



## THE REGULATORY REFORM (FIRE SAFETY) ORDER

*Technical  
Bulletin*

The Regulatory Reform (Fire Safety) Order is the latest piece of legislation in the safety arena designed to simplify, rationalise and consolidate existing fire safety legislation in England and Wales (separate orders are to be introduced for Scotland and Northern Ireland at a later date). The existing legislation affected includes the Fire Precautions Act 1971 and the amended Fire Precautions (Workplace) Regulations 1997. There is also a general duty of care under the Health & Safety at Work Act 1974 as well as a number of more specific regulations.

### DOES THIS AFFECT ME?

The new legislation does not change the fundamental responsibility of the employer to ensure the health and safety of employees and others from the risk of fire. It does however place the onus on the employer to demonstrate that all necessary steps have been taken to achieve this. Self-assessment and self certification in line with the principles laid down in this order is consistent with other safety legislation enacted both in the UK and throughout Europe.

This legislation has many parallels with the Dangerous Substances and Explosive Atmospheres Regulation (DSEAR) that came into force in 2003. The implementation methodology is broadly the same and the scope of the two regulations overlap in part.



### OVERVIEW

The Fire Safety Order (FSO) puts a duty of care on the employer to ensure that, employees and others who have a legitimate right to be on business premises, are protected against the risks and consequences of fire.

**The FSO comes into force on the 1st October 2006.**

In effect this requires that the employer demonstrate that he has taken all technical and/or organisational measures,

as far as is reasonably practical, to reduce the risk to life from fire. Where the nature of the activity precludes the elimination of risk, the employer must implement reduction, protection and mitigation techniques to minimise the risk.

The starting point for risk determination is the risk assessment, the complexity of which will depend on the premises involved, the unit operations carried out and the materials being processed.

The Government has issued a number of guides for compliance and these are available online at:-

<http://www.communities.gov.uk/fire>

### HOW DO I ACHIEVE COMPLIANCE?

There is no off-the-shelf solution to your compliance needs as all industries have differing processing techniques or plant layout (often a legacy of previous production requirements).

You should know:-

- this is a self-assessment so you will need to be involved,
- this needs to be carried out by a competent person,
- this addresses general fire precautions as well as specific dangerous substances which need to be identified,
- general principles of Loss Prevention have to be used in the assessment,
- principles of As Low As is Reasonably Practical (ALARP) are involved,
- physical fire protection and organisational measures need to be reviewed,
- this addresses personnel safety only and means of escape,
- maintenance and training are ongoing issues after the initial assessment,
- the risk assessment process and its finding will need to be documented.

## CAN I CONDUCT MY OWN FIRE RISK ASSESSMENT?

The Government and other bodies have issued guidance and checklists to assist with fire risk assessment; see:-

<http://www.communities.gov.uk/fire>

<http://www.fpa-fireriskassessment.com/checklist.htm>

These should be suitable in straightforward cases. In more complex situations where there may be significant fire and explosion hazards or difficult means of escape, it may be necessary to employ experts who have knowledge of dangerous substances, fire development, the behaviour of people in emergency situations and the consequences of both controlled and uncontrolled fire hazards. The legislation uses the concept of risk reduction to ALARP principles, bringing consequence, probability and cost benefit into the assessment where significant findings are identified. Your ability to satisfactorily complete a fire risk assessment depends on your knowledge and experience in these areas.

Always remember that legislation is a minimum standard for the protection of employees and others in the workplace. It may not necessarily translate into 'best practice' nor should it be used as a basis for protection of assets or of continuing business operation.



## GENERAL FIRE PRECAUTIONS

The legislation outlines a list of 'general fire precautions' that need to be considered. These are as follows:

- Measures to reduce the risk and spread of fire.
- Measures in relation to means of escape.
- Measures for securing the means of escape.
- Measures relating to an effective means of detecting fire.
- Measures relating to an effective means of fighting fire.
- Measures concerning training and emergency action in the event of fire.

The employer has a general responsibility to address each one of these topics and take whatever action is deemed appropriate to ensure the safety of employees and others using ALARP principles. In many instances this will be

limited to determining the most appropriate means of escape. In more complex cases, such as in the chemical processing industries, there may be several layers of protection that will need to be considered.

## ALARP

Risk reduction techniques often involve investment in both time and capital. There is a general acknowledgement by the authorities that some risk reduction solutions may involve a disproportionate cost. For this reason the cost of the risk reduction needs to be balanced against the benefit that is generated. ALARP principles are used in complex cases.

ALARP principles are outlined in a guidance document issued by the HSE and can be found at:

<http://www.hse.gov.uk/risk/theory/alarp.htm>

## DANGEROUS SUBSTANCES

Dangerous substances can be flammable, explosive, oxidising, thermally unstable, reactive or other materials used in such a way as to create a risk. They may or may not be classified as such for transportation purposes. They may also be in any physical form and used at any temperature and pressure.

A dangerous substance may be a single material or a mixture. It should also be remembered that flammability is not the only criteria for risk. Dusts that have the ability to form explosive dust clouds are also included. If the substance is used in such a way as to create a risk then it is so classified. As it applies to explosive atmospheres the legislation duplicates the requirements of DSEAR.

The employer has a responsibility to eliminate the use of dangerous substances wherever practical and to minimise the risk of the use of such materials where they cannot be eliminated. There is no lower limit to the quantity of a dangerous substance for which the legislation applies.

## FIRE SAFETY DUTIES

The main driving force for compliance is a general directive placing a duty of care on the employer to take such 'General Fire Precautions' as are necessary to safeguard employees. This duty of care is demonstrated through the risk assessment process.



## THE RISK ASSESSMENT PROCESS

An employer must identify risks to employees arising out of inherent fire hazards associated with the premises and/or manufacturing operations taking into account the physical properties of any dangerous substances on site. They are required to identify how fires and explosions might harm personnel, the extent of such harm, and what protection, prevention and/or mitigation factors are in place. The employer is also obliged to record any significant findings of the assessment.

The output of a fire risk assessment must enable employers to demonstrate to themselves and to other interested parties that they have followed a structured methodology when considering the risks, and have specified the appropriate controls.

The general form of the risk assessment should include:

- Identification of general fire hazards.
- Identification of people at risk.
- Determination of the appropriate 'General Fire Precautions'.
- Identification of 'Dangerous Substances' and their material properties.
- Review of 'Dangerous Substances' to eliminate, prevent, protect and/or mitigate associated risks in line with the principles of loss prevention.
- Determination of additional measures needed to deal with 'Dangerous Substances' using ALARP principles where necessary.
- Assessment of fire fighting and fire detection through the use of both fixed installations and manual means.
- Identification of emergency routes and exits.
- Evaluation of emergency procedures.
- Verification of any additional safety procedures relating to 'Dangerous Substances'.
- Assurance of suitable maintenance of equipment supplied for fire safety purposes.
- Verification that suitable information is provided to employees and others covering the risks, the preventative and protective measures employed, and the actions to be taken.
- Confirmation that all necessary training has been conducted.



## EMPLOYEES RESPONSIBILITIES

Every employee while at work has a responsibility to take reasonable care to avoid fire hazards, to co-operate with the employer in complying with the legislation and to inform the employer of any danger to safety that is encountered.

## FIRE AND RESCUE AUTHORITY - ENFORCEMENT

In the past the local fire and rescue authority has been a primary source of help. Their role, however, has now changed and they are unlikely to continue to provide the same level of advice while also acting as the regulator; they will certainly not carry out the risk assessment on your behalf. The fire and rescue authority for the area in which the premises are located will generally be responsible for enforcement. These authorities will appoint inspectors who will have wide ranging powers to inspect premises and ascertain compliance. The authority will have the power to serve enforcement notices or in serious cases prohibition notices. Failure to comply will result in a fine.



## APPLICATION TO THE PROCESS INDUSTRIES

While the risk assessment process should be reasonably straightforward for many workplaces, the process will be considerably more complex where large quantities of 'Dangerous Substances' are utilised. Some of the issues that will need to be addressed include:

- the storage of combustible materials (solids, liquids and gases),
- the transport of such materials to the place of work,
- the use of such materials,
- the disposal of waste,
- the adequacy and maintenance of fire protection devices,
- the suitability of safe havens,
- the most appropriate means of escape,
- the likelihood of ignition sources,
- the potential for explosions.

A review of the abbreviated list above will show that complex issues will arise with many unit operations, from

paint spraying to food mixing. The complexity of the risk assessment process is therefore not to be underestimated.

### WHAT CAN CHILWORTH DO?

Chilworth is ideally situated to assist with your compliance requirements. We can provide the necessary skills and experience to deal with the most complex risk assessments and ensure a cost effective solution particularly when combining this compliance requirement with DSEAR.

For customers who have already completed their DSEAR assessments, we will be able to build on these as the basis for the fire risk evaluation and provide a 'fast track' solution.

Areas of service and company wide capabilities include:

- Risk Assessments
- Fire Risk Evaluation
- Dust Explosions
- Ignition Evaluation
- Static Electricity Hazards
- Fire Prevention
- Fire Protection and Detection
- Emergency Response
- Means of Escape
- Training
- Loss Prevention Surveys

- DSEAR Compliance
- Material Safety

Specialist services include:

- Full or semi-quantified risk analysis
- Fixed fire protection and detection specification
- Pressure relief for vessels exposed to fire
- Compliance of control systems with IEC 61508
- Vapour cloud explosion modelling
- Dispersion of products of combustion
- Fire water run-off
- Fire safety management systems
- COMAH cases
- Business impact evaluation
- Occupied buildings risk analysis

For further advice talk to Chilworth Technology who have already undertaken ATEX / DSEAR audits for many international companies and have developed specific techniques for ensuring operating companies can demonstrate compliance with the requirements of their national legislation.

***faxback***

**Please faxback to Marketing on +44 (0)23 8076 7866**

Name:..... Job Title:.....

Company Name:.....

Address: .....

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***My particular interests are:-***

- |   |                          |                                    |                          |
|---|--------------------------|------------------------------------|--------------------------|
| ATEX / DSEAR Audits.....                      | <input type="checkbox"/> | Dust/Gas/Vapour Explosion .....    | <input type="checkbox"/> |
| Electrostatic Hazards / Problems .....        | <input type="checkbox"/> | Hazardous Area Classification..... | <input type="checkbox"/> |
| Runaway Chemical Reaction Hazards .....       | <input type="checkbox"/> | Emergency Relief Vent Sizing ..... | <input type="checkbox"/> |
| IEC61508/11 and SIL Determination.....        | <input type="checkbox"/> | HAZOP.....                         | <input type="checkbox"/> |
| Incident Investigation / Expert Witness ..... | <input type="checkbox"/> | Training.....                      | <input type="checkbox"/> |

I would a FREE and confidential telephone conversation with a consultant about a process safety matter .....

I would like a FREE visit from a consultant next time one is in my area .....

***For further information phone Systems at Chilworth Technology on +44 (0)23 8076 0722***

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