

 GOVERNMENT OF DUBAI	<b>Organization Unit: Public Health &amp; Safety Department</b>		الوحدة التنظيمية:	 بلدية دبي DUBAI MUNICIPALITY
	<b>Form sheet title:</b>	<b>Guidelines for Rope Access Work</b>	اسم النموذج :	
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## Rope Access Work

**Background:** Most current building exterior cleaning and maintenance activities involve the rope access as method to reach the work area. Proper safety is made up of proper planning, training, operation, maintenance of work equipments procedures and commonsense. All companies/personnel shall obey the rules with regard to operation and maintenance of equipment for rope access work. Dubai Local Order 61/1991 requires that employers provide a safe work area. The following guidelines are compulsory to all employers.

### **Guidelines:**

1. Introduction	2
2. Terms and Definitions	2
3. Choice of access method	
3.1. General requirements for a safe system of work	4
3.1.1. Management and planning	
3.1.1.1. Risk assessment	4
3.1.1.2. Management	4
3.1.1.3. Planning rope access operations	4
3.1.2. Personnel	
3.1.2.1. Competence	5
3.1.2.2. Managers	5
3.1.2.3. Supervisors	6
3.1.2.4. Operatives	6
3.1.2.5. Minimum training required to achieve competence	7
3.1.3. Access equipment	
3.1.3.1. Selection	8
3.1.3.2. Certification, marking, trace ability	8
3.1.3.3. Inspection, care, maintenance, longevity	8
3.1.3.4. Other PPE	8
3.1.4. Control of working methods	9
4. Consideration of working methods	9
5. Types of rope access methods	10
6. Aid climbing and traversing (atria and other interiors)	10
7. Specific requirements for rope access operations	11
8. Use of work equipment	11
9. Rescue	11
10. First aid	11
References:	11

 GOVERNMENT OF DUBAI	<b>Organization Unit: Public Health &amp; Safety Department</b>		الوحدة التنظيمية:	 بلدية دبي DUBAI MUNICIPALITY
	<b>Form sheet title:</b>	<b>Guidelines for Rope Access Work</b>	اسم النموذج :	
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## 1. Introduction:

This guide line gives rope access user's guidance on the use of rope access methods and controlling related risks. The contents should also be noted by clients, specifiers, managers and contractors. It has been produced because rope access is increasingly used in window cleaning and other fixing or maintenance jobs where the work place is inaccessible except via rope access methods and it has become clear that not all rope access businesses fully understand the complexities of using this access method.

Because of the limited range of tasks in window cleaning compared with rope access methods across all industries, less breadth of knowledge is required and only simple rope access skills are generally needed. Nevertheless, full competence in those areas necessary remains crucial, as for all rope access work. This guidance is not intended to apply to the use of bosun's chairs, although some of the information may be relevant (the use of an additional back-up line, for example).

This document provides summary guidance only. Anyone involved with rope access operations should undertake formal training by an internationally recognized body such as IRATA qualification or any other international organization approved and recognized by Dubai Municipality.

## 2. Terms and definitions:

### Anchor; anchorage

Place, fixing or fixture to which an anchor line is connected

### Anchor Device

Assembly of compatible elements, which incorporates one or more anchor points or anchor points or mobile anchor points that is intended for use as part of personal fall protection system, is removable from the structure.

### Anchor point

Point at an anchor where personal fall protection equipment can be attached

### Ascending device

Anchor line device used primarily to assist progression along an anchor line and for positioning the rope access technician on it, which, when attached to an anchor line of appropriate diameter, locks under load in one direction and slips freely in opposite direction.

### Back-up device

Anchor line device for a safety line, which accompanies the user during = during changes of position or allows adjustment of the length of the safety line and which locks automatically to the safety line, or only allows gradual movement along it, when a sudden load occurs.

### Competent person

 GOVERNMENT OF DUBAI	<b>Organization Unit: Public Health &amp; Safety Department</b> الوحدة التنظيمية:		 بلدية دبي DUBAI MUNICIPALITY	
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Designated person suitably trained or qualified by knowledge and practical experience to enable the required task or tasks to be carried out properly.

### Descending device

Manually-operated, friction-inducing line device which, when attached to an anchor line of appropriate type and diameter, allows the user to achieve a controlled descent and a stop with hands off anywhere on the anchor line

### Device lanyard

Lanyard used to provide a link between the user's harness and the anchor line device

### Dynamic rope

Rope specifically designed to absorb energy in a fall by extending in length, thereby minimising the impact force

### Maximum rated load

Maximum mass of one or more persons, including tools and equipment carried, with which a component of a rope access system can be used, as specified by the manufacturer.

### Proof load

Test load applied to verify that an item of equipment doesn't exhibit permanent deformation under the load, at that particular time.

### Safe working load (SWL)

Designated maximum working load of an item of equipment under particular, specified conditions.

### Rope access

Method of using ropes, in combination with other devices, by which a user descends or ascends a working line to get to or from the workplace, and for work positioning, while further protected by a safety line, such that both lines are connected to the user's harness and separately secured to a reliable anchorage in such a way that a fall is prevented or arrested

### Anchor Line

Flexible line connected at least at one end to a reliable anchor to provide a means of support, restraint or other safeguard for a person wearing a harness in combination with other devices

NOTE and anchor line may be a working line or a safety line.

### Working line

Anchor line used primarily for access, egress, work positioning and work restraint.

### Safety line

Anchor line provided as a safeguard to protect against falls if the rope access technician slips or if the primary support anchor or positioning mechanism fails

 GOVERNMENT OF DUBAI	<b>Organization Unit: Public Health &amp; Safety Department</b>		الوحدة التنظيمية:	 بلدية دبي DUBAI MUNICIPALITY
	<b>Form sheet title:</b>	<b>Guidelines for Rope Access Work</b>	اسم النموذج:	
	<b>Doc Ref.</b>	<b>DM-PH&amp;SD-P7-TG07</b>	رقم النموذج:	

### Safety method statement

Document prepared by the employer describing how a particular job should be undertaken to ensure that any risks to the health and safety of the workers are minimised.

### Work positioning

Technique that enables a person to work supported in tension or suspension by personal fall protection equipment in such a way that a fall from height is prevented

### Work restraint

Technique by which the user is prevented from reaching zones where the risk of a fall from a height exists.

## 3. Choice of access method

For any Rope access task, in the first instance an assessment should be made to establish whether rope access is an appropriate method for the work. For all work at height, the most intrinsically safe means of access should always be the first consideration. Other methods of access, such as cleaning from inside, suspended access equipment or mobile platforms, will often be preferable. In general, the most effective control for any hazard is to eliminate it and only if this is not possible should you then look to control risks to an acceptable level.

### 3.1. General requirements for a safe system of work

Rope access must only be used within a defined system of work. Elements of a safe system will include:

- proper management and planning including risk assessment and supervision;
- use of trained, competent persons;
- selection, maintenance and care of appropriate equipment; &
- proper control of working methods, including:
  - use of work equipment,
  - emergency procedures,
  - protection for third parties.

#### 3.1.1. Management and planning

##### 3.1.1.1. Risk assessment

Factors to be considered include the likely duration of the work, the ease of access, the possibility of using an alternative, safer work method (e.g. work platform, work from inside the building) and the presence of any hazards.

##### 3.1.1.2. Management

A nominated person should be identified who is responsible for managing all aspects of rope access work. The nominated person must have experience and/or training in the type of work the company plans to undertake. Similarly, designated

 GOVERNMENT OF DUBAI	<b>Organization Unit: Public Health &amp; Safety Department</b>		الوحدة التنظيمية:	 بلدية دبي DUBAI MUNICIPALITY
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	<b>Doc Ref.</b>	<b>DM-PH&amp;SD-P7-TG07</b>	رقم النموذج :	

supervisors will be required to directly oversee and direct work in progress on all jobs.

### **3.1.1.3. Planning rope access operations**

A system of work should be drawn up, taking account of risks from rope access operations generally and job-specific risks that are present and can be foreseen. The safe system should specify rescue arrangements, selection of correct equipment, selection of people with the necessary level of competence and arrangements for control and communication.

### **3.1.2. Personnel**

#### **3.1.2.1. Competence**

A competent person may be defined as someone who is suitably trained or qualified and has acquired knowledge and practical experience to enable them to:

- carry out their required duties at the level of responsibility required of them;
- fully understand any potential hazards related to the work under consideration;
- detect any technical defects or omissions in that work, recognise any implications for health and safety, and be able to specify appropriate remedial action as necessary.

In other words, a competent person should be able not only to discover defects but tell what effect they are likely to have. Safety in rope access work critically depends on high levels of competence in all staff. Levels of responsibility for those involved in rope access work.

For rope access operations, levels of responsibility are usually defined as:

- rope access manager: can define and operate a safe system applicable to all worksites;
- supervisor: can implement a safe working system for a particular worksite;
- operative: can carry out specific work tasks under supervision.

#### **3.1.2.2. Managers**

It is desirable for managers to have practical experience of various work methods. Necessary management skills will include knowing how to:

- create and operate a general system for management of rope access operations, to include as an absolute minimum the requirements set out in this guide line;
- understand and recognise risks arising from different work situations;
- create and properly use generic and task-specific method statements;
- implement procedures for proper purchase, inspection and care of rope access equipment;
- compile method statements and ensure proper application on-site;
- decide on specific working methods for rope access techniques and work tasks;
- ensure supervision, work equipment and personnel are appropriate for the work to be done;
- monitor and review effectiveness of working methods.

#### **3.1.2.3. Supervisors**

Every job must be properly supervised by people with experience and appropriate training in the type of access method to be used. In particular, supervisors should be

 GOVERNMENT OF DUBAI	<b>Organization Unit: Public Health &amp; Safety Department</b> : الوحدة التنظيمية:		 بلدية دبي DUBAI MUNICIPALITY	
	<b>Form sheet title:</b>	<b>Guidelines for Rope Access Work</b>		<b>اسم النموذج :</b>
	<b>Doc Ref.</b>	<b>DM-PH&amp;SD-P7-TG07</b>		<b>رقم النموذج :</b>

fully conversant with the access techniques required for each job and should be aware of any limitations of those techniques. Supervisors should also be competent in rescue techniques for both general and specific situations and must have the appropriate interpersonal skills to perform their duties effectively.

Necessary skills can be summarised as follows. Supervisors should be able to:

- implement working methods set out by the manager;
- understand risks set out by different work situations;
- execute and direct all access methods required by a particular work task;
- plan for (and be able to carry out) any necessary rescue for a particular work situation;
- have experience of and competence in worksite and personnel supervision;
- eliminate or control hazards to operatives or third parties;
- properly manage and care for all access and work equipment on-site.

#### **3.1.2.4. Operatives**

Operatives should be at least 18 years of age, normally with a maximum weight of 100 kg. They should have an aptitude for work at height and must be physically capable of carrying out the tasks required. They should be free from any impairment that may prevent them from working safely at height. No one suffering the following conditions should do rope access work:

- heart disease/chest pain;
- high blood pressure;
- epilepsy, fits, blackouts;
- fear of heights/vertigo;
- giddiness/difficulty with balance;
- impaired limb function;
- alcohol or drug dependence;
- psychiatric illness/undergoing counselling;
- Diabetes.

Employees should undergo regular medical examination to ensure they are reasonably physically fit.

#### **3.1.2.5. Minimum training required to achieve operative competence**

All operatives should have received training in rope access work and should have appropriate knowledge, experience and practical skills for the type of work being undertaken.

Training should be carried out by a competent organisation, and should include assessment of specific skills and knowledge. The training programme should be formalised in both time and performance, and should be assessed by a competent person who did not deliver the training and be independent of the training organisation and trainee. Training schemes should clearly state the scope of the training provided, the intended duration of certification and any limitations to be observed, either of individual personnel or of working methods.

Companies should be aware that training is no substitute for experience. Newly trained individuals should be closely supervised and introduced to rope access work gradually, under carefully controlled circumstances.

 GOVERNMENT OF DUBAI	<b>Organization Unit: Public Health &amp; Safety Department</b>		الوحدة التنظيمية:	 بلدية دبي DUBAI MUNICIPALITY
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If access techniques have not been used for more than six months, refresher training must be carried out and the operative should receive a higher level of supervision until they have become accustomed again to this type of work.

Operatives should maintain a working record showing training received and details of subsequent work experience in accordance with the certifying body. This record will assist employers in assessing and verifying an employee's suitability for particular types of work. Shifting from one certifying organization to another is prohibited unless the employee undertake the full training through the new organization from the start level.

Before starting any rope access job, all operatives must be competent to:

- properly inspect access equipment before every use;
- understand all risks arising from the access method and work task;
- use all access techniques required by a particular worksite.

For Rope Access work, the minimum level of practical skills needed will include:

- controlled descent;
- use of back-up system;
- short ascent;
- change from one rope to another;
- knots, elementary safe rigging, rope management;
- selection of safe anchor points;
- equipment care and pre-use checks;
- safety of third parties;
- elementary rescue.

### 3.1.3. Access equipment

#### 3.1.3.1. Selection

All equipment should be appropriate to its application. Almost all rope access equipment is classed as personal protective equipment and should therefore carry a CE/ - AS/NZS mark. All access equipment should be supplied with a certificate of conformity, giving the specifications and performance characteristics where appropriate. If there is any doubt as to the suitability of equipment, obtain advice from a competent supplier.

Key requirements of rope access equipment

- The harness should conforming to Australian Standards or an international standard of higher threshold (e.g. EN 813).
- Descender devices should be of a type that will stop if the user loses control or allow only a slow, automatically controlled descent in the hands-off position.
- The back-up device should be capable of withstanding any foreseeable forces resulting from the rope access activity, without catastrophic damage to the line or device and should perform their function without any intervention of the operative.
- The back up devise should be trailing, it should be a fall arrest device and it should not/ could not be defeated by the user (Type EN12841-A fall arrest device or equivalent).
- Rope should be of kernmantel construction, semi-static (low-stretch) type, of a diameter between 10.5 mm and 11.5 mm, in accordance with EN 1891.

 GOVERNMENT OF DUBAI	<b>Organization Unit: Public Health &amp; Safety Department</b> : الوحدة التنظيمية:		 بلدية دبي DUBAI MUNICIPALITY	
	<b>Form sheet title:</b>	<b>Guidelines for Rope Access Work</b>		<b>اسم النموذج :</b>
	<b>Doc Ref.</b>	<b>DM-PH&amp;SD-P7-TG07</b>		<b>رقم النموذج :</b>

Dynamic mountaineering rope (EN 892) is not suitable for suspension or as a back-up rope, but may be used for personal lanyards (cows' tails).

### **3.1.3.2. Certification, marking, trace ability**

Equipment should be individually marked in a way that does not impair its function. Equipment should be properly maintained and stored, and should be traceable back to the manufacturer or supplier, whom should have traceability for their last inspection record.

### **3.1.3.3. Inspection, care, maintenance, longevity**

Equipment should be inspected before each use (pre-use inspection), See buddy checking ICOP "International Code of practice" clause 2.11 7.4, and examined thoroughly by a competent person in accordance with a specified schedule at intervals no greater than six months. If equipment is used in arduous environments, inspection should take place at intervals no greater than three months. The results of thorough inspections should be recorded.

Where cleaning companies employ subcontracted rope access technicians, they must confirm that the subcontractor carries out checks to ensure that all equipment used is fit for purpose and in good condition and examined thoroughly by a competent person in accordance with a specified schedule at intervals no greater than six months, records shall be available all the time onsite.

### **3.1.3.4. Other PPE**

Some work tasks or work environments may require the use of other protective equipment, such as warm clothing, waterproofs, hearing or eye protection, gloves etc.

## **3.1.4. Control of working methods**

Risk control measures that apply to all rope access work

- Operatives will always be attached to at least two independently anchored safety systems.
- Connection to the rope access system should be in an area where there is no risk of a fall from a height, unless there is protection by other means.
- Exclusion zones should be established as appropriate. This may require zones at locations other than top and bottom of the rope access work.
- An efficient communication system should be established, e.g. mobile phone, radio, whistle etc.
- All practicable measures should be taken to avoid injury-causing impact with the structure or obstructions.
- Operatives should be properly dressed and equipped, appropriate to the work situation and conditions.

## **4. Consideration of working methods**

In addition to general controls for rope access, there will be specific considerations such as:

- type of access method, e.g. descent, ascent, traversing, suspension, aid climbing (see following section);
- ease of anchoring;

 GOVERNMENT OF DUBAI	<b>Organization Unit: Public Health &amp; Safety Department</b> : الوحدة التنظيمية:		 بلدية دبي DUBAI MUNICIPALITY	
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- ease of access to and egress from work position, e.g. flat roof, clear pavement;
- objective hazards during the work, e.g. wind, sun, rain (especially wind); &
- dangers to third parties.

Note: No rope access work shall be carried out if the wind speed reaches 28m/sec, except for 0.5hr and that is only for emergency.

Employer shall insure that wind speed meter / anemometer is available onsite and all rope access activities shall be stopped if the wind speed reaches 16m/s.

## 5. Types of rope access methods

For window-cleaning companies to carry out rope access operations safely, it is essential that they are clearly aware of the different requirements of various access situations, and to consider whether they are competent for a specific technique. If, after such consideration, the cleaning company does not have sufficient experience or competence, it may consider one of the following: using a specialist contractor; employing an experienced supervisor; or additional training of personnel.

As a rough guide, the following situations may be considered to be of increasing difficulty and complexity and requiring correspondingly more advanced skills.

Working in suspension (descent and ascent)

This covers most situations, such as building exteriors. It can be broadly categorised as follows:

- **Straightforward:** rope follows simple path from anchor point to ground. Relatively simple techniques for descent/ascent and rescue.
- **With deviation:** rope pulled small distance away from vertical during descent. Requires slight increase in technique compared to the previous method.
- **With 're-belays':** intermediate anchor points required between top and bottom of descent. Requires significant increase in technique, especially for rescue, because a single descent to the ground is not possible.
- **Without clear egress at bottom:** potentially hazardous - requires competence in long ascents and special rescue methods.

Any of the above methods may be complicated by additional factors such as difficulty in reaching the point of descent, lack of convenient anchorages, presence of sharp edges, complex structure, busy worksite, proximity of roads or other public thoroughfares, other objective dangers.

## 6. Aid climbing and traversing (atria and other interiors)

Aid climbing is a special access technique requiring additional training or experience. In addition, the work situations for which it is used may present additional hazards, such as heat exposure (glass atria), difficulty of rescue, and the possibility of falling. These methods should only be used by specifically trained and qualified operatives, following a thorough risk assessment. Appropriate access, rescue plans and equipment should be provided.

## 7. Specific requirements for rope access operations

- If the operative is in tension or suspension, there should be at least two independent anchor lines, one primarily as a means of access, egress and support (the working line) and the other as additional back-up security (the safety line).

 GOVERNMENT OF DUBAI	<b>Organization Unit: Public Health &amp; Safety Department</b> الوحدة التنظيمية:		 بلدية دبي DUBAI MUNICIPALITY	
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- The operative should be connected to both the working line and the safety line via an appropriate harness, even if a workseat is being used. Measures should be taken to avoid inadvertent detachment from the working and safety lines.
- There should always be at least two attachments to the structure when aid climbing.
- The back-up device should be kept as high as possible to prevent or limit a fall (limited free fall).
- Anchor points should be unquestionably sound and ropes should be arranged to avoid abrasion.

### **8. Use of work equipment**

Steps should be taken to ensure that any work equipment (e.g. cleaning tools, buckets, squeegees etc) is properly secured and used safely. All items must be attached so they cannot fall, and large items (over 8 kg) should be suspended on an additional haul rope. Tool bags or pouches may be appropriate for some work.

### **9. Rescue**

The provision of adequate emergency measures is of prime importance when carrying out rope access work. There should be a specific rescue plan for each worksite, with on-site practice if appropriate. In any case, work teams should practice rescue techniques from time to time. Operatives should always be in a position to recover themselves, or to be recovered quickly and efficiently by the immediate work team or by a dedicated on-site rescue team.

Rescue equipment should be appropriate to the nature of the workplace, e.g. length of ropes, availability of extra anchor slings, hauling equipment etc.

### **10. First aid**

Every worksite should have access to reasonable first-aid provision and at least two member of a work team should have received recognised first-aid training (Basic Life Support).

### **References:**

- Construction code of practice
- Australian Standards – Rope Access AS/NZS4488 parts 1 & 2
- HSE Industrial rope access – Investigation into items of personal protective equipment, research no. 364/2001
- Code of practice for working safely at height, Singapore 2009 edition
- Industry Standards and Guidelines:
  - IRATA International Code of Practice 2010
  - ARAA
  - IRATA Safety Notices [www.irata.org]

**FURTHER INFORMATION IS AVAILABLE FROM**

 GOVERNMENT OF DUBAI	<b>Organization Unit: Public Health &amp; Safety Department</b>		الوحدة التنظيمية:	 بلدية دبي DUBAI MUNICIPALITY
	<b>Form sheet title:</b>	<b>Guidelines for Rope Access Work</b>	اسم النموذج :	
	<b>Doc Ref.</b>	<b>DM-PH&amp;SD-P7-TG07</b>	رقم النموذج :	

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