


**BIMLEVEL3**  
29TH JUNE 2016 | MANCHESTER UNIVERSITY




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Welcome to

**The Synergy of CDM2015  
and BIM**

presented by

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**Construction (Design and  
Management) Regulations 2015  
(CDM2015)**


**COORDINATE**

**COOPERATE**


**COMMUNICATE**

**The Right Information is given to the Right  
People at the Right Times**

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## Application of the CDM2015 Regulations




**The Construction (Design and Management) Regulations 2015 (CDM2015) apply to:**

1. **Work to a structure;**
2. **Work that is construction.**




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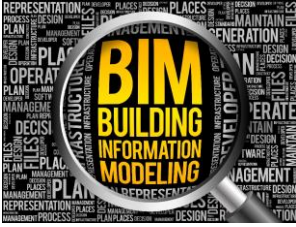


## Building Information Modelling (BIM)



**The BIM process should:**

- **Create a common language applicable to all;**
- **Allow decisions to be data driven via a single version of the truth;**
- **Deliver benefits by using data and embracing efficient use of technology; and**
- **Bring process, people and technology together.**



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## Building Information Modelling (BIM)



- Employers Information Requirements (EIRs);**
- BIM Execution Plans in response to our EIRs;**
- Information Delivery Table – clarifies the information to be exchanged on a project, data ownership and standards;**
- Construction Operating Building Information Exchange (COBie).**



## Pre-Construction Information (PCI)




PCI provides the H&S information needed by:

- a) **designers & contractors who are bidding for work, or who have already been appointed to enable them to carry out their duties;**
- b) **The principal designer (PD) & principal contractor (PC) in planning, managing, monitoring and co-ordinating the work of the project.**


PCI provides a basis for the preparation of the Construction Phase Plan (CPP). Some material may also be relevant to the preparation of the Health and Safety File (HSF).





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## PCI Register




Client Name  
Project Number and Title  
Pre-Construction Information Register

This form of Pre-Construction Information should only be used if the principal contractor is involved in the design process. A formal PCI is necessary for post-design construction tenders.

Please note that this register forms a contract according to terms in the BIM Level 3 Information Management Plan document and will be referenced a number of times during the duration of your design information needs.


Information Contents	Documents & Drawings			Distribution	Required for HSP
	Number	Issue Date	Title		
<small>Red font and specific details on yellow in documents containing those details in the information</small>			<small>Insert list of documents/updates posted to PCI sheet</small>		
Description of project					
Programme details					
Team Contacts					
Working methods, plans, drawings and reports					
Planning and management - Meetings					
Project health and safety plans					
Arrangements for communication and liaison					
Site security and handling arrangements					
Weather Procedures					
Traffic management arrangements					
Site layout or mobilisation areas					
<small>Use where the client has designated or notified spaces</small>					

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## Pre-Construction Information (PCI)




**When the PCI is complete it must include proportionate information about:**

- a) the project, such as the client brief and key dates of the construction phase;
- b) 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 that the work is coordinated;
- c) the health and safety hazards of the site, including design and construction hazards and how they will be addressed;
- d) any relevant information in an existing HSF.

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**CDM2015 - Working within the Team**  
**Design Interfaces**



Interface Design Review Meetings - Actions


No.	Title	Notes	Actions	Responsible Organisation	Responsible Person	Date Action Agreed	Deadline	Status	Update
106	Compressor Fire Detection	MPT compressor is to be provided in a container. The supplier normally provides 2 fire detection points within the container	Confirm preference for detection. Whether Designer 1 will extend their detection system to within the container, or they will rely on the compressor detection (if compatible)	Designer1	AAA	09-Dec-14	13-Jan-15	Closed	12th Jan '15 - email sent by Designer1
107	Compressor Fire Detection	MPT compressor is to be provided in a container. The supplier normally provides 2 fire detection points within the container	Provide spec of compressor supplier standard detection system	Designer3	CCC	09-Dec-14	13-Jan-15	Open	12th Jan '15 - with request from Spec, to be forwarded on by Designer3
108	MCC Roof Penetrations	Designer1 would like to investigate impacts on electrical design, due to location of accident scenarios	Provide drawing of MCC roof design to allow design of trusses	Designer1	AAA	09-Dec-14	16-Dec-14	Closed	12th Jan '15 - closed. Designer3 to provide mark up
109	Harbour Floor Roof	Discussion about load capacity of roof for construction and personnel and safe access if a handrail is to be fitted	Confirm load capacity of roof and address issue of handrail and access to the roof	Designer1	BBB	09-Dec-14	13-Jan-15	Closed	12th Jan '15 - handrail is only for temporary works purposes only. To stay up for Designer3 installation, then to be removed
100	ATEX in MPT	Designer require confirmation of any ATEX design in the MPT	Confirm ATEX requirements in relation to MPT	Designer3	EEE	09-Dec-14	13-Jan-15	Closed	12th Jan '15 - CMA provided by Designer3
111	Clearance within MPT	Designer3 have completed some spot checks for the general clearance of the MPT and have found discrepancies in the order of 100mm less than required. Therefore Designer1 would like to check for potential installation issues	Provide measurement survey of internal clearance already completed by Designer3. Provide any details of areas where clearance is critical	Designer3	EEE	09-Dec-14	12-Dec-14	Closed	12th Jan '15 - issued certified by MPT
104	Admin finishes	Services boards presented to Client	Admin finishes need to be agreed with Client Representative	Client	ZZZ	09-Dec-14	19-Dec-14	Open	26th December '14 - admin finishes presented as per Client comments, published options to be issued for Client sign off 12th Jan '15 - Client waiting for authority sign off
100	Bottom ash storage	Client raised concerns over access to rear of material bays without material falling onto the mobile plant	Designer2 to review if design can be improved to allow mobile plant to access the rear of bays, avoiding falling material	Designer2	FFF	09-Dec-14	13-Jan-15	Open	12th Jan '15 - hooper design could be designed such that allow mobile plant to access the rear of bays, avoiding falling material 12th Jan '15 - hooper design could be designed such that allow mobile plant to access the rear of bays, avoiding falling material Designer to issue revised design




**Clash**


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**CDM2015 - Designers' Duties**






**DESIGN RISK REGISTER**

PROJECT / SITE / AREA:

ACTIVITY/RISK	DESIGN OPTIONS / REASONS FOR REJECTION
1	a b c d
2	a b c d
3	a b c d



**Design Hazard Inventory**

Project Title: \_\_\_\_\_  
 Project Stage: \_\_\_\_\_  
 Designer(s): \_\_\_\_\_

Activity / Hazard	Prevent at Risk	Reduce Risk by Design	Remaining Risk
	Prevent at Risk	Reduce Risk by Design	Remaining Risk
Solutions Considered Not Reasonably Practicable / Presumed Construction Methods			
	Prevent at Risk	Reduce Risk by Design	Remaining Risk
Solutions Considered Not Reasonably Practicable / Presumed Construction Methods			

Approved by: \_\_\_\_\_ (Name) \_\_\_\_\_ (Signature) \_\_\_\_\_ (Date)

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## Construction Phase Plan (CPP)



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**The PC has an absolute duty to prepare the CPP prior to construction commencement, and develop, communicate, implement and amend it as necessary to maintain its sufficiency to effectively plan, manage and monitor the construction work;**


**The CPP must contain:**

- the health and safety arrangements for the construction phase;
- the site rules; and
- specific measures concerning high risk work (Schedule 3).




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## Construction Phase Plan Reactive Maintenance and Minor Works



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## Construction Phase Plan Reactive Maintenance and Minor Works

Construction Phase Plan Reactive Maintenance and Minor Works	
Project:	Location:
Client:	Representative: <span style="color: red;">[redacted]</span>
Contractor:	Representative: <span style="color: red;">[redacted]</span>
Date:	Start Time:      Finish Time:
Refer to the <b>Health and Safety File</b> and the <b>Building &amp; Equipment Information File</b> for the Pre-Construction Information.	
Any additional Pre-Construction Information supplied by the Client/Designer:	
Work Hazards/Risks	Controls <span style="color: red;">(Enter safe system of work or ACoE)</span>
Work within public areas (internal or external)	
Work at height and/or on roof	
Work below floor or in a confined space	
Work on live electrical equipment/system	
Work close to hot equipment/surfaces	
Work involving cutting/drilling into building fabric (also includes hot pipes)	
Work involving hot work	
Work requiring changes to the fire plans (including fire alarm/control system reset)	
Work causing tripping or slipping hazards or manual handling of more than 25kg	
Work involving ladders	
Other <span style="color: red;">(as applicable)</span>	
Is a Hazardous Work Permit required?	<span style="color: red;">If yes, attach Permit</span>
Contractor: <span style="color: red;">[redacted]</span>	Client: <span style="color: red;">[redacted]</span>
Contractor: <span style="color: red;">[redacted]</span>	Any notes or comments regarding the performance of the work and the CPP to be added on the rear of this sheet

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## The Health & Safety File (HSF)

The HSF contains information that is likely to be needed to ensure H&S during any subsequent work such as use, maintenance, repair, cleaning, refurbishment or demolition, possibly including:

- a) a brief description of the work carried out;
- b) any hazards that have not been eliminated through the design and construction processes, and how they have been addressed (e.g. surveys or information concerning asbestos or contaminated land);
- c) key structural principles (e.g. bracing, sources of substantial stored energy – including pre or post-tensioned members) and safe working loads for floors and roofs;
- d) hazardous materials used (e.g. lead paints and special coatings);

## The Health & Safety File (HSF)

- e) information regarding the removal or dismantling of installed plant and equipment (e.g. any special arrangements for lifting such equipment);
- f) H&S information about equipment provided for cleaning or maintaining the structure;
- g) the nature, location and markings of significant services, including underground cables; gas supply equipment; fire-fighting services etc;
- h) information and as-built drawings of the building, its plant and equipment (e.g. the means of safe access to and from service voids and fire doors).




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**Any Questions?**



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A cartoon illustration of a man in a grey suit, red tie, and glasses, shrugging his shoulders with his hands outstretched. There are several short lines radiating from his head, suggesting a state of confusion or uncertainty.

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