand erect
- Set machine to “somewhat difficult” resistance
- Grab machine with both palms facing the floor
- Alternately roll each wrist towards the ceiling
- Repeat with palms upward when done

## ■ 14. Hand Grippers

*Forearm muscles*

CPAT Events: Hose Drag, Equipment Carry, Ladder Extension,



Forcible Entry, Rescue, Ceiling Breach and Pull

- Stand erect
- Set machine to “somewhat difficult” resistance
- Grab machine with both hands
- Alternately close grip to squeeze machine

## ■ Exercises without Weights

Although it is easier to improve muscular strength and endurance with weight equipment, it is also possible to accomplish this with some simple exercises. These exercises require minimum equipment and can be done almost anywhere. Perform these exercises in a circuit. Move from one exercise to the next with minimal rest. Initially, work in the somewhat hard range. This means do not exercise to failure. Start by going through the circuit one time and then gradually progress until you can complete this circuit three times in a row.

## ■ Calisthenics Circuit Workout

### ■ 1. Chair Squats

*Glutes, Quadriceps, Hamstrings*

CPAT Events: Stair Climb, Hose Drag, Ladder Raise, Forcible Entry, Search, Rescue Ceiling Pull and Breach



- Stand in front of a sturdy and stable chair with legs shoulder width apart and toes pointing slightly outward.
- Hold arms out straight in front of you.
- Slowly lower your buttocks into the chair.
- As soon as you feel the slightest contact with the chair, slowly stand back up to the starting position.
- Keep your head in a neutral position.
- Inhale while lowering yourself and exhale while standing up.

### ■ 2. Push Ups

*Pectorals, Deltoids, Triceps, Abdominals, Low Back)*

CPAT Events: Ladder Raise, Forcible Entry, Search, Ceiling Breach and Pull



- Place hands on ground shoulder width apart or slightly more.
- Keep feet together and back straight throughout the exercise.
- Lower the body until the upper arms are at least parallel to the ground.
- Push yourself up to the initial position by completely straightening arms.
- Inhale while lowering and exhale while pushing.



### ■ 3. Split-Squats

*Glutes, Quadriceps, Hamstrings, Calves*

CPAT Events: Stair Climb, Hose Drag, Ladder Raise, Forcible Entry, Search, Rescue, Ceiling Pull and Breach

- Stand with feet together then step backward with foot about 26" behind left foot.
- Keep back straight and arms down at side with head neutral, slowly lower right knee straight down onto the floor.
- Inhale while lowering and exhale while pushing back up into upright position.
- Forward leg should remain vertical throughout motion, with knee directly over ankle. If knee tends to move forward over the toes, adjust back foot further backward.
- Repeat with other leg.



### ■ 4. Chin Ups

*Latissimusdoris, Rhomboids, Posterior Delts, Biceps*

CPAT Events: Hose Drag, Ladder Extension, Forcible Entry, Rescue, Ceiling Pull and Breach

- Grasp horizontal bar with palms facing you and hands 6" apart.
- Hang from bar with arms fully extended.
- Pull yourself upward until your chin is above the bar.
- Do not kick or swing your legs.
- Return to the starting position.
- Inhale while lowering yourself and exhale while pulling yourself up.
- If unable to complete 3 chin ups, elevate yourself to the bar with a stool or a partner, and slowly lower yourself down in a slow and controlled fashion.



### ■ 5. Bench Steps

*Glutes, Quadriceps, Hamstrings, Calves*

CPAT Events: Stair Climb, Hose Drag, Ladder Raise, Forcible Entry, Search, Rescue, Ceiling Pull and Breach



This requires good balance, so initially set the step next to a wall or use a partner for safety.

- Use a step or bench 6" to 18" high.
- Place right foot flat on the bench with the left foot flat on the floor.
- Push down with the foot on the bench and step up until both legs are straight.
- Slowly lower yourself back down to the starting position.
- Exhale while pushing up and inhale while lowering down.
- Repeat entire sequence with other leg.
- Start with a smaller step and progressively increase the height. Do not exceed 18" high.

### ■ 6. Dips

*Pectorals, Deltoids, Triceps*

CPAT Events: Ladder Raise, Forcible Entry, Search, Ceiling Pull and Breach

- Place hands behind you on dip bar or chair with feet straight in front.
- Bend arms and lower body in a controlled manner until the upper arms are parallel with the floor.
- Straighten the arms to return to the starting position.
- Legs can be bent to keep feet from touching the floor.
- If unable to perform 3 dips, use a stool or a partner to help you up and then lower yourself down slowly.
- Inhale while lowering yourself and exhale while pushing up.



### ■ 7. Squat Thrusts

*Pectorals, Deltoids, Triceps, Abdominals, Glutes, Quadriceps*

CPAT Events: Stair Climb, Hose Pull, Ladder Raise, Forcible Entry, Search

- Stand erect with feet together.
- Quickly bend knees until palms touch the floor just slightly in front of you.
- Supporting weight with arms, tighten your abdominal muscles, and throw your feet backwards until you are in the push up starting position.
- Reverse sequence until you are back at the starting position. This is one repetition.
- Inhale and exhale evenly throughout the exercise





## ■ 8. Abdominal Curls

*Abdominal Muscles*

CPAT Events: All Events



- Sit on ground with knees bent at 90 degrees.
- Keeping feet flat on floor and hands at side, slowly curl torso so chin approaches your chest. Do not raise torso to more than a 45-degree angle off the floor.
- Slowly return to slightly above your starting position, keeping tension on abdominal muscles at all times.
- Exhale while curling up and inhale while lowering torso back down.

## ■ 9. Swimmers

*Erector Spinae (Lower back), Glutes*

CPAT Events:  
All Events



- Lie face down on ground with feet together.
- Place arms straight out in front of you.
- Move the right arm and left leg up at the same time.
- As you return the right arm and left leg, move the left arm and right leg up at the same time.
- Continue alternating in a moderate cadence.

## ■ 10. Hand Grippers

*Forearm muscles*

CPAT Events: Hose Drag, Equipment Carry, Ladder Extension, Forcible Entry, Rescue, Ceiling Breach and Pull



- Stand erect
- Place tennis ball in palm of hand
- Slowly squeeze hand compressing tennis ball
- Repeat with other hand

## Supplemental Task-Specific Exercise Training

### INTRODUCTION

The supplementary exercise program presented in the following sections not only makes use of the overload principal of training but also applies the all-important principal of training specificity. Exercise training specificity means that performance improvements occur most readily when training closely resembles the specific physical activity for which improved performance is desired. When training for specific activities requiring high levels of muscular strength and muscular power (e.g. hose drag and pull from kneeling position, ladder raise and extension, sledge hammer swing, dummy drag, and ceiling breach and pull) task-specific muscular overload should

accompany a general strength training program. Practice and training in the specific activity becomes crucial because much of the improvement in muscular strength/power performance depends upon skill learning and new muscular adaptations (i.e., coordination of specific muscle actions) required for the physical task. In most instances, training in the actual task proves most effective.

The following program provides examples for applying your general training program to actually performing CPAT tasks. As with your other preparation training, you must progressively upgrade the duration, frequency, and intensity of exercise to continually improve your performance. This will maximize your improvement in performing the CPAT.

In the beginning phase of this training, progress slowly so that you can safely learn the skill and coordination required for the movements. As you become confident in your ability to successfully complete a specific exercise task with relative ease, redirect your training energies to those activities that pose the greatest difficulty. For many people, the stair climb with full weights, forcible entry, and rescue prove the most difficult.

### ■ Stair Climb

#### *Exercise*

You can readily modify aerobic training to more closely resemble the 3-minute stair climb in the CPAT by performing actual stair-stepping exercise on any conveniently located first step of a staircase, preferably at least 8 inches in height. Step at a rate that permits completion of 24 complete stepping cycles within a one-minute period. A stepping cycle consists of stepping up with one foot, then the other and down with one foot, then the other in a rhythm “up-up, down-down.” Strive to complete two stepping cycles within a 5-second period.

#### *Progression*

Begin training by stepping continuously (unweighted) for 5 minutes. As your fitness improves, complete a second and then third 5 minute exercise bout interspersed with several minutes of recovery. Once you can complete three intervals of 5-minutes of stepping, add weight to your torso in the form of a knapsack to which weights, sand, dirt or rocks have been added. Continue to perform three 5-minute intervals of stepping; progressively add weight to the knapsack as your fitness improves so that you can step with 50 pounds of additional weight. (This 50-pound knapsack and work gloves should be worn in training for all subsequent events of the CPAT.) In addition, carry 10-15 pounds (dumbbell, sand filled plastic container) in each hand while stepping. The total weight carried (knapsack plus hand-held weights) should equal approximately 75 pounds. At this stage, reduce the duration of the exercise interval to 3 minutes. This task-specific training not only improves aerobic fitness for continuous stepping but it also improves your leg power for stepping in the weighted condition, which represents a unique component of this CPAT item.

## ■ Hose Drag

### *Exercise*

Attach 50 feet of rope to a duffel bag to which weight has been added. Tires or cement blocks can also be used for resistance. Choose an initial resistance that enables you to perform 8 to 10 repetitions (2-minute recovery between repetitions) of the exercise sequence. This generally represents an effort that you would rate as feeling “somewhat hard.”

### *Progression*

Progressively increase the resistance to 60 to 80 pounds as fitness improves. Place the rope over your shoulder and drag the resistance a distance of 75 feet. (You should run during this phase of the event.) Immediately drop to one knee and steadily and briskly pull the rope hand-over-hand to bring the resistance into your body. A parking lot, school yard, driveway, or sidewalk can be used for training on this event.

## ■ Equipment Carry

### *Exercise*

Use two dumbbells or plastic containers filled with sand so that each weighs approximately 30 pounds. Place the weights on a shelf four feet above ground level. Remove the weights, one at a time, and place them on the ground. Then pick up the weights and carry them a distance of 40 feet out and 40 feet back and replace them on the shelf.

### *Progression*

If the initial weight feels too heavy, choose a lighter weight for your initial practice. Continue to practice this test item until it can be performed with 30 pounds with relative ease.

## ■ Ladder Rise and Extension

### *Exercise*

Ladder Raise. The ideal training for this task requires an actual 12-foot aluminum extension ladder. If this size ladder is unavailable, you can use a single ladder or smaller extension ladder to practice the skill required raising the ladder. Practice of the ladder raise sequence requires the assistance of two adults to “foot” the ladder at its base to prevent it from sliding forward and/or falling during the raise. In practicing this component (as described in the test directions) it is important to initially move slowly so as to develop the skill and confidence to safely complete the required movements. Be sure to use each rung when raising the ladder to develop the coordination and timing necessary on the CPAT.

### *Exercise*

Ladder Extension. Task-specific training of the muscles required in the ladder extension can be provided by attaching a rope to a weighted duffel bag or knapsack. Place the rope over a tree branch (or horizontal bar support above a row of playground swings) eight to ten feet above the ground. With hand-over-hand movements steadily raise

the bag to the top of the branch or bar and then slowly lower it to the ground.

### *Progression*

Start with a weight that you would rate as feeling “somewhat hard,” and perform eight to ten repetitions of the movement. Rest two minutes and repeat the exercise-rest sequence two more times. As your strength improves progressively add more resistance until you can exercise with 40 to 50 pounds of weight.

## ■ Forcible Entry

### *Exercise*

Borrow or purchase a ten-pound sledgehammer. Wrap padding around a large tree or vertical pole at a level of 39 inches above the ground with a circular target in the center. Stand sideways and swing the sledgehammer in a level manner so the head strikes the center of the target area. Focus on using your legs and hips to initiate the swinging motion.

### *Progression*

The initial phase of this task-specific training should focus on learning the coordinated movement of your arms and legs to accurately hit the target. Repeat the swing 15 times and rest for two minutes. Repeat this exercise-rest sequence twice again. Strive to increase the velocity (power) of each swing without sacrificing accuracy as your comfort level and skill on this test item improve.

## ■ Search

### *Exercise*

Practice crawling on hands and knees (wearing sweat pants and/or kneepads) at least 70 feet while making several right angle turns during the crawl. For the major portion of the crawl keep low enough so as not to contact an object three feet above the ground. Periodically, drop your stomach and crawl ten feet along the ground.

### *Progression*

Once you are comfortable crawling as above repeat the sequence with a knapsack on. Gradually increase the weight within the knapsack until it equals 50 pounds.

## ■ Rescue

### *Exercise*

Attach a short handle to a duffel bag to which rocks, sand, or other appropriate weight can be progressively added. Start with a weight that feels “somewhat heavy.” You can grasp the handle with (a) one hand and drag the “victim” in a cross-over, side-stepping manner, or (b) two hands while facing the “victim” and moving directly backwards while taking short, rapid stagger steps. Drag the weight 35 to 50 feet in one direction turn around and drag it back to the starting point. Complete eight to ten repetitions of this task with a two-minute rest interval between each trial.

### ***Progression***

Gradually increase the resistance until you can successfully complete 4 repetitions (with rest interval) with 165 pounds.

### **■ Ceiling Breach and Pull**

#### ***Exercise***

Ceiling Breach. Tie a rope to a dumbbell or weighted knapsack placed between your legs, shoulder width apart. Grasp the rope, arms slightly away from the body with one hand at upper-thigh level and the other hand at chest level. Lift upwards and out from the body in an action that simulates thrusting a pole through an overhead ceiling. Use a resistance that feels “somewhat hard,” yet enables you to complete three sets of eight repetitions with two minutes of rest between sets.

#### ***Progression***

Continually add weight as strength improves. Practice coordinating upward arm movements with an upward extension of the legs to provide a more powerful thrusting action.

#### ***Exercise***

Ceiling Pull. The training set-up for this simulation is the same as that used in training for the ladder extension. However, unlike the hand-over-hand movement that is required for the ladder extension the ceiling pull requires exerting power in single, repeated downward thrusts. Grasp the rope attached to the weighted knapsack or duffel bag with hands spaced about one-foot apart and the bottom hand at chin level. In a powerful movement simultaneously pull arms down and lower your body to raise weight several feet above the ground. Repeat eight to ten consecutive repetitions of the movement with a resistance that feels “somewhat hard.” Complete three sets with a two-minute recovery interval interspersed.

#### ***Progression***

Progressively add resistance as fitness improves.

As your fitness improves you should begin to link the various test components. For example, immediately upon finishing the stair climb move directly to the hose drag and then to the equipment carry. Eventually you will be able to simulate all of the task components in the CPAT in a continuous exercise sequence. ■