

# SAQCC FIRE

## D&GS TRAINING SUB COMMITTEE

### COURSE CURRICULUM

<b>COURSE</b>	<b>Design gas systems</b>	
<b>ORIGINATOR</b>	<b>Keith Norgate</b>	
<b>DATE</b>	27th January 2015	
<b>Amendment 1</b>	Committee changes	19th February 2015
<b>Amendment 2</b>	Committee changes	15th April 2015
<b>Issued</b>	Issued	30th April 2015

EQUIVALENT TRAINING COURSES AVAILABLE		
TITLE	TRAINING SCHOOL	CONTACT DETAILS
Nil		

<b>STATUS OF CURRICULUM</b> - Issued
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<b>EQUIVALENT UNIT STANDARD</b>	
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Nil

#### **PURPOSE OF TRAINING COURSE**

This training course is for learners conducting design of gaseous fire suppression systems to gain knowledge of the requirements for conducting these works.

Learners who complete this course will obtain a knowledge of designing of gas suppression systems.

## LEARNING ASSUMED TO BE IN PLACE

This course assumes the learner can read, write and understand English and has a knowledge of the installation and commissioning of gas suppression systems. Learner must have knowledge of current applicable SANS gas suppression standards.

## OUTCOMES REQUIRED

### Topics Covered:

1. Responsibilities and liabilities of the designer
2. The national standards applicable to gas suppression systems
3. Gas information requirements
4. Selecting the gas
5. Calculating gas quantities from the national standards
6. Gas system design requirements
7. Gas system design exercises

### Outcome 1:        **The Responsibilities and liabilities of the Designer.**

#### Learning Outcomes:

To include:

- The responsibilities of the designer
- Interfacing with other building services
- The liabilities of the designer
- Interface with the consultant, client, insurer and fire department

#### Assessment:

Learner to demonstrate an understanding of the responsibilities and liabilities of the designer

## **Outcome 2:           The National standards in place to be followed in the design of gas suppression systems**

### **Learning Outcomes:**

To include:

- The description and explanation of all the listed SANS standards for gas suppression systems
- Brief overview of the important factors of these standards

### **Assessment:**

Learner to describe:

- The standards in place for gas suppression systems in South Africa
- Selecting the correct standard
- Understanding the different requirements for total room flooding applications and local application of CO<sub>2</sub>

## **Outcome 3:           Gas system information requirements**

### **Learning Outcomes:**

To include:

- Use of a gas system requirement form
- Size of protected area/s (voids)
- Altitude of gas protected area
- Volume deductions/ solid fixed objects
- Ambient temperature
- Hazard description
- Projected nozzle locations
- Cylinder mounting position
- Production of a pipe route isometric
- Actuation method
- Room leakage

### **Assessment:**

Learner to demonstrate knowledge of site requirements of a gas suppression system

## **Outcome 4:        Selecting the gas**

### **Learning Outcomes:**

To include:

- Differentiate between the gasses
- Pressures of the gasses
- Discharge times of the gasses
- Design concentration of the gasses
- Exposure times of the gasses
- Pipe requirements of halocarbons
- Pipe requirements of inert gasses
- Dangers associated with various gasses
- Safety requirements of different gasses
- NOAEL and LOAEL's

### **Assessment:**

Learner to describe the differences between different gas agents

## **Outcome 5:        Calculating gas quantities**

### **Learning Outcomes:**

To include:

- Finding gas quantity calculations in SANS 14520
- Understanding altitude factors
- Total flooding CO<sub>2</sub> gas quantities
- Local application CO<sub>2</sub> gas quantities

### **Assessment:**

Learner to calculate gas quantities for various gasses

## **Outcome 6:        Detailed gas system design requirements**

### **Learning Outcomes:**

To include:

- Hydraulic pipe design
- Pipe isometric
- Bill of quantities
- Documentation requirements

**Assessment:**

Learner to demonstrate the use of a detailed design structure

**Outcome 7: Gas suppression system design exercises**

To include:

- The design and hydraulic calculations of a gas system conducted manually
- CO<sub>2</sub> gas design exercises
- Clean agent gas design exercises for different applications

**Assessment:**

Learner to demonstrate knowledge of gas suppression design for different types of applications.