



**NORTH YORKSHIRE  
FIRE & RESCUE SERVICE**

## **North Yorkshire Fire and Rescue service Physical Employment Standards.**

Firefighting is a strenuous occupation that involves a wide variety of tasks that are both physically and mentally arduous. It is essential that firefighters maintain their physical health and fitness to meet the demands of the job and perform tasks optimally. Cardiorespiratory fitness, muscular strength and endurance, and body composition are major determinants of Firefighter performance. Consequently, an appropriate level of physical fitness is a key element in ensuring Firefighter effectiveness and in protecting their health and safety.

At North Yorkshire Fire & Rescue Service we use the national framework to assess all potential firefighters. There are currently six tests that make up the National Firefighter Physical Tests. These are; Equipment Carry, Ladder Lift, Ladder Climb, Casualty Evacuation, Enclosed Space – Breathing Apparatus Crawl, and the Equipment Assembly. Aerobic capacity ( $VO_{2max}$ ) is also assessed using the Chester step test.

### **The Chester Step**

To meet the national requirements set out by the NFCC and government guidance we use the 12inch step height. The 12inch step is used across all ages, body types and genders within the UK Fire and Rescue service as a standardised measure in line with operational demands. The step test increases in intensity over five, two minute levels intended to increase an individual's exertion levels until reaching 80% of their heart rate max. Heart rates from each level are used to calculate and predict  $VO_{2max}$ . Studies comparing firefighting tasks in both laboratory and gym environments have been used to predict and establish the cardiorespiratory minimal operational value of maximal oxygen consumption ( $VO_{2max}$ )  **$42.3ml/kg/min^{-1}$**  that is required to perform the most arduous tasks a firefighter may be required to carry out (e.g. Compartment fires).



## Training For The: **Chester Step Test**

	Set 1	Set 2	Set 3	Set 4	Set 5	Set 6	Set 7
<b>Step Ups</b>	<b>x30</b>	<b>x40</b>	<b>x50</b>	<b>x60</b>	<b>x50</b>	<b>x40</b>	<b>x30</b>
Sit Ups	x10						
Press Ups	x10						

This 'Pyramid Styled' exercise programme will improve performance during the Chester Step Test. Specifically it aims to increase aerobic fitness and establish an elevated tolerance for the prolonged execution of a stepping motion.

To complete the programme you are required to perform the three exercises for the stated amount of repetitions without stopping between each to rest. Exercisers should try to attempt all 7 sets of this programme in a sequential order from left to right, without stopping to recover at the end of each set (*x30/x10/x10/x40/x10/x10....and so on*).

### Exercise Guidance

Step Ups	Perform these as fast as you can. Watch your footing every time you step up. Try changing your lead leg half way through each set to work each leg equally. To develop this exercise and increase the exercise demand hold a dumbbell in each hand with your arms crossed and one hand on each shoulder.
Sit Ups	Your feet must remain in contact with the floor at all times, <b>DO NOT</b> wedge them underneath something to achieve this. Try to perform a full repetition each time, by touching your upper back and shoulders on the floor at the bottom of the rep and crunch forward as high as you can at the top of the rep.
Press Ups	Ideally, press-ups will be performed in the traditional way with your weight spread between your toes and hands. However, if you are unable to do so, adopt a kneeling position. Should you choose to perform this alternative kneeling version, your hips must remain in a straight line from your adapted point of contact with the floor ( <i>the knees</i> ) all the way through to your shoulders, <b>DO NOT</b> bend the hip and stick your bum out.

Day	WEEK					
	1	2	3	4	5	6
1	30 Minute run at 60-70% of HR Max	30 Minute run at 60-70% of HR Max	35 Minute run at 60-70% of HR Max	35 Minute run at 60-70% of HR Max	40 Minute run at 60-70% of HR Max	40 Minute run at 60-70% of HR Max
2	5 x sprints 70-80% HR max	6 x sprints 70-80% HR max. At 2% incline	5 x sprints 80-90% HR max. At 2% incline	4 x sprints above 90% HR max.	5 x sprints above 90% HR max. At 2% incline	5 x sprints above 90% HR max. At 2% incline
3	5 x sprints 70-80% HR max	6 x sprints 70-80% HR max. At 2% incline	7 x sprints 70-80% HR max. At 2% incline	6 x sprints 80-90% HR max. At 2% incline	6 x sprints 80-90% HR max. At 2% incline	8 x sprints 70-80% HR max. At 4% incline
4	5 x sprints 70-80% HR max	7 x sprints 70-80% HR max. At 2% incline	5 x sprints 90-90% HR max. At 2% incline	8 x sprints 70-80% HR max. At 4% incline	6 x sprints 80-90% HR max. At 2% incline	8 x sprints 70-80% HR max. At 6% incline
5	30 Minute run at 60-70% of HR Max	30 Minute run at 60-70% of HR Max	6 x sprints 70-80% HR max. At 2% incline	6 x sprints 70-80% HR max. At 4% incline	5 x sprints above 90% HR max. At 2% incline	8 x sprints 70-80% HR max. At 6% incline
	HR Max = bpm (220 – Age) >90% = - bpm 80-90% = - bpm 70-80% = - bpm 60-70% = - bpm 60% = bpm					

# The Ladder Lift

The ladder lift is a test of both your ability to lift heavy equipment over head height and to follow clear instructions. The test simulates the physical demands expected of a firefighter to lift a 13.5 metre ladder to a position high enough to return it back on to the roof of a fire appliance.

This test requires you to lift a total load of 30kg up to 1.82 metres high. This test will be carried out on a purpose built simulation frame.

**Key Physical Demands:** Upper Body Muscular Strength and Core Stability.



Training For The: <b>Ladder Lift</b>			
Exercise	Reps	Sets	Demonstration
Upright Row - Barbell	x3-5	x4-5	
Shoulder Press - Barbell	x3-5	x4-5	
Close Grip Shoulder Press - Dumbbell	x20	x2	

			 <p>To complete this exercises swap the pictured barbell for a single dumbbell. Holding it with your hands over both ends.</p>
Lateral Raise	x20	x2	

## The Equipment Carry

The equipment carry is a test of both your ability to withstand the physical demands of carrying items of fire service equipment and to follow clear instructions. This test simulates some of the items of equipment you may be expected to deploy during a fire service incident.

This test requires you to walk/jog/run back and forth along a 25 metre shuttle route for a total of 550 metres

**Key Physical Demands:** Aerobic Fitness and Lower Body Muscular Endurance.



Training For The: <b>Equipment Carry</b>				
Exercise	Reps	Sets	Demonstration	
Deadlifts	x3-5	x4-5		

			
Farmers Walk – Dumbbell <i>(Over a 10m Course)</i>	x3 Out & Back  30m Total	x2-5	
Sandbag or Weighted Backpack Shuttle Running <i>(Over a 10m Course)</i>	x3 Out & Back  30m Total	x2-5	Load up a Backpack with around 5-10kg of resistance. Wearing the Backpack, run the prescribed amount of shuttles.

## The Casualty Evacuation

The casualty evacuation is a test of both your ability to drag a simulated average weight casualty over a reasonable distance and to follow clear instructions. This test requires you to drag a 50kg casualty around a pre laid 30metre course. You must walk backwards at all times in order to pass the assessment.

**Key Physical Demands:** Lower Body Muscular Strength and Core Stability.



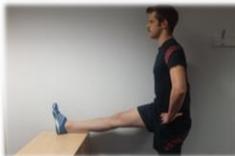
Training For The: <b>Equipment Carry</b>			
Exercise	Reps	Sets	Demonstration
Deadlifts	x3-5	x4-5	
<b>Resisted Drag</b> (Prowler or Powerbag)	100m	X 5	

## The Ladder Climb

The ladder climb is a test of both your ability to work comfortably at height and to follow clear instructions. This test requires you to ascend a pre-deployed ladder to approximately 10 metres high, and then perform a leg lock at an identified marker. Following this you are required to identify a coloured object at ground level and inform the instructor of the object and its colour. Finally you will descend the ladder to ground level.

**Key Physical Demands:** Lower Body Flexibility and Mobility.

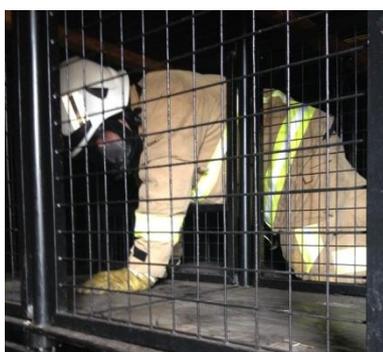


Training For The: <b>Equipment Carry</b>			
Exercise	Reps	Sets	Demonstration
Deadlifts	x3-5	x4-5	
Farmers Walk – Dumbbell <i>(Over a 10m Course)</i>	x3 Out & Back  30m Total	x2-5	
Piriformis Stretch	30- 45secs	X 4	
Standing Hamstring Stretch	30- 45secs	X4	

Whilst logical thinking and good physical awareness are advantageous, the remaining two tests do not overly challenge the physical ability/capacity of most applicants. Therefore, no specific physical training preparation is necessary. These tests are:

## Enclosed Space - Breathing Apparatus

The breathing apparatus crawl is a test of both your ability to cope with dark/confined spaces and to follow clear instructions. The test requires you to navigate through a purpose built simulation frame, whilst wearing a breathing apparatus face mask. You will work within a relatively confined space with limited visibility. The instructor(s) will talk through the required techniques of which you will be assessed against. You will then be given an opportunity to ask any questions prior to undertaking the assessment. The instructor(s) will remain in proximity throughout the exercise. Full Personal Protective Equipment (PPE) will be worn throughout the exercise. This assessment has a maximum time allowed for completion.



## Equipment Assembly

The equipment assembly is a test of your manual dexterity. This test requires you to assemble and disassemble an item of fire service equipment.

The instructor(s) will demonstrate the required techniques of which you will be assessed against. You will then be given an opportunity to ask any question's prior to undertaking the assessment.

Full Personal Protective Equipment (PPE) will be worn throughout the exercise.



**Remember to maintain your general fitness training as well as incorporating these specific exercises to prepare for individual elements of the NFST. These exercises' should be used within a specific training, to enable the best results possible.**

**Good luck at your Physical Selection Day**