International Best Practices in the Construction, Design, and Management of Projects

PRESENTED BY: **ERICK ODONGO** MSc. Eng, CFIOSH, FIIRSM
DIRECTOR, VAREL ENGINEERING CO. LTD
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1. Introduction – What is CDM

- ✓ Construction is one of the most dangerous work activities.
- ✓ Construction projects involve a range of hazards including: fire, excavation, electrical, demolition, work at height, underground toxic gases, dust etc.
- ✓ Construction Design and Management (CDM) aims to ensure health and safety issues are appropriately considered during the development of construction projects.
- ✓ The overall goal is to reduce the risk of harm to those who have to build, use and maintain structures.
- ✓ **COMMUNICATION** between ALL parties involved to ensure Health and Safety is **KEY.**

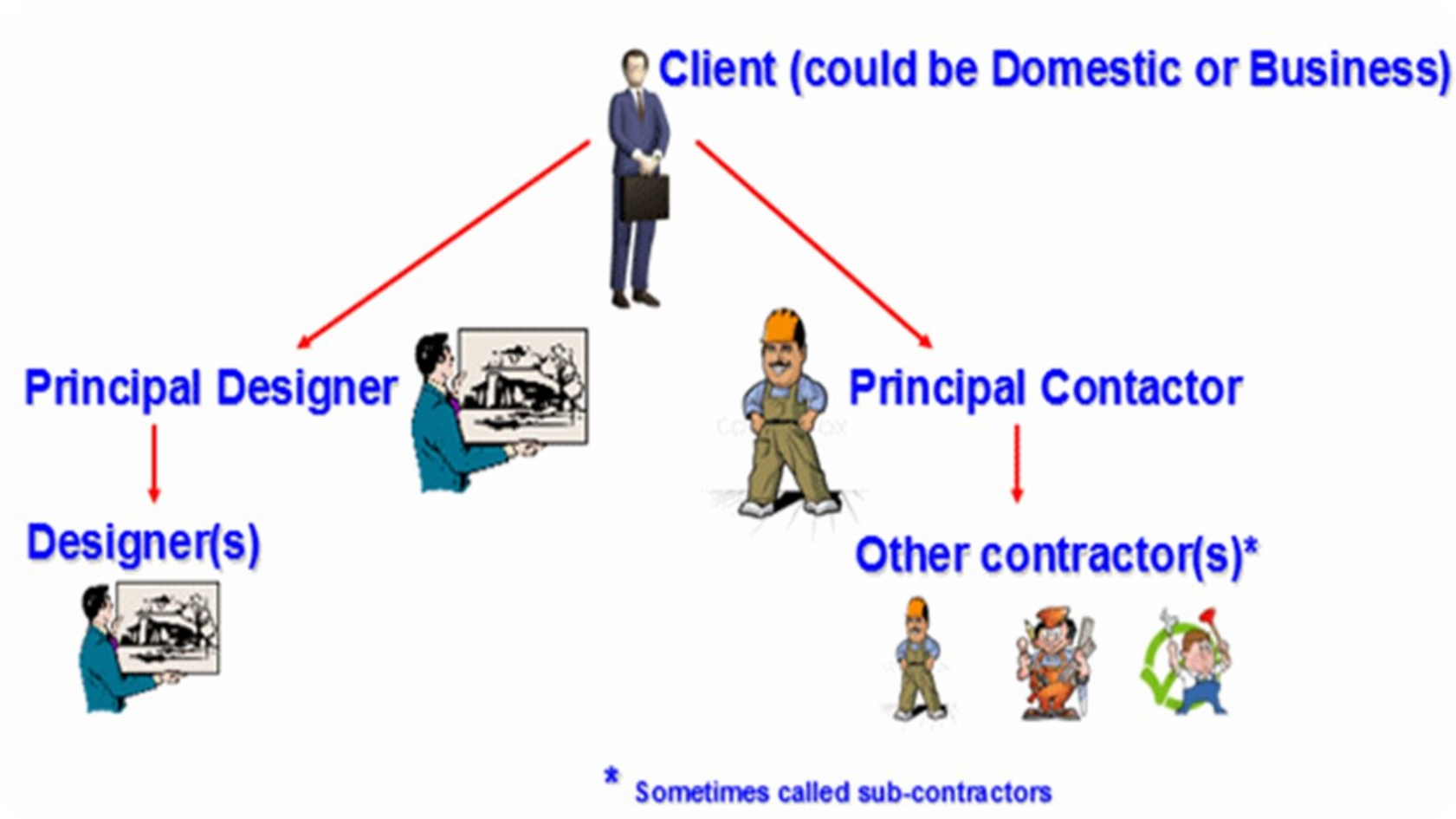
2. Purpose of CDM

- ✓ CDM aims to improve health and safety by helping you to:
  - sensibly plan the work so the risks involved are managed from start to finish
  - have the right people for the right job at the right time
  - cooperate and coordinate your work with others
  - have the right information about the risks and how they are being managed
  - communicate this information effectively to those who need to know
  - consult and engage with workers about the risks and how they are being managed

3. Requirements of CDM

- ✓ Three main roles within a project are identified and duties are assigned to those fulfilling these roles:
  - The **Client** ensures that the construction project is set up so that it is carried out from start to finish in a way that adequately controls the risks to the health and safety of those who may be affected.
  - The **Principal Designer** manages health and safety in the pre-construction phase of a project. The role extends to the construction phase through the principal designer's duties to liaise with the principal contractor and on-going design work.
  - The **Principal Contractor** manages the construction phase of a project. This involves liaising with the client and principal designer throughout the project, including during the pre-construction phase.
  - Depending upon the nature of the project, the principal designer and principal contractor may be supported by designers, contractors and workers.

3. Requirements of CDM……cont'd



4. Examples of projects classed as construction work

- ✓ Major new building or extension.
- ✓ Preparation of an area or building to house a new beamline/experiment including for example: partitions, ceilings, structural modifications, shielding, piped services, fire and alarm systems and isolatable services.
- ✓ Installation of major equipment that can reasonably be considered to be a structure (for example an ISIS target blockhouse) or is integral to the structure/fabric of the building.
- ✓ Re-organising or redesigning machinery, experiments or physical layouts within a facility involving the alteration of “hard wired / hard piped” mains services which are integral to the structure.
- ✓ Dismantling experiments which are structures for repair, refurbishment or decommissioning.
- ✓ Modifying internal facility areas by installing or removing structures such as walls (this would include radiation shielding forming a shielded enclosure, bunker, block house or tunnel).
- ✓ Installation, commissioning, maintenance, repair or removal of services (electrical, gas, compressed air, hydraulic, heating, cooling, ventilation, telecommunications, computer or similar services) which are normally fixed within or to a structure.
- ✓ Project involving the erection of scaffolding by specialist scaffold contactors (for example, tube & clip scaffolds).

5. Examples of projects not classed as construction work

- ✓ Surveying – this includes taking levels, making measurements and examining a structure for faults.
- ✓ Installation, assembly and commissioning of scientific and other equipment, for example;
  - vacuum chambers
  - optics tables
  - smaller scale experimental apparatus
  - equipment in a beam line
- ✓ Work on or maintenance of experimental equipment and machinery e.g., bench top equipment which is plugged-in, wheeled equipment, battery operated equipment or stand-alone items.
- ✓ Tree planting and general horticultural work (unless as part of a larger construction project).
- ✓ Putting up and taking down marquees and similar temporary structures

6. Pre – Construction Information (PCI)

This phase involves:

- ✓ Timely provision of Health & Safety Information to all stakeholders e.g.,
  - the identification of the health and safety hazards of the site, including design and construction hazards and how they will be addressed;
  - the project, such as the client brief and key dates of the construction phase;
  - provision of risk assessments reports, health and safety inspection and audit reports, health and safety baseline studies, Emergency Response Plans (ERP) etc.
  - the planning and management of the project such as the resources and time being allocated to each stage of the project and the arrangements to ensure there is cooperation between duty holders and the work is coordinated;
  - any relevant information in an existing health and safety file.
- ✓ Design phase / Concept to pre-start.
- ✓ Basis for preparation of the Construction Phase Plan (CPP).

7. Construction Phase Plan (CPP)

This phase involves the principal contractor being responsible for:

- ✓ **Preparing a plan:**
  - Make a note of the key dates e.g: when you'll start and finish; when services will be connected/disconnected; build stages, such as groundwork or fit out.
  - You will need to find out information from the client about the property, e.g: where the services and isolation points are; access restriction to the property; if there is any asbestos present.
- ✓ **Organising the work:**
  - Identify the main dangers on site and how you will control them, e.g:
    - the need for scaffolding if working at height;
    - how structures and excavations will be supported to prevent collapse;
    - how you will prevent exposure to asbestos and building dust;
    - how you will keep the site safe and secure for your client, their family and members of the public.
  - Make sure that there are toilets, washing and rest facilities.
  - Name the person responsible for ensuring the job runs safely.
  - Explain how supervision will be provided.

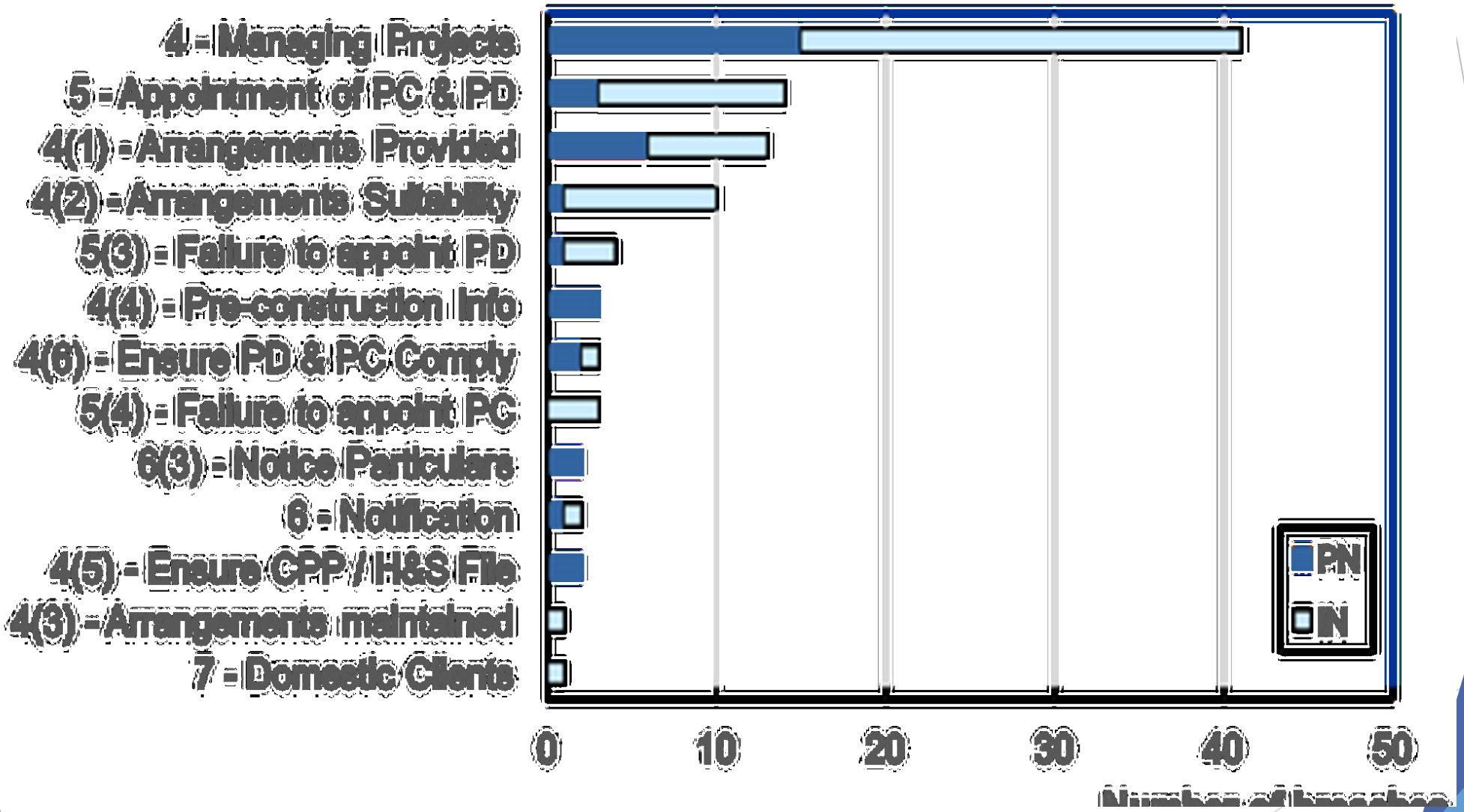
7. Construction Phase Plan (CPP)…..cont'd

- ✓ **Working together with others to ensure health and safety:**
  - Record details of anybody else working on the job, including specialist companies and labourers.
  - Ways of communication with others (e.g., via a daily update), providing information about the job, coordinating your work with theirs and keeping them updated of any changes, e.g.,:
    - ❖ to site rules;
    - ❖ to health and safety information;
    - ❖ what you will do if the plan or materials change or if there are any delays;
    - ❖ who will be making the key decisions about how the work is to be done.

8. Client Duties

- ✓ The decisions the Client makes have an impact on the health, safety and welfare of workers and others affected by the work.
- ✓ It is about choosing the right team and helping them to work together to ensure health and safety.
- ✓ The client needs to do the following:
  - Appoint the right people at the right time;
  - Ensure there are arrangements in place for managing and organising the project;
  - Allow adequate time;
  - Provide information to the designer and contractor;
  - Communicate with your designer and building contractor;
  - Ensure adequate welfare facilities on site;
  - Ensure a construction phase plan is in place;
  - Protecting members of the public, including your employees;
  - Ensure workplaces are designed correctly.

8. Client Duties……cont'd



9. Duties of designers

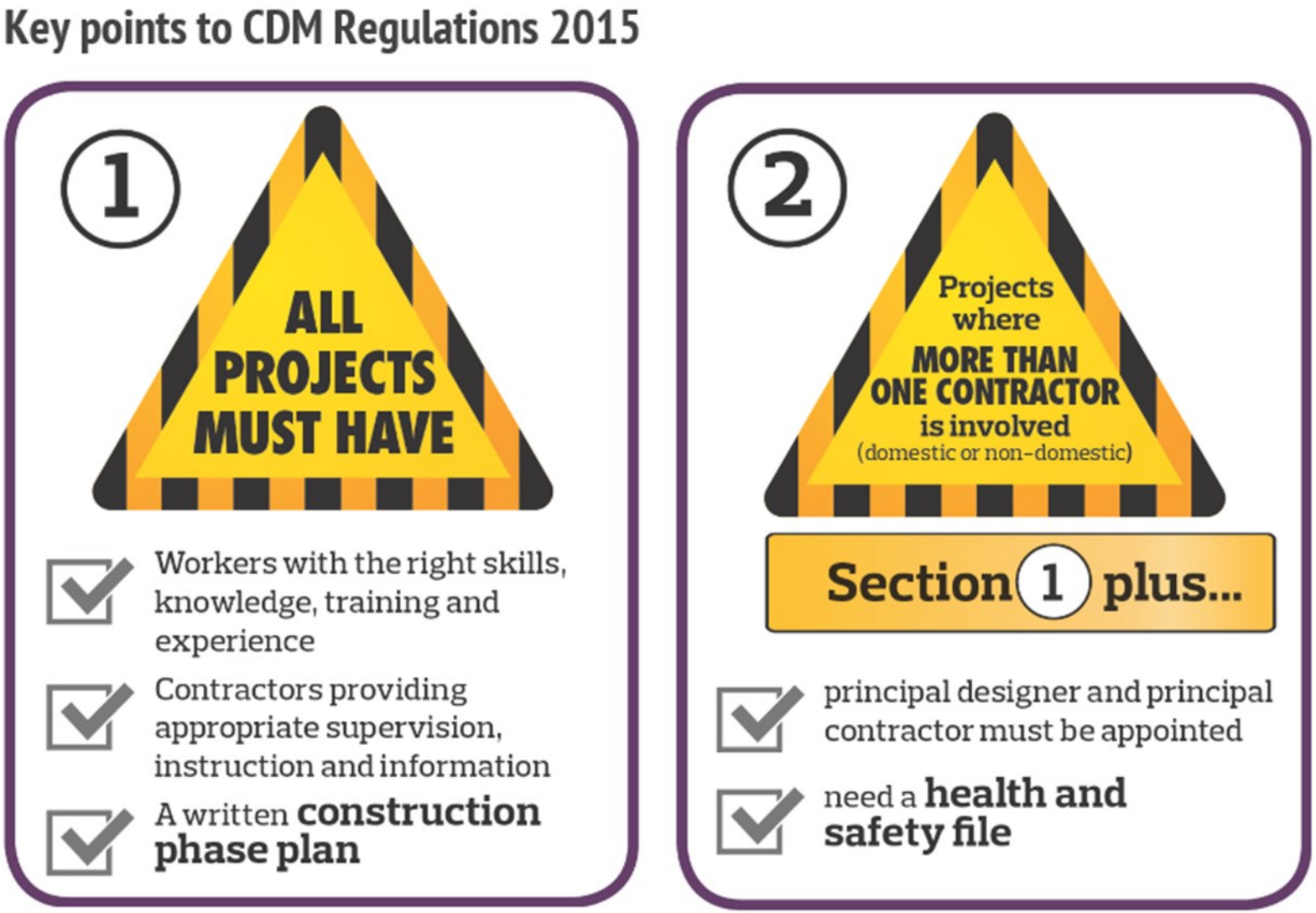
- ✓ A designer is an organisation or individual, who:
  - prepares or modifies a design for a construction project (including the design of temporary works); or
  - arranges for, or instructs someone else to do so.
- ✓ Designs include drawings, design details, specifications, bills of quantity and design calculations.
- ✓ Designers can be architects, consulting engineers, quantity surveyors and interior designers, or anyone who specifies and alters designs as part of their work. They can also be principal contractors, specialist contractors, tradespeople or even commercial clients, if they get actively involved in design work for their project.
- ✓ A designer's decisions can affect the health and safety of all those involved in constructing a building, those who use it as a workplace, and those who maintain, refurbish and eventually demolish it.

9. Duties of designers……cont'd

Designer must:

- ✓ make sure the client is aware of the client duties under CDM before starting any design work.
- ✓ when preparing or modifying designs:
  - take account of any pre-construction information provided by the client (and principal designer, if one is involved).
  - eliminate foreseeable health and safety risks to anyone affected by the project (if possible).
  - take steps to reduce or control any risks that cannot be eliminated.
- ✓ provide design information to:
  - the principal designer (if involved), for inclusion in the pre-construction information and the health and safety file.
  - the client and principal contractor (or the contractor for single contractor projects) to help them comply with their duties, such as ensuring a Construction Phase Plan (CPP) is prepared.
- ✓ communicate, cooperate and coordinate with:
  - any other designers (including the principal designer) so that all designs are compatible and ensure health and safety, both during the project and beyond.
  - all contractors (including the principal contractor), to take account of their knowledge and experience of building designs.

9. Summary


Key points to CDM Regulations 2015
1
ALL PROJECTS MUST HAVE
Workers with the right skills, knowledge, training and experience
Contractors providing appropriate supervision, instruction and information
A written construction phase plan
2
Projects where MORE THAN ONE CONTRACTOR is involved (domestic or non-domestic)
Section 1 plus...
principal designer and principal contractor must be appointed
need a health and safety file

10.Summary….cont'd

- ✓ Construction Design and Management (CDM) fails when:

  - Lack of communication and coordination;
  - CDM is separate and not business as usual;
  - Lack of CDM in change control process;
  - Lack of clarity over responsibility / accountability;
  - Principal designer is appointed late.

END

ANY QUESTIONS?

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