



NSW Fire Brigades

Physical Aptitude Test

Applicant Preparation Guide

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NSWFB Physical Aptitude Test: Applicant Preparation Guide

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Prepared by
Health and Fitness Coordinator
Health & Safety Branch
NSW Fire Brigades
PO Box A249
Sydney South NSW 1232
Ph (02) 9265 2800 or 1800 425 282
Fax (02) 9265 2986

The following document is a training guideline for applicants preparing for the NSWFB Physical Aptitude Test (PAT). Whilst the information provided reflects commonly accepted theories of training adaptation for the general (healthy) population, it may not be appropriate to the circumstances (eg. injury; medical history) of individual applicants. Accordingly, it is essential that applicants seek medical clearance and the advice of an appropriately qualified fitness professional prior to the commencement of their program.

Common questions about the Physical Aptitude Test (PAT)

What is the purpose of the PAT?

The purpose of the PAT is to provide a method by which the NSWFB can assess whether recruit applicants have the physical capacity that could be required of a firefighter in an emergency situation.

What is the PAT designed to do?

The components of the PAT are designed to:

- Replicate, as near as practicable, the physical requirements of essential tasks encountered at emergency operations.
- Include tests of gross physical ability that have limited skill dependency.
- Be standardised, objective and reliable.

What are the PAT tasks designed to measure?

The PAT tasks are designed to assess:

- Cardiovascular fitness
- Acrophobia
- Claustrophobia
- Manual dexterity and Mechanical Reasoning
- Muscular strength
- Muscular endurance
- Muscular power
- Balance and coordination

The measured components are specific to the critical physical demands for the job of a firefighter.

When should I start training for the PAT?

Don't expect to prepare for your physical aptitude test in a short time frame. Start your training as soon as possibly and progressively increase your workload until the time of the test.

Make sure you seek medical clearance before starting your program.

How should I train for the PAT?

In the following pages, you will be given suggested training interventions and some hints on how to prepare. It is strongly suggested that you find a person with a degree in Exercise Science or Human Movement to supervise your program, particularly if you have limited training experience. If you can't find someone, contact the Australian Association for Exercise and Sport Science (www.aaess.com.au) and ask them to recommend a trainer/coach.

General instructions for your training program

- Make a plan** A written plan with clear goals and action steps is the key to ensure effective preparation. Start your preparation as soon as possible and remember: "Those who fail to plan, plan to fail!"
- Be specific** The type of load placed on the body dictates the type of adaptation that will occur. Therefore, the best way to train for any task is to do the actual task (eg. train for the ladder lift by lifting a ladder). This is called 'training specificity'. Since this is not always possible for some people (eg. you don't have access to a ladder), mimicking the actions involved in the task is the next best thing, and can often enable you to train that little bit harder. Choose tasks that use the same muscles, in the same coordination and at the same intensity as the task you are training for. For example, a squat, upright row and a shoulder press all closely mimic the action of lifting the end of a ladder off the ground and raising it above your head, ready to under-run.
- Progressively overload** Your body is very good at adapting to stress, particularly if that stress is at an optimal level. However, if you do too much too soon, this may lead to injury and put you back further than when you started. You should progressively increase your training load, making sure that your body has adequate time for rest and recovery. As an example, a beginner runner would find it very difficult to run 5km per day seven days per week without significant fatigue and soreness (if they could manage to run it at all). However, 1km walking followed by 1 km running (for 5km) done on every second day would likely lead to good improvement in a relatively short period of time, with far less chance of injury. Progression should be gradual and within limits the body can tolerate. The most important thing is to listen to your body.
- Don't forget that it is all reversible** "If you don't use it, you lose it!". Training gains are not permanent, they must be maintained. Once you have achieved your goal, you will need to keep up a certain amount of training to stay at the same level.
- The PAT requires that you have a good level of muscular strength/power/endurance and cardiovascular fitness. Training for one component can be at the expense of another; therefore you will need to balance your program so that you achieve improvements in all areas. If you are particularly strong in one component, then it may be an idea to maintain that component and focus training on the weaker ones.

General instructions (cont'd)

Don't forget to stretch

Stretching is an essential component of every program, not only to prepare the body for the exercise ahead, but also to aid recovery post-exercise and prevent injury. The NSW Fire Brigades has produced a poster for its personnel outlining a suggested stretch and warm-up routine for physical activity. A copy of this poster may be downloaded from the Recruitment pages of the NSW Fire Brigades Internet site (www.nswfb.nsw.gov.au).

Drink small amounts, often

Adequate hydration is another important consideration that often gets overlooked. It is particularly important during cardiovascular training due to the fact you are likely to be losing significant fluid volumes through sweating. The aim of your program is to help the body perform at its best, and you can't perform at your best if your fluid intake is inadequate. Make sure that you drink small amounts often; before, during and after the session (drinking large amounts less often may cause gastrointestinal discomfort). In most cases, water will be adequate, however reputable commercial electrolyte and carbohydrate drinks may be of benefit for extended training sessions.

Test your progress

Every so often you should assess your progress by attempting the tasks of the PAT in isolation and/or in succession. This should give you a clear indication of the areas that you will need to focus on for improvement.

Keep a training diary

By keeping a training diary and doing regular progress checks, you should be able to clearly see if you are going to achieve your goal by the time of the PAT. Consult an appropriately qualified fitness professional if you don't feel that your training program is having the desired effect. They may be able to suggest alternative strategies to get you back on track.

Taper your training before the PAT

It is strongly suggested that you taper your program at least one week before the actual test date. If you continue heavy training, your body will not have adequate time to recover and you will come to the PAT unable to perform at your best.

Training for cardiovascular fitness

Level 9 Shuttle 6 is your goal

Cardiovascular fitness refers to the ability of your heart, blood and blood vessels to get oxygen to the working muscles, and is commonly referred to as your $VO_2\text{max}$. Extensive international research supports a $VO_2\text{max}$ of 45 ml/kg/min as a minimum entry standard for recruit firefighters. This will be assessed in the PAT using the Multi-Stage Shuttle Run (Beep Test) where you will be required to successfully complete Level 9 Shuttle 6 of the test. It is strongly recommended that you obtain a copy of the Beep Test so that you are very familiar with what will be required of you on the day. If you are unable to obtain a copy, you can test your progress using other fitness tests. For example, the Shuttle Run standard of Level 9 Shuttle 6 is roughly equivalent to being able to run a distance of 2.4 km in a time less than 11 minutes (2.4 Kilometre Run Test; modified from Cooper 1978). For information on other fitness tests, consult an appropriately qualified fitness professional.

Exercise using large muscle groups

The best way to increase your cardiovascular fitness is by performing activities that use the large muscle groups of your body, require performance at moderate to high intensity (not a maximal effort), and can be extended over a period of time. Using the principle of specificity outlined in the previous section, the nature of the Beep Test would indicate that running activities are probably the most appropriate form of training that you could do. For some people too much running can cause injury, so some other weight supported activities such as cycling, rowing, and swimming may be beneficial.

Train at a moderate intensity

A good measure of an appropriate training intensity is the 'talk test'; you should be able to talk (but not hold a full conversation) whilst exercising, without gasping trying to get the words out. If you train harder than this, you are likely to fatigue prematurely and not be able to keep the activity going long enough to get the desired adaptation. For information on more accurate methods of determining training intensity, consult an appropriately qualified fitness professional.

Progressively increase the work load

Your current fitness level and training history will determine how long and how often you should train. Progressive overload (see previous section) is the key! In the initial stages of cardiovascular training you should concentrate on maintaining the training intensity but increasing the training time. If you are unable to do continuous exercise, intermittent bouts may be more appropriate for you (eg. ten minutes followed by a short rest). Over time, your fitness will gradually increase until you can sustain continuous exercise. Be sure to include rest days in your program so that your body has time to recover. Too much, too soon can end up being worse for your performance than not doing enough!

Training for strength and endurance

Ensure your safety and performance on the job

A good level of muscular strength and endurance is very important to ensure a firefighter's safety and performance on the job. This type of fitness refers to the ability of your musculoskeletal system to generate and sustain muscular force. The level of strength and endurance required is largely determined by the equipment used and work practices. Due to the nature of the emergency situation, it may require more effort than you may have experienced in other jobs. Your functional strength and endurance will be assessed in the PAT using the Ladder Climb, Ladder Raise and Lower, Chain Cutting, Hose Reel Drag, Hose Drag Hold, Tower Climb and Container Haul, and Firefighter Rescue.

Focus on PAT-specific resistance training

Specificity in training would indicate that the best way to improve strength and endurance for the PAT, is to actually do the specific tasks of the PAT replicating as closely as possible the test conditions (eg. lifting a ladder whilst wearing a weighted vest). For some people, access to such equipment is limited and/or attempting the tasks in the early stages of training may be beyond their capacity. It is in this situation that some other form of resistance training is required. This may include resistance from machine weights, free weights or even using resistance of your body weight against gravity.

Ask for advice from your fitness professional

A safe and effective resistance training program requires a certain level of knowledge, particularly with regard to correct technique. It is strongly suggested that you seek advice from an appropriately qualified fitness professional before you start. This will ensure that the resistance program you are doing is correct and appropriate for your training level and that your program is designed to achieve what you are setting out to achieve (ie. to successfully complete the PAT).

Periodise your training

As with any goal-oriented activity, you will need to start at a level you can manage and progress your program with the aim of being able to perform at your best at the required time. Planning for this process is called 'Training Periodization' which, in its most basic form, includes General Preparation, Specific Preparation, Pre-Test and Test Phases (see Figure 1). For PAT-specific strength development you should include the following sub-phases:

- Basic Strength
- Maximum Strength
- Conversion
- Maintenance

Figure 1: Periodization for PAT Strength

General Preparation	Specific Preparation		Pre-Test	Test
Basic Strength	Maximum Strength	Conversion: - Power - Endurance	Maintenance	

Now PAT

Note well: these phases represent a progression. Latter phases should not be attempted without having adequately completed the previous training phase/s.

Basic Strength

Lay the foundations

The aim of this phase is to lay the physiological/anatomical foundations in preparation for the more difficult program to follow. This is a very important phase, particularly if you have had little experience with resistance training (the less previous training you have had, the longer you should spend in this phase). The following are some common questions about basic strength training:

Use body, machine or free-weights?

This will largely depend on the facilities that you have access to, but any type will be of benefit in this Phase. Beginners may wish to use machine weights for safety; however a combination of all of the above is suggested.

What load?

Low to medium load (30-60% of maximum) is best in this phase. For each exercise you should be able to do 10-12 repetitions comfortably. If you can only do a few repetitions, then the weight is too heavy.

Is technique important?

Correct technique is far more important than how much weight you can exercise against. If you use incorrect technique, you may not be training the muscles that you thought you were and you run the risk of causing yourself injury. Neither are desirable outcomes! If you don't know what the correct technique is, then ask. It will help your technique if you perform the exercises in front of a mirror, so that you can closely monitor what you are doing.

What muscle groups?

In the basic strength sub-phase, you should be concentrating on most muscle groups of the body. These can be broadly categorised as chest, back, shoulders, arms, legs and abdominals.

Basic Strength (cont'd)

What exercises? Circuit training is ideal in this phase, particularly for beginners. The following pages contain a suggested circuit program of exercises for the chest, back, shoulders, legs and abdominals. They are all compound exercises (more than one joint involved) and therefore each activity exercises multiple muscle groups. It should be noted these are just some of the many possible variations in resistance training exercises for each muscle group. Those people with previous resistance training experience may wish to include other exercises. For beginners it is suggested that you do the circuit through once with adequate rest (2-3 minutes) between exercises. When your strength increases you should consider doing additional circuits.

Train with a partner? You don't have to train with a partner; however there are a number of benefits in doing so. Most obvious, is the safety factor of having someone watch what you are doing. They can provide feedback on your technique and are able to 'spot' you (take the weight) if the load gets too heavy. Not as obvious, yet as important, is their contribution to your motivation. Your partner can help you push the load that little bit further than you could do by yourself, and if you know you are training with someone else, you are less likely to make up excuses not to train.

Train every day? Every time you exercise, your muscles break down to a certain extent (eg. decrease in substrates; increase in metabolites; micro-tears of muscle; etc), therefore you need to give your body time to recover and adapt. Particularly in the early phases of your program, it is likely that you will feel muscle soreness and discomfort for a couple of days after the session, so you should give your muscles this time to recuperate. Beginners may choose to do their resistance training on Monday, Wednesday and Friday and use the other days for cardiovascular training only. More experienced people may train everyday, but use a split routine whereby they train some muscle groups on one day and then train different muscle groups on the next.

Is pain normal? General muscle soreness and mild discomfort are common (as discussed above) in resistance training, however pain is your body telling you that something is wrong. Listen to your body!!! If you feel pain, stop what you are doing immediately and consult your doctor.

Example: Basic Components of a Strength Circuit

General Safety Considerations for Strength Training

- Make sure that your core muscles are always activated. Do this by drawing your lower abdominal muscles in towards your spine before beginning any exercise, and make sure they remain this way throughout the exercise.
- Always keep back in a neutral position (with natural arch only).
- Ensure that your shoulders are always in a relaxed position- meaning that they are not elevated or rounded.
- With any exercises in the standing position, your feet should be shoulder width apart to create a stable base of support. You should keep your knees slightly bent, so that all of the pressure isn't going straight through your joints.
- When completing resistance training, never lock your joints. This places all the pressure through your joints, and also gives your muscles a rest.
- Control when lifting is essential. Using momentum and swinging the weight through its range will not give the muscle the appropriate stimulus and it is dangerous and can lead to injury. Such practices put unwanted strain on both joints and muscles.

1. Bench Press

Muscle Groups: *Chest and arms*

Set up the bench so that when you pick up the bar, the supports are slightly below the level of your outstretched arm (allowing you to easily place the bar back.)

- Lie flat with your feet up on the bench.
- Adopt a grip slightly wider than shoulder width apart on the bar.
- Inhale and lower the bar to just above the chest then exhale when pressing the bar back up to the starting position.
- Repeat exercise for 10-12 repetitions.



(Doing the same on an incline bench will target the upper chest, whilst decline will target the lower chest).

Example: Basic Components of a Strength Circuit (cont'd)

2. Seated Row

Muscle Groups: *Back and arms*

- Sit with your heels against the support, knees slightly bent and sitting up straight (you can lean back from your hips but keep your back straight).
- Grip the bar, exhale and pull bar toward your abdomen keeping the elbows close to the body. Imagine you are squeezing your shoulder blades together.
- Slowly release weight to starting position.
- Your back should remain straight throughout the entire movement. Do not take the weight too far forward that you have to arch your back.
- Repeat exercise for 10-12 repetitions.



3. Barbell Shoulder Press

Muscle Groups: *Shoulders and arms*

- In a standing position place a barbell across your shoulders.
- Your feet should be shoulder width apart with one foot in front of the other to aid stability.
- Press the bar towards the ceiling as you exhale.
- Lower the bar to the start position, inhaling as you bring it down.
- Repeat the exercise for 10-12 repetitions.



4. Dumbbell Lunge

Muscle Groups: *Legs*

- Standing with feet shoulder width apart, step forward with your right leg. The step should be large enough so that when you take your left (back) knee towards the ground, your right (front) knee should not go in front of your toes.
- Keep torso upright and back straight throughout movement. To do this, make sure that you hold your stomach tight, by drawing your navel towards your spine.
- Bend your left (back) leg so that your knee is approx 5cm above the floor, and then push up again (note: you should not actually lunge forward, your back leg should just move straight down).
- Make sure you keep your hips level (ie. don't drop one hip).
- Repeat the exercise for 10-12 repetitions.
- Repeat exercise, stepping forward with your left leg.



Example: Basic Components of a Strength Circuit (cont'd)

5. Abdominal Crunch

Muscle Groups: *Abdominals*

- Lie on the floor with your knees bent and feet on the floor
- Hands can be by your side, across your chest or behind your head (as long as you don't pull your head forward).
- Slowly curl your shoulders up off the ground. The pivot point should be just below your ribs.
- Slowly lower yourself back to the floor.
- Continue until fatigued.
- You can progress this exercise to completing crunches on a Swiss Ball.



6. Dumbbell Flye

Muscle Groups: *Chest and arms*

- Lie flat with your feet up on the bench.
- Start with the dumbbells at arms length above the chest with a slight bend at the elbow (keep the same angle at your elbows throughout the exercise).
- Lower the dumbbells downward and outward towards the ground inhaling as you go. Stop lowering dumbbells at, or just above chest height. Exhale as you return to the starting position.
- Repeat exercise for 10-12 repetitions.



7. Wide Grip Chin-up

Muscle Groups: *Back and arms*

- Grip a chin up bar overhand and slightly wider than shoulder width apart.
- Slowly lift yourself until your chin is just above the bar.
- Lower your body to the starting position where arms should be extended, but elbows slightly bent for control.
- Ensure to keep shoulders in the relaxed position – not elevated.
- This exercise can also be completed with a narrow underhand grip. This will increase the recruitment of biceps.
- Repeat exercise for 8-10 repetitions.



Note: This is a very difficult exercise for beginners. It is suggested that beginners use an assisted chin-up machine or do the eccentric (downward) phase of the exercise only (ie. using a step/stool to get up and then lower under muscular control).

Example: Basic Components of a Strength Circuit (cont'd)

8. Dumbbell Shoulder Press

Muscle Groups: *Shoulders and arms*

- Sit upright on a bench with a dumbbell in each hand resting at shoulder level. The shaft of the dumbbells should be pointing sideways (to progress exercise, do in a standing position).
- Press dumbbells up so that arms are extended overhead.
- Make sure that you do not increase the arch of your back when doing this exercise.
- Slowly return to starting position.
- Repeat the exercise for 10-12 repetitions.



9. Squat

Muscle Groups: *Legs and back*

- Place a barbell across your shoulders standing upright and looking forward.
- Stand with feet shoulder width apart and toes slightly pointed out.
- Keep back straight (do not arch lower back), and hold your stomach tight by drawing your navel towards your spine.
- Slowly bend knees and hips as if you were going to sit down on a bench, until they are at a maximum depth of 90°.
- Ensure your knees don't move to be in front of your toes and that they follow the outside of your feet (i.e. don't move inwards).
- Slowly return to a standing position.
- Keep movement slow and controlled at all times.
- Repeat exercise for 10-12 repetitions.



Note: If you feel uncomfortable squatting to 90°, or your technique becomes poor (eg. You're not able to keep your back straight), then you should only squat within your comfort range.

Maximum Strength

Foundation for power

The basic strength phase gives you the foundation to work your muscles at a much higher intensity, whilst the aim of the maximum strength phase is to push that strength to your maximum potential. Since power is a product of speed and maximum strength, you cannot develop maximum power without having first developed your maximum strength. The following are common questions asked about the maximum strength phase:

Use body, machine or free weights?

For the development of maximum **functional** strength, it is strongly suggested that you predominantly use free weight compound exercises. Free weights require your muscles to provide stabilisation of the weight, whereas machine weights will have a limited range of motion and are stabilised for you. It is also very difficult for machine weights to mimic the body position and muscular coordination that you are likely to experience when attempting functional activities. It is for these reasons of specificity of training that free weights are the preferred option at this stage.

What muscle groups?

If you followed the suggested circuit routine in the basic strength phase you will have noticed that you exercised each muscle group through once (chest→back→shoulders→legs→abs) before you had to exercise them again. This was to ensure that the intensity of exercise (and associated fatigue) was not too great in the beginning of your program. In the maximum strength phase you will need to work a little harder, so it is suggested that you include 2-3 different exercises for each of the above muscle groups. Each exercise should have multiple sets (2-3 sets suggested) completed in succession allowing for plenty of rest in between each set.

What load?

In this phase the intensity of the exercise should be very high (70-100% of maximum). For each set you should be aiming to do 8-12 repetitions to failure (ie. your load should be such that you can do no more than about 12 repetitions before you fail). If you have chosen the correct load, you will be able to do fewer repetitions in subsequent sets.

Increase the load?

The following example demonstrates a simple way of judging when to increase the load: in the first set of a bench press you find you can do 12 repetitions to failure. After a few minutes rest you attempt the second set and find that you can only do 10 repetitions, and similarly in the third set you can only manage 8 repetitions (12/10/8). With strength adaptation over time, you find that you can lift 12/10/10 and eventually you can manage 3 sets of 12 (12/12/12). When you can reach this stage, then it is time to increase the load, but reduce your repetitions.

Maximum Strength (cont'd)

Is technique important?

Correct technique is always important, but more so in this phase due to the intensity of work. In this phase it is also extremely important that you train with a partner so that they can monitor your technique and 'spot' you in case of difficulty.

What exercises?

As mentioned in the previous section on basic strength, there are many and varied exercises that you can do for each major muscle group. It has been suggested that compound exercises (multiple joint) are the most appropriate, particularly those that closely mimic functional activities of the body. Your particular program will need to be developed based on your specific requirements, with particular focus on your weaknesses and in consideration of your training timetable and the available facilities. It is strongly suggested that you discuss your particular program with an appropriately qualified fitness professional. The following is provided as an example program only:

Example Maximum Strength Program

Day 1 & 4	Chest, Back and Abdominals		
Day 2 & 5	Legs/Whole Body, Shoulders and Abdominals		
Day 3, 6 & 7	Resistance training rest		
Muscle Group	Exercise	Sets	Reps/Set
Chest	Bench Press	2-3	8-12
	Dumbbell Flye	2-3	8-12
	Inclined Bench Press	2-3	8-12
Back	Seated Cable Row	2-3	8-12
	Dumbbell Row (Single Arm)	2-3	8-12
	Lat Pull-Down	2-3	8-12
Abdominals	Crunch	2-3	8-12
	Diagonal Crunch	2-3	8-12
	Hover	1	To fatigue
Legs/ Whole Body	Squat	2-3	8-12
	Lunge	2-3	8-12
	Leg Press	2-3	8-12
Shoulders	Standing dumbbell shoulder press	2-3	8-12
	Barbell Upright Row	2-3	8-12
	Dumbbell Lateral Raise	2-3	8-12

Conversion

PAT-specific power and endurance

The aim of the Conversion Phase is to convert the maximum strength gains to PAT-specific power and endurance. Close attention has to be paid to the dominant abilities required during the component tasks of the PAT, so that your training time can be divided appropriately.

Most of the tasks have both power and endurance components. In the initial stages of the conversion phase it is strongly suggested that you train each component in isolation so that you achieve maximum gains (eg. endurance training will adversely affect your ability to produce maximum power).

The following pages break down tasks of the PAT that have power and endurance components and identify specific exercises to train each of these components. It should be noted that these example exercises, are just a few of the many available. The choice of exercises that you should use in this phase of your program must be based on your particular needs. If you do not have extensive resistance training experience (power training in particular), it is imperative that you seek advice from an appropriately qualified fitness professional.

POWER AND ENDURANCE REQUIREMENTS OF THE TASK	EXAMPLE OF POWER AND ENDURANCE EXERCISES
Ladder raise and lower	
<p><i>Power</i></p> <ul style="list-style-type: none"> - Whole body power lift of ladder from ground to chest height and a power press from your chest to straight arm position above head. - Power drive of legs and shoulder strength to under-run ladder <p><i>Endurance</i></p> <ul style="list-style-type: none"> - Maintain straight arm position holding ladder above head 	<ul style="list-style-type: none"> - Squats - Upright row - Shoulder press - Lunges or Bench Step ups - Shoulder press with dumbbells - Shoulder press with dumbbells (high repetition) - Military Press (hold in press phase; isometric contraction)
Chain Cutting	
<p><i>Power</i></p> <ul style="list-style-type: none"> - Upper body power to cut through chain. 	<ul style="list-style-type: none"> - Dumbbell Flyes - Triceps push downs
Hose Reel Drag	
<p><i>Power</i></p> <ul style="list-style-type: none"> - Lower body power to drag hose in forward direction. <p><i>Endurance</i></p> <ul style="list-style-type: none"> - Lower body endurance to drag hose in forward direction - Upper body endurance to pull in 10m of hose. 	<ul style="list-style-type: none"> - Squats - Lunges (walking forward lunges) - Lunges (high repetitions) - Seated row or one arm dumbbell row - Bent over row
Hose Drag and Hold	
<p><i>Power</i></p> <ul style="list-style-type: none"> - Lower body endurance to drag hose in forward direction <p><i>Endurance</i></p> <ul style="list-style-type: none"> - Upper body endurance to hold hose at targets for 30 second intervals. - Lower body endurance to maintain stance. 	<ul style="list-style-type: none"> - Squats - Lunges (walking forward lunges) - Isometric hold with light weight in front of body - Squats or lunges (high repetitions)

Tower Climb and Container Haul	
<p><i>Power</i></p> <ul style="list-style-type: none"> - Lower body power to climb stairs wearing BA and carrying High Rise Pack (12kgs) - Upper body power to haul drum at speed (10kgs) <p><i>Endurance</i></p> <ul style="list-style-type: none"> - Lower body endurance to climb stairs wearing BA and carrying High Rise Pack (12kgs) - Upper body endurance to haul drum (10kgs) 	<ul style="list-style-type: none"> - Box step ups (holding weight) - Upright row - Hammer curls - Box step ups (high repetitions) - Lunges (high repetitions) - Upright row (high repetitions) - Hammer curls
Tower Climb and Visual Recognition	
<p><i>Power</i></p> <ul style="list-style-type: none"> - Lower body power to climb stairs wearing BA and carrying High Rise Pack (12kgs) <p><i>Endurance</i></p> <ul style="list-style-type: none"> - Lower body endurance to climb stairs wearing BA and carrying High Rise Pack (12kgs) 	<ul style="list-style-type: none"> - Box step ups (holding weight) - Box step ups (high repetitions) - Running to build aerobic capacity (could include stairs or hills to increase the intensity of your run)
Firefighter Rescue	
<p><i>Power</i></p> <ul style="list-style-type: none"> - Whole body power to lift Dummy off ground. <p><i>Endurance</i></p> <ul style="list-style-type: none"> - Lower body endurance to continue to drag dummy - Upper body endurance to hold dummy 	<ul style="list-style-type: none"> - Squat (deep) - Upright row - Reverse lunges (high repetitions) - Isometric holds (weight in front of body with biceps/forearms, flexed elbows) - Bench press (high repetition)

Power training involves exercises performed at near maximal intensity (explosive speed with heavy load). The load should be such that you are not able to perform more than 6 repetitions before failure. Rest periods should be extended so that you are near full recovery between sets. Due to the nature of the exercises, training with a partner is essential.

Endurance training involves exercises performed with relatively light loads at high repetition. Where the endurance is required in a static action (eg. holding the hose during the hose hold), then endurance training should include extended isometric contractions.

Maintenance

Focus on technical performance

The objective of a maintenance phase is to maintain all strength gains and to focus on the technical performance aspects of the task at hand. In this case the focus will be on the specific tasks of the PAT.

It is strongly suggested that you get access to equipment the same as or similar to that used in the PAT, so that your training is as specific as possible. Alternatively, you can improvise using other resources available to you.

It is suggested that you sometimes utilise over-training to supplement the technical preparation of this phase. This can be achieved by attempting the task using equipment that presents a greater load than that experienced in the PAT (eg. using a heavier dummy or drum; dragging the dummy extra distance). You should beware not to make the load too great that it significantly changes the technique involved or causes a significant increase in the risk of injury.

At regular intervals you should check your progress by completing the PAT in its entirety. People may find that they are able to complete a task in isolation, but the cumulative fatigue of completing tasks in succession may be too great.

Good luck with your program!