

# InHouse Regulation of Hazardous Area Compliance (IROHAC) – (white paper)

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## **Summary:**

Any work completed in a possible hazardous area environment shall be covered by Ex competent personnel,

- external workers and teams may have the following positions:

- manager,
- operator,
- designer.

and their activity shall focus on following areas based on their basic technical education:

- electrical,
- instrumentation,
- machinery.

- internal workers and teams may have the following positions:

- manager,
- operator.

and their activity shall focus on following areas based on their basic technical education:

- electrical,
- instrumentation,
- machinery.

It is the duty of enduser (employer) that all internal and external colleagues on/off site do have the sufficient knowledge and competency in terms of hazardous area compliance.

The applied competency system can be validated and it shall be part of the QS, but worksafety and fire protection procedures as well.

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<b>IROHAC</b>		<b>internal</b>	<b>external</b>
related standards		E/IECN 60079-17	EN/IEC 60079-14
positions	manager	X	X
	operator (technician)	X	X
	designer	-	X
field of activity	electrical	X	X
	instrumentation	X	X
	machinery	X	X
min competency level	manager	professional training	professional training
	operator (technician)	professional training	professional training
	designer	-	professional training
refreshment	manager	requested	requested
		within max 5 yrs	refreshment period shall be defined by the enduser / plant owner
	technician	requested	requested
		within max 5 yrs	refreshment period shall be defined by the enduser / plant owner
	designer	-	requested
		-	refreshment period shall be defined by the enduser / plant owner

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## **A way to Hazardous Area Compliance**

### **Contractors' duties in terms of Hazardous Area Compliance acc to IEC EN 60079 14**

#### **4.5 Qualifications of personnel**

The design of the installation, the selection of equipment and the erection covered by this standard shall be carried out only by persons whose training has included instruction on the various types of protection and installation practices, relevant rules and regulations and on the general principles of area classification. The competency of the person shall be relevant to the type of work to be undertaken (see Annex A).

Appropriate continuing education or training shall be undertaken by personnel on a regular basis.

NOTE Competency can be demonstrated in accordance with a training and assessment framework relevant to national regulations or standards or user requirements.

#### **Annex A (normative)**

Knowledge, skills and competencies of responsible persons, operatives/technicians and designers

##### **A.1 Scope**

Annex A specifies the knowledge, skills and competencies of persons referred to in this standard.

##### **A.2 Knowledge and skills**

###### **A.2.1 Responsible persons**

Responsible persons who are responsible for the processes involved in the design, selection and erection of explosion protected equipment shall possess, at least, the following:

- a) general understanding of relevant electrical engineering;
- b) understanding and ability to read and assess engineering drawings;
- c) practical understanding of explosion protection principles and techniques;

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- d) working knowledge and understanding of relevant standards in explosion protection;
- e) basic knowledge of quality assurance, including the principles of auditing, documentation, traceability of measurement and instrument calibration.

Such persons shall confine their involvement to the management of competent operatives conducting selection and erection duties and not engage themselves directly in the work without ensuring their practical skills at least meet the requirements given in A.2.2.

### **A.2.3 Designers (design and selection)**

Designers shall possess, to the extent necessary to perform their tasks, the following:

- a) detailed knowledge of the general principles of explosion protection;
- b) detailed knowledge of the general principles of types of protection and marking;
- c) detailed knowledge of those aspects of equipment design which affect the protection concept;
- d) detailed knowledge of content of certificates and relevant parts of this standard;
- e) understanding of practical skills for the preparation and installation of relevant concepts of protection;
- f) detailed knowledge of the additional importance of permit to work systems and safe isolation in relation to explosion protection;
- g) detailed knowledge of the particular techniques to be employed in the selection and erection of equipment referred to in this standard;
- h) general understanding of inspection and maintenance requirements of IEC 60079-17.

## **A.2.2 Operatives/technicians (selection and erection)**

Operatives/technicians shall possess, to the extent necessary to perform their tasks, the following:

- a) understanding of the general principles of explosion protection;
- b) understanding of the general principles of types of protection and marking;
- c) understanding of those aspects of equipment design which affect the protection concept;
- d) understanding of content of certificates and relevant parts of this standard;
- e) general understanding of inspection and maintenance requirements of IEC 60079-17;
- f) familiarity with the particular techniques to be employed in the selection and erection of equipment referred to in this standard;
- g) understanding of the additional importance of permit to work systems and safe isolation in relation to explosion protection.

## **A.3 Competencies**

### **A.3.1 General**

Competencies shall apply to each of the explosion protection techniques for which the person is involved. For example: it is possible for a person to be competent in the field of selection and erection of Ex "i" equipment only and not be fully competent in the selection and erection of Ex "d" switchgear or Ex "e" motors. In such cases, the person's management shall define this in their documentation system.

### **A.3.2 Responsible persons**

Responsible persons shall be able to demonstrate their competency and provide evidence of attaining the knowledge and skill requirements specified in A.2.1 relevant to the types of protection and/or types of equipment involved.

### **A.3.3 Operatives/technicians**

Operatives/technicians shall be able to demonstrate their competency and provide evidence of attaining the knowledge and skill requirements specified in A.2.2 relevant to the types of protection and/or types of equipment involved.

They shall also be able to demonstrate their competency with documentary evidence in the:

- a) use of documentation in 4.2;
- b) production of reports, e.g. inspection reports, to the user as identified in 4.2;
- c) practical skills necessary for the preparation and installation of relevant concepts of protection;
- d) use and production of installation records as identified in 4.2.

### **A.3.4 Designers**

Designers shall be able to demonstrate their competency and provide evidence of attaining the knowledge and skill requirements specified in A.2.3 relevant to the types of protection and/or types of equipment involved.

They shall also be able to demonstrate their competency with documentary evidence in the:

- a) production of documentation specified in 4.2;
- b) production of designers certificates to the user as identified in 4.2;
- c) practical skills necessary for the preparation and compilation of relevant design details for the concepts of protection and systems involved;
- d) updated and production of installation records as identified in 4.2.

## **A.4 Assessment**

The competency of responsible persons, operatives and designers shall be verified and attributed, at intervals relevant to national regulations or standards or user requirements, on the basis of sufficient evidence that the person:

- a) has the necessary skills required for the scope of work;
- b) can act competently across the specified range of activities; and
- c) has the relevant knowledge and understanding underpinning competency.

### **Internal duties of Hazardous Area Compliance acc to IEC 60079 17**

## **4.2 Qualification of personnel**

The inspection and maintenance of installations covered by this standard shall be carried out only by experienced personnel, whose training has included instruction on the various types of protection and installation practices, the requirements of this standard, the relevant national regulations/company rules applicable to the installation and on the general principles of area classification (see Annex B). Appropriate continuing education or training shall be undertaken by personnel on a regular basis. Evidence of the relevant experience and training claimed shall be documented and available.

### **4.4.1 Personnel**

Regular periodic inspection requires personnel who are competent for the inspection required, including that they:

- a) have a knowledge of area classification/EPL and sufficient technical knowledge to understand its implications for the location under consideration;
- b) have technical knowledge and understanding of the theoretical and practical requirements for electrical equipment and installations used in those hazardous areas;
- c) understand the requirements of visual, close and detailed inspections as they relate to the installed equipment and installations.

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<http://www.ind-ex.ae>

NOTE Competencies and training may be identified in relevant national training and assessment frameworks.

## **Annex B (normative)**

Knowledge, skills and competencies of responsible persons, technical persons with executive function and operatives

### **B.1 Scope**

This annex specifies the knowledge, skills and competencies of persons referred to in this standard.

### **B.2 Knowledge and skills**

#### **B.2.1 Responsible persons and technical persons with executive function**

Responsible persons and technical persons with executive function who are responsible for the processes involved in the inspection and maintenance of explosion protected equipment shall possess, at least, the following:

- a) general understanding of relevant electrical engineering;
- b) practical understanding of explosion protection principles and techniques;
- c) understanding and ability to read and assess engineering drawings;
- d) working knowledge and understanding of relevant standards in explosion protection, particularly IEC 60079-10-1, IEC 60079-10-2, IEC 60079-14 and IEC 60079-19;
- e) basic knowledge of quality assurance, including the principles of auditing, documentation, traceability of measurement and instrument calibration.

Such persons shall confine their involvement to the management of skilled personnel and competent operatives, conducting inspection and maintenance duties and not engage themselves directly in the work without ensuring their practical skills at least meet the requirements given in B.2.2 below.



## **B.2.2 Operative/technician (inspection and maintenance)**

Operatives/technicians shall possess, to the extent necessary to perform their tasks, the following:

- a) understanding of the general principles of explosion protection;
- b) understanding of the general principles of types of protection and marking;
- c) understanding of those aspects of equipment design which affect the protection concept;
- d) understanding of certification and relevant parts of this standard;
- e) understanding of the additional importance of permit to work systems and safe isolation in relation to explosion protection;
- f) familiarity with the particular techniques to be employed in the inspection and maintenance of equipment referred to in this standard;
- g) comprehensive understanding of the selection and erection requirements of IEC 60079-14;
- h) general understanding of the repair and reclamation requirements of IEC 60079-19.

## **B.3 Competencies**

### **B.3.1 General**

Competencies shall apply to each of the explosion protection techniques for which the person is involved. For example: it is possible for a person to be competent in the field of inspection and maintenance of Ex "i" equipment only and not be fully competent in the inspection and maintenance of Ex "d" switchgear or Ex "e" motors. In such cases, that person's management shall define this in their documentation system.

### **B.3.2 Responsible persons and technical persons with executive function**

Responsible persons and technical persons with executive function shall be able to demonstrate their competency and provide evidence of attaining the knowledge and skill requirements specified in B.2.1 relevant to the types of protection and/or types of equipment involved.

### **B.3.3 Operative/technician**

Operatives/technicians shall be able to demonstrate their competency and provide evidence of attaining the knowledge and skill requirements specified in B.2.2 relevant to the types of protection and/or types of equipment involved.

They shall also be able to demonstrate their competency with documentary evidence in the:

### **B.4 Assessment**

The competency of responsible persons, technical persons with executive function and operatives shall be verified and attributed, at intervals not exceeding 5 years on the basis of sufficient evidence that the person:

- a) has the necessary skills required for the scope of work;
- b) can act competently across the specified range of activities; and
- c) has the relevant knowledge and understanding underpinning the competency.

**Note:** white paper was issued on relevant standards and industry practice.

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