Construction (Design and Management) Regulations 2015

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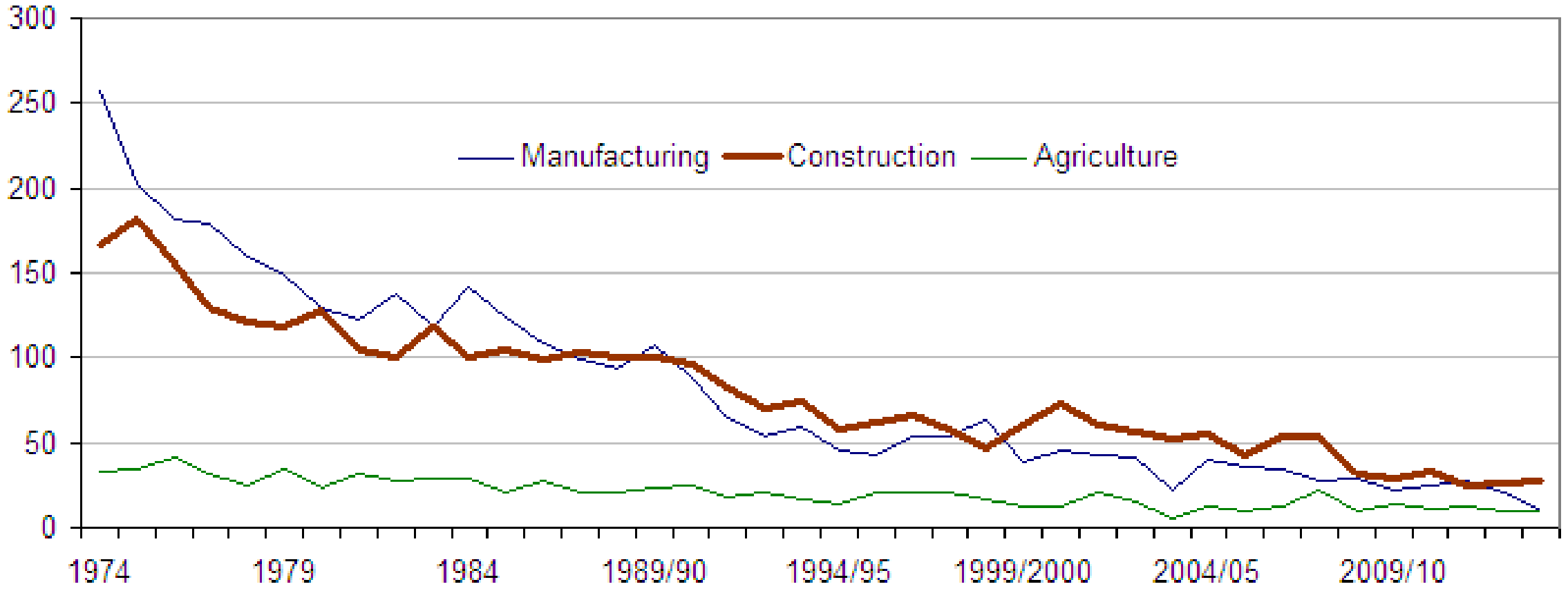
Course Objectives:
On completion of this presentation, it is hoped:

- Have an understanding of the history of CDM and WHY
- Have an understanding of the requirements of the Construction (Design and Management) Regulations 2015 (CDM^{2015})
- Be aware of the duty holders under CDM^{2015}
- Be aware of all Amey procedures and documentation

So why do we need CDM :- What are the drivers?



So why do we need CDM :- What are the drivers?

Why do we have CDM?

Moral, legal and commercial obligations to implement CDM controls

- To improve safety performance
- To protect members of the work force and ensure welfare is considered during planning, design, construction and maintenance
- To protect stakeholders and the public
- To understand and reduce both personal and corporate liability

The Key Aims of CDM

- CDM aims to integrate health and safety into the management of a project and to encourage everyone involved to work together to:-
  - improve the management and planning of projects from the very start;
  - identify hazards early on, so they can be eliminated or reduced at the design or planning stage and the remaining risks can be properly managed;
  - target effort where it can do the most good in terms of health and safety; and
  - discourage unnecessary bureaucracy.

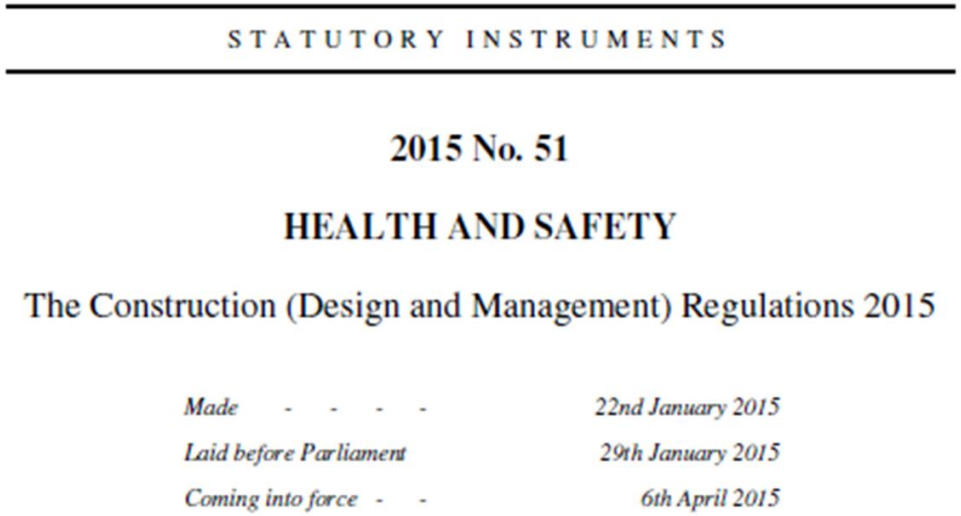
A brief History of CDM

- The Construction (Design & Management) Regulations 1994 implemented key aspects of a construction European Directive - Temporary or Mobile Construction Site Directive (TMCSD)
- They identified the need to reduce risk by better co-ordination, management and co-operation
- For the first time the duties on clients and designers were made more explicit
- CDM1994 led to a major change in how the industry managed health and safety
- The Construction Design and Management Regulations were revised in April 2007, to incorporate the Construction (Health, Safety and Welfare) Regulations. The revised Regulations were intended to make it easier for those involved in construction projects to comply with their health and safety duties.
- HSE research into CDM2007 concluded that:

The Latest Regulations Aims

A further revision took place in April 2015, when the current Regulations came into force with the intention to:

- Maintain or improve worker protection
- Simplify the regulatory package
- Improve health and safety standards on small construction sites
- Implement the temporary or Mobile Construction Site Directive (TMCSD) in a proportionate way
- Discourage bureaucracy
- **Key Changes were**
  - Changes in appointment thresholds
  - Removal of CDM coordinator role
  - Change in Notification Threshold
  - Introduction of new 'Principal Designer' role
  - Removal of explicit competence requirements
  - Inclusion of domestic clients



STATUTORY INSTRUMENTS

2015 No. 51

HEALTH AND SAFETY

The Construction (Design and Management) Regulations 2015

Made - - - -	*22nd January 2015*
Laid before Parliament	*29th January 2015*
Coming into force - -	*6th April 2015*

The Regulations are about making sure that

- The early appointment or engagement of competent and capable key people or organisations that have sufficient resources.
- A realistic project programme which gives enough time for planning and programming as well as carrying out the work itself.
- Early identification and reduction of construction risks and proper management of those that remain, so that construction is safe and does not damage the health of workers or others.
- Co-operation between all involved in a project and effective coordination regarding Health and Safety issues.
- Adequate welfare facilities provided from the start and throughout the construction phase.
- Appropriate information is made available to the right people at the right time, from the start of the design process through construction, use (if a place of work), maintenance, refurbishment to eventual demolition.
- It is however important that the amount of effort devoted to managing Health and Safety is kept proportionate to the complexity of the project and level of risks involved.

Construction (Design and Management) Regulations 2015

The CDM2015 Regulations apply to all **construction work** in Great Britain, and apply to both employers and the self-employed.

- **Construction work means the carrying out of any building, civil engineering or engineering construction work and includes:**

- (a) the construction, alteration, conversion, fitting out, commissioning, renovation, repair, upkeep, redecoration or other maintenance (including cleaning which involves the use of water or an abrasive at high pressure, or the use of corrosive or toxic substances), decommissioning, demolition or dismantling of a structure;

- (b) the preparation for an intended structure, including site clearance, exploration, investigation (but not site survey) and excavation (but not pre-construction archaeological investigations), and the clearance or preparation of the site or structure for use or occupation at its conclusion;

- (c) the assembly on site of prefabricated elements to form a structure or the disassembly on site of the prefabricated elements which, immediately before such disassembly, formed a structure;

- (d) the removal of a structure, or of any product or waste resulting from demolition or dismantling of a structure, or from disassembly of prefabricated elements which immediately before such disassembly formed such a structure;

- (e) the installation, commissioning, maintenance, repair or removal of mechanical, electrical, gas, compressed air, hydraulic, telecommunications, computer or similar services which are normally fixed within or to a structure,

Construction (Design and Management) Regulations 2015

- **And the regulations define a structure as**

  - any building, timber, masonry, metal or reinforced concrete structure, railway line or siding, tramway line, dock, harbour, inland navigation, tunnel, shaft, bridge, viaduct, waterworks, reservoir, pipe or pipeline, cable, aqueduct, sewer, sewage works, gasholder, road, airfield, sea defence works, river works, drainage works, earthworks, lagoon, dam, wall, caisson, mast, tower, pylon, underground tank, earth retaining structure or structure designed to preserve or alter any natural feature and fixed plant;

  - any structure similar to anything specified in the above paragraph

  - any formwork, falsework, scaffold or other structure designed or used to provide support or means of access during construction work,

  and any reference to a structure includes part of a structure;

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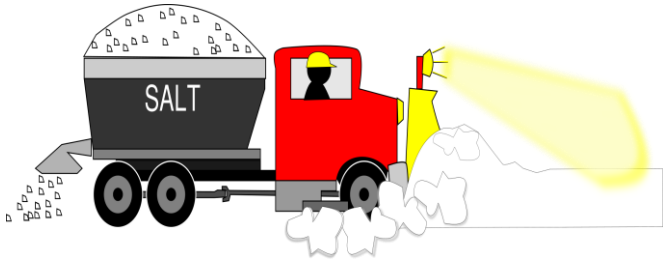
Construction (Design and Management) Regulations 2015 – Project Phases

Pre-Construction Phase

- ✓ Project inception
- ✓ Project planning
- ✓ Site surveys
- ✓ Design activities

Construction Phase

- ✓ Construction work
- ✓ Testing and commissioning



Post-Construction Phase

- ✓ Project handover
- ✓ Issue of As-Built drawings
- ✓ Use of equipment
- ✓ Maintenance
- ✓ Demolition/removal of equipment

- Design activities may extend into the construction phase, in which case the pre-construction phase is extended!

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CDM and Risk Assessment

CDM Regulations 2015 – The Three Key Sets of Documents

1. **Pre-Construction Information (PCI)** - This is the information in the Client's possession or which is reasonably obtainable by the Client, which is relevant to the construction work.

    - At the start of the project, the Client must provide pre-construction information to every designer and contractor.
    - It includes:
        - Known health and safety hazards and risks in the area
        - Environmental risks (e.g. invasive plants, protected species, flood risks, etc.)
        - Requirements for communicating incidents
        - CDM plan
    - This information can be taken from previous Health & Safety Files along with any other knowledge of the site location and information gathered during early investigation.

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CDM Regulations 2015 – The Three Key Sets of Documents

1. **Pre-Construction Information (PCI)** - This is the information in the Client's possession or which is reasonably obtainable by the Client, which is relevant to the construction work.

    - As the project progresses, the Principal Designer is responsible for developing this information.
    - Information that is developed includes:
        - The project Design Hazard Management Register (or Hazard Log/DRA)
        - Risk assessments
        - Buried services records
        - Construction drawings marked up with any relevant hazards
    - The Client is overall responsible for providing this information to the Principal Contractor, but the Principal Designer is responsible for preparing this information on behalf of the Client.
    - This should be provided to the Principal Contractor **before** the construction phase begins.

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CDM Regulations 2015 – The Three Key Sets of Documents

What are Significant risks?

- Significant risks can affect the programme hence need careful risk mitigation. They include:
  - Hazards that give rise to risks that are deemed to have a significant impact on the safe operation of the public highway and/or the health and safety of workers.
  - The mitigation measures put in place to control risk are unusual, complex, or rely on a high level of engagement or competence within the workforce or other stakeholders.
  - There is strong possibility of a significant level of change to the assessed risks due to emerging conditions on site or the immature level of detail presented in the design documentation.
- We may be able to de-classify a risk as being Significant provided the risk mitigation techniques are straight-forward and applied by competent staff.
- Significant Risks are those deemed to be unforeseen by an experienced contractor.

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CDM Regulations 2015 – The Three Key Sets of Documents

2. **Construction Phase Plan (CPP)** - The Construction Phase Plan (CPP) is a mandatory document that provides a health and safety plan for the project.

   - The Principal Contractor is responsible for producing this document.
   - Information included in this document comprises, but is not limited to:
     - ➢ The management structure and organisation on the project
     - ➢ Integration of safe working practices
     - ➢ Communication strategies
     - ➢ Toilets and welfare
     - ➢ Strategies for incident/accident reporting
     - ➢ Strategies for site heath and safety monitoring
     - ➢ The Plan should **not** include documents that get in the way of a clear understanding of what is needed to manage the construction phase

We can use templates but the content just needs to be applicable to the work we are doing! On smaller jobs, make sure it is proportionate with the scale and complexity of the Project - we should be looking to reduce the amount of paperwork!

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CDM Regulations 2015 – The Three Key Sets of Documents

3. Health and Safety File

This is a file of information compiled to protect people undertaking construction activities **in the future** such as maintenance, cleaning, refurbishment and demolition / dismantling.

It is prepared by the Principal Designer, who should liaise with the Client, as soon as possible after appointment, to agree the structure and content. The Principal Contractor will assist in the preparation with the provision of any relevant information that needs to be included. The H&S File is provided to the Client at the end of the project.

Clients often stipulate precisely what information should be included in the H&S File and in what format.

It is essentially a complete set of information of what we have provided for the Client on the project. It includes:

- Complete set of As-Built drawings
- Operation and maintenance manuals
- The project Design Hazard Management Register (Or Hazard Log)

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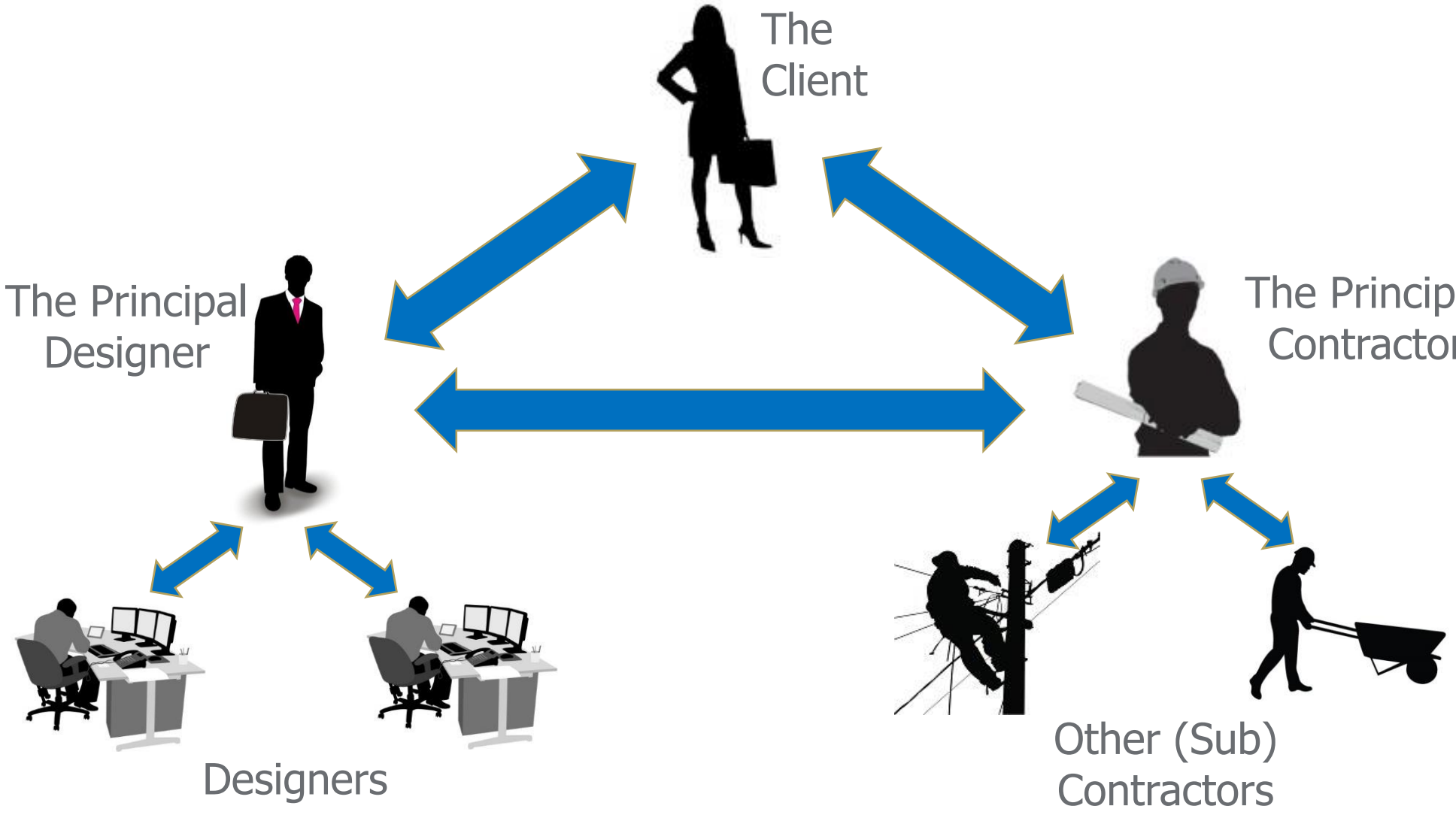
CDM Regulations 2015 – Roles and Responsibilities



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CDM and Risk Assessment

CDM Regulations 2015 – Roles and Responsibilities

The Client

- If there is **more than one contractor** on a project, the Client must appoint in writing, a Principal Designer and Principal Contractor. The Client must obtain a written record of the **person** in that organisation who will be held accountable for confirming the Principal Contractor or Principal Designer duties are carried out.
- If the Client fails to appoint them, the Client will need to fulfil these duties.
- They must ensure sufficient time and resources are allocated on the project.
- They must ensure relevant information is prepared and provided to other duty holders, including providing Pre-Construction Information (PCI) for the Principal Contractor.
- They must ensure the Principal Designer and Principal Contractor carry out their duties.
- They must hold and manage the Health & Safety file when complete.

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CDM

Notification

- The HSE **must** be notified where work is anticipated to have:
  - More than 30 working days of construction work **and** more than 20 employees working simultaneously at any point in the project

    or

  - More than 500 person days of construction work

- The notification of a construction project can now be done online using an F10 form which is automatically sent to the HSE on completion. The F10 form is completed by the Client.
- The F10 should be displayed in the site office for the duration of the Construction Phase of the Project

HSE
Health & Safety Executive

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CDM Regulations 2015 – Roles and Responsibilities

The Principal Designer

- Principal Designers can be an organisation or an individual with sufficient knowledge, experience and ability to carry out the role.
- They **must** have construction experience.
- They must plan, manage, monitor and coordinate health and safety in the **pre-construction phase** of a project. This includes:
  - Identifying, eliminating or controlling foreseeable risks
  - Ensuring designers carry out their duties
  - Ensuring designers are provided with correct PCI
- They must assist the Client in the production of Pre-Construction Information.
- They must liaise with the Principal Contractor to help in the planning, management, monitoring and coordination of the construction phase. They should be considered as the person who makes the ultimate decision on the suitability of the design and its fitness for purpose.

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CDM Regulations 2015 – Roles and Responsibilities

- Principal Contractors are contractors appointed by the Client to coordinate the **construction phase** of a project where it involves more than one contractor.
- They must plan, manage, monitor and coordinate construction phase of a project. This includes:
  - ➢ Liaising with the Client and Principal Designer
  - ➢ Preparing the Construction Phase Plan
  - ➢ Coordinating and organising cooperation between contractors
- They must ensure:
  - Site inductions are given
  - Reasonable steps are taken to prevent unauthorised access
  - Workers are consulted and engaged in securing their health and safety
  - Welfare facilities are provided at the worksite
  - Traffic management is managed

The Principal Contractor

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Construction (Design and Management) Regulations 2015

The Public

- Remember that the Health and Safety at Work Act places a duty on all employers and the self-employed to take reasonably practicable steps to ensure the health and safety of people who are not in their employment, such as members of the public.

- CDM mandates that we should put in place measures/procedures to keep others off site and to protect those that may be exposed to site risks (e.g. children playing on or near the construction site).

- This 16 year old boy ended up in a coma in 2014 after climbing a parked train in Rugby and being exposed to arcing from the 25kV overhead equipment.

- What can we do to protect the public?
  - Consider who may be affected and where
  - Ensure site security is adequate
  - Keep good housekeeping

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CDM Regulations 2015 – Roles and Responsibilities

- The term 'designer' has a broad meaning and relates to the function performed, rather than the profession or job title. Designers are those who, as part of their work, prepare design drawings, specifications, bills of quantities and the specification of articles and substances. This could include architects, engineers and quantity surveyor
- Remain central to improving Health & Safety by taking into account, the general principles of prevention, and any preconstruction information. To eliminate so far as is reasonably practicable foreseeable risks to the health and safety of any person:
    - Carrying out or liable to be affected by construction work
    - Maintaining or cleaning a structure
    - Using a structure designed as a workplace

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The General Principles of Prevention

These principles are a requirement of the Management Regulations and apply to all industries, including construction. They provide a framework to identify and implement measures to control risks on a construction project.

The general principles of prevention are to:

(a) avoid risks;

(b) evaluate the risks which cannot be avoided;

(c) combat the risks at source;

(d) adapt the work to the individual, especially regarding the design of workplaces, the choice of work equipment and the choice of working and production methods, with a view, in particular, to alleviating monotonous work, work at a predetermined work rate and to reducing their effect on health;

(e) adapt to technical progress;

(f) replace the dangerous by the non-dangerous or the less dangerous;

(g) develop a coherent overall prevention policy which covers technology, organisation of work, working conditions, social relationships and the influence of factors relating to the working environment;

(h) give collective protective measures priority over individual protective measures; and

(i) give appropriate instructions to employees.

CDM and Risk Assessment

An Introduction to Hazards and Risks

- What is a hazard?

  It is something with **potential** to cause harm

- What is a risk?

  The likelihood that the hazard can **actually cause harm**

- The level of risk depends on factors such as **how often** the job is done, the **number of people affected** and **how serious any injuries** that result could be.

- CDM is focussed on risks to **health and safety**. However, there are many other types of risks that can arise on a project including:
  - Risks to the accuracy of the design.
  - Risks to project spending/budgets.
  - Risks to project programmes.

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CDM and Risk Assessment

An Introduction to Hazards and Risks

- When undertaking health and safety risk assessments, it is vital that we consider the following:
- **Existing Environment**
  - What is already present on site that could harm someone?
  - Could we perhaps put our new assets somewhere else to protect workers from danger during the construction phase, or maintainers long-term?
  - Perhaps we could change the routing of cables to avoid disturbance of asbestos
- **Buildability & Construction Process**
  - Perhaps specify components that are small and light enough to reduce manual handling risks
  - Consider alternative materials/components which take account of potential construction problems (e.g. lack of space, poor access, etc.)
  - Consider staging construction work to prevent workers from adopting high risk methods or working in unsafe environments

CDM and Risk Assessment

An Introduction to Hazards and Risks

- When undertaking health and safety risk assessments, it is vital that we consider the following:
- **Maintenance and Operation**
  - Have you provided adequate illumination to allow Maintenance staff to work correctly?
  - Have you located assets so that Maintenance staff can always access them safely?
  - Are guard rails/containment barriers needed to protect staff from hazards?
- Site surveys are a good time to identify hazards and also Hazard Identification workshops and Hazard and Operability reviews.
- Early Contractor Involvement (ECI) is also encouraged to discuss potential hazards and "buildability".

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CDM and Risk Assessment

CDM Regulations 2015 - Design Hazard Management Registers

- All hazards that are considered to have a potential for **high risk** or that are **unusual** must be addressed on the Design Hazard Management Register. Unusual risks are those that are not obvious to a competent contractor. Low risk activities may also be included if considered appropriate.
- **Do not** include adding generic hazards that are considered obvious to a competent worker (e.g. slips, trips and falls, being hit by moving traffic, surfacing materials are hot etc.).
- The Design Hazard Management Register should be used to record the various hazards identified by the designer and, where possible, details of how they have been eliminated or reduced.
- Not every hazard can be 'designed out' and therefore the Design Hazard Management Register will be used to describe how this process has been undertaken.
- On completion of the design, or at intermediate submission stages, the Principal Designer must sign the Design Hazard Management Register to show that he/she agrees with the approaches undertaken.
- **Remember,** do **not** include adding generic hazards that are considered obvious to a competent worker (e.g. slips, trips and falls, being hit by moving traffic, surfacing materials are hot etc.).

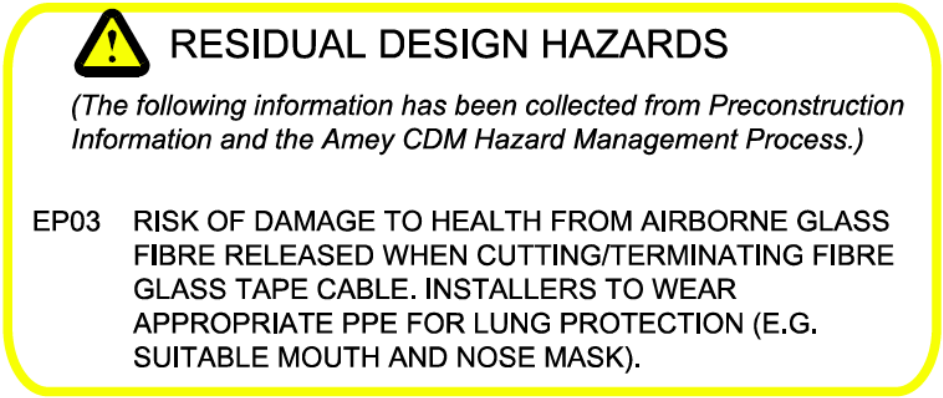
CDM and Risk Assessment

CDM Regulations 2015 - Identifying Hazards on Design Drawings

- Where your designs have identified any hazards that cannot be entirely eliminated and that are **not obvious to a competent contractor**, you **must** identify them on your design drawings.
- Unless instructed otherwise you should use a Residual Design Hazards information box. This should be positioned on the top right of each drawing frame.
- You should provide a brief summary of the hazard and any risk mitigation recommendations for each hazard and ensure the same reference code is used as the one shown on the master Design Hazard Management Register.
- If you have not identified any hazards that cannot be designed out or that are not are not obvious to a competent contractor, you should remove this box altogether and add a note stating:

  The designer has made an assessment and concluded there are no unusual site specific risks that are not obvious to a competent contractor.

- Under no circumstances should you place a note in the Residual Design Hazards box to suggest that there are no hazards on a drawing.



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CDM and Risk Assessment

Invisible hazards

- Can you see the hazard in this black and white image?
- By the nature of this question, you know there is something there to see, but what is it?

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CDM and Risk Assessment

Invisible hazards

Always try to look at environments with “fresh eyes”.

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CDM- Enforcement and liability:

CDM Regulations 2015 – Roles and Responsibilities

The Health & Safety Executive is the main enforcing authority for CDM2015, Office of Rail Regulation for railway works.

HSE inspectors have various powers:

Improvement Notice

- the inspector can issue an improvement notice telling the duty holder to take prescribed action to comply with the law. Further action can be taken against the duty holder if the notice is not complied with.

Prohibition Notice

- if the inspector believes that an activity carried on, or to be carried on, will involve a risk of serious personal injury, the inspector may serve a prohibition notice, prohibiting the activity and not allowing it to be resumed until specified remedial action has been taken. This could result in the closure of the site.

Prosecution

- in a serious case the inspector may also decide to initiate a prosecution. The courts are given considerable scope to punish offenders and deter others. The higher courts have the power to impose unlimited fines and, in some cases, even imprisonment.

So Hopefully:-

- You have a brief understanding of CDM
- Understand that it starts at the beginning of a project
- Know to ask who the key Roles are being undertaken by .
- That as Designers/Principal Designers you have to advise future users of significant & Unusual Hazards

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CDM 2015

AMEY CDM DOCUMENTS

- https://ameygroup.sharepoint.com/sites/ScottishHighwaysIMS?e=1%3A954f4d04d75b44a7a7f0217445b3b509

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