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Federation of Bakers

A BAKER'S DOZEN

13 ESSENTIALS FOR HEALTH & SAFETY IN BAKERIES

PRODUCED FOR THE INDUSTRY BY MEMBERS OF THE FEDERATION OF BAKERS' HEALTH & SAFETY COMMITTEE

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INTRODUCTION

BACKGROUND TO 'A BAKER'S DOZEN'

Origins

This is an 'online' second edition of 'A Baker's Dozen'. It was first published as guidance by the Health and Safety Executive (HSE) as HSG 233 in 2003.

HSE policy on publications changed in 2012. It was decided they would focus on publications and guidance dealing with generic areas of risk, leaving other stake holders such as trade associations, employers and trades unions to support industry with sector specific health and safety publications and guidance.

HSG 233, 'A Baker's Dozen', was gifted to the Federation of Bakers – the trade association of the plant baking sector of the food manufacturing industry - for review and republication.

Context

Health and safety leadership in the food and drink industry is provided by the Food and Drink Manufacture Health and Safety Forum. The HSE's Manufacturing Sector act as convenors and are key members of the Forum alongside the Food and Drink Federation, sector trade associations including the Federation of Bakers and Trades Unions whose members are employed in the industry.

As with other food and drink industry based trade associations, member companies of the Federation of Bakers are invited to nominate health and safety specialists who together form the Federation's Health and Safety Committee. The terms of reference of the committee are shown in Figure 1. It is members of this committee who have carefully reviewed and updated 'A Baker's Dozen'.

Scope

A Baker's Dozen is for anyone who has an interest in health and safety in bakeries. It provides guidance on how personal and corporate responsibilities for health and safety can be met. It provides sound advice on reducing risk and preventing accidents and work related ill health in the baking industry. Good things which if done well should bring compliance in their wake.

As such 'A Baker's Dozen' is intended to help people working in: -

- Plant bakeries;
- Craft bakeries;
- In store bakeries;
- Other food manufacturing where baking is a core process and flour a main ingredient.

Whilst there has been an attempt to provide sector specific guidance throughout, the risk management processes described here are based on generic principles and should be of value to people browsing this document from the wider food industry or beyond. Having and sustaining high standards of leadership for and engagement with health and safety processes – a positive health and safety culture if you like – is not an industry specific objective; it's the same whether you're making cars or croissants, building houses or baking bread.

Figure 1: Federation of Bakers Health and Safety Committee Terms of Reference

The committee shall meet quarterly, and on such other occasions as might be necessary, to consider and advise the FOB Council and the wider membership of the Federation on all matters relating to occupational safety and health in the plant-baking industry.

In particular the Committee will: -

- Collect, analyse, benchmark and report on relevant health and safety performance data in the industry, including accidents and occupational ill health.
- Provide guidance for member companies on workplace and work equipment standards and best practice systems and procedures for managing health and safety risks in bakery and bakery distribution operations.
- Consult with the Health and Safety Executive and relevant Trades Unions in relation to regulatory standards, approved codes of practice and official guidance for health and safety and their implementation in the industry; in particular the committee will represent the Federation at the FDF OHSP, The Food Industry Health and Safety Forum and the IOSH Food and Drink Group.
- Make representations to Government in relation to new health and safety legislation and regulatory standards, where appropriate in conjunction with other Trade Associations and CBI.
- Provide a networking opportunity for health and safety professionals in the industry.

All member companies of the Federation will be entitled to representation on the Health and Safety Committee. The committee will have a chairman nominated by committee members and will be supported by the FOB Director and secretariat.

The Health and Safety Executive has permanent associate membership of the committee and associate membership of the committee is also open to representatives from other companies or organisations with interests in occupational safety and health in the bread sector of the baking industry. Associate membership will be by invitation and with the approval of full members of the committee.

Readers should note that whilst following this guidance will provide a solid, pragmatic basis for health and safety risk reduction and good risk management, it will not be a guarantee of legal compliance. Individual duty holders need to be sure that their corporate and personal obligations are met and if in doubt they should contact HSE or Local Authority Inspectors for advice accordingly.

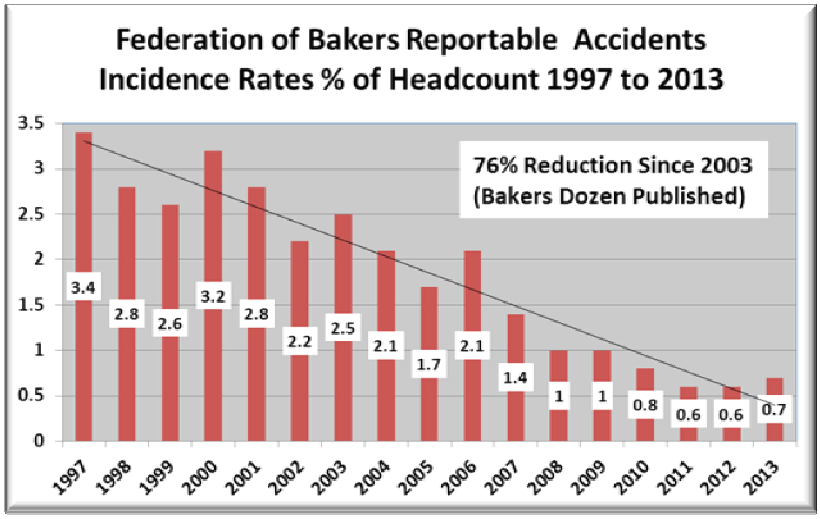
Jak Thomas
Chairman
Federation of Bakers Health and Safety Committee

1.
Managing the Priorities

CHAPTER 1

MANAGING THE PRIORITIES

Introduction



Headline health and safety performance in the baking industry, measured by work related accident numbers and severity, has improved significantly since 'A Baker's Dozen' was first published in 2003. It would be nice to point to the publication of 'A Baker's Dozen' as the watershed moment; raising awareness and influencing behaviour in the industry to the extent that a 76% reduction in reportable injury accidents was realised over the next 10 years. However, the root cause of change on this scale is inevitably more complex, but can be said to include the following: -

- changes in attitude to health and safety in business and society;
- pressures arising from wider social responsibility obligations and reputation, felt particularly by large companies but relevant to smaller concerns;
- employee and employee representative expectations for working conditions to be safe and healthy – effectively risk free;
- the need for legal compliance in relation to health and safety, particularly so given changes to the enforcement framework in the UK including: -
    - escalation of fines to reflect profit and turnover;
    - introduction of the HSE Fee for Intervention regime;
    - increased risk of suspension of directors and imprisonment as sanctions in H & S cases;
    - revised Ministry of Justice rules for the conduct of civil, including employers, liability claims.

In larger organisations good health and safety performance and processes are recognised as being reliable indicators of business success. Managing health and safety risk as an integral part of their business plan and seen as essential to success; getting it wrong is known to have a significant negative impact on the balance sheet.

For smaller businesses health and safety can have an equally high but potentially more immediate impact; loss of a single employee to absence arising from an accident or work related ill health today, could mean that tomorrows orders will not be filled.

Against this background, it is clear that all businesses, large and small, need to identify, understand and deal with their health and safety priorities.

Changing priorities for health and safety

In the past health and safety priorities were about protecting working people from physical injury arising inter alia from machines, materials, tools, equipment, vehicles and processes utilised in the workplace. The Health and Safety at Work Act demanded that employers provide a decent work place and working environment, but preserving safety and preventing accidents associated with obvious sources of risk was the order of the day.

In the first decade of the 21st century, health and safety priorities changed. Preventing the impact of work related risk on health was now considered to be of at least equal importance to securing safety in the workplace. Today's priority is for businesses to be able to identify, quantify and control risk in its broadest sense. Controlling risk to safety or health rather than simply behaving reactively to prevent recurrence of accidents and injuries or obvious risks to health, as for example with exposure to asbestos.

Health like Safety: equal priorities in the health and safety plan.

The Priorities for Health and Safety

Priorities for managing physical risk in the plant baking industry have not really changed over the years, except insofar as the emphasis on health has increased. Health now being the equal of safety needs to be managed like safety using the same risk management principles.

The main priorities for physical risk are: -

Safety

- Slips and trips in the workplace
- Work equipment
- Workplace transport and road risk
- Work at height including in and on vehicles
- Working in silos and confined spaces
- Struck by or against objects and knives
- Fire and Explosion

Health

- Manual handling
- Upper limb disorders (ULDs)
- Occupational asthma
- Occupational dermatitis
- Noise-induced hearing loss
- Work-related stress
- Thermal stress

These are dealt with in detail in later chapters of 'A Baker's Dozen'.

However, what is clear is that successful health and safety management is about more than controlling physical risk. It is about creating a positive and sustainable health and safety culture from top to bottom in an organisation based on: -

- committed and informed leadership,
- high levels of engagement from all team members; and
- a strong focus on safe behaviours, as well as creating and maintaining a safe and healthy working environment, workplace and processes.

Culture, leadership, engagement and behaviour are a priority in modern health and safety management. They are a major influence on the level of risk which is tolerated by an organisation and are as important as health and safety priorities as understanding and controlling physical risk. These are dealt with in new chapters in 'A Baker's Dozen' covering Health and Safety Management Systems and Health and Safety Culture.

Measuring success – the health and safety scorecard

Identifying, quantifying and controlling health and safety related risk requires:

- clear strategic intent;
- an agreed tactical plan to deliver broad based targeted improvements; and
- resource to make it all happen. This will provide a framework for health and safety risk management to succeed, but how can targets be set and performance measured within the scope of current priorities?

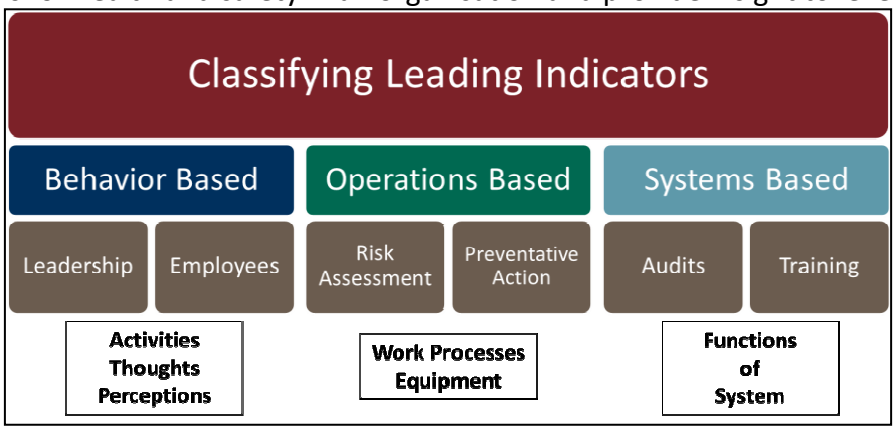
Lagging indicators: accident and ill health related performance measures – will confirm what has happened and how effectively risk is being controlled. They provide an accessible and easily understood measure for internal and external benchmarking; a good thing to do in itself, but not in isolation.

Historically measuring success was about counting accidents and benchmarking related incidence and frequency rates, with annual reduction set as the key performance indicator. Having incremental accident reduction as the sole KPI ignores the hard work that goes in to implementation of the tactical plan and provides no incentive for people to become engaged. It ignores the health and wellbeing agenda and is a **'lagging indicator'**, which by definition drives reactive measures to prevent recurrence.

Leading indicators: health and safety related activity and 'climate' measures – will confirm what is being done and provide a measure of progress with and towards achievement of strategic and tactical plans and objectives for improving and sustaining health and safety standards and performance.

Understanding, measuring and driving positive change in health and safety leadership, engagement, culture and behaviour, is less easy than counting accidents and taking reactive corrective actions. However, it does have the advantage of being in the here and now – the pre accident situation - and such measures are known as **'leading indicators';** the proactive measure for health and safety performance and an enabler for accident and work related ill health prevention.

KPI's set around **'leading indicators'** – what is being done rather than what has happened - can be used to drive positive leadership behaviours for health and safety in an organisation and provide insight to levels of engagement in the workforce. Good leadership and high levels of engagement serve to shape a positive health and safety culture which in turn will sustain high standards and drive improved performance, including a reduction in accidents and work related ill health.



Having a balanced scorecard which includes leading as well as lagging indicators should be a priority for all businesses.

Examples of leading and lagging indicators are included in tables XX and XY. Best practice is to select a few KPI's for inclusion in a balanced scorecard of measures which can then be integrated with the rest of the business scorecard; integrating health and safety with the business plan - embedding it in the company's DNA.

Table XX: Lagging Indicators – for Benchmarking

Topic Area	Measure/Activity	Comments/KPI's
Accident Related	RIDDOR reportable Major Injury Accidents	Higher severity/potential accidents – immediate report to HSE. • Number; • Rate/100k hours (plus % of headcount for benchmarking); • Improvement against target.
	Accidents reportable under RIDDOR – O7D absence not including the day of the accident	Reportable to HSE within 15 days of the accident • Number; • Improvement against target.
	Lost Time Injury Accidents	Accidents resulting in one or more days of absence, not including the day of the accident. LTI's include major and O7D reportable injury accidents. • Number; • Rate/100k hours worked and/or as % of headcount • Improvement against target.
	Accident Related Absence	Days lost associated with injury from workplace accidents. • Number of days; • Improvement against target.
	First Aid Injury Accidents	Accidents resulting in injury requiring first aid treatment only. • Number • Rate/100k hours worked and/or as % of headcount • Improvement against target.
	'No First Aid' Accidents	An employee has been physically affected but there is no apparent injury or illness requiring first aid or other treatment e.g. slip and fall, struck by a falling basket, striking head against low hanging pipe, exposed to fogging agent. • Number; • Rate/100k hours worked and/or as % of headcount • Improvement against target.
	Total Accidents	Total accidents in all accident classifications. • Number; • Rate/100k hours (plus % of headcount for benchmarking); • Improvement against target.
	Accident Investigation Completion and Sign Off	Accident investigation completion. • primary investigation within 24 hours; • follow up and root cause analysis within 72 hours; • escalation (board report) immediate when classification is reached; • closure/senior manager sign off – as appropriate to case.
Ill Health Related	Reportable work related Ill health cases.	Reportable to HSE as prescribed in RIDDOR . • Number; • Rate/100k hours worked and/or as % of headcount • Improvement against target.
	Other work related Ill health	Ill Health Cases • Number; • Rate/100k hours worked and/or as % of headcount
	Absence arising from Work Related Ill Health	Days lost associated with work related ill health. • Number • Improvement against target

Table XY: Leading Indicators for Driving Performance

Topic Area	Measure/Activity	Comments/KPI's
Incident Related	Hazard Reports/Close Outs	Hazard: something with the potential to cause harm – includes unsafe acts or unsafe conditions. • Number of reports; • Reports per head by site or department. • Completion rate of corrective actions.
	Near Miss Reports/Close Outs	Near Miss: when a hazard leads to an incident where a person could have been injured; an unsafe act may in itself be a near miss. • Number of reports; • Reports per head by site or department. • Completion rate of corrective actions.
Monitoring Processes	Workplace Inspections	Routine/structured/ recorded workplace inspections, condition monitoring or checking. • Number of inspections; • Inspections completed against schedule.
	Priority Risk Audits	Structured audit of specific risks (legionella, FLT operations) or risk control measures (isolation/lock off, permit to work). • Audits completed against schedule; • Audit rating against compliance standard.
	Crimson SI Audits	Annual ABF sponsored audit of management of statutory examination process. • Audit rating against compliance standard.
	H & S Annual Management Systems Audit	General H & S Compliance/Systems/Workplace Standards Audit. • Audit rating against compliance standard/target; • Improvement plan established and maintained.
Action Planning and 'Close Out'	Planning and 'close out' of health and safety related actions from all sources in EAM/Corrective Actions Register/Planning Spread-sheets	Corrective actions derived from all sources (accident investigation, hazard and near miss reports, inspection, audit). • prioritised according to risk; • closed out in agreed risk based timescales; • long term actions requiring resources deferred in plan with short term measures in place to control interim risk; • Corrective actions closed as percentage of total.
Culture, Leadership and Engagement	Safety Committee	Site/Region/Company H&S Committee in place. • operating within agreed structure and schedule; • agenda and output communicated to all relevant staff; • individual and group actions closed in agreed timescales.
	Safety First/Action Teams	Workplace/operating team level H&S groups. • operating within agreed structure and schedule; • agenda and output communicated to all relevant staff; • individual and group actions closed in agreed timescales.
	Behavioural Safety Observations and Conversations (Do Safe/Think Safe Audits) or SUSA's.	Recorded observations completed line manager on operating team members or 'peer on peer'. • completion against target; • feedback provided to audit subjects – praise and recognition as well as 'do better'.
	Quick Audits (Facilitated by line manager and/or National H&S Team)	Recorded observation of workplace, work equipment and work activity in a particular area. • during or as precursor to a shift; • by the responsible manager; or • by operating team members.
	PULSE Ratings and Design and Implementation of Action Plans	Measures. • H&S rates and ranking against other criteria; • Individual H&S statement ranking; • Action planning and close out to drive improvement.
	Safety Climate Assessments/Focus Groups (facilitated by National H&S Team)	As part of site plan or part of audit process. • Completion of assessments/focus groups; • Development and implementation of actions plans; • Actions closed within agreed timescales.

	Accident Clinics (facilitated by H&S Team)	Completion of clinics as required to address: • trends in accident type (slips trips and falls); or • employee groups (drivers); or • repeat/high risk individuals.
	CI/Other Local Initiatives	Leadership group tasked with local initiatives. • Performance objective for DM's or FLM's; • site/region/company showcase; and • for internal/external recognition.
	Make the Difference/Best of Best	Demonstrating good/improving performance on a range of measures for the year – Board selection of H&S Best of the Best for annual awards.
	H & S Activity Hours	Total hours on H&S activities. • period totals; • benchmark against headcount across departments/sites.
Vehicles	RTC/Vehicle Damage	RTC and vehicle damage incident number. • by severity/cost; • accident rate/cost per vehicle; • accident rate/cost per 100k miles; • internal and external benchmarks.
	Vehicle Inspection Completions/Actions	Number of inspections completed against target. • Defects identified number/as percentage of completions; • VOR number/as percentage of completions; • Corrective actions completed/as percentage of total.
Health & Wellbeing	Health Screening/Surveillance Compliance	Number completed and percentage completed against target for compliance.
	Health Promotion Event Completion	Planned and implemented on time
	Health Risk Assessment and Control	Risk assessments completed against target
Competence	FLM Training & Development	IOSH Managing Safely – completion. • as a performance objective for the individual; • number completed (in last 3 years); • percentage completed against leadership headcount.
	Line/Senior Manager Training	Targeted development training as part of performance review objectives
	Operating Team Training	IOSH Working Safely • as an objective for the individual; • number completed; • percentage completed against relevant headcount.
	Training for Specific Risk Management	As required for specific risk areas. • site champions for explosive atmospheres, fire risk, asbestos etc.; or • functional competencies such as electrical safety, work at height, flour dust etc.
	Agency Training	Agency staff all trained – induction and task based competency – 100% standard requirement.
	Induction Training	All new starts trained – standard = 100% trained.

Baker's Dozen - 13 Top Tips

1. Understand the business impact of getting it wrong – it's a great motivator

2. Health like safety – giving equal priority to health risk in the workplace – measuring work related ill health as well as accident performance

3. Classify accidents and ill health to ensure compliance with reporting requirements

4. Use accident incidence and frequency rates to benchmark performance internally (over time and between departments/sites/divisions)

5. Use accident rates to benchmark externally

6. Analyse accident and ill health types to identify immediate cause and classification

7. Prioritise high frequency accidents and ill health e.g. slips and trips and musculo skeletal disorders

8. Prioritise high severity potential accidents and ill health incidents e.g. fork truck collisions or flour and ingredient dust exposures

9. Set strategic vision for creating a positive culture as well as long tern goal for accident and ill health reduction; benchmark progress over time

10. Set objectives in the tactical plan around leading indicators – measuring what's being done and how people feel rather than what is happening

11. Track leading indicators (measures of things that get done) as well as lagging indicators (measures of things that happen) to feedback into plans

12. Develop a proactive health and safety culture based on effective leadership and high levels of engagement with people working in business operations

13. Integrate health and safety in the business plan – embedding it in the company DNA

2.
Health & Safety Management Systems (SMS)

CHAPTER 2

HEALTH & SAFETY MANAGEMENT SYSTEMS (SMS)

Introduction

Health and Safety obligations which need to be met by organisations and individuals include: -

Moral obligations: All organisations have a moral duty to protect employees and others affected by their operation from risk of harm.

This extends to individuals who have a duty in the work context to look themselves and other people who might be affected by their work.

Financial Obligations (to all stakeholders):
An SMS helps reduce risk and therefore reduces the costs associated with accidents and incidents. Costs continue to rise, for example, fines imposed by the Courts have increased, HSE have introduced a Fee for Intervention Scheme and Employers Liability costs continue to rise; these are just the direct costs. In providing evidence of compliance, an SMS will serve to minimise the burden of direct costs. Indirect cost savings will also accrue from reduced absence, staff turnover, recruitment and training costs and improved operating efficiency.

Legal Obligations: the law does not require organisations to have a formal SMS, but does require that risk is effectively managed. An SMS enables risk to be managed and provides evidence that legal obligations under both civil and criminal law are being met.

A Health and Safety Management System (SMS) provides a consistent, compliant framework, enabling organisations to meet health and safety obligations and individuals to meet personal health and safety responsibilities. There is no standard template for an SMS; what gets included in the scope and detail will vary and reflect the nature of the operation undertaken and the culture of the organisation in which it is being employed. One essential common feature is the need for the SMS to reflect the level of health and safety risk being managed by the organisation to which it is being applied.

Health and Safety Obligations and Interested Parties for an SMS

Legal Duties

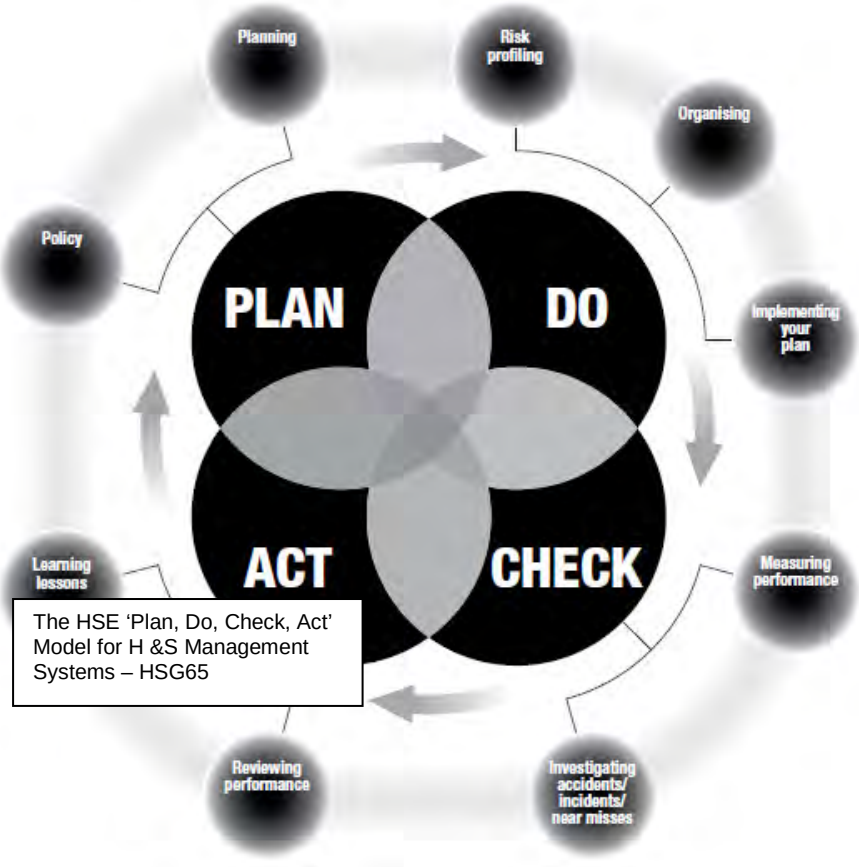
All organisations have processes or arrangements to deal with payroll, human resources, finance, manufacturing and quality control; managing health and safety is no different.

The Management of Health and Safety at Work Regulations 1999 (MHSWR) - made under the Health and Safety at Work Act 1974 (HASAWA) - require employers to have arrangements to control health and safety risks. Compliance should be regarded as the minimum standard which should include the following key elements:

HSE's new simplified Guidance – INDG449 & HSG268

- a written health and safety policy (where 5 or more people are employed);
- provision for 'suitable and sufficient' assessment of risk to employees, contractors, customers, and other people who could be affected by work activity
- a record of the significant findings of risk assessment
- provision of effective risk control measures for risks identified and evaluated through risk assessment;
- access to competent health and safety advice, full or part time, directly employed or consultant, but proportionate to risk and including health as well as for safety issues;
- providing employees with information about the risks and how they are protected;
- instruction and training for employees in how to deal with risks;
- ensuring there is adequate and appropriate supervision in place;
- consulting with employees about risks at work and current risk control measures.

The Approved Code of Practice on the MHSW Regulations has been withdrawn to be replaced by simple guidance such as Health and Safety Made Simple (INDG449) and The Health and Safety Toolbox (HSG268); a great starting point for new businesses or cross checking basic compliance for small businesses.



The HSE 'Plan, Do, Check, Act' Model for H &S Management Systems – HSG65

HSE guidance

In simple terms the legal obligation is for organisations to have an effective SMS in place proportionate to the level of risk in their operation. HSE have a guidance document to help employers and others understand and meet health and safety obligations - '*Successful Health & Safety Management' (*HSG65).

HSG65 uses a business management model **'PLAN ,Do, CHECK, ACT'** (known as the Demming cycle) to provide a framework for health and safety management.

The model is often used as a planning and implementation tool for managing any complex operation whether manufacturing schedules, maintenance programmes or distribution networks.

Using 'Plan, Do, Check, Act' achieves a balance between the systems and behavioural aspects of management. It also treats health and safety management as an integral part of good management generally, rather than as a stand-alone system.

The following extract from HSG65 provides more detail about what to do and what to look for in implementing the 'Plan Do Check Act' cycle: -

Plan

- Think about where you are now and where you need to be.
- Say what you want to achieve, who will be responsible for what, how you will achieve your aims, and how you will measure your success. You may need to write down this policy and your plan to deliver it.
- Decide how you will measure performance. Think about ways to do this that go beyond looking at accident figures; look for leading indicators as well as lagging indicators. These are also called active and reactive indicators
- Consider fire and other emergencies. Co-operate with anyone who shares your workplace and co-ordinate plans with them.
- Remember to plan for changes and identify any specific legal requirements that apply to you.

Do

- **Identify your risk profile**
  - Assess the risks, identify what could cause harm in the workplace, who it could harm and how, and what you will do to manage the risk.
  - Decide what the priorities are and identify the biggest risks.

- **Organise your activities to deliver your plan** In particular, aim to:
  - Involve workers and communicate, so that everyone is clear on what is needed and can discuss issues – develop positive attitudes and behaviours.
  - Provide adequate resources, including competent advice where needed.

- **Implement your plan**
  - Decide on the preventive and protective measures needed and put them in place.
  - Provide the right tools and equipment to do the job and keep them maintained.
  - Train and instruct, to ensure everyone is competent to carry out their work.
  - Supervise to make sure that arrangements are followed.

Check

- **Measure your performance**
  - Make sure that your plan has been implemented – 'paperwork' on its own is not a good performance measure.
  - Assess how well the risks are being controlled and if you are achieving your aims. In some circumstances formal audits may be useful.

- **Investigate the causes of accidents, incidents or near misses**

Act

- **Review your performance**
  - Learn from accidents and incidents, ill-health data, errors and relevant experience, including from other organisations.
  - Revisit plans, policy documents and risk assessments to see if they need updating.

- **Take action on lessons learned, including from audit and inspection reports**

Readers requiring further information should refer to the HSG65 publication where much more detail and guidance is available.

Accredited Systems

An SMS can stand alone or be integrated with other management areas. Some organisations have separate systems for H&S, Food Safety, Quality and Environmental standards whilst others have combined them into what is known as an Integrated Management System (IMS).

Some organisations have an SMS accredited to an internationally recognised standard similar to the Quality standard ISO9001 or the Environmental standard ISO14001. The most widely used H&S standard is known as OHSAS 18001. This approach may seem an easy way to ensure compliance but will only work if there is an effective management system in place & working. Reliance on just satisfying such a standard with its routine audits and reviews is no guarantee of a safe workplace.

Policy Statement

The law - Health & Safety At Work Act 1974 (HASAWA) - section 2 - requires employers with more than 5 employees to have a written Health & Safety Policy Statement which should include: -

- Commitment to Health and Safety, including the wellbeing of employees and others who may be affected by work activity;
- The organisation and arrangements in place to meet that commitment;
- The identity of the Director or other senior person(s) with overall responsibility for ensuring H & S commitments are met;
- Information describing the means by which competent H & S guidance and advice will be provided;
- A description of the other resources to be provided enabling commitments to be met;
- The planned date for review and revision of the policy.

The Policy should be agreed and signed off by the Board, Chief Executive or most senior person in the organisation and communicated to employees and others, including display in the workplace as appropriate.

There is no particular formula for writing a Policy to meet the requirement under HASAWA, but the following key points should be considered:

- A mission statement - strategic intent (ultimately where we want to be with H&S for example: ***'To become the safest baking company in the UK by 2020'***.)
- A vision - what good H & S might look and feel like in the organisation (qualitative and quantitative measures that will meet the mission statement for example: ***'we will create a zero harm culture where our accident frequency rate is less than 0.1 per 100,000 hours worked and where health and wellbeing is a priority'***.)
- Objectives, targets and Key Performance Indicators' (KPI's) within tactical plans (annual); milestones towards the achievement of the mission and vision.
- General responsibilities of employees such as - duty of care for self and others, reporting accidents, incidents, hazards and near misses and cooperating with risk control measures in the work place.
- H & S responsibilities for named (or named by position) individuals (managers/leadership teams or others) with specific roles and competence for managing particular aspects of the business or

organisation - e.g. managing engineering standards, investigating accidents and incidents, conducting risk assessments, issuing permits to work etc..

- Information about desired H & S culture - expectations for positive H & S leadership, high levels of employee engagement and consistent safe behaviours.
- Statement on commitment to complying with the law (as a minimum standard) and illustrating the importance of H & S to the organisation.
- Information on and commitment to continuous improvement.
- Policy endorsed by the most senior person in the organisation.

Entering the SMS cycle (Plan - Do - Check - Act)

Once policy commitments have been determined the Health and Safety Management System (SMS) needs to be created to enable H & S obligations – moral, legal and financial - to be met. This is the point of entry to the 'Plan - Do - Check – Act' cycle in HSG 65 as described above: -

Plan – build organisation/resources/competence needed to meet obligations and commitments.

Do – implement the plan and tell people what's going on, why and their role in the plan.

Check – monitor/review progress with implementation of the plan and progress towards mission, vision and objectives/KPI's.

Act – to review and modify/improve/update the plan as might be required.

Baker's Dozen - 13 Top Tips

1. Demonstrate commitment to H & S from the top of the organisation – putting H & S first and integrating with business plans including allocation of resource in the budget

2. Establish a H & S leadership team with sufficient authority to implement the SMS

3. Ensure the scope and detail of the SMS are proportionate to risk

4. Ensure general competence of leadership team for positive H & S management

5. Ensure technical competency is available for effective management of specific risks

6. Provide competent H & S advisory resource – proportionate to risk and competency of leadership team

7. Establish a balanced cross-functional H & S Committee, including representation form all levels of the organisation, which meets regularly and encourage employee contribution to H & S leadership

8. Establish departmental H & S action groups/teams – to be involved in key elements of plans including workplace monitoring and audit processes and investigation of accidents and incidents

9. Develop and maintain a strategic plan for H & S including the 'mission' and 'vision' and short term (annual) tactical plans

10. Measure performance against a balanced scorecard of 'leading' and 'lagging' indicators

11. Key KPI's from the scorecard to be benchmarked internally and externally, reported at the highest level and used for setting targets within tactical plans and personal objectives for the leadership team

12. Treat health (and wellbeing) like safety – same tools for identifying and dealing with risk and integration with the SMS

13. Communicate the hell out of it – tracking progress, highlighting and recognizing success, informing of risk, incidents and accidents and taking and acting on feedback from all quarters

3.
Safety Culture

CHAPTER 3

SAFETY CULTURE

Why is safety culture so important

Culture can be defined as an organisation's attitudes and belief's, in other words "the way we do things around here". A good safety culture can help generate benefits such as:

- Improved moral and good employer / employee relationships
- Low numbers of accidents and incidents
- Lower turn-over of staff
- Enhanced reputation - with customers and investors
- Reduced costs associated with accidents and ill health at work
- Improved compliance with legislation and reduced attention from regulators
- Reduced costs associated with Civil claims

However, creating a good safety culture can't be done in isolation or overnight, it requires a clear strategy, careful planning and appropriate resources to enable it to happen. Culture change is notoriously difficult to manage and takes a significant amount of time to happen. Typically a programme can take five or more years to become effective and to start generating real benefits. On this basis culture change should be tied into the overall SMS and planned, monitored and reviewed as any other aspect of the business.

Leadership

Leadership starts at the top of an organisation and is a fundamental part of all aspects of a business. Effective and proactive leadership is a key part of creating the right safety culture in an organisation and will help achieve a good safety performance.

Leadership requires visible and consistent commitment from all line management including Directors, Managers, Supervisors and Team Leaders; they need to demonstrate that H&S is an essential part of the business; sometimes known as "walk the talk".

Leaders should demonstrate and apply a "just and fair" culture where everyone is encouraged and supported to make the right choice for themselves and their colleagues. This type of culture can be demonstrated by:

- Integrating H&S with other business functions
- Ensuring that everyone stops, thinks and asks if they are unsure about their or others H&S
- Taking time to observe and discuss H&S with employees
- Reinforcing behaviours that will promote continuous improvement
- Correcting poor behaviours that undermine continuous improvement
- Acting in a positive, consistent and timely way when concerns are raised
- Ensuring that risk assessments are carried out and appropriate controls are implemented
- Ensuring that employees are trained and competent to perform their activities
- Involving employees in the management and control of the work place

Supervision

Front line supervisors play a vital role in the H&S culture of any organisation, they have a great influence over the standards and behaviour of those they manage or interact with.

Supervisors should be given the appropriate training to enable them to perform their role (skills, knowledge and experience).

Supervisors should be given the responsibility & support from senior management.

To be fully effective supervisors need to know that:

- Individuals under their control are properly trained and competent
- Tools and equipment are appropriate for the work and properly maintained
- The work area is safe and effectively controlled
- Individuals are performing their tasks safely and efficiently
- Individuals are demonstrating the correct behaviours to keep themselves & others safe

Employee engagement

Employees should be involved in the development, implementation and maintenance of their workplace. Organisations where employees are fully involved and engaged with H&S generally have lower incidents rates, higher productivity and are healthier, happier and motivated.

Involvement can be achieved through a number of ways:

- Attendance and involvement in safety meetings
- Input into workplace design, operations and projects
- Inspections of the workplace
- Training (e.g. Risk Assessment, First Aid, Safety Representative etc.)
- Design, implementation and monitoring of H&S initiatives and programmes

Culture-based safety programmes

Culture based safety programmes (sometimes known as BBS) can form an important part of an integrated approach to managing H&S. The size of an organisation can impact on the type and style of such a programme. A programme may be in-house using the tools described below, or can be from a specialist organisation in safety culture. The decision will be very much based on the needs of the organisation, the existing culture, its performance and the resources available.

Measuring H&S culture

The start point is to carry out some sort of survey; information on the types of survey available can be obtained from a range of organisations such as:

- Health & Safety Executive (HSE)
- Company insurer
- Trade association
- Institution of Occupational Safety & Health (IOSH)
- Specialist organisations
- Other Companies who have implemented a H&S culture programme

At the early stages it's a good idea to set up a steering group made up of a cross section of employees to organise and manage the survey. **This steering group will also be an essential part of the success of any future programme.**

The survey needs to cover a representative sample of all employee groups (top to the bottom of an organisation), surveys should be publicised well in advance to promote participation and generate a meaningful result.

The objective of a survey is to find out about employees' attitudes and beliefs in relation to H&S; it will also help identify what can be done to improve those attitudes and beliefs.

Case study

A well-known food manufacturer engaged in a programme of improvements to the culture of their organisation, this helped reduce overall accidents by 77% over a 5 year period. The Company had identified that human error and failures to follow procedures had contributed to the majority of their accidents. Despite putting many managers through the IOSH Managing Safely programme, the Company realised they were not getting the full benefit from the programme.

As a result of this they started to look at various off-the-shelf behavioural safety systems but after evaluating them they decided that they weren't right for their organisation. On this basis they decided to develop an in-house system that fitted better with the existing culture and their values.

Their system stressed that Safety is an integral part of the Company's core business; on that basis they don't talk about "Safety culture" but the "organisations culture".

The company now runs a number of different programmes, all of which have Safety benefits that are helping to continually shape and improve the culture of the business.

Change safety culture

Once the current organisations safety culture has been established a plan should be established to address the key issues identified from the survey. The steering group can play an important part in formulating, implementing and monitoring that plan.

The plan should identify any specific behaviours that have contributed to incidents, accidents and near misses; by identifying those behaviours the programme can focus on spotting and correcting them.

It's important to remember that culture change doesn't happen overnight, any programme will need careful management and the benefits will take time to grow and be maintained. Culture change is a long process that requires sustained support and commitment from management & the workforce as a whole.

A Baker's Dozen - 13 Tops Tips

1. Lead by example and consistently demonstrate that H&S is important to the business
2. Walk the talk - take time to talk about H&S
3. Integrate H&S into normal business communication processes
4. Management systems needs to include a commitment to a good H&S culture
5. Make sure the workforce are trained and competent to do their job
6. Plant and equipment needs to be suitable for the task, and kept in good condition
7. Involve the workforce in all aspects of H&S management
8. Carry out a H&S culture survey
9. Develop an action plan
10. Implement and monitor progress
11. Analyse incident, accident and near miss data to identify unsafe behaviours
12. Reinforce good behaviours
13. Manage / resolve unsatisfactory behaviour and conditions

4.
Slips Trips & Falls

CHAPTER 4

SLIPS TRIPS & FALLS

What the law says

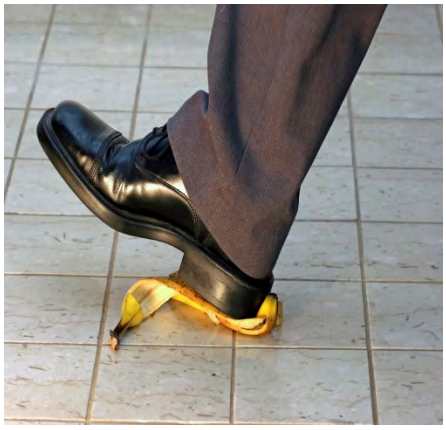
The Health and Safety at Work Act requires employers to ensure the H&S of all employees and anyone who might be affected by their work. This includes the risks from slips and trips.

The Management of Health and Safety at Work Regulations include duties on employers to assess risks and take action where necessary to safeguard H&S.

The Workplace (Health, Safety & Welfare) Regulations require floors to be suitable, in good condition and free from obstructions.

What are the hazards

Typically over a third of all major injuries reported each year are caused by slips and trips and half of all trip accidents are caused by poor housekeeping. Most slips in the Baking industry occur when the floor is wet or contaminated with food products whilst most trips are caused by obstructions and uneven surfaces.



Slips and trips can be caused by a number of things but it can be very easy to jump to the wrong conclusions as to why they have happened. Sometimes the true root cause is missed or it's accepted as "just one of those things that happens around here".

The following are some typical causes of slips and trips in the workplace:

- Cleaning operations
- People
- Contamination and obstacles
- Flooring
- The general environment
- PPE

Cleaning operations

- Ensure that appropriate procedures are in place for cleaning operations and individuals are trained and competent to carry them out safely
- Provide the correct equipment and materials for each operation, different operations may have specific / specialist requirements
- Ensure the cleaning equipment is available and correctly maintained
- Use dry cleaning methods wherever possible, for example a vacuum cleaner
- Always use appropriate warning signs to indicate if cleaning is taking place or the floor is wet, for example marker cones
- Clean up spillages immediately, using dry methods where possible rather than a mop which can spread the spill
- Dry ingredients such as seeds and flour can make the floor slippery; they can also release oil adding to the problem

People

Individuals may not always follow their training; there could be a number of reasons for this but it's important that procedures are complied with and any problems are communicated to management as soon as possible.

Sometimes individuals are in a hurry and may take a shortcut or not tidy up after themselves; it's important to take the time to do things correctly.

Contamination and obstacles

- Contamination is anything that ends up on the floor that shouldn't be there; preventing it is better than having to clean it up
- Maintenance of equipment is important so that it doesn't leak
- Where drips and spills are likely provide drip trays or a way of containing the spill safely
- If the contamination has occurred, post signage and restrict access if it can't be cleaned up immediately
- Check areas regularly for obstructions
- Maintain suitable walkways through area
- Eliminate trailing cables, hoses etc., if they are required mark them to warn others

Flooring

- The floor in a workplace should be suitable for the types of activities that will be taking place
- Check regularly for holes, cracks and general damage; post warning signs and repair as soon as possible
- Where a floor cannot be kept dry it should be made safe for it to be walked upon without the fear of slipping; this can be achieved in a number of ways such as giving it a rough coating, using duck boards etc.
- Stairs should have a high visibility non-slip cover on the edges (called “nosings”)
- Suitable handrails should be in place on steps and stairs
- Steps should be of equal height and width

The general environment

- Sometimes the production process can naturally create slip and trip hazards; if this is the case it’s important to recognise them and reduce the risks as much as reasonably practicable
- If hazards can’t be completely eliminated appropriate warning signs should be posted
- Too much light can hide hazards due to glare
- Too little light can prevent individuals from seeing hazards
- Hazards can be introduced from outside the area, for example - ensure there are mats in place at entrances so that shoes can be dried if it’s raining outside
- In adverse weather conditions (ice and snow) consider implementing a clearing / gritting programme

PPE

- Ensure that safety footwear has soles and grip that are appropriate to the hazards

- If safety footwear has a close type of tread ensure it does not become clogged
- Consider visitors and other personnel who may visit the area
- The specification of the safety footwear needs to be matched to the hazards; all footwear does not perform well in all situations

- The temperature of the environment (cold and heat) can significantly affect the performance of footwear
- Always try a sample of safety footwear in the particular location / environment as it may not always be suitable

A Baker's Dozen - 13 Top Tips

1. Stop spillages wherever possible
2. Deal with spills as soon as they occur
3. Carry out an effective cleaning programme
4. Ensure individuals are trained and competent
5. Choose an appropriate floor surface
6. Use the correct cleaning equipment
7. Use the right cleaning material in correct concentration
8. Wear appropriate footwear
9. Implement and maintain good housekeeping
10. Repair any damaged surfaces
11. Use the handrail when on steps and stairs
12. Make all steps the same height, non-slip and visible
13. Post warning signs / cones for wet or slippery surfaces

5.
Work At Height

CHAPTER 5

WORK AT HEIGHT

The risks

Falls from height are one of the main causes of fatalities and major injuries in bakeries. Injuries tend to be more serious as you would expect (broken bones, fractured skull etc.) which means pain and suffering and a long time to recover - if that's possible!

Injuries will generally result in a significant amount of time off work, loss of earnings and may prevent the individual from returning to their normal work now or in the future; injuries like this can be life-changing!

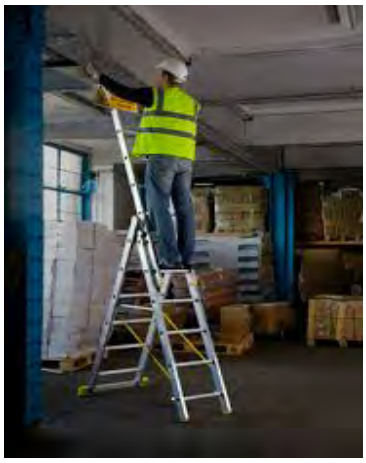
It doesn't have to be a fall from a great height, a fall from less than 2 m can result in serious or even fatal injuries.

Where falls can occur

Statistics from the Baking industry indicates where falls from height are most likely to occur:

- Stairs - falling down stairs or from staircases, often when they are wet or contaminated with food products, oil, grease or fat

- Ladders - where temporary access is required, using unsecured ladders or step ladders



- Vehicles - falls from vehicles, either delivery vehicles or FLT's. This includes from a platform or the cab / driving position

- Plant and machinery - access to plant and machinery for cleaning, checking product, maintenance and repairs

- Warehouse racking and shelving in stores - where individuals try to retrieve goods stored at high level by climbing

- External and Internal roofs - when individuals gain access onto non load-bearing roofs for cleaning or retrieval of goods, also to access equipment located on internal and external roofs

Focusing on these and other areas in the workplace will help identify and reduce the risk.

Activities where falls occur

Analysis of falls from height indicates that there are particular activities being carried out when most accidents happen; they fall basically into three categories:

- Cleaning
- Checking and sampling
- Maintenance

Falls from plant and machinery often occur when cleaning is being carried out such as, cleaning flour dust from ledges and using temporary access equipment such as ladders and steps.

Checking and sampling of product is an essential part of any baking process but also results in a significant number of accidents due to a fall from height.

Maintenance of plant and equipment often requires the need to work from height; in addition this may also involve the use of tools which can become an additional hazard to the individual performing the task and / or individuals below.

Falls from vehicles often happen during loading and unloading operations.

Falls also occur when individuals wrongly use a FLT as an access platform by standing on the forks, or on a pallet mounted on the forks.

What the law says

The Management of Health & Safety at Work Regulations requires that activities that give rise to risk should be assessed to eliminate or reduce that risk.

The Workplace (Health, Safety & Welfare) Regulations require employers to take suitable and sufficient measures to prevent people falling any distance likely to cause personal injury. In other words wherever an individual is working they should not be exposed to significant hazards or risk.

The Work at Height Regulations requires an Employer to consider aspects such as:

- Means of access
- Fall prevention
- Working platforms
- Fall arrest protection
- PPE
- Ladders and steps
- Inspection

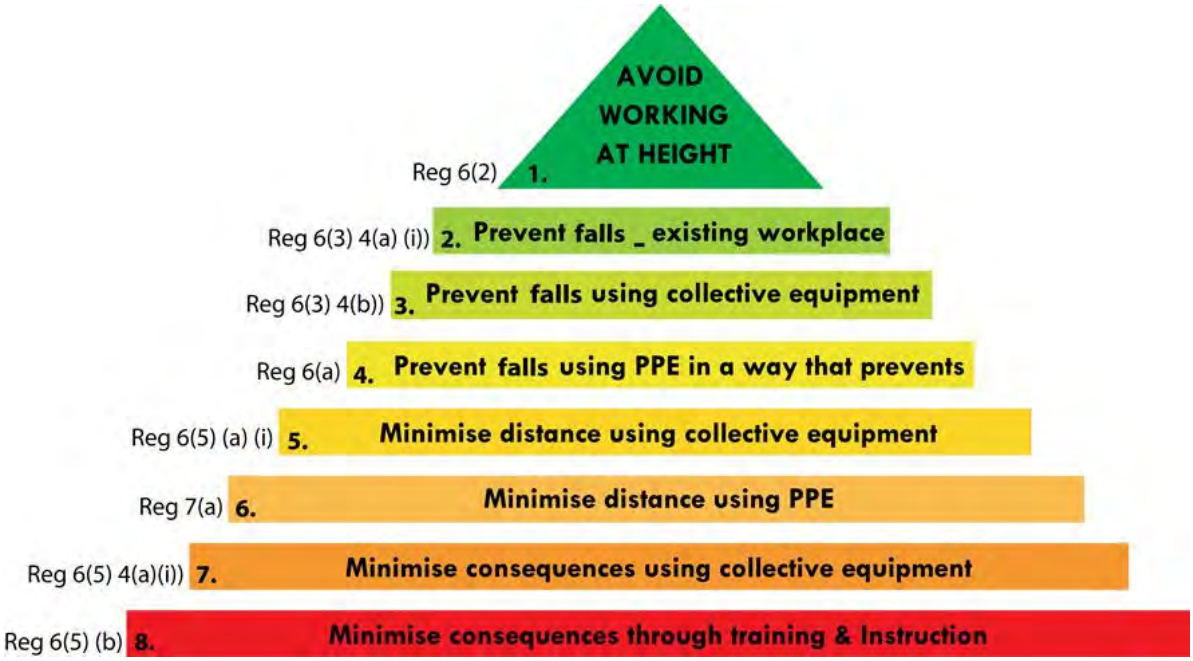
The hierarchy of control

The Work at Height Regulations includes a simple and straightforward way to manage the risk from working at height. It sets out a hierarchy of control to eliminate or reduce risk to an acceptable level:

Can the need to work at height be eliminated - where possible / practical

If work at height is required **collective** measures should be used to prevent a fall occurring
(For example - handrails around the edge of a roof, physically covering a hole in a roof)

If the risk of a fall can't be eliminated **collective** and **individual** measures should be used to eliminate or reduce the consequences of a fall
(For example - a net under a roof, air bags, wearing a safety harness)



It's essential that a Risk Assessment is carried out on any work at height and the appropriate control measures are put in place to eliminate or control the hazards to an acceptable level.

Anyone working at height must follow the identified controls from the Risk Assessment and not take shortcuts.

The following are some common activities where falls could occur and the typical control measure that could be adopted to prevent or reduce the risk:

Installation of new plant

- New plant offers opportunities to 'design in' safety - is working at height necessary
- Risk assessments should be carried out on projects at an early stage to identify and eliminate hazards
- Specify plant and equipment where checking and sampling can be done from ground level or a place of safety
- Specify plant and equipment with fixed and permanent access platforms, walkways and staircases with handrails - prevent the need for future temporary access can also save money in the future
- Design structures to eliminate ledges for dust and debris to collect

Cleaning

- Cleaning can be reduced by good design and maintenance of plant, but when it's required avoid the use of loose ladders and steps where possible
  (It's a myth that the Working at Height Regulations banned the use of ladders and steps)
- For example - Ladders or steps may be acceptable if the job is short, the user can maintain a safe hold (typically 3 points of contact) and the ladder / steps are stable and secured
- The need to clean flour dust at a height can be reduced by providing and maintaining effective local exhaust ventilation equipment that will reduce the amount of dust in the area
- Use a vacuum cleaner with an extension nozzle to clean structures from ground level
  (Don't use compressed air to blow dust - it's a health hazard and an explosion risk)
- If cleaning from height cannot be avoided conduct a Risk Assessment and produce an appropriate Safe Operating Procedure (SOP) or Method Statement (MS)

Case study

A bakery reviewed the cleaning system for removing flour dust from high level steam pipes. Existing vacuums were fitted with extension tubes and a curves brush head which allowed the pipes to be cleaned from floor level. This not only eliminated the risk of a fall from height but made cost and time savings.

Sampling and checking

- Plant should be designed to allow sampling and checking from ground level, or from a permanent place of safety
- Gauges and other measuring / monitoring equipment should be sited at ground level if possible
- Design it in when buying new plant and equipment
- Vision panels, mirrors or cameras can sometimes be fitted to plant to allow viewing from ground level
- Provide permanent and safe access where regular access is required, for example steps, platforms with handrails etc.

Case study

A flour delivery driver fell 3 metres when the bottom of the unsecured ladder he was climbing slipped. The driver was making a delivery of flour into a 20 tonne silo and he had climbed the ladder to tap the outside of the silo to see whether or not it was full. After the accident the Company set up a system where all delivery drivers are accompanied and supervised whilst on-site. A fixed stairway was also installed for access to the top of the silo.

Maintenance

- A risk assessment should be carried out before any maintenance work starts
- Where frequent high level access is required safe and permanent access should be provided
- If access is infrequent, then temporary access equipment (e.g. ladder, mobile scaffold or mobile elevated platform) may be used, but it must be suitable for the purpose and used safely
- As a last resort, equipment that will minimise the distance and the consequences of a fall may be used such as a safety harness - but don't forget there should be a rescue plan in place just in case someone does fall

Case study

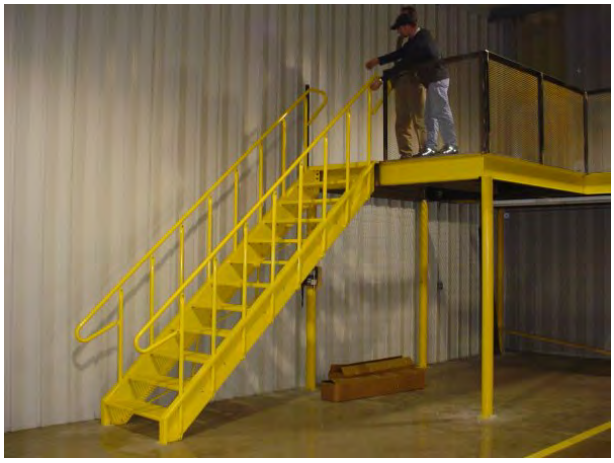
An extraction pipe from a flour silo had blocked. A bakery worker gained access to an inspection hatch, situated 3 m above floor level, using a pair of trestle steps steadied by another worker. To gain access to a further hatch, the bakery worker clambered along a 20 cm-wide cable tray lost his balance and fell to the floor

Falls caused by slipping

- Many falls from height accidents are initially caused by slipping
- If footwear or access equipment is contaminated, for example with dust, dough or oil, a simple slip can turn into a serious fall from height - regular inspection and cleaning will help avoid these hazards
- Slip-resistant footwear should be used when working at height

Falls on stairs

- Falls on stairs are one of the most common fall-accidents in bakeries
- Stairs should be maintained in good condition and have clearly visible nosings fitted with well-secured, non-slip treads
- Handrails should be provided - on both sides if it is a wide stairway
- Falls often occur on stairs because they are contaminated with product or are wet from cleaning - regular inspection and cleaning is important including adequate drying time



Case study

A bakery has several slip accidents on the main stairwell leading from the bakery production area to the changing rooms. They had a shoe scrubber / cleaner unit located in the changing room. This was relocated to the bottom of the stairs so staff could clean shoes prior to ascending the stairs to get changed; this significantly reduced the amount of debris on the stairwell - this cost nothing to implement

Falls from vertical ladders (and steps)

- Vertical ladders that are used for access onto platforms and walkways should have a self-closing gate or barrier to prevent an individual falling down the ladder
- Chains and manual closure devices should not be relied on as they can be left open
- Short ladders can be just as dangerous as a long one
- Steps that are too steep (almost vertical) can be particularly hazardous as individuals don't know whether to use them facing forwards or backwards

Falls from racking and shelves

- Accidents occur when individuals climb racking or shelving to check or retrieve items; safe access should be provided, for example wheeled steps
- The forks of a fork lift truck are **not** safe access unless a properly designed and inspected access platform is fitted

Access onto internal roofs and false ceilings

- Access onto internal roofs and false ceilings that are non-loadbearing, for cleaning, maintenance and retrieval of goods, results in many accidents where an individual falls through the roof onto the floor below
- Access onto any roof or ceiling that is non-loadbearing or safe to work on should be prevented
- Roofs and ceilings (including the tops of Chillers and Freezers) should not be used for storing equipment unless safe flooring, access and handrails have been provided

Case study

A bakery worker fell 3.3 m from the loft of a bakery through a 1 cm-thick plasterboard ceiling fixed beneath un-boarded joists approximately 0.5 m apart. The worker had been cleaning flour from between the joists and fell as he was being handed up equipment - he suffered a fractured spine.

Storage in lofts and other elevated areas

- Storage above floor level requires particular attention - lofts and other elevated areas should not be boarded out and used for storage of flour, ingredients etc. unless it has been confirmed that the structure is strong enough to take the planned load - consult a structural engineer to verify the structure
- Safe access also needs to be provided to such elevated areas, for example a fixed stair with handrails on the open side

Access to external roofs (including the top of tanks and silos)

Roof work is a particularly high risk activity, apart from a simple fall, there are often other less-obvious risks associated with such areas as:

- Fragile or slippery roof materials
- Skylights and fragile materials
- Hazardous materials (concrete Asbestos)
- Adjacent hazards (low power lines, roof vents, relief valves and devices)
- Access and egress
- Lone working
- Weather conditions

Roof work is usually associated with construction or maintenance of the building, for example cleaning gutters or repairing leaks.

However, in the food and drink industries roof areas will often contain or allow access from, oven and fryer flues, ventilation systems, explosion vents, coolers, fans and other air handling equipment. These need to be cleaned, inspected and maintained in the same way as internal plant and equipment.

In addition roof areas are prone to infestation or providing a route of entry to the factory for various insect, rodent and bird pests; access is therefore often required for pest control purposes.

If regular access is required a permanent safe means of access to should be provided.

For regular or infrequent access to such an area a specific risk assessment should be conducted to identify risk control measures, these will need to include:

- Safe and secure (against unauthorised) means of access
- Identification of hazards (obvious and hidden)
- Appropriate control measures
- PPE
- Emergency procedures (communication, raising the alarm, rescue etc.)

Due to the inherent dangers of working in such areas access will generally be physically restricted. In addition it may be controlled using a permit to work system unless all hazards have been eliminated or fully controlled.

Using a fork lift truck (FLT) for access

- Fatalities regularly occur when individuals fall from FLT forks
- Standing on the forks of a FLT, or a pallet on forks, is unsafe and should never be done
- There are now much better types of access equipment on the market such as scissor lifts and “cherry pickers” collectively known as Mobile Elevated Work Platforms (MEWP’s); scaffolding may also be an option
- If a FLT is to be used as a means of access only a properly constructed and inspected fork-mounted platform should be used; in addition the FLT should not be moved other than raising and lowering the platform

Case study

A worker climbed up pallet racking to examine goods and could not get down. A FLT driver offered to give him a lift down on the forks. The worker fell from the forks (a distance of 2.5 m); breaking both wrists and an elbow. The FLT driver was inexperienced and was not trained.

Vehicle access including loading and unloading

A significant number of accidents occur when individuals fall from vehicles such as:

- Load platform on a trailer, curtain-sider, or container
- Top of a tanker
- Platform or cab on an articulated tractor unit or fixed vehicle
- Cab on a FLT

Accidents happen to drivers and individuals helping with the operation.

A significant number of accidents occur when an individual is getting on or off the vehicle, particularly when they are using the wrong or inappropriate method (e.g. jumping down).

An appropriate Risk Assessment should be conducted to ensure that hazards are identified and appropriate controls put in place.

A Baker's Dozen - 13 Top Tips

1. Design out the need to work at height wherever possible
2. Consider alternative safe methods of access
3. If working at height complete a risk assessment to eliminate / control the risks
4. Ensure the work at height has an appropriate safe system of work or method statement
5. Use appropriate access equipment with fall prevention
6. Provide suitable alternative protection if fall prevention cannot be achieved
7. Ensure that individuals are trained and competent to work at height and with the equipment
8. Ensure that access equipment is regularly serviced and maintained
9. Pay particular attention to roofs and ceilings as they may be fragile
10. Ensure that any "statutory examinations" are carried out by a competent person
11. Ensure that a rescue plan is in place if using fall arrest equipment
12. A Fork Lift Truck is not for lifting persons unless fitted with the correct piece of access equipment - there are better alternatives such as a cherry picker or scissor lift
13. Ladders and steps may be used in certain controlled situations

6.
Work in Confined Spaces

CHAPTER 6

WORK IN CONFINED SPACES

What is a confined space

A 'confined space' must have both of the following defining features:

(a) It must be a space which is substantially (though not always entirely) enclosed; and
(b) One or more of the specified risks must be present or reasonably foreseeable.

Significant risks

The regulations define the list below as 'significant risks':

- Fire or explosion
- Loss of consciousness due to heat
- Asphyxiation due to gas, fume, vapour or the lack of oxygen
- Drowning
- Asphyxiation due to free flowing solids

A "confined space" is a combination of the actual nature of the space itself and the presence of a substance or condition which when **taken together** could increase the risk to someone entering that space.

Not all enclosed workplaces are subject to the Regulations; an enclosed workplace without a 'specified risk' is not a confined space that is subject to the Regulations even where there are other risks due to the size or difficulty of working in it. In ceiling voids, lofts and some cellars, if the space is cramped you may need to consider other risks, such as musculoskeletal disorders, or how people would be evacuated if they had a fall or injury. However, these areas would not be 'confined spaces' under the Regulations unless they met the requirements on being enclosed and having one or more of the specified risks.

Confined spaces due to their nature have the potential to be dangerous and therefore they need to be managed very carefully.

The following areas are examples of where a 'Confined Space' could be found in a bakery and some typical ***hazards*** that may be present, however, the flowchart (Figure 1) will help confirm:

- **Silos** (when full and empty)
  - *Containing free flowing powders and solids*
  - *Materials may be flammable and / or explosive*

- *Poisonous gasses may be present or reduced Oxygen content*

➢ **Ovens, Provers and Coolers**

- *Excessive heat and humidity*
- *Flammable and / or explosive gasses*
- *Poisonous gasses may be present or reduced Oxygen content*

➢ **Basements**

- *Flammable and / or explosive gasses*
- *Poisonous gasses may be present or reduced Oxygen content*

➢ **Roof voids**

- *Excessive heat and humidity*
- *Flammable and / or explosive gasses*
- *Poisonous gasses may be present or reduced Oxygen content*

➢ **Water tanks and vats** (when full and empty)

- *Flammable and / or explosive gasses*
- *Poisonous gasses may be present or reduced Oxygen content*
- *Drowning*

➢ **Vehicle tankers**

- *Containing free flowing powders and solids*
- *Materials may be flammable and / or explosive*
- *Poisonous gasses may be present or reduced Oxygen content*

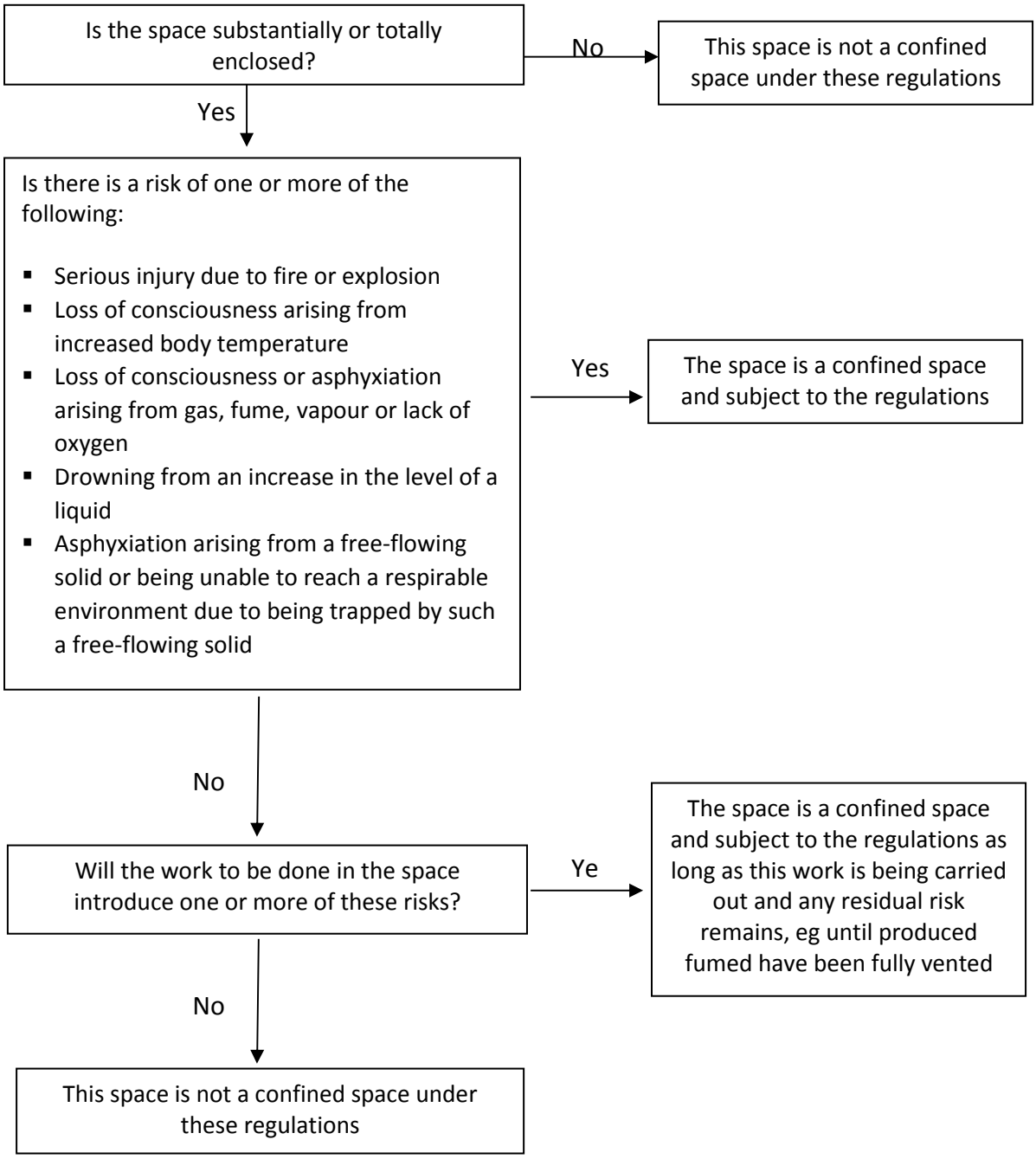
➢ **Large compactors**

- *Poisonous gasses may be present or reduced Oxygen content*
- *Also a significant risk of being crushed*

➢ **Drains and sewers**

- *Flammable and / or explosive gasses*
- *Poisonous gasses may be present or reduced Oxygen content*
- *Drowning*

FLOWCHART – Is the area confined Space?



How hazards can be created

Hazards can be created in many ways; they may be naturally present due to the process itself such as a flour silo or oven. They may also be created, or made worse, by a particular activity such as cleaning or maintenance.

It's important to consider all situations not just the normal; think about:

- Start up and shut down
- Maintenance and inspections
- Emergencies

Recognising the risks

The first stage of managing confined spaces is to identify where they exist or have the potential to be created. A hazard could be present on a permanent basis eg. an open top tank or a drain. A hazard could also be created when specific conditions occur such as draining a closed tank and opening it up for cleaning.

It's important to keep a record of where permanent and temporary spaces exist and to clearly mark them so that everyone is aware of the hazards.

When a space is identified as a confined space these Regulations will apply in full, even where the specified risk is controlled.

In addition to marking confined spaces it may be necessary to physically restrict access, for example a basement or roof space.

Managing the risks

Once the confined spaces have been identified a Risk Assessment should be conducted for each one.

A fundamental part of the risk assessment process is to consider if entry to the confined space is necessary; in other words can the task or activity be done in another way which avoids the entry.

There may also be situations where entry has been required on a regular basis for situations such as regular cleaning or clearing blockages; if this is the case consideration should first be given to engineering-out the need to enter.

For example, can cleaning be done automatically or from outside the confined space; can pipework be modified to reduce blockages etc. This may involve some initial expenditure but long term can save time and money as well as reducing production down-time.

If entry to a confined space is still required a risk assessment should be conducted.

It's very important to remember that any entry into a confined space is potentially dangerous and therefore the assessment must consider worst scenarios to ensure that all hazards have been considered and the appropriate controls put in place.

Case study

Two fitters entered a 23m-long tunnel oven to retrieve a grid that had fallen from a conveyor. The oven had not been allowed to cool to a safe working temperature, the work took place in a confined, dark space with moving machinery and there was no means of escape in the event of an emergency. Both fitters were overcome by the heat and subsequently became trapped in the oven conveyor and died.

A typical risk assessment should be covering subjects such as:

- Identification of hazards (actual and potential)
- Isolation of power sources (electrical, mechanical, hydraulic, stored energy etc.)
- Isolation of substances that can enter the space (chemicals, ingredients, gasses etc.)
- Removal of any hazardous substances (where possible before entry)
- Assessment of tools and equipment being taken into the space (electrical, lighting, burning and welding, gasses etc.)
- Assessment of the actual working area and the method of entry / exit
- Temperature and humidity
- Flammable and explosive hazards
- Air quality (breathable / contaminants)
- Emergency procedures and rescue
- PPE and RPE requirements
- Communication (normal and emergency)
- Assessment of individuals entering the space (physical and psychological)

But remember every confined space will have its own hazards and conditions, on this basis generic risk assessments are probably not going to be suitable for such activities.

Controlling the entry

The most effective way to control confined space entry is to use an appropriate permit to work system; this will help identify hazards and document the associated controls. In addition it will formalise the entry process and control the people involved with the task.

Depending on the task the work may be conducted by employees; in some situations it may be more appropriate to use specialist Contractors to do the work. In either case the controls will be the same and the Company still has the overall responsibility to ensure that the work is done safely.

Case study

An employee of a specialist silo-cleaning subcontractor was hit by 75 kg of flour while attempting to clear a blockage inside a silo. When the contractor was in the silo, the controls preventing flour movements to the silo failed due to incorrect valve selection at an earlier stage which allowed a 'holding pot' to discharge into the silo. The permit-to-work system had broken down and was ineffective.

Training and competency

It is important that everyone involved with confined space entry is competent; this includes those actually entering the space and those controlling the task. The following should be considered:

- The permit to work system (competent person, issuer and acceptors)
- Those performing the task (system of work, method statement etc.)
- Emergency procedures (rescuers and those who may need to be rescued)
- Capable of safely entering a confined space (physical and psychological)

Emergency procedures

Appropriate emergency procedures need to be identified and put in place; this includes training and ensuring they are effective before the entry is undertaken; the following should be considered based on the type of entry:

- Training (entry personnel, rescuers, others)
- Raising the alarm and rescue
- Rescue and resuscitation equipment
- First aid and medical support
- Control of confined space and the wider area
- External support (emergency services)

Occupational health

Individuals who are required (or may be required - rescuers) to enter a confined space need to be physically and mentally fit to ensure they are not being put at risk. A regular assessment by a health professional is the best way of achieving this; in the case of using specialist contractors evidence should be obtained to ensure this is taking place.

A Baker's Dozen - 13 Top Tips

1. Eliminate the need for accessing confined spaces wherever possible
2. Create a list of all confined spaces with their associated hazards
3. Consider planned and unplanned access including breakdown, blockages etc.
4. Clearly mark and limit access to confined spaces
5. Carry out a risk assessment on each one detailing the hazards and appropriate controls required for safe entry
6. Involve all relevant persons in the risk assessment process
7. Ensure all equipment is suitable and safe for use in the confined space
8. Implement an appropriate permit to work system
9. Ensure that the space is made as safe as possible before entry and that hazards cannot be re-introduced during the entry process (e.g. by physical isolation)
10. Ensure that everyone involved with confined space entry is competent
11. Ensure that any contractors are competent and have suitable and sufficient method statements
12. Ensure that all emergency equipment is suitable and tested
13. Ensure emergency procedures are in place and have been tested

7.
Bakery & Packaging Machinery

CHAPTER 7

BAKERY & PACKAGING MACHINERY

Injuries caused by machinery

Plant and machinery are one of the main causes of fatal injuries in bakeries and the second highest cause of major injuries. The use of machinery in bakeries presents a variety of hazards including:

- Crushing
- Shearing
- Cutting, severing and puncturing
- Entanglement
- Drawing-in (in-running nip) and trapping
- Associated hazards such as burning

Typical bakery plant and machinery and the ***hazards*** they can cause:

Type of Plant and Machinery	Typical hazards
Mixers	Entanglement, crushing and shearing
Dough moulders	Drawing-in and crushing
Depositors	Crushing, severing and trapping
Dough and pastry brakes	Drawing-in and crushing
Pie and tart machines	Crushing and burning
Dough dividers	Shearing and cutting
Roll plant	Crushing, drawing-in and cutting
Provers	Trapping and crushing
Bowl and bin hoists	Crushing and trapping
Automatic ovens	Drawing-in and burning
Bread slicers	Cutting

Type of Plant and Machinery	Typical hazards
Conveyors	Drawing-in and trapping
Carton formers	Crushing, shearing and burning
Case erectors	Crushing
Flow wrappers	Crushing, shearing, drawing-in and burning
Shrink tunnels	Drawing-in and burning
Stretch wrappers	Burning
Mechanical power transmissions	Crushing, drawing-in and entanglement

How accidents happen

Accidents generally occur during normal bakery operations such as production activities, clearing blockages, cleaning and maintenance. As part of these normal operations fixed guards are often removed for cleaning purposes or to clear a blockage.

When fixed guards are removed the risk increases and there is always the possibility that the guard isn't correctly replaced and the hazard is left exposed.

In addition, when a fixed guard is removed, careful consideration should be given to preventing the equipment from starting up; this is generally achieved by physically isolating the particular equipment.

Where an interlocked guard is fitted it should not be relied on as the primary method of isolating (or controlling) the equipment; the appropriate physical isolation and controls should always be used.

Equipment and machinery standards

Since 1993 manufacturers and suppliers in Europe have been legally required to ensure, and provide proof, that machinery is safe; this is normally done by putting a CE mark on the machine.

In addition, the UK has the Provision and Use of Work Equipment Regulations (PUWER) which specify in detail how machinery and equipment should be made safely managed.

In general PUWER requires that equipment and machinery is:

- Safe and suitable for its intended purpose
- Maintained and in good working order
- Inspected to ensure that it is safe and in good working order
- Safe to use and can be cleaned and maintained safely
- Capable of being safely isolated from energy sources
- Provision of information, instruction and training

In addition it specifies the following hierarchy of control in relation to protection from hazards:

1. Fixed guards
2. Other guards or protection devices (interlocked guards, automatic guards etc.)
3. Protection devices (light guards, trip switches, 2-handed controls etc.)
4. Information, instruction, training and supervision

Food equipment and machinery has specific guarding problems because it has to be accessed frequently for product changes, maintenance and hygiene cleaning.

Wherever possible, food equipment and machinery should have the hazards designed out, only where this cannot be achieved should guards or protection devices be fitted.

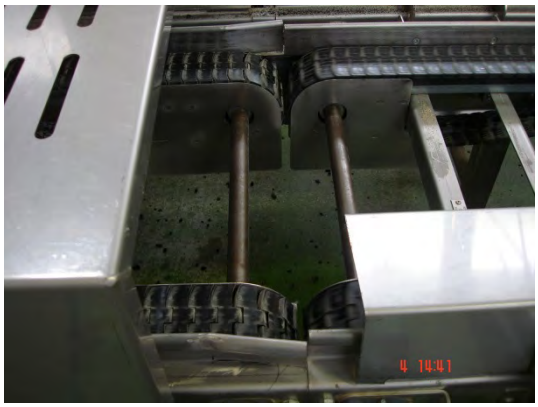
Fixed guards

Fixed guards are typically those that are secured with a bolt, screw or lock that can only be removed with the aid of tools like a screwdriver, spanner or key. They are generally used where accessed is infrequent. Guards will either enclose the hazard (close coupled) or prevent access by ensuring a suitable safe distance from the hazard (perimeter guard).

Many accidents happen when fixed guards are removed while the machine is still running; in addition when fixed guards are removed, they are sometimes not replaced and individuals can become complacent about exposed hazardous.

Fixed guards, on new equipment (after 2009), that can be physically removed should have the fixings attached to the guard to prevent them being lost.

Fixed guards are also used to prevent drawing in (in-running nips) hazards, for example on conveyor rollers, chains and belts. Where these are fitted the gap between the fixed guard and the moving part should be kept to a minimum - not more than 6mm.

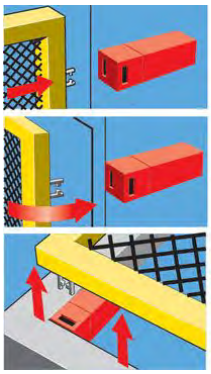


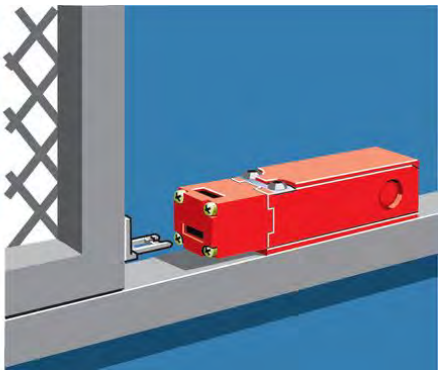
Interlocked guards

Typically if access is required more than once per shift, the guarding giving access to that area should be interlocked so that the machine cannot operate unless the guard is closed. Consideration should also be given to ensure that the hazard is not present when the interlocked guard is opened, for example, moving parts have stopped before access is physically possible.

In general closing an interlocked guard should not start the machine; it should require re-setting and starting with the normal controls.

Selection of the interlock device like tongue-operated switches may not be suitable in bakery applications because food can accumulate inside them and they are difficult to clean. Coded, magnetic switches may be preferable as they are easier to keep clean.





Maintenance of guards and interlocks

Accidents occur because interlocks have failed, been defeated or guards have fallen into disrepair. The bakery environment is relatively harsh, due to the nature of the product, the high frequency of access into machines and the high frequency of cleaning required.

On this basis it is essential that a robust system for checking and maintaining guards and interlocks is in place. Checks should be conducted by trained individuals at a frequency appropriate to the equipment and the hazards present.

Best practice is for Operators to check and record each safety-critical guard and interlock at the beginning of each shift or start-up.

If any significant faults are identified the equipment should be taken out of service and repaired immediately.

In addition to normal operational checks a planned, preventive maintenance system should be conducted by suitably trained and competent persons.

Stored energy

Accidents occur when stored energy contained in machinery is accidentally released, for example compressed air, heavy mechanisms, rams etc. This can cause parts to move unexpectedly and create a significant hazard. Wherever possible stored energy should be released automatically to eliminate the need for manual intervention; where this is not possible signs should warn that the machine contains stored energy.

Unexpected start-up

The control systems on bakery equipment should be designed so that if the power supply fails, the equipment comes to a stop safely and does not re-start when power is reconnected. The equipment should then require a deliberate action to re-start it. This logic should be the same for when an interlocked guard is opened; the equipment should not re-start until the control system is re-set.

Isolation and lock-off

Before any clean-down or maintenance work is started, machines should be made safe; this requires the isolation from all sources of energy and the release of any stored energy.

This can be achieved in a number of ways:

- If the equipment is fed via a plug and socket - remove and secure the plug so that it can't be re-connected

- If the equipment is hard-wired and supplied from an isolator - switch off the isolator and secure it so that it can't be switched back to the on position

Compressed air should be isolated and vented safely wherever possible.

All energy isolation devices should be clearly marked and accessible.

Where there is any possibility that an energy source could be unintentionally reconnected there should be a system in place for locking-off the isolation devices. Best practice is to use a physical lock with one unique key and everyone coming into contact with the hazard fitting a lock to the point of isolation.

In some situations a purpose designed locking system can be fitted to the equipment that requires a captive key to be removed from the point of isolation; once isolated this key can be used to open an access point (guard) on the equipment. Only when the access point is closed can the key be returned to the point of isolation and the power restored.

A Baker's Dozen - 13 Tops Tips

1. Never run equipment or machinery with guards damaged, missing or interlocks linked out
2. Isolate equipment and machinery correctly before cleaning or maintenance
3. Use locks for isolating equipment and encourage people to use them
4. Regularly check and record that guards are correctly fitted and undamaged
5. Regularly check that interlocks are working correctly
6. Regularly check that normal and emergency controls function correctly
7. Ensure that guards, interlocks and safety components are inspected by a competent person as part of a planned preventative maintenance programme
8. Ensure that all controls and equipment is correctly and clearly labelled
9. Ensure that appropriate, and up to date, operating instructions are available for equipment and machinery
10. Ensure that appropriate hazard warning signs are posted
11. Ensure that operating procedures are up to date and being followed
12. Ensure that appropriate training is given and individuals are competent
13. Record and investigate all faults, incidents and accidents to identify the root cause

8.
Fire & Explosion

CHAPTER 8

FIRE & EXPLOSION

Although fires and explosions are generally rare in bakeries, when they do occur the immediate effects can be very serious, in addition the time to recover from the incident can be considerable; the main fire and explosion hazards are:

- Flour and ingredient (including dusts)
- Fuel gas
- Oven fires
- Deep fat fryers
- Hot work
- Machinery
- Storage of materials and substances
- Arson

Flour and ingredient dust

Flour and ingredients in general are flammable; in addition some of them are also explosive. As with any flammable substance or material good housekeeping standards and effective fire management systems / procedures will go a long way to controlling risk.

Dust explosions in the food industry have caused serious accidents resulting in multiple fatalities. Most dust explosions are not one event, they generally start with a small / localised "primary" explosion which generates pressure waves. These pressure waves move through the wider area and cause more dust to be released / airborne, this is then ignited causing a much larger secondary explosion. In certain circumstances this process can continue until the whole area / facility is affected with catastrophic results.

As with any flammable substance certain conditions are required to cause a fire or explosion. In the case of an explosive dust the concentration in the air needs to be within the upper and lower explosive limits and a suitable source of ignition needs to be present.

In bakeries the main explosion risks are around silos, transfer systems and dust filters.

In addition there can be a risk from large concentrations of dusts that have been allowed to accumulate in an enclosed area; the hazard occurs when the dust becomes airborne in a sufficient concentration and finds an ignition source. For example, when compressed air is used to move and clean up significant quantities of dust. On this basis compressed air should not be used for this purpose and other methods should be used such as vacuuming.

Where a dust is, or could be, present in an explosive concentration the general method of control is to eliminate or significantly reduce the risk of an ignition source.

Fuel gas

Most gas explosions and incidents in bakeries occur in ovens or other gas equipment. A large proportion occurs when manually igniting gas equipment and there is a delay between turning the gas on and applying the ignition source. All modern gas equipment should be fitted with a flame-failure device which prevents a significant amount of gas being released unless there is already a flame present to burn that gas. These devices work on the following principles:

- Gas is turned on and the ignition source is applied simultaneously (this commonly establishes a pilot or primary flame)
- If there is no ignition source, the valve automatically cuts off the supply of gas
- If the flame is extinguished, it is detected and the gas supply is cut off

Some older equipment may not be fitted with such a device (not a requirement at the time of manufacture) and eventually these should be replaced or be upgraded.

Where such a device has not yet been fitted it's very important that staff are trained and supervised to ensure that the correct manual procedure is followed.

All gas appliances should be regularly serviced by a competent registered gas service engineer, engineers should be registered on the Gas Safe Register.

The bakery will be fed with Natural Gas from the national gas network; this will include an isolation valve(s) either on the perimeter of the site or within the bakery. Generally gas pipework will then run through the bakery to the individual appliances. Should a fire occur in the bakery this pipework will be vulnerable to damage and rupture; on this basis it is essential that a procedure is in place, and individuals are trained, to ensure that the gas isolation valve is closed to prevent gas being fed to the site.

Where possible it is good practice to replace the manual isolation valve with an automatic device linked to the fire alarm system; this will remove the need for manual intervention and reduce the time for gas to be fed to a hazardous area.

In addition to the supply to site each gas appliance should have its own isolation valve for maintenance purposes and in an emergency.

Large installations may also have gas detection systems monitoring for escape of Natural Gas and other combustion products such as Carbon Monoxide.

Case study

A gas explosion occurred at a bakery as a result of a faulty gas installation in a proving room. The standard of the gas installation was poor and included a rubber hose and gas ring to heat a small water tank. There was no flame-failure device. The cause of the leak that led to the explosion was faulty pipe work.

The other type of fuel gas commonly found in bakeries is LPG, for example Fork Lift Trucks, heating units, stretch wrappers etc. The gas can be in the form of portable cylinders or fixed installations such as bulk storage units and fixed cylinders on equipment.

In general the fixed installations should be managed in the same way as Natural Gas. The main hazard from portable cylinders is the filling and transporting of the cylinders. Wherever possible any filling / changing of cylinders should be done in an open and well-ventilated area; individuals should be trained and competent to perform such activities.

Oven Fires

Flash fires can be caused by a build-up of ingredient dust, oils or fats in the oven itself or in the flues and ducts. These materials can cause a serious fire if present in large amounts; deposits of oils and fats are particularly hazardous because the flashpoint (the temperature at which a substance forms a flammable / explosive mixture with air) reduces significantly as the substance is heated / reheated.

The flashpoint can reduce to below that of the temperature in the oven, resulting in a self-igniting fire. On this basis it is essential that a routine inspection and cleaning programme is followed which covers not only the oven but also the associated flue and ducting.

Case study

A pie company regularly seasoned pie tins by coating the tins with oil and baking off the oil in an indirectly fired oven. The flashpoint of the oil was 170° C. The flashpoint temperature (which may have been reduced by successive seasonings) was reached and a crack in the heat exchanger caused the vapour to ignite, which in turn caused a large and damaging fire in the oven.

Deep fat fryers

Hot cooking oil and fat in deep fat fryers can be a significant fire hazard in bakeries. Fryers should be fitted with a working temperature thermostat and also a high-temperature; automatic cut-out device to limit the oil temperature should the thermostat fail.

The electricity supply switch and / or gas valve for the fryer should be clearly marked and positioned where it can be safely operated to turn off the heat source if the oil or fat catches fire.

Ventilation hoods, filters, flues and drainage channels should be inspected and cleaned regularly to remove grease build-ups that can ignite and cause a fire. Access points should be provided in the ducting for inspection and cleaning.

Staff should be trained and competent to use the equipment and how to respond in the event of a fire.

Equipment that is in use should not be left unattended.

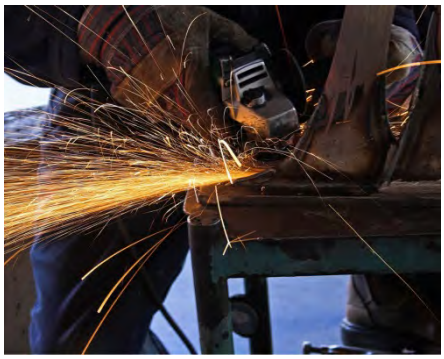
Appropriate fire-fighting equipment should be positioned in the vicinity of the equipment but not in a position where those required to use it are at risk.

In some situations, due to the significant hazards present, it may also be appropriate to fit automatic fire detection and suppression equipment; for example in the flue or the outfeed of an automatic fryer.

Hot work

The use of welding, flame-cutting, soldering, brazing and other equipment generates a significant amount of heat and sparks: this can cause fires if not properly managed and controlled.

Any hot work where there is a potential for fire should be controlled using an effective and documented permit to work system. Individuals who are issuing and accepting a permit should be trained and competent.



As a minimum a hot works permit should include:

- Where hot work is being done
- Who is carrying out the work
- Who will be affected by the work
- Communication to appropriate individuals and functions
- A check list of possible hazards
- Appropriate control measures
- Contingency arrangements for emergencies
- Time, date and duration of the permit
- Issued by a competent and authorised person
- Accepted by competent persons to do the work
- A signing off process to ensure the area is safe and the work has been done correctly

Machinery

Machinery and electrical systems can be a significant hazard due to failure and overheating; in addition they can be an ignition source.

Appropriate planned preventative maintenance systems and procedures, including regular inspections and checks conducted by trained competent staff, will help identify and prevent such hazards.

Fixed electrical installations should be inspected and tested on a regular basis; portable appliances should also be inspected and tested (commonly known as PAT).

A thermal image camera may also be used, this will help identify hot spots and prevent electrical and mechanical systems causing a fire.

Work on mechanical and electrical equipment should only be done by trained and competent engineers.

Storage of materials and substances

All materials and substances should have appropriate information supplied with them to indicate if they are flammable and / or explosive. This information will be contained in a Material Safety Data Sheet (MSDS). The MSDS will also contain the following information:

1. Identification of substance
2. Hazard identification
3. Composition and ingredients
4. First Aid
5. Fire Fighting
6. Accidental release
7. Handling and storage
8. Exposure control and PPE
9. Physical and chemical properties
10. Stability and reactivity
11. Toxicology
12. Ecological
13. Disposal
14. Transport
15. Regulatory information
16. Other information

Storage requirements are very much based on the specific materials and substances being stored but some general principles should be applied:

- Ensure there is no direct or indirect contact with an ignition source
- Ensure that suitable prevention measures are in place to prevent materials and substances being easily accessible to non-authorised persons
- Suitably containment, segregation or protection from any fire within the area
- Suitable warning and identification signage in place
- Suitable containment to limit and control spillage - e.g. a bund
- Regular inspections by trained staff (fire safety awareness)
- Suitably trained and competent staff to manage the storage area

Arson

Appropriate measures should be taken to ensure that materials and substances are not subject to damage or arson. The following principles should be applied to reduce the risk:

- Ensure that access to hazardous materials and substances is restricted to authorised persons
- Locate storage facilities away from general access routes and areas or physically restrict access
- Don't store materials and substances near boundary fences or public areas
- Conduct regular inspections of vulnerable areas
- Fit an appropriate automatic fire detection system
- Enforce an appropriate no-smoking policy
- Conduct appropriate screening checks on prospective new employees
- Consider appropriate CCTV monitoring of vulnerable areas

Fire risk

The Regulatory Reform (Fire Safety) Order requires the owner / occupier of premises to carry out a risk assessment to establish what fire risks are in the workplace and what fire precautions are required to safeguard individuals.

A fire risk assessment should be conducted by a competent person. A typical fire risk assessment will take into account and document the following:

- Design, construction and location of the site
- Construction and materials
- Processes on site
- number of staff
- Sources of fuel
- Sources ignition
- Detection and warning
- Fire fighting measures
- Maintenance and inspection
- Information and training

Generally bakeries will be fitted with an automatic fire detection system which will operate 24hrs a day, a number of different detection systems are available but generally they are looking for either smoke detection or a significant rise in temperature. There are also systems that look for a specific source of infrared heat generated by a fire or hot component.

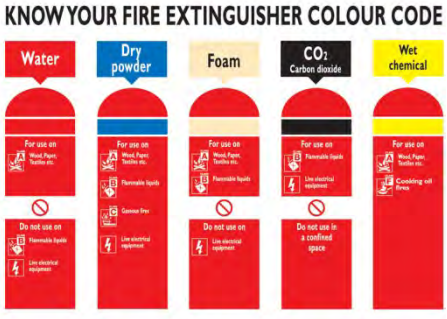
Detection systems should be located around key / high risk areas such as ovens, boilers and areas with a significant fire risk.

Systems (call points, sounders, etc.) should be tested and records kept on a regular basis (best practice is weekly).

Maintenance and testing should be done by a competent person / organisation.

Based on the fire risk assessment procedures should be in place for identified emergency situations such as fire and explosion. These procedures will very much depend on the bakery and the hazards present but in general they should be documented and tested on a regular basis.

Typically a fire alarm / evacuation drill should be conducted at least twice a year with the staff that may be affected by such an incident - don't forget to cover shift workers.



Explosion risk

The Dangerous Substances & Explosive Atmospheres Regulations (DSEAR) requires an employer to conduct a risk assessment to assess and control the risks from an explosion.

As with any other risk assessment hazards should be identified and quantified.

DSEAR goes one stage further and requires any significant hazards to be assessed and put into one of the following categories (known as EX Zones):

Gasses, vapours & mists

Zone 0
A place in which an explosive atmosphere consisting of a mixture with air of dangerous substances in the form of gas vapour or mist is present continuously or for long periods or frequently

Zone 1
A place in which an explosive atmosphere consisting of a mixture with air of dangerous substances in the form of gas, vapour or mist is likely to occur in normal operation occasionally

Zone 2
A place in which an explosive atmosphere consisting of a mixture with air of dangerous substances in the form of gas, vapour or mist is not likely to occur in normal operation but, if it does occur, will persist for a short period only

Dusts

Zone 20
A place in which an explosive atmosphere in the form of a cloud of combustible dust in air is present continuously, or for long periods or frequently

Zone 21
A place in which an explosive atmosphere in the form of a cloud of combustible dust in air is likely to occur in normal operation occasionally

Zone 22
A place in which an explosive atmosphere in the form of a cloud of combustible dust in air is not likely to occur in normal operation but, if it does occur, will persist for a short period only

The regulations generally focus on one or both of the following controls:

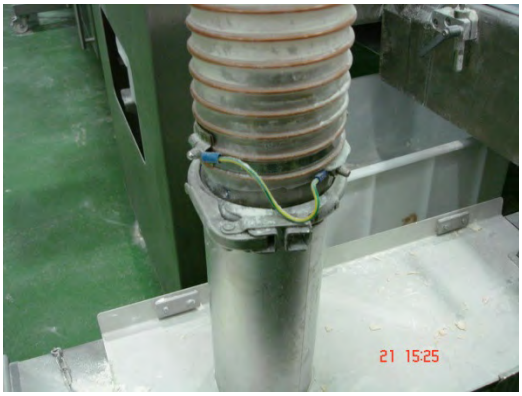
- Removing / reducing the flammable and explosive substance
- Removing / reducing the risk of having an ignition source

Where a flammable / explosive substance is normally present, due to the process or equipment being used, the general method of control is to eliminate or significantly reduce the risk of an ignition source.

For example where flour is being stored, handled or transferred there is normally an explosive concentration inside the equipment or machinery. It would be impossible to remove that explosive concentration due to the inherent process taking place.

Therefore in this situation the control measures are designed to eliminate ignition sources, for example:

- Preventing electrical static build-up by good earthing
- Fitting / using electrical equipment that is not capable of producing an ignition source
- Fitting mechanical equipment that is not capable of getting hot enough or generating an ignition source



In addition to these preventative controls being implemented, should an explosion occur the following may also be put in place to reduce the effect of such an explosion:

- Locating the equipment or machinery outside so that any explosion is to atmosphere and not inside the confines of a building or structure
- Fitting an explosion vent to the equipment to safely relieve the pressure of an explosion
- Separating parts of a larger system to prevent an explosion travelling through the system (e.g. fitting a rotary valve in ducting or pipework)
- Fitting a suppression system that reduces ("quenches") the forces of the explosion as soon as it occurs

Where a flammable / explosive substance should not normally be present in significant quantities the best method of control is to keep the substance at a minimum level so that it is not a significant hazard.

A typical example of this is the amount of flour to be found on surfaces in the mixing or stores sections of a bakery.

Ignition sources will always be present but if the levels of flour can be reduced and effectively controlled the risk of a significant explosion is eliminated or significantly reduced.

Typical controls might include:

- Regular inspections of plant and equipment to identify any significant release of dust
- Planned preventative maintenance procedures
- Use closed / semi-closed mixing equipment where possible
- Maintain a “clean as you go policy” so that dust on surfaces is reduced to a minimum
- Reduce the number of flat surfaces where dust can accumulate
- Use vacuum cleaners wherever possible (suitably protected against explosion)
- Eliminate / reduce the use of compressed air for cleaning purposes

A Baker's Dozen - 13 Top Tips

1. Ensure that individuals are trained and competent in fire management and control
2. Conduct a fire risk assessment
3. Conduct a DSEAR assessment
4. Review the fire and DSEAR risk assessments on a regular basis
5. Implement an appropriate hot works procedure and permit system
6. Carry out regular fire safety checks on systems and equipment
7. Implement and maintain a robust clean as you go policy with appropriate procedures and checks
8. Ensure that a suitable cleaning programme is in place for ovens and flues to reduce build-up of flammable materials
9. Ensure gas equipment is regularly inspected, tested and serviced by competent and certified engineers
10. Ensure all electrical systems, equipment and appliances are regularly inspected, tested and maintained
11. Ensure all mechanical equipment is regularly inspected, tested and maintained
12. Ensure you can account for all individuals on site in the event of an evacuation
13. Ensure that suitable evacuation and emergency procedures are in place and regularly tested

9.
Workplace Transport & Road Risk

CHAPTER 9

WORKPLACE TRANSPORT & ROAD RISK

Is workplace transport a problem?

Workplace transport accidents in the food and drink industries are the second highest cause of fatal injuries. During the period between April 2000 and March 2010, 11 individuals died as a direct result of workplace transport, for example being crushed by a vehicle. A further 10 individuals were fatally injured in transport-related accidents such as falling from stationary vehicles or being struck by something falling from the vehicle.

Each year over 200 people in food and drink factories are struck by fork lift trucks (FLTs) and other vehicles, frequently resulting in serious injuries.

The main causes of injury are:

- Struck by vehicle (not a FLT) - 31%
- Falls from vehicles - 22%
- Trapped between two vehicles - 5%
- Trapped between vehicle and wall - 6%
- Trapped by overturning FLT - 6%
- Struck by FLT - 26%

Where a person was struck by a FLT, 28% were when it was reversing

Where a person was struck by a vehicle (not a FLT) 21% were when it was reversing

Delivery vehicles

Over 30% of workplace transport injuries result from pedestrians being struck by lorries and vans. Reversing a vehicle is the most hazardous activity as drivers have limited rear visibility.

Injuries to pedestrians frequently occur if vehicle and pedestrian routes are not separated, or if vehicles have to pass close to buildings or fixed objects where there are pedestrians.

It's not just workers on-site who are at risk, members of the public are also at risk when deliveries are being made to retail outlets.

Over 20% of transport injuries result from falls from vehicles. In bakery operations most falls from vehicles are associated with:

- Steps from a vehicle cab
- The tail lift at the rear of the vehicle
- Steps to access the tops of tankers

Priorities

Based on the previous breakdown of injuries the following priority areas have been identified:

- Pedestrian safety and pedestrian / vehicle segregation
- Reversing vehicles
- Falls from vehicles
- Tail lifts on delivery vehicles
- FLT operations
- Driver training

Pedestrian safety and pedestrian / vehicle segregation

Nearly 70% of workplace transport accidents occur when pedestrians are struck or trapped by moving vehicles; on this basis consider the following:

- Have safe traffic routes been planned for vehicles arriving at, and leaving site
- Are vehicles and pedestrians kept separate wherever possible
- Do vehicles and pedestrians have separate entry / exit points in buildings
- When loading / unloading vehicles are drivers kept in a safe place away from the operations (and their vehicle)

- Are appropriate speed limits in place and being enforced
- Are adequate signs in place to highlight hazards (one-way, speed limit, no entry etc.)
- Are mirrors fitted on blind corners and other similar hazards
- Are all vehicles including cars, motorcycle and bicycles parked in their designated areas
- Is access to loading yards restricted to essential personnel
- Is the level of lighting adequate to ensure visibility of vehicles and pedestrians
- Is high visibility clothing a requirement in areas where vehicles and pedestrians mix
- Is it a requirement for vehicles to have reversing sounders
- Do regular inspections and audits take place to reinforce standards and ensure compliance

Case study

A bakery worker was hit by a FLT as he stood in a space between stacks of bread baskets at the side of a very congested passageway. He had stepped in-between the baskets to allow the truck to pass. As the truck went by it hit a barrier on the opposite side and was deflected back and hit the bakery worker who was knocked unconscious. Although the driver was trained, there was no segregation of vehicle and pedestrians and the area was congested.

Reversing vehicles

About a quarter of individuals struck by vehicles are injured when the vehicle is reversing; on this basis consider the following:

- Can reversing be eliminated or reduced, for example by one-way systems
- Do vehicles have adequate all-round visibility
- Do vehicles have additional mirrors and other devices (e.g. camera) if visibility is a problem
- Is there need to mark reversing areas so they are clear to drivers
- Are pedestrians and non-essential persons excluded from the area when reversing is taking place
- Is there a need for a banksman to direct reversing vehicles
- Have banksmen been trained and do they wear a high-visibility clothing
- Do vehicles have reversing alarms or proximity sensor / braking systems fitted

Case study

A worker was injured whilst helping to load a delivery vehicle at a bakery. Another worker, who was not authorised to do so, tried to drive the van forwards to withdraw a loading ramp from the van and allow more room for the product. The vehicle rolled back and the worker who was standing on the loading bay at the rear of the vehicle had his arm crushed between the vehicle and the wall.

Falls from vehicles

Over a fifth of transport related accidents occur when workers fall from a vehicle; on this basis consider the following:

- Is cab access well designed, with slip-resistant steps and hand holds
- Do vehicle check lists include condition of steps and access points
- Is the loading floor at the rear of the vehicle slip-resistant to prevent slipping from the vehicle to the ground

- Have wet conditions been considered
- Are suitable steps and handholds provided for access
- Has the need to go onto the top of tankers been eliminated by providing access and controls at ground level
- Where access to the top of a tanker is required, is it safe (e.g. side-mounted, curved access ladders, walkway is fitted with collapsible handrails)
- Is a tanker access gantry, with handrails, provided on-site for cleaning and maintenance work
- If curtain sided vehicles are used is there safe access on and off the trailer
- Are mobile elevated platforms (Cherry pickers, scissor lifts etc.) used for access at height

Tail lifts

Serious injuries occur with vehicle tail lifts; on this basis consider the following hazards:

- Trapping feet between the moving platform fixed parts of the vehicle or the ground
- Trapping fingers or other parts of the body between moving parts
- Being crushed by loads falling or rolling from the platform
- Being crushed between the platform and fixed parts of loading bays
- Falling from the platform
- Are loads overhanging the platform

- Is there excessive tilt caused by a vehicle not being on level ground (not more than 5 degrees in any direction)
- Are chocking devices fitted and being used to prevent loads moving
- Is the safe working load marked on the tail lift
- Does the surface of the platform have sufficient slip-resisting qualities (even in wet conditions)
- Is the level of lighting inside and at the rear of the adequate

Case study

A worker was standing behind the tail lift of a lorry whilst trolleys of bread were lowered to the ground. The trolleys rolled off the tail lift onto the worker who suffered severe cuts to his legs and ligament injuries. As a result of the accident the operator of the vehicle fitted ramp extensions stops to the tail lift to prevent trolleys rolling off.

FLT operations

Injuries to FLT drivers frequently occur when the FLT falls down the gap between the vehicle and the loading bay as the vehicle moves off. A system should be in place to prevent 'drive-offs' until the operation is complete and the driver is given permission to move the vehicle; consider the following options:

- Taking the keys from the driver and securely retaining them until the operation is complete
- A key exchange system which physically prevents the vehicle from moving off during the operation
- A mechanical restraint attaching the rear of the vehicle and the loading bay which is only removed when the driver's keys are returned

The strength of vehicle flooring should be checked to ensure that it is capable of taking the weight of the FLT being used.

Accidents still occur when pedestrians enter warehouses and outside areas where FLT's are operating; consider the following:

- Is access to loading yards restricted to essential personnel
- Are members of the public and delivery drivers controlled when entering the area
- Is high visibility clothing a requirement in areas where vehicles and pedestrians mix
- Are non-authorised vehicles prevented from entering the areas
- Is the level of lighting adequate to ensure visibility of vehicles and pedestrians
- Is it a requirement for vehicles to have warning beacons and / or reversing sounders
- Do regular inspections and audits take place to maintain standards

Training

Any person required to drive on Company business should be trained, competent and authorised to drive by their employer. In the case of FLT and Large Goods Vehicle (LGV) drivers there are specific and regular medical assessments which include general health, eyesight and hearing.

Training requirements vary depending on the type of vehicle being driven and the environment it is working in; for example there is a specific code of practice for FLT's which details training and driver standards.

Don't forget that no matter what the type of vehicle, from a simple pallet truck to a large LGV, drivers need to be trained and be competent to operate that specific vehicle.

Training doesn't stop with the driver of a vehicle; anyone (including pedestrians) should be informed of the requirements when entering an area or coming into contact with operating vehicles.

Securing contents of vehicles

Accidents occur when the contents of vehicles are not properly secured; this is a particular problem when the vehicle is opened and an individual is struck by part of the load which has moved during transit.

Loads on all vehicles should be properly secured to ensure they are safe during transit and when they arrive at their destination to be unloaded.

Drivers have a responsibility to ensure that the load on their vehicle is secure before and during any movement.

Occupational road risk

As well as considering the obvious risks from workplace transport on and off site, it's important to recognise the hazards and risks employees face whilst driving for work. This includes the conventional activities such as driving a FLT or delivering products to a customer but it also includes activities such as drive a company vehicle (or a personal car) on company business.

It is estimated that over 3,000 deaths on our roads every year are actually work related and many suffer serious injuries. Statistics suggest that an individual is four times more likely to have a vehicle related accident whilst driving on Company business than driving at home.

Whilst these accidents are not required to be reported to the HSE under the RIDDOR Regulations, the police will investigate road traffic accidents and involve employers in that investigation. Employers should have in place robust management system for anyone required to drive on Company business.

The consequences of road traffic accidents will have an impact on any business; case studies have shown that those organisations that have an occupational road risk policy and management system in place can have:

- Lower insurance premiums
- Fewer days lost to due to accidents
- Reduced stress levels
- Less lost time rescheduling deliveries and sales calls
- Fewer vehicles off the road for repair
- Lower fuel usage
- Higher moral amongst the driving population
- Helps drivers maintain clean licences

Manage occupational road risk

Work related road safety can only be effectively managed if it is built in to existing arrangements for health and safety at work. It's best practice to have a written policy and allocate roles and responsibilities for the implementation and management of that policy. Typically that policy should include:

- A system with appropriate / workable procedures
- How the policy will be communicated
- Appropriate training
- A process for monitor performance

Case Study

A company with a fleet of 300 company cars worked with a specialist training organisation to develop an online risk assessment tool to identify high, medium and low risk drivers. They then developed bespoke training packages for high risk drivers, in order to reduce those individuals' road risk. They also made changes to other policy areas including overnight stops where the working day was 12 hours including driving

Risk assessment

When looking at occupational road risk a risk assessment should consider the following areas:

- The driver
- The vehicle
- The activities

The Driver

Is the driver competent and safe to carry out the driving activity; consider the following:

- Does the driver have the relevant experience
- Does the job or task require more than a current / valid driving licence for the particular class of vehicle
- Does the recruitment process include sufficient checks from references, driving licence authorities, insurers, medical records etc.
- Are drivers required to inform the Company of any driving offences and fines

- Are drivers required to inform the Company of any prescription drugs that might affect their ability to drive
- Are periodic driving licence checks in place
- Are drivers made aware of their responsibilities
- Are drivers appropriately supervised and monitored
- Is additional training and supervision required due to the nature of the activity
- Is Continual Professional Competence (CPC) training required e.g. Commercial drivers
- Are risk assessments conducted on any new delivery / collection sites before making the first visit
- Is there an Occupational Health programme in place for drivers
- Do working hours include driving time and are they planned to minimise fatigue whilst driving
- Are seasonal conditions (e.g. snow and ice) included in driver training and awareness
- A robust mobile phone policy should be in place to ensure that drivers are not put at risk and the law is complied with

The Vehicle

All vehicles should be assessed and chosen to match the particular activity, and they need to be properly maintained.

Certain types of vehicles have specific requirements such as the tail lift on a delivery vehicle which has to be “thoroughly examined” by a competent person every 12 months, and every 6 months if it’s lifting people.

The employer has a responsibility to know what is required and to satisfy that requirement.

Company vehicles (purchase, lease and pool cars) should be selected with driver safety in mind.

Vehicles should be checked on a regular basis by drivers and the Company to ensure they are roadworthy

Activities

A Risk assessment should be conducted on any activity that has a significant risk associated with it; the following steps should be followed:

1. Identify the hazards that may result in harm to employees and others who interact with driving activities; consider the driver, vehicle and the journey.
2. Decide who might be harmed, this will include the driver, and could also include passengers, other road users, pedestrians and employees of other organisations.
   You may need to inform them of the results of the risk assessment, and share with employees the results of any risk assessments they have carried out.
3. Evaluate the risk; consider the likelihood and severity of harm with the control measures already in place.
4. Keep a record of assessments and communicate as required
5. Review and revise assessments periodically or when significant changes or incidents occur

Some typical examples of actions from assessments:

- Alternative means of transport rather than to drive - trains, flights, coach etc.
- Avoiding unrealistic objectives on sales calls, delivery schedules, meeting attendance
- Investing in video conference facilities, rather than have employees travel
- Improving vehicle maintenance schedules which reduced the risk of vehicle failure
- Specifying vehicle safety devices as standard on vehicles and company cars
- Reviewing the use of two wheeled transport for any work related activities
- Driving policy to reinforce the requirements of the Highway Code and other legislation

A Baker's Dozen - 13 Top Tips

1. Carry out risk assessments of workplace transport activities and any other tasks involving employees driving on Company business
2. Integrate the management of workplace transport and occupational road risk into the existing safety management system
3. Consider risks that drivers can create themselves, as well as the risks from the task and vehicle
4. Consider a driver's ability and driving record during selection for a particular task or role
5. Develop suitable training programmes for all drivers at significant risk
6. Plan delivery and work schedules to avoid the need to rush
7. Encourage the use of alternative transport where appropriate
8. Using video conferencing facilities where possible
9. Consider safety features when specifying vehicles
10. Conduct regular license checks on drivers
11. Implement and monitor driving performance measures
12. Have a written policy for the use of mobile phones and other in-vehicle devices
13. Record and investigate all vehicle incidents and accidents to identify and correct the root cause

10.
Occupational Health

CHAPTER 10

OCCUPATIONAL HEALTH

Health Hazards in Bakeries

The baking industry as well as having some of the more common health hazards also has some which are specific to the manufacture of food products; based on this the following should be considered:

- Dust (flour and other dry ingredients)
- Noise
- Dermatitis

Dust

One of the most significant health risks in bakeries comes from exposure to dust from powdered ingredients. The medical conditions related to dust exposure are asthma and rhinitis (persistent runny nose and sneezing).

There are two ways in which the dust can cause these conditions:

The first and most important cause of asthma and rhinitis is sensitisation (allergy) to substances contained in the dust. Flour itself is a sensitising agent but enzymes in bread improvers are also known to cause sensitisation. The consequence of developing an allergy to one of the ingredients is that further exposures to the agent, even in very small amounts, will inevitably trigger further symptoms. The only way to prevent further symptoms is to avoid exposure. This usually means that the individual has to move away from areas where dust exposure can arise.

The reason for the second cause of asthma and rhinitis is unclear but is generally thought to be direct irritation of the air passages in the nose and lungs by the dust. Although the symptoms of this type of asthma and rhinitis are similar to those produced by sensitisation, they are more easily controlled by limiting overall dust exposures, for example, by using respiratory protective equipment. If this can be achieved, it may be possible for the individual to continue working with powdered ingredients.

Exposure to flour and other ingredient dusts can also cause dermatitis, usually through irritation (drying) of the skin. In practice dermatitis due to flour is much less common than respiratory problems. However, it can also be caused by repeated hand washing, as this removes the natural oils from the skin; in practice this is relatively uncommon in bakeries.

Controlling dust exposure

The Control of Substances Hazardous to Health Regulations (CoSHH) applies to flour and dusts from other ingredients such as bread improvers. The regulations require that dust exposures are kept below Workplace Exposure Limits (WELs).

The limits are:

- 10mg per cubic meter of air - averaged over an 8 hour period
- 30mg per cubic meter of air - averaged over a 15 minute period

In practice, to comply with these requirements, the following five steps should be followed:

1. Carry out a Risk Assessment to determine the risk to health from flour dust and other powdered ingredients
2. Decide what control measures are required to control exposure and implement them
3. Ensure that individuals understand the need for control measures and how to use them
4. Check that the controls are effective in preventing / limiting exposure
5. Carry out appropriate health surveillance to confirm that controls are effective

Risk assessment

The first step is to determine the level of dust that individuals are exposed to.

Information on “exposure levels” is available for specific tasks in a typical bakery environment and this will provide a starting point to identify where more work may be required.

A simple dust lamp, which directs a narrow beam of light onto a dust cloud, will allow the naked eye to identify dust sources and identify where additional controls are required.

Ideally objective measurements should be taken of background and personal exposure levels to the specific dusts. This type of work is normally carried out by a trained occupational hygienist.

When dust levels have been measured they should be compared with the WELs.

To comply with the regulations exposure levels should be kept not only below the WELs, but are reduced as low as reasonably practicable. In practice this means that if there is a technically achievable and cost-effective control that reduces exposure, it must be put in place.

Controlling dust levels

Dust levels can be controlled either by making changes to plant and equipment (engineering controls) or by changing the working practices.

Plant and Equipment

The primary control must be to consider changes to plant and equipment; the initial step is to prevent dust from becoming airborne in the first place.

A typical example of a simple measure to limit exposure is to enclose the point where dust drops into a mixing bowl with a sock device.

Provision of Local Exhaust Ventilation (LEV), in other words dust extraction, on machines and at processes that create airborne dust should also be considered.

The most common fault with dust extraction is that, with time, it does not work as efficiently as when it was first installed. On this basis it needs to be maintained properly and checked to ensure that it is operating effectively on a daily basis. A “thorough examination” and test of the equipment should be carried out at least every 14 months.

Working Practices

Making simple changes to working practices can be very effective in reducing dust exposures.

A simple example would be taking care when dropping flour from a scoop, when weighing up ingredients.

To get the best benefit from improvements in working practices, it’s important that individuals are trained and have a good understanding of what they need to do and why it’s important.

Protective Clothing and Equipment

Overalls

Where dusty jobs are being undertaken, individuals should be provided with appropriate overalls to prevent contamination of normal working clothes.

Respiratory Protective Equipment - respirators (RPE)

Suitable respirators should be provided and worn where it is not possible to provide adequate control by other methods.

For example, some activities, such as cleaning up large spillages or certain maintenance tasks, are known to cause high short-term exposures and it would be very difficult to find a more reasonably practicable control.

The respirator should be selected for the specific situation and the individual who will be required to wear it. The selection process should take account of the likely dust levels, the physical nature and duration of the job, and the facial characteristics of the individual.

For tight-fitting respirators such as disposable masks, half masks and full face masks, the initial selection should include a face-fit test to ensure the mask is performing correctly on the specific individual.

This test should be performed by a competent person, using the appropri t and the results should be recorded.

Where there is a problem with an individual not being able to pass the face-fit test consideration should be given to providing a powered respirator.

Noise

Noise exposure can be a significant hazard in bakeries. The Control of Noise at Work Regulations requires a risk assessment to be performed and control measures to be implemented in a similar way to CoSHH.

As with all risk assessments the objective is to identify significant hazards and to put in place appropriate controls to eliminate or reduce the hazards to an acceptable level.

Noise is a difficult thing to measure and its effects (noise induced hearing loss) on individuals generally take time to develop, by which time the damage is done and the effects are irreversible.

Based on this, and a concern over noise levels in the workplace, objective measurements should be taken of background and personal exposure levels. This type of work is normally carried out by a trained occupational hygienist.

Once measurements have been taken they can be compared against the limits set by the regulations.

80 decibels (lower action level)

The employer must:

- Provide information, instruction and training
- Provide hearing protection on request and maintain it

85 decibels (upper action level)

The employer must:

- Provide information instruction and training
- Provide hearing protection and maintain it
- Ensure hearing protection is used
- Provide health surveillance
- Reduce exposure where possible

Control measures should ideally be focused on eliminating or reducing noise at the source, these are generally engineering controls such as modifying machinery or fitting additional equipment. These controls can be expensive and difficult to implement but generally have a bigger benefit in the long term.

However, in the baking industry there are still some operations and tasks that are inherently noisy and will still require the wearing of hearing protection in the form of ear plugs or ear muffs.

Dermatitis

Occupational dermatitis can occur in bakery environments and can be attributed to contact with powdered ingredients and to hand washing. Individuals who have pre-existing skin problems such as eczema and psoriasis will be more prone to developing contact dermatitis and should be assessed by an occupational health professional to advise on their suitability to work in a bakery environment.

It is worth noting that individuals who have active eczema or psoriasis on hands or forearms should be excluded from food handling work due to the risk to the product.

Health surveillance

The purpose of health surveillance is to ensure that individuals are not being harmed as a result of their work, in addition it allows an employer to measure the effectiveness of control measures put in place to protect those individuals. Health surveillance also gives individuals the opportunity to track their own general health and spot symptoms sooner than they would normally do.

Health surveillance helps ensure that all employees are aware of the possible health hazards from their work / environment so that they can report any symptoms as soon as they occur; this will enable the employer to take appropriate and timely action.

In terms of a health surveillance programme; the following should be considered:

- New starter screening to identify existing conditions and produce a base-line for future reference
- Pre-screening - consisting of an appropriate medical assessment before any significant new work starts
- Providing information to individuals on the type of symptoms to look for and how to report them
- Screening programme at regular intervals (more frequently at the start of a new job)
- Programme supervised by an occupational health professional (internal or external) who can advise on medical issues and controls

A Baker's Dozen - 13 Top Tips

1. Handle flour and powdered products carefully
2. Minimise the use of flour for dusting - particularly hand throwing
3. Clean up spilled flour and other powders as soon as possible
4. Where possible use appropriate vacuum cleaners to clear up spillages
5. Add ingredients carefully to mixers to limit the raising of airborne dust
6. Start mixers on a slow speed until wet and dry ingredients are combined
7. Avoid damage to ingredient bags
8. Minimise the raising of dust when folding and disposing of bags
9. Do not use compressed air to blowing dusts
10. Wear the appropriate hearing protection for the area / task
11. Wear the appropriate PPE and clothing protection provided for the task
12. Look after PPE & RPE
13. Report any health symptoms as soon as they occur

11.
Manual Handling & Upper Limb Disorder

CHAPTER 11

MANUAL HANDLING AND UPPER LIMB DISORDERS

Despite industry becoming more mechanised and automated manual handling and upper limb disorders are still a significant problem.

30% of injuries reported to the HSE are manual handling accidents, this equates to 1700 injures per annum; 60% of those accidents involve the lifting of heavy objects. The most significant causes of manual handling accidents in the baking industry are:

- Stacking and un-stacking containers
- Pushing racks and bins
- Packing and handling products

The Manual Handling Operations Regulations requires an employer to carry out a risk assessment on manual handling tasks and use the following hierarchy of control:

1. Avoid hazardous manual handling operations so far as reasonably practicable
2. Assess any hazardous manual handling operations that cannot be avoided
3. Reduce the risk of injury so far as reasonably practicable

Risk assessment

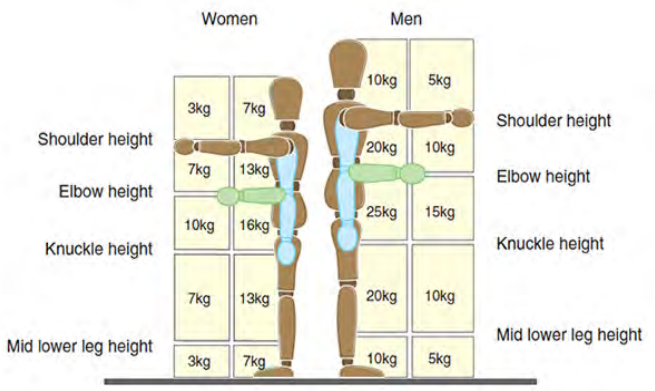
A manual handling risk assessment focuses on the following specific elements; Task, Individual, Load and Environment (known as **TILE**):

Task

- This looks at the actual work that the individual is doing
- What range of movements are involved
- How often it is performed
- The route if being moved

Individual

- This looks at the physiological and psychological condition of the individual
- Fitness
- Physical size and characteristics
- Age and gender



Load

- Weight
- Shape
- Size
- Contents - solid, liquid, hazardous, hot, cold etc.
- Stability
- Centre of gravity
- Ability to grip

Environment

- Hot, cold, humidity
- Lighting
- Noise
- Condition of floor, wet, dust, debris etc.
- Obstructions, cluttered etc.

It's important to consider all four elements to fully understand the situation and assess where improvements can be made.

Training

As with any task or operation the individual should be trained and competent. Where manual handling operations are involved this may include some form of observation; this is particularly important as individuals, for many reasons, can modify the way they perform a particular task.

Equipment

There are opportunities to use equipment to eliminate or reduce the need for manual handling in the workplace; these include:

- Pallet trucks
- Fork Lift Trucks
- Trolleys and Dollies
- Powered equipment movers

Always ensure that individuals are trained and authorised to use particular pieces of equipment.

Work-Related Upper Limb Disorders (WRULD)

Upper limb disorders can be caused by a variety of tasks involving forceful or repetitive tasks or poor posture; they can include problems with the neck, shoulder and arm including the forearm, elbow, wrist, hand and fingers.

Certain bakery handling and packing activities may involve a significant amount of repetitive work. These types of tasks can be associated with the development of certain symptoms and disorders such as:

- Aches and pains
- Swelling and tenderness
- Stiffness
- Weakness
- Tingling
- Numbness
- Cramp
- Tennis elbow
- Frozen shoulder
- Carpal tunnel syndrome

Where a significant problem has been identified a risk assessment should be conducted to identify the hazards and determine what can be done to eliminate or reduce the risk to an acceptable level.

Sometimes simple changes to the area, equipment or work methods can produce a significant reduction in the risk. Consider the following:

- Design of workstations
- Workstation should be adaptable to suit individuals
- Provide platforms, adjustable chairs and footrests
- The correct tools with the right sized grip
- Design workstation for left and right handed individuals
- Reduce the length of time that the task is carried out for
- Share high risk tasks between the team by rotating individuals
- More short breaks can be better than one long one
- Reduce the amount of force that is needed
- Reduce the weight of items or the distance moved
- Provide light weight tools or support the tools
- Distribute any force that is required over the palm of the hand not just one finger
- Ensure the workplace temperature is suitable
- Ensure lighting is suitable and avoid reflections
- Involve operators in the way the work is organised and done

Where a significant risk has been identified it's important to conduct regular health surveillance to measure the effectiveness of control measures and to monitor the condition of those who may be at risk.

It's also worth noting that activities outside of work can have an effect on an individual's health.

A Baker's Dozen - 13 Top Tips

1. Avoid manual handling wherever possible
2. Complete a risk assessment
3. Ask for assistance if required
4. Reduce the weight being carried or moved
5. Use good manual handling techniques
6. Use lifting equipment where possible
7. Ensure individuals are trained and competent
8. Report any problems with the task or workplace
9. Report any health symptoms as soon as the they occur
10. Take regular breaks if doing a repetitive task
11. Ensure the workstation is adjusted correctly
12. Use the tools and equipment provided
13. Help with the organisation and design of work activities

12.
Hazardous Substances

CHAPTER 12

HAZARDOUS SUBSTANCES

Forms of a hazardous substance

Substances can be found in a number of forms or states; these states may depend on a number of factors. For example, water at room temperature is a liquid, above 100 degrees C it's a vapour (steam) and below 0 degrees C it's a solid (ice).

- **Solids** *(dependent on temperature and pressure)*
- **Dusts** *(solid particles suspended in air)*
- **Fibres** *(solid materials fragmented in strands)*
- **Liquids** *(dependent on temperature and pressure)*
- **Gases** *(form of a substance above its boiling point)*
- **Vapours** *(gaseous form of a substance at a higher temperature)*
- **Fume** *(small metallic particles condensed from a gaseous state)*

Typical hazardous substances found in the baking industry

A range of substances can generally be found in the baking industry; some have specific hazards associated with them depending on how they are used:

Ingredients

- Flour
- Baking additives such as - enzyme based improvers, preservatives in powdered or liquid formats etc.
- Spices flavouring and other additives including vinegar, yeast, fats, salt etc.

Engineering materials

- Oils and greases
- Solvents and other degreasing materials
- Welding fumes
- Paints
- Coolants and refrigerants

Hygiene materials

- Acid and alkali based detergents and cleaning materials
- Sanitising liquids, sprays and foaming agents

Other substances or organisms which are hazardous by their nature

- Asbestos
- Legionella
- Biological hazards such as Bacteria and Viruses
- Vehicle and truck exhaust emissions

Categories of hazardous substances **(health)**

Substances are categorised (and labelled) according to their health effect on us.

Very toxic - *Substances and preparations which in very low quantities cause death or acute or chronic damage to health when inhaled, swallowed or absorbed via the skin*

Toxic - *Substances and preparations which in low quantities cause death or acute or chronic damage to health when inhaled, swallowed or absorbed via the skin*

Harmful - *Substances and preparations which may cause death or acute or chronic damage to health when inhaled, swallowed or absorbed via the skin*

Irritant - *Non-corrosive substances and preparations which, through immediate, prolonged or repeated contact with the skin or mucous membrane, may cause inflammation*

Corrosive - *Substances and preparations which may, on contact with living tissues, destroy them*

Health effects

The effect from a substance can vary significantly depending on how we make contact with it:

Acute - an immediate effect such as a burn caused by contact with an acid

Chronic - a longer term effect such as Occupational Asthma caused by continued exposure (inhalation) to flour dust

The effect can also vary depending on how the substance reacts with our body:

Localised - where the substance makes contact with a specific part of the body such as Dermatitis

Systemic - carried to a specific organ in the body such as the Liver

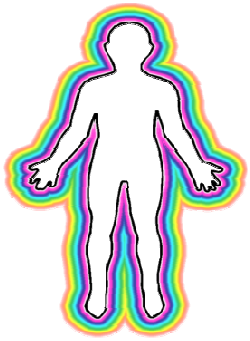
Toxicity

In principle every substance can be toxic depending on how and where it is used; some substances are more toxic than others, for example Arsenic is far more toxic than Water. In general the toxicity of a substance is measured in the amount of the substance (milligrams) that will cause significant harm (death) in relation to the body mass (Kg) of an individual.

Routes of entry into the body

Substances can come into contact with the body in a number of ways; this may be a surface skin contact or the substance may be taken into the body via a number of other ways (routes):

- **Inhalation**
- **Ingestion**
- **Absorption (skin)**
- **Injection**



Categories of hazardous substances **(physical)**

A substance may also have physical hazards such as:

- **Flammable (Highly & Extremely)**
- **Explosive**
- **Oxidising**

Extremely flammable - *Liquid substances and preparations which have an extremely low flash point and a low boiling point and gaseous substances and preparations which are flammable in contact with air at ambient temperature and pressure.*

Highly flammable - *Substances and preparations which may become hot and finally catch fire in contact with air at ambient temperature without any application of energy. Liquid substances and preparations which have a very low flash point. Substances and preparations which, in contact with water or damp air, evolve extremely flammable gases in dangerous quantities.*

Flammable - *Liquid substances and preparations which have a low flash point.*

Explosive - *Solid, liquid or gelatinous substances which may react exothermically without atmospheric oxygen thereby quickly evolving gases, and which under defined test conditions detonate, quickly deflagrate or upon heating explode when partially confined.*

Oxidising - *Substances and preparations which give rise to a highly exothermic reaction in contact with other substances, particularly flammable substances.*

Labelling of substances

The following symbols are used to indicate any hazards associated with a particular substance; these symbols are currently part of a global harmonisation programme to create a common standard across the industrialised world.

Danger

(E.g. Toxic & Very Toxic)

Warning

(E.g. Harmful & Irritant)

Danger

(Corrosive)

Danger

(E.g. Flammable & Highly Flammable)

Danger

(Oxidising)

Danger

(Explosive)

Danger to Environment

Warning Compressed Gas or Liquid

Managing hazardous substances

The Control of Substances Hazardous to Health Regulations (CoSHH) applies to most hazardous substances used in the workplace; these regulations are designed to identify and protect people against the risks arising from a work activity.

In addition some substances, due to their nature or level of risk, such as Asbestos and Legionella have their own specific regulations and guidance.

The HSE also publishes EH40 which is a guidance document to support CoSHH' it also lists known hazardous substances with their respective Workplace Exposure Limits (WEL's).

- Time Weighted Average (**TWA**)
  Normally measured over 8 hours

- Short Term Exposure Limits (**STEL**)
  Normally measured over 15 minutes

Manufacturers and Suppliers are also required to provide Safety and Environmental information associated with any substance or preparation (mixture of substances) they supply. This information is known as a Material Safety Data Sheet (MSDS) or a Safety Data Sheet (SDS). This sheet is in a standard format with the following 16 sections:

1. Identification of substance
2. Hazard identification
3. Composition and ingredients
4. First Aid
5. Fire Fighting
6. Accidental release
7. Handling and storage
8. Exposure control and PPE
9. Physical and chemical properties
10. Stability and reactivity
11. Toxicology
12. Ecological
13. Disposal
14. Transport
15. Regulatory information
16. Other information

It must be recognised that an MSDS or SDS is not a CoSHH assessment as defined by the regulations.

Risk assessment and control

The following risk assessment process should be used to help manage hazardous substances:

- Identify the hazards
- Decide who might be harmed and how
- Evaluate the risk and consider what control measures are required
- Implement control measures and record the findings
- Review and update assessment and control measures as necessary
- Maintenance and testing of control measures
- Monitoring of exposure in the workplace

Identify the hazards

This information can be generally found in the MSDS (SDS) from the manufacturer or supplier of the substance. This information will indicate the hazards associated with the generic substance; it will also state the general precautions which need to be taken.

Information can also be found in EH40 if the substance is defined as hazardous to health.

It must be recognised at this stage that the information is based on the generic substance as supplied and does not include the hazards that may be associated with the particular way it will be used by the customer.

Decide who might be harmed and how

Consideration should be given to all those who may come into contact or be affected by a particular substance, these may include:

- Employees
- Contractors
- Visitors
- Members of the public
- Specific vulnerable groups - e.g. young persons, nursing mothers etc.
- Individuals with specific medical conditions - e.g. eczema, asthma, dermatitis etc.

Evaluate the risk and consider controls

In addition to knowing what hazardous substances are present it's important to know how much is present and how it can affect an individual; this information can then be compared with the WEL's.

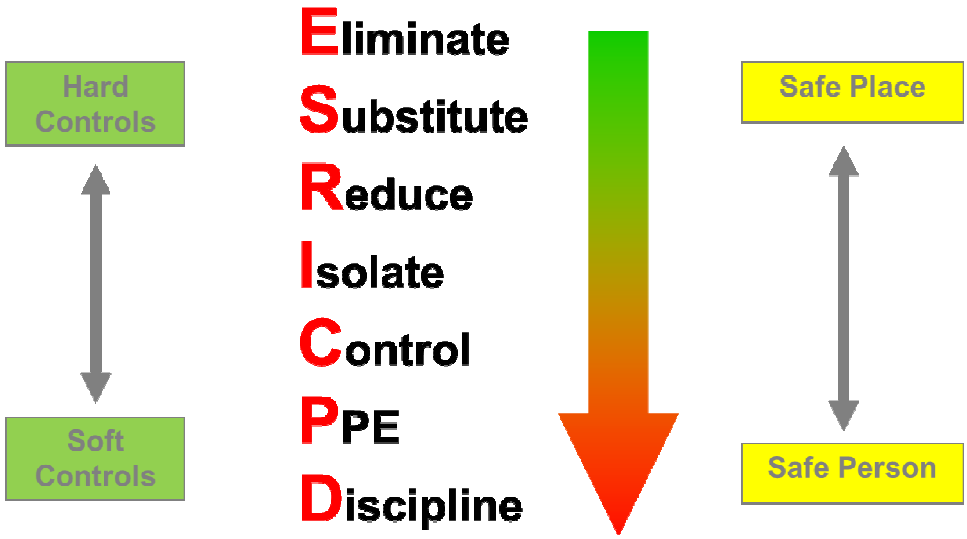
Observing and talk to individuals who are in the area where the substances are being used is useful information to understand where risks are present.

Evaluating risk is the same as for other hazards; it's a combination of the probability (likelihood) of exposure to the substance and the severity of the harm; generally a scoring mechanism is used for this process.

With some substances (e.g. dusts, fumes, gasses etc.) some form of sampling in the area could be required.

An Occupational Hygienist may be required to sample and measure the amounts of the substance present; this could include personal exposure as well as general background levels in the area.

Once the level of risk has been determined the following hierarchy of control should be used to determine the appropriate control measures.



Where possible physical controls are preferable as they do not rely on an individual to act in a particular way; they are also generally more effective as they control the hazard for anyone in the area.

Implement control measures and record the findings

Once appropriate control measures have been identified they should be implemented to ensure that risks are eliminated or reduced to an acceptable level; depending on the circumstances a mixture of hard and soft controls may be necessary, these may include:

- Additional equipment
- Changes to existing equipment
- Substitution / reduction of a substance
- Operating procedures and system of works
- Instruction and training
- Workplace inspections and monitoring

It's important to document CoSHH assessments and the associated controls / actions; an appropriate template (paper or electronic) should be used for this purpose, this can also be used for training and communication purposes.

Review and update assessment and control measures

CoSHH assessments and their associated controls should be reviewed as appropriate, for example:

- Change to the process
- Change of substance
- Change of equipment
- New information received for a substance
- Change of legislation / guidance
- Incident or accident has occurred
- At a reasonable frequency providing no other changes - e.g. every 2 years

Maintenance and testing of control measures

As part of the CoSHH management process there may be a requirement to maintain and / or test equipment and systems to ensure they are still effective, this will normally be identified as part of the control measures.

In addition, Safety legislation may specify particular requirements - for example, Local Exhaust Ventilation (LEV) systems need to have a periodic thorough examination and test (at least every 14 months) and records kept for at least 5 years. In addition information should be available to confirm that the system provides adequate protection.

Monitoring of exposure in the workplace

As a result of an assessment there may be a need to conduct appropriate exposure monitoring of the workplace ensure that control measure continue to be effective.

In addition specific substances and medical conditions require specific health surveillance – for example individuals working with substances that can cause Dermatitis or occupational Asthma. This will help identify signs / symptoms of exposure and enable early action to be taken to resolve the issue.

A Baker's Dozen - 13 Top Tips

1. Keep an up to date list of substances and check regularly for changes
2. Identify all hazardous substances
3. Ensure suppliers provide up to date MSDS's (SDS's)
4. Ensure that legal requirements are identified and maintained
5. Understand how and where substances are used
6. Conduct and review CoSHH assessments as appropriate
7. Monitor and maintain control measures
8. Provide information, instruction and training as appropriate
9. Ensure that substances and containers are correctly labelled
10. Conduct appropriate workplace exposure monitoring
11. Where PPE is a requirement ensure that it is worn consistently
12. Conducted appropriate testing and inspection where PPE / RPE is required
13. Ensure appropriate health surveillance policies are in place

13.
Flour & Ingredients

CHAPTER 13

FLOUR AND INGREDIENTS

Health hazards from dusts

Flour and other dry powder ingredients are an essential part of the baking industry but they need to be treated with care. The dust generated from using these substances can cause a range of illnesses and conditions such as:

- Irritation to the eyes (Conjunctivitis) resulting in watering and pain
- Irritation to the nose (Rhinitis), resulting in a runny nose
- Occupational Dermatitis, resulting in redness, itching and blistering of the skin
- Occupational Asthma resulting in breathlessness, tightness in the chest or wheezing

If an individual becomes sensitized to a particular substance even a very small quantity can cause a significant reaction such as an asthmatic attack or a rash to develop. If an individual becomes sensitized in this way it could result in them not being able to work with this substance again.

Some substances such as egg powder and flour improvers can cause an allergic reaction.

Spices and seasonings added as flavourings such as black and white pepper, ground chillies, ground mustard and galangal can cause irritant; Garlic powder can cause a more severe allergic reaction.

Controlling dust levels

The best and most efficient way of controlling dust is at its source; if dust isn't being generated and released to the atmosphere it becomes less of a health hazard and saves money on raw materials and clean-up costs.

Flour dust has a Workplace Exposure Limit (WEL) set by the HSE and therefore the primary control must be to consider changes to plant and equipment; in addition changes / improvements to working practices can also have a significant impact on dust levels.

Some processes will naturally generate dust, where this is the case an effective control may be to fit Local Exhaust Ventilation (LEV) equipment to extract the dust before it can be emitted into the atmosphere / area.

Where LEV equipment has been installed it should be kept in good working order and its efficiency maintained. The CoSHH regulations requires that a "Thorough Examination" and test of the equipment should be carried out at least every 14 months; this will ensure that the equipment is performing as designed / installed to remove dust and protect those individuals who may be at risk.

Making changes to working practices can also greatly reduce exposure to dust but it's essential that the suitable training is given and appropriate supervision takes place to ensure that the working practices are being consistently followed.

Flour improvers (containing fungal and bacterial alpha amylase) are both known to be respiratory sensitizers. These are commonly supplied in powder form and easily become airborne, for example whilst weighing or adding them to the mix. Changing from the powder form to the alternative pastes, liquids etc. can significantly reduce exposure.

Don't forget most dry powders in the baking industry are flammable and may also be explosive.

Personal protective against hazards

Despite good engineering controls and effective procedures being in place there will be situations where individuals will be exposed to significant levels of dust such as general cleaning, maintenance of equipment, cleaning filters etc.

In such situations appropriate personal protective should be provided.

Respiratory protective Equipment (RPE)

Respiratory Protective Equipment (RPE) should be worn where other control measures are not possible, reasonably practicable or do not provide adequate control. Some activities are known to cause high short-term exposures such as cleaning up large spillages and certain engineering activities.

The selection process for RPE should take into account the dust levels, the physical nature and duration of the work and the facial characteristics of the specific wearer.

For RPE such as disposable masks, half masks and full-face masks the initial selection should include a face-fit test to ensure that the specific wearer has the mask which provides the correct level of protection.

The face-fit testing should be performed by a competent person using the appropriate test equipment; the test should include:

- Individuals with facial hair - including being unshaven
- Unusual / different facial features
- Changes to individuals over time - loss of or gaining weight
- Requirements of the job / area
- Training requirements

There may be situations where a powered respirator is more appropriate, this may be associated with the particular individual and / or the job being undertaken.

Skin Protection

Occupational Dermatitis is caused by the skin coming into contact with a substance that causes a reaction with the particular individual - not everyone exposed to the same substance will develop symptoms.

Symptoms of Dermatitis may include:

- Redness
- Itching
- Scaling and blistering of the skin

In the baking industry it's usually the hands and forearms that are affected.

If Dermatitis is spotted early enough and precautions are taken, most individuals will make a full recovery; but some will never recover as their skin has become allergic to the substance, so it makes sense to prevent Dermatitis occurring in the first place.

In bakeries Dermatitis is most commonly caused by contact with liquid ingredients such as olive oil or divider oil, but the handling of flour, dough, sugar, spices, herbs and seasonings can also be the cause.

To help identify potential Dermatitis problems consider including some basic questions in any health surveillance questionnaires; also consider including some checks in the recruitment process.

Where Dermatitis has occurred the cause of the problem should be identified, this may require the services of an Occupational Health Provider or Hygienist.

Possible corrective actions may include:

- Can the problem be removed - for example by not using alcohol-based hand cleaners
- Consider providing an after-work moisturising cream to replace the natural oils
- Can contact with the foodstuff be avoided - for example by wearing suitable gloves

  (Remember some people are allergic to Latex - may need a Nitrile alternative)

Health surveillance

Health surveillance is important to help identify early symptoms of ill health' consider the following:

- Pre-employment screening that includes a questionnaire about present or past symptoms /illnesses associated with applicable substances
- Advise new starters about what to look out for and the need to report symptoms
- A process for reporting any identified symptoms
- Employees given information instruction and training about health risks and symptoms associated with applicable substances
- A questionnaire to be completed by all employees after employment at specific intervals and at least annually
- The questionnaire administered by a responsible, trained person who understands the purpose of the questionnaire, confidentiality requirements and what records to keep
- A named Occupational Health Professional (or company) to advise on any findings from the questionnaire and to make arrangements for further investigation where necessary
- Keep an individual health record for each employee for at least 40 years

A Baker's Dozen - 13 Top Tips

1. Handle flour and powdered substances carefully, dropping from a height or throwing with force will cause dust to be generated
2. Use dredgers or sprinklers to spread dusting flour rather than hand throwing
3. Avoid spillages' when they do occur clean them up immediately
4. Take care to avoid raising dust when loading ingredients into mixers
5. Start-up mixers on slow speed until wet and dry ingredients are combined
6. Avoid damage to ingredients bags and containers
7. Take care when folding and disposing of empty bags (e.g. roll bag up from the bottom while tipping)
8. Avoid the use of compressed airlines for cleaning
9. Do not use brushes to dry-sweep dust as they cause high levels of airborne dust - shovel up larger amounts carefully
10. Use high efficiency industrial vacuum cleaners for general cleaning
11. Wear suitable PPE and / or RPE for any essential short-term dusty tasks
12. Use appropriate hand care products
13. Report any health problems or symptoms immediately

Useful Contacts

Association of Bakery Ingredient Manufacturers (ABIM)	www.abim.org.uk
Bakers, Food and Allied Workers Union (BFAWU)	http://www.bfawu.org/
British Occupational Hygiene Society (BOHS)	www.bohs.org
British Safety Council (BSC)	www.britsafe.org
British Safety Industry Federation (BSIF)	www.bsif.co.uk
British Standards Institute (BSI)	www.bsigroup.co.uk
Campden BRI	www.campdenbri.co.uk
Chemical Industries Association (CIA)	www.cia.org.uk
Chartered Institute of Environmental Health (CIEH)	www.cieh.org
Craft Bakers Association (CBA)	www.craftbakersassociation.co.uk
Equality and Human Rights Commission	www.equalityhumanrights.com
European Agency for Safety and Health at Work (OSHA)	www.osha.europa.eu/en
Food and Drink Federation (FDF)	www.fdf.org.uk
Health & Safety Executive (HSE)	www.hse.gov.uk
Health & Safety Laboratory (HSL)	www.hsl.gov.uk
Institute of Engineering & Technology (IET)	www.theiet.org
Institution of Occupational Safety and Health (IOSH)	www.iosh.co.uk
International Institute of Risk and Safety Management (IIRSM)	www.iirsm.org
National Association of British & Irish Millers (nabim)	www.nabim.org.uk
The National Examination Board in Occupational Safety and Health (NEBOSH)	www.nebosh.org.uk
Processing and Packaging Machinery Association (PPMA)	www.ppma.co.uk
Royal Society for the Prevention of Accidents (RoSPA)	www.rospa.com
Scottish Association of Master Bakers (SAMB)	www.scottishbakers.org
Seasoning and Spice Association (SSA)	www.seasoningandspice.org.uk
The Stationery Office (TSO)	www.tso.co.uk
Trades Union Congress (TUC)	www.tuc.org.uk/
United Road Transport Union (URTU)	www.urtu.com

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