



# Abu Dhabi Occupational Safety and Health System Framework (ADOSH-SF)

Code of Practice

CoP 39.0 - Overhead and Underground Services

Version 4.0

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## 1. Introduction

- (a) This Code of Practice (CoP) applies to all employers within the Emirate of Abu Dhabi. This CoP is designed to incorporate requirements set by Abu Dhabi Public Health Centre (ADPHC) and Sector Regulatory Authorities in the Emirate of Abu Dhabi.
- (b) This CoP covers the requirements relevant to the planning, preparation and conduct of health and safety work practices in the vicinity of overhead and underground services.
- (c) Overhead and underground services include:
  - (i) overhead power cables; and
  - (ii) underground:
    - 1. power cables;
    - 2. water pipelines;
    - 3. fiber optic cables;
    - 4. telecommunications cables;
    - 5. sewage lines
    - 6. gas pipelines; or
    - 7. petroleum and fuel oil pipelines.
- (d) Principal Contractor when used in this CoP refers to the main contractor overseeing the project and responsible for activities undertaken on the site within the Building and Construction Sector. Refer to *ADOSH-SF - CoP 53.0 - OSH Management During Construction Work*.

## 2. Training and Competency

- (a) Employers shall ensure that OSH training complies with the requirements of:
  - (i) *ADOSH-SF - Element 5 - Training, Awareness and Competency.*
  - (ii) *ADOSH-SF - Mechanism 7.0 - Occupational Safety and Health Practitioner and Service Provider Registration.*
- (b) Employers shall provide an appropriate training program to ensure that all persons in the vicinity of overhead or underground services acquire the understanding, knowledge, and skills necessary for the safe performance of all duties.
- (c) Employers shall provide specific training in the use of equipment provided for the survey and avoidance of underground services in accordance with the manufacturers' recommendations.
- (d) Refresher training shall be conducted when the employer has reason to believe that any affected employee who has already been trained does not have the understanding and skill required by this CoP. The training content will be identical to initial training. Circumstances where retraining is required include, but are not limited to, the following conditions:
  - (i) whenever (and prior to) a change in job assignment is made; or
  - (ii) when a known hazard is added to the work environment that affects the agreed safe system of work.
- (e) The employer will conduct additional retraining whenever a periodic inspection reveals, or there is reason to believe, that there are deviations from or inadequacies in the employee's knowledge or procedures.
- (f) The employer shall conduct additional retraining whenever an overhead or underground services procedure fails.
- (g) Employers shall maintain a record of the required training that contains the following:
  - (i) name and ID number;
  - (ii) Emirates ID number;
  - (iii) subject(s) of training;
  - (iv) date(s) of training;
  - (v) name of trainer(s); and
  - (vi) training provider.

### 3. Requirements

#### 3.1 Roles and Responsibilities

##### 3.1.1 Employers

- (a) Employers shall undertake their roles and responsibilities in accordance with the requirements of *ADOSH-SF - Element 1 - Roles, Responsibilities and Self-Regulation* Section 3.2.5.
- (b) Employers shall undertake their specific roles and responsibilities in accordance with the following:
  - (i) all work in the vicinity of overhead or underground services must be appropriately planned, organized and appropriately supervised;
  - (ii) those working close to overhead and underground services are trained and competent;
  - (iii) that all appropriate control measures such as exclusion zones and restrictive goalposts (in the case of overhead services) are in place and appropriately maintained;
  - (iv) all safety equipment associated with working with overhead or underground services is inspected and tested where appropriate; and
  - (v) the risks associated with overhead and underground service are appropriately controlled through recognized and agreed safe systems of work.

##### 3.1.2 Employees

- (a) Employees shall undertake their roles and responsibilities in accordance with the requirements of *ADOSH-SF - Element 1 - Roles, Responsibilities and Self-Regulation* Section 3.2.7.
- (b) Employees shall report any activity or defect relating to overhead or underground services which they believe is reasonably foreseeable to endanger their safety or that of other persons.
- (c) Employees shall use appropriate equipment or safety devices when working in the vicinity of overhead and underground service work provided by the employer in accordance with any training or instruction received in the use of the work equipment or device concerned.

#### 3.2 Planning and Assessment

- (a) Employers shall evaluate each site or operation to determine if the hazards associated with overhead or underground services are present and the workplace shall be assessed using risk management practices as required by *ADOSH-SF - Element 2.0 - Risk Management*.
- (b) Where overhead or underground service hazards are present, appropriate control measures shall be implemented by the employer for the control of those hazards. These control measures shall include obtaining NOC's and Permit to Work clearances from the relevant service provider.

(c) Employers shall ensure:

- (i) assessment of the various risks and establishment of systems of work which are safe to other employees, contractors and the public;
- (ii) effective control measures are implemented in order to manage building and construction activities;
- (iii) that for the Building and Construction Sector the management of overhead and underground services are included in the Pre-Tender Safety and Health Plan in accordance with *ADOSH-SF - CoP 53.0 - OSH Management During Construction Work*; and
- (iv) that associated safe systems of work, and site rules are included in the Safety and Health Construction Management Plan (OSH-CMP) in the case of the Building and Construction Sector in accordance with *ADOSH-SF - CoP 53.0 - OSH Management During Construction Work*.

### 3.3 Emergency Planning

- (a) Employers shall ensure that detailed procedures are developed to deal with any emergency situations that may arise from overhead or underground services.
- (b) Employers shall ensure that emergency procedures are developed in line with *ADOSH-SF - Element 6 - Emergency Management*.
- (c) Emergency procedures shall be developed in-line with the specific hazards of the work as described in the risk assessment.
- (d) Employers shall ensure appropriate communication of the emergency plan to all relevant persons.

### 3.4 Overhead Services

#### 3.4.1 General Requirements

- (a) Employers shall ensure that where any electrically charged overhead cable or apparatus is liable to be a source of danger to persons employed on site, all reasonably practicable precautions shall be taken to prevent such danger by the provision of appropriately placed barriers and warning signs. As per the requirement of *ADOSH-SF - CoP 39.0 - Overhead and Underground Services* and *CoP - 17.0 - Safety Signage and Signals*.

### 3.4.2 Site Surveys

- (a) Employers shall ensure that site surveys are carried out onsite to determine the location of overhead lines within the vicinity of site. Before any work commences the Employer shall contact the service provider to obtain details on the size of the overhead lines and the restrictions that apply when working in their vicinity.
- (b) Employers shall ensure that where work will be carried out close to overhead lines or traffic will be passing under the lines a request shall be submitted to the service provider to isolate the line. Written confirmation of this shall be obtained from the service provider to confirm the line is isolated before any work in the line area is commenced.
- (c) Employers shall ensure that in the case where the overhead line cannot be isolated the control measures stipulated by the service provider are strictly followed.

### 3.4.3 General Precautions against Overhead Services

- (a) Employers shall prepare a detailed risk assessment for all works in the vicinity of overhead lines taking into account the information provided by the service provider. All personnel shall be briefed on the control measures to be adopted and the Employer shall ensure strict levels of supervision throughout the works.
- (b) Employers shall ensure the following:
  - (i) where traffic will pass under overhead lines:
    - 1. the crossing shall be at right angles to the line and be restricted to the smallest possible working width for the type of plant using the roadway;
    - 2. any crossing width shall not exceed 10 meters; and
    - 3. the crossings shall be restricted to the smallest possible number and shall be fenced to give a clear indication of the roadway.
  - (ii) goalposts shall be erected on both sides of the overhead line to act both as gateways and height limits. The goalposts are generally made of wood or plastic and be marked with red and white paint or sticker tape;
  - (iii) the height and position of such goalposts depends upon the voltage of the overhead line and the service provider commonly advises on these points. Where reasonably practicable there shall be a minimum of 6 meters between the top of goalposts and overhead lines;
  - (iv) where reasonably practicable advance warning signs shall be erected at 250, 100, 50 and 25 meters either side of the overhead lines. The signs shall state the clearance limits;
  - (v) plant or equipment that could extend beyond the clearance limit (goalpost height) shall strictly be prohibited from use in the area;
  - (vi) cranes, excavators shall be fitted with a jib restrictor or other devices to prevent them extending beyond the clearance limit;
  - (vii) a competent supervisor shall be present for the duration of the works under the lines;

- (viii) danger notices shall be installed which give a clear indication of the working height and instructions given to plant drivers to lower crane jibs, to tip bodies of lorries, etc., and to drive carefully; and
- (ix) if any work takes place after dark, notices and cross bars shall be illuminated.
- (c) Employers shall ensure upon completion of road works, the following activities:
  - (i) the Electrical Isolation Certificate (if applicable) and the Permit to Work shall state (in the "WORK TO BE COMPLETED" Section) that the High Voltage overhead line has been made safe so that work can take place near the Earthed conductors;
  - (ii) the surface of any highway, street, or sidewalk where the work has been carried out shall be leveled, reinstated in good condition before any barriers and markers are removed;
  - (iii) permanent road traffic signs and markings etc., shall be restored, erected, displayed etc, before the road traffic is returned to normal service; and
  - (iv) all barriers, traffic cones, and other warning devices shall be promptly removed once work has been completed and approved by the relevant authorities.

### 3.5 Underground Services

#### 3.5.1 General Requirements

- (a) Employers shall comply with the requirements of *ADOSH-SF - CoP 39.0 - Overhead and Underground Services*.
- (b) Employers shall ensure that prior to any excavation, piling or boring works being carried out all reasonably practicable control measures shall be taken to identify underground services. These control measures shall include but not limited to the use of cable / pipe detectors / locators, followed by manual excavation.
- (c) Employers shall approach all excavation, direct piling or boring works with caution and assume the presence of underground services until such reasonably practicable control measures have been taken to demonstrate that the area is safe and free from underground services.

#### 3.5.2 Site Surveys

- (a) Employers shall obtain utility layout plans (approved as built drawings where available) from utility service providers prior to commencement of any excavation, piling or boring works. The utility layout plans shall be used as a guide and shall not negate the Employer from undertaking further investigation of the area where excavation, piling or boring works are to be undertaken.
- (b) Employers shall carry out site surveys focusing on areas where excavation, piling or boring works will be carried out. The surveys shall be carried out by a competent person, and shall include the following methods:
  - (i) the use of a avoidance tool in conjunction with plans to locate underground services which are then marked on the ground with pegs or paint;



- (ii) hand dug trial holes to determine the depth of services at points where proposed works cross existing services;
- (iii) visual survey looking for the presence of above ground indicators to suggest underground services are present;
- (iv) all services found shall be considered live and in service and they shall be supported and protected from damage. Their location shall be marked up on site drawings; and
- (v) if a service is damaged during works, no one shall go near the service, the service shall be considered live and operatives shall exit the area. The utility provider shall be contacted and informed of the damage and shall attend site to repair the damaged service.

### 3.5.3 Excavation Work

- (a) Employers shall ensure that all excavations are undertaken in accordance with *ADOSH-SF - CoP 29.0 - Excavation*.
- (b) Employers shall ensure that prior to any excavations being undertaken, the relevant permits/NOC(s) are obtained from the relevant authorities
- (c) Employers shall ensure the following precautions when excavating around known underground services:
  - (i) mechanical excavators shall not be used within 0.5 meter of known underground services;
  - (ii) where mechanical excavators are used between 3 meters and 0.5 meters of underground services a banksman shall be provided to guide the operator;
  - (iii) hand digging techniques shall be limited to the use of special shovels (GRP) and spades not pick-axes, forks or other similar high impact tools;
  - (iv) under no circumstances are Employers to allow employees to climb on underground services as a means of access;
  - (v) where appropriate, underground services shall be appropriately supported at regular interval to prevent their deflection and damage;
  - (vi) any damage to underground services shall be reported to the service providers to allow them the opportunity to inspect and check their service;
  - (vii) temporary protection shall be provided to any underground services that are close to or adjacent to the excavation that may be damaged by the excavation works;
  - (viii) underground services shall be protected if their position in the excavation could cause them to become damaged during the work being carried out;
  - (ix) terminated ends of underground services shall always be assumed in service and must be treated as any other underground service; and
  - (x) when backfilling an excavation warning tape shall be laid over the underground service and where reasonably practicable above ground markers shall be used to reduce the risks of any future excavation works.

- (d) Employers shall ensure that where oil or gas pipelines are present the specific requirements of the service owner and permit to work are followed and regular communication shall be maintained between the Employer and service owner.
- (e) Employers shall stop work immediately if during excavation work an uncharted underground service is discovered. Work shall only restart when it has been determined that the underground service has not been damaged and a risk assessment based safe system of work has been developed for the continuance of work. Employers shall investigate any such incident and determine how the underground service was missed from the site survey and investigation.
- (f) Employers shall ensure that all communication that could affect the safety of employees is provided in writing by the service provider. This includes isolation notices and other statements made with regards to the suspected location of the underground service.

### 3.5.4 Use of Underground Services Avoidance Tools

- (a) Employers shall ensure that underground services avoidance tools are calibrated and maintained in accordance with the manufacturer's instructions.
- (b) Employers shall ensure that all personnel involved in the use of underground services avoidance tools are trained and competent. Where reasonably practicable the manufacturer shall be contacted to provide training on the use of their equipment.
- (c) Employers shall ensure that cable avoidance tools are inspected at the beginning of every shift by a competent person.
- (d) Employers shall ensure that any underground services avoidance tool suspected of being out of calibration or damaged in any way so as to give a false reading is removed from service and securely stored so as to prevent it from being used.

#### 4. Document Amendment Record

<i>Version</i>	<i>Revision Date</i>	<i>Description of Amendment</i>	<i>Page/s Affected</i>
4.0	1 <sup>st</sup> Jan 2024	<i>System acronym updated from OSHAD-SF to ADOSH-SF to accurately reflect document title</i>	Throughout
		<i>Change from OSHAD to ADPHC</i>	
		<i>Change of Logo</i>	
		<i>Minor editorial changes throughout the document without changing requirements.</i>	
		<i>Title of Mechanism 7.0 updated to ADOSH-SF - Mechanism 7- Occupational Safety and Health Practitioner and Service Provider Registration.</i>	
		<i>OSHAD-SF - Mechanism 8.0 - OSH Practitioner Registration deleted</i>	



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