Working at Heights Medical Fitness Criteria

Medical Principal

The medical fitness requirement in this document applies to anyone whose duties require them to work at heights. Working at height is defined as where there is a risk of a fall liable to cause personal injury. Where the risk of a fall cannot be eliminated by equipment for working at height e.g. guardrails, platforms, rope access or other measures to minimise the distance and consequences of a fall should one occur.

Definition of job roles & Associated Medical Fitness Criteria

Riggers

» Trained to climb and rescue
» Rescue duties will involve double lanyard – no carrying or lifting of individuals
» Climbing – no maximum height
» Will always work in pairs
» Installing and replacing equipment – dishes, antennas etc
» Most strenuous job role

Climbing & Rescue

» Rescue duties will involve double lanyard - no carrying or lifting individuals
» Rooftop work – access buildings via loft hatch, stairs, lifts, fixed and free standing ladders or cherry picker.
» Will work on various height buildings e.g. house, block of flats, hotels etc.
» Engineering work
» Climbing - no maximum height
» Will always work in pairs

Rooftop Worker (full access)

» Not trained to climb or rescue
» Rooftop work – access buildings via loft hatch, stairs, lifts, fixed and free standing ladders or cherry picker.
» Will work on various height buildings e.g. house, block of flats, hotels etc.
» Engineering work
» Climbing - no maximum height
» If climbing over 5 metres will work in pairs
Working at Heights Medical Fitness Criteria

Rooftop Workers (no ladders)

» Not trained to climb or rescue
» Rooftop work – access buildings via loft hatch, stairs, lifts, or cherry picker.
» Will work on various height buildings e.g. house, block of flats, hotels etc.
» Engineering work
» No climbing

Meeting the medical fitness levels in this document indicates that at the time of the medical the individual is medically fit to perform the relevant job role e.g. climbing & rescue duties. It shall not be assumed that the person concerned is fit if a condition has changed and the individual has not informed both employer and medical provider.

Medical assessments to meet the fitness levels of this document shall be carried out by a qualified Nurse, reviewed by a qualified Occupational Health Advisor and under the supervision of an Occupational Health Physician.

Where an individual does not meet all of the medical fitness levels set out in this document a decision will be made regarding their suitability to work at height by taking the following steps:

» The medical provider will take into consideration all aspects of duties and medical history;
» A job description and/or a risk assessment must be provided in order that fitness for work can be properly assessed by medical staff.

Frequency of Medical Assessment

Medical assessment is to be undertaken prior to any individual embarking on working at heights and annually thereafter unless medically indicated.

If clinically indicated, such as in those persons with chronic but no disqualifying conditions, the competent assessor may consider issuing a medical certificate for a shorter period of validity and recommend increasing the frequency of periodic assessments.

Where there is doubt about an individual’s ongoing medical fitness for working at heights a further assessment may be arranged.

Certification of Medical Assessment

Confirmation of the outcome of the fitness level will be by certification from the medical provider. Individuals will be found fit if the fitness level can be met, or at the discretion of the Occupational Health Physician, having taken into account the risk assessment a restricted medical certificate may be issued.

Referral

Should the individual initially fail to meet the medical fitness level a suspension from working at heights may be necessary until further medical documentation is obtained by the Occupational Health Nurse in the first instance.

Where the Occupational Health Nurse is unable to establish that the individual meets the medical fitness level the case will be referred for review to an Occupational Health Physician.
Working at Heights Medical Fitness Criteria

The individual will be temporarily removed from working at height duties pending the results of the Occupational Health Physician’s review.

Upon an individual meeting the medical fitness level, the provider will issue a Pass certificate.

If the individual cannot meet the medical fitness level set out in this document, a Fail certificate or a certificate indicating the fitness level they can achieve will be issued by the medical provider.

**Continued Medical Assessment**

It is the responsibility of the employer to ensure (for audit purposes) that all employees hold a valid medical certificate.

It is the responsibility of the individual to ensure they hold a valid medical certificate at all times.

Individuals or employers will be required to arrange for the medical assessment to be undertaken prior to the expiry date as stated on the medical certificate.

If an individual has reason to believe that their fitness for working at heights may be impaired they must inform the person responsible for safety in their workplace. If there is any doubt as to a person’s fitness the individual should not resume or continue working at height until medical advice has been sought.

Whenever a significant change in health or working practice occurs with potential to compromise an employee’s ability to carry tasks safely, advice should be sought from a medical provider in order to determine whether a further health assessment is appropriate. This may be particularly important when taking medication or following an accident, injury or period of absence attributed to sickness and is applicable to both physical and mental health problems.

**Medical Assessment Parameters**

**Overview**

As a minimum the following areas shall be examined:

1. General health
2. Vision
3. Hearing
4. Physical stamina and strength
5. Body Mass
6. General balance and flexibility
7. Neurological disorders including epilepsy

The examiner will pay special attention to the following:

1. Diabetes
2. Sleep disorders
3. Cardiovascular system / Cardio respiratory fitness
4. Medication
Working at Heights Medical Fitness Criteria

General Health

The modern industrial environment requires that to work at height safely, competently and productively, those engaged in such work have an appropriate attitude, aptitude, physical capability and training.

Candidates should be physically fit and free from any disability that may prevent them from working safely. They should ensure that they have an adequate level of fitness, are physically able to perform the tasks expected of them in terms of strength, agility and co-ordination and are able to withstand the stresses of the work environment.

Where fitness is in question candidates will be assessed on an individual basis, taking into account any relevant medical information (Obtained via a Health Questionnaire completed prior to the physical assessment).

Consideration will be given to making reasonable adjustments for those with disabilities.

Personnel may not be permitted to work at heights if they are suffering from any of the following medical conditions:

- vertigo
- acrophobia
- impaired limb function
- alcohol or drug dependence

Persons will not be permitted to work at height, climb or use work equipment e.g. rope access if they are suffering from medical conditions or undergoing any medical treatment likely to cause:

- impairment of awareness or concentration
- fits or blackouts
- sudden incapacity or loss of consciousness
- visual or hearing impairment of a temporary or transient nature
- giddiness or impairment of balance or co-ordination
- Limitation of mobility

Individuals suffering from and/or are being treated for any of the following must undergo additional medical assessment and may be asked to produce relevant medical documentation:

- high blood pressure
- heart disease/ chest pain
- respiratory disease
- diabetes
- epilepsy
- psychiatric illness/ counselling
Blood Pressure

Using the electronic or manual Blood Pressure monitor, take the individual's blood pressure and pulse rate. You must take into consideration the surroundings and situation the individual is in. For example, they may be suffering from "white coat syndrome".

Three blood pressure readings must be taken for each individual and recorded on the questionnaire. These should be staggered during the medical appointment to give the individual the best possible chance to relax.

The following procedures are to be adhered to when the individual's blood pressure has been taken three times and using their lowest reading still shows they have raised blood pressure (greater than 140 mmHg Systolic or 90 mmHg diastolic) at their medical assessment:

<table>
<thead>
<tr>
<th>Reading</th>
<th>Nurse action with the individual</th>
</tr>
</thead>
<tbody>
<tr>
<td>180 mmHg systolic or less and 100 mmHg diastolic or less</td>
<td>Request individual to visit their GP or Practice Nurse for further investigation. AHCC to temporarily refer individual until satisfactory correspondence received</td>
</tr>
<tr>
<td>Higher than 180 mmHg systolic or 100 mmHg diastolic or higher</td>
<td>Request individual to visit their GP or Practice Nurse for further investigation. AHCC to refer individual.</td>
</tr>
</tbody>
</table>

Protein & Glucose

In order to detect glucose or protein in the individual's urine sample, you will be provided with Combi-2 dipsticks. Please check the expiry date of the dipsticks before you conduct this test. If the individual is undergoing a drug & alcohol urine collection you can use the remainder of the urine in the collection pot to test for glucose and protein.

If a urine collection is not requested for the purpose of a drug & alcohol screen a urine sample is still to be provided (not under chain of custody) and tested solely for glucose and protein. The remaining urine sample should then be hygienically discarded, by flushing any remainder urine down the toilet, rinsing out the cup and throwing away the sample pot. Do not leave sample pots at a client's premises.

The following procedure is to be adhered to when an individual presents with more than a trace of Protein in their urine at their medical assessment, in the absence of any other clinical abnormality:

<table>
<thead>
<tr>
<th>Reading</th>
<th>Nurse action with individual</th>
<th>Nurse action with AHCC</th>
</tr>
</thead>
<tbody>
<tr>
<td>More than trace</td>
<td>Request individual to visit their GP or Practice Nurse for further investigation</td>
<td>Note the reading in the space provided.</td>
</tr>
</tbody>
</table>

If the protein level is abnormally high please note the reading on the questionnaire and ask the individual to visit their GP or Practice Nurse immediately.
Working at Heights Medical Fitness Criteria

The following procedures are to be adhered to when an individual presents with glucose in their urine at their medical, if they are not previously known to be diabetic:

<table>
<thead>
<tr>
<th>Reading</th>
<th>Nurse action with individual</th>
<th>Nurse action with AHCC</th>
</tr>
</thead>
<tbody>
<tr>
<td>1+ or under</td>
<td>Request individual makes appointment with GP or Practice Nurse. If underlying illness found notify their manager.</td>
<td>Mark paperwork with the reading in the space provided.</td>
</tr>
<tr>
<td>++ or higher (and otherwise asymptomatic)</td>
<td>Request individual makes appointment with GP or Practice Nurse. If underlying illness found notify their manager.</td>
<td>Mark paperwork with the reading in the space provided.</td>
</tr>
<tr>
<td>++ or higher (and presents symptoms or signs that would effect ability to main safety)</td>
<td>Request individual makes appointment with GP or Practice Nurse. If underlying illness found notify their manager.</td>
<td>Mark paperwork with the reading in the space provided.</td>
</tr>
</tbody>
</table>

**Vision**

Any eye disease or visual defect rendering, or likely to render, the individual incapable of carrying out their task efficiently and safely, is unacceptable.

The Visual acuity test will be carried out, initially without glasses or contact lenses, then with corrective eyewear.

Visual acuity should be 6/9 with both eyes open. Spectacles or contact lenses are permitted. Unaided visual acuity should be 6/9 in the better eye and 6/12 in the worse eye. Peripheral fields should be normal to confrontation.

Monocular individuals should be individually assessed after taking into account a specific risk assessment relating to their work and a pass may be issued subject to restrictions.

**Near Vision**

Using the near vision chart individuals should be able to achieve N8 with or without the use of glasses or contact lenses.

**Colour Vision Test**

You will use the set of 24 Ishihara Colour plates provided to test for defective colour vision.

If 17 or more of the 24 plates are read normally, the colour vision is regarded as normal.

If 13 plates or fewer are read, the colour vision can be regarded as abnormal.

If 14, 15 or 16 plates are read correctly or where there is reason for uncertainty as to whether the colour vision is normal advise should be sought from the Senior Occupational Health Nurse/Physician or please carry out the test again by a window using natural light as office lighting can affect a reading.
Working at Heights Medical Fitness Criteria

Note: not all the cards are numbers; some may be patterns that need to be traced using your finger or some may be blank.

Please ensure you have read the booklet enclosed with the plates prior to performing the first colour vision test using the 24 plates.

Hearing

Hearing should be adequate to hear instructions or warning signals during normal working conditions outdoors. Subjects should be capable of using telephone or radio communication.

No pathological condition likely to cause unpredictable fluctuation in hearing levels should be present.

Hearing aid(s) may be worn to improve hearing.

Whisper Test - A simple clinical test of hearing such as the ability to hear spoken conversation without lip-reading will be recorded. The Donor is then asked to stand at the far end of the room, back to the medical assessor. Closing each ear by pressing the lobe to their ear canal, the assessor will whisper 3 numbers and the donor is required to repeat the numbers. This is repeated with the other ear.

Some assessors may prefer to use an audiometric method to assess hearing handicap but this is not mandatory. Audiometry may be performed in association with a hearing conservation programme, which is outside the scope of this standard.

Where there is doubt about the individuals hearing ability a practical test may be performed in the working environment and the results documented in the medical record.

Equipment

No equipment needed

Physical Stamina and Strength

Individuals should be physically fit and able to cope with a full working day, and be free from any disability that may prevent them from working safely and efficiently.

To ensure a minimum level of fitness individuals will be required to undergo a suitable test of aerobic capacity, for example The Chester Step Test.

It is important that all at height workers have adequate strength and stamina particularly in the upper body muscle groups. Grip strength will be assessed.

The fitness tests will be required for all medical assessments and renewals. Cardiovascular risk factors will be assessed prior to carrying out fitness testing. Individuals will also be assessed in practical terms at the time of training or revalidation.

Grip Strength Test

Equipment - No equipment needed

The individual will be asked to grip the medical assessor’s index and middle finger as tight as possible. Each hand will be tested separately. Assessor will record strength of grip.
Step Test

Equipment needed – Chester Step, Heart rate monitor, Audio CD, Graphical data sheet

The Chester Step Test (CST) is designed to measure aerobic capacity, giving a good indication of Cardio Respiratory Fitness.

This test is used for both climbers and roof top workers due to the nature of the work. Even though roof top work is not as physical as climbing and rescue duties it can involve climbing ladders which to some people can be quite exhaustive.

The step is no higher than 30cm and requires the candidate to manage their body weight in a controlled way. The test is progressive, starting with a very slow step rate of 15 steps per minute, which increases gradually every 2 minutes. The test is sub maximal and finishes when the candidate’s heart rate reaches 80% of its maximum, or their perceived exertion, self rated, as moderately hard. The maximum length of time is 10 minutes for the whole test at which stage the candidate would be stepping at a rate of 35 steps per minute.

Obviously the heart rate is monitored throughout and if the examiner has any concerns then the test will be stopped.

Blood pressure and medical history are checked before the test begins and if blood pressure is too high e.g. 180/100 the test will not be performed without a note from the GP stating the candidate is fit to perform the physical exercise. Also a note is required from a GP for certain other medical conditions. If unsure then please discuss with your GP and bring a note to say you are medically okay to perform the test.

Testing fitness in candidates taking Beta Blocker drugs

Beta blockers will decrease the oxygen requirements of the heart muscle both at rest and in exercise. This enables a candidate receiving beta blocker drugs to exercise at an increased intensity and for a longer duration before achieving the same heart rate and blood pressure responses. This poses a problem when performing the Chester Step Test when heart rate response to a sub maximal workout is being used as criterion for predicting aerobic capacity.

The results are extremely difficult to interpret and as a general rule, such tests cannot give valid results. Whilst there are adjustments that can be made to the scores, the results are extremely difficult to interpret and as a rule such tests cannot give valid aerobic capacity results therefore the Chester Step Test should not be conducted. If this scenario is presented to you please clearly mark the medical questionnaire.

Operating the Heart Rate Monitor

To set or adjust the Time of Day:

1. Press and hold SET/TIME, ‘HOLD SET TIME’ shows on the display, one word at a time, and continue holding SET/TIME until the current time appears with the Hours flashing.
2. Press ON/OFF to advance the digits. Hold ON/OFF to rapidly advance the digits
3. Press SET/TIME to continue to set the following (in order): MINUTES; 12-HOUR (AM/PM) OR 24-HOUR (Military FORMAT; MONTH; DAY; DATE FORMAT (Month/Date-MM-DD, or Date/Month- DD-MM).
4. Press and hold SET/TIME to save changes and exit Time Set
NOTE: If you fail to press a button for three (3) minutes, the changes made will be saved and the watch will automatically exit **Time Set**

### How to use the Heart Rate Monitor

1. **Wet the chest sensor pads:** Moisture must be applied to the sensor pads before using the Heart Rate Monitor.

2. **Put the chest sensor on:** Fasten the sensor snugly around the chest against the skin. Be sure the sensor is centred on the chest and is right side up so the ‘Timex’ logo can be read.

3. **Start the Heart Rate Monitor:** With the chest sensor on and snug, press the top-mounted pusher (ON/OFF) located on the top of the wrist monitor. The display will switch from the time display, ‘---’ will appear and a heart will fill and flash to indicate that the wrist monitor is receiving heart rate data. The heart rate will appear once a good, consistent signal has been received from the chest transmitter sensor. The Activity Timer indicator will also flash to show that the elapsed time is being tracked in the background.

4. **End of exercise:** Press and hold ‘ON/OFF’, and the text ‘HOLD FOR INFO’ will appear on the display one word at a time. The following data will appear automatically on the wrist monitor display.
   - Total Activity Time
   - Average Heart Rate for the exercise session
   - Peak Heart Rate for your exercise session

### Administering the Chester Step Test

1. Ensure that there are no medical contraindications to performing the test, the Rating of Perceived Exertion chart is visible and the candidate has completed some gentle limbering and stretching movements to warm up.

2. Enter the candidate’s name and age on the graphical data sheet, then calculate their maximum heart rate (220 – age) and 80% Max Heart Rate. Enter these values on the top of the data sheet and draw 2 horizontal lines on the graph to illustrate these values.

3. Fit the heart rate monitor.

4. Inform the candidate briefly what they will be required to do. Demonstrating the stepping technique (initially a rate of 15 steps/min). Emphasise that the whole foot should be firmly placed on the step and the leg should be fully straightened when stepping up. Inform the candidate that they may change the lead leg if they so wish, at the beginning of a new stepping rate. Explain that the first stepping rate is very slow and controlled and they should attempt to keep to the correct rhythm throughout the test as the tempo increases.

5. It is important to maintain a steady step pace. You may use the beat CD or a metronome to assist the individual with their pace. Turn on the CD and ask the candidate to listen to the instructions and then to commence stepping at the appropriate time and step rate. Give further encouragement to keep in time with the stepping rhythm.

6. After the first 2 minutes of stepping level 1, you need to check the heart rate of and perceived exertion. Please ensure that you keep a regular check on the heart rate.
Working at Heights Medical Fitness Criteria

throughout the test and that you record a mean stable value over the last few seconds of each level. This will help eliminate any erroneous fluctuations that might occasionally and unexpectedly occur. The candidate should then indicate their exertion level as a number from the RPE chart provided. Record the heart rate and rating of RPE on the data sheet.

7. Providing the heart rate is below 80% Max HR and the RPE is below 14 the candidate should continue stepping at Level II - a slightly faster rate.
8. Record the heart rate and RPE at the end of Level II.
9. Providing the heart rate and RPE is below 80% Max HR and the RPE is below 14, ask the candidate to continue stepping at Level III – a slightly faster rate.
10. Continue the test in this manner until either the target heart rate of 80% Max HR is reached or the participant reports an RPE of more than 14
11. Ensure that the candidate cools down with some gentle limbering and stretching exercises.

NOTE: If at any time during the test, the candidate shows signs of over tiredness or dizziness please stop the test and allow the candidate to recover and cool down.

Validating the data
1. Whilst the aerobic capacity may be predicted from only 2 exercise heart rates (i.e. completing only 2 levels) the accuracy of the test will be improved if the candidates completes a minimum of 3 levels.
2. Prior to plotting the line of best fit on the graphical data sheet
   » exclude heart rate data points if they are less than 50% Max HR
   » exclude heart rate data points if they are greater than 85% Max HR
3. If the pre-test, resting heart rate is above 100 beats/min, the candidate is likely to be anxious and nervous about performing the test. If this is the case you are advised to try and relax the person before conducting the test. You may also find that the HR at Level 1 is also elevated and including this data point does not produce a straight line relationship with data points from later levels. If this is the case it is therefore advisable to omit this first point from your visual line of best fit.

Plotting the aerobic capacity using the graphical data sheet
1. Mark the heart rate value for Levels I, II, III, IV and V for the step height used which in this case is 30cm. Therefore you will plot the heart rate at Level I = 16, Level II = 21, Level III = 27, Level IV = 32 and Level V = 37
2. Plot the heart rates on the graph
3. Use a rule to draw the best visual line through the heart rate points and continue it up to the horizontal Max HR line.
4. Drop a perpendicular down from where the heart rate line crosses the Max HR line and read off the aerobic capacity score in mlsO2/kg/min and enter the score in the appropriate box.
5. Use the normal tables to determine the fitness rating which can be found in a table on the bottom of the graphical data sheet.
Working at Heights Medical Fitness Criteria

**Obesity**

Excess body fat may affect an individual's fitness to work at height. Those individuals in whom exercise tolerance, mobility or general health are adversely affected are unacceptable. Obesity should be judged clinically to ensure it is not such as to limit mobility or otherwise increase risks to safety. Individuals should not exceed a body mass index of 33.

**NOTE:** The maximum weight a safety harness will hold is 22 stones, 308 pounds or 140 kg.

Whilst there are exceptions to the rule, maintaining general fitness levels and having the strength to lift one's own body weight becomes more difficult with increased body weight. Where the stipulated weight cannot be met, climbing may still be undertaken subject to passing the appropriate assessment.

**Equipment needed**

Height stick for measurement; scales and Body Mass Index chart

Height and weight is taken and both measurements are cross checked against BMI chart and the BMI recorded.

**Peak Flow**

On the graph shown choose the red curved line, which shows what the Peak Flow should be for the sex and height of the individual. Height is given in both inches and centimetres.

Imagine a straight line vertically from your age at the bottom of the chart. Where your vertical line crosses your red curve, imagine a horizontal line. The horizontal line will cross the left axis at the predicted normal figure for your Peak Flow.

**Norms and Recommendations**

Males 600 - 800ml

Females 400 - 600ml
Working at Heights Medical Fitness Criteria

Balance and Flexibility

All individuals require a good sense of balance. This can and will be tested more carefully during aptitude testing as part of the practical assessment.

Any individual declaring a fear of heights (acrophobia, commonly referred to as “vertigo”) will need to be recognised as not suitable for any working at height. This will be indicated on their medical assessment certification.

Heel to toe walking

Ask the individual to walk heel to toe in a straight line across the room. Some may be unable to perform the movement perfectly but inability to walk in a straight line, staggering or falling is abnormal. Establish the reason for any difficulty.
Then ask the individual to balance on their left leg for 10 seconds and then their right leg for 10 seconds and record if they can do this satisfactorily.

Flexibility will be measured by a series of mobility assessments of the neck, lumbar, legs and arms.

**Curling and Stretching of each limb**

**NECK:**
- Turn the neck to the right and left
- Tilt the head/neck backwards
- Put the chin to the chest
- Put the ear on each shoulder - Do not raise the shoulder
- Ask if any stiffness or pain occurred – Look at facial expressions

**LUMBAR:**

**Flex:**
- Ask the candidate to bend forward and see how low they can reach with their fingertips. If they reach their knees that is sufficient.

**Lateral:**
- Ask the candidate to place their hands to their sides and slide them down the side of their legs. Repeat on both left and right. If they reach their knees this is sufficient.

**Rotation:**
- Ask the candidate to twist their upper body to both the right and left. Keep the legs straight.
Working at Heights Medical Fitness Criteria

**LEGS:**

Ask the candidate to squat and sit on their heels then stand to a rising position

Ask the candidate to sit on the floor with their legs straight in front of them. Then ask them to cross their legs and then and then ask them to get to their feet again. Observe how they manage this.

**Abduction:**

Hip movement – Place the right foot on the inside of the left knee and vice versa – Push gently on the knee – See if there is any pain in doing this.

**Flexion:**

Ask the candidate to stand – Ask them to put their foot to their knee (balancing on one leg) – Push gently on the knee – See the reaction.

**ARMS:**

**Abduction:**

Ask the candidate to abduct their right arm in an arc shape towards the ceiling. A full 180 degrees should be possible. Repeat this on the left arm

**Flexion:**

Ask the candidate to place their right hand in the small of their back above their belt and then on the nape of their neck below their collar. Repeat this on the left arm.

Please assess to see if there is any stiffness or pain when any of these stretches are performed. You must ask them after each test and react to their facial expressions.

**Medication**

Fitness to work at heights may be impaired temporarily by the effects of some medicines which can produce drowsiness, ataxia and impaired vision, co-ordination, judgement and reaction times. The hazardous nature of working with at heights makes these medications inadvisable. Operators should seek advice from their family doctor, pharmacist or medical advisor about the potential effects of any medication on their fitness for work and should notify their employer if there is a risk that safe performance might be affected. For example call Alere Healthcare Connections medication help line on 08456 773 001 or via www.chemist-on-call.co.uk.