CONTENTS – Construction Safety Manual

PERSIMMON GROUP – CONSTRUCTION SAFETY MANUAL

1. RISK ASSESSMENTS, AS PART OF AN OCCUPATIONAL HEALTH AND SAFETY MANAGEMENT SYSTEM.

The requirement to carry out risk assessments has been a fundamental part of health and safety legislation since 1992 and the requirement to adopt a risk assessment approach has appeared in most regulations made since this time. Therefore in any health and safety management system it is essential to understand the process of hazard identification and risk assessment.

1.1 What is a Risk Assessment

A risk assessment is carried out to identify the significant hazards relating to an operation or task and to assess the likelihood that something may happen resulting in injury or damage. The purpose is to identify the potential areas or ways in which someone could be killed, injured, have their health affected or the company suffers significant material damage (and losses). It can even being extended to consider environmental hazards and risks.

The objective is for the Company and its staff and contractors to put into place control measures to ensure the potential damage never occurs. In carrying out the risk assessment it is not only employees that have to be considered but any person, material, equipment or environmental aspects that could be affected by the Company's activities. The assessment will include contractors, self-employed people, members of the public, children and occupiers of property within an ongoing development. All have to be considered in carrying out the risk assessment.

In practice the terms hazard and risk are used. They are defined as follows:-

- **Hazard** is an event or occurrence that has the potential to cause harm to someone or to damage something.
- **Risk** is the probability or likelihood that the situation will arise and that damage or injury will occur.

We must start to think who or what can be injured or damaged and as a result try to identify all hazards that have the potential to cause significant harm or damage. In identifying the hazards there is a requirement for the assessor to make subjective decisions as to what are the significant hazards and what is trivia that can be immediately ignored because the hazard and the risk is already at an acceptable or tolerable level.

Once the significant hazards have been identified there is a logical step by step system of evaluation to determine the likelihood of who will be injured or damaged and what precautions the Company, its managers and employees, and contractors must take to ensure the potential situation does not occur, and the hazard is kept under control.

There are a number of step by step guides to carrying out the risk assessment. The HSE recommend a 'Step by Step approach to Risk Assessment' in their guidance document. These principles have been adopted by Persimmon but slightly modified to simplify the process still further resulting in the 8 steps as detailed below. These modifications have been made so the steps better relate to the standard risk assessment form used by the Company and to better guide site managers and other staff through the risk assessment process.

PERSIMMON HOMES PLC
RISK ASSESSMENTS – HOUSEBUILDING OPERATIONS

Hazard Or Work Activity Assessed :-	Ref No

Site Location	

Risk Rating H = High M= Medium L= Low

Hazard = potential to cause harm. *Risk = probability of that harm occurring*

The risk rating criteria is detailed below

High - Work activity, which has the potential to cause a fatal/major injury or health damage.

Medium - Work activity resulting in loss time injury or significant material or environmental damage

Low - Work activity resulting in minor injury but not lost time, or some material damage.

SIGNIFICANT HAZARDS	**H**	**M**	**L**		**WHO MAYBE HARMED**	
					Employees	
					Contractors	
					Official Visitors	
					General Public	

MEASURES TO CONTROL SIGNIFICANT RISKS
When control measures are applied the resultant residual risk must be at an acceptable level.

INFORMATION INSTRUCTION TRAINING

PERSONAL PROTECTIVE EQUIPMENT		**MANUAL HANDLING ASSESSMENT**
Head Protection		
Safety Footwear		
Eye Protection		
Hi Viz		
Hearing Protection		
Respiratory Protection		
Safety Harness		
Remember PPE is a last resort not a first option		

Assessment completed by		Date	

PHG/HS/:002

1.2 Persimmon's 8 Steps To Risk Assessment

(see Persimmon's Risk Assessment Proforma)

The step by step guide to completing the risk assessment form is as follows:-

1. Choose a task or operation
2. Consider the hazards associated with completing this work.
3. Decide who may be harmed and how.
4. Evaluate the risks from these hazards on the 3 point scale of *High, Medium or Low* risk.
5. Decide on what precautions or control measures are necessary.
6. Allocate responsibility for ensuring the control measures are in place and discuss the assessment with them.
7. Inform those carrying out the work (or train them if required).
8. Periodically review the work and the assessment to ensure the work can be done safely.

1.3 Definition Of High, Medium & Low Risk

In assessing the risks the following criteria should be applied to the terms **High, Medium** & **Low.**

Low Risk	If an incident occurs the injuries or losses will be minor. For example the injured person will be treated on site and will return to work with little or no lost time.
Medium Risk	the injuries will be such that the person has to leave site to receive medical treatment at a hospital or doctors. However there will be no lasting damage and the person will fully recover. If material damage occurs it will be to such an extent that material is permanently damaged and new material has to be re-ordered.
High Risk	If an incident occurs the injuries will be such that immediate medical treatment will be required and the person will be unable to return to work for more than 3 days. There may be long lasting injury or even permanent disability or death. With regards to health, permanent damage may be caused to someone's health.

The assessor in evaluating the risk must consider the likely consequences should an incident occur. By applying basic common sense, and using their knowledge and experience of the industry, most people will be able to carry out a realistic assessment of the hazards and risks. However the purpose of this manual is to further assist and provide guidance with the assessment process.

As a result of this assessment, the risks can be categorised (high medium or low) and the precautions that must be taken to control and minimise the risks can be evaluated. This can be summarised as follows:-

For **high risk** situations, the work must be carefully monitored to ensure the control measures are followed. If the task is a routine high risk operation such as installing roof trusses, the workers carrying out the task must be trained and experienced operatives and aware of the hazards and the precautions to be taken. If the task is a special or unusual situation such as deep excavations or entry into confined spaces, then a detailed method statement will be required, and all persons involved in carrying out that task must be made aware of the assessment and the method statement by way of a tool box talk or other similar means to ensure they are aware of the hazards and the precautions to be taken specific to that operation.

For **medium risk** situations, the person carrying out the task should be familiar with this task and must be aware of the risk assessment and the precautions to be taken. They should and follow standard company procedures for carrying out this task. There should be routine supervision to ensure company procedures are being followed and that no problems have arisen.

For **low risk** situations, the person doing the work must be aware of the standard company procedures to be followed for this work together with the precautions to be taken.

This will give means of prioritising the hazards so that everyone (but the site manager in particular) knows which are the high risk tasks. These are the activities the site manager and sub contractors must ensure receive the correct planning and supervision.

1.4 Company Risk Assessment Strategy

The Company's approach to risk assessments is as follows. During the planning stages the design stage risk assessments for the properties must be collated. Then the CDM Co-ordinator must fulfil his duties under the Construction (Design & Management) Regulations and ensure site specific significant hazards have been identified and included in the Health & Safety Plan. This has been summarised in the two stages as follows :-

Property Type Design Stage Risk Assessment - The designer of the property must produce design stage risk assessment for that house or property type. This should highlight areas or aspects of the house or property type which will present significant hazards to those constructing or maintaining the house. These could be heavy lintels (with manual handling problems); steeply sloping roof styles; large or difficult roof truss which may require craning into position; etc.

Design Stage Risk Assessments - With each development the designers and CDM Co-ordinator will have to consider how the work will be undertaken and try to identify any significant hazards associated with the specific site. This could include checking the site for contaminated land, considering the properties and users adjacent to the site and on traffic routes to the site (for example a school or nursery), public access onto or across the site, traffic routes both to site and around site, site security, power lines and underground services etc.

Generic Risk Assessments - These assessments cover the typical hazards that will be encountered on most if not all sites and can be controlled by using standard procedures which must be followed by the person doing the work and enforced by the site manager. In the following section are details of these generic hazards together with details of the Company procedures for controlling them. A tabulated form of the generic assessment can be found in the Generic Risk Assessment Manual.

Site Specific Risk Assessments - With each development, the CDM Co-ordinator or principal contractor will indicate in the health & safety plan details of any site specific risk assessments. The site manager and contracts manager before commencing site operations should:-

- Consult with the CDM Co-ordinator and build on this early work to produce the construction phase health & safety plan (including a traffic management plan as appropriate).
- Check the generic risk assessments and if they are valid for this project use then as the site specific assessments.
- Produce site specific risk assessments for any areas identified in the health and safety plan or as a result of carrying out this risk assessment and not already covered by the generic assessments.
- Bring the significant risks and precautions to be taken to the attention of the relevant employees, and contractors.

The Group Health and Safety Department is available to assist with risk assessments if required.

Ongoing review of the risk assessments - as the work progresses, additional unforeseen hazards may be encountered. Therefore the site manager, with assistance from the contracts manager and if required the visiting safety adviser, should be vigilant of the need to re-assess the work because of a change in circumstances, using form PHG/HS/:002.

2. ANALYSIS OF ACCIDENT STATISTICS TO IDENTIFY MAJOR HAZARDS

The following sections discuss the site hazards according to analysis of accident statistics to show the high hazard activities and the way in which people are typically injured :-

Falls of Persons - anyone who works at a height faces the hazard of falling. 50% of all accidents in construction are because someone falls from a height and a number of these incidents result in fatal or serious injuries. Therefore any work that involves a person working from scaffolding, ladders or from the upper levels of the property must be classed as a significant hazard and needs planning and controlling. All work at height must be assessed using form 038.

Materials Falling - material falling and hitting someone accounts for approx. 20% of all serious site accidents. This emphasises the need for material to be stored safely especially at the actually work site whilst it is temporarily stored awaiting installation. The material may fall from scaffolding or upper levels of the building. This can be avoided by using brickguards and toeboards. The material may fall into an excavation. This can be avoided by ensuring materials are stored well away from the excavation. When being passed or lifted down, ensure the person in the excavation is aware of the activity and is ready to receive the material.

Excavation collapse - Such incidents are now thankfully rare. However when they do occur they invariably result in fatal or serious injuries. All excavation work must be supervised by a person competent in such work who must ensure safe working practices are followed. For deep excavations a site specific method statement is required and be checked using the Checklist PHG/HS/:040.

Struck by moving vehicle - there is increasing use of mobile plant and transport on sites. This has led to an increasing number of injuries due to a person being struck by a vehicle. This hazard is not limited to site workers but in fact the risk to members of the public and children in particular is probably greater because of their unfamiliarity with site plant. It is essential that traffic routes are established to segregate site workers and particularly the public and children from site plant and transport operations. This can be a major problem when part of the development has already become occupied. Consideration must be given to segregating the occupiers and public from the site transport routes. Traffic Management must be maintained in line with Procedure 009.

Injuries due to toppling or overturning of mobile plant - Another typical cause of injury is when an item of mobile plant topples or overturns resulting in death or injuries to the operator and those working close by. Recent legislation changes now require an assessment to be made of the working conditions and terrain and if there is a risk of plant toppling or overturning, protection systems must be fitted to mobile plant. Equipment particularly at risk includes dumpers, forklift trucks, tractors, ride on rollers and mini excavators. Operators must be trained and certificated in accordance with the CITB or other suitable competence assessment scheme. The item of plant must have roll over or topple protection cages fitted. In addition it must have seat restraints to hold the operator within the protection area. Therefore operators must use the restraints for the protection systems to be fully effective. Protection is also needed if plant has to approach or pass close to excavations. This could be in the form of 'stop timbers' to prevent mobile plant running or rolling into the excavation or suitable earth bunds to keep passing mobile plant away from the excavation work area.

Electrocution - In construction operations a significant cause of fatalities is plant and equipment coming into contact with overhead electric lines or striking underground power cables. Overhead power lines should be clearly marked with bunting and warning notices. The site manager will have information on underground services. No excavation work should commence without checking this information and locating all known services in the vicinity of the excavation. Even if no services are shown, the area should still be checked for signs of underground services and the area scanned with a cable locating devices such as a

CAT tool. With regards to electrical installations and equipment, only trained electricians should work on electrical systems

Slips and trips :- People and materials are moving and being moved around site all the time. This results in a number of incidents where people slip, trip, bang into things, or fall whilst walking on the same level. This category together with manual handling injuries account for the vast majority of lost time injuries on site. Thankfully most of these are not life threatening, but it does cause a lot of absence from work (and lost earnings) and a lot of pain and suffering. Better planning and house keeping will have a major impact on the number of injuries from this cause.

Manual handling :- In the course of moving and handling materials, manual handling injuries occur. As stated above, manual handling together with slips and trips account for the vast majority of lost time accidents. With regards to manual handling, a significant number of these injuries result in long term debilitating effects on the body. This has resulted in people having to stop work, or to change occupations. Long term health can suffer as well as value of life. Manual handling injuries are a real problem for construction workers.

The reporting of accidents is detailed in the Group Health and Safety Policy and Management Arrangements.

3. RISK ASSESSMENT FOR PERSONAL PROTECTIVE EQUIPMENT

It is the policy of Persimmon Group to comply with the law as set out in the Personal Protective Equipment at Work Regulations 1992.

It is company policy that all site operatives under the company's control will wear safety footwear, hi viz and safety helmets at all times whilst on site.

With regards to safety helmets every person on site must be in possession of a safety helmet which must be worn whenever there is a risk of head injury and in particular when following conditions apply:-

- When working on or around any plot which is scaffolded or because there is work taking place at the upper levels and material could fall and so potentially injure someone below.
- When working within a plot if someone is working at an upper level and there is a risk of material falling and striking someone below.
- When working with any lifting machine such as excavators, forklift trucks, cranes, and delivery wagons with 'hiab' offloading facilities etc.
- When carrying out excavation work.
- When moving around a site which has any of the above activities talking place.

In other situations people may remove their helmets but they must be kept close to hand and worn when moving around the site or moving to a new work location.

In addition, items such as respirators, eye protection, safety harness etc. will be used as indicated by the risk assessment or as instructed by the site manager.

Facilities should be provided for the storage and cleaning of such equipment.

For directly employed staff a risk assessment shall be completed on Form PHG/HS/:012 by the Site Manager. Upon receipt of the personal protective equipment the employee shall sign to acknowledge receipt.

4. MANUAL HANDLING OPERATIONS

It is the policy of Persimmon Group to comply with the law as set out in the Manual Handling Operations Regulations 1992.

In carrying out the risk assessment, consideration will be given to the requirements of the Manual Handling Operation Regulations 1992. Under these regulations employers have a duty to prevent employees from handling loads that are likely to cause injury. This injury may be due to the weight of the load but it is not sufficient just to think of manual handling hazards only as a function of weight. Other factors such as:-

- the physical size and shape of the load
- the provision of carry handles or carry straps
- the position of the centre of gravity within the load
- is the load rigid or will the load move; i.e. partially filled fluid containers
- where is it being moved from and to where – is the route clear of obstructions
- if the load is being moved outside consider weather conditions and wind loading
- consider the ground condition over which the load has to be moved etc.

In addition to the physical aspects of the load and the area in which it has to be moved, assessors must also consider the physical attributes of the person actually doing the lifting and carrying. Every employee is an individual and so managers must also consider this when assessing manual handling tasks.

The first step in carrying out the assessment is to try to eliminate the need to manually handle loads at all. This means introducing mechanical ways of lifting and moving loads whenever practicable.

In a fixed industrial environment where the same loads are handled in the same way in the same place, then an assessment can be undertaken and the assessment will be valid for some time. In a construction environment the workplace is continually changing and so the site managers and every employee must continuously be looking for, and assessing site operations that involve manual handling operations.

At the planning stage some manual handling tasks can be foreseen and action taken to eliminate or minimise the risk of injury from manual handling for example:-

- The designer and CDM Co-ordinator should consider the weights of bricks, blocks, feature stonework, lintels, trusses, joist and joist beams etc, and highlight to the construction team any loads that will be heavy or difficult by way of design stage risk assessments.
- Specifiers and buyers should also consider manual handling when selecting materials. It is now normal practice to purchase cement and plaster in the smaller 25 kg packs. A similar approach should be taken when selecting other items such as tiles, grouts, adhesives etc.
- Contracts managers and site managers should consider the design of the scaffolding and the location of the scaffold lifts to minimise manual handling operations.
- Scaffolding can be adapted to make the manual handling of roof trusses easier - see example below taken from HSE guidance booklet HS(G) 33 Health and Safety in Roofwork.

- Pre mixed mortars can be used and so eliminate all manual handling associated with the mixing of the mortar.
- In planning the site, the site manager will allocate a material storage area, which will allow fork truck operations to store and retrieve material and deliver it to the work location. Materials must be stored so that they are accessible but secure against accidental movement. Consideration must always be given to the risk of children getting into the storage area and playing on or trying to move materials.
- Contractors and individual workers are to be encouraged to highlight activities which involve manual handling operations which are likely to cause injury.
- Ongoing training is required so that all people have sufficient knowledge to carry out their own assessments of the load before undertaking manual handling tasks and to enable them to lift using kinetic handling techniques as shown below.

The significant manual handling operations associated with house-building operations have been identified as follows:-

4.1 Site Establishment

Handling hoarding and temporary fencing materials - ensure there are sufficient number of people to share the loads. Wind loading may be significant. Any temporary supported or de-mountable systems are also prone to wind loading affecting stability. It is essential site personnel or members of the public are not endangered due to fencing or temporary fencing arrangements.

4.2 Ground Works Operations

Eliminate the handling of heavy materials by using machines to lift and move such items.

When laying kerbs and slabs, use lifting accessories to ease lifting operations. The storage of materials should also be assessed to ensure stability. Materials that could move or roll must be secured to safeguard both site staff and others such as children who could get into the storage area after working hours. This is especially important for items such as manhole rings, drainage pipes, gulley pots etc, which could be rolled or toppled. Manhole rings must be stored horizontally and all other items must be securely chocked or even placed in shallow trenches, or have earth pushed against them to prevent them being rolled. Likewise all machines must be returned to a secure compound or fully immobilised so that they will not move even if hand brakes or hydraulics are released.

Whilst the above may seem extreme experience shows it is the only way to fully safeguard against children injuring themselves should they get onto site after work has ceased.

4.3 ***Scaffolding Operations***

Scaffolders handle considerable quantities of scaffold tube during the course of a day. Manual handling is a significant risk of the operation. Scaffolders are trained in the safe handling of tubes as well as in the safe erection of scaffolding. This is especially important when 21 foot tubes are being handled. Sites can assist scaffolders by levelling and preparing the ground around the plot and using the forklift truck or other mechanical means to deliver the scaffolding materials to the work area whenever possible.

4.4 ***Brickwork Operations***

The designer should select and specify bricks, blocks and lintels that can be easily handled. If this is not possible or due to an architectural feature there is a requirement to use heavy items, the design stage risk assessment should identify the operation and recommend the action to be taken. This should be brought to the attention of the bricklayers/bricklaying contractor who must plan and carry out the work accordingly

The scaffold layout and lift spacing should be so as to minimise the need to work at low levels relative to the feet position and high levels relative to the shoulder position.

4.5 ***First Fix Joinery***

Roof trusses should be moved and positioned by mechanical means whenever possible. If they do have to be manually handled into position consider modifying the scaffolding as detailed in HSE guidance booklet HS(G) 33 Health and Safety in Roofwork.

Designers should consider the need for manual handling operations when selecting and specifying the floor boarding system to be used. Sheet materials 2 metres by 1.2 metres can be heavy and difficult to handle especially within the plot.

Designers should consider the weight of the specified joists. If these have had to be strengthened to meet loading requirements this should be identified in the design stage risk assessment so that everyone knows additional assistance is required to position these joists. If possible mechanical means should be used to lift the joists into position.

The Site Manager should ensure the temporary boarding over the first floor joists is installed at the same time as the joists so the boards can be lifted in position from the fork lift truck. A risk assessment using Form PHG/HS/:038 must also be carried out to establish what fall protection control measures are to be utilised.

4.6 ***Plastering and Dry Lining***

Dry lining involves the handling of 2.4 by 1.2 metre sheets of plasterboard, often delivered as a double sheet for splitting on site. The size and weight of such sheets do make manual handling difficult especially in windy conditions. Consideration must also be given to the access into the plot to allow easy and safe passage of the person carrying such sheets. Poor positioning of scaffolding can partially block the movement of such sheets and so significantly increase the risk of injury.

Within the plot, safe access is essential for positioning ceiling sheets especially those in or over stairwells and similar positions.

4.7 ***Heating and Plumbing***

The fitting of wall mounted central heating boilers can involve heavy lifting. The heating contractor must take this into consideration during their risk assessment together with the handling of any large tanks or radiators, baths and other such items.

4.8 ***Window Companies and Glazing***

The window contractor must take into consideration the handling of large window frames and associated glazing. The designer should take into consideration the installation methods and when possible specify windows that are fitted from internally, so making handling tasks easier. If the windows have to be installed from the outside, the window contractor must ensure access is good and that any scaffolding is at the correct height and position for ease of installation.

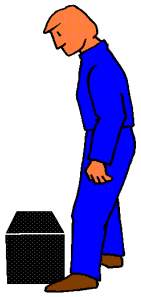
4.9 ***Kitchen Installation***

Kitchen installation companies who supply made up carcasses have some heavy and difficult loads to manoeuvre into position. It is for the installation company to carry out its own manual handling assessment but site can assist by ensuring there is good clear access into the plot. Long lengths of worktops and breakfast bar type materials can be particularly heavy and will need careful consideration by the installation company.

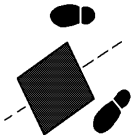
The Generic Risk Assessment document highlights Manual Handling Controls.

4.10 Basic Guidance on Good Lifting Techniques

An A3 copy of this Guidance must be posted on all canteen walls

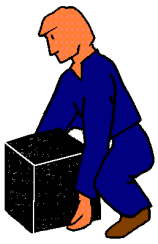


- **1) Stop and think**. Plan the lift. Where is the load going to be placed? Use appropriate handling aids if possible. Do you need help with the load? Remove obstructions such as discarded wrapping materials. For a long lift - such as floor to shoulder height - consider resting the load mid-way on a table or bench in order to change grip.



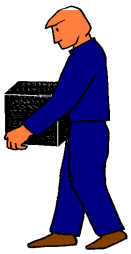
- **2) Place the feet.** Feet apart, giving a balanced and stable base for lifting (tight skirts and unsuitable footwear make this difficult). Leading leg as far forward as is comfortable.

Adopt a good posture. Bend the knees so that the hands when grasping the load are as nearly level with the waist as possible. But do not kneel or overflex the knees. Keep the back straight (tucking in the chin helps). Lean forward a little over the load if necessary to get a good grip. Keep shoulders level and facing in the same direction as the hips.



- **4) Get a firm grip**
  Try to keep the arms within the boundary formed by the legs. The optimum position and nature of the grip depends on the circumstances and individual preference, but it must be secure. A hook grip is less fatiguing then keeping the fingers straight. If it is necessary to vary the grip as the lift proceeds, do this as smoothly as possible.

- **5) Don't jerk** Carry out the lifting movement smoothly, keeping control of the load.



- **6) Move the feet.** Don't twist the trunk when turning to the side.

- **7) Keep close to the load**. Keep the load close to the trunk for as long as possible. Keep the heaviest side of the load next to the trunk. If a close approach to the load is not possible try sliding it towards you before attempting to lift it.

- **8) Put down, <u>then</u> adjust**. If precise positioning of the load is necessary, put it down first, then slide it into the desired position.

5. OTHER SIGNIFICANT RISKS NORMALLY ASSOCIATED WITH HOUSE BUILDING OPERATIONS

5.1 ***Abrasive Wheels – Cutting Discs***

The Abrasive Wheels Regulations were revoked by the PUWER 98 regulations. However under PUWER there is the general requirement on all employers to ensure that employees who use work equipment have received adequate training in the use of the equipment, the risks that the equipment produces and the precautions to be taken. Whilst the abrasive wheel regulations may have been revoked, there is still a requirement to train, and to be able to demonstrate the person has been trained if required to do so. Therefore site managers should ensure training certificates are held by all persons who use or have to change abrasive wheel or discs. **See also Generic Risk Assessment 4.**

5.2 ***Access -Risk of a Person Falling***

A safe means of access and safe place of work is essential in any construction or maintenance activity. Every year, 50% of all fatal or serious accidents are because a person falls from a height. Therefore, whenever work has to be done from which a person can fall specific precautions must be taken.

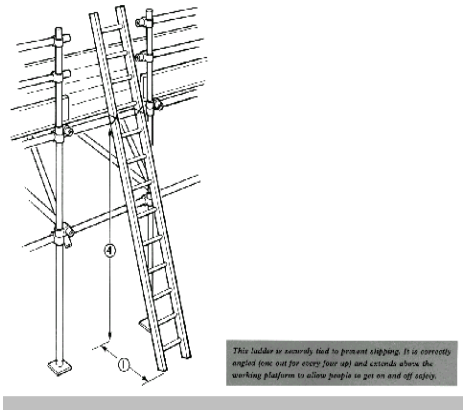
A safe place of work is also required when work has to be carried out on:-

Excavations and footings	Edge protection may be needed if there is a risk of a person falling into the excavation or footing and being injured.
Joists, floors & timber frame panels	Edge protection if the potential fall exceeds HBF guidance (currently 1m) between internal flooring and scaffold platform
A flat roof	Roof edge protection will be needed
A sloping roof	Edge protection or surrounding scaffold platform will be needed if the potential fall exceeds 1m
Roof Truss Installation	A safe system of work using temporary boarding within the trusses together with other suitable fall prevention/fall protection systems must be used. See later section.
Loft space	Boarding will be needed across the roof timbers
Open joists	Boarding out will be needed when working on open joists
Stairwells	Stairwells must be protected by guard rails or boarded over prior to stairs being fitted, it is also preferable to have the permanent balustrades and rails fitted with the staircase, if this is not possible, adequate temporary guard-rails must be fitted.

There is a vast range of work situations which could result in the workplace having to be made safe before work can commence. HSE have issued a number of publications giving guidance on safe means of access and safe place of work, which can be referred to for specific activities. Guidance booklet HS(G) 33 Safety in Roofwork is particularly relevant to all types of roofwork, whether new build or short duration maintenance activities. Means of access could be in the form of ladder, mobile towers, scaffolds or hydraulic platforms. Some simple precautions are outlined in the following sections.

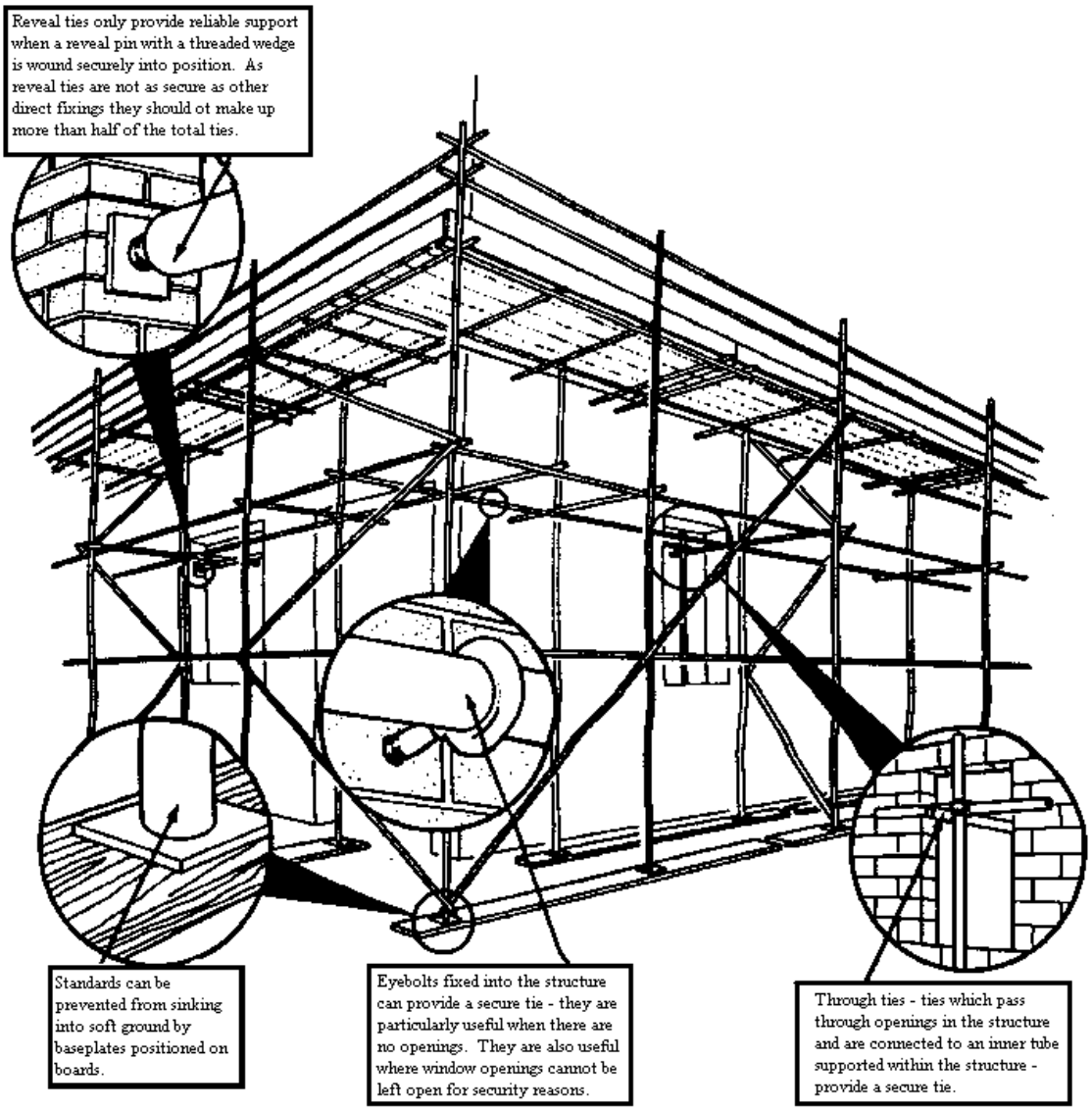
5.3 ***Use of Ladders***

Ladders, in general should only be used as a means of access provided it is on firm level stable ground and secured to prevent slipping or falling. Ladders must not be used as a working platform unless it is reasonable to do so taking into account the nature of the work being carried out and its duration together with the risks to the safety of any person arising from the use of the ladder, in line with the Work at Height Regulations 2005: Schedule 6.:- **See Generic Risk Assessment 34.**



5.4 ***Access - General Scaffolds***

1) Scaffolds should only be erected, altered and dismantled by trained and competent persons.
2) Scaffolds must be erected in accordance with NASC guidance document TG20:13 and compliance document or built to a design drawings produced by a competent scaffold designer.
3) Scaffolds must be inspected before use, after substantial alteration and every 7 days thereafter, or if the structure has been exposed to severe weather conditions, especially high winds. The inspection should be undertaken using form PHG/HS/019(a) by a competent person such as the site manager or other suitable trained person. Some of the main points to look for are shown in the following diagram: **See also Generic Risk Assessment 1, 2 and 3.**

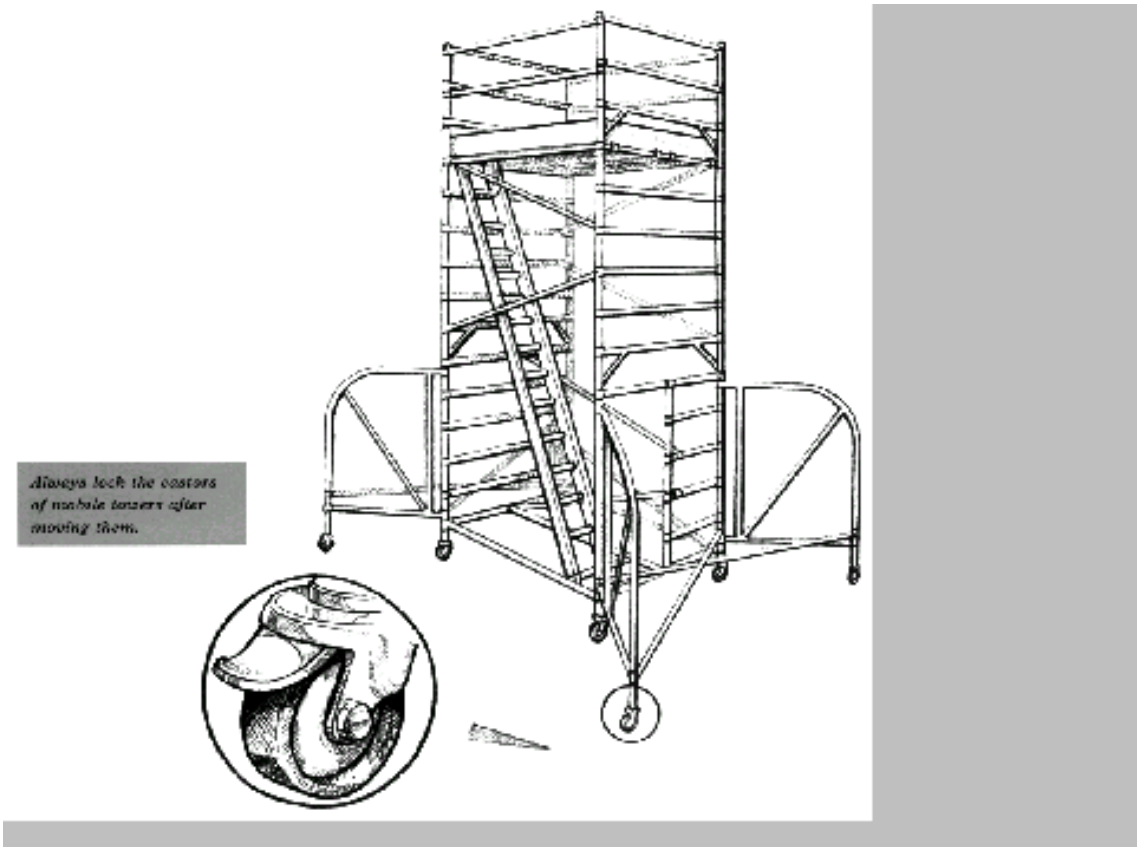


5.5 ***Safe Use of Scaffold Towers***

Tower scaffolds can be erected quickly and can give good safe access. However, they are involved in numerous accidents each year. These accidents usually happen because the tower has either not been erected properly or has not been used properly.

If a tower scaffold is going to be used:

i) Follow the manufacturer's instructions for erection, use and dismantling. Have a copy of the instruction manual available - if the scaffold has been hired, the hirer ought to provide this information;
ii) The tower must be vertical and the legs should rest properly on firm, level ground;
iii) Lock any wheels and outriggers - base plates provide greater stability if the tower does not have to be moved;
iv) Provide a safe way to get to and from the work platform, for example, internal ladders. Climbing up the outside of the tower may pull it over;
v) Provide edge protection (guard rails or other suitable barriers and toe boards) subject to the risk assessment.
vi) Provide guard rails on any intermediate platforms and also toe boards where these platforms are being used as working platforms or for storing materials;



vii) Tie the tower rigidly to the structure it is serving or provide other additional support if:

- The tower is sheeted;
- It is likely to be exposed to strong winds;
- It is used for carrying out grit blasting or water jetting;
- Heavy materials are lifted up the outside of the tower; or
- The tower base is too small to ensure stability for the height of the platform.

If ties are needed, check that they are put in place as required when the scaffold is erected. Make sure they are checked from time to time and that necessary ties are kept in place when the scaffold is dismantled.

DO NOT:

• Use a ladder footed on the working platform or apply other horizontal loads which could tilt the tower;

• Overload the working platform; or

• Fix ties to the centres of thin walled aluminium tubes.

When moving a mobile tower:

i) Check that there are no power lines or overhead obstructions in the way;
ii) Check that there are no holes or dips in the ground;
iii) Do not allow people or materials to remain on it as towers tip over very easily when being moved. **See also Generic Risk Assessment 39.**

5.6 Access – Loads on Scaffolds and Loading Bays

When loading out scaffolds and loading bays, consideration must be given to the total loading on the scaffolding and the stability of the stored material. There should only be one pallet of tiles, bricks or other material loaded at any one time and until this load has been distributed around the scaffolding no additional pallets should be loaded out. If additional loading is required the loading tower must be a designed loading tower with a specified maximum permissible load. Loading bay gates are to remain closed except when loading or unloading of materials is taking place.

Loading towers must have guardrails and toeboards as required by the regulations. The loading edge must be fitted with a moveable gate system which maintains two handrails when in the 'open' position, to enable the materials to be landed but then closed to ensure the safety of people moving the materials from the loading area to the working platform. **See also Generic Risk Assessment 3.**

5.7 Cartridge operated fixing tools

5.7.1 Safety Precautions in Use

Training of operatives

It is a statutory requirement that explosives shall only be handled or used by or under the immediate control of a competent person with adequate knowledge of the dangers connected with their use. Any person using a cartridge operated fixing tool is using explosives, and should therefore have been trained in its safe use. Manufacturers of tools provide training to users of their products, and often provide the trained operator with a certificate specifying the make and model of tool on which he has been trained. The instruction may cover only the tool usage and the method of dealing with misfires, and such stripping and cleaning as may be done by the operator. On every site where several tools are in use, or, in the case of small firms, in the firm, there should be a person who has received additional instruction and is competent to act as 'armourer' for the site or the firm. It is recommended that this person should be nominated as the only one, with the exception of the maker's representative, permitted to dismantle a tool completely and to diagnose faults.

Maker's instructions

Although cartridge operated tools may be broadly classified into two groups there is a wide variation in their mechanical details between the various makes and models. It is therefore most important that the maker's instructions relating to a particular tool should be meticulously followed if efficient fixing and safe use is to be assured. A copy of the instructions should be kept with every tool: it is not sufficient to have only one copy held in the store for reference purposes.

Protection of working area

The use of a cartridge operated tool may introduce hazards not only to the operator but also to bystanders and passers-by. Besides the risk of ricochet, there is the danger, particularly when fixing into material of low resistance, that the pin will completely penetrate the material and emerge in free flight on the reverse side. Trials carried out at the Building Research Station showed that a pin fired from a direct-acting tool, using a cartridge capable of producing a penetration of 50 mm (2 in) in a Fletton brick, could completely penetrate three 50 mm (2 in) wooden blocks. While the risk of complete penetration can be greatly reduced by the selection of a suitable cartridge strength, and may be negligible when fixing into concrete, it is recommended that when fixing into a wall or partition, particularly when using a direct-acting tool the other side of the wall to the working face should be fenced off to prevent anyone from entering the danger area unseen by the person using the tool. No bystanders should be permitted in the immediate vicinity of the tool, and it may be necessary for the sides of the working area to be screened as a protection against possible ricochet.

Protection of the operator

The safety devices incorporated in a cartridge operated tool reduce, but cannot entirely eliminate, the possibility of flying dust, splinters and small fragments. The noise of discharge varies in intensity from one make of tool to another, but tests have shown that there is always a high intensity pulse of short duration. Not only the operator of the tool, but anyone in the immediate vicinity, requires protection against these hazards, and it is strongly recommended that in all situations a safety helmet, complying at least with BS 5240: 1975 should be worn. It is also recommended that ear protectors should be worn; they are particularly desirable when working in confined spaces.

The Protection of Eyes Regulations 1974 now require approved eye protectors complying with BS 2092: 1967 to be provided and used in any work carried out with a hand held cartridge operated tool. This includes the operation of loading and unloading live cartridges into such a tool, and its handling for the purpose of maintenance, repair or examination when loaded with a live cartridge. It is recommended that Impact Grade I protectors are used.

General precautions

Cartridge operated tools should NEVER be used in a careless manner. Pins should not be driven through pre-drilled holes unless a special adaptor is used which will ensure that the pin is guided right up to the instant of contact with the working surface. Anyone using a cartridge operated tool should do so only from a firm and stable position. A scaffold is preferable to a ladder, because the pressure needed to cock a spring operated tool, and the instinctive reaction to the recoil, may cause a workman standing on a ladder to overbalance. A mobile tower scaffold should be securely tied to the structure. Accidents have occurred when cartridge operated tools were being used from high mobile tower scaffolds which were free standing. The scaffolds were overturned, it is believed, by the horizontal forces applied

to the cartridge tools, which required a thrust of about 13·6 kg (30lb) against the working surface before they could be fired.

A tool should never be left unattended when loaded, and should only be loaded as the last operation immediately prior to firing.

Cartridge operated tools should not be used in areas where there is flammable vapour or risk of dust explosion.

When loading the tool there should be no need for more than light finger pressure to insert the cartridge. If more than that is necessary, the attempt to load should be abandoned and the tool returned for examination. **See also Generic Risk Assessment 28.**

5.8 ***Circular Saws***

Circular saws are potentially very dangerous machines. Anyone using them should have received adequate training. They must not be operated by any worker under 16 years of age and those under 18 years must be supervised by a competent person.

5.8.1 ***Preparing for work***

Check the following points before you start work:

The saw:

• The machine is level, stable and properly anchored

• All the guards for the saw are in place and properly adjusted

• The drive to the saw is completely guarded

• The blade is undamaged

• There is a means of disconnecting the power within easy reach of your work position

• The bench is set at a convenient height

• The blade is being driven at the correct speed for its present diameter (consult the manufacturer or a competent saw doctor if in doubt)

The surrounding area:

• The floor area around the saw is level, clear of debris and provides a good footing

• There is adequate ventilation for exhaust fumes and wood dust (dust extraction equipment may be necessary for saws operated in buildings)

• There is plenty of room round the machine for handling timber

• The lighting is sufficient (do not rely solely on fluorescent lighting. Due to stroboscopic effects this can sometimes make a moving blade appear stationary)
Using the saw:

• Never feed timber so that your hand is in line with the saw blade

• Wear eye and ear protection, close fitting clothing and stout footwear with a good grip

• Do not allow the floor to become cluttered with timber and debris

• Always use a push stick when removing off-cuts, or when pushing through the last 300 mm of the work piece on a fixed bench saw.

*5.8.2 **Maintenance***

Blade damage

Examine saw blades regularly for cracks and missing teeth. Take any damaged blade out of use immediately.

Blades with small cracks or missing teeth may be sent away for recutting to a smaller diameter.

You can make a preliminary check for cracks by tapping the blade. A lack of 'ring' may indicate a large crack. However the only reliable test is a thorough visual check, tooth by tooth, around the blade - preferably using a good magnifying glass. If you are not sure whether a mark is a crack or not you will need to make some further checks. One method is to lay the blade flat and wipe the suspect area with paraffin or diesel. Then wipe it dry and give it a generous dusting of French chalk. Blow this off immediately and check the area again. Cracks will show up as a white line.

A more rigorous test is to use a dye-penetrate kit. The chemicals used in the test are easy to use but if you are not already familiar with interpreting the results, it is best to leave this to someone experienced in the technique. **NEVER** attempt to repair cracks by welding or brazing. This can lead to the blade disintegrating explosively in use. If you already have a blade which has been repaired in this way, discard it immediately.

Blade maintenance

The blade itself should be maintained for safe and efficient operation on a routine basis and in any case if it starts to run at all out of true. Maintenance operations should include frequent sharpening, setting and gulleting. You may be able to deal with the simpler operations of sharpening and setting yourself, but other more complex jobs should be carried out by a skilled expert.

Inserted teeth

Check teeth and holders regularly and replace any which are damaged at once. Sharpen the new teeth down to the same length as the rest of the teeth in the blade.
Check each tooth for tightness on fitting.

The bench

Protect the bench from the weather and make sure all the spindles and bearings are kept well lubricated.

Check the table slot linings (blade packings) to make sure they are just flush with the top of the bench and that the clearance with the blade has not become excessive.

5.9 ***Confined or Restricted Spaces***

A confined or restricted space is defined in the Confined Spaces Regulations and is used to describe a working place that has restricted means of access or may have little or no ventilation or there are other difficulties which could result in the atmosphere becoming toxic or dangerously low in oxygen content.

If work has to take place in such a workplace a thorough and competent assessment of the work area has to be made. As a result of this assessment, the company can decide on the procedures that must be taken to safeguard those working there. The person making the assessment must be familiar with working in hazardous confined spaces and be competent to thoroughly assess the situation, taking into consideration the work that has to be undertaken.

Any confined space work should have been identified at the planning stage and detailed in the site health and safety plan. However if this is not the case the site manager should be informed of the need to enter a confined or restricted space and a written system of work i.e. method statement be produced by the contractor and agreed with the site manager.

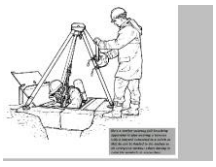
5.10 ***How does a confined space become dangerous?***

Some confined spaces are naturally dangerous such as :-

- Sewers and manholes where dangerous levels of gas could be encountered.
- Gas and toxic substances leaking or leaching into trenches and pits from contaminated land or nearby faulty plant or equipment.
- Inside steel vessel the rusting of the metal's surface could use up the oxygen resulting in a dangerous atmosphere.
- By disturbing sludge and sediments in tanks and vessels and as a result dangerous fumes are released
- By introducing substances or operations into an otherwise safe area and as a result the atmosphere becomes dangerous, i.e. welding operations or applying internal surface coatings.

In carrying out the assessment the following must be considered:-

- Identify what work must be done in the confined space and the hazards involved.
- Consider if the operation can be modified to eliminate the need to work within the confined space.
- ensure written procedures are produced and that every one is aware of these procedures.
- Ensure the necessary people are adequately trained and have the necessary equipment.
- Ensure the appropriate emergency procedures and emergency equipment are in place.
- Ensure any essential isolations have been completed and the necessary permits obtained.
- Ensure there is a safe means of access into the confined space.
- Ensure the necessary pre entry checks are carried out and if required the work space is mechanically ventilated.



- If the atmosphere is flammable the space must be ventilated to reduce the flammable levels to below the lower explosive levels.
- Whilst the work is taking place ensure there is adequate ongoing monitoring of the atmosphere and of the workers i.e. an outside man.
- Ensure there are proper means of communication with the people in the confined space. **See also Generic Risk Assessment 37.**

5.11 Contaminated Ground

If there is contaminated ground, analysis must be undertaken and the contaminants identified. This information may already be available from the CDM Co-ordinator via the health & safety plan. The type and quantity of contamination will determine what action is needed. Guidance is available in HSE document HS(G)66 - entitled "Protection of Workers and the General Public During the Development of Contaminated Land", a copy of which is held by the safety department.

Good working practices include eliminating or minimising the need for persons to come into contact with the material, by using machines to do the material handling.

Operatives should be fully informed about the contamination and the procedures to be followed.

It is company policy that a detailed risk assessment and site specific method statement is produced whenever contaminated ground is encountered. **See Generic Risk Assessment 36.**

5.12 Customer Care - Protection of the Public

When customer care staff are working in occupied premises, priority must be given to the health & safety of the occupants. Particular care must be taken if children are present in the house. Some basic precautions that must be followed are:-

a) All power tools must be isolated while left unattended, even for short periods of time.

b) Whenever possible power should be provided through a 110volt transformer which is centre tapped to earth.

c) If hot work such as the use of blow lamps has to be undertaken, all combustible materials should be removed or protected by fire retardant blankets and a fire extinguisher must be readily available at the job site.

d) Toolboxes should be closed when left unattended, even for short periods of time. Likewise ladders and other items which could attract children must be carefully controlled at all times. **See also Maintenance Work Risk Assessment Manual.**

5.13 Electricity at Work Regulations - Sites

In accordance with the requirements of the Electricity at Work Regulations portable electrical equipment must be inspected and tested on a regular basis as detailed below and summarised as follows:-

- All portable electrical equipment should preferably be battery powered or operated at 110 volts, supplied from a transformer centre tapped to earth, thus limiting fault currents to 55 volts. This includes temporary site lighting.
- Site offices may be operated at 230 volts, but the installation should be carried out by a competent electrician, and an installation test certificate obtained.
- All electrical portable tools and equipment should be visual inspection before first using and at monthly intervals thereafter.

- Test & visual inspection at 3 monthly intervals for portable tools used on a regular basis.
- Annually for fixed but temporary site accommodation units.
- Any hired electrical equipment must be similarly inspected and tested.

If the company is responsible for providing and maintaining a temporary electrical supply around a site or to the site compound, the work should be undertaken by a competent electrical contractor and an installation certificate is required on completion of the work. The certificate should also state what maintenance, test and inspections are required and at what frequency. HSE guidance booklet HS(G) 141 entitled Electrical Safety on Construction sites give full guidance on the requirements for test and inspections. The following table summarises the main requirements.

Equipment/ Application	Voltage	User Check	Formal Visual Inspection	Combined Inspection And Test
Battery-operated power tools and torches	Less than 25 volts	No	No	No
25v Portable hand lamps (confined or damp situations)	25 volt Secondary winding from transformer	No	No	No
50v Portable hand lamps	Secondary winding centre tapped to earth (25 volt)	No	No	Yearly
110v Portable and hand-held tools, extension leads, site lighting, moveable wiring systems and associated switchgear	Secondary winding centre tapped to earth (55 volt) 230 volt mains supply through 30mA RCD	Weekly	Monthly	Before first us on site and then 3 monthly
230v Portable and hand-held tools, extension leads and portable floodlighting	230v supply fuses or MCBs	Daily/every shift	Weekly	Before first use on site and then monthly

Equipment/ Application	Voltage	User Check	Formal Visual Inspection	Combined Inspection And Test
230v Equipment such as lifts, hoists and fixed floodlighting		Weekly	Monthly	Before first use on site and then 3 monthly
RCDs Fixed[**]	230 volt office equipment	Daily/every shift	Weekly	[*] Before first use on site and then 3 monthly
Equipment in site offices		Monthly	6 Monthly	Before first use on site and then yearly

{*} NOTE: RCDs need a different range of tests to other portable equipment, and equipment designed to carry out appropriate tests on RCDs will need to be used.

{**} It is recommended that portable RCDs are tested monthly.

Contractors and the self-employed should maintain and inspect their power tools to a similar standard.

5.14 Electricity at Work Regulations - Permanent Offices

In accordance with the Electricity at Work Regulations the following tests and inspections should be undertaken:-

- Fixed installation - this should be inspected and tested by an approved electrical company who can issue an installation certificate. This should be repeated as advised by the last test, or at 5 year intervals.
- Portable equipment - the following chart provides guidance on the test and inspections periods.

Equipment	User Checks	Visual Inspection	Inspection and Test
Battery Operated	No	No	No
Computers & VDU's photocopiers, fax machines and other office machinery	No	Yes - 2/4 years	No if double insulated otherwise yes up to 5 year cycle
Hand held double insulated equipment	Yes	Yes - 6 months to 1 year	No
Hand held earthed equipment i.e. kettles, some floor cleaners	Yes	Yes - 6 months to 1 year	Yes - 1-2 years
Extension leads and trailing cables	Yes	Yes - 6 monthly	Yes - 1-5 years depending upon equipment in use

5.15 Excavations

Any excavation must be assessed by a competent person who, must decide on the method of work that will be adopted to ensure there is no collapse of the sides or slippage of material. This assessment must take into consideration the actual ground conditions but as a company policy **all** excavations 1.2 metres deep or more, must be adequately shored, or battered back to a safe angle. Spoil material must be stored well away from the excavation. A secure means of access/egress must be provided. If the excavation is being left unattended, or at the end of the working shift, the excavation should be securely protected (i.e.; fenced). Subject to a Risk Assessment with respect to falls from height, or if the excavation is more than 2 metres deep, or there is a likelihood that children could get onto site, the fencing must be rigid and of sufficient height to prevent access (i.e.; 2m, Heras type temporary fencing). For work in public areas all excavations must be fenced.

For deep excavation work the CDM Co-ordinator should identify this as a site specific hazard, and site specific risk assessment together with a method statement will be required.

All excavations should be inspected at the start of each shift by a competent person. Any excavation which is supported must be inspected and the inspection recorded :-

- after a fall or dislodgement of material
- after any event likely to effect its strength or stability
- at least once in any 7 day period

The results of the inspection must be recorded in the excavation inspection register form PHG/HS/;019B or recorded in accordance with the requirements of schedule 3 of the CDM Regulations 2007.

Full guidance on safe systems of work can be found in HSE guidance booklet HS(G) 185 entitled Health & Safety in Excavations. **See Generic Risk Assessment 7, 8, 21, 22, 29, 36 and 37.**

5.16 Fire Prevention on Construction Sites

The danger from fire on construction sites is particularly great as high-risk activities, such as hot work, are often carried out in situations where fire can spread quickly and escape is difficult.

There are two ways of addressing fire in construction:

(a) Prevent it happening in the first place;

(b) Prepare for and deal with the consequences if it does happen.

Prevention is always better than cure, but both are necessary for construction fire safety.

The precautionary measures needed depend on the risks involved. However big the construction project, a risk assessment will always be required. In some cases only simple assessments will be required, but in others much more complicated issues will need to be decided. Ask the question 'if somebody asked us to justify what we've done, could we really do it or would we just be guessing?'

5.16.1 Reducing the amount of combustible material

Many materials which can burn have to be used during construction work. The risk of fire decreases as such material is reduced and the smaller any fire will be. There has to be enough material at hand to do the work but this needs to be balanced against the need to reduce the risk of fire. Limit the material present at worksites to what is needed for half a day or a single shift and return unused material to the stores when the work is finished. Where combustible or flammable materials have to be used select the least flammable alternatives.

The amount of material kept on site which can burn should be minimised. The need to store such material varies greatly during the life of a site, but try to avoid stockpiling it unless it really is necessary. This can significantly reduce the fire loading and ease congestion on the site.

5.16.2 The changing flammability of materials as they are used

Construction work can alter the flammability of substances including nominally flame retardant ones. For instance, when worked on, solid materials (even nominally fire-resisting ones) produce dust, crumbs or other fine material which are always more easily ignited than the bulk material. Remember this when planning construction fire precautions, especially when hot work is used.

5.16.3 General requirements for storage of all combustible materials

Ideally, combustible materials need to be stored outside buildings under construction, especially with volatile flammable materials such as liquefied petroleum gas (LPG). If combustible materials are stored inside buildings, they need to be kept where, in the case of a fire, the safety of staff is not threatened. For instance, do not put paint stores next to emergency exits.

Access to stores should be controlled so that material does not become dispersed haphazardly around the site.

If storage outside the structure is not possible, internal stores need to be arranged to limit the spread of fire. Internal stores, especially in more enclosed buildings, may need to be separated from the rest of the structure by a partition providing at least 30 minutes fire resistance to British Standard BS 476: Part 2, 1987. Good quality plasterboard will usually achieve this and can be very useful for constructing small internal stores. Doors should be fire resisting and self-closing.

5.16.4 Storage of more volatile flammable materials

Extra precautions are needed with flammable liquids with a flashpoint below 32°C, e.g. with many solvents, LPG, flammable gas and oxygen cylinders, especially when stored internally.

Good ventilation is needed to prevent dangerous levels of gases accumulating in internal stores. High and low openings in the external wall help to achieve this. The openings should not ventilate into the surrounding structure. Openings representing 1% of the total floor and wall area are sufficient for flammable liquid storage. For flammable gas and oxygen cylinders, openings representing 2.5% of the total floor and wall area are usually sufficient.

Locate external stores in the open air in a well-ventilated area at least 3 metres away from the building's boundaries, drains or excavations (where leaking gas may collect).

If this cannot be achieved:

(a) for buildings there should be a fire-resistant partition between the store and the building, unless the building itself is fire resisting 3 metres either side of the store and 9 metres above it;

b) seal drains and excavations or place a spillage retention wall around the store.

External stores should be enclosed by a 1.8 metre high wire-mesh fence for security.

Volatile flammable materials may need to be stored inside separate buildings for security reasons. Where buildings are used for this purpose it may not need to be fire resisting if it is in a safe location. It should, however, be of a generally non-combustible construction and be provided with ventilation.

Whatever form the storage area takes, unless it is small enough to ensure that no-one will be trapped in the event of a fire, it should have at least two exits both unlocked when anyone is in it. (A single exit may be adequate when the travel distance does not exceed 12 metres.) Lock the storage area whenever it is unattended.

Small quantities of LPG (i.e. less than 300 kilograms) may be kept in a lockable wire cage with only one exit. Clearly mark the cage and situate it at least 1 metre away from site huts, boundaries, excavations or other features.

Small quantities (up to 50 litres) of flammable materials such as paints, solvents and adhesives can be stored in lockable steel chests.

Do not store anything other than flammable materials in flammable material stores. Avoid accidental spillage inside the store by banning the decanting of liquids. Flammable liquids, solids and gases should be kept in separate stores.

NEVER store LPG in unventilated metal boxes or huts. If there is a leak, gas will build up to a dangerous level.

Always store oxygen cylinders separately from cylinders of flammable gases such as LPG and acetylene.

5.16.5 ***Rubbish disposal***

All construction sites, especially in the later stages such as fit-out, can generate large amounts of mostly combustible and easily ignitable rubbish. Implementing simple site rules can prevent the accumulation of rubbish.

The following should be considered:

a) Setting and ensuring that site rules are followed, e.g. contractors must clear rubbish daily or more often;

(b) Providing facilities for storage of rubbish, e.g. skips;

(c) Keeping flammable rubbish, such as contaminated rags, in a closed topped fire-resisting container, e.g. a metal dustbin;

(d) Siting rubbish skips outside and at least 3 metres from the structure and other buildings.

All construction sites, especially in the later stages such as fit-out, can generate large amounts of mostly combustible and easily ignitable rubbish. Implementing simple site rules can prevent the accumulation of rubbish.

If a skip is less than 3 metres away from other structures, precautions to prevent skip fires spreading to the structure include:

(a) Locating the skip against a fire-resisting wall, e.g. brick;

(b) Using a chute made of non-combustible materials, such as those complying with BS 1703: 1977;

(c) Restricting the amount of flammable material placed in the skip;

(d) Emptying the skip before it contains a significant fire load.

5.16.6 ***Protective coverings***

Protective coverings are a common feature during fit-out stages where final fixtures such as doors, handrails, floor coverings and panels need to be protected against damage. Such coverings can be a substantial contribution to the overall fire load in circumstances where ignition sources are common. Particular risks occur where protective coverings are used to protect features in fire escape stairways - this should be avoided. The risk can be reduced by using covering materials that are flame retardant. Those complying with the Loss Prevention Council Standard LPS1207 satisfy flame-retardant criteria. Though they have greater fire-retardant properties, they can still burn and therefore at least one fire escape stairway should be kept free of such protective coverings.

5.16.7 ***Risks arising from protective coverings can be reduced by:***

(a) Installing vulnerable features needing protection as late as possible in the fit-out stage;

(b) Ensuring that the coverings are to flame-retardant specifications wherever possible. This may require liaison with suppliers of vulnerable items and/or protective coverings.

5.16.8 ***Scaffold sheeting***

In practice, external scaffolds may prove a valuable escape route in the event of fire, even if they are not specifically intended for this purpose. If scaffolds are sheeted with flammable materials, not only do they contribute to the fire loading, but it would also be unacceptable to rely on them as a significant means of escape. If such reliance is anticipated, scaffold sheeting should be to flame-retardant standards and this is recommended in other circumstances as well. (Sheeting complying with the Loss Prevention Council Standard LPS 1215 satisfies flame-retardant criteria.) If major or sole reliance on escape via a scaffold during fire is anticipated, the need for and extent of sheeting needs to be carefully considered.

Where possible, it should be incomplete in the vicinity of escape ladders and stairs. Not only does this reduce the fire load, it also minimises smoke logging in escape routes and eases fire brigade access.

5.16.9 ***Bitumen boilers***

(a) LPG cylinders should be kept at least 3 metres from the burner or boiler, or protected by an appropriate heat shield. Where the cylinders are remote they should be sited clear of traffic to prevent damage to the hose (which should be suitably robust; steel reinforced braid, for example).

(b) Never leave boilers unattended while the burner is alight.

(b) Do not tow or move boilers while the burner is alight.

(d) When possible avoid taking tar boilers and similar equipment onto roofs. If this cannot be avoided they should be placed on a non-combustible insulating base to protect the roof from ignition. Equipment should be under the supervision of an experienced operator and sited where spillages can be easily controlled.

5.16.10 ***Site huts and similar areas***

(a) If equipment leaks or heater flames fail, flammable vapour is able to build up inside site huts and can result in a fire or explosion. It is especially dangerous if vapour accumulates out of hours.

(b) Site huts need to be adequately ventilated at high and low levels and heaters should be properly maintained. Make sure heaters have flame-failure devices incorporated so that the gas supply is shut off if the flame tails.

(c) Where cylinders are an integral part of the appliance (e.g. cabinet heaters) they may be kept inside the site hut, but where they are separate from the heater keep them outside the hut and connected to the heater by the shortest practicable length of suitable hose or piping.

(d) In both cases the fuel supply must be turned off at the appliance and the cylinder after use (and especially when the site closes overnight or at weekends). Always keep heaters clear of obstruction, e.g. clothing.

5.16.11 ***Demolition***

Demolition work can involve a high risk of fire and explosion. In particular:

(a) Dismantling of tank structures causing ignition of flammable residues;

(b) Disruption and ignition of buried gas services.

Buried and other service pipes should always be assumed to be present on a site unless it is positively confirmed that they are not. Identify the location of gas services before any demolition work begins. The client or local supply company will often be able to provide indications of where pipes and cables are located, but this should always be accompanied by a survey of the site. A competent person should do the survey using services' locating devices. Once the location of all services is identified, make arrangements to ensure that they are disconnected from the mains supply by a competent person and purged of any residual gas. It is extremely dangerous to merely assume that this has been done. It needs to be confirmed by a formal process in which a competent person, usually a representative of the local supply company, gives authoritative assurance of disconnection and clearance.

Even if removal of the services is not an intended part of the demolition job, it is still important to locate and isolate services to avoid damaging them. In some cases it may be necessary for supply systems to remain charged. In such cases particular care will be needed in implementing systems of work to minimise the risk of contact.

Storage tanks often contain residues of flammable materials, which can result in flammable and explosive concentrations. This is especially dangerous when hot work dismantling methods are used before the tank has been thoroughly cleaned. This work is potentially extremely dangerous and those doing it must have the specialised competence to do it safely.

Primary measures include:

a)Clearly identifying the contents of tanks and associated pipework;

(b) Cleaning tanks and pipework before dismantling work begins;

(c) Keeping to clearly defined systems of work during dismantling (permit-to-work (PTW) systems will be appropriate);

(d) Avoiding hot work wherever possible, for example, by the use of hydraulically powered shears.

5.16.12 ***Smoking***

Discourage smoking on all sites and in higher risk situations control or ban it altogether, for instance, in any areas where highly flammable materials such as some cellular foam plastics, highly flammable liquids and gas cylinders are stored or used.

Bring the smoking rules to the attention of all workers and visitors to the site. Display the appropriate signs, particularly in high-risk or communal areas such as canteens and site access points.

Consider the need for designated safe areas where smoking is allowed and provide tin ashtrays filled with sand in these areas.

Check that people keep to the smoking rules and enforce them positively.

5.16.13 ***Plant and equipment***

Select plant, both electrical and engine driven, to match the demands placed upon it to prevent overheating during use; especially in dusty conditions.

Maintain all plant properly and in particular air filters and intakes should be regularly cleaned in dusty conditions. Ensure that air intakes are positioned so that air is free from flammable gases and vapours.

Refuelling (especially with petrol) should take place in the open air or in well-ventilated spaces away from ignition sources. Bulk storage tanks should be bunded.

Ideally, securely fasten lamps to a solid backing. If they are mounted on tripods make sure that the tripod cannot be dislodged or overturned. Make sure that lamps and heaters are positioned so that they cannot ignite nearby combustible material.

5.16.14 ***Permit To Work systems***

All hot work generating heat sparks or flame can cause a fire. To avoid this, PTW systems should be considered. Where hot work is not often carried out and where the risk of fire is low, the need for formal systems of management control is less. However, as the amount of hot work and the risks associated with it increases the need for formal PTW systems increases. They are particularly useful where there are numerous hot work operations taking

place and where there is a lot of combustible material present, both incidentally and as part of the building structure.

PTWs are formal management documents. They should only be issued by those with clearly assigned authority to do so and the requirements stated in them must be complied with before the permit is issued and the work covered by it is undertaken. Individual PTWs should relate to clearly defined individual pieces of work. Do not use PTW documents as blanket authorisations to carry out hot work anywhere on the site at any time. (More general standards for site-wide hot work can be set out in site rules.)

PTWs should normally include:

(a) The location and nature of the hot work intended;
(b) The proposed time and duration of the work;
(c) The limits of time for which the permit is valid;
(d) The person in direct control of the work.

Precautions to be taken and reflected in the PTW before, during and after the work include:

(a) Clearing the surrounding area of all loose combustible material;
(b) Where work takes place on one side of a wall or partition the other side should be checked for combustible material;
c) Having suitable extinguishers at hand and a careful watch maintained for fire during the work, and following completion after it;
(d) Protecting combustible material which cannot be cleared;
(e) Examining the hot work area thoroughly for some time after the work has finished. (This will be **at least an hour** but ignition can sometimes occur much later than this. Inform the night security guards where hot work has been going on and ask them to check these areas);
(f) In view of the potential risk it is a sensible precaution for all hot work to stop by a safe period before the end of the day.

You may not need a fully documented PTW system where the risks arising from hot work are low, however, precautions such as having a fire extinguisher are still required. Site rules are an effective means of making these precautions clear to those carrying out such work.

5.16.15 ***Electrical installations***

Electrical installations, especially temporary ones, should be of sufficient capacity for the intended use and designed, installed, inspected and maintained by competent personnel. The installation should meet BS 7671: 1992 requirements for electrical installations, which includes a special section on construction sites. Do not allow ad hoc additions or alterations to the electrical installation by personnel who are not competent. Electrical equipment should meet standards that reflect the adverse conditions on most construction sites.

In line with the Guidance on Electrical Safety and Safe Isolation of Low Voltage Installations, Persimmon Homes do not allow electrical works to be conducted on any live electrical circuit. Good practice dictates that circuits will not be energized until after electrical testing is complete and the installed circuits are safe and present no risk of electric shock to individuals.

In the event that alterations are required to an existing electrical circuit, a Permit to Work must be used that ensures that the means of isolation cannot be re-energized inadvertently.

5.16.16 ***Fire Extinguishers***

Fire extinguishers should be situated on site in accordance with the fire risk assessment PHG/HS/:037. The number and type should be compatible with the type of fire hazards /materials that are present on site or within the site office/ compound. The fire extinguisher should only be used by a competent person and in a situation where the person tackling the fire is not at risk of personal injury. The information below is a guide to the type of fire extinguisher which could be used:

Water   	**Foam**  
Carbon Dioxide   	**Powder**  

Some common electrical faults posing fire risks include:

(a) Use of flat twin and earth cable as extension leads instead of suitable flexible cable;

(b) Overloading of sockets in site accommodation;

(c) Cable laid in or near combustible material, frequently in roof and ceiling voids. Accumulation of rubbish against distribution boards poses similar fire risks and often occurs when installations are located in quiet parts of the site;

(d) Intentional defeating of safety devices, such as fuses or circuit breakers;

(e) Mechanical damage to cables, often as a result of inappropriate routing of cables;

(f) Make-shift cable joints made without correct proprietary connectors.

The proper use of electrical safety devices such as residual current devices (RCDs) can reduce the risks of fire arising from electrical faults. However, they do not substitute for properly designed, installed, inspected and maintained electrical installations under the supervision of an electrically competent person.

In order to design and install a system which is safe with adequate capacity, electricians need to be informed about its likely use. Electrical systems need to be periodically checked to ensure that they remain safe and free from damage or deterioration. They should also be checked before any addition, extension or modification is carried out. On most sites, and particularly larger ones, this will require some form of systematic electrical inspection and maintenance regime. **See also Generic Risk Assessment 9.**

5.17 Use of Lasers

It is essential that, all those using lasers, particularly outdoors, are made aware of the hazards which may exist and the control procedures that are necessary to secure the safety of everyone, including members of the public.

Due to the fact that there is a wide range in possible wavelength, energy content and pulse length of a laser beam, the hazards associated with lasers vary widely. For this reason it is impossible to regard lasers as a single group to which common standards can apply.

There are three aspects of laser application which will influence the total hazard evaluation and subsequent application of control measures;

1) The laser's capability of injuring personnel, which may include burns to the skin or severe damage to the eyes
2) The environment in which the laser is being used
3) The personnel who operate the laser and the personnel who may be exposed

Lasers are classified for safety reasons under BS EN 60825, broadly as follows:

Class 1: These products are safe under all viewing conditions but are not practical for many construction activities

Class 2: The laser beam should, where reasonably practicable, be terminated at the end of its useful path.
The laser should not be aimed at vehicles or personnel particularly at head height.

Class 3A: While it is preferred to use class 2 lasers, there are times when, for example, due to high ambient light levels, more power may be required than is available from a Class 2 laser. In such cases a Class 3A laser may be used but their use requires added precautions: e.g.

1) A person competent to supervise the safe use of lasers should be appointed wherever lasers above Class 2 are in use
2) Suitable and adequately trained personnel should be assigned to install, adjust and operate the laser equipment
3) Areas where such lasers are used should be treated as controlled areas, and access restricted to personnel who have been advised as to the precautions they should take.
4) Precautions should be taken to ensure that the laser beam is not intentionally directed at specially reflecting surfaces such as mirrors, lenses etc. Care must also be taken that reflecting surfaces are not accidentally introduced into the beam path.

Class 3B and 4: these classes of laser are hazardous, particularly as the beam may be invisible to the eye. They require extreme caution and careful evaluation prior to their use. **See also Generic Risk Assessment 45.**

5.18 Lifting Equipment Lifting Accessories - Thorough Examination & Use

The Lifting Operations and Lifting Equipment Regulations 1998 made significant changes to previous requirements. The scope of lifting equipment was broadened to encompass any equipment used to mechanically raise or lower a load, and the definition of a load includes people. The term lifting accessory was introduced to cover means of attaching or suspending a load to lifting equipment (i.e. lifting tackle).

5.18.1 Purchasing Lifting Equipment

With all **new lifting equipment**, or lifting equipment brought into use for the first time on or after the 5 December 1998, there is a requirement for the owner to hold a '*declaration of conformity'* issued by the manufacturer or the supplier confirming the equipment satisfies the requirements of the European Union. This declaration must be kept throughout the entire life of the lifting equipment. If no such declaration is available or if the declaration is more than 12 months old, a thorough examination certificate must be issued by a competent person before using the equipment. This declaration of conformity together with copies of the latest thorough examination reports must be kept as long as the company owns the lifting equipment. If the company sells the lifting equipment the declaration of conformity and the latest thorough examination report, must be passed to the new owners.

If **lifting equipment is purchased 'second hand'**, the seller should provide a copy of the original declaration of conformity and relevant thorough examination reports. If no such documentation is available the purchaser must beware and ensure a competent person carries out a thorough examination before the lifting equipment is put into use.

5.18.2 Routine Thorough Examination of Lifting Equipment

All lifting equipment must be thoroughly examined by a competent person at least once in any 12 month period, or as specified in a written scheme, or as specified at the last thorough examination report. If additional testing is required this will be specified in the thorough examination report.

5.18.3 Lifting Equipment for Carrying People

If the **lifting equipment is used to move people**, additional requirements apply and the thorough examination reports must be undertaken every 6 months (or as specified by the competent person on the thorough examination report or in the written assessment) and kept by the owner until replaced by a new report or if the equipment is no longer in use for a period of 2 years from the date of the last thorough examination.

5.18.4 Lifting Accessories

With regards to **lifting accessories**, (i.e. slings shackles etc.) it is advisable that the company obtains a declaration of conformity which clearly states the safe working load and if relevant other information essential for their safe use. Lifting accessories have to be thoroughly examined at least once in every 6 months or as specified by the competent person on the last thorough examination report or in the written scheme. Reports of thorough examination of lifting accessories must be kept for 2 years after the report was made.

5.18.5 Inspections of Lifting Equipment & Lifting Accessories

With regards to **inspections** of lifting equipment and lifting accessories, the regulations require an *appropriate inspection* by a competent person at suitable intervals. At present there is little guidance to elaborate on these phrases, but it would be sensible to draw experience from the arrangements under the earlier regulations which required a weekly inspection of lifting equipment by a competent person such as the operator or other suitable experienced person. The results of the inspection should be recorded in a site register or similar. If the inspection shows there are faults with the equipment, these faults must be brought to the attention of the owner of the equipment without delay.

5.18.6 Scrapping of Lifting Equipment

If lifting equipment is taken out of service and scrapped, the original declaration of conformity and the last thorough examination certificate should be kept for a period of 2 years after the equipment has been scrapped.

5.18.7 Duties on Persimmon under LOLER as Principal Contractor

The LOLER regulations places a duty on every employer to ensure any lifting equipment used with its undertaking is 'accompanied with physical evidence of a current thorough examination certificate'. Because Persimmon are principal contractor, this means the site manager must have a copy of, or have physically seen the current thorough examination certificate for any lifting equipment used on a Persimmon site. The site register has a section to record the inspection of thorough examination certificates.

There is a similar section to enable the Persimmon site manager to confirm he has seen evidence of the training or competence assessment certificate of any operator of lifting equipment or similar plant. **See also Generic Risk Assessment 21, 32 and 41.**

5.19 Mobile Work Equipment and Vehicles on Site

With the increasing volume of mobile plant and vehicles moving around the site, there has been an increase in the number of incidents associated with its use, including employees, other contractors' employees and members of the public being struck by passing plant or vehicles.

Therefore the site risk assessment should consider all aspects of site transport and mobile plant. This assessment should also reflect the requirements of Provision & Use of Work Equipment Regulations 1998 (PUWER 98). These regulations require the assessor to consider the hazard of mobile equipment toppling, overturning or being struck by falling material.

5.20 Purchase or Hire Of Mobile Plant

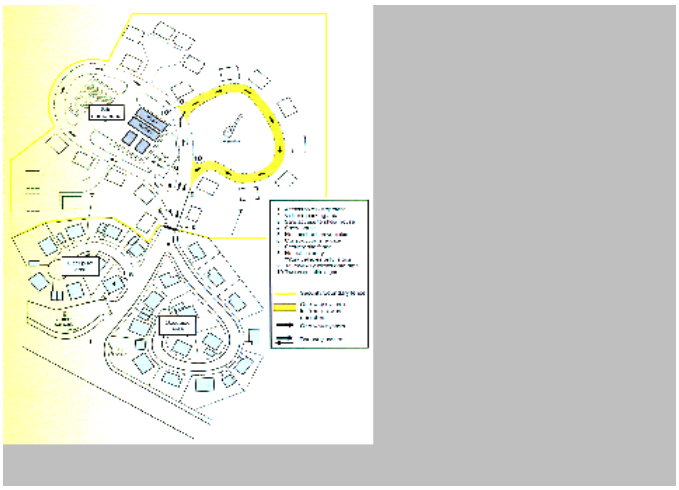
If mobile work equipment is being purchased, consideration must be given to the requirements of PUWER 98 especially with regards to the hazard of toppling, rolling over or material falling onto the equipment. If the equipment is likely to be used in an environment where there is a risk of such occurrences then the equipment with have to have safeguards to protect the operator (and any other person being carried by the mobile equipment) from these hazards.

If the mobile equipment is already owned and in use by the company on 5 December 1998, this requirement will not come into force until 5 December 2002. For all mobile equipment purchased or hired after the 5 December 1998, the new requirements will apply in full.

5.21 Use of Mobile Work Equipment

Full guidance on the hazards associated with vehicle movements on construction site can be found in HSE guidance booklet HS(G)144 Safe Use of Vehicles on Construction Sites. The following is a summary of the main points and the precautions that should be considered for every site:-

a) Planning the layout of the site - consideration should be given to the size, type and volume of plant/vehicles movements that are likely to take place. Delivery vehicles can be a special problem, especially the larger articulated vehicles. The site layout and signs should clearly direct and/or instruct drivers, especially delivery drivers. Whenever possible, routes should be laid out to eliminate the need to reverse vehicles, by providing one way systems or providing turning circles. If this is not possible, a banksman should be appointed to supervise the reversing of vehicles and notices giving details of the arrangements must be displayed in prominent locations.



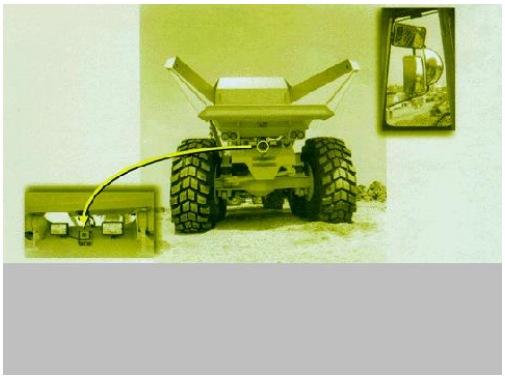
b) Segregation of people and moving vehicles:- On access roadways, or if there is a lot of plant/vehicle movement within the site, segregated pedestrian walkways should be established, with recognised crossing points to keep site pedestrians and vehicles in their delineated areas.

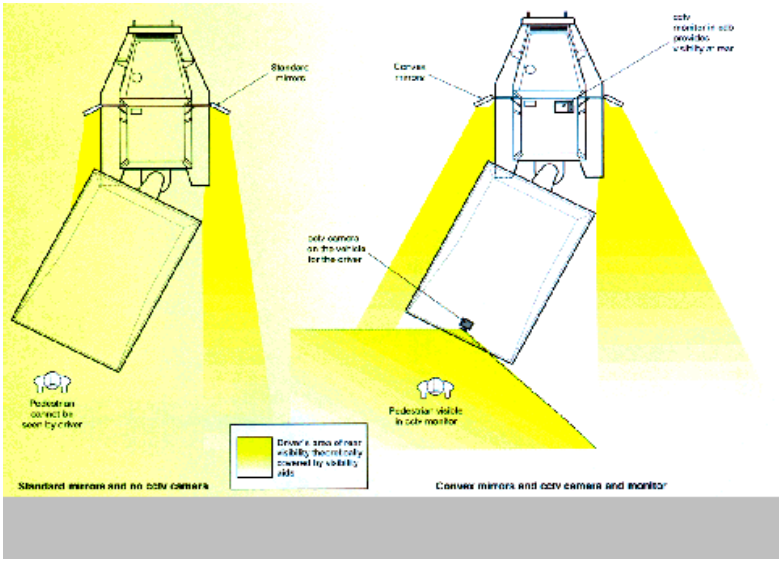
c) Gateways and other restricted width areas:- whenever plant and vehicles have to pass through restricted opening such as gateways and similar openings, there is a significant danger of striking or trapping a pedestrian. Therefore it is essential that separate pedestrian routes and gates are established to eliminate this obvious hazard.

d) If there is a risk of mobile plant toppling, rolling over or being struck by falling objects as a result of the normal site activities and use of the equipment, then additional precautions will be required on the mobile equipment to ensure the operators and any passengers are protected from these hazards. The site specific risk assessment should consider these aspects and if they are relevant to the site the mobile equipment should have the necessary protection fitted. This could be in the form of rollover protection, protective cages around the cab and **seat belts** fitted to prevent the occupants being ejected in the event of a topple or roll over. See HSE guidance booklet and the ACoP to PUWER regulations for more information.

e) Storage areas and the Site compound :- the actual storage areas are high risk areas with delivery vehicles and fork trucks regularly moving materials. These should be positioned and protected to minimise the need for others to enter these areas. If the storage area has to be in the central compound, a solid hard standing with vehicle route ways and pedestrian access ways clearly marked on the ground are required.

f) Use of flashing beacons, rear view camera and mirrors, reversing sirens and high visibility clothing:- all these items can assist in increasing visibility and awareness of vehicles/pedestrians to each other. Therefore their use should be considered at the project planning stage and identified in the project health & safety traffic plan. **See also Generic Risk Assessment 21, 38 and 41**

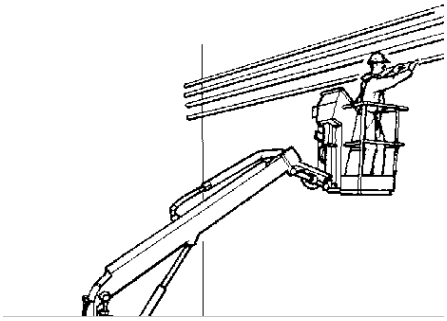




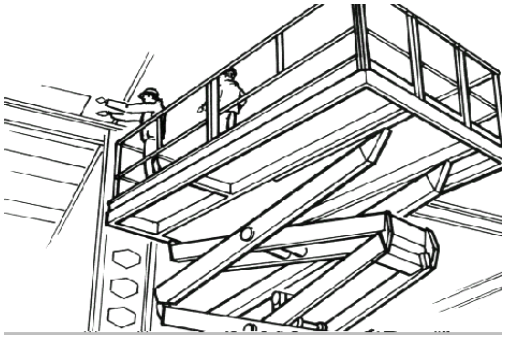
5.22 Mobile Elevated Work Platforms

Where it is not possible to work from the existing structure and the use of a scaffold working platform is not appropriate, a range of mobile access equipment including MEWPs, cradles, mast platforms, boatswain's chairs or seats, and rope access equipment can be used.

Those using this type of equipment should be trained and competent to operate it. They should learn emergency and evacuation procedures so that they know what to do, for example, if the power to the platform fails, or fire breaks out in the building being worked on. With many pieces of equipment, more than one person will be needed to ensure safe operation.



Mobile elevating work platforms (MEWPs) can provide excellent safe access to high level work.



When using a MEWP make sure that:

1) Whoever is operating it is fully trained and competent;

2) The work platform is provided with guard rails and toe boards or other suitable barriers;

3) It is used on firm and level ground. The ground may have to be prepared in advance;

4) Its tyres are properly inflated;

5) Any outriggers are extended and chocked as necessary before raising the platform; and

6) Everyone knows what to do if the machine fails with the platform in the raised position.

DO NOT:

• Operate MEWPs close to overhead cables or other dangerous machinery;

• Allow a knuckle, or elbow, of the arm to protrude into a traffic route when working near vehicles;

• Move the equipment with the platform in the raised position unless the equipment is designed to allow this to be done safely (check the manufacturer's instructions).

Some MEWPs are described as suitable for 'rough terrain'. This usually means that they are safe to use on some uneven or undulating ground - but check their limitations in the manufacturer's handbook before taking them onto unprepared or sloping ground. Their limitations should also be checked with the supplier or manufacturer with regard to wind speeds at which level work should cease as the MEWPs can become unstable when affected by winds when working at height

Wearing a harness with a lanyard attached to the platform can provide extra protection against falls, especially while the platform is in motion. **See also Generic Risk Assessment 44**

5.23 Hoists and Mast Platforms

Hazards in the use of inclined hoists

The main dangers associated with the use of inclined hoists are:

(a) Overturning due to overloading, gradients, wind loading, incorrect or non-use of stabilisers/outriggers, inadequate ties to building or inadequate mast support;

(b) Fall of tools, goods or materials from the platform/skip;

(c) Trapping of people in the raising/lowering, slewing or telescoping mechanisms;

(d) Trapping of people between the platform/skip or carriage and the mast;

(e) Trapping of people between the platform/skip and fixed structures e.g. walls of a building, roof edge protection, fixed guarding, ladders, scaffolds;

(f) Trapping of people between materials carried on the platform and those items at (c);

(g) Failure of platform supports or raising, lowering, telescoping or slewing mechanisms;

(h) Over-running of the carriage at top or bottom of mast;

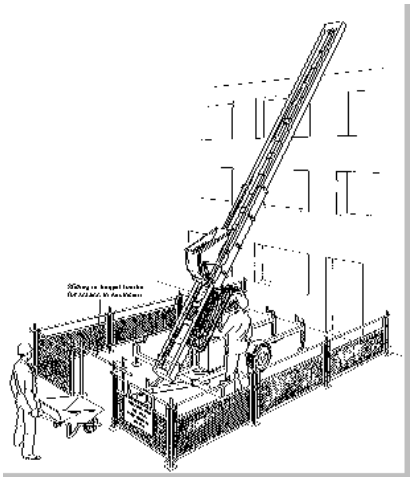
(j) Inadvertent movement e.g. misapplication of controls or telescoping/slewing brake failure;

(k) Stranding of a partly elevated load due to power or control failure;

(l) Electrical e.g. electric shock, electrical control system failure.

Enclosure of hoist and hoistway

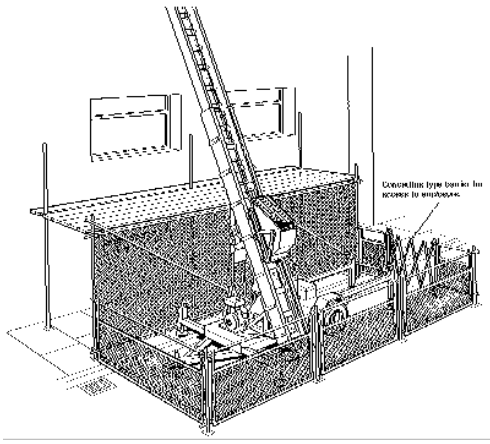
A substantial enclosure should be provided around the hoist. The height of the enclosure should be at least 1.15m and there should be clearance of not less than 0.5m between the enclosure and the widest anticipated load to be carried by the mast. Any rail or gate to control access should be the same height as the enclosure, and should be kept closed except when the platform/skip is at rest at the lowest level for the purpose of loading or unloading goods or materials; the hoist should not be used without adequate enclosure.



Whenever the controls can be operated from outside the enclosure no one should remain inside that enclosure during hoisting. Where operation of the controls from outside is not possible, then the operator (but no others) may remain within the enclosure provided he stays at the control position and that whenever there is a risk from falling objects there is effective overhead protection

Access beneath the mast should be prohibited. In places closed to the public a barrier rail should extend from the ground level enclosure to the building or structure with a notice attached to it instructing persons not pass beneath the mast.

When used on a public highway or any other place where the public has access, a higher standard is needed and the enclosure fencing itself should extend back from the loading area to the building or other structure on which the hoist is supported so that access beneath the mast is prevented.



Alternatively, a protective tunnel should be provided and where possible the skips should be suitably enclosed. Tunnel protection can often be achieved by extending and modifying existing scaffolding.

Between landings and where persons are liable to be struck by moving parts of the hoist adequate fencing should be provided to prevent them coming into contact with those moving parts.

Protection at upper landing

Where inclined hoists are installed against scaffolding or a flat roofed building or against existing openings, the top of the hoist, where it meets the scaffold, or the flat roof, or the opening should be guarded to prevent access to fixed and moving parts, including the tilting mechanism Where the hoist extends through an opening or over a scaffolding or flat roof the extending part of the hoist should be guarded

Openings provided in roof edge protection to accommodate the hoist should be no wider than that necessary to allow safe movement of the carriage and platform and loads normally carried. Notices should be displayed in a prominent position on the roof warning that loaded skips or platforms are in operation.

Safeguarding of dangerous machinery

Where the mast extends up the roof, carriage wheels should be guarded to prevent finger trapping between wheels and mast. This can be achieved by shrouding the wheels.

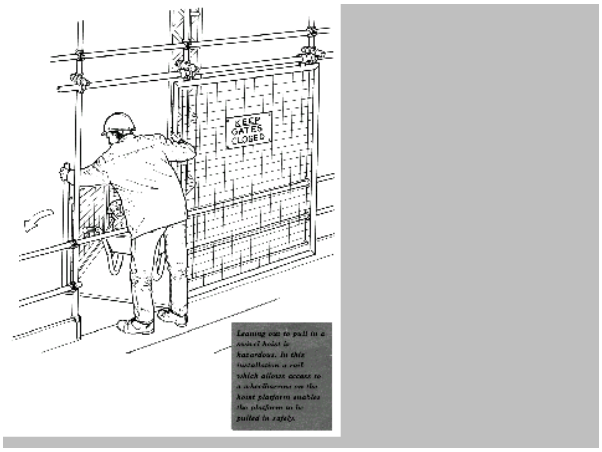
All other dangerous parts of machinery including the rope and sheaves, its transmission machinery and moving parts of prime movers should be effectively guarded These requirements are in addition to those for the enclosure.

Installation precautions

Notwithstanding ground gradients the hoist should always be set up level (within the makers specification) and on a firm base. When the ground is soft and the wheels/supports/outriggers may sink, the manufacturers advice on the minimum ground support requirements should be followed. It may be necessary to have available on the site a supply of suitable metal or timber sleepers for support. Each outrigger should be evenly loaded and fully extended and if a tow bar is fitted it should not be used as a support. The manufacturer's advice should be sought and followed about the numbers and types of stays and supports required at the top of the hoist and at intermediate points.

Platform Hoists

• is the hoist inspected weekly, and thoroughly examined every six months by a competent person?



• are the results of inspections recorded?
• is the hoist protected by a substantial enclosure to prevent someone from being struck by any moving part of the hoist or falling down the hoistway?
• are gates provided at all landings?
• are the gates kept shut except when the platform is at the landing?
• is the control rope arranged so that the hoist can be operated from one position only?
• is the operator of the hoist over 18, trained and competent?
• is the hoist clearly marked with its safe working load?
• is there a proper signalling system?
• if the hoist is for materials only, is there a warning notice on the platform or cage to stop people riding on it?

These hoists should not be used:

(a) To carry persons (a notice prohibiting this should be posted on the machine);

(b) In tandem.

Security of Loads

Loads should be securely located in a skip or attached to the platform or other suitable carrier.

Although securely attached, no load should overhang the platform in any direction by more than 50% of the width or length of the platform unless the maker's torsion and wind loading calculations show that it is safe.

The load should never be positioned so that it will strike the machine, the enclosure or any part of the building or structure, or any other item such as overhead power cables.

No load should extend below the platform.

These hoists therefore should not be used to lift wide objects which would be unstable because of torsion and wind loadings imposed on the structure.
Loads extending beyond the platform must be positioned so that their centre of gravity is in the centre of the platform.

Daily inspection

At the beginning of each shift the operator should check that:

(a) The base unit, chassis and mast supporting structure are sound, free from patent defect and adequately located and supported;

(b) Powered mechanisms for slewing and for raising the mast or carriage etc, are working properly and the operators controls are undamaged;

(c) The mast is sound and adequately supported;

(d) The carriage, platform or skip is sound and secure;

(e) The hoisting rope is serviceable and properly located on its sheaves, guides, etc;

(f) The enclosure provides suitable protection as detailed in paragraphs 7 to 12;

(g) The safety arrestor gear is free and operational.

Maintenance

Manufacturers' instructions on inspection, maintenance and servicing should be followed and where the hoist is hired, then arrangements should be made to ensure that these are done properly. The operator should not carry out repairs.

Training

Persons who operate, erect or install inclined hoists should be carefully selected and adequately trained, or undergoing formal training under direct supervision. They should be competent to operate the hoist. (The minimum standard of achievement considered necessary should be established with the maker/supplier). The manufacturers' operating instructions (printed in English) should be available at all times for trainees. Anyone under 18 years of age should not be allowed to be operating or giving signals to the hoist operator, unless that person is under the direct supervision of a competent person for the purpose of training. The record of training should be kept.

Safe working loads

(a) The safe working load in kilograms should be clearly marked on the hoist.

(b) Where the safe working load may be varied by altering the angle of the mast, the hoist should be fitted with an accurate indicator, clearly visible to the operator, showing the angle of the mast at any time and the safe working load corresponding to that angle. The normal minimum angle of the mast without additional propping should be clearly specified (e.g. 60° to the horizontal).

(c) Where the safe working load may be varied by altering the length of the mast, the machine should be fitted with an accurate indicator, clearly visible to the operator, showing the safe working loads at corresponding lengths. The method for securing the top end of the extended mast of the hoist to the building or scaffolding should be clearly specified.

Wind loadings

(a) The maximum permissible wind speed at which the machine (i) may operate and (ii) remain extended, should be marked on the machine.
(b) The maximum permissible surface area of any load should be marked on the machine.
(c) The maximum permissible wind speed for that surface area should be marked if different from (a)(i).

Loads imposed by machine

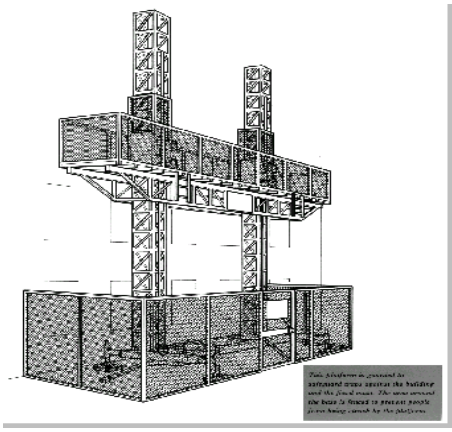
(a) The loading imposed by the machine (i) on the ground, and (ii) on the supporting structure/building/scaffolding should be clearly set out in the operating instructions.
(b) Where intermediate props or ties are required for the mast the loadings imposed on the ground/supporting structure/building/scaffolding should be clearly set out in the operating instructions.

Mast platforms

This equipment is often used when carrying out repairs to or refurbishment of high rise buildings.

Mast platforms are designed to provide access to working positions - they are not designed to act as material hoists.

Only specialists should erect, alter or dismantle mast platforms. It is particularly important that the correct sequence is followed. Serious accidents have occurred when ties have been removed or outriggers have not been properly extended during alterations.



A great advantage of using mast platforms is that those using them can be protected from adverse weather as many types can be provided with screens and a roof to the platform. Enclosures to platforms can increase wind loads. These need to be taken into account when deciding on how to stabilise the equipment.

When mast platforms are used, make sure:

a) Masts are rigidly connected to the structures against which they are operating and outriggers are used when necessary;

b) Working platforms are provided with suitable guard rails and toe boards;

c) The controls only operate from the working platform. **See also Generic Risk Assessment 42.**

5.24 Plant and Plant Operators

Plant such as excavators, cranes, hiabs (i.e. lifting equipment as defined and extended under the LOLER Regulations) must have copies of the latest thorough examination certificates on site (see earlier section) (PHG/HS/:019E). It is also company policy for the operator (or other

suitable person as nominated by the site manager) to carry out a weekly inspection and record the results of the inspection in company's site register.(PHG/HS/:019C or D)

Any lifting accessories (slings, chains etc.) should also have copies of their six-monthly thorough examination certificates available on site.

Similarly, any operator of plant including dumpers and fork trucks, should be trained and certificated under the CITB or Construction Plant Competence Scheme (CPCS), or similar training/competence assessment and a copy of the operation training card/certificate should be on site. All drivers must also be issued with the Passport to Safety for Authorised Drivers of Mobile Plant.

5.25 ***Protection of Children and Members Of The Public***

When planning the site, consideration must be given to the protection of the public especially children. HSE have issued a guidance booklet HS(G) 151 entitled Protecting the Public - Your Next Move. This guidance together with the guidance on the control of mobile plant and vehicles should be considered when producing risk assessments and the project health & safety plan/ pictorial site traffic plan.

Provide induction training for drivers, workers and visitors

As well as ensuring the public are safe during operating hours the site must be left in a secure and safe condition. This is especially so as properties start to become occupied. It is inevitable that children will try to get onto site after work has ceased for the day.

Therefore at the end of the working day, consideration must be given to leaving the site in a safe condition. Basic precautions should be taken such as:

a) Use of 2 metre high 'heras type' fencing or similar fencing to segregate the work and storage areas from public areas.

b) Removal or the 'boarding over' of ladders to prevent access onto scaffolds.

c) The protection of footings or excavations by barriers. If the excavation is deep (1.2 metres) or liable to flooding, this should be protected by rigid barriers of a type that will keep children away from this danger.

d) All plant should be secured in the compound or totally immobilised, so that it cannot be started or moved even if brakes are released.

e) Material should be stored at low level on firm, flat ground. Items such as manhole rings should be stored horizontally and damaged brick packs broken down and re stacked.

f) Loose material such as sand or spoil heaps must have very gentle batters to their slopes.

If there is evidence that children are getting onto site this must be raised with the contracts manager and consideration given to also utilising security staff to supplement the fixed precautions.

*5.26 **Roadworks***

If work is necessary in the public highway, this should be in accordance with the requirements of the "New Roads and Streetworks Act 1991" and signed and protected in accordance with the code of practice on signs and guards (i.e.; Blue book). The supervisor and operatives of the contractor carrying out this work should be trained and certificated in accordance with the requirements of this Act. Once the site is partially occupied, any road works or work on the pavement should be signed and guarded in accordance with the 'Blue Book' guidance. **See also Generic Risk Assessment 22.**

*5.27 **Safe Use of LPG***

This is primarily used in the compound area as a fuel gas for the various items of welfare facilities (but it is preferable to use electrical power for these facilities). The quantity of LPG cylinders should be kept to an absolute minimum. Spare cylinders should be stored in a suitable open air cage, with the appropriate warning and 'no smoking' signs displayed. At the end of the day, or when left unattended, cylinders should be isolated at the cylinder valve.

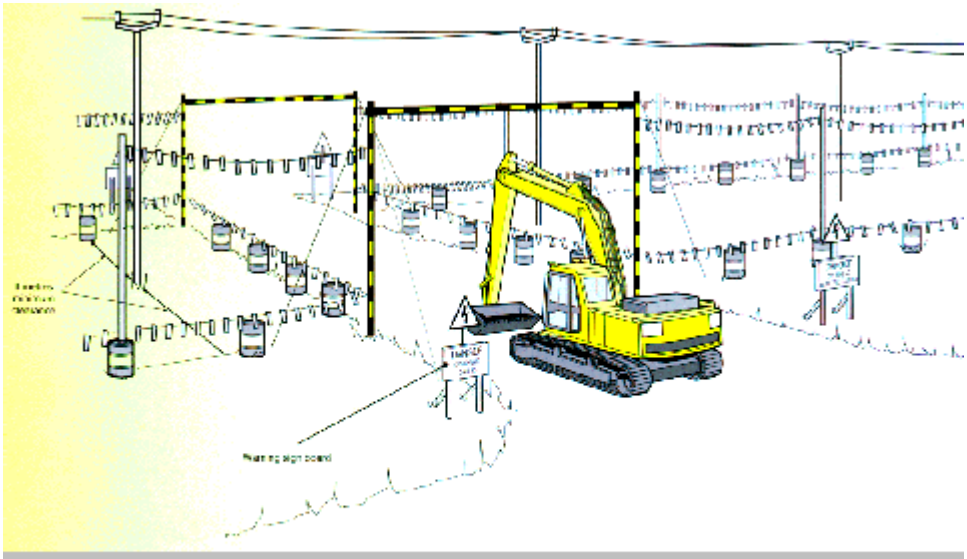
If LPG is used on site in connection with site operations, the fire risks must be assessed and the work undertaken in accordance with:-

- Persimmons requirements as detailed in the health and safety manual;
- Any permit to work requirements as detailed in the project health and safety plan; **See also Generic Risk Assessment 16.**

*5.28 **Services - Underground and Overhead***

The CDM Co-ordinator should obtain details of any known services on or near the site and this information passed on to contractors via the principal contractor i.e. Persimmon site manager. Even if the information available says there are no services the site manager and contractors should still thoroughly check the area. Underground services are much harder to locate but items such as valve covers, manhole covers and marker posts all indicate there could be services in the ground. Even after taking these precautions the area should be checked with a cable locator before commencing excavation work. All excavation work should use safe digging techniques detailed in HSE guidance HS(G)47 "Avoidance of danger from underground services." See also section 6.1 about safe digging techniques.

Overhead services are obvious and easily located. If work has to take place close to overhead power lines, or if plant has to pass under power lines enquiries should be made to the Regional Electricity Company to obtain accurate information on clearance distances and the precautions to be taken. The following diagram shows a typical layout of the precautions to be taken. If work has to take place actually under the power lines then a specific method statement is required specifying the type of machines to be used, stating how they will be restrained form encroaching into the danger zone surrounding the lines and how the work is to be progressed to minimise machine work close to the lines. Further guidance can be found in HSE guidance note GS6 "Avoidance of danger from overhead power lines".



See also Generic Risk Assessment 7, 8 and 29.

5.29 Sewage - Hazards Associated with Working with sewage

There are a number of health risks associated with working with sewage. These include gastro-enteritis, Weil's disease, hepatitis, occupational asthma or infection of the skin or eyes.

The most common way in which micro-organisms enter the body is by :-

- hand to mouth contact during eating, drinking and smoking, or by wiping the face with contaminated hands or gloves, or by licking splashes from the skin.
- by skin contact through cuts and grazes
- by penetrating injuries from contaminated sharp objects
- by breathing them in as either dust, aerosol or mist.

All persons who are required to work with sewage or could come into contact with sewage should be aware of the health hazards and should be informed of the guidance issued by the HSE in leaflet IND(G)198L which for reference purposes, the text has been reproduced below:-

Working with Sewage - The Health Hazards

(HSE Leaflet IND (G) 198L)

INTRODUCTION

Several work activities bring workers into contact with sewage and sewage products. Each year, some workers will suffer from at least one episode of work-related illness. The majority of illnesses are relatively mild cases of gastro-enteritis, but potentially fatal diseases, such as leptospirosis (Weil's disease) and hepatitis are also reported to HSE. However, there could well be significant under-reporting of cases because there is often failure to recognise the link between illness and work.

WHO IS AT RISK?

If you work in one of the following areas, your health, or that of your employees, may be at risk:

- Local authority employees involved in sewer inspection and maintenance work
- Construction workers who repair or replace live sewers
- Water company employees who work with sewage treatment plant
- Agricultural and forestry workers who may be exposed to sewage sludge
- Sludge tanker drivers/operators and associated maintenance staff
- Plumbers

WHAT IS SEWAGE?

The term may be used to mean raw sewage, sewage sludge, or septic tank waste. Raw sewage is mainly water containing excrement, industrial effluent and debris, such as sanitary towels, condoms, plastic etc. Excrement is the major source of harmful micro-organisms, including bacteria, viruses and parasites. Sewage treatment reduces the water content and removes debris, but does not kill or remove all the micro-organisms.

WHAT ARE THE HEALTH RISKS?

Exposure to sewage or its products may result in a number of illnesses. These include:

- Gastro-enteritis, characterised by cramping stomach pains, diarrhoea and vomiting
- Weil's disease, a flu-like illness with persistent and severe headache, transmitted by rat urine. Damage to liver, kidneys and blood may occur and the condition can be fatal
- Hepatitis, characterised by inflammation of the liver, and jaundice
- Occupational asthma, resulting in attacks of breathlessness, chest tightness and wheezing, and produced by the inhalation of living or dead organisms
- Infection of skin or eyes

- Rarely, allergic alveolitis (inflammation of the lung) with fever, breathlessness, dry cough, and aching muscles and joints
- How do micro-organisms enter the body?

- The most common way is by hand-to-mouth contact during eating, drinking and smoking, or by wiping the face with contaminated hands or gloves, or by licking splashes from the skin.

- By skin contact, through cuts, scratches, or penetrating wounds, i.e. from discarded hypodermic needles. Certain organisms can enter the body through the surfaces of the eyes, nose and mouth.

- By breathing them in, as either dust, aerosol or mist.

PROTECTING WORKERS FROM RISKS TO HEALTH

Since micro-organisms are an inherent part of sewage, the hazard cannot be eliminated. However, a proper assessment of risk is required, but this should not include analysis of sewage for micro-organisms as they can constantly change. Exposure to sewage should be eliminated or minimised by, for example, using remote-controlled robotic cameras for sewer inspection; drying sludge before disposal; incineration of sludge; injection of sewage into land rather than spreading; damming and bypass pumping of sewer sections prior to reconstruction.

The following measures can further reduce risk of infection and illness:-

- Ensure that employees and line management understand the risks through proper instruction, training and supervision.

- Provide suitable personal protective equipment that may include waterproof/abrasion-resistant gloves, footwear, eye and respiratory protection. Face visors are particularly effective against splashes.
- Equipment selection and a proper system for inspection and maintenance are important.

- Provide adequate welfare facilities, including clean water, soap, nailbrushes, disposable paper towels, and where heavy contamination is foreseeable, showers. For remote locations portable welfare facilities should be provided.

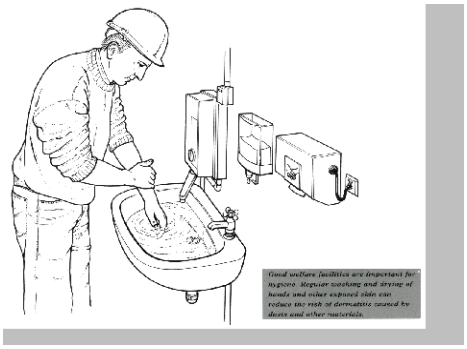
- Areas for storage of clean and contaminated equipment should be segregated and separate from eating facilities.

- Provide adequate first-aid equipment, including clean water or sterile wipes for cleansing wounds, and a supply of sterile, waterproof, adhesive dressings.

*5.30 **Sewage - Weils Disease (Leptospirosis)***

Weils Disease (Leptospirosis**)** starts as a flu like illness with severe persistent headaches but which can be fatal. It is transmitted to humans by contact with urine from infected rats or in a modified form cattle urine. Therefore particular care must be taken in areas where rats are likely to be present or if working in old farm or abattoir buildings. HSE have produced a guidance card on Leptospirosis and these are available from the safety advisers. These cards should be issued to all operatives together with information about Leptospirosis at the site induction talk.

If there is evidence of rat infestation, great care must be taken. Standing water can act as a breeding ground for the Leptospirosis bacteria. If such conditions exist good personal hygiene is essential with hands being washed before consuming food or drink. Smoking should be prohibited as this is an easy way in which contaminated hands can pass on the infection to the mouth via a cigarette. Therefore smoking should only be permitted after the person has thoroughly washed their hands. Protective clothing and changing facilities will be required to ensure street clothing does not become contaminated. **See also Generic Risk Assessment 23.**



5.31 Small Power Tools and Hand Tools

Small power tools and hand tools are much abused items on a construction site. Accepting that by limiting power supplies to 110 volts the risk of serious injury is drastically reduced. The HSE recommend a 3 monthly inspection period as a realistic timescale for the visual inspection of items such as small power tools and portable power leads. At the same time it would make sense to check tool boxes and the condition of hand tools, whether company issued or not. Therefore site managers, contractors and self employed workers should implement such an inspection programme and record the results in an auditable format. **See also Generic Risk Assessment 40**

5.32 Traffic Management

Hazards

The most common hazards are:

- Muddy sites
- Areas of restricted width and visibility
- Temporary structures, overhead power lines
- Edges of roadways, excavations, man-holes, watercourses, spoil heaps, etc
- Residents in early occupation
- Large vehicles reversing in confined spaces
- Pedestrians, particularly children
- Poor material storage provision or practice
- Speed.

Control Measures

The control measures will vary according to the size and the location of the site and whether the site is shared with other developers in which case a joint traffic management plan will need to be formulated. The control measures will need to be reviewed as the site develops and the public has access.

Control measures, to be considered from the planning/design stage, will include:

Pedestrian/Vehicle Access & Egress

- Site Entrance and Exit

Ensure that the site entrance and exit design allows good sight lines and clearly displays the speed limit (normally 10-mph). Consideration should be given to providing, where necessary, direction signs to the compound/delivery areas.

- Separate clearly marked pedestrian entrances and exits should be provided.
- Compound and Offices/Welfare Facilities

Suitable roadways to allow safe access and egress of all site traffic, including operatives cars and supply vehicles shall service the compound facility.

All site compounds and offices/welfare facilities must have a safe means of access and egress for pedestrians and mobile plant to and from the construction areas. This will take the form of suitable roadway and permanent/temporary footpaths, which shall be segregated where applicable.

A system of segregating vehicular and pedestrian traffic, within the compound and office/welfare areas, must be adopted. This must include separate entrances/exits for pedestrians visiting the office/welfare facilities and plant accessing compound storage and fuel areas.

Walkways and Crossings

Walkways: Provide firm, level and drained pedestrian walkways that take a direct route where possible
Crossings: Where walkways cross roadways, provide a clearly signed and lit crossing point where drivers and pedestrians can see each other clearly;

Primary traffic routes

Primary traffic routes should allow the safe passage and delivery vehicles away from pedestrian routes. Where possible one-way systems should be introduced and clearly marked to minimise congestion and the need for vehicles to reverse.
Where it is not possible to provide primary pedestrian routes to keep pedestrians away from main traffic routes, consideration should be given to the provision of separation by means of kerbs and/or fencing (crowd barriers/3 ft Chestnut paling) or, for short periods, traffic cones may suffice. On busy sites crossing points will be required, particularly from the welfare facilities and car parking areas.
The primary traffic routes must be kept clear of obstructions such as materials. Where it has been necessary to off load a vehicle on the road, the materials must be removed to the designated storage areas as soon as practicable.
The routes must have speed limits and speed control measures specific to site conditions and the types of vehicles using the route, for example some fork lift trucks may be unsuitable for passing over road bumps.

To the edges of roadways, excavations, manholes, spoil heaps, etc provide physical barriers such as safety banks or stop blocks to restrain vehicles. The covering of manholes with pallets or sheets of ply is completely inadequate.

Parking Areas

Separate, adequate parking areas should be provided for site vehicles, delivery vehicles and workers vehicles.

Contractors should be discouraged from parking throughout the site, but should leave their vehicles in a designated area situated close to the site compound. Where they need to unload their equipment, they may be permitted to drive onto the site to do this but should immediately return their vehicle to the parking area.

Under no circumstances must the Sales Car Park be used for the parking of construction traffic.

It may be necessary to provide temporary lorry parking/holding areas near the site entrance to manage deliveries and to safely turn away vehicles not permitted to enter the site. This may be important where restriction apply to delivery timings, e.g. because of school start/finish times.

Provide safe pedestrian routes from parking areas to offices, welfare facilities and workplaces. Clear signs and instructions must be provide displayed to inform people.

Loading/Unloading and Storage Areas

Work on site should be planned to minimise vehicle movements, avoid unnecessary deliveries and the double handling of materials on site. The location of loading and storage areas need to be carefully considered. Where there is little on-site storage space, off-site storage (i.e. away from the main construction area) may be required for the temporary storage of materials. Loading and storage areas should:

(a) Be located away from pedestrian-only areas and main pedestrian routes;
(b) Exclude pedestrians so far as reasonably practicable;
(c) Have one-way systems and safe exit points;
(d) Have sufficient room for vehicle movements; including where necessary turning circles and
(e) Where necessary, have adequate lighting, signs and appropriate visibility aids for drivers.

Public Protection

To prevent construction vehicle operations endangering the public, relevant precautions must be taken, depending on the nature of the site and work, including the provision of:

(a) Suitable vehicles;
(b) Appropriate pedestrian and vehicle traffic management systems;
(c) Site fencing;
(d) Signaller/Banksmen; and
(e) Effective vehicle immobilisation systems, secure plant parking and key custody procedures.

Where vehicles cross the public footway, measures need to be taken to protect members of the public and control their movement to ensure safety, for example by use of barriers or a Signaller/Banksman.

Drivers, particularly when working in public areas, should always remove the keys from the ignition when they park and leave their vehicles.

Where there are many pedestrians or vulnerable groups passing the site, e.g. close to schools, hospitals and major shopping centres, restrictions may have to be placed on traffic

movements to and from site. Deliveries to site can be restricted to specific times to prevent movement or congestion at peak times.

Traffic routes on partially occupied housing sites require careful management to protect the public, particularly children, from construction vehicle operations. The following measures can reduce the risks to the public on partially occupied sites:

- Phase occupation of dwellings so that site traffic can be excluded from occupied areas;
- Segregate public vehicle and pedestrian routes from site vehicle and site worker routes;
- Provide safe places for public parking and safe access to show homes;
- Provide relevant information for visitors on public safety; and
- Update information to take account of any changes in traffic routes, which may affect the visiting, public and residents.

All drivers and pedestrians entering a site need to be informed of any site transport hazards and relevant site rules, including the correct traffic routes to use. The amount and detail of information given needs to reflect the nature of the site hazards. Information can be provided by:

(a) Verbal instructions on arrival on site;
(b) Site induction;
(c) Giving site specific delivery instructions when ordering materials from suppliers; and
(d) Displaying maps and site rules at site entrance points.
(e) Customer Notices

Any changes made to site traffic routes need to be communicated to site workers and purchasers. The information on transport management contained in the Health and Safety Plan will need to be updated as the project progresses and traffic routes and site rules change.

The measures outlined above, which are based on the HSE document HSG144 (The Safe Use of Vehicles on Construction Sites) together with compliance with the Group Health and Safety Policy on Public Protection, Mechanical Plant and Overhead Electricity should ensure that the chances of accidents involving site transport are minimised.

The site traffic plan must reflect actual conditions on site and clearly identify safety critical information.

Finally, when drawing up the pictorial plan the following should be clearly identified in colour (choice of colour identification is left with the Operating Business however options are detailed below):

- Pink = site boundary
- Green = pedestrians only
- Orange = areas of build
- Blue = storage, loading/unloading
- Yellow = waste management

The following can also be identified on plans using the codes indicated:

- OW = site office/welfare
- CP = site car park
- SC = storage container
- AP = assembly point
  FP = fire point:
- FA = first aid point

5.33 **Welfare**

FACILITIES

The facility requirements must be available from the commencement of work on site.

Sanitary Conveniences:

- Suitable and sufficient sanitary conveniences must be provided or made available at readily accessible places. Normally a unit consisting of two urinals and two toilets, mains connected and water flushed is sufficient for traditional house building sites. Assessments must, where applicable, take into consideration the speed of build, number of operatives and their gender.
- Rooms containing sanitary conveniences shall be adequately ventilated and lit.
- Sanitary conveniences and the rooms containing them shall be kept in a clean and orderly condition.
- Chemical toilets must only be used as a temporary measure and where mains supply is not immediately available. They must be provided by a supplier inclusive of an emptying, recharging and cleaning service. All toilets must be provided with hand washing facilities and toilet paper.

Washing

- Sink and running water supply provided within all toilet facilities.
- Sinks provided with running water supply within an area for washing.
- The sinks provided within the washing area must be large enough to wash face, hands and arms or the supply of water should be such as to allow this to take place.
- All sinks must be provided with an adequate supply of clean, hot, cold or warm running water. This should be supplied from mains connections. Should a mains connection not be available then the supply must be from a pumped or fed supply from a supply tank or bowser.
- Where washing facilities are located towels or hand dryers must be available along with the provision of soap or cleaning liquid. The DEB Three Stage System or an equivalent alternative system should also be in place.

Note: Boilers, kettles or other such means of water heating are not adequate for washing and will not be accepted.

Drinking Water

An adequate supply of drinking water must be provided supplied from the mains system. Where mains supply is not available then this should be provided in clean water containers. Drinking water containers must be marked up “drinking water”. Where water for washing is supplied via a system other than the mains, then the supplier must be identified by notices “not for drinking”. Cups or similar must be available close to the drinking water supply.

Clothes Storage

- A Drying Room is to be provided on site. Within this room will be provided clothes hanging hooks and a bench for storage of bags etc.
- The room will be adequately heated in order to dry wet clothing.
- On small sites it may be possible to use the site office or similar, rather than an individual unit. This will be agreed on a specific contract arrangement.
- Care should be taken to segregate dirty work clothes from those to be worn to and from work.

Rest Facilities

A room or cabin will be provided of adequate size determined on the numbers of personnel likely to be on site, for taking breaks and to gain shelter from the elements.
The facilities will ne non-smoking and will include:

- Tables and seating - all seating must have back rests
- Kettle or boiler to heat drinking water
- Means of heating food
- Adequate heating

General

Heating - where heaters are located then it is essential that they are not covered with flammable items e.g. clothing etc. Should LPG heaters be used the room must be adequately ventilated both at a high and low level. These ventilation points must not be blocked or interfered with.

Hygiene and Cleanliness

Waste Containers -
Bins must be provided, used and emptied at regular intervals. Waste food, papers etc must not be allowed to build up either within or outside of welfare units. Facilities must be maintained clean, tidy and hygienic. A cleaning regime must be installed by the Site Manager, which places the responsibility of maintaining the facilities to an acceptable standard onto a cleaning company or the appointed site cleaner. Utensils including cups, plates, cooking pans, grills etc must be maintained clean and hygienic.

Location

The location of all welfare facilities must be readily available to those on the site. Should the extent of the work be such that the distances are excessive to gain access to the main welfare facilities, considerations will be given to providing intermediate facilities.

Further details can be found in CDM 2007 ACOP – Managing Health and Safety in Construction (L144).

*5.33 **Working Adjacent Water***

There is a risk of drowning when people work beside or above water or have to pass near or across it on their way to or from their workplace. People can also drown in other liquids such as slurries in lagoons, foodstuffs in open vats in food processing works and solutions of chemicals in factories.

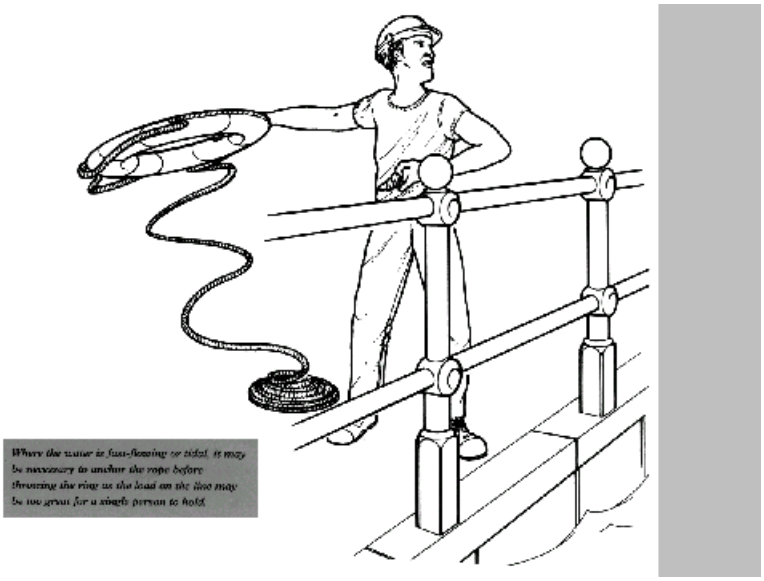
To prevent drowning, provide:

1) Barriers to stop people from falling into the water or other liquid. In most cases guard rails and toe boards or a similar barrier will be needed at open edges to ensure people cannot fall into the water or liquid. In factories and some other locations it may be possible to cover the surface of the container or to drain it;

2) Life-jackets or buoyancy aids. Life preservers may have to be worn where people are liable to fall into water and the risk is great. Ensure anyone who needs to wear a life preserver is trained in its use and what to do in an emergency. At flowing rivers, lines which can be grabbed by someone in the water can be stretched from bank to bank to provide an additional safeguard;

3) Rescue equipment. This may include a boat (especially important when people may fall into the sea or flowing water), lifebelts and safety lines.

To be effective, these precautions need to be maintained. **People need to know what to do in an emergency and how to raise the alarm.**



Generic Risk Assessment 33

6. RISK ASSESSMENT BY JOB TYPE DURING HOUSE BUILDING OPERATIONS

The following section summarises the main hazards facing each tradesman during a typical housing development project. Hazards associated with manual handling have already been discussed in an earlier section.

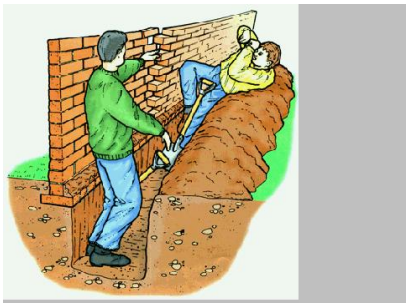
6.1 ***Ground Workers***

The significant risk to/from ground work operations has been identified as:-

a) Mobile plant and equipment:- being struck or hit by mobile plant or moving vehicles is the second largest cause of fatal and serious accidents in construction. Therefore this hazard must be fully evaluated at planning stage and suitable precautions adopted as control measures.

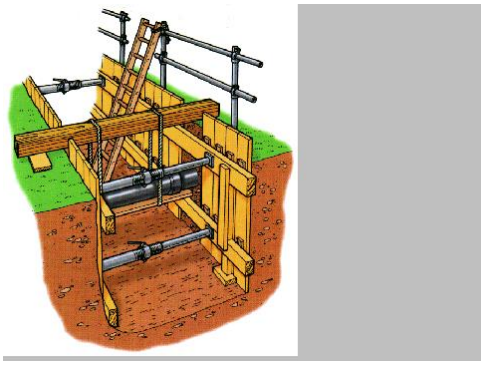
b) Excavation work:- Any excavation work involves a risk of trench collapse. The risk of serious injury increases significantly when the trench depth exceeds 1.2 metres. The groundwork's contractor must state what system of work they will follow to ensure the stability of the excavation.

c) Collapse of adjacent structures: - if excavation work has to take place close to adjacent structures the hazard of an unexpected and uncontrolled collapse of that structure must be considered. A structural engineers report may be required in some cases



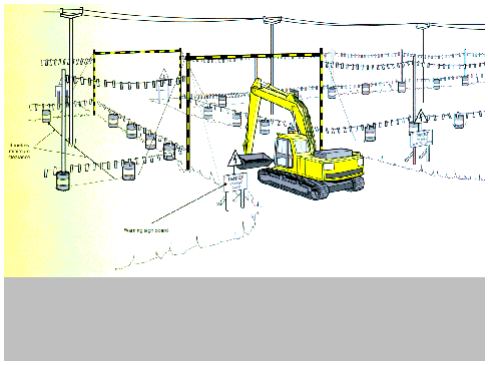
d) Plant and material falling onto the workers: - The spoil must be positioned at least the trench depth away from the sides of the excavation. If the spoil material contains 'clay or rock boulders' an even greater distance may be required to prevent the danger of them rolling into the excavation. If mobile plant has to approach or pass close to the excavation, vehicle stops may be required.

e) Striking underground services: - all work areas must be checked for underground services before work commences. The site manager will provide details of known underground services but the area should still be checked and scanned with a cable locating device by a trained competent person before allowing excavation work to commence. If there are known services in the ground, these must be exposed and marked by pegging or marking and no mechanical excavation work and no hand held power tools should be used within 0.5 metres of the known services location. Hand held power tools must not be used directly over the line of a suspected service.



The excavation should be dug to the side of the service the locator used to give an estimate of the depth. Then the material should be removed to from side of the service using hand tools until the service is exposed. In this way much less force is required on the hand tools and so the risk of damaging the service is reduced. See HSE guidance booklet HS(G) 47 for further details.

f) Plant striking overhead power lines:- Information must be obtained from the Regional Electricity Company or the National Grid (i.e. owners of the power cable) to establish the safe distance that plant and conducting objects can approach or work adjacent to the power line. Warning signs and barriers must be established and the specific method statement produced for such work. Full guidance can be found in HSE guidance note GS6. The diagram summarises the typical precautions to be taken.



6.2 ***Establishing Compound and Fencing***

The significant risk to/from such operations has been identified as:-

a) Digging holes for fence posts: - checks must be made for underground services as described above in the ground works section.

b) Crane operations when offloading cabins etc: - the lifting operations must be under the control of a competent person experienced in such work. This could be the crane driver providing they have sufficient visibility to fully assess and control the load throughout the entire lifting operation. There must be sufficient ladders and personnel to 'foot' the ladder whilst slings are attached and removed. If cabins are to be double stacked, this work must be planned and method statement produced by the installing company.

c) Overhead power lines:- these can be a major hazard if the compound or fence line is close to such power lines. If so the precautions outlined above in the ground workers section must be followed.

d) Stability of site fencing/hoarding:- If the fence or hoarding is erected with insufficient bases there is a significant risk of the fence/hoarding blowing over in high winds. There have been several incidents which have resulted in members of the public being seriously injured or even killed as a result of fences/hoarding collapsing in high winds. **See also Generic Risk Assessments 7, 8, 21, 22 and 28.**

6.3 ***Bricklayers***

The significant risk to/from brick work operations has been identified as:-

a) The most significant risk is that of a person falling. Therefore a Risk Assessment to establish the necessary fall prevention/protection measures must be undertaken for **all** working places from which a person can fall and the result is a likelihood of injury. Subject to the Risk Assessment, suitable edge protection should be provided with guard rails, brick guards and toeboards being the established means of control. These must be erected by a trained person and must not be altered or interfered with in any way. If the scaffold or edge protection has to be adapted this must be done by the trained persons and on agreement from the site manager.

b) Propping – Before loading out of any internal floors bricklayers must liaise with the site manager to ensure that the correct propping system is used to ensure there is no risk of floor collapse

c) Brickbands:- It is the bricklayers responsibility to ensure brickbands are skipped and not allowed to become a tripping hazard.

d) Brick off-cuts and waste: - Off-cuts and waste should be removed on a regular basis and skipped. Waste should not be allowed to accumulate on scaffolds or be deliberately dumped under scaffolds.

e) Hop-up scaffolds or internal scaffold platforms must be erected to the same standard as the main platforms i.e.; guardrails, brick guards and toeboards and a secure ladder access.

f) Cutting Discs - If material is being cut by means of an abrasive disc there are a number of significant risks, namely:-

- The dust levels produced, could be significant and, depending on the material which could contain high levels of silica. Dust suppression techniques should be adopted, and if needed respiratory protection provided by the contractor and used by his operatives.
- The person authorised to use or change abrasive discs must be trained by his employer and the site manager given a copy of the training certificate.
- Cutting must not take place directly onto scaffold boards. A protective cutting board must be used to prevent damage and potential failure of scaffold boards.
- PPE in the form of eye protection, hearing protection will be needed **at all times** and respiratory protection will be needed if prolonged or silica containing material is being cut. **See also Generic Risk Assessments 4, 5, 10 and 33.**

6.4 ***Joiners***

The significant risk to joiners has been identified as:-

a) Risk of falls when the joiner is positioning and securing the roof trusses. The initial positioning can be done from the external scaffold and the trusses are temporarily fixed at that time. However, it is necessary for one joiner to go into the trusses and securely fix them. At that time, it is Company policy to use boarding whenever practicable to provide secure foot-hold on the trusses themselves. A separate risk assessment must be undertaken to establish general site specific controls or where necessary plot specific controls to include one of the following:

1) The recommended Soft Landing System (Forest Safety Products Limited
2) A suitable propriety Decking System
3) Suitable Safety Nets

Roof trusses can also be assembled on the ground and lifted into position as a completed roof unit, which will reduce the risk of falls and manual handling implications.

b) Risk of falls when the joists are being installed. Depending on the distances involved, safe working platform could be provided below the joist level and all installation work takes place form these lower platforms. These platforms could be ,hop-up type platforms or if the fall distance is significant the would be fully protected working platforms.

c) When decking out the upper floors of houses, the initial access is onto open joists. Temporary walkways are to be used whilst positioning and securing the permanent flooring. Depending on the style of house and build programme, a temporary guard-rail may be needed around the stairway opening.

d) Timber stairs when delivered to site fully or part assembled must be assessed with regard to installation and a manual handling assessment (a team lift will be the minimum requirement), when the stairs have been installed a temporary hand rail, to prevent falls,

must be fitted if the permanent balustrades and hand rails are not able to be fitted at the same time as the stairs.

e) Chain saws can be used providing the operator has been trained and certificated as such and that he is wearing the appropriate personal protective equipment. Other persons must be prohibited from approaching the operator whilst the chain saw is in use. **See also Generic Risk Assessments 6, 18, 24, 25, 27, 29, 30 and 33.**

6.5 Scaffolders – The Risk of Falling

The National Access and Scaffolding Confederation have issued guidance for scaffolders on 'The Use of Fall Arrest Equipment Whilst Erecting, Altering Or Dismantling Scaffolding' ref NASC Guidance Note SG 4:10. This guidance has been endorsed by the HSE who are using it as the standard to be achieved by scaffolding contractors. The guidance applies in the following conditions:-

- It applies to any basic tube and fittings scaffold to the relevant TG20:13
- It **does not** apply to putlog scaffolds.
- It **does not** apply to system scaffolds. The system supply may have produced similar guidance relative to their system. In which cases refer to the system scaffold information.

The guidance note details the precautions the scaffolders must take and shows how and when the harness must be used. Basically harnesses have to be used when there is ***a suitable anchor point*** at 4 metres or above and when:-

- The scaffolder is not working in a protected area as described in the guidance (at least 3 boards and a single guard-rail).
- When moving their working platform i.e. raising or lowering boards.
- Climbing up or down the scaffold structure.
- Working directly off the scaffold structure.

The guidance requires the harness to be secured once there is an anchor point at 4 metres above the ground. This is because below this height, the harness and lanyard will not offer any protection before the scaffolder hit the ground.

The guidance covers all aspects of the use of fall arrest equipment and scaffolders should have a copy of this guidance with them or be fully familiar with its requirements. Copies of the guidance note are held by the Health & Safety Dept.

Although the guidance does not apply to scaffolders working on putlog or system scaffolds similar risk minimisation approach should be taken. Ladders must be used as early as possible to prevent the need for scaffolders to climb the scaffold structure. Temporary walkways must be as fully boarded as possible and at least 3 boards wide. Single guard-rails should be installed as soon as possible thus providing a protection zone for the scaffolder to complete the rest of the work.

On putlog scaffolds, Guidance Note SG4:10 should be followed and for heights above 2 storeys further assessment, design and calculation must be undertaken.
See also Generic Risk Assessments 1, 2, 3 and 33.

6.6 ***Roof Tilers***

The significant risk to roof tilers has been identified as:-

a) Access:- The external scaffold must be in position and the platforms, guard-rails and toeboards be such that they provide proper protection for the roof tilers.

b) Cutting roof tiles -If roof tiles are being cut by means of an abrasive disc there are a number of significant risks, namely:-

- The dust levels produced, could be significant and, depending on the tile, could contain high levels of silica. Dust suppression techniques should be adopted, and if needed respiratory protection provided by the contractor and used by his operatives.
- The person authorised to use or change abrasive discs must be trained by his employer and the site manager given a copy of the training certificate.
- Cutting must not take place directly onto scaffold boards. A protective cutting board must be used to prevent damage and potential failure of scaffold boards.
- PPE in the form of eye protection, hearing protection will be needed **at all times** and respiratory protection may be needed if prolonged or silica containing material is being cut.

c) All roof work should be in accordance with the guidance given in HSE guidance booklet HS(G) 33 'Safety in Roofwork'.

d) On some house types the roof can be very steeply sloping. In such cases the design stage risk assessment should identify this hazard and additional precautions in the form of ladder access or intermediate platforms may be required to ensure safe access and minimise fall or roll distances in the event of a roofer slipping. **See also Generic Risk Assessments 1, 2, 3, 4, 5 and 33.**

6.7 ***Plumbers and Electricians***

a) Whilst carrying out the first fix, these trades may be required to work on the open joists of the first floor. Access must be by secure ladder and temporary boards used to provide a safe working platform. The temporary boarding must cover all areas except those essential for the installation work.

b) Whilst working in the roof space temporary boards, providing a safe working platform will be needed, and access must be by a secure ladder. Additional lighting may be required.

c) When plumbers are using blow torches there is an increased fire risk and to counter this the contractor must provide a fire extinguisher at the job site. The plumber should remove all loose flammable material and thoroughly check the area before leaving the plot. **See also Generic Risk Assessments 9, 21, 29, 30 and 34.**

6.8 ***Plasterers or Dry Liners***

Depending on the style of house, there could be a risk of falling when working in the stairway. The type of working platform should be specified on the working at height assessment form PHG/HS/:038 This could be either a propriety platform that should be installed in accordance with the manufacturer's instructions or a scaffold installed by a competent person. COSHH risks are covered in the company's COSHH manual. Also see earlier section on manual handling. **See also Generic Risk Assessments 10, 30, 34 and 47.**

6.9 ***Painters***

There is significant risk to painters working on ladders when painting upper windows and soffits/fascias. Whenever possible, advantage should be taken of the scaffold to provide access to these areas. If ladders have to be used, they must be secured or footed to prevent slippage, or other facilities provided to secure the ladder. **See also Generic Risk Assessments 15, 30 and 34.**

COSHH risks are covered in the company's COSHH manual.

6.10 ***Other Finishing Trades***

There could be a number of trades that are involved in finishing works on a housing development. These include tilers, mastic specialists, flooring specialists, decorators, garage door installation companies, security system companies, suppliers and installers of appliances and equipment etc. The risks from such trades are not as significant as during the initial construction phase but some basic checks still need to be made, such as :-

- Is there a risk of the person falling?
- Can material fall and strike someone?
- Are power tools involved. If so what type and at what voltage?
- Are blow lamps or propane torches involved?
- Will manual handling be a problem?
- Are hazardous substances involved and if so has a COSHH assessment been done?
- How are materials delivered? Is transportation a hazard?

This list is by no means complete. Its purpose to assist the site managers in considering the issues that could be applicable so that all significant hazards are taken into account during the planning stage.

6.11 ***Soft Landing Bag System.***

Where it is not reasonably practicable to avoid or prevent falls then collective protection measures can be used as an option such as a Soft Landing Bag System (SLBS).

The working at height assessment PHG/HS/:038 shall be completed by the Construction Director and Technical Director and this may select the use of a SLBS. The information below is a general guide to the installation of the system and should be used in conjunction with manufacturers instruction and training. The correct fitting of a soft landing system should be recorded on form PHG/HS/:019G "Internal Fall Prevention/ protection Installation Check Sheet" which will record and confirm correct installation. The soft landing system shall be installed by persons that have been suitably trained by respective manufacturers of the soft landing bag system.

The purpose of the system is to reduce the fall potential of personnel working at height and has been designed for use principally inside a building during construction, where the bags will be enclosed by walls or partitions. Although manufacturer's specifications may vary slightly, e.g. type of clip/fastening etc, the general principles listed below remain the same.

The following stages specifically apply to the use of Forest Safety Products and other supplier method statements etc. i.e. Bull, Fall Pac should be referred to when using their products:

Stage 1

Checking Bags

Each bag must be visually inspected to ensure that there is no damage to the outer casing. The clips must be inspected for damage to ensure that they are fully operational. Any build up of mortar or mud should be removed with a stiff hand brush. The overall appearance of the bag be should be assessed to check if the energy absorbent material has not been crushed.

Stage 2

Installation at Ground Floor

Installation of the soft landing bags must be undertaken by trained and competent persons. Unless raised brickwork or internal handrail arrangements (both 1m high) are in place, bags must be installed prior to any work at height including erection of external scaffold that could result in an internal fall within a property.

The concrete oversite should be cleared of all rubbish and sharp objects and swept out to provide a clear surface on which to install the bags. Working from one corner, clip the bags together to form a complete unit. As each bag is installed it must be pushed hard into the previous bags to ensure that a continuous mat is assembled. Ensure all clips except those on the perimeter are used. Where the area of floor to be covered by the final row of bags is smaller than the length or width of bag, simply allow the bag to curve up the perimeter wall. (This should direct a falling body onto the bags.

Step 3

Checking Installation

Once the bags are installed the "Foot Test" should be carried out. This is a simple way to check that the bags have been correctly installed. If the bags have been correctly installed, you will be unable to push your foot in-between the bags. If the foot test fails, additional bags should be installed.

Stage 4

Installation at First (and subsequent) Floor Joist/Truss levels

Using the principals outlined in Stage 2, once first floor joists are fixed and brickwork is commenced, the bags can be used for protection on the first floor (and subsequent floors) by passing them up through the stairwell opening. Alternatively a forklift truck fitted with the special "Soft Bag" stillage can be used to offer up the bags to the operatives standing on the scaffold. The stillage should be raised so that each layer of the bags can be pulled on to the scaffold over the handrail on to the scaffold platform. (Note: - The bags weigh under 7Kg and are easily handled by one man, however extra care should be taken in strong winds. At first floor, it is recommended that the bags are laid on "Weather Deck" or similar weatherproof flooring or on temporary boarding. Particular care should be taken at stairwells which must be adequately boarded over by a competent person to ensure that a firm base is in place for the bags. The bags will not span a stairwell without support. Use scaffold boards or similar, directly on the joists at right angles to the joists, to provide an adequate safe working platform for operatives to install the bags. An example of a suitable method when using weather deck flooring, is to fit temporary joists across the stairwell and board over completely, cutting out the stairwell once the roof construction is complete.

SOFT LANDING SYSTEM

"ECO" BAG

(Standard & Timber Frame types) Installation Guide

1) Clear debris from work area.

2) Load bags into work area and place in position.

3) Check clips are free of debris

4) Ensure bags are secured tightly together

5) Continue to assemble until the floor area is covered.

6) If "Foot Test" fails, add more bags

7) Completed installation should be checked by competent and certified individual.

Free Of Charge TRAINING and INSPECTIONS offered on all of our products. Please call 01531 828 960 to arrange

Forest Safety Products Ltd, Stardens Works, Tewkesbury Road, Newent, Glos. GL18 1LG.
Tel: 01531 828960. Fax: 01531 828969.
Website: www.forestgroupuk.co.uk

SOFT LANDING SYSTEM

"ECO" BAG

(Standard & Timber Frame types)

Method Statement

Where to use the Soft Landing System

The purpose of the system is to mitigate the effect of falls from height during construction by reducing the potential fall height and by providing an energy absorbing landing area. The Soft Landing System has been designed for use principally inside a building, where the bags will be enclosed by walls or partitions.

Checking Bags

Each bag must be visually inspected to ensure that there is no damage to the outer casing. The clips must be inspected for damage to ensure that they are fully operational. Any build-up of mortar or mud should be removed with a stiff hand brush. The overall appearance of the bag should be assessed to check if the energy absorbent material has not been crushed. The ID tag sewn into the seam of bags must be checked to ensure the "Inspection Due By" date has not been exceeded.

Installation at Ground Floor

The floor area should be cleared of all debris prior to installation. Working from one corner, clip the "Soft Bags" together to form a complete unit. As each bag is installed it must be pushed hard into the previous bags to ensure that a continuous mat is assembled. Ensure all clips except those on the perimeter are used. Where the area of floor to be covered by the final row of bags is smaller than the length or width of bag, simply allow the bag to curve up the perimeter wall. (This should direct a falling body onto the "Soft Landing System"). It is advisable to protect the perimeter of the SLS from falling mortar by means of strips of polythene, etc.

Checking Installation

Once the bags are installed the "Foot Test" should be carried out. This is a simple way to check that the bags have been correctly installed. If the bags have been correctly installed, you will be unable to push your foot in between the bags. (See Installation Guide). If the foot test fails, additional bags should be installed.

Installation at First Floor Joists.

Once first floor joists/flooring are fixed and brickwork has commenced, the bags can be used for protection on the first floor by passing them up through the stairwell opening. Alternatively a forklift truck fitted with our special stillage can be used to offer up the bags to the operatives standing on the scaffold. The stillage should be raised so that each layer of the bags can be pulled on to the scaffold over the handrail on to the scaffold platform. (Note:- The bags weigh under 7kg and are easily handled by one man, however extra care should be taken in strong winds.) At first floor, it is recommended that the bags are laid on "Weather Deck" or similar weatherproof flooring or on temporary boarding. However, if engineered "I beams" are used then weatherproof boarding should **always** be installed before using the bags. Particular care should be taken at stairwells which must be adequately boarded over to ensure that a firm base is in place for the bags as bags will not span a stairwell without support. Once a safe working platform is established, installation procedure is the same for Ground Floor.

Installation in Multi-Storey Buildings

Dependent on the construction method, installation of the bags follows the same basic procedures as above and is applicable where the fall potential is below 2.5 metres. If the fall potential exceeds 2.5 metres a further layer of bags will be required. (In addition to the Standard size bag, a Timber Frame bag is available where higher ceiling heights are encountered). **In all cases the fall potential must be assessed in line with current legislation.** It is essential that a safe working platform is in place for the operatives passing the bags from one floor to another.

Storage / Handling

The Soft Landing System bags are very durable but should be treated with care to ensure a long life and must only be walked on where absolutely necessary. Continued compression will affect the efficiency of the energy-absorbing fill and thus reduce the active life expectancy of the bags. Bags should be stored undercover.

The outer skin, inner bag and polystyrene fill are treated with flame retardant chemicals. However, the materials are not fireproof and will burn if exposed to sufficient heat and flame. It is, therefore, essential that bags are not exposed to these risks and kept secure from vandalism.

Installation Supervision

We recommend that only competent personnel should carry out installation of the Soft Landing System. Once the installation is complete a designated person employed by the main contractor/developer should approve it in accordance with their own Risk Assessment. Each company will have its own system for signing off the installation.

Reporting System

Where someone has fallen into the Soft Landing System the details of the fall should be reported to Forest Safety Products Ltd so that we may analyse the data .This information may be useful in improving the design of our system.

Forest Safety Products Ltd, Stardens Works, Tewkesbury Road, Newent, Glos. GL18 1LG.
Tel: 01531 828960. Fax: 01531 828969. Website: www.forestgroupuk.co.uk

Revision 1/09

7. CONTROL OF SUBSTANCES HAZARDOUS TO HEALTH

(See Company COSHH Manual for full details)

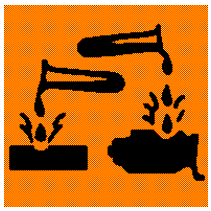
The Control of Substances Hazardous to Health Regulations imposes a duty on every employer to identify all substances in use and to assess the risk to their employees (and others) from the substance, taking into account the manner in which it is being used and the quantities involved.

"Substance Hazardous to Health" means any substance which is:-

- Listed in the current 'CHIP' list and/or carrying a hazard warning symbol as shown below.
- A substance with an occupational exposure limit; these are listed in HSE document EH40 entitled 'Workplace Exposure Limits'.
- A biological agent. i.e. Leptospirosis
- Dust of any kind, when present in a substantial concentration.
- Any other substance which has comparable hazards to people's health.

There are other hazardous substances, but because they have legislation specifically covering their use they are not covered by COSHH i.e. asbestos, lead and substances which are hazardous because they are radioactive, asphyxiates, at high pressure, at extremes of temperature, or are flammable or explosive.

TYPICAL SYMBOLS DENOTING A COSHH SUBSTANCE



CORROSIVE

HARMFUL

TOXIC

IRRITANT

For full details of COSHH procedures you should refer to the COSHH manual. There is a brief synopsis of the action to be taken in the following sub sections.

7.1 ***Identification & Assessments***

The risk associated with the use of the substance must be assessed by making a systematic review and asking:-

- Which hazardous substance are we using? I.e. identify the hazardous substances.
- What quantities of substance are involved?
- What form is the substance in? i.e. liquid, dust, solid, vapour
- How can it harm someone? i.e. By inhalation, by skin contact, by absorption through the skin, by ingestion.
- Who could be exposed to the substance and for how long?
- Does the substance have to be used or can a non-hazardous or less hazardous substance be substituted?

In gathering this information reference may have to be made to the manufacturer's product data sheet **but** the data sheet **is not** a COSHH assessment. See the company's COSHH manual for further details.

7.2 ***Instructions and Training***

The employer is responsible for ensuring employees are trained and properly instructed in the use of any hazardous substance and about the importance of using the washing facilities before consuming food or drink. Smoking should not be permitted when working with hazardous substances. Site managers should ensure employees are properly instructed before using hazardous substances.

7.3 ***How Do Substances Enter the Body?***

In controlling COSHH issues, it is helpful to know and understand the routes and ways in which substances enter the body. Typically these include:-

Inhalation: - people breathe in dusts, fibres, mists, vapours and odours and they can breath in micro organisms.. Therefore anything which produces dust, gives off vapours or odours, or produces fine mists must be considered as a potential hazardous substance. It is important to consider ventilation within the plots especially when painting or the use of adhesives and mastic operations are taking place. Man made mineral fibre will release significant numbers of fibres during installation and whenever it is disturbed (see section 8.5).

Absorption through the skin: - some substances have the capability of passing through the skin. It is important that such substances are not left in contact with the skin or the skin is not subjected to repeated exposure to such substances. Some mastics are in this category and so it is important these trades are aware of this hazard and take precautions such as using gloves and barrier creams.

Entry through cuts and grazes: - once the skin is broken or damaged, it is obviously much easier for a substance or microorganism to enter the body. Therefore it is essential all injuries no matter how minor are properly treated and a clean waterproof dressing applied to the affected area. Micro-organisms can easily enter by such means and so ground workers potentially working with sewers and sewage or contaminated land are particularly at risk.

Ingestion: - this is when the substance enters the body through the mouth. It is not necessarily deliberate ingestion but usually through accidental means for example:-

- A hazardous substance is decanted into drinks containers which are then actually drunk by someone believing it is a food product.
- Food is eaten or cigarettes taken by contaminated hands and the contaminant is transferred to the mouth. This is the most probable way in which Leptospirosis bacterium typically enters the body.
- Contaminated clothing results in hands, food etc become contaminated.

Damage to the skin:- ***some substances do not actually enter the body but cause severe damage to the skin. Cement based items such as mortar and concrete are typical of this category. Plaster has a similar effect. It is important such substances are washed of the skin to minimise contact time and that repeated contact is eliminated by wearing gloves and by using barrier creams.***

7.4 ***Washing Facilities***

Good washing facilities are an essential part of controlling the hazards from COSHH substances. Before any break the hands and if required lower arms must be thoroughly washed in warm water and soap and dried. Smoking of cigarettes and consuming food and drink from contaminated hands is a common way in which contaminants and microorganisms are transferred to the mouth and so ingested in this way.

Similarly any contaminated clothing should be removed and stored away from the areas were food and drinks are consumed. That is why changing and drying room facilities are important.

7.5 ***Man Made Mineral Fibres (MMMF)***

Man made mineral fibre is found as insulation in lofts, insulation panels etc. The fibres are a respiratory hazard as well as being a skin irritant. The risk will vary according to the type of MMMF being used, the amount of exposure, ventilation and other factors, and the risk should be assessed at the tender/planning stage. A product safety data sheet should be obtained from the supplier to fully assess the risk of the product. From January 1999 some MMMF have been classified as having the potential to cause irreversible effects on the body and have been assigned risk phrase R40 which must be clearly displayed on all packaging. Ceramic fibres and other special application MMMF products have been classified as having the potential to cause cancer and have been assigned the risk phrase R45 or R49 which must be clearly displayed on all packaging.

As a general precaution, overalls, gloves, and respirator should be used when working with MMMF and all waste should be bagged and properly disposed of and not left to become damaged or to blow around the site. **See also Generic Risk Assessment 27**

8. NOISE & VIBRATION

Noise – General

Noise can be a problem in a number of ways. A person's hearing can be affected due to age induced hearing loss or noise induced hearing loss. There is nothing an employer can do about age induced hearing loss but noise induced hearing loss can be avoided. The Control of Noise at Work Regulations 2005 requires employers to:-

a) Carry out an assessment of the noise levels to which employees are exposed.

b) Reduced their noise levels whenever practicable.

c) Identify any areas or items of plant/equipment with noise levels which cannot be reduced to below 80dB(A)

d) Provide suitable hearing protection for employees required to work in noise levels in excess of the lower exposure action value, 80dB(A) (together with storage facilities, cleaning facilities etc.)

e) Provide adequate information, instruction and training about the risks to hearing and what precautions employees must take.

f) Enforce the wearing of hearing protection if the noise level exceeds the upper action value, 85dB(A). In addition provide hearing protection zones.

g) Provide health surveillance for employees who are regularly exposed above the upper action values or suffer from existing hearing loss.

8.1 Noise – Limit Values and Action Values

Noise is measured in decibels, weighted to the 'A' scale or referred to as dB(A), or C weighted sound pressure and measured in pascals (Pa), a unit of sound pressure or energy. For most work exposure, noise levels are 'averaged' over a period of time to take into account the fluctuating noise levels throughout the day. This averaged figure is expressed in the term Lepd meaning the equivalent noise level of daily personal exposure, when all fluctuating levels are averaged out.

The values are:-

- The Lower Exposure Action Value:80dB(A)
- Peak Sound Pressure: 135dB (C weighted)
- Upper Exposure Action value: 85dB(A)
- Peak Sound pressure 137dB (C weighted)
- Exposure Limit Values are: 87dB(A)
- Peak Sound Pressure 140dB (C weighted)

*8.2 **Noise - Plant Operation***

Modern plant is supplied with manufacturers' data on noise levels at the operator position, as well as maximum sound pressure levels external of the machine. These are also indicated on the machine. Providing the level inside the cab is below 80dB(A) and the machine has been properly maintained with all windows, doors and acoustic hoods in place, then no further action is needed at this time.
If this level is exceeded then checks should be made to see if alternative, quieter machines are available or **Personal Protective Equipment** should be provided and used.

Remember **Personal Protective Equipment** is a last resort, not first option

*8.3 **Noise - Small Plant***

Small items of plant can be particularly noisy, but in general are only used for short periods of time. Whenever possible, quiet plant should always be selected and as manufacturers do more work, on noise reduction, a larger selection is available. Small plant that generally exceeds levels of 85dB(A) include:-

Typical levels

Abrasive Wheel/Disc cutting machines	Up to 100dB(A)
Hammer drills	up to 100dB(A)
High-speed portable saws	90dB(A)
'Quiet' generators	<85dB(A)
Other generators	>90dB(A)
Bench saws	Up to 100dB(A)

The manufacturer or supplier should indicate on the piece of equipment if noise levels are likely to be excessive and hearing protection is required.

*8.4 **Noise – Planning Stage Summary List***

The Company or its contractors should consider the following when planning the works to try to minimise both occupational noise and environmental nuisance noise.

*8.4.1 **Large Plant***

- Select quiet plant. If possible use electrical operated plant rather than diesel.
- Check operator noise levels from manufacturers or suppliers data.
- Check condition of doors, windows, acoustic covers etc on the plant and ensure they are in good order.
- Turn of plant and equipment when not required. Minimise environmental noise.
- Position fixed or semi fixed items away from occupied properties.

*8.4.2 **Small Plant and Equipment***

- Select quiet plant
- If the equipment carries a warning sign, then hearing protection should be used by the operative and those working close by.
- Remove non-essential personnel from the area.

- Hearing protection should be used whenever abrasive disc machines and pneumatic breakers are used, irrespective of the exposure time.
- The company's safety adviser will advise on the type of hearing protection to be provided. They can also carry out spot checks on the actual noise levels on site if required.

8.5 ***Noise - Maximum Permissible Working Times***

The following table gives the maximum permissible working times for various noise levels. The Control of Noise at work Regulations require noise exposure to be reduced to as low a level as is reasonable practicable. This should be achieved by careful selection of plant and methods of working. When this has been carried out and there is still an excessive noise level, then hearing protection must be issued and used.

The regulations set the maximum level at 80 dB(A) level equivalent. This means the average noise level across an 8 hour working day should not exceed the 80 dB(A) level.

Noise is measured in the dB scale which can give a misleading impression to the unaware because this scale is a logarithmic scale. This means that for every 3dB increase in noise levels there is actually a doubling in the noise energy received by the ear. Therefore to keep exposure to the same or equivalent level, the exposure time has to be reduced by a half.

To give employees a guide to what this means in practice the following table gives the maximum exposure time for a given noise level, assuming the rest of the 8 hour shift is spent in noise levels below 80dB(A).

Average Noise Level	Maximum Exposure Time
80	8 hours
83	4 hours
86	2 hours
89	1 hours
92	30 minutes
95	15 minutes
98	7.5 minutes

This table shows the reason why it is essential that hearing protection is worn when operating noisy plant even if the use of the plant is only for a few minutes. At noise levels of 98dB(A) a full day's exposure will be received in under 7.5 minutes

8.6 ***Vibration White Finger (VWF)***

Vibration white finger is a debilitating injury to the hands and fingers. The following text is reproduced form HSE leaflet at it forms the Company's Employee strategy to minimising the risk associated with this hazard.

Vibration - General

The Control of Vibration at Work Regulations 2005 require us and our contractors to assess the vibration risk to our employees, firstly to establish if they are likely to be exposed to a daily exposure action value (EAV) from relevant tools. Secondly if this is the case we then have to take action to reduce their daily exposure limit value (ELV) from the use of the tools.

Vibration white finger (VWF) is the most common symptom of hand-arm vibration syndrome (HAVS). VWF is also known as 'dead hand' or dead finger' and could affect those of you who regularly use high-vibration equipment. It can damage blood vessels, reducing blood supply, and also nerves in the fingers, causing a permanent loss of feeling. The bones and muscles may also become damaged. You may lose flexibility and strength of grip. You may find it more difficult to work with hand-held tools, and to enjoy hobbies.

8.7 ***Minimising the Hazard From VWF - Employee Strategy***

What Causes the Problem?

Many common tools and processes produce high levels of vibration, such as pneumatic breakers and drills, pedestal grinders, power hammers, chainsaws, and riveting and chipping hammers. The risk depends on a number of things. The amount of vibration is important, along with how long you use the tools, the way you use them and the working conditions, such as posture and how cold it is.

What are the Signs?

The symptoms of VWF are usually set off by cold. Early on they are mild. The first sign is often an occasional attack when the fingertips become white. If you continue to work with vibrating tools, the affected area can get larger. During an attack there may also be numbness, or 'pins and needles', and an attack may end with the whiteness changing to a deep red flush which is often very painful.

A simple rule is to regard any vibrating tool as suspect if it causes tingling or numbness in your fingers after about 5 to 10 minutes of continuous use.

What can Employees do to Reduce the Risk?

Employees play a vital part in ensuring an effective policy is maintained to control the hazard of VWF. This includes: -

- telling your supervisor about any tools or processes which produce high levels of vibration, so that the risk can be properly assessed;
- keep warm at work, especially your hands (to help maintain good blood flow to the hand and fingers). Wear warm gloves and extra clothing if you work in the cold;
- don't smoke, or at least cut down just before and while you are at work. Smoking affects blood flow;
- exercise your hands and fingers to improve blood flow;
- use the right tool for the job. Making do with the wrong tools can mean more vibration, or that you have to grip the tools more tightly;

- do not use any more force than necessary when operating tools safely and effectively;
- try to avoid long periods of using equipment without a break - short bursts are better;
- keep tools in good working order - if they are in bad condition ask your supervisor to get them repaired;
- take an active part in your employer's health and safety training;
- DON'T IGNORE SYMPTOMS. If you think vibration could be affecting your fingers or hands, see your own doctor and tell your supervisor or manager. If they give you any advice, take it. Further advise for employees can be found in the HSE Leaflet Hand-arm Vibration: Advice for employees. Copies of the leaflet are available from the HSE for distribution to your workforce.

*8.8 **Vibration White Finger - Management Strategy***

The Company must reduce the risk wherever this is reasonably practicable by, for example:

- Eliminating the risk by using mechanical means or seeing if the job can be done without using high vibration tools;
- Looking for activities at the planning stage that will involve extensive or prolonged use of vibrating tools. If there are such operations get the safety advisers involved so that the work can be properly assessed, the best available tools selected and a safe system of work developed.
- Selecting the best available tools for the work having considered noise and vibration levels produced by the tool, and by making sure that new tools have vibration control built in;
- Being aware of the vibration levels associated with each type of tool and equipment (get this information from the manufacturers) and making colleagues aware of tools with lower vibration ratings;
- Ensuring operatives working on vibrating tools are ‘spelled’ on and off the work to reduce the risk. The manufacturer of the tool will provide guidance on the maximum time a person should work with that particular tool but as a general guide no one should work for more than 1 hour on such without sharing such tasks with other operatives
- Training operatives in the correct use of tools and in recognising early symptoms of injury
- Contacting the safety advisers and safety director so that the person and the operation can be specifically checked if an employee comments that they are having prolonged tingling sensations in hands or fingers:
- Enabling you to keep warm in the cold (for example by providing heating or suitable clothing and gloves).

Further information for employers is available from HSE leaflet Control the risk from hand-arm vibration and more comprehensive guidance is given in HSE's booklet HS(G)88, Hand-Arm Vibration and guidance booklet ‘Vibration - Solutions You Can Handle’. Copies are available from the Company’s Safety Department.

9. ENVIRONMENTAL PLANNING - NEW CONTRACT PROCEDURES

Under the Construction (Design & Management) Regulations the Company is the Principal Contractor for the project and a health & safety plan has to be produced identifying the significant hazards and detailing how the Company intends to manage that site so that the hazards are controlled.

This hazard identification will be extended to include environmental issues. The Contracts Manager and the Site Manager will review the potential environmental impact of the project on both the natural environment and the built environment. Works will be planned to minimise the impact on both sectors.

9.1 ***Pre Contract Stage***

At the pre contact stage the contracts manager should consider the following environmental aspects and ensure resources are allocated to eliminating or adequately controlling these issues. These are: -

Land Hazards Contaminated ground Abandoned substances Silt or other run off Dust	**Water Run Off** Contaminated water High colour High suspended solids (silt) High BOD or COD
Emissions into the Atmosphere Smoke Fumes Vapour Mists Steam plumes Noise	**Storage Arrangements** Fuel Other fluids Plant – static Plant – mobile Plant – repairs & failures
Specified harmful substances VOC's Hydro carbons HCF's Solvent based paints & varnishes Solvent based adhesives Sealants	**Packaging** Recycle Return to supplier From sustainable products To waste

Natural Environment **Assess impact on :-** Wild life such as animals., birds, insects, micro organisms Trees, hedges, grass & plants i.e. flora & fauna	**Living Environment** **Assess impact on :-** General appearance/impact Cleanliness, lights, noise, dirt & dust, Short term impact noise Traffic movements

9.2 ***Demolition Phase***

With any demolition project, materials are produced some of which can be recycled, others no matter how much effort is applied will simply end up as waste. The company will obviously try to recycle products whenever possible. In particular the company should look towards recycling:-

- Concrete
- Glass
- Metal
- Bricks & Masonry
- Wood

Details of material to be recycled should be included in the project health, safety & environment plan. The company is aware of the initiatives being supported by BRE and CIRIA. When arranging recycling deals, the Internet page of project 'helios' is particularly helpful. (http://helios.bre.co.uk).

9.3 ***Traffic Management Plan***

It is normal practice for a Traffic Management Plan to be introduced as part of the health and safety plan required by the CDM Regulations. This traffic plan is being extended to include environmental issues as well as health and safety.

A major impact on the living environment is related to traffic movement. With any significant project there usually is a major element of transport as materials are moved to and from the site. The traffic impact can be minimised by selecting traffic routes to cause least disruption to the adjacent occupiers.

On wet or muddy sites, wheel wash facilities or road cleaning arrangements will also feature in the traffic management plan.

10. ENVIRONMENTAL RECORDS

Within the health, safety & environment plan will be details of any planning constraints or site discharge consents together with details of what project specific records will be kept. There are tremendous variations in the requirements for on site monitoring of environmental issues such as noise, vibration, dust levels etc. Major city centre work tends to require greater degree of environmental monitoring and the contract documents will specify exactly what is required.

With regards to other records, the site manager will ensure copies of the following are held on site:-

- Transfer notes for controlled waste and consignment notes for any special wastes. At the end of the contract these must be returned to the Plant manager who keeps all head office records relating to waste disposal.
- Copies of the company's and any other waste carriers' registration license.
- A logbook of complaints for neighbours, clients' representatives and others who may have reason to comment.
- Copies of any internal incident report forms and periodic environmental inspection reports.
- Copies of any on site environmental monitoring undertaken during the project.

11. ENVIRONMENTAL INCIDENT AND REPORT PROCEDURES

11.1 ***Definition of an Environmental Incident***

There are no legal definitions of environmental incidents and so the Company has adopted the following definitions and categories:-

11.1.1 ***Emissions to the atmosphere***

Ozone depleting substances	Greater then 100 kg. Or any complaints
Odours	Any complaints
Any toxic gas	Any unplanned release
Dust, smoke and aerosols	Any complaints
Breach of emission limits	All occurrences

11.1.2 ***Emissions to land***

Spillage's of hydrocarbons	50 litres or more
Pesticides and herbicides	Any uncontrolled or accidental spillage run off or spray drift
Contaminated or polluted water	500 litres or more
Chemicals	Any uncontrolled or accidental spillage
Unauthorised deposit of waste	Any occurrence
Breach of Duty of Care	Any occurrence

11.1.3 ***Discharges to water***

Breach of any consented discharge limit		Any occurrence
Unauthorised discharge or depositing of solids or liquids into water (i.e. Demolition waste falling into water, contaminated liquids or ground water being pumped to rivers or streams etc.)		Any occurrence

Any unauthorised or deliberate act of vandalism which resulted in substances used or stored on site causing damage to a watercourse.		Any occurrence

Breach of any NRA pollution incident categories. See below for details.		Any occurrence.

11.1.4 ***NRA Defined Categories***

The NRA have three categories of pollution incidents to water. These are:-

Category 1
A 'major' incident involving one or more of the following:-

- Potential or actual persistent effect on water quality or aquatic life.
- Closure of potable water, industrial or agricultural abstraction necessary.
- Extensive fish kill.
- Excessive breaches of consent conditions.
- Extensive remedial measures necessary.
- Major effect upon amenity value.

Category 2
A 'significant' pollution incident which involves one or more of the following:-

- Notification to abstractors necessary.
- A significant fish kill.
- Measurable effect on invertebrate life.
- Water unfit for stock.

- Bed of watercourse contaminated.
- Amenity value to the public, owners or users reduced by odour or appearance.

Category 3
'Minor' suspected or probable pollution which, on investigation, proves unlikely to be capable of substantiation or to have no notable effect.

11.1.5 ***Noise***

Breach of any regulatory limit or limits set by planning consent	Any occurrence
Any complaints of noise due to out-of-hours activities	Any occurrence

11.1.6 ***Damage to amenity and cultural heritage***

Reports will be required on any complaints arising from a reduction in the aesthetic amenity or public enjoyment value of areas such as:-

- National parks or national trails.
- County parks and other forms of recreational areas.
- Local authority and private recreational areas.
- Damage or near miss situations involving a listed building, public monument, conservation area or other building of archaeological importance.

11.2 ***Emergency Procedures.***

Within the project specific health, safety & environment plan will be the emergency procedures for that project. These will reflect the local hazards and local environment. However on every project there must be spill containment arrangement so that if a fuel spill or other similar situation arises, the spill can be contained, the affected area isolated and the affected material properly recovered and disposed of. This will involve the use of absorbent pads and or absorbent granules.

Any spill involving more than 25 litres of liquid must be classed as a major spill and reported as an environmental incident – see Incident reporting section for details.

11.3 ***Reporting Procedure***

The Site Manager or Contracts Manager should complete the environmental incident report form and submit it to the Health & Safety Manager and Managing Director of the operating company as soon as possible and at least within 24 hours of the incident occurring. See appendices for environmental incident report form.

12. ENVIRONMENTAL WORKING PROCEDURES

12.1 Dust

With any construction work there is always a risk of dust being produced. This must be eliminated whenever possible by using the best method to produce least environmental impact. If the production of dust cannot be eliminated, it must be controlled. Typical control measure includes a combination of the following:-

- Using water sprays to damp down any dust.
- Using sheeting to screen and contain any dust within the curtilage.
- Using local screen areas and water sprays to damp down dust at loading or material handling positions.
- If demolition work has to take place, carry out as much internal demolition as possible with the dust contained in the building.

If the dust has the potential to contain hazardous substances such as silica (from some concrete aggregates) the protection of the employees must also be considered as well as protection to the environment.

12.2 Fuels, Oils and Other Fluids Stored or Used on Site

The storage area should be chosen, having taken into consideration the environmental factors surrounding the site. If there are watercourses or open drains, tanks should be positioned as far away as possible to minimise spillage to such areas.

Diesel and fuel tanks will be bunded and the bund capable of holding 110% of the largest tank capacity. The bund will be fitted with a drain valve to allow rainwater to be drained away. This drain valve will normally be locked shut.

As an alternative, a purpose designed double-skinned storage tank can be used.

The discharge hoses should be kept in good condition and inspected on a weekly basis. The discharge nozzle should have a holding bracket to eliminate repeated small discharges after plant and vehicles have been re-fuelled. The discharge line should have an isolating valve positioned as close as possible to the tank and this discharge valve should be locked closed whenever the tank is unattended.

If possible, a hard standing should be provided for the re-fuelling area. When re-fuelling static plant and equipment, absorbent mats or granules should be available to deal with any spillage and drip trays should be used under such plant. Fuel being transported or carried around the site should be in purpose designed bowsers or carrying containers.

With regards to oils and other fluids, consideration will have to be given to health and safety aspects of these substances as well as environmental aspects. If it is safe to do so, they should be stored in a secure container where they are protected from vandalism and any spillages are contained within the container. With some substances, it is essential they are stored in open, well ventilated areas in which case, bunding or other impermeable layer is placed under the storage area.

12.3 Fume Emissions

Contractors and plant suppliers must ensure that plant sent to site is in good condition and filled with the correct grade of fuel and lubricants. It is important that Site Manager's ensure

drivers carry out the daily checks and that the correct grade of fuel is used in the plant. Plant should also receive the routine servicing as recommended by the manufacturer and if possible this should be carried out off site at plant workshops. This minimising the risk of local contamination due to oils spills etc.

If the plant's performance starts to deteriorate, and exhaust fumes and smoke are clearly visible, the Site Manager should stop the plant and arrange the corrective action to be taken.

*12.4 **Noise Emissions***

Consideration must be given to the noise levels that will be produced from the plant and site activities. Plant should be selected with noise levels in mind. If the plant has to be left running overnight, it is important that *quiet plant* or *silence plant* is used. If possible electrically powered plant should be used.

Contractors should take into consideration the noise levels of plant and equipment when actually selecting and purchasing/hiring plant. It is important that any acoustic covers or panels are kept in position when the plant is being operated. Site manager and contract managers should remind contractors of the company's commitment to improving environmental performance and the need for good quality well maintained plant.

If operations involving high noise levels have to take place, consideration should be given to the people in the immediate vicinity and such works should be limited to the times which will have least impact on the neighbourhood. Noisy operations should be suspended at times such as early breaks, lunch break periods and late afternoons when occupiers start to return from work. There should be no such operations on Saturdays Sundays or holiday periods.

*12.5 **Vibration Levels***

When selecting plant and construction methods consideration must be given to the likely vibration levels and the effect on adjacent properties and operations. If the contract specifies vibration levels, then obviously these must not be exceeded. If no standards are set, vibration levels should still be considered and the guidance contained in BS 5228 Part 4 relating to Piling operations is relevant and can be used as guidance for all construction and demolition operations.

*12.6 **Hazardous Materials or Conditions***

During the construction phase, any hazardous substance will be known and identified. However on some projects the first phase involves demolition activities.

In demolition it is common to find a building or process that contains a number of potential hazardous substances with little or no information of the substance. Therefore a site investigation and assessment exercise has to be carried out. Some typical areas of concern include:-

- Water tanks still containing liquids.
- Other tanks, sumps, pits and pipework containing unknown products.
- Old engines and mechanical plant.
- Old electrical transformers and capacitors (potential hazard of PCB's).
- Fire extinguishing systems which could contain halons.
- Air conditioning units of fridges/cold rooms (containing ammonia or other refrigerants).
- Battery banks for UPS power system back ups.
- Old telephone switching and back up systems.

- Large quantities of fluorescent and other light bulbs.
- Large quantities of smoke detectors
- Large quantities of luminous materials.
- Building infested by bird droppings, rats, mice etc.
- Buildings that have been occupied and used for illegal uses such as drug users. These can easily be contaminated with human excrement and other body fluids as well as discarded syringes and needles.

*12.7 **Asbestos***

The only time the Company will be involved with asbestos would be because it is present in property that has been purchased either for refurbishment or most probably for demolition prior to the land being redeveloped. In these cases, it is normal practice for the property to be surveyed for asbestos prior to purchase. Any asbestos removal work will be contracted out to specialist licensed companies who will undertake all removal work. On refurbishment work, even though the asbestos survey will have been carried out there is always a risk that additional asbestos may be found when the structure is opened up. Therefore in such cases if any person uncovers material they suspect could contain asbestos, work must be suspended, the area made safe and isolated and asbestos analysts called to sample the material. If it does contain asbestos the necessary removal work will be carried out be the licensed contractor.

*12.8 **Light Pollution***

In some locations, light pollution from site lighting left on overnight can be a problem. Site Manager's should be aware of this potential nuisance factor when planning sites. Consideration should be given to neighbouring properties when positioning security and flood lights both on the site and around the show house and sales centre.

*12.9 **Management of Top Soil and Sub-Soil***

In planning the site, the Site Manager will take into consideration, the need to segregate stripped topsoil from sub-soil and from other material. If the topsoil is to be stored for a considerable period of time, intermediate action may be needed to keep the topsoil in good condition.

*12.10 **Hedges and Trees***

In general terms, all hedges and trees (and their roots) should be protected (if necessary, by fixed fencing) to ensure plant and site operations do not cause damage.

*12.11 **Wildlife Habitats***

The contract documentation will generally identify any special wildlife habitats and the precautions that the Company has to take. If a previously unknown wildlife habitat is found, this should be identified to the client and a course of action agreed.

*12.12 **Waste Water and Ground Water***

Waste waters from the canteen and welfare facilities must be discharged to a normal main sewer system or to a storage tank for removal by septic tank service.

Ground water that forms in excavations could be classed as contaminated. The contamination could be due to substances leaching out of the surrounding materials or it could merely be due to high suspended solids content of the water. If this type of water was to be discharged into an open watercourse, it could result in fish losses and damage to that water course ecology.

Site Manager's should take this into consideration when pumping out excavations, sump pits etc and generally planning the site.

All discharges of water into watercourses shall be subject to Environment Agency Local Drainage Boards or Local Authority Approvals. These approvals may have conditions relating to suspended solids and rate of discharge to avoid bank erosion and scouring.

12.13 Waste Management (Also See Section on Duty of Care)

With regards to the office environment, it is the responsibility of the Office Manager to try and eliminate waste by better use of resources and by re-using items before resorting to disposal. Recycling of waste, such as waste paper, is preferable to simple disposal.

With regards to site operations, it is the Site Manager's responsibility to develop a waste management plan for the project, taking into consideration the type and quantities of waste that are likely to be produced. If special waste will be produced, waste removal contractors should be vetted to ensure they have the necessary registration and approvals for handling such waste.

With regards to consignment notes, please see the section on Duty of Care for further details.

12.14 Work On or Near Water Courses

If work has to take place on or near to a water course, a method statement will be required detailing the scope of work and the precautions that have to be taken to minimise risk to health, safety and environmental damage.

The method statement should also give details of emergency or out-of-hours arrangements so that someone from the site can be contacted should an emergency situation develop. These people should have received specific instructions on the action to be taken to minimise environmental impact should an incident occur.

13. THE ENVIRONMENTAL PROTECTION (DUTY OF CARE) REGULATIONS

Anyone who "imports, produces, carries, keeps, treats or disposes of any controlled waste, or a broker who has control of such waste" is subject to the Duty of Care. Controlled waste is defined as any household, commercial or industrial waste, including building and demolition waste therefore any waste that leaves site is defined as controlled waste and must only be moved after a transfer note has been issued.

13.1 ***The Duty of Care***

The duty of care is described in Section 34 of the Environmental Protection Act 1990 which states that all those subject to the Duty of Care must prevent others from:-

a) depositing, storing, treating or otherwise disposing of waste without a valid licence or contravening the licence conditions; or acting in a manner likely to cause environmental pollution or harm to human health. These are offences under Section 33 of the 1990 Act (Note: licensing is currently regulated by the Control of Pollution Act 1974)

b) prevent the waste from escaping

c) ensure that waste is only transferred to an authorised person

d) include with the waste transfer a written description sufficient to enable others to comply with the duty and avoid committing an offence under Section 33. A compulsory transfer note system was introduced by the Environmental Protection (Duty of Care) Regulations 1991.

This duty has been further extended by the Special Waste Regulations 1996.

13.2 ***Definitions***

Waste Producer - The starting point for deciding who is the waste producer is to decide how the material became waste. A material may become waste by being changed in some way, for example demolition waste, in which case the waste producer is the person carrying out the change. Alternatively waste can be created by a decision or change of attitude, for example, the decision that material is surplus or unwanted, in which case the waste producer will be the person in possession of the object or substance who makes the decision that it is waste.

Waste Manager - A person who keeps, treats or disposes of controlled waste.

Waste Broker - A person who arranges the transfer of waste which he does not himself control what happens to it.

Waste Carrier - A person who transports waste. The company should be registered with a waste regulation authority and have a licence to confirm this registration.

13.3 ***Duties of a Waste Producer***

A waste producer is responsible for providing an accurate description of the waste. This should include:

a) The type of premises or business from which the waste is generated.

b) The process that produces the waste and the quantity of waste.

c) The name of substances which comprise the waste including a physical and chemical analysis, if applicable.

d) The care of the waste whilst they hold it.

e) The packaging of the waste to prevent its escape during transfer.

f) Using a registered (or exempt) carrier to transport the waste.

g) The final disposal of the waste depending on the degree of involvement in the selection of the waste carrier, manager or broker.

The waste manager should report suspicious circumstances which may indicate a breach of the duty in the disposal chain to the Waste Regulations Authority.

13.4 ***Duties of a Waste Carrier***

The Waste Carrier is responsible for:-

a) The adequacy of packaging and security of the waste whilst under his control.

b) Ensuring that a description accompanies the waste and that this description is accurate.

c) Ensuring that any alteration to the waste is recorded in the description of the waste.

Any requests for contract vehicles to transport waste must be made to the site or contracts manager who should ENSURE the contractor is registered for the transport of waste. Waste carriers are subject to the Controlled Waste (Registration of Carriers) and Seizure of Vehicles Regulations 1991.

13.5 ***Duties of the Waste Broker***

The Waste Broker is responsible for ensuring that the waste is correctly and adequately described and is transferred by a registered (or exempt) carrier and that all documentation is properly completed.

13.6 ***Duties of the Waste Manager***

The Waste Manager is responsible for :-

a) Carrying out the disposal operation in accordance with the conditions of the Waste Regulation Authority Licence.

b) Checking the description of the waste they receive. Sample checks on the composition are considered to be “good practice” and should be implemented.

c) Ensuring that correctly completed documentation accompanies the waste.

13.7 ***Duty Holders***

All duty holders should look out for breaches of the duty committed by others in the chain. Breaches of the duty should be reported to the Waste Regulation Authority and further dealings with the offenders should be reconsidered.

Duty holders are only expected to do what is “reasonable in the circumstances”. The extent to which they should check up on others in the chain depends on the nature of the waste, how it is to be dealt with and what the holder might “reasonably be expected to know or foresee”. It is, for example, more important to check up on a consignment of toxic chemical waste than a load of waste paper.

13.8 ***Waste Transfer Notes & Consignment Notes***

A waste transfer note or a special waste consignment note must be used before any waste is transported off site.

13.9 ***Completion of Site***

On completion of the site, all **Waste Transfer Notes** and **Special Waste Consignment Notes** should be archived with the contract papers and retained:-

- For a period of 2 years in the case of transfer notes.
- For a period of 3 years in the case of special waste consignment notes.

Copies of the waste transfer notes should also be included in the health & safety file and handed to the client via the planning supervisor.

APPENDIX A

Environmental Inspection Report for Pre-Start Plans	
SITE & ADDRESS:	**SAFETY ADVISOR:**
Contaminated Land – Please identify control measures and disposal systems	
	Action Taken
Discharges from site Consider all/any discharge - to land, soak-away, watercourse, and sewer. Are they controlled, are they acceptable.	
	Action Taken
Waste, Packaging &Recycle Are efforts being made to recycle were possible. Is waste segregated for recycle? Is waste properly stored, controlled, documented and disposed via licensed contractors.	
	Action Taken
Materials Storage & Handling - the safe and secure storage and handling of any liquid & fuel, materials.	
	Action Taken
Plant & Equipment Consider fuelling & maintenance arrangements, safe storage when not in use, control of drips and spills, noise, emissions to atmosphere.	
	Action Taken
Spill Procedures Are spill/emergency procedures in place. Are the control/containment items available?	
	Action Taken
Signed:	Date:

APPENDIX B

PERSIMMON HOMES- ENVIRONMENTAL INCIDENT REPORT

Site Address		Date of Incident	
		Site Tel No.	
Site Manager			
HS&E Director Informed	Yes/No	HS&E Advisers Informed	Yes/No
1. Brief description of incident or near miss incident			
2. Details of corrective action taken and when it was completed			
3. Is more action required? If yes give details			
4. Details of other parties informed of this incident			
5. Summary of damage caused			
6. If the incident was a complaint, has the complainant been contacted? If so by whom & when Give details			
7. Cause Analysis - Site Manager (or more senior person) to indicate root cause of the incident.			
8. Details of person completing this report			

Name (Print)		Position		Date	

Report copied to:

Site Manager (Site Files) ☐ Contract Manager ☐ HS&E Director ☐ HS&E Advisers

GENERIC RISK ASSESSMENTS – HOUSEBUILDING OPERATIONS

Hazard Or Work Activity Assessed :- | Ref No

1. INDEPENDENT TUBE & FITTING SCAFFOLD ERECTION, ALTERATION & DISMANTLING OPERATIONS – ALL PROPERTIES

Site Location	**Generic Assessments**

Risk Rating H = High M= Medium L= Low

Hazard = potential to cause harm. *Risk =probability of that harm occurring*

The risk rating criteria is detailed below

High - Work activity which has the potential to cause a fatal/major injury or health damage.

Medium – Work activity resulting in loss time injury or significant material or environmental damage

Low - Work activity resulting in minor injury but not lost time, or some material damage.

SIGNIFICANT HAZARDS	**H**	**M**	**L**
Scaffolders Falling	✓		
Material Falling	✓		
Manual handling	✓		
Event likely to have effected the strength or stability of scaffold	✓		
Unautherised removal of ties	✓		
Scaffold Collapse	✓		

WHO MAYBE HARMED	
Employees	✓
Contractors	✓
Official Visitors	✓
General Public	✓

MEASURES TO CONTROL SIGNIFICANT RISK

1. Scaffold to be erected in accordance/compliance with NASC TG20:13 Guide to Good Practice for Scaffolding with Tubes and Fittings. Further guidance is available in the HBF Scaffold Specification Template.
2. Scaffold associated with Timber Frame building construction must be erected in accordance with NASC guidance SG28:09 Safe System of Work.
3. NASC Guidance Note SG4 to be followed with regards to safety harnesses and preventing falls in scaffolding. Harness clipping points must be in line with the manufacturers guidance.
4. Specific House Type Work at Height Specification Sheet (PHG/HS:038) and scaffold designs (where applicable) to be consulted before erecting scaffold.
5. Ladder Access Gates must be fitted in line with Manufacturers Instructions.
6. Ground to be prepared (levelled and compacted) to receive scaffold loading.
7. All external scaffold lifts above the foot/block lift (600mm) will be erected with Guardrails (double guardrail to top lift), Toeboards and Brickguards in accordance with the Work at Height Regulations 2005.
8. Scaffold load capacities to be established in line with NASC TG20:13 Guide to good Practice for Scaffolding with Tubes and Fittings, and BS EN 12811-1.
9. Loading bay gates are to remain closed except when loading or unloading materials is taking place.
10. Scaffolds that are sheeted must be designed.
11. All scaffold materials must be stored in a designated laydown area.
12. Scaffold material to be mechanically moved to the work area to minimise manual handling. If scaffolding is being held within the scaffold structure itself, checks to be made on local loadings within the structure.
13. All other people to be kept away from erection/dismantling area or protection fans or other means of protection must be used.
14. All incomplete scaffold must have ladders removed or be fitted with lockable scaffold ladder boards and have scaffold incomplete signage at access points.
15. TG20:13 tie patterns will be adhered to where applicable. Ties must only be removed by a competent person (scaffold operative)
16. Removal of ties must not be undertaken until the overal stability of the scaffold has been confirmed.
17. The external working platform should be set as close as reasonably practicable to the height operatives will be working i.e. top of floor joists etc. Guidance identified in the HBF Scaffold Specification Template identifies that where reasonable practicable there should not be a fall in excess of 900mm to the working platform. In some cases additional handrails may be required around the perimeter of the work location if the fall is deemed excessive and this will be at the instruction of the Company. A hop/step must be provided by the Contractor to enable access to the work location.
18. Any internal fall protection/prevention measures adopted should be provided prior to the erection of the external scaffold lifts.
19. The top of internal standards should be flush with any working platform, where this is not possible they should protrude a minimum of 1m and be capped by the Contractor. Standards must not be left protruding through birdcage scaffolds. The platforms must be free of tripping hazards.
20. On completion scaffold must be inspected by person agreed (as per the Work at Height Assessment) and a handover certificate must be issued or an entry must be made in the register held in site manager's office.
21. A documented inspection of the scaffold must be undertaken at least once in every 7 days, after substantial alteration, after adverse weather conditions,and after any event likely to have effected its strength and stability.
22. All adjacent pedestrian walkways must be protected from falling materials by use of fans or other means of protection.
23. All scaffold working platforms must be kept free of materials, debris and waste at all times
24. In the event of an emergency e.g. a Scaffolder falling and becoming suspended by a lanyard a pre-planned and practiced emergency procedures will need to be effected quickly. Rescue Plan details must be included in the scaffold contractors method statements/risk assessments.

When control measures are applied, the resultant residual risk must be at an acceptable level.

INFORMATION INSTRUCTION TRAINING	
Scaffolders to be trained and certificated to NASC – CITB industry standards and hold relevant CISRS Cards.	
PERSONAL PROTECTIVE EQUIPMENT	**MANUAL HANDLING ASSESSMENT**
Head Protection ✓ **Safety Footwear** ✓ **Safety Harness** ✓ **High visability clothing** ✓	See Construction Manual: Section 4.3 Scaffolding Operations

GENERIC RISK ASSESSMENTS – HOUSEBUILDING OPERATIONS

Hazard Or Work Activity Assessed :- | Ref No

1(A). INDEPENDENT SYSTEM SCAFFOLD - ERECTION, ALTERATION & DISMANTLING OPERATIONS

Site Location	**Generic Assessments**

Risk Rating H = High M= Medium L= Low (The risk rating criteria is detailed below)

***Hazard** = potential to cause harm.* ***Risk** =probability of that harm occurring*

High - Work activity which has the potential to cause a fatal/major injury or health damage.
Medium – Work activity resulting in loss time injury or significant material or environmental damage
Low - Work activity resulting in minor injury but not lost time, or some material damage.

SIGNIFICANT HAZARDS	**H**	**M**	**L**
Scaffolders Falling (including suspension trauma)	✓		
Material Falling	✓		
Manual handling	✓		
Event likely to have effected the strength or stability of scaffold	✓		
Unautherised removal of ties	✓		
Scaffold Collapse	✓		

WHO MAYBE HARMED	
Employees	✓
Contractors	✓
Official Visitors	✓
General Public	✓

MEASURES TO CONTROL SIGNIFICANT RISK

1. Scaffold associated with Timber Frame building construction must be erected in accordance with NASC guidance SG28:09 Safe System of Work. Further guidance is available in the HBF Scaffold Specification Template.
2. NASC Guidance Note SG4 to be followed with regards to safety harnesses and preventing falls in scaffolding. Harness clipping points must be in line with the manufacturers guidance.
3. Specific House Type Work at Height Specification Sheet (PHG/HS:038) and scaffold designs (where applicable) to be consulted before erecting scaffold.
4. Ladder Access Gates must be fitted in line with Manufacturers Instructions.
5. Ground to be prepared (levelled and compacted) to receive scaffold loading.
6. All external scaffold lifts above the foot/block lift will be erected with double guardrail, Toeboards and Brickguards in accordance with the Work at Height Regulations 2005. Internal lifts to have double guardrails
7. Scaffold working platform and loading bay load capacities to be established in line with the manufacturers specifications.
8. Loading bay gates are to remain closed except when loading or unloading materials is taking place.
9. Scaffolds that are sheeted must be designed.
10. All scaffold materials must be stored in a designated laydown area.
11. Scaffold material to be mechanically moved to the work area to minimise manual handling. If scaffolding is being held within the scaffold structure itself, checks to be made on local loadings within the structure.
12. All other people to be kept away from erection/dismantling area
13. All incomplete scaffold must have ladders removed or be fitted with lockable scaffold ladder boards and have Scaffold incomplete signage at access points.
14. Scaffold ties to be implemented and installed, in line with the system manufacturers guidance
15. Ties must only be removed by a competent person (Qualified Scaffolder)
16. Do not remove a tie until the overal stability of the scaffold has been confirmed.
17. The external working platform should be set as close as reasonably practicable to the height operatives will be working i.e. top of floor joists etc. Guidance identified in the HBF Scaffold Specification Template identifies that where reasonable practicable there should not be a fall in excess of 900mm to the working platform. In some cases additional handrails may be required around the perimeter of the work location if the fall is deemed excessive and this will be at the instruction of the Company. A hop/step must be provided by the Contractor to enable access to the work location.
18. Any internal fall protection/prevention measures adopted should be provided prior to the erection of the external scaffold lifts.
19. The top of internal standards should be flush with any working platform, where this is not possible they should protrude a minimum of 1m and be capped by the Contractor. Standards must not be left protruding through birdcage scaffolds. The platforms must be free of tripping hazards.
20. On completion, scaffold must be inspected by suitably competent person (normally the site manager) and a handover certificate must be issued. An entry must then be made in the register held in site manager's office (Folder 3).
21. A documented inspection of the scaffold must be undertaken at least once in every 7 days and after substantial alteration and after adverse weather conditions, or any incident which may have affected the stabilty or integrity of the scaffold
22. All adjacent pedestrian walkways must be protected from falling materials by use of fans etc.
23. All scaffold working platforms must be kept free of materials, debris and waste at all times
24. Hop up arrangements to be as per Work at Height arrangements and Specific HouseType Work at Height Specification Sheet (PHGHS038).
25. Gaps between hop up and building are to be as close as reasonably practicable whilst maintaining adequate clearance for tasks required
26. In the event of an emergency e.g. a Scaffolder falling and becoming suspended by a lanyard a pre-planned and practiced emergency procedures will need to be effected quickly. Rescue Plan details must be included in the scaffold contractors method statements/risk assessments.

When control measures are applied, the resultant residual risk must be at an acceptable level.

INFORMATION INSTRUCTION TRAINING

Scaffolders to be trained and certificated to NASC – CITB industry standards and hold relevant CISRS Cards

PERSONAL PROTECTIVE EQUIPMENT		MANUAL HANDLING ASSESSMENT
Head Protection	✓	See Construction Manual: Section 4.3 Scaffolding Operations
Safety Footwear	✓	
Hand Protection	✓	
Safety Harness	✓	
Remember PPE is a last resort not a first option		

GENERIC RISK ASSESSMENTS – HOUSEBUILDING OPERATIONS

Hazard Or Work Activity Assessed :- | Ref No

2. ERECTION OF PUTLOG SCAFFOLDING. – 2 STOREY PROPERTIES.

Site Location	**Generic Assessments**

Risk Rating H = High M= Medium L= Low

Hazard = potential to cause harm. *Risk =probability of that harm occurring*

The risk rating criteria is detailed below

High - Work activity which has the potential to cause a fatal/major injury or health damage.

Medium - Work activity resulting in loss time injury or significant material or environmental damage

Low - Work activity resulting in minor injury but not lost time, or some material damage.

SIGNIFICANT HAZARDS	**H**	**M**	**L**
Scaffolder falling	✓		
Material falling	✓		
Manual handling	✓		
Event likely to have effected the strength or stability of scaffold			
Unautherised removal of ties			

WHO MAYBE HARMED	
Employees	✓
Contractors	✓
Official Visitors	✓
General Public	✓

MEASURES TO CONTROL SIGNIFICANT RISK

1. Scaffold to be erected in accordance/compliance with NASC TG20:13 Guide to Good Practice for Scaffolding with Tubes and Fittings. Further guidance is available in the HBF Scaffold Specification Template.
2. Scaffolders to be trained and certificated to NASC – CITB industry standards.
3. All external scaffold lifts above the foot/block lift will be erected with double guardrail, Toeboards and Brickguards in accordance with the Work at Height Regulations 2005. Internal lifts to have double guardrails
4. NASC Guidance Note SG4:05 to be followed with regards to safety harnesses. Harness clipping points must be in line with the manufacturers guidance.
5. Specific House Type Work at Height Specification Sheet (PHG/HS:038) and scaffold designs (where applicable) to be consulted before erecting scaffold.
6. Ladder Access Gates must be fitted in line with Manufacturers Instructions.
7. Ground to be prepared (levelled and compacted) to receive scaffold loading.
8. All external scaffold lifts above the foot/block lift (600mm) will be erected with Guardrails (double guardrail to top lift), Toeboards and Brickguards in accordance with the Working at Height Regulations 2005
9. Scaffold load capacities to be established in line with NASC TG20:13 Guide to good Practice for Scaffolding with Tubes and Fittings or through other suitable design and caluculation means.
10. Loading bay gates are to remain closed except when loading or unloading materials is taking place.
11. Scaffolds that are sheeted must be designed.
12. Scaffold material to be mechanically moved to the work area to minimise manual handling. If scaffolding is being held within the scaffold structure itself, checks to be made on local loadings within the structure.
13. All other people to be kept away from erection/dismantling area or protection fans or other means of protection must be used.
14. All incomplete scaffold must have ladders removed or be fitted with lockable scaffold ladder boards and have Scaffold incomplete signage at access points.
15. Scaffold ties to be implemented and installed, in line with NASC TG20:13 Guide to Good Practice for Scaffolding with Tubes and Fittings.
16. TG20:13 tie patterns will be adhered to where applicable. Ties must only be removed by a competent person (scaffold operative)
17. Removal of ties must not be undertaken until the overal stability of the scaffold has been confirmed.
18. All scaffold working platforms must be kept free of materials, debris and waste at all times
19. The external working platform should be set as close as reasonably practicable to the height operatives will be working i.e. top of floor joists etc. Guidance identified in the HBF Scaffold Specification Template identifies that where reasonable practicable there should not be a fall in excess of 900mm to the working platform. In some cases additional handrails may be required around the perimeter of the work location if the fall is deemed excessive and this will be at the instruction of the Company. A hop/step must be provided by the Contractor to enable access to the work location.
20. Any internal fall protection/prevention measures adopted should be provided prior to the erection of the external scaffold lifts.
21. The top of internal standards should be flush with any working platform, where this is not possible they should protrude a minimum of 1m and be capped by the Contractor. Standards must not be left protruding through birdcage scaffolds. The platforms must be free of tripping hazards.
22. On completion scaffold must be inspected by person agreed (as per the Work at Height Assessment) and a handover certificate must be issued or an entry must be made in the register held in site manager's office.
23. A documented inspection of the scaffold must be undertaken at least once in every 7 days & after substantial alteration and after any event likely to have effected its stregth and stability.
24. Should putlog scaffold be considered for use above this 2 storey height, further assessment, design and calculation must be undertaken and obtained from qualified and competent scaffold contractors.
25. In the event of an emergency e.g. a Scaffolder falling and becoming suspended by a lanyard a pre-planned and practiced emergency procedures will need to be effected quickly. Rescue Plan details must be included in the scaffold contractors method statements/risk assessments.

When control measures are applied, the resultant residual risk must be at an acceptable level

INFORMATION INSTRUCTION TRAINING	
Scaffoldes to be trained, competent and hold relevant CISRS Card.	
PERSONAL PROTECTIVE EQUIPMENT **Head Protection** ✓ **Safety Footwear** ✓ **Safety Footwear** ✓ **High visability clothing** ✓ **Remember PPE is a last resort not a first option**	**MANUAL HANDLING ASSESSMENT** See Construction Manual: Section 4.3 Scaffolding Operations

GENERIC RISK ASSESSMENTS – HOUSEBUILDING OPERATIONS

Hazard Or Work Activity Assessed :- | Ref No

3. SCAFFOLDING TUBE & FITTING LOADING TOWERS OR LOADING AREAS WITHIN SCAFFOLD STRUCTURES

Site Location	**Generic Assessments**

Risk Rating H = High M= Medium L= Low

Hazard = potential to cause harm. *Risk =probability of that harm occurring*

The risk rating criteria is detailed below

High - Work activity which has the potential to cause a fatal/major injury or health damage.

Medium - Work activity resulting in loss time injury or significant material or environmental damage

Low - Work activity resulting in minor injury but not lost time, or some material damage.

SIGNIFICANT HAZARDS	**H**	**M**	**L**
See also Scaffolding Erection risk assessments			
Material/Persons falling	✓		
Scaffold collapse/overloading	✓		
Material Falling	✓		
Manual handling	✓		
Event likely to have effected the stregth or stability of scaffold	✓		
Unautherised removal of ties	✓		
Scaffolder becoming suspended in harness (suspention truma)	✓		

WHO MAYBE HARMED	
Employees	✓
Contractors	✓
Official Visitors	
General Public	

MEASURES TO CONTROL SIGNIFICANT RISK

1. NASC Technical Guidance TG20:13 to be used to establish the loading tower is capable of withstanding loads. Further guidance is available in the HBF Scaffold Specification Template.
2. All scaffold structures should be constructed in line with TG20:13 and the HBF scaffold specification template.
3. All loading bays/structures must be calculated & designed to withstand anticipated loadings.
4. The loading face must be fitted with gates or other suitable barrier that is controlled from the working platform without the need for the person to lean off the open edge.
5. Loading bay gates are to remain closed except when loading or unloading materials is taking place.
6. Ladder Access Gates must be fitted in line with Manufacturers Instructions
7. TG20:13 tie patterns will be adhered to where applicable. Ties must only be removed by a competent person (scaffold operative)
8. Removal of ties must not be undertaken until the overal stability of the scaffold has been confirmed.
9. On completion scaffold must be inspected by person agreed (as per the Work at Height Assessment) and a handover certificate must be issued or an entry must be made in the register held in site manager's office.
10. A documented inspection of the loading tower must be undertaken at least once in every 7 days, after substantial alteration, after adverse weather conditions and after any event likely to have effected its strength and stability, in line with general scaffold inspections.
11. All adjacent pedestrian walkways must be protected from falling materials by use of fans or other means of protection.
12. All scaffold working platforms must be kept free of materials, debris and waste at all times
13. In the event of an emergency e.g. a Scaffolder falling and becoming suspended by a lanyard a pre-planned and practiced emergency procedures will need to be effected quickly. Rescue Plan details must be included in the scaffold contractors method statements/risk assessments.

When control measures are applied, the resultant residual risk must be at an acceptable level.

INFORMATION INSTRUCTION TRAINING

Scaffolders to be trained to NASC – CITB industry standards.

PERSONAL PROTECTIVE EQUIPMENT		**MANUAL HANDLING ASSESSMENT**
Safety Harness	✓	See Construction Manual: Section 4.3 Scaffolding Operations
Head Protection	✓	
Safety Footwear	✓	
High visibility clothing	✓	
Remember PPE is a last resort not a first option		

GENERIC RISK ASSESSMENTS – HOUSEBUILDING OPERATIONS

Hazard Or Work Activity Assessed :- | Ref No

4. USE OF ABRASIVE WHEELS OR CUTTING DISCS

Site Location	**Generic Assessments**

Risk Rating H = High M= Medium L= Low

Hazard = potential to cause harm. *Risk =probability of that harm occurring*

The risk rating criteria is detailed below

High - Work activity which has the potential to cause a fatal/major injury or health damage.

Medium – Work activity resulting in loss time injury or significant material or environmental damage

Low - Work activity resulting in minor injury but not lost time, or some material damage.

SIGNIFICANT HAZARDS	**H**	**M**	**L**		**WHO MAYBE HARMED**	
Wheel or disc bursting		✓				
Particles flying at high speed hitting others	✓				Employees	✓
Contact with rotating wheel or disc	✓					
Potential for hazardous substances in the dust.		✓			Contractors	✓
High noise levels	✓					
					Official Visitors	✓
					General Public	✓

MEASURES TO CONTROL SIGNIFICANT RISK

1. Only trained and authorised persons to use this equipment or change the wheel or disc.
2. Eye and hearing protection to be worn – see Construction Safety Manual for details.
3. Care must be taken to ensure other people are not affected by flying particles, dust or noise.
4. Cutting not to take place directly onto scaffold boards.
5. If petrol driven fuel to be kept well away from work area. Only refuel machine when cool.
6. If prolonged use, there is a risk of vibration white finger. This will need special assessment.
7. Relevant dust suppression controls must be implemented i.e. extraction system, damping down etc.

When control measures are applied, the resultant residual risk must be at an acceptable level.

INFORMATION INSTRUCTION TRAINING

Only trained and authorised Person to use equipment or change wheel or discs.

PERSONAL PROTECTIVE EQUIPMENT		**MANUAL HANDLING ASSESSMENT**
Head Protection	✓	No significant risks
Safety Footwear	✓	
Eye Protection	✓	
Hearing Protection	✓	
Respiratory Protection	✓	
Safety Harness		
Hand Protection	✓	
Remember PPE is a last resort not a first option		

GENERIC RISK ASSESSMENTS – HOUSEBUILDING OPERATIONS

Hazard Or Work Activity Assessed :- | Ref No

5. BRICKLAYERS AND BRICK LAYING OPERATIONS

Site Location | **Generic Assessments**

Risk Rating H = High M= Medium L= Low

Hazard = potential to cause harm. *Risk =probability of that harm occurring*

The risk rating criteria is detailed below

High - Work activity which has the potential to cause a fatal/major injury or health damage.

Medium – Work activity resulting in loss time injury or significant material or environmental damage

Low - Work activity resulting in minor injury but not lost time, or some material damage.

SIGNIFICANT HAZARDS	H	M	L
Falls from height especially scaffolding	✓		
Manual handling problems	✓		
Skin contact and splashes of cement based mortars		✓	
Tripping over brick bands			✓
Material flying or blowing into eyes			✓
Material falling (or being thrown from scaffolding)		✓	

WHO MAYBE HARMED	
Employees	✓
Contractors	✓
Official Visitors	
General Public	

MEASURES TO CONTROL SIGNIFICANT RISK

1. Secure access and egress e.g. tied ladders must be maintained at all times.
2. Material to be stored at low level on the platform or brick guards to be used.
3. Loading tower gates to be kept closed except when actually loading out.
4. Waste material to be regularly removed from the scaffolding and placed in waste skips.
5. Brick bands to be placed directly into waste skips.
6. Cement and mortar to be washed from skin at regular intervals and before consuming food and drink. Barrier creams and lanolin based hand creams to be used.
7. Manual handling – see below.
8. All bricklaying operations should be conducted off a safe working platform.
9. When using a ladder an adequate risk assessment is required.
10. The safe use of Bandstand trestles is to be covered in Risk Assessment 49.
11. Joists are not to be loaded out unless they have adequate propping. Details of the propping arrangements must be documented in the Work at Height Assessment and Temporary Works Register.
12. Propping must only be co-ordinated, supervised and installed by trained and competent persons.

A separate risk assessment must be undertaken to establish general site specific controls or where necessary plot specific controls to include at least one of the following fall prevention/protection measures

a) The recommended Soft Landing System
b) A suitable propriety Decking System
c) Suitable Safety Nets

When control measures are applied, the resultant residual risk must be at an acceptable level.

INFORMATION INSTRUCTION TRAINING

PERSONAL PROTECTIVE EQUIPMENT	
Head Protection	✓
Safety Footwear	✓
Eye Protection	
Hearing Protection	
Respiratory Protection	
Safety Harness	
Hand Protection	✓

Remember PPE is a last resort not a first option

MANUAL HANDLING ASSESSMENT

1. Avoid the use of heavy blocks when possible. If this is unavoidable additional help will be needed with the heavy blocks.
2. Refer to design stage risk assessment for guidance on sizes and weight of lintels.
3. See Also Construction Manual: Section 4.4 Brickwork Operations

GENERIC RISK ASSESSMENTS – HOUSEBUILDING OPERATIONS

Hazard Or Work Activity Assessed :- | Ref No

6. INSTALLATION OF ROOF TRUSSES (TO INCLUDE GARAGES)

Site Location	**Generic Assessments**

Risk Rating H = High M= Medium L= Low

Hazard = potential to cause harm. *Risk =probability of that harm occurring*

The risk rating criteria is detailed below

High - Work activity which has the potential to cause a fatal/major injury or health damage.

Medium – Work activity resulting in loss time injury or significant material or environmental damage

Low - Work activity resulting in minor injury but not lost time, or some material damage.

SIGNIFICANT HAZARDS	**H**	**M**	**L**
Person falling	✓		
Material falling	✓		
Manual handling when lifting trusses into position	✓		
Manual handling when lifting trusses onto scaffold	✓		
Material toppling whilst temporarily fixed	✓		

WHO MAYBE HARMED	
Employees	✓
Contractors	✓
Official Visitors	
General Public	

MEASURES TO CONTROL SIGNIFICANT RISK

1. Joists and stair opening at first floor level to be fully boarded.
2. Scaffolding lift to be a convenient height for both safety and access into trusses. 'Hop up' may be needed.
3. Wall plate must be of sufficient height above working platform to offer edge protection when lifting trusses into position on the wall plate (950mm).
4. Trusses to be lifted by suitable mechanical means or with enough persons to ensure safety. Scaffold should be adapted accordingly to allow for safe manual handling
5. Sufficient temporary boards to be in position so joiners can easily position and secure them within the trusses.
6. Weather conditions (in particular wind speed) to be acceptable for truss installation work.
7. Trusses not to be left in temporary un-secured state. Trusses must be secured and braced before being left.

A separate risk assessment must be undertaken to establish general site specific controls or where necessary plot specific controls to include at least one of the following fall prevention/protection measures (note these controls can be used collectively)

a) The recommended Soft Landing System
b) A suitable propriety Decking System
c) Suitable Safety Nets

Roof trusses can also be assembled on the ground and lifted into position as a completed roof unit, which will reduce the risk of falls and manual handling implications.

When control measures are applied, the resultant residual risk must be at an acceptable level.

INFORMATION INSTRUCTION TRAINING

Only trained or experienced joiners to do this work. Joiners new to such work must be under one to one supervision until they are deemed competent by the experienced joiner. Also reference HSG 33 "Health & Safety in Roofwork", HBF Industry Guidance "Manoeuvring of Roof Trusses" (attached) and Group procedure PHGPR:022 – "The Planning, Supervision and Safe Use of Telehandlers .

PERSONAL PROTECTIVE EQUIPMENT		**MANUAL HANDLING ASSESSMENT**
Head Protection	✓	Use mechanical means to lift trusses onto scaffolding and into position or have sufficient people to share and control the load. See Also Construction Manual: Section 4.5 First Fix Joinery and Risk Assessment 19
Safety Footwear	✓	
Eye Protection		
Hearing Protection		
Respiratory Protection		
Safety Harness		
Hand Protection	✓	
Remember PPE is a last resort not a first option		

GUIDE TO TRUSS INSTALLATION

Introduction

The nature of our business as a UK wide house builder means that in theory no two sites purchased for development will necessarily be the same. However in practice we can generalise i.e. flat green field site, good ground conditions or undulating site, severe gradients or brown-field inner city etc.

Lifting operations relating to truss installation whilst not necessarily unique to each site, is one activity that requires an assessment to be carried out prior to work commencing.

The assessment has to take into consideration the site layout and ground conditions as mentioned earlier, together with the type of property being built, including height of lift, weights of materials to establish to correct lifting equipment e.g. crane, telescopic handler etc. The type of work to be carried out by joiners, such as bracing, will need to be considered to ensure the correct fall prevention/protection.

Lastly the assessment needs to identify the level of training for the management/operatives planning and undertaking the work.

The planning of all the above should be undertaken and documented during the Pre-Start 2 & 3 Stage Meetings. (PHGHS032/2) and (PHGHS032/3)

Group Policy Existing Documentation

Generic

- Truss Installation Generic Risk Assessment 006 – this identifies the general practices and control options that should be considered during this operation.
- Use of Telehandlers for Lifting Suspended Loads Generic Risk Assessment 54
- Use of Cranes on Site Generic Risk Assessment 32
- Lifting Trusses with the All Terrain Forklift on 2 Storey's Generic Risk Assessment 53
- Reversing Vehicles Generic Risk Assessment 41
- Manual Handling Generic Risk Assessment 31

Site Specific

- Site/Property Specific Crane Assessment Lift Plan (PHG/HS/:034) - is available to gather the necessary information to assist in deciding what lifting equipment i.e. crane, telescopic handler etc. and what trained personnel e.g. appointed persons, supervisors, slingers/banksmen etc. are required.
- The Planning and Supervision of Mobile Crane Lifting Operations Procedure (PHGPR:014) - provides information relating to the type of official crane hire which is available at the moment, and the completion of the Assessment Form.
- The Planning, Supervision and use of Telehandlers Procedure (PHGPR22)
- Site/Property Specific Working at Height Assessment (PHG/HS/:038) – is available to detail the relevant controls required to prevent or protect people working at height, in this instance joiners who are carrying out the installation work.
- Working at Height Assessment Procedure (PHGPR:015) – this provides guidance on the completion of the Assessment Form.
- Traffic Management Procedure (PHGPR:009)
- Traffic Management Assessment (PHG/HS/:015)

Footnote

This additional information is provided to assist Persimmon/Charles Church businesses in deciding the correct mechanical lifting option when undertaking truss installation. This is provided as a guide and should not be taken as the precise option – that decision must be made at pre-start planning meetings taking all the factors mentioned in this document into consideration.

Property Type	Site Conditions	Truss Configuration	MINIMUM Acceptable Lifting Arrangements agreed at the Pre-Start Stages	Training Requirements	Fall Protection
Garage/Single Storey Bungalow (Excluding Dormers)	Any	Any	Risk Assessment to establish lifting options including direct manual lift and lift by telehandler using forks. All other options will require a lifting plan.	Telescopic Handler Operator – CPCS/CTA Experienced Joiners trained in fall prevention/protection & Manual Handling (where required)	Soft Landing Bags or alternative fall prevention/protection
2 storey	Any	Any	Unless confirmed through alternative risk assessment the correct size telescopic handler using suitable lifting attachments for movement on to scaffold (dependent on reach requirement), manually handled onto wallplate – lifting plan required. Site based personnel need to be trained and competent to plan, manage and undertake the operations.	Telescopic Handler Operator – CPCS/CTA Site Based Lift Planner/Supervisor (see Group Training Requirements) Competent Slinger/Banksman Experienced, licensed Crane Operator Use of suitable load lifting accessories i.e. Jibs, lifting eyes etc. Experienced Joiners trained in fall prevention/protection	Soft Landing Bags or alternative fall prevention/protection. Alternatively the roof can be constructed at ground level and lifted in its entirety.
+ 2.5 – 3 storey Detached/Semi-Detached	Any	Medium – Heavy weight girder type trusses, Steels, 50º - 55º pitch roof	Lifting Plan required to identify type of lift i.e.: Crane Hire/ Contract Crane Hire Site based personnel need to be trained and competent to plan, manage and undertake the operations.	Site Based Lift Planner/Supervisor (see Group Training Requirements) CITB Appointed Slinger/Banksman Experienced, licensed Crane Operator Use of suitable load lifting accessories i.e. Jibs, lifting eyes etc. Experienced Joiners trained in fall prevention/protection	

3 storey, apartments, town houses	Any	Any	Lifting Plan required to identify type of lift i.e.: Contract Crane Hire Crane Hire If Crane Hire is the preferred option then site based personnel need to be trained in excess of requirements for lifts detailed above in order that they are competent to plan, manage and undertake the operations.	Site Based Lift Planner/Supervisor (see Group Training Requirements) CITB Appointed Slinger/Banksman Experienced, licensed Crane Operator Experienced Joiners trained in fall prevention/protection	Soft Landing Bags or alternative fall prevention/protection. Alternatively the roof can be constructed at ground level and lifted in its entirety.
NOTE: For all other lifting arrangements further assessment is required					

Notes: NHBC Appointed Person/Lift Supervisor Course available for presentation by their Trainers.

Home Builders Health and Safety Forum

Guidance on Manoeuvring of Roof Trusses

Manoeuvring of Roof Trusses
HBF Health and Safety Forum – Members Guidance

Introduction

The guidance below has been developed by members of the Home Builders Health and Safety Forum to assist home builders in developing their own management systems for the delivery, manoeuvring and placement of roof trusses on a development.

The Strategic Forum for Construction Plant Safety Group issued guidance on the Safe Use of Telehandlers in Construction in February 2011. Paragraph 10.9 of the guidance detailed that 'under no circumstances should lifting of suspended loads be carried out with a telehandler that is not fitted with a suitable lifting hook'. On review, this requirement made it difficult for roof trusses to be moved from delivery vehicles and around a development via a telehandler. This element of the guidance has been reviewed and whilst it is accepted that loads should not be suspended via the forks of a telehandler, in the case of roof trusses the guidance below, if appropriately adopted, will provide a suitable means of safely carrying out the task. The content must be considered within a specific lifting plan for the actual development.

Delivery of Trusses to a Development (Information for Suppliers)

The correct type of delivery vehicle should be selected by the supplier dependent upon the size and type of roof or attic trusses to be transported. The driver must have a current driving licence appropriate to the vehicle being driven and be competent in truss delivery.

If the vehicle is fitted with a proprietary lifting appliance such as a HIAB, the driver must have received appropriate training and have a copy of the thorough examination certificate available for review.

The maximum weight of any pack of trusses must be **600kg**.

Trusses should be secured in tight packs using ***blue*** polypropylene banding. ***Blue*** bands must be used to secure the trusses in bundles and ***white*** bands to secure the trussed rafters to the vehicle. This is to enable a clear indication of which banding is used to either secure bundles together or the trusses to the vehicle.

Trusses should be positioned on the vehicle bed, against the central pole and secured to the pole, using ***white*** bands. The next pack of trusses must be positioned against the previous pack, and secured using ***white*** bands to either the previous pack, or the central pole. The vehicle should be loaded progressively from the central pole out to the edge of the vehicle bed, with each pack secured either to the previous pack, or the central pole.

Each pack of trusses should be secured to the delivery vehicle, or to the previously loaded trusses to prevent any packs becoming unstable whilst unloading.

The driver should have a set of telescopic cutters to cut the ***white*** bands securing the bundles to the vehicle from ground level to enable a forklift to unload the trusses safely. The securing and cutting method is to prevent the need to gain access to the rear of the vehicle and enable a forklift or crane to unload them safely. There should be no reason for anyone to access the rear of a vehicle, to remove securing straps to enable roof trusses to be removed.

Any smaller items that complete an order should be positioned on the vehicle bed between the packs and secured.

Transporting or Manoeuvring Trusses

The following options can be applied to the transport, manoeuvring and placement of trusses on site;

- All roof trusses should be delivered on vehicles in such a manner to ensure that operatives do not need to access the rear of vehicles to remove straps or attach lifting strops.

- Where practicable trusses should be lifted direct from the delivery vehicle on to the roof i.e. 'just in time delivery'. This will require planning of both the site and delivery of trusses and should be the primary method of delivery and lifting.

- Where 'just in time' deliveries cannot be achieved i.e. the plot is not ready, trusses should be lifted from the delivery vehicle via the telehandler onto truss racks designed on loading bays or gable end scaffolds. The delivery vehicle should be positioned as close as possible to the plot under construction and the distance to be travelled by the telehandler limited. The storage of trusses must not impede the safe operation of the telehandler or access to the loading bays.

- If the above is not practicable and/or access to the construction area is restricted for the delivery vehicle, the trusses can be lifted from the vehicle on to an appropriately designed freestanding storage rack. The rack should be positioned as close to the plots under construction to limit the distance the trusses need to be moved when required. The truss rack should be continually re-sited as close to the work area where possible and be fully accessible by delivery vehicles.

Lifting of trusses onto the wall plate

In the majority of circumstances lifting of roof trusses should be undertaken by a mobile crane where a full pack can be lifted directly on to the wall plate. A lifting plan completed by an appropriately trained appointed person would be required for the lift.

If an alternative method is utilised to lift roof trusses on to a roof, then this will need to be justified by the completion of a lifting plan for each plot, by an appropriately trained appointed person, which will take into consideration;

- the capabilities of the lifting appliance.
- any restrictions to the lifting operation i.e. scaffolding or other obstructions.
- height of the structure.
- handling the trusses by workers on the scaffold working platform.
- method of lifting the trusses safely including considering the pitch, size and weight of the truss.

Transporting of Trusses via a Telehandler

The following conditions apply if trusses are to be suspended via the forks of a telehandler and transported on a development;

- The route from the truss rack or delivery vehicle to the plot should not be through occupied areas of the development where practicable. If this is necessary a traffic marshal(s) will be required to ensure occupants or others are not put at risk from the movement of the trusses.

- The route should be reviewed prior to transporting the trusses and an assessment made if any obstacles such as lamp posts or scaffold will affect the ability of the operator to manoeuvre the telehandler and load safely.

- The maximum load of trusses that can be transported via a telehandler from a truss rack or delivery vehicle to a plot is 600kg. The weight of all trusses installed on site should be known by site management and detailed in the lifting plan. This is the maximum load but this may need to be reduced depending on the span/pitch of the trusses, potential obstructions, gradients/cross slopes and capabilities of the machine.

- The tyre pressures should be within +/- 5% of the maximum stated by the manufacturers and be checked prior to moving the load.

- The telehandler should be driven at no more than 7mph with no sharp turns or manoeuvres.

- The operator should have full vision from the driving position and the trusses suspended from the forks so that the lowest point of the truss, (i.e. top chord overhang) is within 500 (+/- 150mm) of the ground. A banksman should be available, where there are obstacles to full visibility, to provide appropriate signals to the operator and ensure no other persons are affected by the movement of the trusses.

- Trusses should not be moved when wind speeds at ground level are forecast to be or exceed 7m/s or 16mph. This should be assessed by either the use of an anemometer and/or weather reports for the area.

GENERIC RISK ASSESSMENTS – HOUSEBUILDING OPERATIONS

Hazard Or Work Activity Assessed :- | Ref No

7. EXCAVATIONS

Site Location	**Generic Assessments**

Risk Rating H = High M= Medium L= Low

Hazard = potential to cause harm. *Risk =probability of that harm occurring*

The risk rating criteria is detailed below

High - Work activity which has the potential to cause a fatal/major injury or health damage.

Medium - Work activity resulting in loss time injury or significant material or environmental damage

Low - Work activity resulting in minor injury but not lost time, or some material damage.

SIGNIFICANT HAZARDS	**H**	**M**	**L**
Trench collapse	✓		
Undermining of services causing damage to services	✓		
Undermining adjacent structures			

WHO MAYBE HARMED	
Employees	✓
Contractors	✓
Official Visitors	
General Public	✓

MEASURES TO CONTROL SIGNIFICANT RISK

1. Plan the work, ensure that adequate resources are available to provide trench support and support for services.
2. Ensure that people cannot be struck by material from the trench sides, spoil or stored materials falling into excavations, by keeping such hazards away from the sides of the excavation.
3. Provide stop blocks, fencing and other physical barriers to prevent site vehicles toppling or sliding into excavations.
4. Provide adequate fencing (Herras type 2m) to excavations in order to prevent the possibility of the general public falling into the excavations.
5. Trench sheets, boxes etc. should be utilised in such a way that the top of the sheet or box protrudes 950mm above ground level, thus providing a physical barrier, preventing falling into the excavation.
6. Avoid contact with underground services, especially gas and electricity, see Risk Assessment Number 8.
7. When working adjacent structures, special care and planning should be taken to ensure that the excavation is supported adequately to prevent the collapse of the structure.

When control measures are applied, the resultant residual risk must be at an acceptable level.

INFORMATION INSTRUCTION TRAINING

Training on correct methods of supporting excavations, working in a restricted space, and confined spaces.

PERSONAL PROTECTIVE EQUIPMENT		**MANUAL HANDLING ASSESSMENT**
Head Protection	✓	
Safety Footwear	✓	
Eye Protection		
Hearing Protection		
Respiratory Protection		
Safety Harness		
Hand Protection		
Remember PPE is a last resort not a first option		

GENERIC RISK ASSESSMENTS – HOUSEBUILDING OPERATIONS

Hazard Or Work Activity Assessed :- | Ref No

8. UNDERGROUND SERVICES.

Site Location	**Generic Assessments**

Risk Rating H = High M= Medium L= Low

Hazard = potential to cause harm. *Risk =probability of that harm occurring*

The risk rating criteria is detailed below

High - Work activity which has the potential to cause a fatal/major injury or health damage.

Medium - Work activity resulting in loss time injury or significant material or environmental damage

Low - Work activity resulting in minor injury but not lost time, or some material damage.

SIGNIFICANT HAZARDS	**H**	**M**	**L**
Explosion	✓		
Gas Release	✓		

WHO MAYBE HARMED	
Employees	✓
Contractors	✓
Official Visitors	
General Public	✓

MEASURES TO CONTROL SIGNIFICANT RISK

1. Plan excavation work to avoid clashes with known services wherever possible.
2. Mark out known services from service drawing (supplied by service companies).
3. Use cable/service locating equipment to pinpoint the position of the service.
4. Employ safe system of digging to locate services by trial holing.
5. Once services have been located set out excavation limits
6. Do not use mechanical excavators or power tools within 500mm of services especially gas or electricity.
7. Areas to be excavated will be barriered off to prevent unauthorised access and protect members of the public.
8. Where necessary a Permit to Dig should be used (assessment made by site manager/supervisors) whether hazard severe enough to warrant the use of PTW.
9. Workers should know how to give emergency first aid until help arrives. Competence in cardiopulmonary resuscitation and the immediate care of burns and unconsciousness would be an advantage.

When control measures are applied, the resultant residual risk must be at an acceptable level.

INFORMATION INSTRUCTION TRAINING

Service location drawings are essential. Training on correct use of cable/service locators. Training/instruction on safe digging techniques. Appointed person emergency first aid for key personnel.

PERSONAL PROTECTIVE EQUIPMENT		**MANUAL HANDLING ASSESSMENT**
High Visibility Clothing	✓	
Head Protection	✓	
Safety Footwear	✓	
Eye Protection		
Hearing Protection		
Respiratory Protection		
Safety Harness		
Hand Protection		
Remember PPE is a last resort not a first option		

GENERIC RISK ASSESSMENTS – HOUSEBUILDING OPERATIONS

Hazard Or Work Activity Assessed :- | Ref No

9. FIRE.

Site Location | **Generic Assessments**

Risk Rating H = High M= Medium L= Low

Hazard = potential to cause harm. *Risk =probability of that harm occurring*

The risk rating criteria is detailed below

High - Work activity which has the potential to cause a fatal/major injury or health damage.

Medium – Work activity resulting in loss time injury or significant material or environmental damage

Low - Work activity resulting in minor injury but not lost time, or some material damage.

SIGNIFICANT HAZARDS	H	M	L
Fire	✓		
Explosion as a result of fire	✓		

WHO MAYBE HARMED	
Employees	✓
Contractors	✓
Official Visitors	✓
General Public	✓

MEASURES TO CONTROL SIGNIFICANT RISK

1. Electrical equipment should meet standards that reflect the adverse conditions on construction sites.
2. No unauthorised bonfires allowed on site.
3. No smoking except in designated areas.
4. Ensure any operative using blowtorches or Oxy-fuel equipment has been properly trained.
5. All hot work must cease 60 minutes prior to site shutdown and the area must be checked by a competent person prior to leaving site.
6. LPG and flammable liquids should be stored in well lockable ventilated containers. Quantities should be minimal.
7. A fire action plan, fire marshals and adequate fire fighting equipment shall be available.
8. Good housekeeping is essential,. Especially within properties, all combustible items should be stored properly and waste moved to skips more than 3 metres from properties.
9. Protective coverings should be of non-combustible materials.
10. All contractors hot works to be controlled by a Hot Works Permit.

When control measures are applied, the resultant residual risk must be at an acceptable level.

INFORMATION INSTRUCTION TRAINING

Fire precautions covered in site induction's fire evacuation plan displayed in prominent places Fire Marshall's adequately trained.

PERSONAL PROTECTIVE EQUIPMENT

Head Protection	
Safety Footwear	
Eye Protection	
Hearing Protection	
Respiratory Protection	
Safety Harness	
Hand Protection	

Remember PPE is a last resort not a first option

MANUAL HANDLING ASSESSMENT

GENERIC RISK ASSESSMENTS – HOUSEBUILDING OPERATIONS

Hazard Or Work Activity Assessed :- | Ref No

10. WORKING WITH WET CONCRETE, WET CEMENT & MORTAR PRODUCTS

Site Location	**Generic Assessments**

Risk Rating H = High M= Medium L= Low

Hazard = potential to cause harm. *Risk =probability of that harm occurring*

The risk rating criteria is detailed below

High - Work activity which has the potential to cause a fatal/major injury or health damage.

Medium – Work activity resulting in loss time injury or significant material or environmental damage

Low - Work activity resulting in minor injury but not lost time, or some material damage.

SIGNIFICANT HAZARDS	**H**	**M**	**L**		**WHO MAYBE HARMED**	
Damage to skin – Allergic Dermatitis		✓				
Damage to skin – Irritant Dermatitis		✓			Employees	✓
Cement burns to skin or eyes		✓				
Slips, Trips, Falls		✓			Contractors	✓
Contact with Machinery		✓				
					Official Visitors	✓
					General Public	

MEASURES TO CONTROL SIGNIFICANT RISK

1. Keep wet product off skin by using gloves and other protective clothing such as long sleeves or overalls.
2. Contaminated clothing should be removed – do not leave in contact with the skin.
3. Wash cement based products from the skin at regular intervals and use barrier creams and hand creams.
4. If clothing or boots become impregnated with cement based materials, remove and thoroughly clean or replace.
5. Use wellington boots or similar when laying wet concrete and ensure none gets inside the boot.
6. If splashing, wet mixing or in windy conditions use eye protection.
7. General housekeeping rules
8. Mixing materials i.e. sand cement must be kept within the mixing bay retaining walls
9. Authorised personnel only signage required for mixing bay entrance

Note: - See attachment safety information

When control measures are applied, the resultant residual risk must be at an acceptable level.

INFORMATION INSTRUCTION TRAINING

All employees working with such products and machinery to be advised of the health and safety hazards through toolbox talks. Cement does contain chromium vi which can cause allergic dermatitis and or sensitisation. Users should be advised of this hazard, the precautions to take (i.e. keep off skin, use gloves and barrier creams, report skin problems, use eye protection when wet mixing)

All operatives to be informed of site housekeeping rules, all other operatives to be instructed in authorised access rules.

PERSONAL PROTECTIVE EQUIPMENT		**MANUAL HANDLING ASSESSMENT**
Head Protection	✓	If product is mixed on site cement to be in 25kg bags
Safety Footwear	✓	
Eye Protection (where applicable)	✓	
Hearing Protection		
Respiratory Protection		
Safety Harness		
Hand Protection	✓	
Remember PPE is a last resort not a first option		

Risk Assessment of Wet Mixing of Mortar on Site – Additional Information

a) **Training** - the person or people operating the mixing area should be trained in the use of the mixer, how to start and stop it, the required guarding, the mixing hazards in particular the health hazards associated with cement and wet cement, and the precautions to be taken.

b) **Mixing area** - the area should be selected and prepared so that it is convenient to the end user position (a balanced carry distance from mixer to the user), is accessible for sand and cement deliveries, there is water supply or access for water barrels, and the mixing area can be segregated form other site activities so plant operations etc do not endanger people working at the mixing area. If the site is prone to windy conditions, this should also be considered when selecting the mixing area to minimise wind blown sand and cement. The ground should be prepared by levelling and compacting. A suitable shovel must be provided of a size acceptable to the user, again striking a balance between the load on the shovel and the need for repetitive strokes to fill the mixer.

c) **Mixing Machine** - the machine must be in good condition, compliant to current standards with regards to machinery guarding, noise and emissions from engine. If electric mixer is being used this should either be at 110 volt (supplied via a transformer centre tapped to earth, or via a specific RCCB on the supply to the mixer and which is tested daily.

d) **Sand** - the supply of sand should be positioned local to the mixer to minimise handling requirements. Arrangements to minimise the sand spilling or blowing should be considered. Also consider the safe delivery of the sand to the mixing position.

e) **Cement** - Also see COSHH assessment Cement must be supplied in 25 KG bags only. The bags should be stored on pallets or other means to keep the bottom bags at least 150mm (preferably 300mm) above ground level. This will make manual handling of the bags significantly safer.

f) **Health Hazards** - When we mixing, light eye protection should be used to minimise the risk of a wet cement splash into the eye. Gloves and long sleeves or overalls should be worn at all times to minimise skin contact. Barrier creams and good washing faculties should be readily available so that cement or mortar can be readily washed form the skin if required.

g) **Housekeeping in General** - the mixing area should be kept clean and tidy with safe access across the ground, with cement bags being safely disposed off to waste skips or bins (consider wet spraying prior to disposal to minimise dust emissions from waste bags). If the wash out waste accumulates, this should be scraped away to maintain a good foothold.

GENERIC RISK ASSESSMENTS – HOUSEBUILDING OPERATIONS

Hazard Or Work Activity Assessed :- | Ref No

11. CONCRETE BREAKING AND CUTTING.

Site Location | **Generic Assessments**

Risk Rating H = High M= Medium L= Low

Hazard = potential to cause harm. *Risk =probability of that harm occurring*

The risk rating criteria is detailed below

High - Work activity which has the potential to cause a fatal/major injury or health damage.

Medium – Work activity resulting in loss time injury or significant material or environmental damage

Low - Work activity resulting in minor injury but not lost time, or some material damage.

SIGNIFICANT HAZARDS	H	M	L
Noise	✓		
Vibration	✓		
Dust		✓	
Dust containing silica		✓	
Flying particles			

WHO MAYBE HARMED	
Employees	✓
Contractors	✓
Official Visitors	✓
General Public	✓

MEASURES TO CONTROL SIGNIFICANT RISK

1. Select method of work and equipment so as to minimise noise and vibration.
2. Get information from suppliers/manufacturers, of noise and vibration levels.
3. Agree maximum time one employee can work on the equipment.
4. Ensure appropriate PPE is provided including gloves to keep hands warm.
5. Use water sprays or other methods to minimise dust.
6. Ensure general public and other site workers are not endangered by dust or flying particles.
7. Depending on the type of aggregate used, the dust may contain silica., in which case RPE may be required.

When control measures are applied, the resultant residual risk must be at an acceptable level.

INFORMATION INSTRUCTION TRAINING

Ensure operatives have received toolbox talk on health hazards of noise, vibration and dust hazards. They must be aware of how to recognise the early signs of potential problems of vibration white finger. See manual for full details.

PERSONAL PROTECTIVE EQUIPMENT

Head Protection	✓
Safety Footwear	✓
Eye Protection	✓
Hearing Protection (where applicable)	✓
Respiratory Protection (where applicable)	✓
Safety Harness	
Hand Protection	✓

Remember PPE is a last resort not a first option

MANUAL HANDLING ASSESSMENT

If the entire weight of the machine or equipment has to be held by the operative then the hazard from vibration white finger increases. Use alternative equipment if available.

GENERIC RISK ASSESSMENTS – HOUSEBUILDING OPERATIONS

Hazard Or Work Activity Assessed :- | Ref No

12. USE OF COMPRESSED AIR EQUIPMENT

Site Location	**Generic Assessments**

Risk Rating H = High M= Medium L= Low

Hazard = potential to cause harm. *Risk =probability of that harm occurring*

The risk rating criteria is detailed below

High - Work activity which has the potential to cause a fatal/major injury or health damage.

Medium – Work activity resulting in loss time injury or significant material or environmental damage

Low - Work activity resulting in minor injury but not lost time, or some material damage.

SIGNIFICANT HAZARDS	**H**	**M**	**L**
Noise		✓	
Penetrating injury		✓	
Air bubbles in skin or blood		✓	
Flying dust and particles		✓	

WHO MAYBE HARMED	
Employees	✓
Contractors	✓
Official Visitors	✓
General Public	✓

MEASURES TO CONTROL SIGNIFICANT RISK

1. Compressed air is used to run several items of equipment and also used to clean out voids and spaces especially in shutters before concrete pours. When the air lance is being used for cleaning, it must have an on/off regulator valve so the operative can control and isolate the lance at the operating position.
2. If the compressor has an air receiver then there must be a thorough examination certificate for the receiver.
3. All compressed air equipment must have a CE marking and documentation to show regular maintenance and inspection.
4. There should be the safe working pressure clearly marked on the compressor and all compressed air equipment so that site operatives can easily check if the equipment can be safely used with the compressor.
5. If air fed equipment such a blast hoods is to be used special conditions apply – see separate risk assessment.
6. 'Quiet' compressors to be used whenever possible

When control measures are applied, the resultant residual risk must be at an acceptable level.

INFORMATION INSTRUCTION TRAINING

Special training and certification may be required for some compressed air equipment. Operatives should receive general hazard awareness information in toolbox talks especially about the hazards of compressed air penetrating the skin and the dangers of air bubbles in blood and skin. Compressed air systems must not be used for cleaning hands and clothing.

PERSONAL PROTECTIVE EQUIPMENT		**MANUAL HANDLING ASSESSMENT**
Head Protection	✓	
Safety Footwear	✓	
Eye Protection	✓	
Hearing Protection		
Respiratory Protection		
Safety Harness		
Hand Protection	✓	

Remember PPE is a last resort not a first option

GENERIC RISK ASSESSMENTS – HOUSEBUILDING OPERATIONS

Hazard Or Work Activity Assessed :- | Ref No

13. DEMOLITION ACTIVITIES.

Site Location | **Generic Assessments**

Risk Rating H = High M= Medium L= Low

Hazard = potential to cause harm. *Risk =probability of that harm occurring*

The risk rating criteria is detailed below

High - Work activity which has the potential to cause a fatal/major injury or health damage.

Medium – Work activity resulting in loss time injury or significant material or environmental damage

Low - Work activity resulting in minor injury but not lost time, or some material damage.

SIGNIFICANT HAZARDS	H	M	L	
Material falling	✓			
Person falling	✓			
Uncontrolled collapse of structure	✓			

WHO MAYBE HARMED

Employees	✓
Contractors	✓
Official Visitors	
General Public	✓

MEASURES TO CONTROL SIGNIFICANT RISK

1. All structural demolition work is subject to CDM Relations. Therefore whenever possible appoint a competent demolition contractor to be principal contractor for the demolition phase of the contract and allow them sufficient time to complete the work before Persimmon go onto site, or totally segregate the demolition site from Persimmon's activities. Demolition contractor to be vetted before appointment.
2. Demolition area to be totally fenced off from the public and rest of the site with at least 2m high hoarding or Heras type fencing.
3. Only demolition operatives to enter demolition area.
4. Detailed site specific method statement to be produced by demolition contractor before start of work.
5. Persimmon as client and planning supervisor must ensure demolition contractor is given essential health and safety information and have produced a competent health & safety plan before any site activities commence.
6. Provide information with regards to asbestos in the pre tender health & safety plan.

When control measures are applied, the resultant residual risk must be at an acceptable level.

INFORMATION INSTRUCTION TRAINING

Persimmon staff to stay away from demolition area. Demolition works to be under the direct control of a demolition supervisor experienced and competent in such works.

PERSONAL PROTECTIVE EQUIPMENT

Head Protection	✓
Safety Footwear	✓
Eye Protection	✓
Hearing Protection	
Respiratory Protection	
Safety Harness	
Hand Protection	

Remember PPE is a last resort not a first option

MANUAL HANDLING ASSESSMENT

To be carried out by the demolition contractor.

GENERIC RISK ASSESSMENTS – HOUSEBUILDING OPERATIONS

Hazard Or Work Activity Assessed :- | Ref No

14. SITE FENCING OPERATIONS.

Site Location | **Generic Assessments**

Risk Rating H = High M= Medium L= Low

Hazard = potential to cause harm. *Risk =probability of that harm occurring*

The risk rating criteria is detailed below

High - Work activity which has the potential to cause a fatal/major injury or health damage.

Medium – Work activity resulting in loss time injury or significant material or environmental damage

Low - Work activity resulting in minor injury but not lost time, or some material damage.

SIGNIFICANT HAZARDS	H	M	L
Hitting underground services		✓	
Manual handling		✓	
Wind loading causing fence to topple		✓	
Temporary fencing falling over		✓	

WHO MAYBE HARMED	
Employees	✓
Contractors	✓
Official Visitors	✓
General Public	✓

MEASURES TO CONTROL SIGNIFICANT RISK

1. Fencing contractor to be aware of underground services before commencing work.
2. Area to be scanned with a Cable Avoidance Tool before carrying out excavation work.
3. Fencing contractor to have manual handling assessment for fencing products
4. If mechanical plant is used, training certificates to be available.
5. If close boarded hoarding is used, bases to be of sufficient strength to withstand wind loading.
6. Temporary or de-mountable fencing to have sufficient base weights to withstand loadings, correctly orientated to the fence line and bases to be on solid level ground with panels secured together.

When control measures are applied, the resultant residual risk must be at an acceptable level.

INFORMATION INSTRUCTION TRAINING

Fence erectors to be trained to current industry standards. Certificates needed for any plant operator

PERSONAL PROTECTIVE EQUIPMENT	
Head Protection	✓
Safety Footwear	✓
Eye Protection	✓
Hearing Protection	
Respiratory Protection	
Safety Harness	
Hand Protection	

Remember PPE is a last resort not a first option

MANUAL HANDLING ASSESSMENT

To be carried out by fencing contractor depending on size and weights of materials used.

GENERIC RISK ASSESSMENTS – HOUSEBUILDING OPERATIONS

Hazard Or Work Activity Assessed :- | Ref No

15. HIGHLY FLAMMABLE LIQUIDS.

Site Location	**Generic Assessments**

Risk Rating H = High M= Medium L= Low

Hazard = potential to cause harm. *Risk =probability of that harm occurring*

The risk rating criteria is detailed below

High - Work activity which has the potential to cause a fatal/major injury or health damage.

Medium – Work activity resulting in loss time injury or significant material or environmental damage

Low - Work activity resulting in minor injury but not lost time, or some material damage.

SIGNIFICANT HAZARDS	**H**	**M**	**L**		**WHO MAYBE HARMED**	
Fire		✓			Employees	✓
					Contractors	✓
					Official Visitors0	
					General Public	

MEASURES TO CONTROL SIGNIFICANT RISK

Highly flammable liquids (HFL's) are controlled mainly though a process of elimination. HFL's are seldom used on sites, the products being replaced by safer non-flammable alternatives

When control measures are applied, the resultant residual risk must be at an acceptable level.

INFORMATION INSTRUCTION TRAINING

If HFL's are used operative to have specific product information on the flash point and the precautions to be taken.

PERSONAL PROTECTIVE EQUIPMENT		**MANUAL HANDLING ASSESSMENT**
Head Protection	✓	
Safety Footwear	✓	
Eye Protection		
Hearing Protection		
Respiratory Protection		
Safety Harness		
Hand Protection		
Remember PPE is a last resort not a first option		

GENERIC RISK ASSESSMENTS – HOUSEBUILDING OPERATIONS

Hazard Or Work Activity Assessed :- | Ref No

16. LIQUEFIED PETROLEUM GASES (LPG) & PROPANE TORCHES

Site Location	**Generic Assessments**

Risk Rating H = High M= Medium L= Low

Hazard = potential to cause harm. *Risk =probability of that harm occurring*

The risk rating criteria is detailed below

High - Work activity which has the potential to cause a fatal/major injury or health damage.

Medium – Work activity resulting in loss time injury or significant material or environmental damage

Low - Work activity resulting in minor injury but not lost time, or some material damage.

SIGNIFICANT HAZARDS	**H**	**M**	**L**		**WHO MAYBE HARMED**	
Fire and explosion	✓					
Gas is heavier than air and so any leaks will accumulate in low level drains, sums etc.	✓				Employees	✓
					Contractors	✓
					Official Visitors	✓
					General Public	✓

MEASURES TO CONTROL SIGNIFICANT RISK

1. LPG not to be used unless essential and then the size of cylinder to be kept as small as possible.
2. Mainly used for welfare facilities until mains electricity supply is available.
3. Cylinders to be kept to a minimum, stored in open air within a secure cage or similar and with appropriate warning signs posted.
4. Cylinders to be isolated except when actually in use.
5. Cabins in which LPG appliances are used to have high and low level ventilation.
6. If LPG fires used, annual inspection by a CORGI registered gas fitter to be available for the appliance.
7. If plumbers are using small propane torch within a plot, they must have a fire extinguisher with them.

When control measures are applied, the resultant residual risk must be at an acceptable level.

INFORMATION INSTRUCTION TRAINING

Plumbers instructed to have fire extinguishers with them whilst using propane torches.

PERSONAL PROTECTIVE EQUIPMENT		**MANUAL HANDLING ASSESSMENT**
Head Protection	✓	2 people required if handling larger cylinders.
Safety Footwear	✓	
Eye Protection		
Hearing Protection		
Respiratory Protection		
Safety Harness		
Hand Protection		
Remember PPE is a last resort not a first option		

GENERIC RISK ASSESSMENTS – HOUSEBUILDING OPERATIONS

Hazard Or Work Activity Assessed :- | Ref No

17. ENVIRONMENTAL PROTECTION – CONTROL OF DIESEL.

Site Location	**Generic Assessments**

Risk Rating H = High M= Medium L= Low

Hazard = potential to cause harm. *Risk =probability of that harm occurring*

The risk rating criteria is detailed below

High - Work activity which has the potential to cause a fatal/major injury or health damage.

Medium – Work activity resulting in loss time injury or significant material or environmental damage

Low - Work activity resulting in minor injury but not lost time, or some material damage.

SIGNIFICANT HAZARDS	**H**	**M**	**L**		**WHO MAYBE HARMED**	
Spillage from storage tank		✓				
Vandalism of storage tank and supply hose		✓			Employees	✓
Spillage whilst re-fuelling		✓				
Spillage or vandalism from Plant		✓			Contractors	✓
					Official Visitors	
					General Public	

MEASURES TO CONTROL SIGNIFICANT RISK

1. Diesel to be stored in proprietary double skinned or bunded tank.
2. Supply hose to be fitted with a lockable isolation valve and dispensing nozzle.
3. Plant to come to refuelling area where fuel can be dispensed under controlled conditions.
4. Provision for spill containment or absorption to be available.
5. Someone to be trained for familiar with using dispensing equipment and spill control equipment.
6. If diesel is supplied in drums, drum pump to be used for dispensing and drums to be stored in bunded area.

When control measures are applied, the resultant residual risk must be at an acceptable level.

INFORMATION INSTRUCTION TRAINING

Someone to be trained or familiar with using dispensing equipment and spill control equipment.

PERSONAL PROTECTIVE EQUIPMENT		**MANUAL HANDLING ASSESSMENT**
Head Protection	✓	
Safety Footwear	✓	
Eye Protection	✓	
Hearing Protection		
Respiratory Protection		
Safety Harness		
Hand Protection	✓	
Remember PPE is a last resort not a first option		

GENERIC RISK ASSESSMENTS – HOUSEBUILDING OPERATIONS

Hazard Or Work Activity Assessed :- | Ref No

18. INSTALLING TIMBER JOISTS.

Site Location	**Generic Assessments**

Risk Rating H = High M= Medium L= Low

Hazard = potential to cause harm. *Risk =probability of that harm occurring*

The risk rating criteria is detailed below

High - Work activity which has the potential to cause a fatal/major injury or health damage.

Medium – Work activity resulting in loss time injury or significant material or environmental damage

Low - Work activity resulting in minor injury but not lost time, or some material damage.

SIGNIFICANT HAZARDS	**H**	**M**	**L**		**WHO MAYBE HARMED**	
People falling	✓					
Material falling or slipping	✓				Employees	✓
Material collapsing in an uncontrolled manner	✓					
					Contractors	✓
					Official Visitors	
					General Public	

MEASURES TO CONTROL SIGNIFICANT RISK

1. Only trained and experienced joiners to do this work. If inexperienced they are to work under the direct supervision of experienced worker.
2. The external working platform should be set as close as reasonably practicable to the height operatives will be working i.e. top of floor joists etc. However, the fall distance must not exceed 900mm from the top of joist to the working platform.. A hop/step must be provided by the Contractor to enable access to the work location.
3. The recommended Soft Landing System or other suitable fall protection/prevention measures shall be placed below location of joists to establish fall protection at the earliest possible opportunity, prior to joists being positioned. Generally, a single layer of SLBS are permissable where ceiling heights do not exceed 2.6m above slab (measurements taken from the underside of joists). Where ceiling heights exceed 2.6m, alternate arrangements are to be identified on assessment. Note these controls can be used collectivley.
4. Wall plate must be of sufficient height above working platform to offer edge protection when lifting trusses into position on the wall plate (950mm).
5. Access from protected working platforms. There must be no walking of wall heads.
6. Joists are to be handled by sufficient people to maintain stability as well as manual handling hazards.
7. Joist to be adequately braced or chocked to prevent rolling or moving. They must not be loaded until they are permanently braced and fixed.
8. If access is required onto the joists, they must be adequately fixed and boarded to provide safe access and safe working platform, including edge protection.
9. All temporary access onto the joists must be removed from the plot when the plot is left unattended.

When control measures are applied, the resultant residual risk must be at an acceptable level.

INFORMATION INSTRUCTION TRAINING

Only trained and experienced joiners to do this work. If inexperienced they are to work under the direct supervision of experienced worker.

PERSONAL PROTECTIVE EQUIPMENT

Head Protection	✓
Safety Footwear	✓
Eye Protection	
Hearing Protection	
Respiratory Protection	
Safety Harness	
Hand Protection	

Remember PPE is a last resort not a first option

MANUAL HANDLING ASSESSMENT

GENERIC RISK ASSESSMENTS – HOUSEBUILDING OPERATIONS

Hazard Or Work Activity Assessed :- | Ref No

19. INSTALLING LINTELS AND RSJ'S.

Site Location	**Generic Assessments**

Risk Rating H = High M= Medium L= Low

Hazard = potential to cause harm. *Risk =probability of that harm occurring*

The risk rating criteria is detailed below

High - Work activity which has the potential to cause a fatal/major injury or health damage.

Medium – Work activity resulting in loss time injury or significant material or environmental damage

Low - Work activity resulting in minor injury but not lost time, or some material damage.

SIGNIFICANT HAZARDS	**H**	**M**	**L**		**WHO MAYBE HARMED**	
Manual handling	✓					
People falling		✓			Employees	✓
Material falling		✓				
					Contractors	✓
					Official Visitors	
					General Public	

MEASURES TO CONTROL SIGNIFICANT RISK

1. The weights and locations of heavy lintels, RSJ's and truss joists can be found in the design stage risk assessment for that house type. This information should be passed on to the installers so they can properly plan the work.
2. Mechanical means should be used whenever possible. Even if the item cannot be fully installed by mechanical means, it should be moved and positioned as close as possible thus minimising manual handling needs.
3. Site manager and the team leader of the installation men should review the work location and ensure scaffolding and any other temporary platform is in the optimum position for installing the component in safety.
4. All other site workers to be kept away from the area.

When control measures are applied, the resultant residual risk must be at an acceptable level.

INFORMATION INSTRUCTION TRAINING

Information on weights and dimensions involved (from the design stage risk assessments for that house type). The team leader should plan the work and discuss this with all those involved in carrying out the installation work so their efforts are properly co-ordinated.

PERSONAL PROTECTIVE EQUIPMENT		**MANUAL HANDLING ASSESSMENT**
Head Protection	✓	The main hazard is manual handling and so this risk assessment really is all based eliminating manual handling or ensuring there are sufficient people and safety access to enable safe installation of these components.
Safety Footwear	✓	
Eye Protection		
Hearing Protection		
Respiratory Protection		
Safety Harness		
Hand Protection	✓	
Remember PPE is a last resort not a first option		

GENERIC RISK ASSESSMENTS – HOUSEBUILDING OPERATIONS

Hazard Or Work Activity Assessed :- | Ref No

20. LAYING PAVING SLABS, KERBS, MANHOLE RINGS, DRAINS ETC.

Site Location | **Generic Assessments**

Risk Rating H = High M= Medium L= Low

Hazard = potential to cause harm. *Risk =probability of that harm occurring*

The risk rating criteria is detailed below

High - Work activity which has the potential to cause a fatal/major injury or health damage.

Medium – Work activity resulting in loss time injury or significant material or environmental damage

Low - Work activity resulting in minor injury but not lost time, or some material damage.

SIGNIFICANT HAZARDS	H	M	L
Manual handling	✓		
Traps to hands and fingers	✓		
Material falling onto feet		✓	
Poorly stacked/stored material falling onto children	✓		

WHO MAYBE HARMED	
Employees	✓
Contractors	✓
Official Visitors	
General Public	✓

MEASURES TO CONTROL SIGNIFICANT RISK

1. All such materials should be stored at low level, preferably in a secure compound. Manhole rings must be stored horizontally. Gully pots must be horizontal and checked to prevent movement.
2. Material stored in an area accessible to the public (especially children) must have 2m high secure fencing around the materials.
3. Packs of paving slabs and block paving must not be left unattended in public places.
4. Use mechanical means whenever possible for the transfer of materials.
5. Use lifting aids such as trolleys, barrows, lifting tongues etc when placing materials to minimise manual handling (see also manual handling assessment)

When control measures are applied, the resultant residual risk must be at an acceptable level.

INFORMATION INSTRUCTION TRAINING

Operatives must be aware of kinetic lifting techniques and how to assess loads before lifting. Toolbox talks are required to remind them of these basic principles.

PERSONAL PROTECTIVE EQUIPMENT

Head Protection	✓
Safety Footwear	✓
Eye Protection	
Hearing Protection	
Respiratory Protection	
Safety Harness	
Hand Protection	✓

Remember PPE is a last resort not a first option

MANUAL HANDLING ASSESSMENT

Site manager and supervisor or team leader to assess the actual work at the job site.

GENERIC RISK ASSESSMENTS – HOUSEBUILDING OPERATIONS

Hazard Or Work Activity Assessed :- | Ref No

21. MOBILE PLANT

Site Location	**Generic Assessments**

Risk Rating H = High M= Medium L= Low

Hazard = potential to cause harm. *Risk =probability of that harm occurring*

The risk rating criteria is detailed below

High - Work activity which has the potential to cause a fatal/major injury or health damage.

Medium – Work activity resulting in loss time injury or significant material or environmental damage

Low - Work activity resulting in minor injury but not lost time, or some material damage.

SIGNIFICANT HAZARDS	**H**	**M**	**L**		**WHO MAYBE HARMED**	
Struck by moving vehicle	✓					
Overturning of plant	✓				Employees	✓
Injured by moving parts of mechanical equipment		✓				
Noise		✓			Contractors	✓
					Official Visitors	✓
					General Public	✓

MEASURES TO CONTROL SIGNIFICANT RISK

1. All plant to have any necessary thorough examination certificates on site. (see manual for full guidance).
2. All plant operators to be competent and have a competent assessment certificate from a recognised scheme.
3. If the site terrain warrants, plant must have rollover protection or topple protection as appropriate. This information should be detailed in the health and safety plan. If ROPS and/or TOPS protection is required, then the operators must use the seat belts fitted to the equipment.
4. Whenever possible quiet plant to be used.
5. Mobile plant operating routes to be segregated from the public and site pedestrians, especially in congested areas such as gateway, compounds etc. see section in manual on traffic management and vehicle movement.
6. Should mobile plant be used to undertake suspended load lifting operations this must be controlled through a lifting plan that must be produced and provided to persons supervising and undertaking these operations.
7. All mobile plant to be returned to secure compound or totally immobilised whenever site is left unattended.

When control measures are applied, the resultant residual risk must be at an acceptable level.

INFORMATION INSTRUCTION TRAINING

Competence certificates required for all plant operators

PERSONAL PROTECTIVE EQUIPMENT		**MANUAL HANDLING ASSESSMENT**
Head Protection	✓	
Safety Footwear	✓	
Eye Protection		
Hearing Protection		
Respiratory Protection		
Safety Harness		
Hand Protection		
Remember PPE is a last resort not a first option		

GENERIC RISK ASSESSMENTS – HOUSEBUILDING OPERATIONS

Hazard Or Work Activity Assessed :- | Ref No

22. ROADWORK & WORK ON THE PUBLIC HIGHWAYS & FOOTPATHS.

Site Location | **Generic Assessments**

Risk Rating H = High M= Medium L= Low

Hazard = potential to cause harm. *Risk =probability of that harm occurring*

The risk rating criteria is detailed below

High - Work activity which has the potential to cause a fatal/major injury or health damage.

Medium – Work activity resulting in loss time injury or significant material or environmental damage

Low - Work activity resulting in minor injury but not lost time, or some material damage.

SIGNIFICANT HAZARDS	H	M	L		WHO MAYBE HARMED	
Stuck by moving vehicle	✓					
Striking underground services	✓				Employees	✓
Vehicles endangered by the roadworks	✓					
Pedestrians ad public endangered by work		✓			Contractors	✓
Noise and dust		✓				
Possible risk from overhead services	✓				Official Visitors	✓
					General Public	✓

MEASURES TO CONTROL SIGNIFICANT RISK

1. Operatives and the supervisor to be trained in accordance with the New Roads and Streetworks Act
2. All work to be signed, guarded and lit in accordance with the guidance to New Road & Streetworks.
3. Details of underground services to be on site together with a CAT locator.
4. Area to be checked for overhead services. If there are any, details of the service, safe clearance distance and warning signs/barriers must be determined

When control measures are applied, the resultant residual risk must be at an acceptable level.

INFORMATION INSTRUCTION TRAINING

Operatives and supervisor to be trained in accordance with the New Roads & Streetworks Act

PERSONAL PROTECTIVE EQUIPMENT			MANUAL HANDLING ASSESSMENT
High Visibility Clothing	✓		
Head Protection	✓		
Safety Footwear	✓		
Eye Protection			
Hearing Protection			
Respiratory Protection			
Safety Harness			
Hand Protection			

Remember PPE is a last resort not a first option

GENERIC RISK ASSESSMENTS – HOUSEBUILDING OPERATIONS

Hazard Or Work Activity Assessed :- | Ref No

23. WORKING WITH SEWAGE.

Site Location	**Generic Assessments**

Risk Rating H = High M= Medium L= Low

Hazard = potential to cause harm. *Risk =probability of that harm occurring*

The risk rating criteria is detailed below

High - Work activity which has the potential to cause a fatal/major injury or health damage.

Medium – Work activity resulting in loss time injury or significant material or environmental damage

Low - Work activity resulting in minor injury but not lost time, or some material damage.

SIGNIFICANT HAZARDS	**H**	**M**	**L**
Health hazards		✓	
Weils Disease/Leptospirosis		✓	
Lack of oxygen	✓		
Hazard of explosion	✓		

WHO MAYBE HARMED	
Employees	✓
Contractors	✓
Official Visitors	
General Public	

MEASURES TO CONTROL SIGNIFICANT RISK

1. Anyone working with sewage to have toolbox talk on the health hazards.
2. If work involves entering confined spaces or sumps, special precautions required. See separate risk assessment.
3. Welfare facilities must be available so the person can thoroughly wash before consuming food, drink or at end of the work.
4. If there is a risk of heavy contamination, showers will be required.
5. All contaminated clothing must be removed before entering rest cabins or taking food and drink. 'Dirty' locker may be required to store contaminated clothing away from other clothing.
6. If there is a risk of methane or build up of toxic gases then special precautions are necessary. Site manager and contractor to produce specific assessment as required.
7. If there is a risk of lack of oxygen again site manager and contractor to produce specific assessment.

When control measures are applied, the resultant residual risk must be at an acceptable level.

INFORMATION INSTRUCTION TRAINING

Anyone working with sewage to have toolbox talk on the health hazards and be given the information cards.

PERSONAL PROTECTIVE EQUIPMENT	
Full Overalls	✓
Head Protection	✓
Safety Footwear	✓
Eye Protection	
Hearing Protection	
Respiratory Protection (where applicable)	✓
Safety Harness	
Hand Protection	✓

Remember PPE is a last resort not a first option

MANUAL HANDLING ASSESSMENT

GENERIC RISK ASSESSMENTS – HOUSEBUILDING OPERATIONS

Hazard Or Work Activity Assessed :- | Ref No

24. INSTALLING HEAVY & DIFFICULT ITEMS SUCH AS BOILERS, KITCHEN APPLIANCES ETC.

Site Location | **Generic Assessments**

Risk Rating H = High M= Medium L= Low

Hazard = potential to cause harm. *Risk =probability of that harm occurring*

The risk rating criteria is detailed below

High - Work activity which has the potential to cause a fatal/major injury or health damage.

Medium – Work activity resulting in loss time injury or significant material or environmental damage

Low - Work activity resulting in minor injury but not lost time, or some material damage.

SIGNIFICANT HAZARDS	H	M	L
Manual handling	✓		
Slips and trips		✓	
Hand injuries			✓

WHO MAYBE HARMED	
Employees	✓
Contractors	✓
Official Visitors	
General Public	

MEASURES TO CONTROL SIGNIFICANT RISK

1. Employee to assess working area and access route. All obstructions and tripping hazards to be removed. Site manager to assist if required.
2. Contractor to assess the weight and size of load and the final positioning and determine if additional help is required.
3. Site manager to assist with mechanical handling if available to get the equipment as close to the final position as required before manual handling into position.

When control measures are applied, the resultant residual risk must be at an acceptable level.

INFORMATION INSTRUCTION TRAINING

Knowledge of kinetic handling techniques.

PERSONAL PROTECTIVE EQUIPMENT		MANUAL HANDLING ASSESSMENT
Head Protection		See above. Plus contractor to carry out specific assessment for each installation.
Safety Footwear	✓	
Eye Protection		
Hearing Protection		
Respiratory Protection		
Safety Harness		
Hand Protection	✓	
Remember PPE is a last resort not a first option		

GENERIC RISK ASSESSMENTS – HOUSEBUILDING OPERATIONS

Hazard Or Work Activity Assessed :- | Ref No

25. INSTALLATION OF WINDOWS AND GLAZING.

Site Location	**Generic Assessments**

Risk Rating H = High M= Medium L= Low

Hazard = potential to cause harm. *Risk =probability of that harm occurring*

The risk rating criteria is detailed below

High - Work activity which has the potential to cause a fatal/major injury or health damage.

Medium – Work activity resulting in loss time injury or significant material or environmental damage

Low - Work activity resulting in minor injury but not lost time, or some material damage.

SIGNIFICANT HAZARDS	**H**	**M**	**L**
People falling	✓		
Material falling	✓		
Slips and trips			✓
Manual handling			✓
Injures to hands			
Hazards from glass breaking			

WHO MAYBE HARMED	
Employees	✓
Contractors	✓
Official Visitors	
General Public	

MEASURES TO CONTROL SIGNIFICANT RISK

1. Windows are in general fitted from inside the plot or from existing scaffolding. Therefore the hazard of a person or material falling is well controlled.
2. The glazing is likewise installed through this means and so the hazards are well controlled.
3. Depending on style of window there may be a manual handling problem associated with locating the larger frames. It is for the contractor to ensure there is sufficient labour to handle the frames.
4. The contractor and site manager to ensure the working area and access routes are clear of obstructions.
5. Further assessment must be carried out to ensure that the risk of falling is removed or reduced through the use of working platforms or secure ladder usage.

When control measures are applied, the resultant residual risk must be at an acceptable level.

INFORMATION INSTRUCTION TRAINING

Operatives to be trained by contractor in this work

PERSONAL PROTECTIVE EQUIPMENT		**MANUAL HANDLING ASSESSMENT**
Head Protection	✓	See above plus assessments from the contractor
Safety Footwear	✓	
Eye Protection		
Hearing Protection		
Respiratory Protection		
Safety Harness		
Hand Protection	✓	
Remember PPE is a last resort not a first option		

GENERIC RISK ASSESSMENTS – HOUSEBUILDING OPERATIONS

Hazard Or Work Activity Assessed :- | Ref No

26. WORK IN LOFTS.

Site Location	**Generic Assessments**

Risk Rating H = High M= Medium L= Low

Hazard = potential to cause harm. *Risk =probability of that harm occurring*

The risk rating criteria is detailed below

High - Work activity which has the potential to cause a fatal/major injury or health damage.

Medium – Work activity resulting in loss time injury or significant material or environmental damage

Low - Work activity resulting in minor injury but not lost time, or some material damage.

SIGNIFICANT HAZARDS	**H**	**M**	**L**		**WHO MAYBE HARMED**	
Person falling		✓				
Lack of lighting			✓		Employees	✓
Man made mineral fibre		✓				
					Contractors	✓
					Official Visitors	
					General Public	

MEASURES TO CONTROL SIGNIFICANT RISK

1. When working lofts temporary boards are needed in the loft.
2. Access must be from a secure ladder.
3. Adequate temporary lighting must be provided by the contractor unless there is permanent lighting installed. Temporary lighting must be a 100volt or less. Back up torches should also be provided.
4. If the loft has already been insulated the operative should be aware of the hazards of MMMF. Overalls and gloves should be used. If the MMMF has to be moved then a disposable respirator will be necessary.

When control measures are applied, the resultant residual risk must be at an acceptable level.

INFORMATION INSTRUCTION TRAINING

Awareness tool box talk of the hazards of man made mineral fibre insulation.

PERSONAL PROTECTIVE EQUIPMENT		**MANUAL HANDLING ASSESSMENT**
Overalls	✓	
Head Protection		
Safety Footwear	✓	
Eye Protection		
Hearing Protection		
Respiratory Protection	✓	
Safety Harness		
Hand Protection	✓	
Remember PPE is a last resort not a first option		

GENERIC RISK ASSESSMENTS – HOUSEBUILDING OPERATIONS

Hazard Or Work Activity Assessed :- | Ref No

27. MAN MADE MINERAL FIBRES.

Site Location | **Generic Assessments**

Risk Rating H = High M= Medium L= Low

Hazard = potential to cause harm. *Risk =probability of that harm occurring*

The risk rating criteria is detailed below

High - Work activity which has the potential to cause a fatal/major injury or health damage.

Medium – Work activity resulting in loss time injury or significant material or environmental damage

Low - Work activity resulting in minor injury but not lost time, or some material damage.

SIGNIFICANT HAZARDS	H	M	L
Health hazards from dust to respiratory system		✓	
Irritation to skin			✓
Person falling		✓	
Lack of lighting			✓

WHO MAYBE HARMED	
Employees	✓
Contractors	✓
Official Visitors	
General Public	

MEASURES TO CONTROL SIGNIFICANT RISK

1. Man made mineral fibres as used as loft insulation is capable of causing damage to the lung tissue and the respiratory system in general. Therefore exposure must be controlled and respiratory systems protected.
2. Insulation contractor to have COSHH assessments of such work.
3. Operatives to be aware of the health hazards and have respiratory protective equipment
4. Overalls required which do not attract fibres. Gloves are needed. The fibres do cause irritation to the skin.
5. There is a hazard of person falling through the loft (temporary boarding required) and there must be adequate lighting. See separate risk assessment.

When control measures are applied, the resultant residual risk must be at an acceptable level.

INFORMATION INSTRUCTION TRAINING

Operatives to be aware of the health hazards of MMMF and the contractors COSHH assessments

PERSONAL PROTECTIVE EQUIPMENT	
Overalls	✓
Head Protection	
Safety Footwear	✓
Eye Protection	
Hearing Protection	
Respiratory Protection	✓
Safety Harness	
Hand Protection	✓

Remember PPE is a last resort not a first option

MANUAL HANDLING ASSESSMENT

GENERIC RISK ASSESSMENTS – HOUSEBUILDING OPERATIONS

Hazard Or Work Activity Assessed :- | Ref No

28. CARTRIDGE TOOLS.

Site Location	**Generic Assessments**

Risk Rating H = High M= Medium L= Low

Hazard = potential to cause harm. *Risk =probability of that harm occurring*

The risk rating criteria is detailed below

High - Work activity which has the potential to cause a fatal/major injury or health damage.

Medium – Work activity resulting in loss time injury or significant material or environmental damage

Low - Work activity resulting in minor injury but not lost time, or some material damage.

SIGNIFICANT HAZARDS	**H**	**M**	**L**
Uncontrolled discharge of fixing	✓		
Recoil causing operative to be injured	✓		
Cartridge exploding in an uncontrolled manner	✓		

WHO MAYBE HARMED	
Employees	✓
Contractors	✓
Official Visitors	
General Public	✓

MEASURES TO CONTROL SIGNIFICANT RISK

1. Cartridge operated tools should NEVER be used in a careless manner.
2. Pins should not be driven through pre-drilled holes unless a special adapter is used which will ensure that the pin is guided right up to the instant of contact with the working surface.
3. Anyone using a cartridge operated tool should do so only from a firm and stable position.
4. A scaffold is preferable to a ladder, because the pressure needed to cock a spring operated tool, and the instinctive reaction to the recoil;, may cause a workman standing on a ladder to overbalance.
5. A mobile tower scaffold should be securely tied to the structure. Accidents have occurred when cartridge operated tools were being used from high mobile tower scaffolds which were free standing. The scaffolds were overturned, it is believed, by the horizontal forces applied to the cartridge tools, which required a thrust of about 13.6kg (30lb) against the working surface before they could be fired.
6. A tool should never be left unattended when loaded, and should only be loaded as the last operation immediately prior to firing.
7. Cartridge operated tools should not be used in areas where there is flammable vapour or risk of dust explosion.
8. When loading the tool there should be no need for more than light finger pressure to insert the cartridge. If more than that is necessary, the attempt to load should be abandoned and the tool returned for examination.
9. BS 4078 : 1996 specifies that a cartridge operated tool shall have a rigid, lockable box or case, provided with compartments, to contain the splinter guard; the operating and maintenance instructions and a pair of goggles. It is usual for makers to supplement this minimum provision with additional compartments for cleaning tools, cartridge boxes and pins. It is recommended that a tool should always be taken to the place of use in its box, and should be kept in it, and the box locked, whenever it is not in use. Tools should never be kept loose in store, but always in the maker's box, which should be checked for completeness of contents whenever it is taken from or returned to the store. The store itself should be adequately secure, ands only properly authorised persons should be allowed access.
10. Cartridges for immediate use should be kept in the box with the tool in which they are to be used. They should never be kept loose, but always in the minimum available size of (labelled) makers' package.

Bulk supplies should be stored in accordance with the requirements of the Explosives Act and with any others imposed by local and/or police authorities.

When control measures are applied, the resultant residual risk must be at an acceptable level.

GENERIC RISK ASSESSMENTS – HOUSEBUILDING OPERATIONS

Hazard Or Work Activity Assessed :- Ref No

CARTRIDGE TOOLS.

INFORMATION INSTRUCTION TRAINING

Training must be given on the safe operation of the particular cartridge gun, prior to its use by each operative.

PERSONAL PROTECTIVE EQUIPMENT		**MANUAL HANDLING ASSESSMENT**
Head Protection		
Safety Footwear		
Eye Protection	✓	
Hearing Protection	✓	
Respiratory Protection		
Safety Harness		
Hand Protection		
Remember PPE is a last resort not a first option		

GENERIC RISK ASSESSMENTS – HOUSEBUILDING OPERATIONS

Hazard Or Work Activity Assessed :- | Ref No

29. OVERHEAD ELECTRICITY CABLES

Site Location	**Generic Assessments**

Risk Rating H = High M= Medium L= Low

Hazard = potential to cause harm. *Risk =probability of that harm occurring*

The risk rating criteria is detailed below

High - Work activity which has the potential to cause a fatal/major injury or health damage.

Medium – Work activity resulting in loss time injury or significant material or environmental damage

Low - Work activity resulting in minor injury but not lost time, or some material damage.

SIGNIFICANT HAZARDS	**H**	**M**	**L**		**WHO MAYBE HARMED**	
Death from electrocution	✓				Employees	✓
					Contractors	✓
					Official Visitors	
					General Public	

MEASURES TO CONTROL SIGNIFICANT RISK

1. For work at or near overhead power lines, application of this hierarchy suggests the following actions:-

a) Find out if the work has to be carried out under or near overhead lines(can it be avoided altogether) or, if this cannot be done;

b) Divert all overhead lines clear of the work area, if it is not reasonable for this to be done;

c) Make lines dead while the work is in progress or, if this cannot be done;

d) Work around the live overhead lines using the precautions outlined in this guidance.

e) In some cases it may be necessary to use suitable combinations of these measures.

2. The precautions depend on the nature of the work at the site. It is strongly recommended they are taken even when work near the line is of short duration. There are three broad categories of this wok.

a) Work areas where there will be no scheduled work or passage of plant under the lines. Here barriers can prevent close approach, particularly for construction or quarrying work.

b) Work areas where plant will pass under the lines. Here defined passageways should be made.

c) Work areas where work will be carried out beneath the lines. Here further precautions must be taken in addition to the erection of barriers with passageway.

3. Danger can be reduced by erecting ground level barriers parallel to the overhead line to prevent any part of the mobile plant approaching too close to the lien. The recommended minimum distance from a barrier to the position, projected vertically onto the ground, of the conductor nearest to that barrier is 6 metres.

4. Where this minimum distance could be encroached upon by parts of mobile plant (e.g. crane jibs, excavator buckets etc.), it is recommended that the plant operators are given an additional indication of the position of the barriers. A line of coloured plastic flags or 'bunting', mounted at a height of from 3 to 6 metres above ground level immediately over the barriers, could be used. Where bunting etc is provided at heights of 6 metres, the supports for the bunting should be sited at least 9 metres from the position of the nearest conductor to the barrier when projected vertically onto the ground. Care is necessary when erecting bunting and flags to avoid contact or approach near to the conductors.

5. It is recommended that ground level barriers should be substantial enough that they are not easily moved. Examples are:

a) A stout post and rail fence; or

b) A tension wire fence earthed at both ends, having flags on the wire, the earthing arrangements of the fence being agreed in consultation with the electricity supplier; or

GENERIC RISK ASSESSMENTS – HOUSEBUILDING OPERATIONS

Hazard Or Work Activity Assessed :- | Ref No

OVERHEAD ELECTRICITY CABLES

d) Large steel drums, for example 182 litre (40 gallon) oil drums filled with rubble and placed at frequent intervals; or

e) An earth bank not less than 1 metre high and marked by posts to stop vehicles; or substantial timber bulks or concrete blocks to act as wheel stops.

6. Fences, posts, oil drums etc should be made as visible as possible, for example by being painted with red and white stripes. Alternate red and white plastic warning flags may be hung on or immediately above any fence line to improve their visibility.
7. Storage materials in the area between the overhead line(s) and any ground level barrier shall be prohibited.
8. Where passage is required under the overhead line either along an access road or from one part of the work area to another, it is recommended that the danger area should be made as small as possible. This should be achieved by restricting the width of the passageway crosses the route of the lien at right angles.
9. The following precautions are recommended:

a) The number of such passageways should be kept to a minimum.

b) The passageway should be fenced to define its route, and goal posts erected at each end to act as gateways in the barriers running parallel to the overhead line.

c) The goal posts should be constructed from rigid, non-conducting material such as suitable timber or plastic pipe and distinctively marked in, for example red and white stripes.

d) At either side of the passageway, on or near the goal posts, there should be warning notices giving the cross-bar clearance height and instructing drivers to lower jibs, tipper bodies etc and keep below this height while crossing.

e) On sites where work continues after dark the notices and crossbars should be lit. It has also been found that illuminating the conductors is useful. The light fittings used from this illumination should be sites at ground level projecting the light upward towards the conductors.

f) Additional warning notices should be erected on the approaches to the crossing, say about 30 metres away.

g) The surface of the passageway should be levelled, firmed up and well maintained to prevent undue tilting or bouncing of the equipment when under the overhead line.

10. It is recommended that such ropes are sited on both sides of the line at least 12 metres horizontally from the path of the outer conductor. This increased distance is essential to reduce danger from loss of safety clearance due to the possibility of ropes being stretched by cranes and other appliances moving towards the line. Where steel ropes are used, they should be effectively connected to earth at each end. Coloured 'bunting' can be attached to the tensioned rope to make it more easily visible.

When control measures are applied, the resultant residual risk must be at an acceptable level

INFORMATION INSTRUCTION TRAINING

Everybody who works near overhead lines with a machine or equipment needs to know what the dangers are and the precautions to take.

PERSONAL PROTECTIVE EQUIPMENT		**MANUAL HANDLING ASSESSMENT**
Head Protection		
Safety Footwear		
Eye Protection		
Hearing Protection		
Respiratory Protection		
Safety Harness		
Hand Protection		
Remember PPE is a last resort not a first option		

GENERIC RISK ASSESSMENTS – HOUSEBUILDING OPERATIONS

Hazard Or Work Activity Assessed :- | Ref No

30. POWER TOOLS

Site Location	**Generic Assessments**

Risk Rating H = High M= Medium L= Low

Hazard = potential to cause harm. *Risk =probability of that harm occurring*

The risk rating criteria is detailed below

High - Work activity which has the potential to cause a fatal/major injury or health damage.

Medium – Work activity resulting in loss time injury or significant material or environmental damage

Low - Work activity resulting in minor injury but not lost time, or some material damage.

SIGNIFICANT HAZARDS	**H**	**M**	**L**
Parts being ejected from machine when in use i.e.:-	✓		
Abrasive wheel disintegrating	✓		
Sparks flying from machine when in use	✓		
Fumes from petrol or diesel engine	✓		
Short circuit of electrical power tool	✓		

WHO MAYBE HARMED	
Employees	✓
Contractors	✓
Official Visitors	
General Public	

MEASURES TO CONTROL SIGNIFICANT RISK

1. Ensure that the equipment to be used is the correct item to be used for that particular type of job.
2. Has the equipment be en properly maintained and serviced;
3. Carry out pre-start checks to ensure all safety devices are in place and in good order.
4. Has the operative been trained to use that particular piece of equipment and to correctly mount the attachments (abrasive wheels, drill bits etc)
5. Is the operative in possession of the correct PPE to use with the power tool and does the use of this PPE require the operative to have training in its correct use?
6. Is anyone else at risk from the activity involving the use of the power tool?
7. Is dust suppression or any other associated control measure required to be used with this power tool (LEV?)
8. Is the power tool to be used in a confined space or a flammable atmosphere? If so then the power tool will need to conform to the requirements of working in that particular hazardous area.
9. Does the power tool itself give off sparks or fumes when in use, if so then control measures will need to be put in place to deal with these.
10. All attachments will need to be compatible with he power tool to be used and the job it is required to do.

When control measures are applied, the resultant residual risk must be at an acceptable level.

INFORMATION INSTRUCTION TRAINING

All operatives must have had adequate training and have received all necessary information in conjunction with the power tool to be used.

PERSONAL PROTECTIVE EQUIPMENT

Head Protection	
Safety Footwear	
Eye Protection	✓
Hearing Protection	✓
Respiratory Protection	✓
Safety Harness	
Hand Protection	

Remember PPE is a last resort not a first option

MANUAL HANDLING ASSESSMENT

GENERIC RISK ASSESSMENTS – HOUSEBUILDING OPERATIONS

Hazard Or Work Activity Assessed :- | Ref No

31. MANUAL HANDLING

Site Location | **Generic Assessments**

Risk Rating H = High M= Medium L= Low

Hazard = potential to cause harm. *Risk =probability of that harm occurring*

The risk rating criteria is detailed below

High - Work activity which has the potential to cause a fatal/major injury or health damage.

Medium – Work activity resulting in loss time injury or significant material or environmental damage

Low - Work activity resulting in minor injury but not lost time, or some material damage.

SIGNIFICANT HAZARDS	H	M	L
Lifting heavy or awkward loads		✓	

WHO MAYBE HARMED	
Employees	✓
Contractors	✓
Official Visitors	
General Public	

MEASURES TO CONTROL SIGNIFICANT RISK

A manual handling assessment must be carried out prior to the work being carried out.

When you or your workers are involved in manual handling, prevent injury by:

1. Avoiding unnecessary handling;
2. Identifying, before you start work, operations which involve lifting heavy or awkward loads or repetitive lifting operations.
3. Find ways of either avoiding the handling altogether, or using mechanical aids to minimise the amount of manual handling;
4. Sharing loads which have to be lifted by hand. Remember, while some workers are stronger than others, no one is immune from injury;
5. Positioning loads by machine and planning to reduce the height from which they have to be lifted and he distance over which they have to be carried;
6. Training workers in safe lifting techniques and sensible handling of loads;
7. Not allowing any one on their own to lift building blocks weighing more than 20 KGs;
8. Ordering bagged materials in small, easily handled sizes where possible.

When control measures are applied, the resultant residual risk must be at an acceptable level.

INFORMATION INSTRUCTION TRAINING

Ensure all operatives engaged in manual handling operations are trained to carry out their tasks competently, without danger to themselves.

PERSONAL PROTECTIVE EQUIPMENT	
Overalls	
Head Protection	
Safety Footwear	✓
Eye Protection	
Hearing Protection	
Respiratory Protection	
Safety Harness	
Hand Protection	

Remember PPE is a last resort not a first option

MANUAL HANDLING ASSESSMENT

GENERIC RISK ASSESSMENTS – HOUSEBUILDING OPERATIONS

Hazard Or Work Activity Assessed :-	Ref No
32. USE OF MOBILE CRANES ON SITE	

Site Location	**Generic Assessments**

Risk Rating H = High M= Medium L= Low

Hazard = potential to cause harm. *Risk =probability of that harm occurring*

The risk rating criteria is detailed below

High - Work activity which has the potential to cause a fatal/major injury or health damage.

Medium – Work activity resulting in loss time injury or significant material or environmental damage

Low - Work activity resulting in minor injury but not lost time, or some material damage.

SIGNIFICANT HAZARDS	**H**	**M**	**L**		**WHO MAYBE HARMED**	
Load falling	✓				Employees	✓
Crane overturning	✓					
Ballast block crushing personnel against structures	✓				Contractors	✓
Limbs becoming entangled within chains etc	✓					
					Official Visitors	
					General Public	✓

MEASURES TO CONTROL SIGNIFICANT RISK

1. All lifts should be properly planned before the event by an Appointed Person acting as the Lift Planner with the necessary training and expertise.
2. A risk assessment must be carried out on each intended lift unless they are generic, control must include.

a) Selecting the correct type of crane to undertake the lift;

b) Correct siting of the crane when carrying out the lift;

c) Correctly calculate the load, do not guess at the weight of the load;

d) Use of the correct lifting gear;

e) Personnel must carry out the correct procedures;

f) Ensure that the necessary test certificates are in place and that proper maintenance has been carried out;

g) Ensure that only properly trained personnel are used i.e. lift supervisor, banksman/slinger and crane driver.

3. All cranes capable of lifting more than one tonne on construction sites should be fitted with an Automatic Safety Load Indicator.
4. Before all lifting operations begin the lift supervisor should ensure that all personnel are well clear of the load and moving parts of the crane, and that the work area is clearly marked and signed to exclude unauthorised personnel in line with the lift plan and associated Risk Assessments.
5. The ground should be level and capable of supporting the full weight of the crane and its load. In addition where necessary, sufficient and suitable packing in the form of sound timbers should be place under the outriggers to evenly distribute the weight.
6. All lifting gear used including any chain slings, wire ropes or webbing should be well maintained, tested (thoroughly examined), and suitable for the job.
7. The loads should always be kept under the lifting point and not dragged or pulled along the ground.
8. Slewing should be done slowly to maintain control of the load and minimise swinging.
9. The driver should stay at the controls when loads are suspended and the crane should not travel unless specifically designed for such duties.
10. Loads should be correctly slung by properly trained and Appointed Slingers (who, depending on the complexity of the lift, may also act as the lift supervisor);
11. Good practice is to undertake a trial lift which should be carried out with the load just off the ground to show whether it is correctly balanced and secure.

GENERIC RISK ASSESSMENTS – HOUSEBUILDING OPERATIONS

Hazard Or Work Activity Assessed :-	Ref No
USE OF MOBILE CRANES ON SITE	

Site Location	**Generic Assessments**

11. Tailing ropes should be used to control large and unwieldy loads such as bundles of roof trusses, scaffold tubes and loads presenting large wind catching area.
12. Lifting should not be attempted when the wind strength may cause the load to move in an uncontrollable manner.
13. The crane should have its outriggers fully extended and be so positioned that:

a) The driver has a clear view of the operations;

b) There is sufficient operating space;

c) It is well away from

i. The edges of excavations;

ii. Fixed structures against which people may be trapped by moving parts such as counterweights etc;

iii. Overhead electric power lines;

14. Where work at height is required as part of the lifting operation, please also read the relevant working at height assessment in conjunction with the lifting plan.
15. Prior to any lifting operations ensure that the traffic management assessment is reviewed and reflects the necessary site conditions required during lifting operations.

When control measures are applied, the resultant residual risk must be at an acceptable level

INFORMATION INSTRUCTION TRAINING

Information needs to be posted to exclude unauthorised personnel from working area.
Banksman/slinger and crane drivers need to be trained to a standard recognised by the HSE.
Appointed person planning/supervising lifts needs to have been trained to a standard recognised by the HSE.

PERSONAL PROTECTIVE EQUIPMENT		**MANUAL HANDLING ASSESSMENT**
High Visibility Clothing	✓	
Head Protection	✓	
Safety Footwear	✓	
Eye Protection		
Hearing Protection		
Respiratory Protection		
Safety Harness		
Hand Protection		
Remember PPE is a last resort not a first option		

GENERIC RISK ASSESSMENTS – HOUSEBUILDING OPERATIONS

Hazard Or Work Activity Assessed :- | Ref No

33. WORKING ADJACENT WATER

Site Location	**Generic Assessments**

Risk Rating H = High M= Medium L= Low

Hazard = potential to cause harm. *Risk =probability of that harm occurring*

The risk rating criteria is detailed below

High - Work activity which has the potential to cause a fatal/major injury or health damage.

Medium – Work activity resulting in loss time injury or significant material or environmental damage

Low - Work activity resulting in minor injury but not lost time, or some material damage.

SIGNIFICANT HAZARDS	**H**	**M**	**L**
Drowning	✓		

WHO MAYBE HARMED	
Employees	✓
Contractors	✓
Official Visitors	
General Public	✓

MEASURES TO CONTROL SIGNIFICANT RISK

1. Barriers to stop people from falling into the water or other liquid. In most cases guard rails and toe boards or similar barrier (at least 950mm high) will be needed at open edges to ensure people cannot fall into the water or liquid. In factories and some other relocations it may be possible to cover the surface of the container or to drain it.
2. Life jackets or buoyancy aids. Life preservers may have to be worn where people are liable to fall into water and he risk is great. Ensure anyone who needs to wear a life preserver is trained in its use and what to do in an emergency.
3. At flowing rivers, lines which can be grabbed by someone in the water can be stretched from bank to bank to provide additional safeguard rescue equipment. This may include a boat (especially important when people may fall into the sea or flowing water), lifebelts and safety lines.
4. People need to know what to do in an emergency and how to raise the alarm, practice drills must be held and logged.
5. All equipment must be properly maintained.

When control measures are applied, the resultant residual risk must be at an acceptable level.

INFORMATION INSTRUCTION TRAINING

Information with regard to emergency procedures must be given at the induction stage. Appropriate training must be given to all those who need to be able to use the equipment. First aiders must have been trained in how to resuscitate a person who has been drowning, and suffered from exposure to cold water conditions.

PERSONAL PROTECTIVE EQUIPMENT		**MANUAL HANDLING ASSESSMENT**
Life Jacket (as req'd)	✓	
Head Protection		
Safety Footwear		
Eye Protection		
Hearing Protection		
Respiratory Protection		
Safety Harness		
Hand Protection		
Remember PPE is a last resort not a first option		

GENERIC RISK ASSESSMENTS – HOUSEBUILDING OPERATIONS

Hazard Or Work Activity Assessed :-	Ref No
34. USE OF LADDERS	

Site Location	**Generic Assessments**

Risk Rating H = High M= Medium L= Low

Hazard = potential to cause harm. *Risk =probability of that harm occurring*

The risk rating criteria is detailed below

High - Work activity which has the potential to cause a fatal/major injury or health damage.

Medium – Work activity resulting in loss time injury or significant material or environmental damage

Low - Work activity resulting in minor injury but not lost time, or some material damage.

SIGNIFICANT HAZARDS	**H**	**M**	**L**		**WHO MAYBE HARMED**	
Falls of operatives from ladder	✓				Employees	✓
Falls of materials from ladders onto people below	✓					
					Contractors	✓
					Official Visitors	
					General Public	✓

MEASURES TO CONTROL SIGNIFICANT RISK

1. A ladder must only be used where a risk assessment has been completed which demonstrates that the use of more suitable work equipment is not justified because of the low risk and;
   a) short duration of the work
   b) existing features on site which cannot be altered.
2. Ensure that any surface upon which a ladder rests is stable, firm, of sufficient strength and of suitable composition safely to support the ladder so that its rungs or steps remain horizontal, and any loading intended to be placed on it.
3. Ensure the ladder is so positioned to ensure its stability during use.
4. A suspended ladder shall be attached in a secure manner and so that, with the exception of a flexible ladder, it cannot be displaced and swinging is prevented.
5. Any portable ladder must be prevented from slipping during use by a) securing the stiles at or near their upper or lower ends and b) an effective anti-slip or other effective stability device or any other arrangement of equivalent effectiveness.
6. Ensure any ladder used for access is long enough to protrude sufficiently above the place of landing to which it provides access, unless other measures have been taken to ensure a firm handhold.
7. No interlocking or extension ladder shall be used unless its sections are prevented from moving relative to each other while in use.
8. Any mobile ladder must be prevented from moving before it is stepped on.
9. Where a ladder or run of ladders rises a vertical distance of 9m or more above its base, there shall, where reasonably practicable, be provided at suitable intervals sufficient safe landing areas or rest platforms.
10. Every ladder shall be used in such a way that,
    a) a secure handhold and secure support are always available to the user;
    b) the user can maintain a safe handhold when carrying a load
11. In case of a step ladder, where the maintenance of a handhold is not practicable when a load is carried, a risk assessment should be undertaken to demonstrate that the use of a stepladder is justified because of the low risk and the short duration of use. For example utilising the second rung of a ladder to access traditional housebuilding units for electrical/plumbing work could be classed as low risk. Alternatively standing on the top rung to pull cable on a refurbishment can be considered high risk.

When control measures are applied, the resultant residual risk must be at an acceptable level.

INFORMATION INSTRUCTION TRAINING
Operatives should be competent persons, the person undertaking the task should have such practical and theoretical knowledge and actual experience of the type of the ladder which he has to examine as well enable him to detect defects or weaknesses which it is the purpose of the examination to discover and to assess their importance in relation to the strength and functions of the ladder. In other words, the competent person must not only be able to discover defects but must be able to tell what effect they are likely to have. Information instruction and training can be achieved through bespoke courses and/or tool box talks etc.

PERSONAL PROTECTIVE EQUIPMENT		MANUAL HANDLING ASSESSMENT
Head Protection	✓	
Safety Footwear	✓	
Eye Protection		
Hearing Protection		
Respiratory Protection		
Safety Harness		
Hand Protection		
Remember PPE is a last resort not a first option		

GENERIC RISK ASSESSMENTS – HOUSEBUILDING OPERATIONS

Hazard Or Work Activity Assessed :- | Ref No

35. HOUSEKEEPING

Site Location	**Generic Assessments**

Risk Rating H = High M= Medium L= Low

Hazard = potential to cause harm. *Risk =probability of that harm occurring*

The risk rating criteria is detailed below

High - Work activity which has the potential to cause a fatal/major injury or health damage.

Medium – Work activity resulting in loss time injury or significant material or environmental damage

Low – Work activity resulting in minor injury but not lost time, or some material damage.

SIGNIFICANT HAZARDS	**H**	**M**	**L**		**WHO MAYBE HARMED**	
Rubbish and waste material	✓				Employees	✓
Timber with protruding nails	✓					
Hazardous materials (such as brick acid, petrol etc)					Contractors	✓
					Official Visitors	✓
					General Public	✓

MEASURES TO CONTROL SIGNIFICANT RISK

1. Plan how the site will be kept tidy. In particular, walkways and stairs should be kept free of tripping hazards such as trailing wires and loose materials.
2. It is especially important to ensure that emergency routes are kept free from trip hazards.
3. Remove nails from loose timbers to prevent foot and other injuries.
4. Clear paper, timber offcuts and other flammable materials to reduce fire risks.
5. Ensure that all substances which are hazardous to health are locked away in a secure room, when they have been used and finished with.
6. Ensure that skips are removed from site when they are full, and where necessary closed skips should be used to prevent rubbish being blown over the site.

When control measures are applied, the resultant residual risk must be at an acceptable level.

INFORMATION INSTRUCTION TRAINING

Ensure all operatives and supervisors attending the site are inducted into the housekeeping rules and systems to be employed on the site.

PERSONAL PROTECTIVE EQUIPMENT		**MANUAL HANDLING ASSESSMENT**
Head Protection		
Safety Footwear		
Eye Protection		
Hearing Protection		
Respiratory Protection		
Safety Harness		
Hand Protection		
Remember PPE is a last resort not a first option		

GENERIC RISK ASSESSMENTS – HOUSEBUILDING OPERATIONS

Hazard Or Work Activity Assessed :- | Ref No

36. CONTAMINATED LAND

Site Location	**Generic Assessments**

Risk Rating H = High M= Medium L= Low

Hazard = potential to cause harm. *Risk =probability of that harm occurring*

The risk rating criteria is detailed below

High - Work activity which has the potential to cause a fatal/major injury or health damage.

Medium – Work activity resulting in loss time injury or significant material or environmental damage

Low – Work activity resulting in minor injury but not lost time, or some material damage.

SIGNIFICANT HAZARDS	**H**	**M**	**L**		**WHO MAYBE HARMED**	
Skin absorption	✓				Employees	✓
Skin penetration	✓					
Ingestion	✓				Contractors	✓
Inhalation	✓					
Asphyxiation/gassing	✓				Official Visitors	✓
Fire/explosion	✓					
					General Public	✓

MEASURES TO CONTROL SIGNIFICANT RISK

1. Check historical information for any indication that the site may have been contaminated by previous users of the land.
2. The site should then be inspected for any indications of possible contamination.
3. A specialist contractor should have been employed to carry out a soil survey for possible contaminants
4. Defining the contaminated area.
5. Achieving a good standard of hygiene is one of the most important aspects of the regime of protective measures to be taken.
6. A canteen or mess room should be installed on the clean side of the site, which can only be entered by going though the hygiene unit.
7. No eating or smoking should take place in the dirty area itself.
8. A boot wash should be situated immediately outside the entrance to the hygiene unit.
9. Where vehicles enter or exit from the dirty area, this facility should be provided on the boundary of the dirty area.
10. PPE must be appropriate to the contaminates present. This should include safety wellingtons, hand protection and protective overalls. Respiratory protection may be required, depending on the type of contaminates.
11. Where possible, entry into confined spaces, trenches etc should be minimised.
12. Lining the sides of tunnels and excavations with sheeting during ground working can reduce contact with spoils etc.
13. Weather condition such as hot dry days and operations such as those involving excavators etc may produce considerable quantities of dust which can be blown off site thus producing a possible risk to members of the public as well as to those working on site. Therefore precautions such as water sprays to dampen down dust should be taken where appropriate.
14. Where contaminated materials are to be removed from site, it will be necessary to provide sheeting to open lorries or skips used for removal of contaminated soils. This should be carried out in a defined area on the dirty side of the site. Those carrying out sheeting should, wherever possible, avoid contact with contaminated soils.

When control measures are applied, the resultant residual risk must be at an acceptable level.

GENERIC RISK ASSESSMENTS – HOUSEBUILDING OPERATIONS

Hazard Or Work Activity Assessed :- Ref No

CONTAMINATED LAND

15. The employer should decide about the need for health surveillance as part of the COSHH assessment. Health surveillance is appropriate where:

a) A disease or adverse effect may be related to exposure; and

b) It is likely that this could arise in the circumstances of the work; and

c) There are valid techniques for detecting the disease or effect.

d) For example, work with cadmium, phenol, arsenic, will normally need health surveillance including biological monitoring of workers.

16. Air monitoring of working positions (particularly in the cabs of excavators), within the hygiene unit and in the clean part of the site can give early warning that controls may be slipping on the site. Boundary samples may be useful in reassuring the public and watercourse should also be checked.

17. Strong supervision is an essential requirement. Without it the employer's duty to ensure use of precautionary measures may not be satisfied.

INFORMATION INSTRUCTION TRAINING

Once procedures for work have been drawn up, information, instruction and training needs should be fulfilled so that employees know the risk and can apply the precautions required. Site management should be adequately trained to give them sufficient knowledge to manage the contaminated site competently.

PERSONAL PROTECTIVE EQUIPMENT		MANUAL HANDLING ASSESSMENT
Overalls	✓	
Head Protection		
Safety Footwear	✓	
Eye Protection	✓	
Hearing Protection		
Respiratory Protection	✓	
Safety Harness		
Hand Protection		
Remember PPE is a last resort not a first option		

GENERIC RISK ASSESSMENTS – HOUSEBUILDING OPERATIONS

Hazard Or Work Activity Assessed :- | Ref No

37. CONFINED SPACES

Site Location	**Generic Assessments**

Risk Rating H = High M= Medium L= Low

Hazard = potential to cause harm. *Risk =probability of that harm occurring*

The risk rating criteria is detailed below

High - Work activity which has the potential to cause a fatal/major injury or health damage.

Medium – Work activity resulting in loss time injury or significant material or environmental damage

Low – Work activity resulting in minor injury but not lost time, or some material damage.

SIGNIFICANT HAZARDS	**H**	**M**	**L**		**WHO MAYBE HARMED**	
Lack of oxygen	✓				Employees	✓
Dangerous build up of poisonous fumes or gases	✓					
Explosion caused by excess of oxygen or flammable gases	✓				Contractors	✓
Solids or liquids suddenly filling the confined space	✓				Official Visitors	
					General Public	

MEASURES TO CONTROL SIGNIFICANT RISK

1. Use alternative means to carry out the work in the confined space (avoid entry wherever possible)
2. If you cannot avoid entry into a confined space make sure you have a safe system for working inside the space.
3. Supervisors should be given responsibility to ensure that the necessary precautions are taken to check safety at each stage and may need to remain present while work in underway.
4. The competent person may need to consider other factors, e.g. concerning claustrophobia or fitness to wear breathing apparatus, and medical advice on an individual's suitability may be needed.
5. Mechanical and electrical isolation of equipment is essential if it could otherwise operate, or be operated, inadvertently. If gas, fume or vapour could enter the confined space, physical isolation of pipework etc needs to be made. In all cases a check should be made to ensure isolation is effective.
6. Cleaning before entry. This may be necessary to ensure fumes do not develop from residues etc while the work is being done.
7. Check the size of the entrance. Is it big enough to allow workers wearing all the necessary equipment to climb in and out easily, and provide ready access and egress in an emergency?
8. You may be able to increase the number of openings and therefore improve ventilation. Mechanical ventilation may be necessary to ensure an adequate supply of fresh air.
9. Testing the air. This may be necessary to check that it is free from both toxic and flammable vapours and that it is fit to breathe. Testing should be carried out by a competent person using a suitable gas detector which is correctly calibrated. Where the risk assessment indicates that conditions may change, or as a further precaution, continuous monitoring of the air may be necessary.
10. No sparking tools and specially protected lighting are essential where flammable or potentially explosive atmospheres are likely.
11. This is essential if he air inside he space cannot be made fit to breathe because of gas, fume or vapour present, or lack of oxygen.
12. Never try to 'sweeten' the air in a confined space with oxygen as this can greatly increase the risk of a fire or explosion.

Preparation of emergency arrangements. This will need to cover the necessary equipment, training and practice drills.

GENERIC RISK ASSESSMENTS – HOUSEBUILDING OPERATIONS

Hazard Or Work Activity Assessed :- Ref No

CONFINED SPACES

14. Provision of rescue harnesses. Lifelines attached to harnesses should run back to a point outside he confined space.
15. An adequate communications system is needed to enable communication between people inside and outside the confined space and to summon help in an emergency.
16. It is necessary to station someone outside to keep watch and to communicate with anyone inside, raise the alarm quickly in an emergency, and take charge of the rescue procedures.
17. A permit to work system must be used when entry into a confined space is required.
18. Emergency procedures. When things go wrong, people may be exposed to serious and immediate danger. Effective arrangements for raising the alarm and carrying out rescue operations in an emergency are essential.

When control measures are applied, the resultant residual risk must be at an acceptable level

INFORMATION INSTRUCTION TRAINING

Everyone involved will need to be properly trained and instructed to make sure they know what to do and how to do it safely.

PERSONAL PROTECTIVE EQUIPMENT		**MANUAL HANDLING ASSESSMENT**
Overalls	✓	
Head Protection	✓	
Safety Footwear	✓	
Eye Protection		
Hearing Protection		
Respiratory Protection (where applicable)	✓	
Safety Harness	✓	
Hand Protection		
PVC Gauntlets	✓	
Remember PPE is a last resort not a first option		

GENERIC RISK ASSESSMENTS – HOUSEBUILDING OPERATIONS

Hazard Or Work Activity Assessed :- | Ref No

38. AVOIDANCE OF ACCIDENTS DUE TO OVERLOADING VEHICLES

Site Location	**Generic Assessments**

Risk Rating H = High M= Medium L= Low

Hazard = potential to cause harm. *Risk =probability of that harm occurring*

The risk rating criteria is detailed below

High - Work activity which has the potential to cause a fatal/major injury or health damage.

Medium – Work activity resulting in loss time injury or significant material or environmental damage

Low – Work activity resulting in minor injury but not lost time, or some material damage.

SIGNIFICANT HAZARDS	**H**	**M**	**L**		**WHO MAYBE HARMED**	
Damage to vehicle		✓			Employees	✓
Causing an accident on the highway or site	✓					
					Contractors	✓
					Official Visitors	
					General Public	✓

MEASURES TO CONTROL SIGNIFICANT RISK

1. Ensure that the weight of the vehicle is capable of carrying intended load.
2. If unsure include a factor of safety by multiplying the weight to be carried by 1.5 to ensure capacity of vehicle is not exceeded.
3. Check weight of item to be moved, if unsure check with manufacturer of items to be moved.
4. Ensure load is located in middle of loading area.
5. Ensure load is secure and will not move when being transported.
6. Do not speed when vehicle is under-load.
7. Check tyre pressures are correct.
8. If fitted with overloading warning system, this should be checked prior to each start of shift.

When control measures are applied, the resultant residual risk must be at an acceptable level.

INFORMATION INSTRUCTION TRAINING

Ensure drivers know the load capacity of their vehicles, and the items to be carried, also ensure that they are trained in securing loads to the transport and smooth driving techniques to avoid unnecessary load shift.

PERSONAL PROTECTIVE EQUIPMENT		**MANUAL HANDLING ASSESSMENT**
Overalls		
Head Protection		
Safety Footwear		
Eye Protection		
Hearing Protection		
Respiratory Protection		
Safety Harness		
Hand Protection		
Remember PPE is a last resort not a first option		

GENERIC RISK ASSESSMENTS – HOUSEBUILDING OPERATIONS

Hazard Or Work Activity Assessed :- | Ref No

39. USE OF MOBILE TOWERS ON SITE

Site Location	**Generic Assessments**

Risk Rating H = High M= Medium L= Low

Hazard = potential to cause harm. *Risk =probability of that harm occurring*

The risk rating criteria is detailed below

High - Work activity which has the potential to cause a fatal/major injury or health damage.

Medium – Work activity resulting in loss time injury or significant material or environmental damage

Low – Work activity resulting in minor injury but not lost time, or some material damage.

SIGNIFICANT HAZARDS	**H**	**M**	**L**		**WHO MAYBE HARMED**	
Falling from tower	✓				Employees	
Tower in connection with electricity cables	✓					
Tower overturning					Contractors	
					Official Visitors	
					General Public	

MEASURES TO CONTROL SIGNIFICANT RISK

1. Ensure the base is not on soft and uneven spots, the supporting ground should be made solid or be bridged. Where it is appropriate to use sole plates or base plates, they should be checked to see that they are properly installed. The foundation should be checked to see that there is no possibility of undermining.
2. Ensure that castors/wheels are restrained in he tower frame, and any adjustable legs should be checked for correct seating. While the tower is in use the wheels should be braked.
3. For tube and fitting towers, standards and ledgers should be checked to ensure that they are vertical and level, respectively: similar checks should be carried out for systems and prefabricated towers. Damaged or grossly corroded tubes should be replaced or reinforced with sound members.
4. Bracing and other members on prefabricated towers should be checked to ensure that latching hooks are seated properly and functioning correctly. Joints should be inspected for damage to tubes, welds or connections, or looseness of fit. Any damaged couplers on tube and fitting towers should be replaced, and loose or incorrectly fitted ones should be rectified. Sleeve couplers should always be used for connecting members end to end.
5. A check should be made that there is the correct number of boards in the width of the scaffold, and that they are adequately supported. Boards should be examined for excessive damage, and any faulty boards replaced as necessary. Platform boards should be (950mm) checked for the correct operation of any trap doors.
6. The height of the guardrail should be checked and any loose, defective or missing items corrected.
7. Check for plan and I bracing, depending on the type of tower scaffold and manufacturer's instructions. Missing braces should be replaced and loose braces tightened.
8. The attachment and positioning of stabilisers or outriggers should be checked. On mobile towers the eight to base ratio or the manufacturer's recommended maximum height should not be exceeded. On static towers, ties, when required, must be fixed and maintained.

GENERIC RISK ASSESSMENTS – HOUSEBUILDING OPERATIONS

Hazard Or Work Activity Assessed :- | Ref No

USE OF MOBILE TOWERS ON SITE

9. Sheeted towers are more vulnerable to wind forces than those without sheeting and should therefore be tied unless specifically designed to be free standing: the manufacturer's advice should be followed. Tie the tower rigidly to the structure it is serving or provide other additional support if:
   - The tower is sheeted;
   - It is likely to be exposed to strong winds;
   - It is used for carrying out grit blasting or water jetting
   - Heaving materials are lifted up the outside of the tower; or
   - The tower base is too small to ensure stability for he height of the platform.
10. When moving a mobile tower:
   - Check that there are no power lines or overhead obstructions in the way;
   - Check that there are no holes or dips in the ground;
   - Do not allow people or materials to remain on it as towers tip over very easily when being moved.
11. Many U.K. manufacturers of aluminium alloy towers normally recommend a maximum height to least base ratio of 3:1 (if the tower is to be used outside) and 3.5:1 (if the tower is to be used inside): these ratios will not apply, however if the towers are likely to be exposed to anything more than light winds. Manufacturers recommendations must be followed.

When control measures are applied, the resultant residual risk must be at an acceptable level

INFORMATION INSTRUCTION TRAINING

Training Required: Towers are to only be erected by PASMA trained personnel
Instruction on the erection of scaffold towers and awareness of associated risks and hazards. Manufacturers' guidance on the erection of the tower must be available and adhered to.

FVPERSONAL PROTECTIVE EQUIPMENT		**MANUAL HANDLING ASSESSMENT**
Overalls		
Head Protection	✓	
Safety Footwear	✓	
Eye Protection		
Hearing Protection		
Respiratory Protection		
Safety Harness		
Hand Protection		
Remember PPE is a last resort not a first option		

GENERIC RISK ASSESSMENTS – HOUSEBUILDING OPERATIONS

Hazard Or Work Activity Assessed :- | Ref No

40. HAND TOOLS

Site Location	**Generic Assessments**

Risk Rating H = High M= Medium L= Low

Hazard = potential to cause harm. *Risk =probability of that harm occurring*

The risk rating criteria is detailed below

High - Work activity which has the potential to cause a fatal/major injury or health damage.

Medium – Work activity resulting in loss time injury or significant material or environmental damage

Low – Work activity resulting in minor injury but not lost time, or some material damage.

SIGNIFICANT HAZARDS	**H**	**M**	**L**		**WHO MAYBE HARMED**	
					Employees	✓
Broken/defective hand tools causing injury	✓					
Using incorrect hand tool for the job	✓				Contractors	✓
					Official Visitors	
					General Public	

MEASURES TO CONTROL SIGNIFICANT RISK

1. Hand tools should be visually inspected for defects, prior to use.
2. Simple hand tools usually require minimal maintenance, but where necessary this should be carried out as and when required.
3. Where necessary, defective hand tools should be replaced if it is not economical to have an effective repair carried out.
4. Hand tools should only be used for the job they were designed to do, e.g. screwdrivers should not be used as chisels.
5. Where specialist hand tools are to be used, training may be necessary prior to their use.

When control measures are applied, the resultant residual risk must be at an acceptable level.

INFORMATION INSTRUCTION TRAINING

Where specialist hand tools are to be used instruction in their correct use may be necessary, i.e. some woodworking hand tools used by an apprentice may need to be under the instruction and guidance of a trained joiner/tradesman.

PERSONAL PROTECTIVE EQUIPMENT		**MANUAL HANDLING ASSESSMENT**
Overalls		
Head Protection		
Safety Footwear		
Eye Protection		
Hearing Protection		
Respiratory Protection		
Safety Harness		
Hand Protection		
Remember PPE is a last resort not a first option		

GENERIC RISK ASSESSMENTS – HOUSEBUILDING OPERATIONS

Hazard Or Work Activity Assessed :-	Ref No
41. REVERSING VEHICLES	

Site Location	**Generic Assessments**

Risk Rating H = High M= Medium L= Low

Hazard = potential to cause harm. *Risk =probability of that harm occurring*

The risk rating criteria is detailed below

High - Work activity which has the potential to cause a fatal/major injury or health damage.

Medium – Work activity resulting in loss time injury or significant material or environmental damage

Low – Work activity resulting in minor injury but not lost time, or some material damage.

SIGNIFICANT HAZARDS	**H**	**M**	**L**		**WHO MAYBE HARMED**	
Pedestrians being run over by reversing vehicles	✓				Employees	✓
					Contractors	✓
					Official Visitors	✓
					General Public	✓

MEASURES TO CONTROL SIGNIFICANT RISK

1. Eliminate the need to reverse. Implement one-way systems around site and in loading and unloading area provide designated turning areas.
2. Reduce reversing operations, reduce the number of vehicle operations movements. As far as possible, instruct drivers not to reverse unless absolutely necessary.
3. Ensure adequate visibility for drivers: fit CCTV, convex mirrors, illers lens, etc. to overcome restrictions to visibility from the driver's seat, particularly at the sides and rear of vehicles.
4. Ensure safe systems of work are followed. Design vehicle reversing areas which:-

- Allow adequate space for vehicles to manoeuvre safety;
- Exclude pedestrians; and
- Are clearly signed and have physical stops or buffers to warn drivers that they have reached the limit of the safe reversing area.

5. Fit radar proximity devices to vehicles to indicate to drivers when there are objects near the vehicle. Ensure everyone on site understands site rules on vehicle safety.
6. Drivers and signallers need to be in constant communication during reversing operations.
7. Signallers should not be put at risk from vehicle movements, e.g. by standing directly behind reversing vehicles.
8. Ensure all vehicles on site are fitted with appropriate warning devices.
9. Provide warnings when vehicles are reversing, ensure reversing warning lights and alarms are in good working order and instruct workers to keep clear of moving vehicles.
10. Signallers used to direct pedestrian and vehicle movements need to be competent in the methods used to ensure their own and other people's safety.
11. Safe systems of work need to be provided to prevent signallers being struck by vehicles.

When control measures are applied, the resultant residual risk must be at an acceptable level.

GENERIC RISK ASSESSMENTS – HOUSEBUILDING OPERATIONS

Hazard Or Work Activity Assessed :-	Ref No
REVERSING VEHICLES	

12. The provision of refuges, observation positions, control rooms, radio communications and CCTV systems can help remove signallers from area of vehicle movement.
13. Signallers should be authorised by site management and can be easily distinguished on site by the use of colour coded helmets, clearly labelled "high visibility jackets" etc.
14. A checklist of safe working practices for signallers should be provided.

INFORMATION INSTRUCTION TRAINING

Banksman/signallers should be trained in accordance with HSE recognised standards and provide with a checklist of safe working practices.

PERSONAL PROTECTIVE EQUIPMENT		**MANUAL HANDLING ASSESSMENT**
High Visibility Clothing	✓	
Head Protection	✓	
Safety Footwear	✓	
Eye Protection		
Hearing Protection		
Respiratory Protection		
Safety Harness		
Hand Protection		
Remember PPE is a last resort not a first option		

GENERIC RISK ASSESSMENTS – HOUSEBUILDING OPERATIONS

Hazard Or Work Activity Assessed :-	Ref No
42. HOISTS	

Site Location	**Generic Assessments**

Risk Rating H = High M= Medium L= Low

Hazard = potential to cause harm. *Risk =probability of that harm occurring*

The risk rating criteria is detailed below

High - Work activity which has the potential to cause a fatal/major injury or health damage.

Medium – Work activity resulting in loss time injury or significant material or environmental damage

Low – Work activity resulting in minor injury but not lost time, or some material damage.

SIGNIFICANT HAZARDS	**H**	**M**	**L**
Falling material	✓		
Entrapment or crushing	✓		

WHO MAYBE HARMED	
Employees	✓
Contractors	✓
Official Visitors	✓
General Public	✓

MEASURES TO CONTROL SIGNIFICANT RISK

At the beginning of each shift management must ensure that the operator of the inclined hoist checks that:

a) the base unit, chassis and mast supporting structure are sound, free from patent defect and adequately located and supported;

b) powered mechanisms for slewing and for raising the mast or carriage etc, are working properly and the operators controls are undamaged;

c) the mast is sound and adequately supported;

d) the carriage, platform or skip is sound and secure;

e) the hoisting rope is serviceable and properly located on its sheaves, guides, etc;

f) the enclosure provides suitable protection as detailed in paragraphs 7 to 12;

g) the safety arrester gear is free and operational

Platform hoist operators and management must ensure that;

- the hoist is inspected weekly, and thoroughly examined every six months by a competent person
- that the results of inspections are recorded
- the hoist is protected by a substantial enclosure to prevent someone from being struck by any moving part of the hoist or falling down the hoistway
- gates are provided at all landings
- the gates are kept shut except when the platform is at the landing
- the control rope is arranged so that the hoist can be operated from one position only
- the operator of the hoist is over 18, trained and competent
- the hoist is clearly marked with its safe working load
- there is a proper signalling system
- if the hoist is for materials only, there is a warning notice on the platform or cage to stop people riding on

When mast platforms are used, make sure:

a) masts are rigidly connected to the structures against which they are operating and outriggers are used when necessary;

b) working platforms are provided with suitable guard rails and toe boards;

c) the controls only operate from the working platform .

GENERIC RISK ASSESSMENTS – HOUSEBUILDING OPERATIONS

Hazard Or Work Activity Assessed :- | Ref No

HOISTS

Select a hoist which is suitable for the site and capable of lifting the loads required. Also:

a) set the controls up:

• so that the hoist can be operated from one position only, for example, ground level; and

• the operator can see all the landing levels from the operating position.

the edge of the hoist platform is close to the edge of the landing so that there is no gap to fall

To prevent people being struck by the platform or other moving parts:

a) enclose the hoistway and places where people might be struck, for example, working platforms or window openings;

b) provide gates at all landings and at ground level.

Prevent falling down the hoistway by making sure:

a) the hoistway is fenced where people could fall down it;

b) the gates at landings are kept closed except during loading and unloading. Gates should be secure and not free to swing into the hoistway;

Prevent being hit by falling materials by:

a) stopping loads falling from the platform, for example, make sure wheelbarrows are securely chocked and are not overfilled;

b) not carrying loose loads such as bricks. Put loose loads in proper containers or use a hoist with an enclosed platform;

c) not overloading the platform. It should be clearly marked with its safe working load;

d) enclosing the hoistway.

When control measures are applied, the resultant residual risk must be at an acceptable level

INFORMATION INSTRUCTION TRAINING

The manufacturers' operating instructions (printed in English or a language the operator is fluent in) should be available at all times for operators and trainees. Anyone under 18 years of age should not be allowed to be operating or giving signals to the hoist operator, unless that person is under the direct supervision of a competent person for the purpose of training. The record of training should be kept.
Persons who operate, erect or install inclined hoists should be carefully selected and adequately trained, or undergoing formal training under direct supervision. They should be competent to operate the hoist

PERSONAL PROTECTIVE EQUIPMENT		MANUAL HANDLING ASSESSMENT
Overalls		
Head Protection	✓	
Safety Footwear	✓	
Eye Protection	✓	
Hearing Protection		
Respiratory Protection		
Safety Harness		
Hand Protection		
Remember PPE is a last resort not a first option		

GENERIC RISK ASSESSMENTS – HOUSEBUILDING OPERATIONS

Hazard Or Work Activity Assessed :- | Ref No

43. FALSEWORK

Site Location	**Generic Assessments**

Risk Rating H = High M= Medium L= Low

Hazard = potential to cause harm. *Risk =probability of that harm occurring*

The risk rating criteria is detailed below

High - Work activity which has the potential to cause a fatal/major injury or health damage.

Medium – Work activity resulting in loss time injury or significant material or environmental damage

Low – Work activity resulting in minor injury but not lost time, or some material damage.

SIGNIFICANT HAZARDS	**H**	**M**	**L**		**WHO MAYBE HARMED**	
Injury or death caused by falling materials	✓				Employees	✓
Injury or death from falls from height	✓					
Injury or death caused by falsework failure	✓				Contractors	✓
					Official Visitors	✓
					General Public	✓

MEASURES TO CONTROL SIGNIFICANT RISK

A person should be nominated to co-ordinate the various aspects of building the falsework. The main contractor should normally nominate the co-ordinator as described in BS 5975

The primary functions of the nominated person are to ensure that:

a) all concerned with the construction of the falsework are made aware of the up-to-date factors affecting it;

b) all are working to the most up-to-date drawings and that these are consistent with the detailers' or the falsework designers' instructions;

c) the falsework details have been checked by a second person;

d) all are working with the same programme towards the same loading time and date;

e) the interface areas between different parts of the falsework structures, different contractors, or different categories of falsework, have been fully considered and detailed or specified;

f) any alterations in construction materials or methods have been agreed by the detailer and others concerned;

g) the erected falsework has been checked before loading;

h) loading permits are issued;

i) permits for the dismantling of the falsework are given;

j) records about the falsework construction are kept including any decisions that altered its size or layout;

k) the load on the falsework is not likely to be affected by any variations made in the layout of the permanent structure, since the falsework design was completed.

The erection and dismantling of the falsework should be carried out by a team who are either experienced or familiar with the equipment or who are instructed and closely supervised.

1) All falseworks should be carefully checked during their construction and have a thorough final check prior to being loaded. It would be beneficial if the final check was carried out by some experienced person unconnected with those who constructed the falsework, as their fresh observations may pick up errors unnoticed by the erection team. After final checking using a formal checklist, some form of **written permit to load** should be issued even if this only consists of a note in the site diary.

2) When decking is being struck, sentries or warning notices should be posted to keep persons clear of areas where formwork materials may fall. Formwork and falsework should be carefully dismantled and not stripped by removing lower members to produce a sudden collapse.

Hazard Or Work Activity Assessed :-	Ref No
FALSEWORK	

3) When decking is being struck, sentries or warning notices should be posted to keep persons clear of areas where formwork materials may fall. A permit to strip falsework should be used after all control measures have been checked and put into place.

4) Formwork and falsework should be carefully dismantled and not stripped by removing lower members to produce a sudden collapse.

When control measures are applied, the resultant residual risk must be at an acceptable level

INFORMATION INSTRUCTION TRAINING

Adequate training must be provided for all the workforce especially when an unfamiliar falsework system is to be used.

PERSONAL PROTECTIVE EQUIPMENT		**MANUAL HANDLING ASSESSMENT**
Overalls		
Head Protection	✓	
Safety Footwear	✓	
Eye Protection		
Hearing Protection		
Respiratory Protection		
Safety Harness		
Hand Protection		
Remember PPE is a last resort not a first option		

GENERIC RISK ASSESSMENTS – HOUSEBUILDING OPERATIONS

Hazard Or Work Activity Assessed :-	Ref No
44. WORKING WITH MOBILE ELEVATED WORKING PLATFORMS	

Site Location	**Generic Assessments**

Risk Rating H = High M= Medium L= Low

Hazard = potential to cause harm. *Risk = probability of that harm occurring*

The risk rating criteria is detailed below

High - Work activity which has the potential to cause a fatal/major injury or health damage.

Medium - Work activity resulting in loss time injury or significant material or environmental damage

Low - Work activity resulting in minor injury but not lost time, or some material damage.

SIGNIFICANT HAZARDS	H	M	L
Falls from height	✓		
Collision with another vehicle or structure	✓		
Overturning of vehicle	✓		

WHO MAYBE HARMED	
Employees	✓
Contractors	✓
General Public	✓

MEASURES TO CONTROL SIGNIFICANT RISKS

These controls relate primarily to "cherry pickers". However, the advice is also relevant to scissor-type MEWPs if the operator is at risk of falling, e.g. as a result of leaning over the guardrail.

Precautions for safe work from MEWP include:

1) guard rails round the edge of the basket to stop the user falling
2) toe-boards around the edge of the platform
3) use of stability devices, e.g. outriggers, provided to make the machine stable
4) locking-out controls (other than those in the basket) to prevent inadvertent operation
5) a safe system of work which includes:
   a) planning the job (the lifting operations and lifting operations regulations 1998 reg.8)
   b) use of trained/experienced operator(s)
   c) instructions when to enter/leave the basket e.g. when basket is fully lowered
   d) instructions in emergency procedures such as evacuation, should the power be lost
   e) use, where necessary fall restraint or, in high risk situations, fall arrest equipment

High risk activities requiring fall arrest equipment are where:

1) there are protruding features which could trap the basket
2) nearby vehicles or mobile plant could foreseeable collide with, or make accidental contact with, the MEWP. Situations include work, in the vicinity of very wet or slippery road surfaces, and where the MEWP may intrude into the safety zone of a traffic management section
3) rapid movement of the machine is possible
4) the nature of the work being done from the basket may mean operators are more likely to lean out.

This may happen, for example when operators:

(I) inadvertently, or for reasons of speed and convenience, overreach or stretch from the basket and may overbalance

(II) are handling awkward work pieces which may move unexpectedly

When control measures are applied the resultant residual risk must be at an acceptable level.

INFORMATION INSTRUCTION TRAINING

Recognised training in the correct use of MEWPs and instruction on the controls of the particular machine

PERSONAL PROTECTIVE EQUIPMENT		MANUAL HANDLING ASSESSMENT
Head Protection	✓	
Safety Footwear	✓	
Eye Protection		
Hearing Protection		
Respiratory Protection		
Safety Harness	✓	
Remember PPE is a last resort not a first option		

GENERIC RISK ASSESSMENTS – HOUSEBUILDING OPERATIONS

Hazard Or Work Activity Assessed :-	Ref No
45. USE OF LASERS	

Site Location	**Generic Assessments**

Risk Rating H = High M= Medium L= Low

Hazard = potential to cause harm. *Risk = probability of that harm occurring*

The risk rating criteria is detailed below

High - Work activity which has the potential to cause a fatal/major injury or health damage.

Medium - Work activity resulting in loss time injury or significant material or environmental damage

Low - Work activity resulting in minor injury but not lost time, or some material damage.

SIGNIFICANT HAZARDS	**H**	**M**	**L**		**WHO MAYBE HARMED**	
Laser beam (damage to eyes)	✓				Employees	✓
					Contractors	✓
					Official Visitors	✓
					General Public	✓

MEASURES TO CONTROL SIGNIFICANT RISKS

The personnel who operate the laser and the personnel who may be exposed
Lasers are classified for safety reasons under BS EN 60825, broadly as follows:

Class 1 : These products are safe under all viewing conditions but are not practical for many construction activities

Class 2 : The laser beam should, where reasonably practicable, be terminated at the end of its useful path. The laser should not be aimed at vehicles or personnel particularly at head height.

Class 3A : While it is preferred to use class 2 lasers, there are times when, for example, due to high ambient light levels, more power may be required than is available from a Class 2 laser. In such cases a

Class 3A laser may be used but their use requires added precautions: e.g.

5) A person competent to supervise the safe use of lasers should be appointed wherever lasers above Class 2 are in use
6) Suitable and adequately trained personnel should be assigned to install, adjust and operate the laser equipment
7) Areas where such lasers are used should be treated as controlled areas, and access restricted to personnel who have been advised as to the precautions they should take.
8) Precautions should be taken to ensure that the laser beam is not intentionally directed at spectrally reflecting surfaces such as mirrors, lenses etc. Care must also be taken that reflecting surfaces are not accidentally introduced into the beam path.

Class 3B and 4 : these classes of laser are hazardous, particularly as the beam may be invisible to the eye. They require extreme caution and careful evaluation prior to their use.

INFORMATION INSTRUCTION TRAINING
All personnel in charge of or operating lasers must be adequately trained in their use and associated hazards.

PERSONAL PROTECTIVE EQUIPMENT		MANUAL HANDLING ASSESSMENT
Head Protection		
Safety Footwear		
Eye Protection where required	✓	
Hearing Protection		
Respiratory Protection		
Safety Harness		
Remember PPE is a last resort not a first option		

GENERIC RISK ASSESSMENTS – HOUSEBUILDING OPERATIONS

Hazard Or Work Activity Assessed :-	Ref No
46. WORKING ON ROOFS	

Site Location	**Generic Assessments**

Risk Rating H = High M= Medium L= Low

Hazard = potential to cause harm. *Risk = probability of that harm occurring*

The risk rating criteria is detailed below

High - Work activity which has the potential to cause a fatal/major injury or health damage.

Medium - Work activity resulting in loss time injury or significant material or environmental damage

Low - Work activity resulting in minor injury but not lost time, or some material damage.

SIGNIFICANT HAZARDS	H	M	L
Operative falling off roof	✓		
Materials falling off roof	✓		

WHO MAYBE HARMED	
Employees	✓
Contractors	✓
Official Visitors	✓
General Public	✓

MEASURES TO CONTROL SIGNIFICANT RISKS

All roof work should be undertaken in accordance with the current guidance given in HSE guidance booklet HS(G) 33 Health and 'Safety in Roofwork'

Effective planning by all parties is vital in ensuring safety in undertaking any roof work.

a) As an alternative to roof ladders, timber battens used for slated and tiled roofs can provide a reasonable secure foothold provided that:
- they are of good quality
- for 25mm x 38mm they are fixed to rafters not more than 450mm apart
- for 25mm x 50mm they are fixed to rafters no more that 600mm apart
- horizontal spacings fall in line, for example, with rung gaps in line with general purpose ladders

NOTE: Internal fall prevention/protection should be maintained as part of your House Type Work at Height Assessments, until all felt and batten work is completed.

b) Access:- The external scaffold must be in position and the platforms, double guardrails, brick-guards and toe-boards be such that they provide proper protection for the roof illers and anybody working or passing below the work area. Access by other trades needs to be controlled when roof workers are working overhead and there is risk of falling materials.

c) In order to allow ease of access for roof workers the maximum distance between working platforms and wall plate should be no more than 450mm.

d) Cutting roof tiles – Please see the National Federation Of Roofing Contractors Guidance Sheet "Controlling Silica when Disc Cutting Roof Tiles" (copy attached).

e) On some house types the roof can be very steeply sloping. In such cases the design stage risk assessment should identify this hazard and additional precautions in the form of ladder access or intermediate platforms may be required to ensure safe access and minimise fall or roll distances in the event of a roofer slipping. **See also Generic Risk Assessments 1, 2, 3, 4, 5 and 34.**

f) Adverse weather conditions need to be anticipated and suitable precautions taken. Rain, ice or snow can turn a secure footing into a skating rink. A roof should always be inspected before work starts to see if conditions have changed and to check whether it is safe to work.

g) A sudden gust of wind can lead to loss of balance. Roof sheets and, in some circumstances, tiles, slates or roofing felt should not be fixed in windy weather as people can easily be thrown off balance while carrying a

sheet up to or on the roof. When deciding whether to continue or suspend work consider:

- wind speed;
- the measures which have already been taken to prevent falls from the roof;
- the position and height of the roof and the size of the material being handled.

Contractors undertaking any roof work therefore need to make effective arrangements to ensure that wind speeds are constantly monitored in accordance with the relevant guidance in HSG 33.

h) For work of short duration (taking minutes rather than hours) it may not be reasonably practicable to install safeguards such as edge protection. The decision on the precautions to be taken will depend on an overall assessment of the risks involved which should consider:

- duration of the work;
- complexity of the work;
- pitch of the roof;
- condition of the roof;
- weather conditions;
- risk to those putting up edge protection;
- risk to other workers and the public.

The minimum standard for such short duration work on a pitched roof is:

- safe means of access to roof level;
- a properly constructed and supported roof ladder (see below) or equivalent.

Roof workers should **NOT** work directly on tiles or slates unless additional measures to prevent falls, e.g. a safety harness with a suitable anchorage point, are provided.

i) With some long, steeply sloping roofs, edge protection may prevent a fall from eaves level. But it may not prevent serious injury if a roof worker falls from a position high on the roof slope. Additional precautions may be required, e.g. work platforms cantilevered out from an independent scaffold. If this is not practicable, then safety harnesses may be appropriate. In all cases, the edge protection should be designed to minimise injury as well as to prevent a further fall. Safety netting can be incorporated into edge protection to absorb some of the energy of impact. However, netting on its own is no substitute for appropriate edge protection.

When control measures are applied the resultant residual risk must be at an acceptable level.

INFORMATION INSTRUCTION TRAINING

Roof work is potentially dangerous and roof workers need appropriate knowledge, skills and experience to do it safely. Otherwise they need to be under the supervision of someone who has those qualities.

They will need training on the risks they will encounter (such as recognising fragile materials) and safe systems of work to control them.

They may also need training in setting up and using equipment they are required to use. First-line supervisors need to be able to interpret a safety method statement, in order to explain and follow a safe system of work.

Everyone who uses personal protective equipment should know how to use it effectively

Refer to the National Federation of Roofing Contractors Guidance "Controlling Silica when Disc Cutting Roof Tiles" (attached).

PERSONAL PROTECTIVE EQUIPMENT		**MANUAL HANDLING ASSESSMENT**
Head Protection	✓	
Safety Footwear	✓	
Eye Protection (as necessary)	✓	
Hearing Protection (as necessary)	✓	
Respiratory Protection		
Safety Harness (as necessary)	✓	
Remember PPE is a last resort not a first option		

THE NATIONAL FEDERATION OF ROOFING CONTRACTORS LIMITED

HEALTH & SAFETY GUIDANCE SHEET s

August 2012

CONTROLLING SILICA WHEN DISC CUTTING ROOF TILES

1. INTRODUCTION

This guidance sheet gives information about the control of Respirable Crystalline Silica (RCS) issues associated with the disc cutting of concrete and clay roof tiles. However, the requirement to use water suppression applies to all roof tiles and related roof coverings such as artificial slates, concrete slates etc as well as all related fittings. This guidance note does not cover the practice of hand cutting, with the exception that this is recommended where possible to further reduce the risks.

Roof tiles often need to be cut in the verge, ridge, hip and valley area. Most roofers use a disc cutter saw for this. These saws produce large amounts of dust that contains silica that can easily be inhaled by the operator and others in the vicinity. Over time this dust can be very harmful to the lungs. Because of this it needs proper control in line with the Control of Substances Hazardous to Health Regulations (as amended) 2002 – commonly known as COSHH.

The Health and Safety Executive (HSE) has, for some time, seen the control of silica dust as a priority. NFRC has worked with them and others within the housing industry to provide a practical solution to this issue. This resulted in an interim agreement to use water suppression and respiratory protective equipment (RPE) for the cutting of all roof tiles except for valleys. Here, the established industry practice of only using RPE was allowed to continue. Wet cutting these tiles created a number of difficulties that some felt could not be effectively overcome at the time. There was also insufficient information on the level of risk created.

Subsequently, HSE has undertaken further work in this area. This has revealed that the levels of silica dust created when dry cutting valley tiles is much higher than published safety limits. Following a series of tests, effective methods of wet cutting valley tiles have also been devised. HSE therefore wants a high standard of control for cutting all roof tiles. This guidance note has been produced to assist members in complying with this requirement and COSHH. HSE will expect roofing contractors to follow it from 1st October 2012.

2. THE RISK

Silica is a natural mineral found in large amounts in things like sand, sandstone and granite. It is also commonly found in many construction materials such as concrete and mortar. The silica is broken into very fine dust (also known as Respirable Crystalline Silica or RCS) during many common tasks such as cutting, drilling and grinding. It is often called silica dust.

Silica dust damages lungs and airways. It can cause lung cancer, silicosis and Chronic Obstructive Pulmonary Disease (COPD). While some of these lung diseases, like advanced silicosis, can come on quite quickly, most take a long time. Often this is over years. They happen because regularly breathing even small amounts of dust add up and damage the lungs and airways. Unfortunately, by the time the damage is noticed it is more difficult to treat. Because of this it is important to limit the amount of silica dust every time work is done so that the total amount someone may breathe in over the years does not build up.

Even though roof tiles can be cut quickly this does not mean that the work is low risk. HSE has found that dry cutting a single valley side can produce very high silica levels. COSHH sets a limit on the amount of silica dust that someone can breathe This limit is not large. The image shows the maximum amount of silica you can breathe when averaged over a normal working day as compared to a penny. This limit is the legal maximum, the most you can breathe **after** the right controls have been used. For tasks that can create high levels of silica, like cutting roof tiles these controls have to be very good as the risk from the silica is high.

3. CONTROLS FOR SPECIFIC ROOF TILES

Tiles need to be cut for different parts of the roof. The measures below outline reasonably practicable solutions for controlling silica exposure for these areas.

Verge Tiles

Where possible, avoid cutting by using ½ or 1½ size tiles. If cutting is needed, the consistent dimensions mean it is possible to mark the tiles and cut off the roof surface on the scaffolding using water suppression and respiratory protective equipment (RPE) as detailed in 'Controlled Cutting' below.

Openings and Abutments

If cutting is needed, mark the tiles and cut off the roof surface on the scaffolding using water suppression and RPE as detailed in 'Controlled Cutting' below.

Ridge Tiles

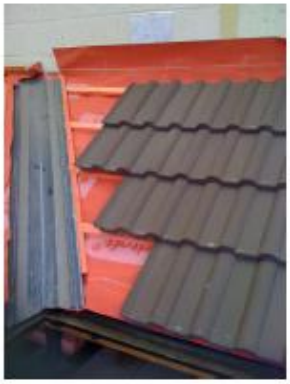
Where variable gauge tiles are used, the cutting may be limited to a small number of the covering ridge tiles. Where fixed gauge or restricted gauge tiles are involved, the top course may also need cutting to length. Mark the tiles and cut off the roof surface on the scaffolding using water suppression and RPE as detailed in 'Controlled Cutting' below.

Hip and Associated Tiles

The roof tiles at the rake of the hip will all require cutting. In many cases this can be done on the roof, using hand tools, as long as this provides the accuracy needed. However, machine cutting will still be necessary in many cases for difficult cuts and where a neater, cleaner cut is required (e.g. some dry fix systems). Mark the tiles and cut off the roof surface on the scaffolding using water suppression and RPE as detailed in **'Controlled Cutting'** below. Where two people are working, this could be implemented by using one person to mark the tiles while another cuts. The process can also be alternated to reduce the amount of time a person is exposed and it eliminates any off-cuts being left to slide down a roof which could act as a slip/trip hazard.

Valley Tiles

As with those forming the hip, there is a need to size each tile to the internal angle formed. Tiles should be laid staggered, close to the valley but not into it. Next, measure the covering width of two tiles. Transfer this measurement horizontally from the cut line in the valley; onto the tiles of the top and bottom courses. Longer valleys may need a mid-point to avoid loss of accuracy when striking. The tiles should then numbered by course with chalk or a pencil, with any nibs likely to kick the tiles removed, and cut off the roof surface on the scaffolding using water suppression and RPE as detailed in **'Controlled Cutting'** below. This should result in a straight valley which is dust and defect free.



Tiles laid 'staggered' to valley

Line struck - two tile widths from desired finishing point in valley line

Cut valley is straight

With this method, it is accepted that more time may initially be needed to complete the valley than when cutting in-situ. However there are many advantages too – see **'Benefits'** over the page.

4. CONTROLLED CUTTING

Always use appropriate water suppression when cutting a tile with a cut-off saw. A minimum flow rate of around 0.5 litres per minute is required for effective dust suppression unless a manufacturer advises otherwise. Low flow rates will not properly control the dust. For the type of cutting being done, the simplest way of supplying water is likely to be a portable polypropylene hand pump bottle. This contains around eight litres of water that is pressurised by hand. However, an effective flow is sustained only for a limited time (up to 4 minutes) before re-pressurisation is needed.

Where water suppression is used the following guidelines should be followed:

- Good arrangements are needed to ensure that enough water is available at all times. This could include measures for refilling hand pump bottles or the use of a more permanent water supply.
- Planning is required to prevent excessive handling of the tiles.
- Cutting work should be carried out on the surrounding scaffolding. A dedicated cutting area(s) should therefore be established before work starts at the planning stage. This area should be the most central/suitable for the work. If necessary it may be that more than one area can be used, e.g. some cutting is done in one area and then work moves to a second new area.
- Even with a dedicated cutting area, it is vital that the integrity of the scaffold boards is not compromised by the cutting operation. A suitable piece of sacrificial material should therefore be placed between the tile and scaffold board.
- Unless mechanical lifting aids are used, roofers are advised against cutting on the ground instead of the scaffolding. There is an increase in the risk of falls and manual handling associated with moving the tiles down and back to the roof area.

5. RESPIRATORY PROTECTIVE EQUIPMENT (RPE)

RPE is an essential part of silica dust control. It should be used for all tile cutting activities even where water suppression is employed. Water suppression systems are not fully reliable and even when effective they do not eliminate all silica dust. The "residual" dust concentrations will be variable and unpredictable so additional control is necessary.

RPE will also be required for those workers in the close vicinity of tile cutting (e.g. workers assisting with a cutting task, or nearby on the roof or adjacent on the top lift of the scaffold). Workers in more remote areas of the roof (i.e. away from the dust cloud) do not require RPE. This practice of 'segregation' should be considered as the primary control measure for reducing incidental exposure

Disposable / Half Mask respirators

Half masks (disposable or orinasal) are likely to be the most common type of RPE used in tile cutting. Masks with an assigned protection factor of at least 20 (i.e. a FFP3 filtering facepiece for disposable masks or an orinasal half mask respirator with a P3 filter) should be used. This high performance RPE should be worn for all tile cutting.

Disposable masks should be replaced every shift or when damaged. Orinasal filters should be renewed frequently dependant on use; probably at least weekly. A supply of suitable spares should always be available. Maintenance procedures will also need to be implemented for such masks (e.g. suitable storage arrangements and a monthly thorough examination and test by a competent person).

These forms of RPE (i.e. disposable and orinasal equipment) can only provide protection against fine dust such as RCS if the mask actually fits the wearer. Fine dust will readily seep through gaps and holes in ill-fitting equipment. Therefore a successful face fit-test is crucial to ensure that the user can be protected. In the absence of a satisfactory face fit test, the worker may receive no or little protection despite "wearing" the RPE. A qualitative or a quantitative fit test is acceptable for half masks. Fit test providers should be competent (e.g. those accredited under the Fit2Fit scheme)

Other factors are also important to obtain protection from a respirator. Wearers should be properly instructed, trained and supervised on the correct use of the equipment. Wearers must be clean shaven and the mask must be fitted and worn correctly for the full duration of the tile cutting activity. Where these factors are not implemented, protection will be lost.

Powered Respirators

A "loose-fitting" type of respirator (e.g. powered hood, helmet or visor) should be worn by workers who have beards or are unable to obtain an adequate fit for the disposable or orinasal half masks. Models incorporating head and eye protection can also be selected. These should be to a protection factor (PF) of 20 and a TH2 classification.

Again the users will require adequate information, instruction and training in the correct use of the chosen equipment. Storage and maintenance arrangements will also be required including a monthly thorough examination and test by a competent person.

3

6. TRAINING, INFORMATION AND WORKER INVOLVEMENT

In order for these measures to be effective it is important that appropriate training and information is given to those undertaking tile cutting activities. This should include awareness about the risks involved, the different precautions required, the effective use of water suppression and the appropriate use and, where appropriate, maintenance of RPE. Steps should be taken to ensure appropriate worker engagement and consultation as part of this process.

7. BENEFITS

The main change from recent practices in this guidance is the need to wet cut valley tiles. With the method described above, it is accepted that initially more time may be needed to complete the valley than when dry cutting in-situ. However, there are many advantages too:

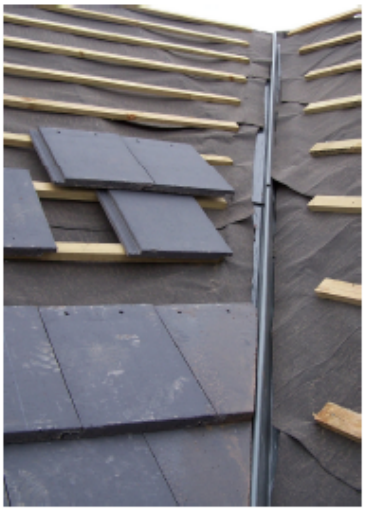
- Using water significantly increases the life of blades and prolongs the lifespan of the cut-off saw motor.
- There is no need to rough cut first,
- There is less risk of cut tiles breaking during cutting (and having to be re-cut)
- The off-cuts can be saved and re-used on any hips on the roof (or forthcoming roofs) thus saving waste and money.
- The Concrete Tile Manufacturers Association (CTMA) does not recommend cutting valley tiles in situ because it can make slits in the liner. There can also be problems with dust or slurry getting into the mortar, loss of bond from the vibration, and problems with long term durability of the mortar. NHBC has undertaken a study into pitch roof claims. They found that over half of these claims were due to mortar defects.
- Subsequently, repairing damaged valley mortar can be expensive as scaffolding or other edge protection is often needed.

Off-cuts to be re-used on hips

Dry Valleys

Recent evidence would suggest that there is trend towards using dry valleys. Where possible, NFRC would encourage that these (rather than wet valleys) are specified. The main benefit being that this eradicates the problem of mortar potentially failing in the valleys. However, there are also other benefits as well:

- Dry valleys cannot be cut in-situ. It therefore makes the transition to wet cutting off the roof less difficult.
- Although neat accurate cutting is still important, the cuts do not have to be quite as precise as with an open valley.
- The valleys are maintenance free. This can act as a valuable selling point to customers/homeowners.
- Unlike mortar, this system can be installed in cold weather, allowing work on potentially more days during the winter. There is also no setting mortar to be washed out by wet weather.



8. FURTHER INFORMATION

This guidance is not intended to be exhaustive but to contain the main criteria that should be followed to ensure the health safety and welfare of operatives and others involved in the cutting roofing tiles. Further information can be found on the HSE website at www.hse.gov.uk.

Published by The National Federation of Roofing Contractors Ltd ©
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GENERIC RISK ASSESSMENTS – HOUSEBUILDING OPERATIONS

Hazard Or Work Activity Assessed :-	Ref No
47. WORK AROUND AND IN STAIRWELLS	

Site Location	**Generic Assessments**

Risk Rating H = High M= Medium L= Low

Hazard = potential to cause harm. *Risk = probability of that harm occurring*

The risk rating criteria is detailed below

High - Work activity which has the potential to cause a fatal/major injury or health damage.

Medium - Work activity resulting in loss time injury or significant material or environmental damage

Low - Work activity resulting in minor injury but not lost time, or some material damage.

SIGNIFICANT HAZARDS	H	M	L
Persons falling from open landings and staircases	✓		
Materials falling from open edges	✓		

WHO MAYBE HARMED	
Employees	✓
Contractors	✓
Official Visitors	✓
General Public	✓

MEASURES TO CONTROL SIGNIFICANT RISKS

Working Around Open Stairwells

1) Stairwells and landings to be fitted with suitable edge protection and the method of fixing must be adequate to prevent a person or persons falling through them if the are fallen against.
2) Guard rails to be fitted and maintained by competent persons at a height of 950mm.
3) Guard rails must not be altered or modified by unauthorised personnel
4) Guardrails may be removed for the transfer of materials however these must be replaced immediately following the movement of materials.
5) Where stairs have yet to be fitted suitable and secured ladder access/egress must be maintained at all times.
6) All site personnel to be instructed during site induction and general site safety awareness toolbox talks about the importance of installing and maintaining adequate protection to landings and stairwells.

Working In Stairwells

1) Suitable access platforms must be installed to undertake any stairwell work i.e. dry lining, joinery, plastering, decorating etc. - **The use of single boards and ladders as support is NOT permissible.**
2) Details of the type of working platforms being used shall be identified in work related method statements, trade specifications and risk assessments and shall be brought to the attention of all site personnel supervising and undertaking this work.

When control measures are applied the resultant residual risk must be at an acceptable level.

INFORMATION INSTRUCTION TRAINING

1. Site personnel to be trained in accordance with control measures detailed above
2. If fitted by scaffolders – should be trained to NASC / CITB Industry Standards

PERSONAL PROTECTIVE EQUIPMENT		**MANUAL HANDLING ASSESSMENT**
Head Protection	✓	
Safety Footwear	✓	
Eye Protection		
Hearing Protection		
Respiratory Protection		
Safety Harness		
Remember PPE is a last resort not a first option		

GENERIC RISK ASSESSMENTS – HOUSEBUILDING OPERATIONS

Hazard Or Work Activity Assessed :- | Ref. No

48. USE OF UN-EXTENDED BANDSTAND TRESTLES

Site Location	**Risk Assessments**

Risk Rating H = High M= Medium L= Low

Hazard = potential to cause harm. *Risk = probability of that harm occurring*

The risk rating criteria is detailed below

High - Work activity which has the potential to cause a fatal/major injury or health damage.

Medium - Work activity resulting in loss time injury or significant material or environmental damage

Low - Work activity resulting in minor injury but not lost time, or some material damage.

SIGNIFICANT RISKS	H	M	L
Falls of persons from working platform		✓	
Falls of materials and equipment			✓
Collapse of trestle		✓	

WHO MAYBE HARMED	
Employees	✓
Contractors	✓
Official Visitors	✓
General Public	

MEASURES TO CONTROL SIGNIFICANT RISKS

1. Unextended trestles must only be used internally in plots on firm stable ground
2. The immediate ground area surrounding the trestle must be free of debris and waste material.
3. Trestles should be inspected before use, to ensure they are in good working order and the correct pins are in place. Under no circumstances must damaged, bent or buckled trestles be used.
4. The trestles are to be boarded out using four scaffolding boards and not overlap the trestle by more than 150mm.
5. All boards must be inspected – warped, cracked or split boards must not be used.
6. To ensure the boards are sufficiently supported, the trestles are to be placed with a maximum span of 1.2m.
7. Safe access and egress onto the working platform, i.e. secure ladder/stepladder must be installed
8. Where reasonably practicable use trestle scaffolds with edge protection.
9. If this is not feasible a fall arrest system (soft landing bags) must be in place.
10. When using soft landing bags they must be placed & clipped, in accordance with the manufacturer's method statement, to cover a 2 metre area of ground around the trestle.
11. Only trained and competent operatives are allowed to erect and dismantle the trestle.
12. Access to the working area whilst the trestles are in use should be restricted.
13. Trestles must not be used on externally or on scaffolds.

When control measures are applied the resultant residual risk must be at an acceptable level.

INFORMATION INSTRUCTION TRAINING

Toolbox talks must be provided to all operatives who use trestles to include safe erection and where necessary safe installation of soft landing systems – documented records of this training must be maintained on site by the site manager

PERSONAL PROTECTIVE EQUIPMENT		**MANUAL HANDLING ASSESSMENT**
Head Protection	✓	
Safety Footwear	✓	
Hand Protection		
Eye Protection		
Hearing Protection		
Respiratory Protection		
Safety Harness		
Remember PPE is a last resort not a first option		

GENERIC RISK ASSESSMENTS – HOUSEBUILDING OPERATIONS

Hazard Or Work Activity Assessed :- | Ref No

49. GAS/COMPRESSED AIR NAIL GUNS

Site Location | **Generic Assessments**

Risk Rating H = High M= Medium L= Low

Hazard = potential to cause harm. *Risk =probability of that harm occurring*

The risk rating criteria is detailed below

High - Work activity which has the potential to cause a fatal/major injury or health damage.

Medium – Work activity resulting in loss time injury or significant material or environmental damage

Low - Work activity resulting in minor injury but not lost time, or some material damage.

SIGNIFICANT HAZARDS	H	M	L
Uncontrolled discharge of fixing	✓		
Penetrating Injury	✓		
Noise		✓	
Flying Dust and Particles		✓	
Canister exploding whilst in storage		✓	

WHO MAYBE HARMED	
Employees	✓
Contractors	✓
Official Visitors	
General Public	✓

MEASURES TO CONTROL SIGNIFICANT RISK

1. Cartridge operated tools should NEVER be used in a careless manner – do not point and fire at others.
2. Anyone using a Nail Gun should do so only from a firm and stable position.
3. A tool should never be left unattended when loaded, and should only be loaded as the last operation immediately prior to firing.
4. Compressed Air canisters to be stored as per storage instructions and disposed of as special waste.
5. Always wear suitable eye and ear protection.

When control measures are applied, the resultant residual risk must be at an acceptable level.

INFORMATION INSTRUCTION TRAINING

Recognised Training must be given on the safe operation of the particular Nail Gun, prior to its use by each operative.

PERSONAL PROTECTIVE EQUIPMENT		MANUAL HANDLING ASSESSMENT
Head Protection		
Safety Footwear		
Eye Protection	✓	
Hearing Protection	✓	
Respiratory Protection		
Safety Harness		
Hand Protection		
Remember PPE is a last resort not a first option		

RISK ASSESSMENTS – HOUSEBUILDING OPERATIONS

Hazard Or Work Activity Assessed :-	Ref No
50. USE OF ROTO 360 TELEHANDLER WITH WINCH ATTACHMENT.	
Site Location	

Risk Rating H = High M= Medium L= Low

Hazard = potential to cause harm. *Risk =probability of that harm occurring*

The risk rating criteria is detailed below

High - Work activity which has the potential to cause a fatal/major injury or health damage.

Medium – Work activity resulting in loss time injury or significant material or environmental damage

Low - Work activity resulting in minor injury but not lost time, or some material damage.

SIGNIFICANT HAZARDS	**H**	**M**	**L**		**WHO MAYBE HARMED**	
Load falling	✓				Employees	✓
360 ROTO overturning	✓					
Crushing personnel against structures	✓				Contractors	✓
Limbs becoming entangled within chains etc	✓					
Traffic/other vehicles		✓			Official Visitors	✓
Injury to others not involved in the operation		✓				
					General Public	✓

MEASURES TO CONTROL SIGNIFICANT RISK

1.All lifts should be properly planned before the event by a competent person with the necessary training and expertise and not left solely to the crane driver.

3. A risk assessment must be carried out on each intended lift unless they are generic, control must include.

h) Selecting the correct type of lifting equipment, (Chains, Strops, Spreader bars, etc) to undertake the lift;

i) Correct siting of the ROTO telehandler when carrying out the lift;

j) Correctly calculate the load, do not guess at the weight of the load;

k) Use of the correct lifting accessories for lifting;

l) Personnel must carry out the correct procedures;

m) Ensure that the necessary test certificates are in place and that proper maintenance has been carried out;

n) Ensure that only properly trained personnel are used i.e. banksman/slinger and ROTO 360 telehandler operator.

12. All lifting appliances capable of lifting more than one tonne on construction sites should be fitted with an Automatic Safety Load Indicator.

13. Before all lifting operations begin the driver and supervisor should ensure that all personnel are well clear of the load and moving parts of the crane, and that the work area is clearly marked and signed to exclude unauthorised personnel.

14. The site traffic management plan should reflect any changes required to avoid conflict with other vehicles (apart from those involved with the lift) and to keep pedestrians clear of lifting operations.

15. All lifting gear used including any chain slings, wire ropes or webbing should be well maintained, tested, and suitable for the job.

16. The loads should always be kept under the lifting point and not dragged or pulled along the ground.

17. Slewing should be done slowly to maintain control of the load and minimise swinging.

RISK ASSESSMENTS – HOUSEBUILDING OPERATIONS

Hazard Or Work Activity Assessed :-	Ref No
Site Location	

18. The driver should stay at the controls when loads are suspended and the telehandler should not travel unless specifically designed for such duties.
19. Loads should be correctly slung by properly trained and Appointed Slingers (who on many sites may also act as the appointed person/crane supervisor);

A trial lift should be carried out with the load just off the ground to show whether it is correctly balanced and secure.

16. Tailing ropes should be used to control large and unwieldy loads such as bundles of roof trusses, scaffold tubes and loads presenting large wind catching area.
17. Lifting should not be attempted when the wind strength may cause the load to move in an uncontrollable manner. Anemometer may be required to gauge wind speed and direction.
18. The ROTO 360 telehandler outriggers should be fully extended and be so positioned that:

d) The driver has a clear view of the operations;

e) There is sufficient operating space;

f) It is well away from

iv. The edges of excavations;

v. Fixed structures against which people may be trapped by moving parts such as counterweights etc;

vi. Overhead electric power lines;

g) The ground should be level and capable of supporting the full weight of the telehandler and its load. In addition where necessary, sufficient and suitable packing in the form of sound timbers should be place under the outriggers to evenly distribute the weight.

When control measures are applied, the resultant residual risk must be at an acceptable level

INFORMATION INSTRUCTION TRAINING

Information needs to be posted to exclude unauthorised personnel from working area.
Banksman/slinger and crane drivers need to be trained to a recognised standard.
Person planning lift needs to have been trained to a recognised standard.
A tool box talk must be conducted and recorded prior to start.

PERSONAL PROTECTIVE EQUIPMENT		
High Visibility Clothing	✓	See also Risk assessments 6 Installation of roof trusses 21 Mobile plant PHS/HS/:0034 Crane assessment and lift plan See also Soft landing bag method statement See also load and lifting charts (SWL) for telehandler in use
Head Protection	✓	
Safety Footwear	✓	
Eye Protection		
Hearing Protection		
Respiratory Protection		
Safety Harness		
Hand Protection		
Remember PPE is a last resort not a first option		

RISK ASSESSMENTS – HOUSEBUILDING OPERATIONS

Hazard Or Work Activity Assessed :- | Ref. No

51. OFF LOADING SPACE 4 PANELS WITH A FORKLIFT AND CHANGING TO LARGER CARRIAGES

Site Location	Risk Assessments

Risk Rating H = High M= Medium L= Low

Hazard = potential to cause harm. *Risk = probability of that harm occurring*

The risk rating criteria is detailed below

High - Work activity which has the potential to cause a fatal/major injury or health damage.

Medium - Work activity resulting in loss time injury or significant material or environmental damage

Low - Work activity resulting in minor injury but not lost time, or some material damage.

SIGNIFICANT RISKS	H	M	L
Unstable Loads	✓		
Reversing Vehicles	✓		
Uneven terrain/ unsuitable ground conditions	✓		
Unsecured Loads	✓		
Inexperienced delivery driver	✓		
Changing fork carriage to 8' item	✓		

WHO MAYBE HARMED	
Employees	✓
Contractors	✓
Official Visitors	
General Public	✓

MEASURES TO CONTROL SIGNIFICANT RISKS

1. A generic and/or task specific lifting plan must be completed to identify relevant controls including pedestrian and traffic management during these operations.
2. The forklift driver is to hold a CPCS card or equivalent, be competent, and take charge of the lifting operation.
3. The operating business is to ensure that details of the method of off loading is provided to Space 4.
4. The panel supplier shall provide a vehicle designed to carry Timber panels and be maintained to the manufacturer's instructions.
5. The buying department is to ensure the completed Suppliers Site Specific Code of Conduct is issued
6. The panel supplier is to provide a risk assessment /sequence of off loading for the load delivered.
7. Ensure the vehicle is offloaded in a designated area as per the traffic management plan.
8. The forklift driver and delivery driver are to off load the trusses, following the risk assessment/ sequence of off loading.
9. Ensure the forks are under/supporting the trusses before the straps are released.
10. Ensure a purpose built storage area is provided for the panels
11. Ensure the ground conditions are level and free from pot holes
12. This risk assessment should be read in conjunction with the Risk Assessment No 41 Reversing Vehicles.
13. The Safe Working Load of the forklift shall not be exceeded and the outriggers shall be used.
14. When changing fork carriages switch off engine and release the pressure in hydraulic fork positioner system by operating hydraulic control lever.
15. Remove hydraulic couplings and carriage locking pin.
16. Drive forks into a pallet to secure them and prevent them toppling over, reverse away from the carriage.
17. Drive into large fork carriage and raise off ground, slide locking pin into place and attach securing clip, reconnect hydraulic couplings.
18. To swap to smaller carriage carry out the above procedure in reverse.

When control measures are applied the resultant residual risk must be at an acceptable level.

INFORMATION INSTRUCTION TRAINING:	Forklift driver to hold CPCS Certificate or similar

PERSONAL PROTECTIVE EQUIPMENT:		MANUAL HANDLING ASSESSMENT:
Head Protection	✓	
Safety Footwear	✓	
Hand Protection	✓	
Eye Protection		
Hearing Protection		
Respiratory Protection		
Safety Harness	✓	
Hi Viz	✓	
Remember PPE is a last resort not a first option		

RISK ASSESSMENTS – HOUSEBUILDING OPERATIONS

Hazard Or Work Activity Assessed :-

Ref. No

52. UNLOADING TRUSSES WITH A FORKLIFT

Site Location	Risk Assessments

Risk Rating H = High M= Medium L= Low

Hazard = potential to cause harm. *Risk = probability of that harm occurring*

The risk rating criteria is detailed below

High - Work activity which has the potential to cause a fatal/major injury or health damage.

Medium - Work activity resulting in loss time injury or significant material or environmental damage

Low - Work activity resulting in minor injury but not lost time, or some material damage.

SIGNIFICANT RISKS	H	M	L
Unstable Loads	✓		
Reversing Vehicles	✓		
Uneven terrain/ unsuitable ground conditions	✓		
Unsecured Loads	✓		
Inexperienced delivery driver	✓		

WHO MAYBE HARMED	
Employees	✓
Contractors	✓
Official Visitors	
General Public	✓

MEASURES TO CONTROL SIGNIFICANT RISKS

1. A generic and/or task specific lifting plan must be completed to identify relevant controls including pedestrian and traffic management during these operations.
2. The forklift driver is to hold a CPCS card or equivalent ,be competent, and take charge of the lifting operation.
3. The Site Manager and Buying Department are to liaise to ensure the method of off loading is provided to the truss supplier
4. Ensure the truss supplier has confirmed that the vehicles are loaded and driven by a competent person. (see standard letter)
5. The truss supplier shall provide a vehicle designed to carry trusses and be maintained to the manufacturer's instructions.
6. The truss supplier is to provide a risk assessment /sequence of off loading for the load delivered.
7. Ensure the vehicle is offloaded in a designated area as per the traffic management plan.
8. The forklift driver and delivery driver are to off load the trusses, following the risk assessment/ sequence of off loading.
9. Where necessary all trusses shall be secured/ lifted with the proprietary lifting bracket or other suitable slings.
10. All lifting gear such as chains, slings, shackles, webbing etc shall be thoroughly examined within 6 months.
11. Ensure where necessary the forks are under/supporting the trusses before the straps are released.
12. Tailing ropes should be used to control trusses where necessary.
13. Ensure a purpose built storage area is provided for the trusses.
14. Ensure the ground conditions are level and free from pot holes
15. This risk assessment should be read in conjunction with the Risk Assessment No 42 Reversing Vehicles.
16. The Safe Working Load of the forklift shall not be exceeded.
17. Outriggers should be used in these operations.

When control measures are applied the resultant residual risk must be at an acceptable level.

INFORMATION INSTRUCTION TRAINING

Forklift driver to hold CPCS Certificate or similar, competent slinger when using lifting accessory equipment

PERSONAL PROTECTIVE EQUIPMENT	
Head Protection	✓
Safety Footwear	✓
Hand Protection	✓
Eye Protection	
Hearing Protection	
Respiratory Protection	
Safety Harness	✓
Hi Viz	✓

Remember PPE is a last resort not a first option

MANUAL HANDLING ASSESSMENT

RISK ASSESSMENT – CONSTRUCTION OPERATIONS

Hazard Or Work Activity Assessed :-	Ref. No
53. LIFTING TRUSSES WITH THE ALL TERRAIN FORKLIFT ON 2 STOREY'S	

Site Location	**Risk Assessments**

Risk Rating H = High M= Medium L= Low

Hazard = potential to cause harm. *Risk = probability of that harm occurring*

The risk rating criteria is detailed below

High - Work activity which has the potential to cause a fatal/major injury or health damage.

Medium - Work activity resulting in loss time injury or significant material or environmental damage

Low - Work activity resulting in minor injury but not lost time, or some material damage.

SIGNIFICANT RISKS	H	M	L
Falling Objects	✓		
Reversing Vehicles	✓		
Unstable Ground	✓		
Failure of Plant	✓		
Heavy Objects	✓		

WHO MAYBE HARMED	
Employees	✓
Contractors	✓
Official Visitors	
General Public	

MEASURES TO CONTROL SIGNIFICANT RISKS

1. This risk assessment should be read in conjunction with the Persimmon Homes Risk Assessment No 6 Installation of Trusses and Truss Installation Guidance Note, No 21 Mobile Plant and No 41 Reversing Vehicles.
2. A generic and/or task specific lifting plan must be completed to identify relevant controls including pedestrian and traffic management during these operations.
3. Where necessary all trusses shall be secured/ lifted with the proprietary lifting bracket or other suitable equipment.
4. All lifting accessories shall be thoroughly examined within 6 months.
5. The weight of the truss shall be specified and shall not exceed the Safe Working Load of the Forklift.
6. Ensure the carpentry contractor has a method statement in place for the installation of trusses and a slinger/banksman and lifting co-ordinator is designated.
7. Tailing ropes should be used to control trusses where necessary.
8. Lifting operation shall not be undertaken in adverse weather conditions.
9. All forklift movements with a truss shall be undertaken with a banksman in attendance.
10. The lifting area shall be segregated to exclude unauthorised entry.
11. The ground shall be level, free from excavations and be capable of supporting the loads from the forklift.
12. The forklift shall be maintained and thoroughly examined within 12 months.
13. The jib attachment shall be secured by a competent person in accordance with the manufacturer's instructions and training provided.
14. The forklift driver shall hold a recognised training certificate (CPCS or similar) and be competent.
15. The scaffold and Soft Landing System shall be in place prior to work starting with the Form PHG/HS/:019 A & G completed.
16. The use of outriggers for all Truss Lifting Operations is required.
17. Where work at height is required as part of the lifting operation, please also read the relevant working at height assessment in conjunction with the lifting plan.
18. Prior to any lifting operations ensure that the traffic management assessment is reviewed and reflects the necessary site conditions required during lifting operations.

When control measures are applied the resultant residual risk must be at an acceptable level.

INFORMATION INSTRUCTION TRAINING

Drivers should be CPCS or equivalently qualified to operate the machines they drive.
Supervisors should be trained in line with Group Policy.
All persons involved with the lifting operations shall be familiar with the contents of the method statement and risk assessments.
A tool box talk must be conducted and recorded prior to start of each lift.

PERSONAL PROTECTIVE EQUIPMENT		MANUAL HANDLING ASSESSMENT
Head Protection	✓	**ALL CARPENTERS SHALL BE FAMILIAR WITH SAFE MANUAL HANDLING TECHNIQUES**
Safety Footwear	✓	
Hand Protection	✓	
Eye Protection		
Hearing Protection		
Respiratory Protection		
Safety Harness		
Hi Viz	✓	
Remember PPE is a last resort not a first option		

RISK ASSESSMENTS – HOUSEBUILDING OPERATIONS

Hazard Or Work Activity Assessed :-	Ref No
54. USE OF TELEHANDLER FOR LIFTING OF GENERIC & SUSPENDED LOADS	
Site Location	

Risk Rating H = High M= Medium L= Low

Hazard = potential to cause harm. *Risk =probability of that harm occurring*

The risk rating criteria is detailed below

High - Work activity which has the potential to cause a fatal/major injury or health damage.

Medium – Work activity resulting in loss time injury or significant material or environmental damage

Low - Work activity resulting in minor injury but not lost time, or some material damage.

SIGNIFICANT HAZARDS	**H**	**M**	**L**		**WHO MAYBE HARMED**	
Load falling	✓				Employees	✓
Overturning	✓					
Crushing personnel against structures	✓				Contractors	✓
Limbs becoming entangled within chains etc	✓					
Traffic/other vehicles		✓			Official Visitors	✓
Injury to others not involved in the operation		✓				
					General Public	✓

MEASURES TO CONTROL SIGNIFICANT RISK

1. All lifts should be properly planned before the event by the Competent Person with the necessary training and expertise and not left solely to the telehandler driver.
2. A documented generic or task specific lifting plan must be carried out and controls must include;
   a) Selecting the correct type of lifting equipment, (jib, lifting eye etc.) to undertake the lift;
   b) Correct siting of the telehandler when carrying out the lift;
   c) Correctly calculate the load, do not guess at the weight of the load – **refer to materials weight schedule**;
   d) Use of the correct lifting accessories for lifting;
   e) Personnel must carry out the correct procedures;
   f) Ensure that the necessary test certificates are in place and that proper maintenance has been carried out;
   g) Ensure that only properly trained personnel are used i.e. banksman/slinger telehandler operator.
3. Completion of relevant sections of Form PHG/HS/:034 must be undertaken for each lift
4. All lifting appliances capable of lifting more than one tonne on construction sites should be fitted with an Automatic Safety Load Indicator.
5. Before all lifting operations begin the driver and supervisor should ensure that all personnel are well clear of the load and moving parts of the telehandler, and that the work area is clearly marked and signed to exclude unauthorised personnel.
6. All lifting gear used including any chain slings, wire ropes or webbing should be well maintained, thoroughly examined and suitable for the job.
7. The loads should always be kept under the lifting point and not dragged or pulled along the ground.
8. Slewing should be done slowly to maintain control of the load and minimise swinging.
9. The driver should stay at the controls when loads are suspended and the telehandler should not travel unless specifically designed for such duties.
10. Loads should be correctly slung by properly trained and Appointed Slingers (who on many sites may also act as the appointed person/crane supervisor);
11. A trial lift should be carried out with the load just off the ground to show whether it is correctly balanced and secure.
12. Tailing ropes should be used to control large and unwieldy loads such as bundles of roof trusses, scaffold tubes and loads presenting large wind catching area.

RISK ASSESSMENTS – HOUSEBUILDING OPERATIONS

Hazard Or Work Activity Assessed :-	Ref No
Site Location	

13. Lifting should not be attempted when the wind strength may cause the load to move in an uncontrollable manner. Anemometer may be required to gauge wind speed and direction.
14. The telehandler outriggers should be fully extended and be so positioned that:
    a) The driver has a clear view of the operations;
    b) There is sufficient operating space;
    c) It is well away from
        - The edges of excavations;
        - Fixed structures against which people may be trapped by moving parts such as counterweights etc;
        - Overhead electric power lines;
15. The ground should be level and capable of supporting the full weight of the telehandler and its load. In addition where necessary, sufficient and suitable packing in the form of sound timbers should be place under the outriggers to evenly distribute the weight.
16. Where work at height is required as part of the lifting operation, please also read the relevant working at height assessment in conjunction with the lifting plan.
17. Prior to any lifting operations ensure that the traffic management assessment is reviewed and reflects the necessary site conditions required during lifting operations.

When control measures are applied, the resultant residual risk must be at an acceptable level

INFORMATION INSTRUCTION TRAINING

Information needs to be posted to exclude unauthorised personnel from working area.
Planner, Supervisor, Banksman/slinger and crane drivers need to be trained to a recognised standard and/or in line with Group Policy.
A tool box talk must be conducted and recorded prior to start of each lift.

PERSONAL PROTECTIVE EQUIPMENT		
High Visibility Clothing	✓	See also Risk assessments 6 Installation of roof trusses 21 Mobile plant PHS/HS/:0034 Crane assessment and lift plan See also Soft landing bag method statement See also load and lifting charts (SWL) for telehandler in use
Head Protection	✓	
Safety Footwear	✓	
Eye Protection		
Hearing Protection		
Respiratory Protection		
Safety Harness		
Hand Protection		
Remember PPE is a last resort not a first option		

Hazard Or Work Activity Assessed :- Ref. No PHA/001/RK

55. USE OF THE MANCAGE WITH ALL TERRAIN FORKLIFT FOR UNPLANNED WORK ACTIVITIES

Site Location	**Risk Assessments**

Risk Rating H = High M= Medium L= Low

Hazard = potential to cause harm. *Risk = probability of that harm occurring*

The risk rating criteria is detailed below

High - Work activity which has the potential to cause a fatal/major injury or health damage.

Medium - Work activity resulting in loss time injury or significant material or environmental damage

Low - Work activity resulting in minor injury but not lost time, or some material damage.

SIGNIFICANT RISKS	H	M	L
Falls from height	✓		
Vehicles colliding with the All-terrain forklift	✓		
Tools and materials within the mancage (falling objects)		✓	
Overhead Electric Cables	✓		
Overturning of All –terrain forklift	✓		

WHO MAYBE HARMED	
Employees	✓
Contractors	✓
Official Visitors	
General Public	

MEASURES TO CONTROL SIGNIFICANT RISKS

1. The mancage shall only be used for works of "occasional use" and examples of this are detailed below:

   - Non routine maintenance tasks for which it is impractical to hire in purpose built access equipment.
   - Replacing a broken tile.
   - Checking a roof/ structure for isolated damage.

2. The mancage and forklift is to be thoroughly examined by a competent person on a 6 monthly basis. In addition daily visual checks should be undertaken for both the forklift, mancage and harness.
3. Double handrails are to be fixed in position and an integral toeboard is to be fitted to the basket.
4. Short fixed harnesses are to be used at all times and secured at the location indicated on the mancage.
5. Communication is to be maintained between the forklift driver either verbally or if this is not possible due to background noise via two-way radio or banksman.
6. Restrict persons entering the area below the mancage.
7. The mancage is to be secured to the forks with both securing pins.
8. The Safe Working Load should not be exceeded within the basket.
9. Half the Safe Working Load of the forklift should not be exceeded while using the mancage.
10. This risk assessment should be read in conjunction with "Mobile Plant No 21, Reversing Vehicles No 41.
11. No person should stand on the midrail.
12. The harnesses should be checked prior to use and thoroughly examined once every 12 months.
13. Persons are to be trained in the use of the mancage. An untrained person is allowed provided they are accompanied by a person that is trained.
14. Thorough checks should be undertaken for overhead obstructions prior to lifting e.g. cables, soffits etc.
15. No persons are to travel within the mancage. e.g. The forklift should be in position prior to lifting.
16. The forklift should be on firm level ground before lifting with stabilisers down.
17. Persons should only access and exit from the mancage when it is in the lowered position on the ground.
18. Traffic management is to be located if there is a risk of third party vehicles colliding with the forklift.
19. All forklift drivers are to remain in the cab while the mancage is in use.
20. The driver is to lock the side shift and tilt systems in mid position.
21. Do not use if wind speeds exceeds beaufort scale 6 e.g. 30mph- Large branches in motion.

When control measures are applied the resultant residual risk must be at an acceptable level.

INFORMATION INSTRUCTION TRAINING

All forklift drivers are to be competent and hold a relevant training certificate (CITB or similar)
All individuals are to be trained in the use of the mancage.

PERSONAL PROTECTIVE EQUIPMENT		MANUAL HANDLING ASSESSMENT
Head Protection	✓	**A MANUAL HANDLING ASSESSMENT MAY BE NECESSARY DEPENDANT ON THE OPERATION.**
Safety Footwear	✓	
Hand Protection	✓	
Eye Protection		
Hearing Protection		
Respiratory Protection		
Safety Harness	✓	
Remember PPE is a last resort not a first option		

Hazard Or Work Activity Assessed :- | Ref No

56. USE OF FORWARD TIPPING DUMP TRUCKS

Site Location	**Generic Assessments**

Risk Rating H = High M= Medium L= Low

Hazard = potential to cause harm. *Risk =probability of that harm occurring*

The risk rating criteria is detailed below

High - Work activity which has the potential to cause a fatal/major injury or health damage.

Medium – Work activity resulting in loss time injury or significant material or environmental damage

Low - Work activity resulting in minor injury but not lost time, or some material damage.

SIGNIFICANT HAZARDS	**H**	**M**	**L**
Struck by moving vehicle	✓		
Overturning of plant	✓		
Injured by moving parts of mechanical equipment		✓	
Noise		✓	
Crush injuries during loading operations	✓		

WHO MAYBE HARMED	
Employees	✓
Contractors	✓
Official Visitors	✓
General Public	✓

MEASURES TO CONTROL SIGNIFICANT RISK

1. All forward tipping dump trucks (FTDT) to have any necessary examination certificates/service records on site. (see manufacturers manual for full guidance).
2. All FTDT operators to be competent and have a competent assessment certificate from a recognised scheme. A valid driving licence will be required if there is any interface with members of the public
3. All FTDT's must have rollover protection or topple protection as appropriate. This information should be detailed in the Contractors risk assessment and method statements.
4. Operators must use the seat belts fitted to the equipment at all times.
5. Operators must dismount from FTDT and move to a safe area prior to loading operations being undertaken.
6. Operating routes to be segregated from the public and site pedestrians, especially in congested areas such as gateway, compounds etc. see section in construction manual on traffic management and vehicle movement.
7. Keys must be removed from the machine when not in use by the operator.
8. Where possible all mobile plant to be returned to a separate secure area/ compound when not in operation.
9. If the control in 8 above is not available then as long as security to the site in general is maintained then FTDT's should be parked so as not to affect day to day site operations and be totally immobilised when not in operation.
10. In order to maintain whole body vibration levels (WBV) to an acceptable level, maintenance schedules must be adhered to.

When control measures are applied, the resultant residual risk must be at an acceptable level.

INFORMATION INSTRUCTION TRAINING

Refer to the Contractors Plant Association "Staying Safe When Operating Forward Tipping Dumpers" (attached).
All operatives must be in possession of relevant competency certificates (CPCS, NPORS etc).
All operatives must also have a Persimmon Homes Passport to drive issued and explained during induction.

PERSONAL PROTECTIVE EQUIPMENT		**MANUAL HANDLING ASSESSMENT**
Head Protection	✓	
Safety Footwear	✓	
Hi Vis clothing	✓	
Hearing Protection	✓	
Respiratory Protection		
Safety Harness		

Hand Protection ☐ **Remember PPE is a last resort not a first option**	

Operational Safety Guidance

SAFETY PUBLICATION SERIES

Staying Safe When Operating Forward Tipping Dumpers

SAFETY PUBLICATION SERIES
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Operational Safety Guidance

Introduction

This guidance is for all types of forward tipping dumper and must be read in conjunction with information supplied by the manufacturer. This guidance is divided into three parts:

- Part 1 is a list of what the operator should do to stay safe;
- Part 2 describes learning information that supports the stay safe message and designed to provide assistance for tool box talks and one-to-one familiarisation activities;
- Part 3 identifies planning and supervision requirements for the operation of dumpers.

Annex A provides an example of unsafe operational practices.

Additional Information Sources

- Provision and Use of Work Equipment Regulations 1998.
- Construction site safety: Safe use of site dumpers. Published by the Health and Safety Executive (CIS 52).
- The safe use of vehicles on construction sites. Published by the Health and Safety Executive (HSG144).

Acknowledgements

CPA acknowledge that the content in Part 2 is taken from the Construction Plant Competence Scheme's (CPCS) refresher material and used with the kind permission of CITB.

Notes

- These Construction Plant-hire Association-issued safety guidance only contains basic safety information and should not be the sole source of information to the user of dumpers. The user should also have a copy of the manufacturer's operator's manual, and have relayed to them safe operation and its dangers together with any specific Personal Protective Equipment (PPE) that should be worn. This should be through a familiarisation process by someone who has comprehensive knowledge and capability with the dumper.
- Persons without suitable and sufficient training should not use dumpers. For use within the workplace, the Health and Safety at Work Act 1974 applies to plant and it is the responsibility of the employer, employee and the organisation supplying this equipment to comply with the Act and all relevant regulations.
- Any opinion, information and/or advice given in this guidance is not, nor should it be construed as being, legal, specialist and/or expert advice and it should not be relied upon as such. The Construction Plant-hire Association shall have no liability for any damage, liability, cost, loss and/or expense which the reader of the guidance, or any other person, incurs as a result of relying upon the content of the guidance as legal, specialist and/or expert advice. Information within the guidance was correct at the time of writing.
- The Construction Plant-hire Association continually updates the information contained in this document and reserve the right to withdraw at any time pending review.

Operational Safety Guidance

Part 1 – For operators, how to stay safe

Pre-work knowledge

Stay safe by knowing…

- How to stop the engine before starting it.
- How safety aids that may be fitted on the dumper work, such as cameras, reversing and collision warning systems etc.
- What the correct and authorised routes are between the parking, loading and tipping areas.
- What is being used to load the dumper and with what materials.
- The maximum gradients or slopes that the dumper can travel on, both up, down and across.
- That dumpers with a full or overloaded skip are prone to overturning on uneven or soft ground.
- That travelling on a stockpile can cause the dumper to become very unstable and prone to overturning.
- If the travel route to the tipping area is able to bear the weight of the loaded dumper.
- That travelling on wet surfaces can increase the stopping distance and/or cause skidding.
- The conditions and configuration for setting up the dumper if towing a trailer.
- Where the exclusion zones are for the site.

Preparation

Stay safe by…

- Getting trained and/or be formally assessed so that you have demonstrated you can operate dumpers correctly and safely.
- Being familiarised on the actual dumper you are going to operate.
- Checking the dumper for correct function before work starts in accordance with the manufacturer's instructions.
- Checking that the steering, brakes (foot and hand) and skip-tipping function are all working correctly.
- Checking that the tyres are correctly inflated, are in good condition and have sufficient tread.
- Checking the condition of the seatbelt, that it is clean and undamaged, retracts when disconnected *(inertia types)* and is adjusted correctly so that you are secure in the seat.
- Informing your relevant supervisor or manager (or hire company where applicable) if a fault is found.
- Putting the dumper out of service until any fault is corrected.
- Using the correct hand holds and steps to climb up to the driving seat.
- Adjusting the seat so you can comfortably reach the controls and if it is a suspension seat, that it is set for your weight.
- Wearing the appropriate safety equipment (PPE) specific for dumper driving which should include suitable footwear, head protection and eye protection as a minimum.
- Wearing the correct clothing for the weather, especially when it is wet and/or cold.
- Only using dumpers that are fitted with, as a minimum, a ROPS frame.
- Checking with your supervisor that it is safe to stay in the seat when being loaded if the dumper is fitted with a cab *(Note: Not all cabs are designed to allow the operator to remain seated during loading.)*

Operational Safety Guidance

Travelling and Manoeuvring

Stay safe by…

- Wearing the seatbelt at all times when sitting in the seat and ensuring that it is adjusted correctly - it could save your life.
- Checking that the area around the dumper is clear of hazards and people before moving away.
- Maintaining all-round observation at all times.
- Constantly using vison aids such as cameras and taking immediate action on warnings given by reversing or collision avoidance systems.
- Staying in the seat and holding the steering wheel with both hands if the dumper rolls over.
- Travelling only on firm, compacted ground and on surfaces that are stable.
- Travelling on level ground and only driving up or down and not across inclines
- Keeping the dumper away from open trenches, gullies and ground where there are buried services.
- Keeping the dumper well away from the edges of banks and trenches.
- Travelling in the correct direction when driving up and down slopes with an empty skip.
- Keeping the skip in the fully lowered position unless discharging or tipping the load.
- Keeping passengers off the dumper.
- Complying with the law if travelling on the public highway.
- Travelling according to site conditions and any site speed limits.
- Stopping, applying the parking brake and switching off the engine if being approached by and talking to a co-worker.
- Following directions given by a plant marshaller/banksman.

Being Loaded

Stay safe by…

- Following the directions given by the loading machine operator, or marshaller, when driving towards the machine that is loading the dumper.
- Ensuring that the dumper is parked on firm and level ground.
- Parking away from the edge of trenches, gullies and slopes.
- Applying the handbrake first followed by placing the transmission in neutral.
- Switching off the engine every time before climbing down off the dumper.
- Climbing off the dumper before loading commences *(unless authorised to stay seated if cab-equipped)*
- Climbing off the dumper facing the machine, using the steps and hand holds without jumping off.
- Standing in a safe place so that there is no risk of being struck by the material being loaded or by another machine nearby.
- Informing the loading machine operator if the skip is being overloaded.
- Ensuring that the seat, the area around the pedals and steps are clear of any overspill.

Operational Safety Guidance

Transporting a load

Stay safe by…

- Not driving off if the material to be transported is above the level of the skip as forward visibility may have been restricted by the load.
- Ensuring you have good all-round visibility when the dumper is loaded.
- Using the correct direction of travel when going up and down slopes when loaded.
- Braking early when slowing down as braking distances can increase dramatically when loaded.
- Keeping to the designated travel routes.

Discharging a load

Stay safe by…

- Ensuring edge protection such as stop blocks or an earth bank are in place before approaching a trench or edge.
- Approaching the tipping point at low speed with the dumper in a straight line.
- Only tipping on ground that is level and firm.
- Stopping the dumper, applying the handbrake and placing the transmission in neutral before discharging any load.
- Slowly raising the skip and controlling the discharge from the skip.
- Ensuring that the direction of travel is clear of people and other dumpers before reversing away from the tipping area.
- Keeping reversing to a minimum.
- Fully lowering the skip before moving away from the tipping area.
- Maintaining the minimum safe distance from overhead power lines particularly when on spoil heaps or with high-tip types.

On completion of work

Stay safe by…

- Parking the dumper in the correct place away from pedestrian, vehicle and emergency access routes.
- Parking on firm level ground (or across a slope only when not possible).
- Applying the handbrake, placing the transmission in neutral and switching the engine off.
- Securing and isolating the dumper when leaving it and removing the key.
- Informing your supervisor of any defects or issues encountered during work.

Operational Safety Guidance

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Operational Safety Guidance

Part 2 – Supporting Information

Preparing to and completing work

- Forward tipping dumpers are commonly used on many construction and related sites and are responsible for transporting materials safely and efficiently. The large number of forward tipping dumpers in use means that incorrect operation often occurs and is responsible for many accidents and incidents, which cause serious injuries and deaths. Operating a fully loaded dumper can be hazardous without proper planning or training, and without taking proper care and paying attention.
- Correct and thorough preparation is essential to forward tipping dumper operations to ensure that the dumper is able to work safely and efficiently. Failure to properly check the dumper before work could result in incidents because faults can affect both the performance and safety of the dumper.
- Defects noted by the operator, even if they consider them to be insignificant, must be reported otherwise the fault could get rapidly worse during the working day. For example, if the operator notices an oil leak from underneath the dumper, they must report it immediately as they may not be sufficiently qualified or experienced to decide whether it is safe to use.
- Seatbelts are fitted to dumpers to restrain the operator in the seat. The seatbelt must be clean and undamaged, the securing bolts secure and the securing mechanism must not able to be disconnected unintentionally. If an intertia retractable type is fitted, it needs to provide some pretension to the body when worn. An intertia locking mechanism is fitted to prevent loosening of the belt when a large movement is detected, and this can be checked by pulling the belt sharply which should lock the belt. If the seatbelt is the non-retractable type, it must be adjusted so it minimises body movement when worn.
- On many dumpers, access to the engine compartment is gained by opening the top canopy on which the seat is situated. On completing the checks, the operator must ensure the canopy is properly closed and locked; otherwise the seating position is unsecure and can move when the dumper is being operated.

Working safely and with others

- All dumpers should be supplied with a roll over protective structure (also known as a ROPS frame or bar), or a fully enclosed cab. The seat belt which must be worn at all times when using the dumper. In many cases, the dumper cannot be started unless the seatbelt is being worn. Operating the dumper when not wearing the seatbelt can lead to serious injuries or death if the dumper becomes unstable, such as driving too fast on uneven terrain or during an overturn. Furthermore, many employers consider the non-wearing of a seatbelt a disciplinary issue with operators having been removed from the dumper or even from the site if breaking this rule. Many employers are aware that some operators for convenience purposes connects the seatbelt to start the engine but sits on the seatbelt when driving.
- Dumpers are available in many sizes and the planning of work needs to take into account the optimum size of dumper required. Using the wrong size dumper can cause problems. For example, sometimes a smaller dumper is specified in order to reduce hire costs, but can often be overloaded which may cause an incident as overloading a dumper affects its stability.
- Where a dumper is considered too big for the work or is working in a restricted area, particularly on smaller sites, the operator may need to undertake additional manoeuvring, which is inefficient, can damage the ground, cause the dumper to strike other dumpers or structures and limit potential visibility.
- Dumpers are commonly fitted with forward-facing vison aid cameras and collision avoidance systems such a radar. Cameras provide a real-time image of the areas which cannot be seen from the operator's seat. Collision avoidance systems, usually rear and forward-mounted, provide a warning alarm if either a person or structure comes within the range of the radar. When the alarm sounds, the operator must immediately stop all dumper movements and determine why the alarm sounded, for example reversing too close to an object or someone walking in front of or behind a reversing dumper etc.
- Dumpers are required to transport materials over a wide variety of terrain, including soft ground, inclines and rough terrain which can present hazards for the dumper operator. Therefore the work site should be planned so that travel routes from the loading point to the tipping point minimise, so as far as is reasonably practical, the need to travel on poor terrain or inclines.
- Travelling on uncompacted ground can cause instability of the dumper. Dumpers should not travel on spoil heaps unless authorisation has been given by a competent person as they are uncompacted ground and unstable, particularly near to the edges. This can produce severe tilting of the dumper and cause an overturn.

Operational Safety Guidance

Working safely and with others (cont'd)

- The planning of travel routes also needs to take into account other factors, such as pedestrians, who if using the same route, need to be segregated from the dumper's travel route to avoid a collision.
- Planning should also take into account changes to the ground, particularly in wet weather as the travel routes can become slippery and firm ground can turn into soft ground which can cause an overturn.
- Where the travel route passes near to the edge of an embankment, a suitable barrier should be provided to prevent a dumper from travelling over the edge.
- Tipping loads into a trench or over an edge is a particular hazard for dumper operators, and dumpers have fallen into open trenches when a suitable barrier system, such as the correct size stop blocks, have not been used.
- Although stops blocks or an earth berm should be used when tipping over an edge, operators should not rely on the stop blocks from being able to stop the dumper, as they can only minimise the risk of the dumper going over the edge.
- Dumpers are usually loaded by another machine such as an excavator and therefore the dumper operator needs to work with other plant operators as well as general site operatives when travelling with and unloading materials.
- The dumper operator needs to ensure that the skip is not overloaded by the loading machine, otherwise safety issues can occur such as the operator having restricted visibility in front of the dumper. Serious injuries and deaths have occurred to those who have been struck by a moving dumper where the operator has had a lack of forward visibility due to the amount of material in the skip. Industry good practice recommends that material is not above the top level of the skip.
- When the operator needs to leave the seat of the dumper, even when it is being loaded, they must ensure the parking brake is applied, the transmission is in neutral and the engine is switched off. This ensures that the dumper cannot move unintentionally. Accidents have occurred where the operator has unintentionally moved a transmission or gear lever into drive, and dumper movement has occurred.
- If an engine is left running near to an open trench, the exhaust fumes - which can be toxic, may enter the trench. This can be a safety hazard for anyone working, or going to work, in the trench.
- Where a forward tipping dumper is not equipped with a cab and is being loaded by another machine, such as an excavator, conveyer etc. it is essential that the operator leaves the driving seat and stands in a safe place where they cannot be struck either by any part of, or from any overspill from, the loading machine, or by other plant in the area.
- Tipping loads requires care on the part of dumper operators. When loads are being discharged from the skip it is important that the dumper is parked on firm, flat and level ground and that the handbrake is applied.
- If the dumper is either tilted forward or to one side, instability can occur as the centre of gravity rises when a loaded skip is raised.
- It has been known for dumper drivers, when travelling to and approaching the tipping area, to apply the handbrake instead of the footbrake to stop the dumper. This can lead to excessive wear of the handbrake system meaning it may become ineffective when it is required to hold the dumper, for example, when on an incline.

Operating requirements

- Dumpers sometimes tow equipment such as compressors and small bowsers. Where this is undertaken, the operator must check the operator's manual first to ensure that the dumper is approved for towing and what the criteria is for towing. Many dumpers are equipped with a recovery bracket which are normally not approved for towing purposes.
- The correct towing pin for the towing bracket must be used and that the safety pin is located correctly in the towing pin, as this prevents the towing pin from jumping out of the towing bracket. Using the wrong size pin for the bracket has meant the pin has fallen out of the bracket, which can cause the trailer to become detached.
- Nearly all dumpers are now equipped with a hydraulically (clutch-less) operated transmission and it is possible to pull away in any gear. Operators need to select the correct ratio for the type of manoeuvring or driving being undertaken, as driving using too high a gear can cause overheating and damage to the transmission, particularly when manoeuvring in tight or restricted areas.
- Some dumpers are fitted with a rotating skip where loads can be discharged side-on to the dumper. Although tipping loads with any dumper requires care, tipping side-on is more hazardous as the dumper is less stable in this position. Therefore the operator needs to ensure that the load is tipped both slowly and under control, to prevent a side overturn.

Operational Safety Guidance

Stability and overturning

- Dumpers fitted with a ROPS frame or fully enclosed cab provides protection to the operator during an overturn. These can however only minimise but not eliminate any injuries, providing the seatbelt is being worn.
- If an overturn does occur, the operator must stay in the seat, hold both hands on the steering wheel, keeping limbs and feet within the operator station.
- In a number of cases when an overturn occurs, operators have attempted to jump clear. The speed of the overturn however means that operators have not been able to react quickly enough or have the required level of fitness to jump well clear of the overturning dumper, with the sad result that the operators have been crushed by the dumper or the ROPS frame, causing severe injury or death. There is also a tendency where operators have jumped into the path of the overturn and crushed by their machine.
- In some circumstances, the ROPS frame can be lowered when the dumper needs to work in areas where there is restricted headroom. This must however be properly planned so that the work area is level and has firm ground. The ROPS frame must be raised and locked when away from the area of restricted headroom.
- Dumpers can be unstable during operation and requires planning and care by the operator both before and during work. In principle the dumper's weight, particularly to the rear, counteracts or is heavier than the load in the skip. As a skip is raised to discharge a load, the load centre shifts towards the front of the dumper, making it less stable. This means that the operator must take care when discharging loads and needs to operate all controls smoothly and whilst on firm, level ground.
- Gradients and inclines are a particular hazard, and manufacturers issue guidance on the maximum gradient that the dumper can travel on (both up and down as well as across a slope) and on how the dumper should be travelled up and down the slope.
- In principle, a loaded dumper must drive forward up a steep slope but reverse down a steep slope. The opposite generally applies when the dumper is unladen – the dumper should be reversed up the slope and driven down the slope. It is important that the operator consults the operator's manual on each type of dumper they are operating before starting work.
- Travelling on stockpiles is extremely hazardous as the surface may not be fully compacted, which can cause the dumper to both lean excessively as a void is encountered and creating a risk of overturning. In principle, dumpers should not travel on stockpiles and only discharge the load at the foot of the stockpile.
- Care must be taken when travelling between the loading and tipping points, even on well-maintained haul roads, by avoiding potholes and raised bumps because even small ones, particularly when travelling at speed, can cause the dumper to become unstable as well as being uncomfortable for the operator.
- A loaded dumper will generally be less stable than an unladen one because of the higher centre of gravity. This means that steering and braking actions need to be smooth, particularly when on inclines and turning sharply around tight corners.
- High-tip dumpers, as the name suggests, allow material to be tipped at height but extreme care must be taken because travelling, even slowly, with a raised skip can make the dumper unstable. This is due to a raised centre of gravity.
- Dumpers with a narrow track (the width between the wheels on an axle) also have a higher centre of gravity relative to the dumper's size. Travelling these types of dumpers on soft or uneven ground should be avoided as the high centre of gravity means that leaning to one side whilst travelling can cause them to tip over sideways.

Operational Safety Guidance

Part 3 – Planning and supervision

Introduction

Correct and effective selection, planning and supervision is essential for the safe use of forward tipping dumpers but the large number in use means that incorrect operation often occurs and is responsible for many accidents and incidents, causing serious injuries and death.

Dumpers should not be specified where more effective or safer equipment or methods can be used *(ref Regulation 4 of the Provision and Use of Work Equipment Regulations 1998)*. Forward tipping dumpers are designed to principally carry loads that are contained within the dumper's skip. Other types of use, or where loads exceed the confines of the skip, should be checked with the manufacturer.

Dumper operations can be hazardous without proper planning, and managers and supervisors need to understand safe operating aspects and the potential issues that can exist. Managers and supervisors have personal and legal responsibility to ensure that all forward tipping dumpers are used safely. Serious misuse of forward tipping dumpers should be treated as potential gross misconduct which could well lead to dismissal or individual prosecution.

Before work, managers and supervisors should ensure that the operator:

- knows that if it is not safe to start work - They must inform you;
- knows that if it is not safe to carry on working - They must stop and inform you;
- wears the seat belt which reduces the risk of injury should the forward tipping dumper overturn. It could save their life;
- operates in accordance with the manufacturer's instructions.

Managers and supervisors need to understand that dumpers, particularly when loaded, have a high centre of gravity and can be prone to overturning on steep inclines or very uneven ground, and that a fully loaded dumper causes a lack of forward visibility meaning that nearby pedestrians are at risk of being struck. Furthermore, the lack of visibility can cause the dumper to strike objects, structures or other plant.

The non-wearing of the seatbelt when operating the dumper should be considered a disciplinary issue with continual breaching of this requirement treated as gross misconduct in line with other forms of misuse.

Managers and supervisors further need to ensure that those working around and near to dumpers are aware of the potential risks of dumper operations, particularly that the operator's all-round vision can be limited when being driven.

Spoil heaps are un-compacted ground for which are a cause of instability as severe levels of tilt can be produced, creating overturns. Industry safety initiatives are advocating banning or strongly controlling the travelling of dumpers on spoil heaps. If there is a need to travel on spoil heaps, designated routes that have been pre-compacted and are away from the edges of the spoil heap must be provided.

The use of dumpers fitted with a cab is becoming common and an aid to providing a comfortable environment for the operator during operation. Cabs however may restrict all round visibility compared to non-cabbed versions and not all cabs may provide the full required impact protection in all scenarios. This means that managers and supervisors need to check the level of protection afforded by the cab against operating circumstances e.g. the size and type of loading machine against manufacturers specifications before allowing the operator to remain seated during the loading process.

These notes for managers and supervisors are in addition to the information within Parts 1 and 2, they should be conversant with the content of these other sections.

Operational Safety Guidance

Managers and supervisors should:

Dumper selection

- Ensure that a forward tipping dumper is the most suitable type of dumper for the tasks to be undertaken and the environment it is to work in.
- Ensure that the size and carrying capacity of the selected dumper or dumpers is sufficient to prevent for example; overloading if too small for the activities, or too large for sites having physical restrictions or limited space.
- Ensure that additional safety equipment such as proximity sensors, reversing alarms/cameras, mirrors, high visibility seatbelts, beacons, operator station weather protection etc. is specified for high-risk sites or for seasonal weather periods.
- Consider dumpers that are fitted with a protective cab with the right impact protection which allows the operator to stay within the seat during loading. This provides a safer option to the operator continually climbing on and off the dumper and seeking a safe place to stand, and provides more efficient operation earthmoving operations. This needs to be offset against potential visibility issues with cabbed dumper.

Before Starting

- Ensure that the forward tipping dumper has been suitably maintained, confirm that daily checks - including safety devices - are carried out before the start of each shift and that all defects are recorded and rectified.
- Ensure that the operator is trained to operate forward tipping dumpers and has been familiarised with the specific make and model of dumper they are to operate.
- Assess site conditions and check that there is adequate segregation of pedestrians and plant/vehicles in place and that travel routes are safe for the travelling of a loaded dumper.
- Ensure that in areas where other workers and pedestrians are present, plant marshallers are utilised to control the loading, travel and discharging areas.
- Ensure that the operator has been briefed on the task, hazards, control measures, site and ground conditions that may affect the safe operation of forward tipping dumpers, particularly when travelling on uneven, un-compacted or sloping ground.
- Ensure that the operator is aware of the need to have and maintain full visibility of the travel direction, pedestrians, other plant and of potential hazards that may affect the safe operation of the dumper.
- Ensure that tipping areas such as into trenches or over edges have suitable edge protection that prevents a dumper from overrunning.
- Confirm that the operator understands the forward tipping dumper's limitations and that they should never overload the forward tipping dumper as this can cause serious visibility issues and potential overturning.
- Ensure that the operator of the machine loading the dumper knows it is unsafe to overload the dumper.
- Confirm that the operator is comfortable with and has been authorised to carry out the tasks.

Informing Others

- Carry out a briefing activity before operations start to those working with or near to dumper operations informing them of the dangers of being around moving dumpers, and particularly that the operator may have limited visibility and cannot see fully around the whole of the dumper.

Operational Safety Guidance

During Use

- Regularly monitor dumpers operations to ensure safe working practices are maintained including exclusion zones, travel routes and for the wearing of the seatbelt.
- Continually check that dumpers are not overloaded and the material in the skip is not above the height of the skip.
- Ensure that the operator is off the seat and standing in a safe place when the dumper is being loaded, and that the engine is switched off and handbrake applied when they leave the seat.
- Check for changes to weather conditions such as cold, rain, heat or dusty conditions which can have a significant effect on the operator and their ability to operate effectively. A small reduction in body temperature can have an effect on a person's ability to react to emergency situations. Appropriate clothing and rest breaks should be actioned accordingly.
- Regularly check that discharging areas remain safe as the volume of discharged material increases.
- Ensure that if driving on the public highway, that the dumper complies with the Construction and Use Regulations and the Road Traffic Act, including operator licencing, the carrying of loads and the use of rebated (red) diesel.

After Use

- Check that when leaving the dumper, the operator parks on level ground, applies the parking brake, leaves the transmission in neutral, switches off and removes the ignition key.

Operational Safety Guidance

Annex A

Case Study

Figure 1. Example of unsafe dumper operations

An actual event occurred on a construction site and represented by the above illustration, where the loading excavator operator had placed excess material into the dumper's skip, severely masking the operator's forward vision. After reversing away from the loading area, the dumper operator proceeded to drive in a forward direction over some distance to the tipping area.

The following are some factors indicating why this is unsafe and potentially dangerous:

a. The excess material adds additional weight which places extra strain on the dumper's components, particularly the tyres and further makes the dumper harder to steer;
b. The additional weight could strain the dumper's hydraulic system when raising the skip to discharge the load and if the load binds together, can move the centre of gravity forward which can overturn the dumper in a forward direction;
c. The dumper's centre of gravity has been raised which will make it more unstable, particularly on inclines, uneven ground and when turning around corners;
d. The excess weight creates higher ground pressure through the tyres which on soft ground can cause the dumper to lean either forward and/or to one side, increasing the risk of instability;
e. The excess weight can excessively compact the ground, potentially damaging underground services and the haul routes, particularly in wet conditions;
f. Excessive speed when cornering or harsh braking can cause the material to be thrown from the skip;
g. The operator's forward vision is severely restricted and they are arguably driving 'blind' and risking a collision with other structures, people, other plant etc. or risking an overturn by driving into large voids, potholes or trenches.

Operational Safety Guidance

How could this have been prevented?

a. The excavator operator knowing the dangers of overloading;
b. The dumper driver knowing the dangers of overloading;
c. The dumper driver being more assertive and informing the excavator operator not to overload;
d. Better selection of dumper for carrying spoil for this task;
e. Effective supervision by site management.