



Programme Area: Buildings

Project: Building Supply Chain for Mass Refurbishment of Houses

Title: Health and safety approach from generic to site specific

Abstract:

Please note this report was produced in 2011/2012 and its contents may be out of date. This deliverable will review typical safe systems of work, and associated Skills / capabilities needed to deliver retrofit activities safely, create and develop generic risk assessments for similar tasks, create and develop site specific risk assessments and methodology for demonstration units selected from Peabody stock, to match WP3 technical solutions and the 5 main types selected for scenario modelling.

Context:

This project looked at designing a supply chain solution to improve the energy efficiency of the vast majority of the 26 million UK homes which will still be in use by 2050. It looked to identify ways in which the refurbishment and retrofitting of existing residential properties can be accelerated by industrialising the processes of design, supply and implementation, while stimulating demand from householders by exploiting additional opportunities that come with extensive building refurbishment. The project developed a top-to-bottom process, using a method of analysing the most cost-effective package of measures suitable for a particular property, through to how these will be installed with the minimum disruption to the householder. This includes identifying the skills required of the people on the ground as well as the optimum material distribution networks to supply them with exactly what is required and when.

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The **ENERGY ZONE**
CONSORTIUM:



PEABODY



Optimising Thermal Efficiency of Existing Housing

WP7: Health and Safety
Considerations to be addressed in
Mass Delivery of Retrofit

BU1001_PM08_7.2_Health & Safety Approach,
from Generic to Site Specific v3

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1 Executive Summary

The key findings from this work are:

- The solutions put forward by PRP in their Whole House Solutions Report are not **unusual** in their approach and are not solutions that are unusual to a contractor that has regularly worked in the residential refurbishment sector of the construction industry. Such works involve the use of traditional working methods that have been used regularly over many years.
- If contractors meet the legal requirement of “**competency**”, then scope for a **designer’s** risk assessment is very limited. Having said that anyone who specifies a job is a **designer** and this definition includes those who specify the menu of options for Retrofix and Retroplus and the leader of the polycompetent team
- A risk assessment is required for work that is **unusual or significant**. The works to carry out the mass retrofit are by their nature not **unusual**, nor are they **significant**. It has also been found that due to the nature of the retrofit work, the difference between a generic risk assessment and a more site specific one is very little. This suggests that Design Risk Management is not going to have a major impact on health and safety in the retrofit process. It is primarily through this **competency** that risks will be managed.
- For a polycompetent team to be **competent**, as defined by the **CDM Regulations** they will need to be trained in:
 - The correct behavioural attitudes for an appropriate safety culture
 - Generic safety best practice, for example in the use of PPE, manual handling etc
 - How to identify risks
- Having considered the various properties that Peabody Trust provided and applied the design solutions to each property; the main significant risks for the works proposed are:
 - Access around the site to carry out the works which will affect the location of working platforms such as ladders, scaffold, cherry pickers, etc
 - Properties are likely to remain in occupation throughout the duration of the works which means that work will have to be carried whilst the occupants are carrying out their normal lives. This creates a great deal of health and safety issues
 - Possible presence of asbestos in the properties
 - Current condition of the property such the existing electrical wiring that may not be safe or meet legal standards or the structure of the property may not be stable.

2 Introduction

This paper will examine how **Construction Design and Management (CDM) Regulations** relates to the Health and Safety at Work act and how it should operate in refurbishment projects involving the polycompetent delivery team. In particular it will highlight the role of the team leader as a “**designer**” within the regulations. The report will also explain how risk assessment and risk management should operate in practice. Whenever a word is highlighted in bold it is being used in the sense defined in the **CDM Regulations** and its definition can be found in the glossary in annex A.

The **CDM Regulations** are used to manage the **unusual and significant** work carried out by **competent contractors**. This report will look at what will be required for the polycompetent team to be deemed **competent** which includes how they should manage the risk for usual and/or insignificant.

Finally the report will look at some specific Peabody properties to show how the health and safety risks should be assessed.

3 The Role of CDM Regulations

The implementation of the retrofit works is to be carried out by a polycompetent delivery team that consists of 4 retrofitters, a leader (gas and electrically qualified), two medium skilled retrofitters to carry out the fixing of internal and external wall insulation and a fourth person of lesser skill level to carry out more general tasks. The role of the leader of the polycompetent team is to complete the detailed survey and as a result select solutions / products from a standard menu which will suit the client's needs. If he identifies an issue that requires a solution outside his experience he is required to refer to a more experienced designer: The decision making process that the leader of the polycompetent team has to go through as described above makes the leader of the polycompetent team a **designer** as defined by the **CDM Regulations**.

The management of health and safety by this polycompetent team is governed predominantly by the **CDM Regulations**¹. In summary, the **CDM Regulations** place duties on all those who can contribute to the health and safety of a construction project. Specific duties are placed upon clients, designers and contractors who are called "duty holders", the definition of which is specifically defined in the CDM Regulations and it is those definitions that are used when the terms are used in this report. In this report words that have specific meanings as defined by the CDM Regulations, and are defined in the glossary in section 2 above and are highlighted in **bold** in this report.

The key aim of **CDM 2007** is to integrate health and safety into the management of a project and to encourage everyone involved to work together towards:

- Improving the planning and management of projects from the very start
- Identifying hazards early on, so they can be eliminated or reduced at the design or planning stage and the remaining risks can be properly managed
- Targeting effort where it can do the most good in terms of health and safety and
- Discouraging unnecessary bureaucracy

The Regulations, in part or in total, apply to ALL construction works in some way or another.

The full Regulations apply to all works that are notifiable, part of the Regulations apply to projects that are not notifiable and also part of the Regulations apply where the client is a domestic client only.

A notifiable project is a project where the work is expected to:

- Last more than 30 working days, or
- Involve more than 500 person days (for example 50 people working for over 10 days).

Therefore the expectation is that only a small minority of Retrofit projects will be notifiable

¹ Note that the CDM Regulations are currently being reviewed. Amendments are likely to be implemented in 2014

The **CDM Regulations** define what **construction work** is and the works proposed for Retrofit fit into the definition of **construction work**.

It should be noted that because no construction work is actually proposed as part of the Optimising Thermal Efficiency of Existing Housing Project, no notification is required to the HSE and the appointment of a CDM Coordinator is not required.

This however does not mean that the **CDM Regulations** are not applicable to this project. To explain this it is necessary to set out who the duty holders under **CDM 2007**. The applicability of their roles to this project will also be considered. They are:

- **Client**
- **Designer**
- **Contractors** (not considered directly in this report)

For “notifiable” projects only there are further duty holders and they are:

- **CDM Co-ordinator** (not considered directly in this report)
- **Principal Contractor** (not considered directly in this report)

Domestic clients do not have duties under **CDM** directly, but those who work for them on construction projects will. It should be noted that **domestic clients** are not completely absolved of liability in respect of activities being undertaken within their own premises as they do owe a duty of care to persons who come on to their premises and to others who may be affected by activities being undertaken on their premises. Under the provisions of the Occupiers Liability Acts of 1954 and 1984, occupiers of domestic premises can be held liable for injuries to visitors, (including trespassers) who suffer any injuries whilst on the occupiers premises including injuries sustained whilst construction works are being carried out.

On all projects non **domestic clients** will need to:

- Check competence and resources of all appointees, hence references later in this report to any **competent** contractor applies to any contractor as all contractors working on retrofit will have to be **competent**
- Ensure there are suitable management arrangements for the project welfare facilities
- Allow sufficient time and resources for all stages (this can prevent delays and deliver best value)
- Provide pre-construction information to **designers** and **contractors**

In **CDM 2007**, the term “**designer**” relates to the function performed, rather than the profession or job title. You are a **designer** if you prepare drawings, specifications, and bills of quantities. The leader of the polycompetent team in the Retrofit process could also be considered a **designer** as he is likely to

select solutions and products albeit from a standard menu. Also anyone who has produced that menu or standard pallet of solutions is also a **designer**.

The main designer duties regardless of **client** are:

- To make sure you are **competent** for the job
- To check that **clients** are aware of their duties under the Regulations before you start work on the project
- When preparing the design, avoid risks to those:
 - Ø Carrying out construction work
 - Ø Liable to be affected by the construction work
 - Ø Cleaning any window or transparent or translucent wall, ceiling or roof in or on the structure
 - Ø Maintaining permanent fixtures and fittings of the structure
 - Ø Using the structure as a workplace
- When preparing the design you should eliminate hazards that may give rise to risks; and reduce risks from any remaining hazards
- These duties should be performed so far as is reasonably practicable, taking account of other relevant design considerations
- Take account of the Workplace (Health, Safety and Welfare) Regulations 1992
- Provide relevant information with the design regarding aspects of the design of the structure, its construction and maintenance. This information should assist **clients**, other **designers**, and **contractors** to comply with their duties under the Regulations

The requirement of a **designer** to consider risk is the same whether there is a **Principal Contractor**, whether the **client** is **domestic** or not and whether the project is notifiable or not. In this report reference is made to **principal contractors** and **contractors** and further reference is made to “any **competent**” **principal contractor** or **contractor**. **Designers**, when considering risk, should assume that **competent** contractors, or personnel, are being employed, whether principal or not. This is because although **domestic clients** have no **client** duties under **CDM2007**, **designers** and contractors still have their normal duties as set out in Parts 2 (which covers general management duties applying to construction projects which requires amongst other things, **designers**, **contractors** and their personnel to be **competent**), and 4 (which covers duties relating to health and safety on construction sites), of the Regulations. **Domestic clients** will have duties under Part 4 of the Regulations, if they control the way in which construction work is carried out.

It can therefore be seen, that whether a project is notifiable or not, the basic health and safety principles of **CDM** should still be applied and potentially added to all projects **domestic** or commercial. All duty holders have various general obligations, including:

- They may only appoint **competent** duty holders

- Cooperating with others concerned in the project to enable compliance with CDM 2007
- Coordinating their activities with one another to ensure the health and safety of all those involved in, or affected by the construction work.

When considering risk in the Retrofix and Retroplus process there will need to be a two stage process. The first stage is the consideration of risk with regard to the solutions provided by PRP and others in Work Package 3. The second stage of the process is when the designs are applied to real properties, in other words by the leader of the polycompetent design team. In the second stage, the **designers** will need to be identified, so that consideration of risk is covered by the relevant party or duty holder. This process was covered in the report entitled “Health & Safety Documentation - CDM/Project Management”.

It should however be noted that if with private and social landlords of residential property the approach to carry out Retrofix or Retroplus is through a more traditional route of employing a design team, tendering the works and appointing a **Principal Contractor** as defined by the **CDM Regulations**, then the principles set out below remain very much the same.

In section 7, this report will apply the Whole House Solutions put forward by PRP and then put them into a real life scenario to show what issues need to be considered by **designers**, what detail they need to go into and highlight the process of design risk management.

3.1 Approach to risk assessments and the management of risk

The approach described below to Design Risk management (DRM) follows closely the advice of the Association of Project Safety, (APS), the professional association that regulates CDM Coordinators. CDM Coordinators are required to ensure that **designers** fulfil their duties. The APS summarised their guidance in their Guidance Note 1/12 dated February 2012, Coordination and Evidencing of Design Risk Management.

With regard to risk management there is a perception amongst **designers** that the consideration of risk is somewhat alien or is something that they do not naturally do. However in many cases **designers** do indeed consider risk in their designs, they are just not aware of doing it. In any approach to a new design a good **designer** who understands his or her role invariably ask themselves a number of questions, questions which are often asked without, consciously thinking about health and safety. These questions include:

- What is being built? What should it look like and what is its function
- Where will it be built and what is adjacent to it?
- What materials should be used?

- How will it be constructed?
- When will it be built?
- How long could it take to build and when is it required?
- What other constraints and circumstances can affect the design?
- Who else is designing the project and what elements or aspects are they addressing?
- What will be continuing to be done or used on the site during the construction phase?

These are basic questions that are asked in the mind of **designers** to help facilitate the design process, it also just so happens to be the questions that a designer should ask when considering health and safety. The CDM Regulations have in affect added a few more questions to help facilitate health and safety. These additional questions, are required to ask by CDM legislation, are:

- How will the structure or element be maintained safely?
- How will it be cleaned, accessed, altered, refurbished, removed or demolished safely?
- What is the competence of those who will carry out the above works?
- What information will all these people need to do that work safely?

DRM ensures that all the questions outlined above (and others) that have any known or foreseeable effect on the Health and Safety of workers, those affected by the work, or users of a workplace, are addressed appropriately and proportionately to the size and complexity of the works involved on the project. DRM is therefore turning subconscious thinking into a step by step recordable process.

Initially in carrying out risk management the emphasis is on significant issues or significant risks. Such trivial issues would be notifying a contractor to wear a hard hat or be careful when working at heights. However, **designers** are in a unique position to improve the whole range of construction related Health and Safety issues and must not overlook the contribution they can make to reducing ill health and minor injuries especially those that relate to such issues as hand arm vibration, noise induced hearing loss and musculo skeletal disorders and dermatitis.

Whilst **designers** must never fail to give appropriate efforts to eliminating or reducing risks relating to unusual aspects of a project and on factors generally recognised as significant, they should consciously avoid producing information for others about hazards that will not involve significant risks or hazards of which a reasonably **competent designer** or **contractor** can be expected to be aware.

It is this aspect that causes most problems with **designers**, how far do they go in notifying a **competent contractor** on risk issues and how much should a designer expect a **competent contractor** to know. This is can be a difficult judgement to make, but the best way forward is to consider what experience the **contractor** has had on similar projects and whether the **designer** has worked with that **contractor** before. The **designer** should also consider whether there is anything in his design that is something they themselves have never come across before, such as a new

innovative system for cleaning or something that involves new materials.

The **designer** should also not be scared of saying there are no significant risks with regard to his design or what he has specified. If there are a few - or even no - significant residual issues that anyone needs to know about, the **designer** should state this. Producing excessive or unnecessary information just because of a fear of appearing to have not done a good job or for anti-litigation is counterproductive and may obscure the really important information.

3.2 Principles of Design Risk Management (DRM)

Throughout the design process **designers** need to review the application of their Design Risk Management processes to make sure that their eyes are not off the ball. Some simple questions will help with this:

- Is enough being done during design to eliminate hazards and reduce risk?
- Is adequate and proportionate information about residual risks being generated and passed to the right people, at the right time?
- Are there any obvious or foreseeable issues being omitted?
- Are there issues that we are dealing with that other **designers** need to know about and take into account?
- Are we wasting time deciding between options that have similar levels of risk rather than finding options that can reduce risk significantly?
- Are there elements and structures and issues being designed by others that we need to know about, because we can foresee that there is a Health and Safety interface that we need to be dealing with?
- In the process of marking-up drawings with information, or passing on information are we correctly focusing on significant risks and “difficult-to-manage” processes rather than generic risk issues?
- Are we worrying too much about insignificant hazards or those a contractor manages every day without difficulty e.g. working at height, those needing control measures such as wearing hard hats or high visibility jackets or pointing out that works on a structure in a river involves the risk of working near water.

At all times **designers** need to check that information is being reviewed and allocated appropriately for inclusion in 'information packs' and / or the Health and Safety File.

Designers also need to avoid 'generalised' Design Risk Management procedures, for instance **designers** should avoid using:

- Risk assessments based on standard industry wide statements of hazard and risk

- 'Imported' check-list risk assessments
- Risk assessments and associated paperwork as a substitute for risk management'

This last point needs to be kept uppermost in the minds of **designers** and the CDM Coordinator if appointed. The issue is risk elimination, reduction and control, **NOT risk assessment**, or simply assessing risk. So issuing a design risk assessment or statement saying beware of maintenance work required on the roof of a ten storey building because it is high is not what DRM is all about. DRM is all about either avoiding the maintenance work at height, or what measures have been implemented to make the process of working at height safer.

When working within a project team there are important reasons, other than legislative, for recording progress and decisions. The most important result of effective DRM will be clear information or evidence that demonstrates the outcome of the design process. So in responding to the need to record "the decisions" made or "the outcomes" the evidence can and should be straightforward. Very often project communication techniques or tools can be in place or modified to accommodate the outcomes of decisions related to health and safety under the **CDM Regulations**.

This is why, for example, complex often numerically based traditional risk assessment techniques are not what should be provided. They are simply risk assessments. They do not show how risk has been managed, mitigated or controlled.

3.3 Risk management in Practice

The main significant risks for the works proposed on all the properties are:

- Access around the site to carry out the works. The main issue for this is the placing of scaffolding, whether there is room and whether the surface is flat
- Properties are likely to remain in occupation throughout the duration of the works
- Possible presence of asbestos
- Current condition of the property

These items are the only essential items that need to be notified to any **competent Principal Contractor** or **competent contractor**, as defined by the CDM Regulations. They are therefore both generic and site specific.

The **designer** of the standard menu of solutions does has a responsibility to try and not use materials that may be noxious or risky to use, especially if there are perfectly benign alternatives. Some properties, however, may be Listed, or in a Conservation Area, and therefore the use of some materials may be a necessity due to conservation principles.

Other issues that can be highlighted, but would probably be resolved as the works progress would include

- Pest control
- The actual process of carrying out the works as previously discussed above
- Condition of the property

It should also be pointed out that in considering DRM it is not the duty of the **designer** to tell **contractors** how to do their jobs. Restrictions need to be highlighted and issues raised but **designers** MUST never tell a **contractor** on how to proceed with the works. **Designers** can always advise and consult with **contractors** but the ultimate responsibility for health and safety on site is down to the **Principal Contractor**, (PC), or the **contractor** if the project is for a **domestic client**. If a **designer** tells a **contractor** that the works MUST be done in such and such a way and an incident occurs due to that method, the **designer** could be held responsible. The same goes for the client.

Therefore the DRM process for Retrofix and Retroplus can be seen, as:

1. The **designers** of the pallet of solutions working to remove hazards and risk where they can and where they can not to inform the **principle contractor** (the polycompetent team) and the team leader of polycompetent team acting in his role as a **designer** to choose the most appropriate safe solution
2. It is then the role of the team as the **principle contractor**, to manage and mitigate the risk. For example it will be the team to consider how access and working platforms will be provided. Methods of work will also be considered by the team leader, not in his role as a **designer**, but as a **contractor**.

The generic risks that have already been provided by PRP Architects in WP3 (Whole House Solutions Report pp 20-51) and in the Health & Safety Documentation CDM/Project Management cover all issues that need to be considered with regard to the proposed works. These issues remain the same when related to specific properties.

The only reason for the update of any risk register by any of the **designers** currently involved in this project would be if a new material, process or procedure was proposed.

Solutions to the risks and hazards stated will then be considered by the Principal contractor when appointed and will form part of his Pre Construction Health and Safety Plan.

A risk register has been formed as part of this project and can be found in the Health & Safety Documentation CDM/Project Management report.

3.4 Audit trails and records

Once a **designer** has considered risks and hazards in their designs and they are unable to eliminate them they need to notify the **contractor** accordingly. To do this it should be noted that "one size may not fit all". It is also likely that several techniques may have to be used depending upon the communication methods with project teams. It should also be stated that it is down to the **designer** as to how this should be presented.

The Approved Code of Practice for the **CDM Regulations** makes it quite clear that **designers** are not legally required to keep records of the process that they have used to try to achieve safe designs. However, accurate records of discussions are an important part of any project. In matters related to Health and Safety, they would demonstrate the thought processes used in reaching decisions and the issues that were relevant at the point in time that the decisions were made. This can be very important when designs are subject to change over a long period of time and where, perhaps design co-ordination and change-tracking does not accurately identify such issues.

Reasons for keeping records are:

- To create an auditable trail that can help to demonstrate that reasonable professional judgement has been exercised
- To record the process by which design decisions were eventually reached. This can help others at a later date. to evaluate the possible impact of design changes
- As an aide memoir to help a defence in the case of a legal investigation.
- To assist the design process on future similar projects, (again relevant to a nationwide retrofit process).

Records for an audit trail do not have to be extensive and the following techniques would qualify:

- Letters sent and received
- Emails
- Notes of meetings- internal & external
- Quality Management system records
- Health & Safety design management
- File notes - these could be informal notes to remind you what influenced a particular decision
- Superseded drawings - only choose those with particular relevance

These would of course only be useful if they are all properly referenced, dated and available. It is always difficult to decide which information to keep, but it's worth bearing in mind the following

- Keep notes short - it should not be necessary to record details of a discussion, only that it took place and the outcome

- Try to anticipate what information should be available in the event of investigations regarding the suitability and compatibility of designs in terms of Health & Safety.
- If attempts to discharge duties were being frustrated by other people or influences it might be useful for records to demonstrate this fact.

3.5 Application to Retrofix and Retroplus

With regard to the works that are associated with this project the consideration of risk in Work Package 3 has been by necessity generic. The design proposals are in themselves generic as they have not been applied to real properties. In reality risk analysis will need to be carried out for each individual project.

It should be noted that much of the design solutions that have been put forward for this project are traditional and not **unusual**. They are not too dissimilar to what would be proposed for a general external redecoration program to a property. There may be innovative ways to carry out these works but such innovation is more likely to come from the **contractor**. Due to the traditional approach being taken there is very little in the way of **significant** risk to be considered. This will become apparent when the Peabody properties are analysed one by one in section 7.

4 The Health and Safety at Work Act and CDM

Most of the duties outlined in the CDM Regulations 2007 already existed, to a greater or lesser degree, in other regulations, with CDM referring to clients and other regulations referring to employers.

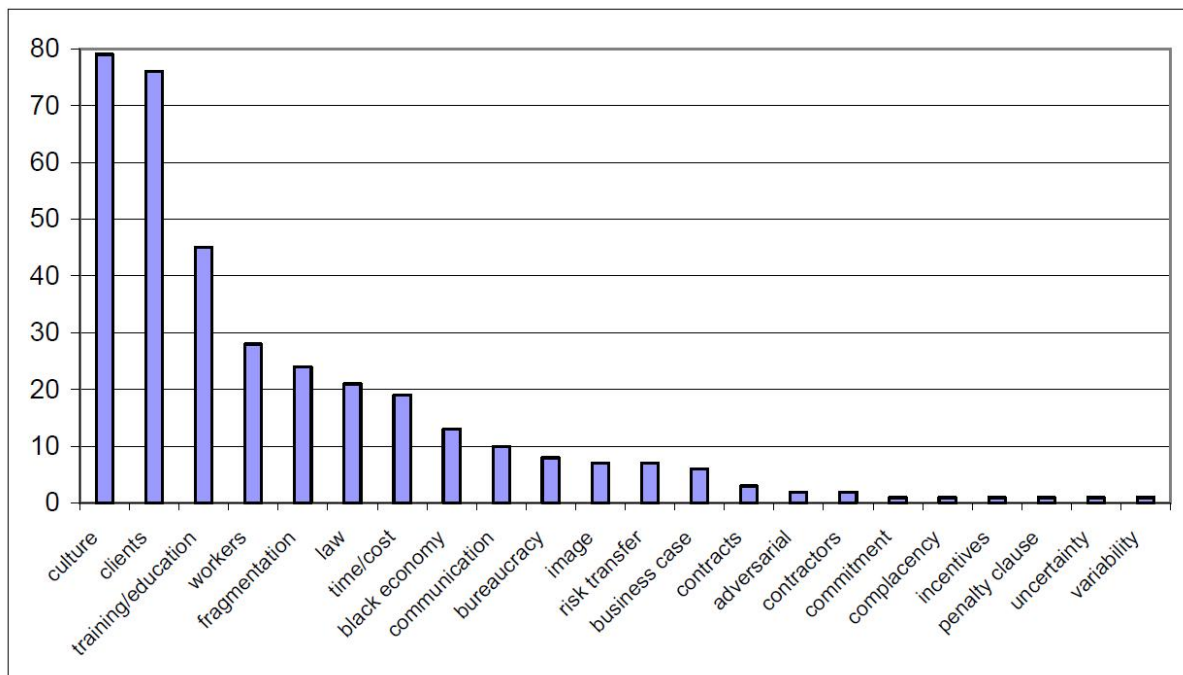
The Health and Safety at Work, etc Act 1974 places an overriding duty upon employers to safeguard the health, safety and welfare of employees as well as those not in their employ. In 1989 the European Commission passed the *Framework Directive* which had requirements largely similar to those of the Health and Safety at Work Act with respect to employers and workers. In response the UK government introduced the Management of Health and Safety at Work Regulations 1992 which were subsequently amended in 1999. However there was a realisation across Europe that the provision of the *Framework Directive* as nationally enacted were not working in the construction industry. In response to this the *Temporary or Mobile Construction Sites Directive* was passed. This was enacted in the UK as the CDM Regulations and also the Construction (Health, Safety and Welfare) Regulations 1996. CDM Regulation 2007 now combines these two regulations into one set of regulations.

In complying with the CDM Regulations 2007 construction work is fulfilling all its obligations under the Health and Safety at Work Act.

5 Managing the “Usual and/or the Insignificant”

5.1 Being Competent

A survey was carried out by the HSE in 2002 (see <http://www.hse.gov.uk/consult/2002.html>), which asked various question of the industry. One of the questions asked was what were the greatest barriers to change within the industry? The results were as follows.



Culture is seen as the greatest barrier to change with clients as the second greatest barrier to change. The client issue is an issue because they are not employing the right contractors to do the job. Their criterion is more based on cost than on competency. If clients took competency more seriously then so would the industry as they would realise it would help them to get more work. Training and education is also an item that needs to be considered.

With regard to competency CDM Regulations have a requirement for such. To be competent, an organisation or individual must have:

- (a) sufficient knowledge of the specific tasks to be undertaken and the risks which the work will entail;
- (b) sufficient experience and ability to carry out their duties in relation to the project; to recognise their limitations and take appropriate action in order to prevent harm to those carrying out construction work, or those affected by the work

Unfortunately due to the client’s attitude the test of **competency**, which is a legal requirement, it is not adequately addressed by clients. In return **contractors** also do not give proper consideration to

health and safety to those that they employ. The HSE confirm that the culture and style of management is even more significant, for example a natural, unconscious bias for production over safety, or a tendency to focus on the short term, or being highly reactive.

The Health and Safety Executive says that a **competent** organisation or individual will have:

- Sufficient knowledge of the tasks to be undertaken and the risks involved
- The experience and ability to carry out their duties in relation to the project, to recognise their limitations and take appropriate action to prevent harm to those carrying out the **construction work**, or those affected by the work

In other words they must:

- Have been trained to carry out the tasks
- Have the correct culture/behavioural attitudes to safety
- Have been trained in best practice methods of working,
- Been educated to identify risks

If this is achieved this will improve health and safety on site. The polycompetent teams need to be **competent**.

5.2 Behavioural Attitudes

The polycompetent team need to create a culture conducive to good health and safety. The HSE recommend in their document "HSE Human Factors Briefing Note No. 7 Safety Culture" that the feeling of employees in organisations with a good safety culture should reflect the following comments:

- Managers regularly visit the workplace and discuss safety matters with the workforce
- The company gives regular, clear information on safety matters
- We can raise a safety concern, knowing the company take it seriously and they will tell us what they are doing about it
- Safety is always the company's top priority, we can stop a job if we don't feel safe
- The company investigates all accidents and near misses, does something about it and gives feedback
- The company keeps up to date with new ideas on safety
- We can get safety equipment and training if needed – the budget for this seems about right
- Everyone is included in decisions affecting safety and are regularly asked for input
- It's rare for anyone here to take shortcuts or unnecessary risks
- We can be open and honest about safety: the company doesn't simply find someone to blame
- Morale is generally high

The underlying culture of the industry would be significantly enhanced if the recommendations of the Donaghy report (see Annex B) were implemented.

In work package 6.4 specific emphasis was placed on following:

- A fast track methodology for prosecution and conviction or other outcomes on construction fatal accidents were persistent non-compliance is discovered as well determining the method for what is considered non-compliance.
- Simplification and harmonisation of agreed bench-marks in relation to pre-qualification schemes so that subcontractors can pre-qualify once, rather than on multiple levels before participating in tenders for public and private work including local schools, hospitals or housing associations.
- We encourage the early review of the scope of the CDM specialists, and to see how additional duties can be included to aid the increased co-ordination between designers, architect and principal contractor (this may require additional technical training in addition to Surveyors Qualification).

5.3 Generic Best Practice Training

The basics of what polycompetent teams need to know will need to know in terms of practical best practice for generic construction work is covered in “Health and safety in construction”² published by the Health and Safety Executive. This covers issues around preparing for and setting up for work and construction phase issues such as working at height, moving goods safely, demolition, occupational health risks, electricity, slips and trips and protective equipment.

The construction industry operates a health and safety scheme known as the Construction Skills Certification Scheme³. Although not required by statute it has been widely adopted. Workers are required to take a test and can obtain different types of cards. The ones appropriate for the polycompetent team are; the Gold Card for Supervisors, the Red Card for Experienced Workers and the Red Card for Trainees. It is almost certain that any housing association would require workers to have such a card, but the scheme is to be recommended in any case. It tends to concentrate on the issues in “Health and Safety in construction” and is weaker on behavioural change and identifying risks.

New polycompetent teams would be expected to demonstrate that they had mastered the health and safety issues around the retrofit of low rise homes before moving on to any external works to medium or high rise dwellings.

² Health and safety in construction, Third Ed, Health and Safety Executive, 2006

³ <http://www.cscs.uk.com/>

5.4 Identifying Risks

Training provided needs to ensure that good practice is carried out on site. There are four stages that workers should be taught to consider when it comes to better on site health and safety practice to reduce the non significant and usual hazards and risks on site which may be non-significant and usual but which are still a cause of accidents and incidents. As with all good health and safety practice there is a great deal of common sense involved and yet accidents still occur so setting out a commonsense approach, (which could also be considered as stating the obvious), is required. The HSE provides guidance for this as follows.

Stop

Stop the task and think. Look at each step. Ask:

- Is this a new task?
- Has the task changed?
- When was the last time I did this task?
- Do I feel comfortable doing this task?
- If not, do I need training?

Look

Look before, during and after completion of the task. Always:

- inspect the work area for potential hazards, eg unsecured ladders, untidiness;
- identify the hazards for each step of the job/task; and
- evaluate what to do about them.

Assess

Are workers equipped to perform the task safely? Check they have the correct:

- knowledge;
- skills;
- training; and
- tools.

What else do they need to perform the task safely?

- Help? (Workers should be encouraged to ask for help.)
- More training? (Workers should not perform the task until they have been trained.)

Manage

Managers should take appropriate action to eliminate or minimise any hazards on site by:

- ensuring the proper equipment is used and is well maintained; and
- thinking about the task just completed and ask, "What went well? What did not go well?"

Ask yourself:

- Did anything unexpected happen?
- How can I be better prepared and plan for this in future?

6 Health & Safety Approach, from Generic to Site Specific, with Application to the Peabody Example House types

PRP provided Whole House Solutions to four types of houses. These were summarised in their Whole House Solutions Report. The four types were

- Three bed semi detached house
- Mid rise block of flats
- High rise tower block
- Hard to treat property.

Each type of property was then given a description and the proportion of the housing stock that particular type covers. The report then went on to provide various generic technical solutions to achieve greater thermal efficiency.

The technical solutions that were put forward were as follows.

- Loft insulation
- Tank and pipe insulation
- New high efficiency boiler installation
- Draught proofing
- Repair/improvement of doors and windows
- Air tightness improvements
- External wall insulation
- Internal wall insulation

PRP then applied the above solutions to each of the prototype houses they had put forward, and in addition provided a list of issues and risks related to each technical solution to each type of property. In so doing they were fulfilling their duties as required by CDM. Although the designs were generic to a certain extent and were not going to be directly applied to a site or property PRP still had to consider risks and hazards in what they proposed.

The issues and risks were related to all forms of risk and issues identified by the associated product design, as well as general health and safety concerns; the risks and issues were, by necessity, generic due to the properties chosen being non site specific.

The technical solutions put forward are considered to be widely accepted throughout the construction industry of today, and have already been partially implemented to the existing housing stock in the UK.

Dominic Bottone of PRP with Warren Pope of BRE then approached Sebastian Junemann of Peabody Trust, to provide houses owned by Peabody that matched those that PRP had put forward in their Whole House Solutions Report.

Six properties were provided. It should be noted that this is a higher number than the four types of property proposed by PRP, because exact matches were not found within the Peabody stock, the six chosen cover all aspects of the four property types that PRP had identified from a review of typical UK stock. All the properties are in what is called the inner London area except for one which is in Hillingdon, which is west of central London.

The location of these properties is relevant so that it can be appreciated what issues **designers** need to consider when retrofit is put into practice. A detailed description is therefore provided.

The following properties were as follows.

- Blackfriars Estate, Peabody Square – This was chosen to match the mid rise block of flats, albeit an older version of the one selected by PRP.
- Faraday House, Charing Cross Road – This was the hard to treat property, although not matching the particular property that PRP created. The property was however a hard to treat property in its own unique way due to the fact that it is a multi storey building in the middle of London.
- Roscoe Street Estate, Roscoe Street – This matched the high rise tower block.
- Muriel House, Muriel Estate – This matched the mid rise tower block selected by PRP more accurately, but had more floors
- Shaftsbury Park, Eversleigh Road – This was a mid Victorian terrace property. This was not selected by PRP probably because much of the issues are the same as for the three bed semi detached property, but this is a common property throughout the UK.
- Ashford Avenue, Hillingdon – This was chosen to match the three bedroom semi detached house

Each property was then visited to assess the specific risks that would have to be considered if each particular property were to have the works carried out as set out by PRP in their Whole House Solutions Report.

Some of the issues that would affect health and safety would be dependent on how the works would be programmed. For example,

- Will all the works proposed be carried out to each property in one go?
- Will the works be carried out property by property or completed in batches?
- Will the works be phased as to each particular type of work or by property?

It can therefore be seen that the programming of the works will have an effect on health and safety issues and on design risk management. The approach to the works will also depend on who the

client is, if the **client** is a social or private landlord then the impact of planning the works will be different and will have an effect on the health and safety issues.

6.1 The Peabody Properties

Before considering the design risk management process the properties need to be identified. A detailed description as to location is given as the location of the property is one of the main issues a designer has to consider. This will become apparent once the process of design risk management is considered.

Blackfriars Estate, Peabody Square



A traditional Peabody Estate constructed in 1871 but subsequently modernised. The estate stands at the southern end of Blackfriars Road, close to St George's Circus. The estate comprises twenty blocks of flats with a total of 226 properties. These break down into 13 bedsits, 82 x 1 beds, 95 x 2 beds, 31 x 3 beds and 5 mobility flats. There are 17 four storey blocks. All are cross stair construction except for one. There are three further five storey blocks which were provided as part of the modernisation.

The estate modernised in stages from 1988 to 2001 by replacing windows, installing central heating and changing the internal layout of homes and one block had a new roof. External and internal communal decorations and minor repairs were carried out in 2003 as part of a five year cycle. Decent Homes works were completed in September 2009.

Faraday House, Charing Cross Road



This property is in Westminster. It was first built in 1900 and acquired and then largely rebuilt by the Peabody Trust in the 1990s. The property is located directly on to Charing Cross Road. The estate consists of two adjacent blocks, one with 6 storeys and the other seven storeys. It comprises 22 flats, 16 are for general needs tenants and 6 house former rough sleepers.

The "general needs" properties break down into 5 x 1 bed, 10 x 2bed and 1 x 3bed. The supported flats are all 1 bed. There are also some commercial properties on the ground floor. In 1996 the Trust refurbished the block and added a new building at the back of the existing block to provide a further 22 flats.

Roscoe Street Estate, Roscoe Street



Most of the buildings on this estate were constructed in the 1950s. It includes two thirteen storey tower blocks. The estate comprises 234 properties. These are divided between two 13 storey tower blocks with dual lift access and four other blocks of varying heights up to 7 storeys.

The taller of these have lifts while the remainder are staircase or balcony access, garden and parking areas separate the buildings while the properties break down into 14 bedsits, 13 x 1 bed, 160 x 2 bed and 22 x 3 bed properties.

Further work took place in the 1990s. A new stainless steel refuse chute was installed in the two towers in 1995. One other block was reroofed in 1996. A program of drainage renewals was carried out in 1999.

New door entry systems were put in 2000 and 2001. Further works were carried out to two blocks in 2004 which involved external enveloping works such as overcladding and window replacement and significantly improved energy efficiency of the towers. Cyclical major repairs and redecorations were completed to three blocks in 2008; The Peabody Tower and St Mary's Tower are of reinforced concrete frame construction.

Muriel House, Muriel Estate



The Muriel Estate was built in 1964 and comprises 42 flats/maisonettes, 3 x 1 bed flats, 3 x 2 bed flats and 36 x 3 bed maisonettes in a ten storey block.

Limited parking is available at the front of the block; the works program on Muriel Street began in 2001 and was completed in 2002.

The works included new kitchens, bathrooms and windows, lift renewal, an overhaul of the door entry system, new individual central heating systems and new flat entrance doors.

Shaftsbury Park, Eversleigh Road



This is a large estate of Victorian street properties. The majority of properties are let at social rent levels, but it also includes some properties for market rent tenants, keyworker tenants, supported flats for former rough sleepers and agency managed supported properties.

Shaftsbury Park covers a number of roads on the south side of the main railway line from Clapham Junction to Waterloo and Victoria Stations. It is located east of Latchmere Road and below Lavender Hill. The estates are tree lined and quiet. The estate as a whole comprises about 1,200 properties, the majority of which are two or three storey

houses with gardens. The Trust owns 853 of these properties as of May 2004 which breakdown into 6 bedsits, 188 x 1 bed, 358 x 2 bed, 292 x 3 bed, 15 x 4 bed. The tenure breakdown is 731 general needs, 65 market rent, 11 keyworker, 5 cost rent, 20 supported properties for former rough sleepers, 5 floating support properties and 15 agency managed flats for care leavers.

Parking is on the street and controlled by the local authority. The estate was reroofed and modernisation works were carried out between 1994 and 1996. The estate was repainted as part of the 5 year cyclical program in 1998 and again in 2003. From the late 1990s onwards, parts of the estate have been modernised to provide cost rent, market rent and supported housing for rough sleepers, a number of one bed flats were also modernised in 1998.

Ashford Avenue, Hillingdon



These are scattered properties in the Hillingdon area. The majority date from the 1930s and 1970s and the estate comprises 138 properties in total.

These break down into 2 bedsits, 33 x 2-bed, 98 x 3-bed & 5 x 4-bed, with the majority being 2 storey terraced or semi-detached houses, approximately 80% of which were constructed by the local authority.

6.2 Design Risk Management Process and the provision of risk assessments

Having visited site or sites, the designer, using the relevant principles set out by the Association of Project Safety with regard to Design Risk Management and the question set out above in section 2.3 above.

The answers to these questions, applied to the Peabody properties, are shown in **blue**:

1. What is being built? What should it look like and what is its function – **Nothing is being built new but properties are being upgraded to increase thermal efficiency. The works proposed are as listed in the PRP document Whole House Solutions Report**
2. Where will it be built and what is adjacent to it? – **The properties are residential and they are nationwide throughout the UK. Types vary and other residential properties are adjacent. It should also be noted that much of the work is being carried out whilst the properties are still in occupation.**
3. What materials should be used? – **These are set out in the PRP document Whole House Solutions Report as are the various improvement options and innovation ideas.**

4. How will it be constructed? – This is proposed property by property in the order as set out in the PRP Whole house Solutions Report. It should be noted that the approach to do the works will affect the method of approach as already stated above. If everything is proposed in one go the approach will be different then if only one item is carried out but to a whole series of properties

Property Specific Requirements:

103 Ashford Avenue, Hillingdon – This was chosen to match the three bedroom semi-detached house. The property has a rear and front garden with access down the side. The ground around is relatively flat. Works will be required externally to the chimney, flues and stacks, the roof and, gable end walls, rainwater goods, external walls, recessed elements, in this case doors, projecting elements, in this case bay windows and to windows and doors. There are no **significant** risks to this work. Working at height for **competent** contractors on this project is not a **significant** risk. The solutions provided by PRP are solutions that **competent** contractors can manage and mitigate.

Works internally are to the roof space, party walls, floors, service penetrations, internal area with regard to space heating. Access externally should not be problematical due to the existence of front and back yards and side passage. The only **significant** risk here is the fact that the tenants will remain in occupation whilst the works take place. Each **client** or occupant will have to consider their options and the contractor will have to manage what is proposed.

Specific Risk Assessment

- Possible presence of asbestos
- Presence of occupants whilst works are being carried out
- Current condition of the existing property which may be unsafe

Blackfriars Estate, Peabody Square – This was chosen to match the mid-rise block of flats albeit an older version of the one created by PRP. **Muriel House, Muriel Estate** – This matched the mid-rise tower block created by PRP more accurately but has more floors.

These properties are being taken together. The areas to be worked on are as the property above. Both properties are set in their own grounds and can be accessed all the way around. Some site restrictions do occur in that there are private gardens at the base of the blocks that could restrict access and not all the ground is level. The recessed elements on these properties will be balconies and the projecting elements will also be balconies.

Working on a multi story building does require more permanent access provision. Access will be the **significant** risk or hazard on this project. To simply say working at height is rather pointless due to the fact that any **competent** contractor will know that this is a risk by simply reading the specification and looking at the drawings. Nothing can be done with regard to the sloping site. This is simply a hazard that needs to be considered and managed. The same goes for the private gardens. All the external works are again items that will have to be managed. It is highly likely that much of the work here will have to be done off a fixed scaffold. If so security will be one major item that will need to be considered. This is not a direct health and safety issue but it does need to be considered. Again though any **competent** contractor will be aware of this and will manage the works accordingly. Fixing details will be considered in more detail by the designer at this stage, but this will depend on exactly what proposals are being put forward.

Again with the property above the other significant hazard to carrying out works on this project will be those works being carried out internally. Each **client** or occupant will have to consider their options and the contractor will have to manage what is proposed.

Specific Risk Assessment

- Possible presence of asbestos
- Presence of occupants whilst works are being carried out
- Current condition of the existing property which may be unsafe
- Access externally to the property

Roscoe Street Estate, Roscoe Street – This matched the high rise tower block

The areas to be worked on are as the property above. The property is set in its own grounds and can be accessed all the way around. Some site restrictions do again occur as with the blocks above, in that there are private gardens at the base of the blocks that could restrict access. The recessed elements on this property are as the same as the mid rise block.

As already stated for the multi story building the works proposed will require more permanent access provision. Access will be the **significant** risk or hazard on this project. Any **competent** contractor will know that this is a risk by simply reading the specification and looking at the drawings. Nothing can be done about the private gardens. This is a hazard that will have to be managed. However any **competent contractor** who has worked on similar properties before can manage the hazard without too much of a problem. All the external works are again items that will have to be managed. It is highly likely that much of the work here will have to be done off a fixed scaffold. If so security will be one major item that will need to be considered. This is not a direct health and safety issue but it does need to be considered. Again though any **competent contractor** will be aware of this and will manage

the works accordingly. Fixing details will be considered in more detail by the designer at this stage but this will depend on exactly what proposals are being put forward.

Again with the property above the other **significant** hazard to carrying out works on this project will be those works being carried out internally. Each **client** or occupant will have to consider their options and the contractor will have to manage what is proposed.

Specific Risk Assessment

- Possible presence of asbestos
- Presence of occupants whilst works are being carried out
- Current condition of the existing property which may be unsafe
- Access externally to the property

Faraday House, Charing Cross Road – This was the hard to treat property although not matching the particular property that PRP selected. The property was however a hard to treat property in its own unique way.

Again the extent of the works is as the other properties.

This property has a fundamental site restriction. Firstly, to the front of the property is Charing Cross Road, a very busy thoroughfare for both vehicles and pedestrians. The pavement at the front is narrow and thus the provision of scaffolding will be difficult, but not impossible and there are many contractors who will be able to manage this issue effectively and safely given enough time and money. The provision of scaffolding to the rear of the property will also be extremely difficult. There is no vehicular access to the rear. The only access available is through the front door of the property and then out through the rear door of the property. Therefore access to the rear will require manual handling or possible use of a crane over the property. Also the full extent of the legal boundaries of the property will have to be provided by the **client** to ensure that the scaffold is not positioned on land that does not belong to the **client**. It is the **designer's** duty to point this restriction out to the PC so that he is aware of it and can consider ways of carrying out the works accordingly. It is not for the designer to tell the **contractor** how to overcome these restrictions, although suggestions from the **designer** can be helpful.

Specific Risk Assessment

- Possible presence of asbestos
- Presence of occupants whilst works are being carried out
- Current condition of the existing property which may be unsafe
- Access externally to the property

Shaftsbury Park, Eversleigh Road – This was a mid Victorian terrace property. This was not selected by PRP as a model.

The property has a rear and front garden but with no access down the side. The ground around is relatively flat. Works will be required externally to the chimney, flues and stacks, the roof and gable end walls, rainwater goods, external walls, recessed elements, in this case doors, projecting elements, in this case bay windows and to windows and doors. There are no significant risks to this work other than access to the rear of the property which will have to be through the house. Working at height for **competent** contractors on this project is not a significant risk. The solutions provided by PRP are solutions that **competent** contractors, as defined by CDM, can manage and mitigate.

Works internally are to the roof space, party walls, floors, service penetrations, internal area with regard to space heating. The only **significant** risk here is the fact that the occupiers will remain in occupation whilst the works take place. Each **client** or occupant will have to consider their options and the contractor will have to manage what is proposed.

Specific Risk Assessment

- Possible presence of asbestos
- Presence of occupants whilst works are being carried out
- Current condition of the existing property which may be unsafe
- Access externally to the property

5. When will it be built? – Programme is yet to be agreed
6. How long could it take to build and when is it required? – Again programme is yet to be agreed
7. What other constraints and circumstances can affect the design? – The presence of asbestos will be an issue on all the properties. The **client** will have to carry out surveys, although for these properties Peabody Trust may already be aware of the presence of asbestos or whether it has been removed. The **Principal Contractor** who will be doing the works, however, they should note the requirements of the Management of Health & Safety at Work Regulations 1999, the Health and Safety at Work etc Act 1974 and the Control of Asbestos Regulations 2006. Refurbishment work often carries with it a risk of exposure to asbestos, particularly when the building being worked on was constructed more than 20 years ago. Despite careful planning and even following the controlled removal of asbestos it may still be discovered.

Employees of the **Principal Contractor** or sub-contractors should be warned to be on the constant look out for asbestos throughout the job. The **Principal Contractor** will have to state his method for ensuring this in the development of his Construction Health & Safety Plan.

Also attention will have to be drawn to the condition of existing electrical services. Areas of the installation may be faulty and the contractor must consider this hazard when instructing staff who may use appliances powered from the existing installation prior to the provision of a temporary builders supply.

Also there are certain common place construction materials whose use may not be reasonably avoidable in the construction and which are potentially hazardous to health. The Principal Contractor's Health & Safety Plan shall confirm his site management system to ensure control of common place hazards through good practice, including safe systems of work, storage, warning signs, transport on site, and disposal of waste and provision of appropriate personal protection equipment. However, such materials should not be used where a suitable non-hazardous alternative is readily available.

Also there will be issues on many of the properties with regard to existing means of escape when it comes to fire and not disrupting any fire alarm system. The **Principal Contractor** shall comply with all statutory fire regulations including the Joint Code of Practice on "The Protection from Fire of Construction Sites and Buildings Undergoing Renovation". The PC should also ensure that he is aware of the properties existing fire precautions and incorporate these requirements into his site rules. The PC's on site representative must be made aware of his duties with regard to fire prevention and what to do in the event of an emergency. His duties must include the preparation of a Site Fire Safety Plan to include details of:

- smoke / fire detectors if necessary.
- assessment of the degree of fire risk
- formulating and regularly updating the Site Fire Safety Plan
- Clear access to the properties will have to be maintained at ALL times

8. Who else is designing the project and what elements or aspects are they addressing? – The polycompetent team will cover all other issues, except where the refurbishment affects the structural integrity of the property, for example a loft conversion or an extension and then a structural engineer will need to be appointed to assess whether works proposed have an impact on the structure of the property as far as loadings are concerned and also any temporary works required such as positioning of scaffold.
9. What will be continuing to be done or used on the site during the construction phase – The Principal Contractor will have to accept that many properties will remain in occupation throughout the contract period.

10. How will the structure or element be maintained safely – Many of the ideas put forward by PRP can be maintained and cleaned using traditional methods already known. Other items will be maintained and cleaned as part of the cyclical maintenance cycle, usually five years that Peabody Trust has in operation. The issues to do such will be the same as the installation process and therefore it will be access and physically reaching an item that will be an issue.
11. How will it be cleaned, accessed, altered, refurbished, removed or demolished safely? – The answer is the same to the answer above. Access will be the main issue
12. What is the competence of those who will carry out the above works – To be assessed once works are applied to the real properties. There are many contractors who will be **competent** to do the work although current regulation of this is rather lax in general as it is mainly voluntary when considering the construction industry. Competence can only be lead by the **client**. It is the **client** who chooses the criteria for which **contractor** is to be used on a project and if the **client** is only considering cost, which many do, then competency may be one of the criteria that falls by the way side. The same goes for those who are asked to clean and maintain the properties.
13. What information will all these people need to do that work safely? – For all projects a health and safety file will be provided. This will include the following.
 - a. A brief description of the work carried out
 - b. Residual hazards and how they have been dealt with, (for example surveys or other information concerning asbestos etc).
 - c. Key structural principles incorporated in the design if the structure (eg bracing or whether members are pre or post stressed) and safe working loads for floors and roofs particularly where these may preclude the use of scaffolding or heavy machinery.
 - d. Any hazards associated with materials used.
 - e. Information with regard to the removal or dismantling of any installed plant and equipment.
 - f. Health and safety information about equipment provided for cleaning or maintaining the structure.
 - g. The nature, location and markings of significant services.
 - h. Information and as built drawings of the structure, its plant and equipment, (eg means of safe access).

This is a formal requirement of CDM. It should be noted that on private domestic properties, privately owned by the occupier a formal Health and Safety File is not required, but information on new installations such as boilers, etc should be provided to each owner.

7 Conclusion

The following conclusions have been arrived at in the process of providing this report:

- It is planned that the polycompetent team should be able to complete their work in 5 days. This means that unless 25 or more houses are in the contract the work will never be notifiable under **CDM Regulations**
- The scope for a **designer's** risk assessment is very limited when it comes to Retrofix or Retroplus works as the works are normally not “**unusual**” or “**significant**”.
- Anyone who specifies work is a **designer** under **CDM Regulations**. Those who design the menu of refurbishment options for Retrofix or Retroplus are a **designer**. Anyone choosing from such a menu (ie the leader of the polycompetent team is also a **designer**).
- The polycompetent team will need to be **competent contractor**. They will have to have embedded a safety culture and have received training in generic good safety practices and risk identification. This will be the primary means by which risk will be managed and will include reducing risks from slips, trips, falls and handling.
- The overarching culture of the construction industry still hinders the progress of good health and safety practice by **contractors** when working on site and the recommendations of Donaghy go some way to improving that. Specifically we would encourage the following:
 - A fast track methodology for prosecution and conviction or other outcomes on construction fatal accidents were persistent non-compliance is discovered as well determining the method for what is considered non-compliance.
 - Simplification and harmonisation of agreed bench-marks in relation to pre-qualification schemes so that subcontractors can pre-qualify once, rather than on multiple levels before participating in tenders for public and private work including local schools, hospitals or housing associations.
 - We encourage the early review of the scope of the CDM specialists, and to see how additional duties can be included to aid the increased co-ordination between designers, architect and principal contractor (this may require additional technical training in addition to Surveyors Qualification).

The project has undertaken as much design risk management processes as possible with regard to the creation of the technical solutions. On completion of the site visits and associated risk assessments we have been able to confirm that existing CDM and design methodology is sufficient to enable safe delivery of the project technical solutions.

- Having considered the various properties that Peabody Trust provided and applied the design solutions to each property the main risks arising work that is **unusual and significant** risks for the works proposed are:
 - Access around the site to carry out the works which will affect the location of working platforms such as ladders, scaffold, cherry pickers, etc.

- Properties are likely to remain in occupation throughout the duration of the works which means that work will have to be carried whilst the occupants are carrying out their normal lives. This creates a great deal of health and safety issues
- Possible presence of asbestos in the properties
- Current condition of the property such the existing electrical wiring that may not be safe or meet legal standards or the structure of the property may not be stable.

These four risks are likely to occur on all residential properties where retrofit is likely to occur.

Annex A: Glossary of terms for the Construction Design and Management Regulations 2007

“**CDM or CDM2007**” means the Construction Design and Management Regulations 2007

“**client**” means a person who in the course or furtherance of a business—

- (a) seeks or accepts the services of another which may be used in the carrying out of a project for him; or
- (b) carries out a project himself;

“**competent**” To be competent, an organisation or individual must have:

- (a) sufficient knowledge of the specific tasks to be undertaken and the risks which the work will entail;
- (b) sufficient experience and ability to carry out their duties in relation to the project; to recognise their limitations and take appropriate action in order to prevent harm to those carrying out construction work, or those affected by the work

“**contractor**” means any person (including a client, principal contractor or other person referred to in these Regulations) who, in the course or furtherance of a business, carries out or manages construction work;

“**construction site**” includes any place where construction work is being carried out or to which the workers have access, but does not include a workplace within it which is set aside for purposes other than construction work;

“**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), de-commissioning, demolition or dismantling of a structure;
- (b) the preparation for an intended structure, including site clearance, exploration, investigation (but not site survey) and excavation, 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 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; and

(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,

but does not include the exploration for or extraction of mineral resources or activities preparatory thereto carried out at a place where such exploration or extraction is carried out;

“**design**” includes drawings, design details, specification and bill of quantities (including specification of articles or substances) relating to a structure, and calculations prepared for the purpose of a design;

“**designer**” means any person (including a client, contractor or other person referred to in these Regulations) who in the course or furtherance of a business—

(a) prepares or modifies a design; or

(b) arranges for or instructs any person under his control to do so,

relating to a structure or to a product or mechanical or electrical system intended for a particular structure, and a person is deemed to prepare a design where a design is prepared by a person under his control;

“**domestic client**” Domestic clients are people who have work done on their own home or the home of a family member, that does not relate to a trade or business, whether for profit or not. It is the type of client that matters, not the type of property. Domestic clients have no client duties under CDM2007, which means that there is no legal requirement for appointment of a CDM co-ordinator or principal contractor when such projects reach the notification threshold. Similarly, there is no need to notify HSE where projects for domestic clients reach the notification threshold. However, designers and contractors still have their normal duties as set out in Parts 2 and 4 of the Regulations, and domestic clients will have duties under Part 4 of the Regulations if they control the way in which construction work is carried out. Designers and contractors working for domestic clients have to manage their own work and co-operate with and co-ordinate their work with others involved with the project so as to safeguard the health and safety of all involved in the project

“**principal contractor**” means the person appointed as the principal contractor under regulation 14(2);

“**unusual and significant**” refers to risks that are not necessarily those that involve the greatest risks, but those, including health risks that are:

(a) not likely to be obvious to a competent contractor or other designers;

(b) unusual; or

(c) likely to be difficult to manage effectively.

Annex B - Recommendations by Donaghy

1. I recommend extending the Building Regulations so that health and safety processes should be included when considering building control applications or building warrants.
2. I recommend that the remit of the Gangmasters Licensing Regulations should be extended to include construction. Alternatively, a Regulation should be made which has the same effect.
3. I recommend that there should be positive duties on directors to ensure good health and safety management through a framework of planning, delivering, monitoring and reviewing.
4. I recommend that the courts should be assisted on the issue of specific responsibilities of directors to carry out corporate health and safety governance so that they can make appropriate judgements about the verdict or level of fine or whether disqualification is merited and, if so, for how long.
5. I recommend there should be an investigation into the built-in delays in the system leading to prosecution and conviction or other outcomes on construction fatal accidents.
6. I recommend that there should be a full-time Minister for Construction with a co-ordinating brief to lead on construction.
7. I recommend that Office of Government Commerce guidance and the mandatory Common Minimum Standards should be applied throughout publicly funded construction projects, including local authorities, and systems for accountability should be more effectively monitored and enforced with appropriate sanctions.
8. I recommend that there should be standard agreed bench-marks to test against the myriad of pre-qualification schemes so that subcontractors do not have to acquire a host of pre-qualifications before participating in tenders for public and private work including local schools, hospitals or housing associations. The Government should take the lead on this as a major **client** in public procurement.
9. The work of Construction Skills is also very important to the industry. I recommend that there should be a review of the allocation of grants as evidence suggests that it is the larger companies which make most use of the available funding. Some more redistributive allocation would be welcome.
10. I recommend that some research is carried out to identify why there is such a high drop-out rate from apprenticeships despite high volumes of applications.
11. The Construction Skills Certification Scheme card system is an important development in the industry. I recommend that the system should be further consolidated and renewed with a more strategic approach as to its future development.
12. I recommend there should be a review by the Higher Education Funding Council for England (and the equivalent bodies in Scotland and Wales), the industry and professional bodies on the adequacy and relevance of university or college curricula in covering design, health and safety awareness and risk management issues.

13. I recommend that the industry should renew its efforts to establish genuine consultative frameworks to encourage greater worker participation.
14. I recommend that support should be given to those organisations working on developing the worker safety advisor scheme. Dame Carol Black's recent report (Working for a Healthier Tomorrow) included a possible expanded role for trade union safety representatives to promote the benefits of employer investment in health and well-being. I further recommend that any initiative arising from Dame Carol's report should include some funding for a project in the construction industry.
15. The positive role that trade unions can play in health and safety is not fully appreciated by the construction industry and I recommend that more should be done, particularly by the larger companies, to encourage joint working with the unions.
16. Where there is no trade union presence, I recommend that renewed efforts should be made to encourage genuine worker involvement so that workers are alert to risk and can speak out, without unfair consequences, about unsafe practices. This would involve the Strategic Forum for Construction, the Health and Safety Executive and any other organisation currently involved in worker engagement.
17. I recommend that construction workers, as individuals, should consider the impact on their families of unsafe working practices and should accept responsibility for their own safety so far as they are able. I recommend that employees should join a trade union as their families are more likely to receive support and advice in the event of a fatal accident; similarly a self-employed worker should have sufficient insurance to enable their families to obtain legal advice should it prove necessary.
18. I recommend construction companies should hold the names and contact numbers and addresses of close family members in the event of accidents.
19. I recommend that the industry should continue to support partnership working through the supply chain.
20. While this was outside the scope of this Inquiry, Occupational Health remains a serious problem in the construction industry with thousands of workers dying every year. I recommend that renewed efforts should be made to tackle this issue.
21. I recommend that more work needs to be done by the HSE, the Strategic Forum for Construction and other appropriate organisations to tackle the 'legacy' challenge of second hand equipment or machinery still in circulation. Individuals or companies hiring this equipment should also ensure that they are fully aware of the capabilities of such machinery and its possible dangers and that they are sufficiently trained to identify any faults in the equipment.
22. I recommend an awareness raising campaign so that individual workers and companies take the issue of reporting accidents more seriously.
23. I recommend that there should be targeted safety campaigns for specific groups of workers who are regarded as vulnerable e.g. migrants, young people, the 55-60 plus age group.

24. There are insufficient HSE resources in London to carry out even the existing workload; this has been a problem for some years. I recommend that HSE should take steps to improve this situation.
25. I recommend that there should be a pilot study by the HSE to determine the impact of more non-accident prosecutions.
26. I recommend that there should be a review in the HSE of the communications strategy about fatal accidents to ensure a more co-ordinated and easily absorbable presentation.
27. I recommend that HSE should encourage its inspectors to promote the principles of the joint Institute of Directors / Health and Safety Commission guidance for directors and leaders of companies by the use of more easily absorbable presentation material.
28. The review of recent construction fatal accidents represents an important contribution to this Inquiry. I recommend that work should continue in this area on a regular basis as it will further illuminate the underlying causes of fatalities

<http://www.dwp.gov.uk/docs/one-death-is-too-many-response.pdf>

Annex C - PRP Risk Assessment

See also Annex F and G of the report titled Health and Safety Documentation – CDM Project Management for further detail on risk assessments carried out by PRP.

	EM4 Policy					
	Potential for providing funding mechanisms	Potential for industry subsidy	Quality Assurance of install and products	Carbon Reduction Effectiveness to achieve targets	Planning	Health and Safety
	1 - not likely to be funded	1 - least effective for property improvement	1 - difficult to QA	1 - worst bang for buck	1 - subject to planning constraints	1 - high risk for health and safety
	10 - likely to be funded	10 - most effective for property improvement	10 - easy to QA	10 - best bang for buck	10 - no planning constraints	10 - low risk for health and safety
1 Ground Floor Insulation	5	1	5	5	10	9
2 Ground Floor dampproofing	1	1	5	1	10	9
3 Loft Insulation	10	2	10	10	10	4
4 Re-roofing	1	1	5	5	5	2
5 Room in Roof	2	1	5	8	5	2
6 Chimney sealing/draughtproofing	1	1	3	4	10	5
7 Replacement doors and windows	8	1	4	4	6	5
8 Draughtproofing doors and windows	8	1	3	4	10	9
9 Repair/improvement of doors and windows	7	1	4	4	10	8
10 External Wall Insulation	10	5	10	10	3	3
11 Cavity Wall Insulation	10	5	8	10	10	6
12 Internal Wall Insulation	10	5	10	10	10	7
13 Tank and pipe Insulation	10	3	8	6	10	9
14 Rebuild Wall	1	1	4	2	7	4
15 Thermal bridging and Condensation solutions	5	1	8	5	9	6
16 Airtightness	5	1	8	5	10	6
17 Thermal doors for tunnels and passages	3	1	4	4	8	9
18 Insulation for tunnels and passages	8	3	7	4	9	6
19 Thermal improvement of existing extensions	2	1	4	2	7	5
20 Add porch	4	1	4	3	6	6
21 MVHR/heat recovery installation	5	1	5	3	10	8
22 New high-efficiency boiler installation	8	5	8	8	10	9
23 New Solar hot water system	8	1	8	8	6	3
30 Photovoltaics	5	1	8	8	6	3
24 Underfloor heating	4	1	4	4	10	7
25 Improve Controls	5	5	10	5	10	8
26 Smart meters	8	3	10	5	10	8
27 Heat pump	5	1	8	7	6	8
28 Rainwater collection system	1	1	1	1	10	4
29 Greywater recycling system	1	1	1	1	10	5
30 Roof lights/Solar pipes	2	1	5	4	10	7
31 Conservatory/sunroom	2	1	6	3	8	7
32 New kitchen/bathroom	1	1	2	1	10	1
33 New fitted wardrobes and shelves	1	1	2	1	10	5
34 Interior redecoration - finishes	1	1	1	1	10	5
35 Garden landscaping	1	1	1	1	10	5