



Service Instruction
Firefighter Health and Fitness

“An Excellent Authority”

Document Control

Description and Purpose

To outline the Service standards expected regarding operational fitness

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Principal officers		Senior officers		Non uniformed				

Introduction

Merseyside Fire and Rescue Service is committed to the development and maintenance of a fit and healthy workforce that is able to meet the requirements placed on the Service when undertaking its functions and the operational and physical demands placed on its firefighters in the pursuance of their duties.

This Service Instruction emphasises the importance the Service places on physical fitness and an employee's ability to carry out their role within a risk critical and at times highly demanding environment.

The level of physical fitness (the fitness standard) required across the Service will be the same for all uniformed employees where there is the potential for those employees to undertake firefighting duties.

The safety of our employees is paramount and the aim of this Instruction is to discharge effectively the Duty of Care placed on the Authority under the Health and Safety at Work Act 1974, Section 2.

This instruction provides a framework by which the Authority will discharge its responsibilities in order to ensure its employees, maintain adequate fitness levels throughout their career.

Non-operational employees will be offered the same health support as the Service Operational staff to ensure that they are fit and healthy for their role.

The Importance of Fitness

Merseyside Fire and Rescue Authority (MFRA) are committed to the development of a healthy workforce that is able to meet the exigencies of the service and the operational and physical demands placed on its firefighters throughout their career.

In order to discharge this duty of care the Service has adopted an aerobic capacity standard of 42 VO₂max as its Fitness Standard. Adoption of this standard reflects national guidance and is the equivalent to achieving a Shuttle Run Level 8-6. This standard has been recommended by the Chief Fire Officers Association (CFOA) – Fire fit steering group.

In addition to the Fitness Standard, the Service have introduced weight and body mass standards and guidance that aims to ensure the health and wellbeing of firefighting employees and seeks to ensure the health and safety of the employee, their colleagues and the community.

All operational employees are required to maintain a minimum level of fitness to ensure they are capable of meeting the physically demanding requirements of their role.

Individuals are responsible under the Health and Safety at Work Act 1974, Section 8, for maintaining the appropriate fitness level. MFRA will assist them by providing Physical Training equipment, appropriate training, advice and support. This meets the requirements of the

Management of Health and Safety regulations (1999), Section 5. The Service will take the following measures to assist all employees in achieving, maintaining and improving their level of physical fitness.

- Provide a safe environment for training in compliance with the Workplace (Health, Safety and Welfare) Regulations 1992.
- Purchase and provide physical training equipment for employees in accordance with the Provision and Use of Work Equipment Regulations (1998).
- Provision of a Service Health and Fitness Advisor who will be responsible for coordinating the monitoring arrangements and managing the assessment programme. Also for the provision of advice and guidance on any health, fitness and wellbeing issues required, and appropriate to the role.
- Provision of appropriately trained Fitness Advisers to advise operational employees in group and individual exercise and advise operational and non-operational employees on fitness training issues.
- Facilitate fitness training periods within the work routine for Wholetime Duty System operational employees.
- Undertake compulsory annual fitness assessments for all operational employees and voluntary assessment for non-operational employees and control staff.
- All operational employees will complete the assessment by 31st March each year and must achieve at least 42 ml/O₂/kg/min VO₂ max.
- Provide advice on all aspects of wellbeing, health and fitness in conjunction with the Occupational Health Team, especially where rehabilitation is required following illness or injury.

We can define physical fitness as the ability to carry out the tasks of a role in a competent way without undue fatigue or risk to health. The degree of physical fitness required across the Authority will be the same for all uniformed firefighting employees where there is the potential for those employees to undertake firefighting duties.

The Fitness Standard

The Service has adopted is an aerobic capacity standard of 42 VO₂max as its Fitness Standard. Adoption of this standard reflects national guidance and is the equivalent to achieving a Shuttle Run Level 8-6.

Employees who attain a level between 35 and 41 VO₂max will be regarded as not reaching the approved fitness standard; however employees attaining this level of fitness will remain on operational duties whilst they are supported to reach the necessary standard.

Those employees attaining levels of VO2max between 35 and 41 VO2max will be required to undertake a fitness programme to achieve a standard of 42, as they will be classified as having a fitness level that 'needs improvement'.

Those employees below 35 VO2max will be considered as 'failing' the fitness assessment. The Service require that all firefighters achieve the fitness standard that is 42 VO2max and above.

Any firefighter who fails to achieve an aerobic fitness level of at least 35 VO2Max will be removed from operational firefighting duties for health and safety reasons immediately.

The 35 VO2max level relates to Multi-Stage Shuttle Run Level 6-6.

Those employees who fail to reach the required standard will be required to undertake an intensive fitness programme to achieve a standard of 42, as they will be classified as having a fitness level that 'needs significant improvement'.

The Fitness Standard will apply to all operational staff.

There will be a 6 month amnesty period for employees who have failed to achieve a fitness level of 35 VO2max or above, starting from the live date of this Service Instruction.

In addition to the Fitness Standard, the Service will introduce weight and body mass standards in order to ensure the health and wellbeing of firefighting employees their colleagues and the community.

QRISK2 Assessment and Fitness for Duty

The Occupational Health team will undertake a range of health assessment tests to produce a QRISK2 percentage for firefighters to ensure they are not only fit enough but also healthy enough to undertake the physically demanding work entailed in fire and rescue operations when they are called upon to do so.

The Occupational Health team will measure weight, Body Mass Index, percentage body fat, waist circumference and hip-waist ratio. Obesity adversely affects tolerance, mobility and general health.

These measures will be considered 'High' by the Occupational Health Medical Team where:

1. Body Mass Index ≥ 30
2. Percentage Body Fat for Male Firefighters $\geq 28\%$, and for Female Firefighters $\geq 30\%$
3. Firefighters Hip Waist Ratio is greater than >0.95 for male firefighters and is >0.80 for female firefighters)
4. Waist Measurement for male fighters of 36" and above and for female firefighters of 34" and above

Any firefighter presenting with a Body Mass Index of 40 or above will be removed from operational firefighting duties and placed on other duties for health and safety reasons immediately by the Occupational Health Doctor.

A Firefighter who presents with a weight of over 125 kg (19st 10lbs) will have restrictions placed on them in relation to rescue operations utilizing rope access for safety reasons.

There is evidence of an increased risk of cardiovascular disease for those employees classified as obese or morbidly obese. For this reason the Service will undertake the use of **QRISK2** to measure the cardiovascular risk of all employees; however firefighting employees who attain a score of over 20% or more will be placed on a fitness and health improvement programme until they lower their risk of a cardiac event. The QRISK2 assessment has replaced in General Practice the NICE adjusted Framingham score and the QRISK1 and has proven a more effective predictor of cardiac risk.

Firefighters who are assessed as having excess measurements according to the above indicators will be referred to see the Health and Fitness Advisor who will assign a Service Physical Training Advisor for Functional and Fitness tests. A referred Firefighter will be required to see the Health and Fitness Advisor who will work with the Service PTA's on a fitness and health training programme for the Firefighter.

The Functional and Fitness assessments that the Firefighters will be required to complete will include:

1. A sub-maximal test of aerobic fitness i.e. the Chester Treadmill Walk Test
2. Firefighter Fit for Duty Tests (as advised by the Occupational Health Doctor),
3. The Enclosed Space Test,

If they fail the functional assessments and/or fail to attain an aerobic fitness level of at least 35 VO2Max they will be taken off operational firefighting, the latter in accordance with the Service Fitness Standard above. Those employees attaining 35 to 41 VO2Max will be required to undertake a fitness and health improvement programme to achieve a standard of 42, as they will be classified as having a fitness level that 'needs improvement'

Those employees referred to the Health and Fitness Advisor / Service Occupational Health team will attend for regular Occupational Health reviews at intervals to be determined on an individual assessment basis, which will provide referrals as appropriate to assist these employees. They will attend assessments with the Health and Fitness Advisor / Service PTA at intervals as the Advisor considers appropriate to the individuals need to improve their fitness.

Employees who fail to achieve a pass level in the functional assessments and the fitness test, and fail to attain levels acceptable to the Service in their Weight and Body Mass measures, indicated above; within a defined time limited period will be considered as unfit to perform the duties of a regular firefighter. In these cases the Occupational Health Medical Team will be required to advise the Service if there are any medical reasons for their inability to improve their performance.

If the Firefighter passes all the required functional tests the Health and Fitness Advisor / Service PTA will work with them to get their measurements on the above indicators in a range acceptable to the Service.

Assessment of Fitness

Fitness testing for operational personnel is included in the routine health screening check. All uniformed employees will undertake 12 monthly fitness testing.

In addition to the 12 monthly fitness testing, full health screening (2012 Asbestos Regulations) will be undertaken every two years commencing in 2013. The Service Health and Fitness Advisor will assist the Occupational Health Nurses in the conduct of the Fitness Tests as required.

Occupational health will inform employees of dates and times of fitness tests along with instructions with regard to clothing and instructions about exercising/eating before the test.

Where a firefighter achieves a standard of less than 35 VO₂max at their fitness assessment the Occupational Health Nurses will advise the Service that the firefighter is unfit for operational duty.

Where following the fitness assessment a firefighter is in the 'needs improvement' category (a fitness level of between 35-41 VO₂max) the Occupational Health Nurses shall arrange for a review and advice for the firefighter with either themselves or the Health and Fitness Advisor, subject to availability, to improve their fitness and health. This Occupational Health review will be conducted at the earliest opportunity.

The Occupational Health Nurses shall assess a firefighter prior to them undertaking a fitness test and if they consider it appropriate ask them to complete a PAR-Q Form prior to the fitness assessment. Any employee deemed unfit to participate in the fitness assessment based on the information declared on their PAR-Q Form will be referred to the Occupational Health team for a medical review.

Firefighters who fail the Fitness Testing, by achieving an aerobic fitness score of below 35 VO₂max, with the occupational health nurses, using the Chester Step Test, will be removed from operational firefighting duties and referred to the Service Health and Fitness Advisor. The firefighter shall be retested by the Health and Fitness Advisor / Service PTA's using the Chester Treadmill Walk Test. If this test result also produces a failure the firefighter will be referred to Liverpool John Moores University for a Gas Analysis Test.

If the firefighter passes the Gas Analysis test, with an aerobic fitness score of 35 VO₂max or over, they will be returned to operational firefighting duty.

All firefighters who produce an aerobic fitness score of below 42 VO₂max will be placed on a Fitness Improvement Programme that will be monitored and supported by the Service Health and Fitness Advisor and the PTA's.

Method of Testing and Recording

Twelve Monthly Fitness Assessments

The Service will commence by undertaking assessments at 12 monthly intervals.

Fitness Testing

The main methods of fitness assessments to be undertaken by employees will include.

Chester Step Test

The Chester Step Test will be used by the Occupational Health Nurses for the annual fitness checks. It is a sub maximal test which means that it allows participants to work at around 80% of maximum heart rate in a safe and controlled environment. Heart rate is monitored throughout the test by the use of a heart rate monitor to ensure that cardiac stress remains within acceptable limits.

The measure used is VO₂ max. It is a measure of ventilated oxygen measured in milliliters per kg body weight per minute. The Service expects firefighters to achieve the recommended aerobic capacity standard of 42 VO₂max.

Chester Treadmill Walk Test

The Chester Treadmill Walk Test provides an alternative method of predicting aerobic capacity from performance on an incremental bout of exercise, walking at 6.2 km/hr (3.9 mph) on a treadmill. Subjects able to complete the full 12-minute test protocol will have achieved the recommended fitness standard. The test has been designed specifically to identify individuals capable of reaching the fitness standard of 42 VO₂max.

Firefighters who achieve a time of 9 minutes 36 seconds on this Test will be considered fit to continue operational firefighting duties but will be required to undertake a fitness and health improvement programme, through the Service Physical Training Advisers / Health and Fitness Advisor, in order to attain the required standard. Firefighters who fail to reach 9 minutes 36 seconds will be considered as failing this test and will be unfit for operational duty and the Service will act as indicated above to provide them with fitness and health support to achieve a return to full operational duties.

This test may be used for those firefighters who the Occupational Health Team advise have musculo-skeletal problems, often knee problems, as a less impactful test. This Test will also be used for firefighters referred to the Service Health and Fitness Advisor, supported by the Service PTA's, for reason of their Weight and Body Mass.

As with the Multi Stage Shuttle Run Test, for some individuals, this will be a maximum test and care should be taken by the tester to ensure that if the firefighter is unable to keep up with the work rate and becomes overly distressed, the test should be stopped and the firefighter should be allowed to cool down.

Energy cost (VO₂max) of treadmill walking at 6.2 km/hr (3.9 mph) at different gradients.

Time (minutes)	2	4	6	8	10	12
Treadmill Gradient (%)	0	3	6	9	12	15
VO ₂ (VO ₂ max)	14	19	25	31	36	42

Multi Stage Shuttle Run

The Multi stage shuttle run method of fitness assessment can be used on Station when undertaking fitness training. The Service aim is to move towards six monthly fitness testing and in such circumstances it may be considered appropriate to utilise the multi stage shuttle run as the mode of testing.

If the shuttle run is being used on a Station for fitness training all participants must confirm that they had read and signed the PAR-Q Form before undertaking the fitness training.

The shuttle run has the potential to be maximal for some, and as such checking on an employee's health should be performed before undertaking the training.

The recommended aerobic capacity standard of 42 VO₂max requires the participant to achieve Shuttle Run Level 8-6. A Shuttle Run Level of 6-6 is equivalent to 35 Vo₂max.

Gas Analysis

The measurement of aerobic fitness by gas analysis is considered the 'gold standard' in the assessment of cardiorespiratory fitness. This direct measurement requires the subject to wear a mask covering the mouth and nose connected, via a low resistance breathing valve to a gas analyser.

The Service will utilise the services of Liverpool John Moores University Sports Science Department for this gas analysis testing for those employees who fail to achieve the fitness standard using the tests detailed above. These firefighters will be tested initially when they fail the standard and will be retested at intervals as considered appropriate according to their progress through their personal Fitness Improvement Programme.

Failure to reach the required fitness standards

Fitness is a key component of an employee's capability, and in line with the capability procedure, the Service Medical team will inform the Service of any employee who is unfit for operational duties as soon as is practicable. This will usually be at the Fitness Assessment/Health Screening, or appointment, when they have not achieved the standards detailed in above.

The Occupational Health Doctor or Nurse will further advise the Service that they have excluded medical issues as a cause for the employee's lack of aerobic fitness. It is anticipated that this will be the norm. If there are medical reasons for the failure to reach the required standards then these will be taken into account when considering improvement programmes.

The Occupational Health Doctor or Nurse will make it clear when personnel are on fitness review, the date the review commenced and what their VO2 levels and other measures are that require improvement at the beginning and end of the informal review.

The following procedure will be followed for all uniformed firefighting employees.

Removal from Operational Duty

On receipt of advice from Occupational Health that a firefighter has failed to achieve the aerobic fitness requirement the Service will remove a firefighter from operational duty.

Occupational Health will advise the Service that they will be required to organise a Stage 1 capability meeting with the individual, their Watch Manager and their Station Manager. This meeting will be arranged as soon as possible after notification of the individual's lack of operational fitness, but will not prevent the individual commencing Other Duties prior to this meeting.

The meeting will confirm that the individual is operationally unfit, the reason(s) why the employee is being removed from operational duties, the improvement required to facilitate a return to operational duties and outline the support the Service will offer to the employee. The individual will be allocated to a department and area of work appropriate to the needs of the Service and the medical advice received.

The individual will be allocated to duties of a nature to improve fitness levels and a review period, based on medical advice set. Unless there are exceptional reasons, the review period will be in line with the capability Improvement Plan timescales. An agreed Personal Training/Weight Management plan will be set between the firefighter and the Service Health and Fitness Advisor, supported by the Service PTA's, and Occupational Health Team.

The individual will be advised as part of the Stage 1 capability procedure that they must be operationally fit for firefighting duty and it is their responsibility to actively participate in and undertake such measures required to achieve and maintain their fitness and health.

The employee will receive written notification of the content of the meeting via an Improvement Notice and details of the consequences of not achieving operational fitness.

The Review Period

During the review period the employee will be expected to take responsibility for and take any steps required to regain fitness.

In addition to the Improvement Plan further advice on exercise and lifestyle issues can be obtained on request from Occupational Health - Nursing staff; the Service Health and Fitness Advisor; or from Service PTA's.

All stations and the Training and Development Academy have gyms, which individuals are encouraged to use, and given time during the working day to use. If any individual is unsure of how to use the equipment they should contact their Watch Manager, who should refer them to the Service Health and Fitness Advisor for appropriate guidance.

Return to Operational Duty

At the end of the review period the employee will have a formal occupational health and fitness review. Return to operational duties will occur following advice from the Service Occupational Health Doctor, that the firefighter has achieved at least a fitness level of 35 VO₂max and they have achieved a level in the health measures compatible with firefighting. They will then be required to continue to improve their fitness to the 42 VO₂max fitness standard.

If the employee is still not operationally fit, they will remain on non-operational duties and a Stage 2 formal Capability meeting will be organised. The employee may be accompanied at the meeting by a colleague or trade union representative.

This meeting will explore any problems regarding attaining fitness, agree a further period to improve by and review and monitoring period (based on medical advice and reasonable expectations in line with the Capability procedure. It will outline the consequences of not attaining fitness at the end of this period. The Service will have regular, at least monthly, reviews with the individual during this period, and shall have a formal review at the end of the monitoring period to ensure the fitness is sustained.

The meeting will confirm that the employee is still operationally unfit, the improvement required to facilitate a return to operational duties and outline the support the Service will continue offer to the employee. The employee will be allocated to a department and area of work appropriate to medical advice received.

The employee will be allocated to duties of a nature to improve fitness levels and a review period, based on medical advice set. A further agreed Personal Training/Weight Management fitness plan will be set between the firefighter and the Service Health and Fitness Advisor, supported by the Service PTI's, and Occupational Health Services.

If no improvement is maintained or achieved the employee is be referred to Professional Standards for a review of their case and a stage 3 third and final Capability meeting may be convened in line with the Capability Service Instruction.

Fitness Training

Pre Participation Physical Activity Checklist

Before carrying out fitness training sessions the Service will ensure that all employees have read the Pre Participation Physical Activity Checklist and have signed the Pre Participation Physical Activity Form, see [Appendix A](#).

Employees will sign a pre participation form to ensure they are fit to undertake fitness training. Following the signing of a Pre Participation Form for Station fitness training the firefighter must advise the Service if there are changes relating to their health and wellbeing, such as if they have a surgical procedure on their knee etc.

If a health/medical issue is identified at any point then the firefighter will be referred to the Occupational Health team for a medical review.

Physical Fitness Training

Physical fitness training time forms part of the Service's Station Work Routines. Firefighters and officers working on a fire station will be allocated an hour per shift for physical fitness training. The timing of the hour in the shift will be dictated by the Station Work Routines.

Firefighting staff should note that the Service are providing this physical fitness training time to benefit the health, safety and welfare of all individuals and in accordance with the safe person principles.

Fitness Training Information

The Service shall provide information on fitness training circuits and programmes for firefighters that will accommodate the training needs for staff with varying levels of fitness and experience in the use of gym equipment. These programmes are supported by national information that is available on the CFOA FireFit Steering Group website. The information will be available on Learn Pro and the Service Portal. Those employees who are on an Improvement Plan will be given bespoke guidance and assistance.

Gym Equipment

The Estates Team along with the Health and Fitness Advisor are responsible for the provision of Gym equipment and in conjunction with the Service PTA's have agreed a standard set of equipment that the Service shall seek to provide at all locations where a gym is provided for the use of Service employees.

The core items of gym equipment are:

Cardio-vascular training equipment-

Treadmill with 0-15% incline;
Static bike;
Concept 2 indoor rower;
Multi Stage Shuttle Run CD and CD player
Heart Rate Monitor Watches

Resistance Training Equipment-

Olympic bar and plates 100kg;
Bench press – Bench and rack;
Squat Rack;
Set of fixed dumbbells and stand (10-25 kg)
Set of fixed barbells and stand (10-40 kg)

Ancillary Equipment-

Pull up bar;

Stability (Swiss) Ball

Medicine Balls (various weights 5-10 kg)

Kettle Bells from 4kg – 16kg

Battle rope 50 mm diameter 15m length

Durable Floor Mats

Health and Safety Responsibilities

The Authority acknowledges its duty of care to all employees engaged in Service work activities, including fitness and exercise activities at work. The Service is committed to ensuring that suitable and appropriate equipment is supplied to each department to allow personnel to carry out fitness training.

The following practices should apply in order to promote safety;

- All firefighters must ensure that before using any Service Gym they have had a Gym Induction and have signed a Gym Induction Form. This should be undertaken for each new location where the firefighter is working but will only need to be done once at each location.
- All designated area utilised for fitness training or assessment must have a suitable and sufficient risk assessment. The PTA / Watch Manager must check this risk assessment is adhered to.
- All participants in fitness training and assessment must complete a PAR-Q Form before undertaking fitness training and assessment. This will only be required to be repeated if the firefighter's health has changed from when they completed their original form.
- Personnel have a duty to ensure that the areas where fitness training is carried out are kept clean and tidy;
- Personnel are required to ensure the equipment is fit for use (clean and mechanically sound) prior to undertaking any training.
- Any faults to equipment should be reported immediately.
- A First Aid kit and Defibrillators should be available for all training sessions and readily accessible, with the Defibrillators being held in Station Gyms; and
- Injuries should be recorded, with a note of the action taken in relation to each injury. Entries must be made in the Health and Safety system (OSHENS).

Appendix A



FITNESS TRAINING/ASSESSMENT **Pre Participation Physical Activity Checklist**

• Below is a checklist which will help ensure there is no reason to exclude you from participating in regular exercise / physical activity. Please consider the list below each time you are about to embark on exercise / physical activity.

Do you currently have any of the following?

- Chest pain or chest tightness at rest or with physical activity Yes No
- Episodes of dizziness or loss of consciousness Yes No
- Periods of un-explained shortness of breath/breathlessness Yes No
- Bone, joint or muscle condition which may be made worse by a change in your physical activity Yes No
- Newly diagnosed (past 4 weeks) high blood pressure or new medication for existing high blood pressure in past 4 weeks Yes No
- Any symptoms which you feel may make it difficult for you to participate in training

In the event of any of the above being applicable to you, you are requested to advise your Line Manager (Watch/Crew Manager) and they will make appropriate arrangements to seek further advice from the Service Physical Training Advisers and Occupational Health Team prior to you embarking on or continuing with exercise or physical activity.

I have answered the above questions accurately to the best of my knowledge. I accept responsibility for any harm resulting from my failing to declare any relevant medical/fitness information. In signing this Form you are confirming that there are no reasons to exclude you from participating in the Station physical training sessions, Station 'Warm Ups' and Operational Training and Occupational Health Services Fitness Assessments. If your health/medical status negatively changes you must advise your Line Manager (Watch/Crew Manager) at your earliest opportunity.

Print Name:

Date:

Signed (email signature)

Occupational Health Services. E: occupationalhealthservices@merseyfire.gov.uk