



HEALTH AND SAFETY
AUTHORITY

SAFE SYSTEM OF WORK PLAN (SSWP)



DEMOLITION PICTOGRAMS



SAFE SYSTEM OF WORK PLAN (SSWP)

PICTOGRAMS

© Copyright The Health and Safety Authority January 2005. All Rights Reserved.
"The Health and Safety Authority", the "HSA" and associated logos are trade marks
of The Health and Safety Authority.



DEMOLITION

Start Up and Ongoing Site & Planning Requirements

SUPERVISION



Supervision, generally by the person in charge e.g. the foreman, is essential to ensure the activity is completed as planned, and to a safe system of work.

SAFE PASS



As identified in the Construction Regulations, all persons engaged in construction work must be in possession of a current Safe Pass card, having successfully completed the one day safe pass training. Safe Pass cards must be renewed as appropriate.

PLANT/EQUIPMENT CERTIFICATION



It is a legal requirement that most construction and demolition plant is tested and examined on a regular basis, in particular all lifting appliances and lifting gear. The Certificates relating to these must be kept up to date.

CSCS



The Construction Skills Certification Scheme, as prescribed in the Construction Regulations identifies certain skills on construction sites that require mandatory training. On successful completion of this training, persons are given a CSCS card. CSCS cards must be renewed as appropriate.

INDUCTION



Every new contractor or new employee on a site should undergo an induction when they first arrive on site. This induction should inform the attendees about site rules and procedures, and the arrangements for their safety and welfare on site, and also who the key duty holders are.

COMMUNICATION



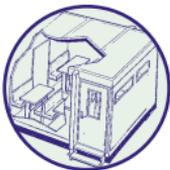
Timely and good communication is essential at all times. Clear communication helps to ensure that tasks are understood and completed in a safe manner.

WC & WASHING



Toilets and a hand washing facility must be provided on all sites. The facility must include a sufficient supply of hot and cold or warm running water, toilet tissue, soap, and towels. The facility must be conveniently accessible and must be maintained in a clean and hygienic condition.

CANTEEN



A facility must be provided for workers to take breaks. Minimum requirements include facility for boiling water, tables with impermeable surfaces, and chairs with backs. It must be properly ventilated, have adequate light, kept in a clean, hygienic condition and shall not be used for the storage of building materials or plant.

DRYING/CHANGING



Arrangements, separate from the canteen facility must be in place to allow workers to change and dry clothes.

DRINKING WATER



An adequate supply of wholesome drinking water must be provided at a convenient point(s).

SMOKING CONTROL



Smoking is prohibited in enclosed work places.

STRUCTURAL SURVEY



This is a critical step in the planning for safe demolition. It involves the identification of those parts of the structure that carry loads in addition to their own weight. This information is vital for developing a safe system of work and in particular the prevention of unplanned collapse.

ASBESTOS SURVEY TYPE 1



Is a very basic survey where asbestos-containing materials may be located and identified. When a material cannot be confirmed as asbestos-free, it is presumed to be an asbestos-containing material. It may be called a location and assessment survey or presumptive survey.

ASBESTOS SURVEY TYPE 2

This is a more detailed survey and involves the taking of representative samples from the structure for laboratory analysis so that the location and quantity of the most readily accessible asbestos containing materials can be determined.

ASBESTOS SURVEY TYPE 3

Where there exists the possibility that asbestos-containing materials may be present in a building due for demolition or major refurbishment then a Type 3 survey must be performed. In line with current best practice it is a requirement that all asbestos containing materials be removed from a building or structure, as far as reasonably practicable, before such works commence. Type 3 is the most detailed and thorough of all surveys. This type of survey is used to locate, describe and quantify, so far as is reasonably practicable, all asbestos-containing materials in the building and will usually involve destructive inspection as is necessary so that all areas may be accessed, even those that may be difficult to reach. A full sampling programme must also be carried out so that all possible asbestos-containing materials in the building are identified, located and quantified. This information is necessary so that the appropriate removal techniques may be selected and implemented.

Each of the above three survey types must be carried out in accordance with a recognised standard usually MDHS 100.

ENVIRONMENTAL RISK ASSESSMENT



Demolition including decommissioning work can take many forms, including cleaning contaminated land, removal of oil tanks etc which could result in the discharges of untreated material. This Environmental Risk Assessment should identify the likelihood of such harmful emissions or discharges occurring, so that adequate and suitable controls may be identified and implemented to eliminate the risks associated.

METHOD STATEMENT/EMERGENCY PLANS



Due to the hazardous nature of demolition work, detailed method statements/ procedures which set out the step-by-step description of the safe system of work must be developed so that such high risk activities are suitably planned, organized and controlled. These procedures must be in writing and be clearly communicated to all workers involved in a language that is clearly understood by all. The method statement should include at least the following: a) the schedule of responsibilities; b) details of selected work methods; c) details of demolition equipment to be used; d) details of ancillary equipment; e) the name of appointed duty holders; and f) a complete plan setting out the sequence of the operation (from site preparation, arrival of the equipment on site, any necessary erection, positioning of the equipment, lifting and placing of the load(s), and dismantling of equipment, to moving off site). The plan must take account of the Safety File and all structural and related surveys and drawings etc. **Emergency plans/procedures** must also be detailed in writing, so that measures are put in place prior to work commencing such that in the event of any

incident occurring workers and persons in the vicinity are not at risk of injury, these measures must also deal with rescue. When developing the emergency plans liaison with the local emergency services may be necessary.

FIRE/GAS/VAPOUR CONTROLS



Consider the risk of fire and explosion, plans must include the details of all steps to prevent dangers from the risk of fire or explosion through any build up of gas or vapour. Consideration should be given to the provision of alternative means of escape and the use of temporary fire detection and alarm systems during demolition. Bar heaters should not be used on site, and use of all naked flames must be tightly controlled.

FLOOD CONTROL



Before demolition commences it will be necessary to take all appropriate steps to prevent dangers to workers from the risk of flooding through any build up of water.

LIAISON



Demolition by its nature and often by its location, has potential to impact not just the workers involved but also the surrounding area, including members of public and their property. The emergency services, utility companies and local community groups may need to be fully informed about how the works may effect them. Liaise directly with involved groups and ongoing newsletters and bulletins should be provided as necessary.

VIBRATION/NOISE ASSESS



Where vibration and noise are likely emissions from the demolition activities, these must be closely monitored to ensure that they do not pose a health or safety risk to persons or damage to property in the vicinity of the works. Mechanical demolition can produce vibration which may be transmitted to adjoining premises causing structural damage. In such cases the two properties may need to be separated by hand demolition.

WASTE MANAGEMENT



Demolished materials must be segregated, harmful wastes must be separated from other materials and disposed of in the appropriate safe way in some cases prior agreement with the Local Authority may be necessary e.g. clinical wastes etc. Many materials are recyclable, and every attempt must be made to recycle such materials e.g. fireplaces, light bulbs, timber sections, metal, slates, tiles, stone and marble etc.

SELECT METHOD



There are many demolition techniques available. The precise method of works can only be decided after completion of risk assessments, taking account of the nature of the structure, the location in respect of other premises, and the local environment. The choice of technique must be based on minimizing the risks to the Health & Safety of the workers and those in the vicinity of the work.

HAND



Progressively demolished structures can be demolished by operatives using hand held tools, though the use of mechanical assistance may also be required. There may be elements of hand demolition in many demolition projects. During hand demolition special care must be taken to ensure that teams (gangs) working at height do not drop debris into working or access routes below. Where practical the removal of steel frames should be done in reverse order of their erection.

GENERAL MACHINE



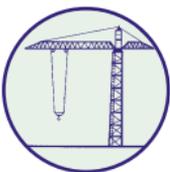
In preference to hand demolition, machines which are operated from protected cabs should be used to demolish structures and elements of structures. All machines used must be maintained in good working condition and be appropriate for the task having regard to the environment and its location. Where machines are used the supporting surfaces must be strong enough to support such machines and any associated loads. It is also common practice to demolish low buildings or the remains of higher buildings using an excavator (with protected cab) fitted with a bucket rather than a demolition attachment. As a rule the height of the structure to be demolished should not be greater than the reach of the machine at that height.

REMOTE CONTROL



Is the operation of machines remotely, e.g. using “umbilical” cable control or robotic devices. Any machine used must be maintained in good working condition and be appropriate for the task having regard to the environment and its location. Where machines are used the supporting surfaces must be strong enough to support such machines and any associated loads.

CRANES



Cranes of various types are often used in demolition. The use of high reach cranes for demolishing high rise structures should be considered for the removal of structural elements by skip as against dropping materials. Such cranes should not be used for balling or pulling operations, as they are only designed for the lifting of freely suspended loads.

LONG REACH



High and ultra high reach machines fitted with suitable booms and arms used with concrete pulverizers and combination attachments should be considered for the demolition of high rise buildings. When using such machines the correct position relative to the work face must be maintained and that the angle of the boom is in accordance with the manufacturer's recommendations to ensure safe operation and stability of the machine.

DEM. POLE/PUSHER ARM

Involves the use of a machine fitted with a pusher arm exerting a horizon thrust. Used in progressive demolition, where the height of the structure is reduced by pushing over small sections. The point of contact of the arm with the wall must be at an appropriate distance below the top of the wall. Prior to use the assembled machine must be inspected by a competent person, to ensure that the attachment is secure and that all connections are fitted correctly and free from defects.

IMPACT HAMMER

Demolition by impact hammer involves the progressive demolition of concrete structures by applying heavy blows either hydraulically or pneumatically to a point in contact with the material. When using this method regular inspections must be carried out to ensure that there is no unplanned deterioration in stability in the surrounding areas due to vibration from its operation. Prior to use the assembled machine must be inspected by a competent person, to ensure that the attachment is secure and that all connections are fitted correctly and free from defects.

SHEARS/PULVERISERS



Cold cutting of metal and reinforced concrete sections can be achieved by cutting and severing material using hydraulically operated shear jaws. Hydraulic shears should be considered for cutting in situ, or processing materials at ground level. Mechanical demolition by a machine mounted pulveriser is the progressive demolition of reinforced concrete structures by crushing the material with a powerful jaw action. Shears and pulverizers are particularly useful for crushing beams, columns, floor slabs and panels. Prior to use the assembled machine must be inspected by a competent person, to ensure that the attachment is secure and that all connections are fitted correctly and free from defects.

GRAPPLE



A grapple is designed for use in both demolition and handling applications. The jaws interlock to enable partial loads to be safely secured. Prior to use the assembled machine must be inspected by a competent person, to ensure that the attachment is secure and that all connections are fitted correctly and free from defects.

WRECKING BALL



This method breaks down the building or structure by swinging a weight, usually in the shape of a ball, from a crawler crane, which should be fitted with a lattice jib. This weight is then released to impact the structure, repeatedly, in the same or different locations. Care must be taken so that the ball is not trapped, as a trapped ball can cause

overloading of the crane when trying to release it by dragging or lifting. Prior to use the assembled machine must be inspected by a competent person, to ensure that the attachment is secure and that all connections are fitted correctly and free from defects.

ROPE DEMOLITION



Involves attaching wire ropes (steel wire) to a structure, and pulling the pre weakened structure to the ground by winch or tracked plant. A detailed risk assessment must be undertaken prior to rope demolition. Wire rope pulling should not be used on brick or masonry structures. The ropes used must be of a length, size and strength adequate for the purpose. Damaged ropes should not be used. The pulling machine operator must be protected against rope breakage or flying debris.

DRILLING/SAWING



These techniques are used to weaken or remove parts of structures, especially where work is in confined spaces, and in locations where accuracy is important, or where noise, dust, smoke and vibration from other methods are unacceptable. While these methods are called “cold cutting” methods, heat can be generated and this must be taken into account. The selection of the actual drilling and sawing method to be used must be based on risk assessment, taking particular account of the task, the environment and space available etc.

CHEMICAL AGENTS



The use of combustible gases in demolition is a highly specialized activity, and should only be undertaken by or under the supervision of appropriately trained personnel.

EXPLOSIVES



The use of explosives for controlled demolition is a task requiring competent trained and authorised persons for the planning and implementation and use of explosives on site. The blasting operation should be under the control of a trained Explosives Supervisor. There are Standards available governing the use of explosives in demolition, and these must be used together with any relevant Code of Practice and National Legislation. Only explosive supervisors who can demonstrate that they have the necessary qualifications, training and experience in accordance with the above should be employed on explosive demolition work. The demolition of chimneys and cooling towers by explosives is an accepted practice in industry. Careful blast design is essential, and should take into account structural pre weakening, blast protection, test blast analysis, and the determination of exclusion zone etc. Before any work starts a detailed method statement based on the blast design and associated risks should be prepared. A contingency plan should also be established and included in the method statement. Before works commences the appropriate bodies/ people likely to be affected by the demolition work should be notified.

BURSTING

The bursting agent (e.g. expansion gas, expanding chemicals, hydraulic pistons or wedges) is inserted into a prepared cavity in the structure to be demolished. Upon being energised the increase in the resulting pressure causes fractures that propagates through crevices leading to structure rupture. Bursting techniques can be used for demolition of concrete or rock, especially where reduction of noise, dust and vibration need to be taken into account.

HOT CUTTING

Such techniques generally use oxy-fuel gases and disc grinders. Hot cutting should only be used where the work systems chosen avoids the risk of fire or explosion. Flame cutting techniques should commence only after the structure to be cut and the surrounding area have been made safe from the risk of fire or explosion. Permit to work systems for hot cutting work should be used. The work methods selected must be planned such that adequate precautions are in place to take account of fume hazards caused by flame cutting. Careful selection of appropriate PPE is also required along with good maintenance of cutting equipment and the use of safe procedures for the handling and storage of gas cylinders etc.

THERMIC LANCING



Is the best known device to produce a high temperature flame with the chemical characteristics to melt concrete. Pressurised oxygen is passed down the tube to the open end, and is heated to start the process. Once heated the tube and wire are consumed in the oxygen, producing a temperature of approximately 2,200C. During use molten material and thick smoke is generated, therefore suitable precautions should be taken, particularly where there is limited ventilation.

PROPPING PLAN



Propping is any temporary structure used to support a permanent structure while it is not self-supporting. Propping is required during the demolition stages of a project to give temporary support to prevent collapse due to overloading of structural components during deconstruction. The responsible contractor must ensure that the correct proprietary props are installed correctly and that the units are supported as indicated on the approved construction drawings in line with the manufacturers recommendations. Any failure of propping could result in the collapse of the permanent structure, which could result in injury or death. Normally a temporary works co-ordinator is appointed to ensure that correct propping procedures are followed and that operations are carried out safely.

SERVICES (including electricity, gas and sewage etc.)

Prior to carrying out any demolition work, it will be necessary to ensure that existing services such as gas, electricity, water, and sewers etc, are secured, such that their presence does not pose a risk to workers or persons in the vicinity due to the works being undertaken. If such services are present adequate measures must be implemented to protect workers.

SERVICE SUPPLIER e.g. ESB, Bord Gais, Local Authority etc.

Where demolition or decommissioning work activity is to begin, and services are unknown the relevant utility company must be contacted for drawings and advice on the position of underground and overhead services.

DIVERT/OFF

Before work is to commence adjacent to overhead, underground cables, gas services or other underground services the relevant utility company must be contacted to request that the service is diverted away from the work zone, or if necessary can be temporarily switched off/ stopped to allow work to proceed safely. Where electrical power remains live, and subsequent work is required including live work, isolation and tagging off systems, including permit to work systems should be used. All electrical work must be closely supervised by fully trained and competent electricians. The Electricity Regulations, and the ETCI rules must be fully complied with.

SURVEY MAP



Before work is to commence, a drawing of the underground services should be procured and the structure must be suitably surveyed and subsequently marked out to identify the position of such services. For refurbishment and all demolition works the Safety File must be referred to.

DETECTOR



Before digging, drilling or cutting is to commence, the area should be scanned with a suitable detector to verify the position of any services, and any variances identified should be marked on the drawing.

HAND DIG



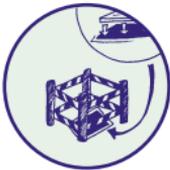
Mechanical cutting or digging at or immediately close to underground services is generally not permitted except in very limited circumstances and only under strict supervision. Such services are normally uncovered or made visible by controlled hand digging to minimize the potential of cutting or puncturing the service. However care should be taken during hand digging, as this can also result in cutting services, and exposing live conductors. Normally only when all the lines are clearly visible should mechanical digging commence. Consideration may also be given to having a representative of the relevant utility company present when working close to underground services.

NO FLAMES

Gas is highly flammable, flame or any sources of ignition (sparks, static electricity, etc) must not be allowed to come in contact with, or be in the vicinity of live gas.

WARNING SIGNS

Gas explosions, and contact with power lines can kill. People working close to, or accessing close to, or at live gas mains/ power lines must be made aware of their existence, to allow them to apply the necessary controls. Suitable and sufficient Warning Signs should be erected to advise persons of the danger.

BARRIERS

Where services have been uncovered/ made visible, and remain visible or are insufficiently backfilled, suitable barriers should be erected at a sufficient distance around the service area to protect and warn persons, or the drivers of plant from the associated danger.

OVERHEAD LINES

The operation and movement of plant and equipment close to overhead lines can be dangerous. Warning goal posts should be erected a safe distance either side of the lines, and any such plant required to pass must ensure that they only access under the lines via the goal posts. The exposed lengths of the overhead lines must be guarded from unapproved access. Refer to the ESB Guidelines for further information.

TIPPING

Tipping vehicles and high reach machines must pay particular attention to the position of overhead lines, and always remain at a sufficient safe distance from such overhead lines. The erection of warning goal posts should be used for traversing plant.

HEALTH

Demolition work in many cases may involve the stripping of hazardous materials e.g. asbestos. Demolition and decommissioning works may also expose workers to harmful substances and gases that can cause harm by inhalation or by contact with the skin e.g. warts disease, hepatitis. Prior to work commencing it will be necessary to survey the works to assess whether such health hazards exist. Where health hazards are identified, adequate controls must be put in place to protect workers and others in the vicinity, including use of appropriate PPE, meticulous planning, surveys, permit to work systems, ventilation and extraction etc.

RISK ASSESSMENT

Each activity on site needs to be risk assessed to identify whether there is any health hazards e.g. working with sewage, removal of asbestos, cleaning or removing contaminated land. If there is an identified health risk then appropriate controls must be put in place to eliminate such risk. If the hazard cannot be eliminated then the risk must be reduced to as low as possible.

REMOVAL METHODS



The method of removal of asbestos or asbestos-containing materials depends on the type of material being removed and the risk associated with the asbestos-containing materials. This information must be based on an adequate survey conducted by a competent person in accordance with a recognised standard (such as MDHS 100). It is essential that depending on the nature of the materials present, adequate precautions are taken to ensure that personnel are not exposed to asbestos dust during such activities. The general precautions to minimise exposure and control the spread of asbestos fibres are:

- Where reasonably practicable remove all asbestos-containing materials from the building prior to demolition.
- Where possible remove the asbestos-containing materials intact.
- Keep the material dampened when working on it.
- Do not use power tools as they generate dust, which could contain asbestos fibres.
- Remove waste and debris from the site as soon as possible to minimise the risk of it being crushed or broken.

SYRINGES



Discarded and used syringes are a feature of many derelict buildings and sites, needle stick injuries from such syringes can result in very damaging health conditions. All syringes must be collected only by trained persons with the appropriate PPE, and be discarded in clinical waste needle bins for safe and approved disposal.

BIOLOGICAL AGENTS



Exposure to microorganisms such as bacteria, viruses, parasites and fungi may cause an infection, allergy, poisoning or toxic effect. If it is suspected that there maybe biological agents present then a controlled through examination of the area must be carried out to detect if Biological Agents are present and to identify these agents. It will be necessary to seek medical advice, and to vaccinate those likely to be exposed e.g. with Hepatitis A, Hepatitis B, and tetanus vaccinations.

PERMIT TO WORK



To ensure appropriate controls are rigidly adhered to when carrying out high-risk work, e.g. working with biological agent and other health hazards, a permit to work system should be used. This system ensures that works only begin when all the safety and environmental controls are in place, and signed off.

MONITORING



Air monitoring is conducted by a competent person using specialised equipment, the need should be determined as part of the assessment of the work. It may be required for one or more of the following reasons, a) to confirm that airborne concentrations of asbestos fibres are as low as reasonably practicable and that the correct choice of Respiratory Protective Equipment has been made, b) to confirm that there has been no measurable spread of airborne fibres to areas adjacent to where work with asbestos cement has taken place; or c) to confirm that the work area has been adequately cleaned, so that a **Clearance**

Certificate can be issued before being returned to normal use. Other monitoring due to the presence of other air borne exposures may also be required depending on hazard identification and an assessment of the associated risks e.g. dust, biological agents and chemicals etc.

DECONTAMINATION UNIT



A decontamination unit or 'hygiene facility' is a mobile, purpose-built facility which is provided to enable people removing asbestos insulation, asbestos coating and asbestos insulating board to change from normal outdoor clothing into protective clothing and respiratory protective equipment (RPE) before entering the asbestos contaminated work area, and to effectively decontaminate themselves when leaving the work area. The 'decon unit' is only used for the decontamination of workers who are involved in the removal of asbestos or asbestos-containing materials and is the first piece of equipment to arrive on site before the work commences and it is the last to leave the site once the asbestos or asbestos-containing materials have been removed.

VENTILATION/EXTRACTION



When specialist contractors are removing certain asbestos-containing materials where the risk assessment has determined that there is a high risk of asbestos fibres being released, a structure known as an enclosure is built to contain the asbestos fibres while the specialist operatives removes the material in a safe manner. Negative pressure units are installed within the enclosure to ensure that all air flows into the enclosure and that air which could be contaminated with asbestos fibres cannot get out of the enclosure.

DUST SUPPRESSION



Tools and equipment, which generate dust or fume clouds should be fitted with appropriate extraction and/or wetting aids.

WASTE REMOVAL



Prior to the removal of any asbestos-containing materials, a suitable facility for waste disposal must be identified. Asbestos waste is a hazardous waste, which must be disposed of properly. In Ireland, asbestos cement waste can only be disposed of at a waste facility licensed by the Environmental Protection Agency. Asbestos cement waste can also be accepted at a hazardous waste transfer station licensed by the Environmental Protection Agency. Hazardous waste transfer stations accept asbestos waste and then arrange to have the waste disposed at an appropriate facility either in Ireland or abroad. Asbestos cement waste must only be surrendered to local authority waste collectors or to a waste collection permit holder authorised under the relevant Waste Management (Collection Permit) Regulations, to collect this type of waste. All asbestos waste containing materials must be double bagged using high gauge polyethylene and be clearly labelled as asbestos waste. For further information on the waste legislation and disposal of asbestos-containing materials, the Environmental Protection Agency can be contacted.

WORKING CLOSE TO THE PUBLIC



FENCING



Demolition activity should not present an undue risk to members of the public, especially to children. Suitably constructed fencing must be used to secure sites.

HOARDING



Particularly on street side works, adequately designed and constructed hoarding should be erected to secure demolition work. Arrangements must be put in place to ensure that normal pedestrian, and public vehicular traffic is not put at undue risk, as a result of any changes made.

BARRIERS



All ongoing works, in particular street related activities, open excavations, exposed manholes etc, must be adequately protected with suitable barriers, and identified with appropriate warning signs.

PEDESTRIAN WAY

Where members of the public have to access close to, or around construction and demolition work, suitable and safe routes must be provided to ensure that the safety of the members of public is not put at risk from the work activity, consideration must also be given to persons with disabilities. Any demolition debris must be kept clear from such public areas including removal of muck, dust, trip hazards, protruding puncture objects and falling object etc. Also, where reinstatement is required it must be completed without delay.

LIGHTING

Adequate lighting should be provided on all access routes into or out of demolition sites, and especially in related pedestrian ways, to enable members of the public to avoid slipping, tripping, or being hit by projecting objects or vehicles.

WARNING SIGNS

Persons must be given advance warning when approaching demolition work, and in particular where specific hazards may exist. Suitable Warning Signs must be erected to give such adequate warning, and where necessary must give clear unambiguous directions to passing members of the public.

SECURITY

Only Authorised persons are to be allowed onto demolition sites. The use of trained Security Personnel can help to control such access.

TRAFFIC CONTROL

Traffic Control plans must be prepared, to help direct and control traffic movement, especially at the entrance / exit to any demolition site. This may include use of warning signs, bollards, stop-go systems, ramps, temporary traffic lights, and flagmen. Liaison with local Gardai may also be necessary. The Dept of the Environment's Traffic Signs Manual should be referred to.

BANKSMAN

A banks man is a trained Slinger and Signaller, and must always be used where loads are lifted, and safe direction is given to lifting appliance operators.

FLAGMAN

Where demolition activity involves managing traffic or pedestrians in public areas adjacent to construction and demolition activity, trained flagmen are used to control such movements in a safe manner. Flagmen must wear high visibility vests and use approved Stop/Go signs or flags. Where two flagmen are required they must be in visible contact or in voice communication with each other.

WORKING CLOSE TO WATER



PERSONAL FLOTATION DEVICE



When working close to or over water personal flotation devices should be worn e.g. inflatable life jacket. All personal flotation devices should be properly stored, inspected and serviced.

LIFE RING



Working adjacent to or in the vicinity of water, sufficient workable life rings must be available at the waters edge.

BOAT



Working over water, it is recommended that a rescue boat be readily available.

EDGE PROTECTION



Suitable handrails must also be used where appropriate when working close to water.

SAFETY LINE



Workers whose activity goes up to the waters edge can also be attached to a safety line for protection.

FALL ARREST



Fall Arrest harnesses with lanyards or retractable reel systems used with suitable anchorages may also be appropriate for the protection of workers over or close to water.

GRAB LINES



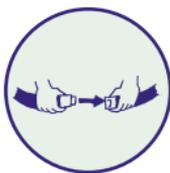
Safety ropes and lines can be erected close to the shore and down stream, so that where a person inadvertently falls into the water they can secure their own safety by holding onto the grab line, and pulling themselves to the shore.

PLANT AND EQUIPMENT, LIFTING OPERATIONS**CHECK SUITABILITY**

Before any piece of plant is used to carry out an activity it must be checked for its suitability for the task e.g. safe working load, accessories available, and reach capability etc. In addition when purchasing and using plant e.g. dumpers and bulldozers etc, consideration must be given to the potential risks to workers from vibration emissions.

ROLL OVER PROTECTION/NO PASSENGERS

All construction and demolition plant is required by law to protect the driver/operator. Where plant can possibly overturn. Roll Over Protection is required, e.g. dump trucks, tractors, and mini excavators. Furthermore construction and demolition plant is generally only to be occupied by the one person who is control of the vehicle. One seat, one person. Such plant must not be used to give lifts about the site to others.

SEAT BELTS

Where seat belts are fitted they must be worn. In the event of an overturn they can save lives.

WARNING DEVICES

With plant that has restricted visibility, particularly while carrying out reversing operations suitable warning devices, or sight seeing devices must be fitted e.g. CCTV, flashing beacons, convex mirrors etc.

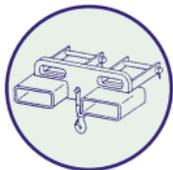
TRAFFIC/SPEED CONTROL

Traffic Control plans must be prepared, to help plan and control traffic movement, especially at the entrance to any demolition site. Measures to control traffic may include the following; use of warning signs, bollards, stop-go systems, ramps, temporary traffic lights, and flagmen. Liaison with local Gardai may also be necessary. The Department of the Environment's Traffic Signs Manual should be referred to. Vehicular speeds must be controlled on construction and demolition sites. Speed Signs must be erected and displayed appropriately to advise drivers of permitted speeds.

TELEPORTER

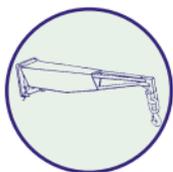
Check that the teleporter is suitable for the task. Before using the teleporter, check that it has been appropriately certified, and that it is fit for use. Teleporters should undergo regular servicing.

FORKS CLAMP



Chains and slings must not be wrapped around the forks of a teleporter when used to lift loads. When using chains or slings with forks, suitable fork clamps must be used, with the chain or sling suspended from a suitable hook or shackle.

FORKS EXTENSION



Chains and slings must not be wrapped around the forks of a teleporter when lifting a load. When required to lift loads with a teleporter, the forks should be removed and a crane extension with hook or shackle should be used.

GROUND CONDITIONS



The ground area on which any demolition plant is to be used should be examined to ensure that it is capable of taking the applied loads. Expert advice may be necessary.

LOCKING ATTACHMENTS



Ancillary equipment used in connection with demolition and lifting equipment must at all time be secured. This may require the insertion of locking pins, to prevent inadvertent dropping of the attachment.

CRUSHING PLANT



Crushing plant is used on Demolition projects to recycle large concrete sections to smaller sizes to facilitate later use as infill material and to reduce transport and landfill costs. Crushing plant can by its nature be hazardous and therefore such plant will require on-going maintenance to ensure that it is in a safe working condition, such that pinch, entrapment, fall points along with any areas where materials can be ejected are always protected by appropriate guarding to prevent any injury to users or those in the vicinity. Personnel using crushing plants must be trained in its use.

COMPOUND



There should be a designated area fenced area for parking vehicles and storing materials. There should be a safe pedestrian walkway clearly marked out. At the end of the day the compound must be secured to prevent unauthorised access.

PRIVATE PARKING



Non demolition related vehicles must be parked in designated areas away from demolition site traffic.

PEDESTRIAN ROUTES



Whether workers on site or members of the public accessing close to demolition works, separating pedestrians from construction and demolition plant operations is important. Dedicated pedestrian routes clearly identified must be used.

BANKSMAN



A banks man is a trained Slinger and Signaller, and must always be used where loads are lifted, and safe direction is given to lifting appliance operators.

FLAGMAN



Where demolition activity involves managing traffic or pedestrians in public areas adjacent to construction and demolition activity, trained flagmen are used to control such movements in a safe manner. Flagmen must wear high visibility vests and use approved Stop/Go signs or flags. Where two flagmen are required they must be in visible contact or in voice communication with each other.

CRANES



Ensure that the crane is suitable for the task and that it is properly certified. The general use of cranes should comply with all approved Codes of Practice.

CHECK LIFTING GEAR



Lifting gear means any gear or cable by which a load can be attached to a lifting appliance, which can include chain sling, rope sling, hook, shackle or eye bolt. Before lifting gear is used it must be examined to check for Safe Working Load (SWL), and so that defects that may reduce its capacity to function safely are highlighted and repaired. Lifting gear must be appropriately certified prior to use.

EXAMINATION & INSPECTION



A competent person is required to examine and inspect statutory plant and equipment as required and any defects must be noted and remedial action to repair the plant should take place immediately, or alternatively the plant be replaced. A report of the inspection/ examination should be recorded on the approved form

PLAN LIFT



All lifting operations should be planned to ensure that they are carried out in a safe manner. Generally a method statement should be prepared in advance of the lift-taking place.

SWL



Lifting appliances and lifting gear should never be used to lift beyond their stated safe working load. This is the maximum load as assessed by a competent person which an item of lifting equipment may raise, lower or suspend under the particular service conditions.

LOAD STABILITY



Ensure that the load is stable and properly secured to the lifting appliance before lifting begins.

EXCLUSION ZONE



As a general rule, persons should not be working under an area where loads are being lifted or within the working radius of the jib. People should be kept a safe distance from working plant, barriers should be used where possible.

SKIPS/BINS



All skips and bins must be appropriate for the task and if used as lifting gear when attached to lifting appliances all lifting lugs and lifting eyes must have their safe working load (SWL) clearly visible. Always check the SWL before lifting commences. When used as lifting gear, such bins and skips must be certified as appropriate.

MAN CRADLE



Where normal working platforms cannot be erected, such as scaffolding or the use of MEWPs, man cradles suspended from cranes may be used in these exceptional circumstances to give access to such difficult areas at height. Such cradles must be fully rigged by competent persons, and the cradle, lifting gear used and crane must all be certified appropriately for the task. Such suspended personnel platforms should only be used for personnel, their tools and sufficient materials to do the job, but should not be used for transporting bulk materials. Cranes with free fall systems must not be used when lifting persons.

OVERHEAD LINES



Burns and electrocution can result if raised tipper truck bodies, cranes or excavators touch or come close enough to overhead power lines to cause arcing. Never work close to, or access close to or under live overhead lines when lifting. Refer to ESB guidance booklet.

REMOTE CONTROL



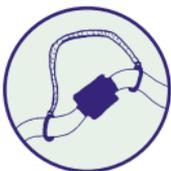
Many demolition machines can be controlled remotely, thereby reducing the risk of injury to machine operators, who can now operate the machine at a distance away. Pre-planning and preparation are necessary pre requisites when using remote controlled demolition machinery e.g. to create adequate exclusion zones to allow the work to proceed in a safe manner with no personnel or others in the immediate danger areas. When the controller is fitted with a belt or harness, the operator should be wearing the harness before switching it on, so that accidental operation of the machine is prevented. The controller shall only be switched on when operating the machine and shall be switched off before removing the harness. In the event of loss of power during the operation, the machine shall be fitted with a suitable cut-out mechanism that will halt the machine's movements until control is re-established. The controller must be maintained so that it performs as specified by the manufacturer.

STORAGE



Gas bottles on site, must always be stored upright, and chained to prevent inadvertent falling.

SAFETY CLIPS



Should be used at connections on all pneumatic hose lines. This control will prevent the hose “whipping around” in the event of the connection failing. The safety clips must all be inspected prior to the compressor being turned on. Alternatively automatic cut-off valves can be used.

MAINTENANCE



All demolition plant especially lifting appliances and lifting gear should undergo regular service and maintenance checks, to ensure continued fitness for use. It is good practice to keep written records of such maintenance checks.

HAND TOOLS



CHECK SUITABILITY



Before any electrically power hand operated tool is used to carry out any work activity it must be checked for its suitability to the task, e.g. voltage rating, size and condition etc. In addition when purchasing and using hand operated power tools e.g. grinders, saws and drill etc, consideration must be given to the potential risks to workers from vibration emissions.

CABLES CHECK PROTECTION



Before using any electric appliance on site, including use of transformers and extension reels, the cables and connectors attached must be examined to ensure that such components are not damaged. Trailing electric cables which are at risk from damage because of their position must be protected from such damage, or a safer cable location used.

GUARDS



Many hand/portable tools have rotating shafts and components, others due to their application will emit fragments including dust and sparks. Such tool must have suitable guards fitted, e.g. circular saw guards, power-take-off shaft guards etc.

VOLTAGE



All portable electric tools rated below 2 kilowatts used on construction and demolition sites must be rated at 110V.

GENERATORS OUTSIDE



To avoid the silent killer, petrol and diesel driven generators must always be used outdoors to avoid the deadly effects of carbon monoxide build up from exhaust gases.

COMPRESSOR



Compressors must be maintained and serviced on a regular basis. All connections and flexible hosing used must be in good condition and replaced if damaged. All guards must be secured before starting, such that there are no exposed rotating pulleys or belts.

SAWS/DRILLS



Consaws, angle grinders and drilling equipment etc are widely used on demolition sites. Such equipment must be maintained in good working order and regularly serviced. Guards must be in place at all times. Appropriate PPE must be used.

WELDERS/FLAME CUTTERS

Welders and flame cutters must only be used by competent qualified persons. Adequate and suitable PPE must be provided and used. A suitable fire extinguisher must be readily available during cutting and welding work. In many situation where hot working is used, a Permit-to Work system will apply to prevent the risk of fire and explosion. Flash back arresters must be used, and all flexible hosing and connections should be checked daily, and any damaged parts replaced prior to use. Gas bottles must always be stored upright, and chained to prevent inadvertent falling.

JACK HAMMER/KANGO

To reduce and eliminate the risk of ill health due to vibration, jack hammers and kangos must be serviced on a regular basis, and maintained in good condition. Persons should not be using Jack Hammers for extended durations, and it may be appropriate for such tasks, where mechanical assistance cannot be used that persons be rotated to other tasks such that exposure times are reduced and vibration related ill health can be avoided. Ear defenders must be worn at all times by those using Jack Hammers and Kangos and by those persons likely to remain in the immediate vicinity.

DUST SUPPRESSION

Tools and equipment, which generate dust clouds should be fitted with appropriate extraction or wetting aids.

MISCELLANEOUS



Demolition by its very nature is a very high risk activity, and hazardous situations must be identified at the planning and design stages, so that the necessary controls are in place when work commences. This section attempts to identify and increase awareness of various controls not elsewhere covered in this form, but which can be critical to protecting those involved in Demolition work.

SITE CLEARANCE



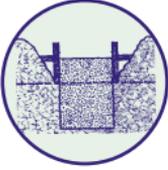
"Every action can have an unexpected unsafe outcome". Planning, the use of method statements and good timely communication are vital to avoid hazardous situations ever occurring.

UNDERPINNING



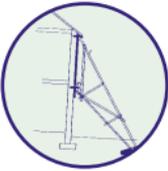
Is the process of introducing support under an existing structure. Whether its facade retention or protection from other wall collapse, an assessment of foundations especially with regard to subsidence must be considered at the planning and design stage. Where it is established or expected that structures are unstable underpinning may be necessary. The risk assessment for the underpinning excavations must also address the additional risk of collapse of the overhead structure. As a result of space constraints when excavating for underpinning, supports will often have to consist of timbering to suit the size of excavation. The design and the carrying out of underpinning is a specialist task, that can only be done by those sufficiently competent.

FORMWORK



Used in underpinning and in constructing concrete pads etc, will normally involve structural engineering advice. Form work must only be carried out in full compliance with the approved design.

FACADE RETENTION/SHORING



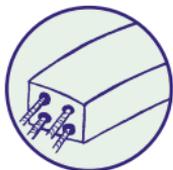
Generally as a requirement of the Planning Permission granted. Facade retention normally is required so that the visible external look of the structure is maintained. The facade is retained during the demolition stage and subsequent construction stage by a designed temporary support system, normally using heavy steel or timber shoring. The selection of shore type will be decided at the planning stage, and will be detailed on the drawing. The erection of the shoring can be hazardous, and requires a competent experienced contractor to carry out the work. It is desirable that where possible the assembly and welding of the shore is carried out at ground level. Anchoring the shore to the facade and to its ground beam will require a specific method statement and associated risk assessments, as will its eventual dismantling. An appointed competent Temporary Works Coordinator will normally oversee and manage the process of facade retention.

TRENCH SHEETS/SHORING



Trench sheets are long narrow thin sections, usually of cold rolled steel plate formed to lap-joint at its edges with adjacent sheets. Inadequate protection of excavations, foundations, and trenches can cause serious accidents from the collapse of earth, or unstable structures resulting in burial or crushing of workers. The use of trench sheets or other shoring techniques can be used to prevent collapse. Shoring of this nature will generally require professional design, especially the inner steel supports. Shoring should only be carried out by competent contractors.

PRE-STRESSED STEEL



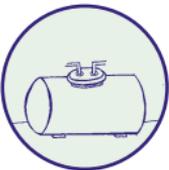
Demolition of bridges and pre-stressed beam will in most cases be designed by competent engineer or equivalents, so that the sequence of works and the need for supports and propping is fully detailed and agreed. Pre stressed elements must be clearly identified, and the demolition technique used must ensure that the energy released when cutting pre stressed components is dissipated and does not pose a safety risk to works or others in the vicinity. The actual demolition of pre stressed steel components must only be carried out by competent contractors.

PRE-WEAKENING PLAN

Pre-weaking is generally required and used to enable effective and accurate implosion. Developing a pre weakening plan is a specialized exercise and must only be undertaken by competent implosion demolition experts. Such plans must be very detailed and communicated very clearly to the contractor carrying out the work. The process of Pre-weakening itself requires particular controls and the contractors involved must carry out detailed risk assessments and strictly implement the necessary controls such that their employees are not inadvertently trapped or crushed.

PUBLIC EXCLUSION ZONE

Demolition by its nature is very hazardous and should only be commenced when sufficient measures are in place to exclude members of the public, so that the public are not at risk of injury from the works. This is particularly important when demolition is by implosion. Calculation of exclusion zone is dependent on the demolition method used, and should be calculated by competent persons only.

DE-GASSING/PURGING

Decommissioning, removal or any work involving the dismantling of storage tanks may involve the purging of such tanks to remove any trace of residual gases and or hazardous liquids, so that the risk of fire or explosion is eliminated. This work can be a specialized activity and will require the assistance of a competent specialized contractor.

HOUSE KEEPING



Excessive amounts of dust can cause eye and respiratory irritation. In general dust and muck is a nuisance for both workers and others in the vicinity. All traffic routes in public areas adjacent to demolition works should be kept clear of muck. During dry periods the routes should be dampened to keep dust down.

To enable persons to get safely to their place of work all slip, trip and fall hazards must be removed. A good housekeeping system must be adopted, so that everything has a place and everything is in its place.

WORKING FROM HEIGHT AND FALLING OBJECTS



SCAFFOLDING



Scaffold platforms should where possible be used as working platforms for all work at height and in particular for all works above two metres. The scaffold platform must be designed, planned and subsequently erected by fully trained personnel, in accordance with all relevant Legislation, Codes of Practice, and manufacturers instructions.

Scaffolds should include dedicated ladder access bays, and where required properly constructed loading bays. Hand-Over Certificates and the use of relevant signage e.g. capacity of loading bays, is recommended.

Working platforms are locations and areas for carrying out construction and demolition work at height safely. It is taken to mean a work area that provides protection and prevents the worker falling to a lower level. Generally it is used to refer to scaffold platforms, but where scaffolds cannot be erected, it can also refer to other safe platforms such as, MEWPs, scaffold towers.

EDGE PROTECTION



Persons must not be at risk from falling through openings, or over edges. All persons accessing or working at or close to openings that could lead to such falls must be protected, and guarded from falls, includes protection from falling off stairs. Such measures must include handrails, barriers, and toe boards etc.

MOBILE ELEVATING WORK PLATFORMS



A Boom Hoist has an extendable folding boom with cage attached, it can be used for work at height if the ground conditions are suitable. Boom hoists can also be used to gain access to remote areas. Selection must be based on suitability for the task, the manufacturers guidelines for safe use must be followed fully. Only competent and trained operators should control the movement of these hoists. Other vehicles should be strictly controlled in the vicinity of hoists.

Scissors Lifts, can extend to significant heights using hydraulic scissors movement, can be used where scaffold platforms are not possible. Selection must be based on suitability for the task, with particular attention given to the ground conditions, and that the manufacturers guidelines for safe use can be followed fully. Only competent and trained operators should control the movement of these.

GOODS/PERSON HOIST



Hoists can be used either to carry goods alone or can be used to carry goods and persons. Such hoists are normally attached to the side of buildings and are designed to have controlled and safe landings at each floor level. Hoists will on occasion be required to be raised or lowered as the level of the building changes. Before the hoist is first used, or if it undergoes a modification or repair it will require a test or examination or both by a competent person in order to comply with legal requirements. The results of such tests or examinations must be entered onto the approved forms.

NETS/ANCHORS



Persons working in roof areas that have internal openings, e.g. removing roof trusses etc, can be protected using air bags, beanbags or safety nets. Before use these safety nets and bags should be appropriately tested, inspected and certified. Furthermore these safety nets and/or bags must be installed by competent and fully trained persons. **Debris Netting** may also be used internally to prevent the fall of rubble to lower levels.

ROOF LADDER/LADDER

Roof ladders should always be used for accessing up and down sloping roofs, these ladders should be used in conjunction with properly constructed scaffold platforms. Roof ladders must be CE marked, and be free of any defects. When used, roof ladders should reach and anchor around the ridge. All ladder access must be erected by competent persons, to include adequate length of ladder, angle, tying, footing, and be free from defects. Access onto and egress off ladders must be such that large gaps are not created from which persons could fall before the ladder handhold is achieved.

CRAWLING BOARDS

If required to work on or access on fragile roofs including work adjacent to roof lights, crawling boards may be used, they are intended to spread load such that point load does not exceed the load which may result in such roofs breaking. The selection of suitable crawling boards for particular use should be made by competent persons.

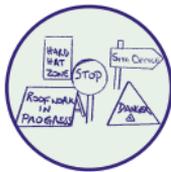
OVERHEAD LINES

Contact with overhead lines can kill. Never erect scaffolding close to or under overhead lines. Never work close to, or access close to, or under overhead lines.

LIGHTING

Adequate lighting must be afforded to persons accessing and working in darkened areas to prevent workers slipping, tripping, falling or being hit by projecting objects.

SIGNS



Suitable and appropriate warning signs must be used across the site, so that advance warning is given to workers or other in the vicinity when approaching particular high-risk areas e.g. approaching leading edges, excavations, and exclusion zone etc. Signs should also be used to convey safety information e.g. "scaffold un-safe to use" etc. Signs must be clear, unambiguous, be at the appropriate location and be in a language understandable by the relevant workers or persons on site. Where signs are used on site they should always be complied with.

HOUSEKEEPING



To enable persons to get safely to their place of work all slip, trip and fall hazards must be removed. A good housekeeping system must be adopted, so that everything is given a place, and everything is in its place.

PROPPING



Propping is any temporary structure used to support a permanent structure while it is not self-supporting. Propping is required during the demolition to give temporary support to prevent collapse due to overloading of structural components during the work e.g. when using crushing plant on upper floors etc. The responsible contractor must ensure that the correct numbers of props are installed correctly and that the units are supported as indicated on the construction drawings. Any failure of propping could result in the collapse of the permanent structure, which

could result in injury or death. Normally a temporary works co-ordinator is appointed to ensure that correct propping procedures are followed and that operations are carried out safely.

NO UNDERMINING



Before carrying out any cutting, drilling, crunching or breaking activities including excavation works, the adjacent structures should be checked to ensure that these works will not cause such structures to become unstable or collapse. Underpinning and propping may be required to stabilize any structure at risk of collapse. Any structure stabilization should be carefully designed and carried out by competent persons before work commences.

OVERHEAD WORK



Make sure before you start working that there is no work taking place above you.

EXCLUSION ZONES



Work should never take place directly above other workers. Where overhead work is likely to occur, adequately sized exclusion zones should be created to ensure that persons are not at risk from falling objects.

STORAGE



All materials should be stored where they cannot fall on to workers below. Materials should be kept tidy and stable making sure that all access routes are kept clear. Working platforms should not be cluttered or blocked with materials, there must always be adequate space for safe access. All loose materials should be removed on an ongoing basis.

SHEETING/FANS



Sheeting should be used to enclose scaffolding on its public side to prevent loose materials from falling on to members of the public. Similarly fans should be erected onto the scaffold to supplement the sheeting. These measures are particularly important where the scaffolding fronts on to a public access way.

CHUTES



Chutes should be used for discarding materials, materials should never be thrown from scaffolding or windows etc. The Chute should extend down into a waste skip. Exclusion zones under the drop zones should always be created where construction materials and debris is discarded.

CAB GUARDS



Cabs of demolition plant must be sufficiently protected to prevent falling materials crushing or penetrating into the occupied zone.

WEATHER

Adverse weather, such as high winds and ice can lead to unsafe working conditions. In high winds or icy weather, it may be necessary to cease work at height in exposed areas. Also in high wind conditions loose materials may need to be removed or tied down, to prevent them blowing or falling. Similarly cranes shall not be operated in wind speeds that are in excess of those specified by the crane manufacturer. In hot sunny weather, sun protection must be considered, as well as the provision of drinking water to prevent de-hydration.

CONFINED SPACE

Confined Space refers to any place, including any vessel, tank, container, pit, bund, chamber, cellar or any other similar space which, by virtue of its enclosed nature creates conditions which give rise to a likelihood of accident, harm or injury of such a nature as to require emergency action.

SURVEY

Prior to entering a confined space to carry out work activity, a full survey of the work area must be carried out in advance to identify all the hazards that may exist within, particularly the presence of harmful gases.

RISK ASSESSMENT

Based on the identification of the hazards, a full risk assessment must be carried out in writing with all the necessary controls identified and be communicated to the relevant persons who could be exposed to such risks.

PERMIT TO WORK

A Permit to Work is a system used to ensure that a safe system of work is in place. Generally they are used for activities where high levels of risk can exist and that only authorised persons can enter the work area, under very controlled conditions that are laid down.

DETECTION

Where the presence or the build up of harmful gases are likely to exist, suitable gas detectors must be used, which will alarm if or when the build up of harmful levels of gases are approached.

TRIPOD

A tripod is a standard piece of rescue equipment for persons working in confined space, employee can be lowered into confined space by a "buddy", and more importantly can be raised out of the confined space, using a tripod.

COMMUNICATION

Person(s) inside the confined space must at all times be in verbal contact with those on the surface. Importantly, the equipment used to communicate must be spark free to prevent it providing an ignition source.

DUST



Excessive amounts of dust can cause eye and respiratory irritation or injury if exposed to large concentrations of dust over a short period or lower concentrations over a long period.

WET



Wetting, damping down areas prevent dust from being dispersed in the air.

VENTILATION



Supplies fresh dust free air into the work area.

EXTRACTION



Local exhaust systems removes dust directly from the area in which it is produced

MANUAL HANDLING

Manual Handling is the physical movement by a person of objects by lifting pushing or pulling, that is likely to cause injury or other health problems.

RISK ASSESSMENT

Each activity on site needs to be risk assessed to identify whether there is a manual handling hazard. If there is an identified risk of injury then appropriate controls must be put in place to eliminate the risk. If the hazard cannot be eliminated then the risk must be reduced to as low as possible.

MECHANICAL AIDS

Mechanical Aids are devices used to lift, pull or push objects, which either eliminate the need to manually handle the object or reduce the manual handling required.

WORK ORGANIZATION

Work organization, requires that the physical work method be assessed to see whether the work can be organized in such a way as to minimize or eliminate the need for manual handling.

TRAINING

Manual handling training is a legal requirement where it is identified that manual handling operations are required at work. This training involves learning how to move loads in a manner, which will not injure the person.

PPE

Personal protective equipment protects individuals from residual harm when all other methods have been employed to eliminate the risk. PPE is a last resort. PPE should be maintained at all times in good working order. Furthermore the PPE listed below must conform to the appropriate Irish Standard.

HELMET/BOOT



Safety Helmets / hard hats are used to protect the head from falling objects and from striking the head off objects. Hard hats should be replaced periodically.



Safety Boots are required on all building sites they should have steel toecaps and sole protection to prevent the toes from been crushed and any object from penetrating the sole.

EYE PROTECTION



Eye protection in the form of glasses / goggles or visors protect the eyes from flying objects, dust and splashes, e.g. when grinding and cutting .

SAFETY GLOVES



Safety gloves protect the hands from cuts and from contact with harmful substances, and sharp objects etc.

EAR PROTECTION



Ear protectors help to protect your hearing from loud sudden noise or from continuous loud noise. There are two action levels, where noise exposure is at or exceeds 80 dBA individual hearing protectors must be made available and where noise exposure is at or exceeds 85 dBA individual hearing protectors must be made available and must be used. There is also a limit value set at 87 dBA which must not be exceeded. The limit value takes account of the attenuation provided by individual hearing protectors worn by the worker. The action values do not take account of the effect of such protectors. Where risk assessment reveals a risk to the workers health as a result of noise exposure, audiometric testing (hearing check) will have to be made available.

HI VISIBILITY VEST



Hi visibility vests increase your visibility to all drivers and operators of plant and other site traffic.

DUST MASKS



Dust masks protect you from inhaling harmful dusts.

RESPIRATORY EQUIPMENT



Respiratory equipment protects you from all exposure to harmful substances by filtering them out from the air you breathe in, provided they are worn and maintained properly.

FACE PROTECTION



Face protection visors protect your full face from flying objects, sparks, and splashes from hot or harmful substances.

SAFETY HARNESS



Safety harnesses with a properly designed fall arrest system, to include other components such as lanyard, shock absorber, and suitable anchors, are used to protect a person from hitting the ground if they fall from a height. Such fall arrest systems should be used in conjunction with a **rescue plan**. Safety harnesses and personal fall arrest equipment are not a substitute for safe working platforms or collective protection such as safety nets.

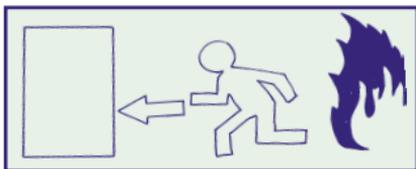
SAFETY OVERALLS



Safety overalls protect your body from coming into contact with harmful substances.

**FIRE**

The risk of fire is generally ever present on Construction and Demolition Sites. Fire prevention has to be considered at the various level of demolition planning. Consideration should be given to the provision of alternative means of escape and the installation of a temporary fire detection and alarm system during demolition. Bar heaters should not be used on site, and use of all naked flames must be tightly controlled. Flammable materials must be stored separately in a well-ventilated lockable location, away from any likely ignition sources, and such liquids should be removed from site when no longer required. After hot works have taken place, the area should be revisited to ensure that fires have not developed. Sand and fire blankets can be used in certain circumstances, such as small smouldering fire to eliminate the chances of fire developing.

**EMERGENCY ROUTE**

To prevent injury from fire all employees must be instructed as to what should be done in the event of a fire, and what the approved escape route is, and where the assembly points are located. Fire drills should be held regularly.

**FIRE EXTINGUISHERS**

Are devices used in putting out a fire. Persons need to be trained in their operation, they should only be used for small fires.

WATER

Water fire extinguishers are used for cloth, paper and wood only. Direct the jet at the base of the flame and keep it moving across the area of the fire.

DRY POWDER

Dry powder extinguishers can be used on most fires including electrical fires. On fires involving either liquids in containers or spilled liquids, direct the jet or discharge horn towards the near edge of the fire. With a rapid sweeping motion drive the fire towards the far edge until all the flames are extinguished.

CARBON DIOXIDE

Carbon dioxide extinguishers can be used on fires involving flammable liquids or electrical apparatus. Carbon dioxide should not be used in confined spaces where there is a danger that the fumes can be inhaled.

FOAM

Foam extinguishers are suitable for most fires involving flammable liquids. Where the liquid on fire is in a container, direct the jet at the inside edge of the container or at an adjoining vertical surface above the level of the burning liquid. This breaks the jet and allows the foam to build up and flow across the surface of the liquid to smother the fire. Do not aim the jet directly into the burning liquid.

ABBREVIATIONS USED

MDHS	Is a series of standards and stands for Methods for the Determination of Hazardous Substances
RPE	Respiratory Protection Equipment
RSJ	Rolled Steel Joist
CSCS	Construction Skills Certification Scheme
ESB	Electricity Supply Board
SWL	Safe Working Load. Is the maximum load which an item of lifting equipment may raise, lower or suspend under the particular service conditions.
CCTV	Close Circuit Television
PPE	Personal Protective Equipment
MEWP	Mobile Elevating Work Platform
CE	Community European. Is marked on products and machines which comply with essential safety requirements of any relevant standards which are set down by the CEN which is a European standard setting body.
ETCI	Electro-Technical Council of Ireland

DEMOLITION INDEX

- ASBESTOS SURVEY TYPE 1, 6
- ASBESTOS SURVEY TYPE 2, 7
- ASBESTOS SURVEY TYPE 3, 7
- BANKSMAN, 29, 36
- BARRIERS, 21, 27
- BIOLOGICAL AGENTS, 24
- BOAT, 30
- BORD GÁIS EIREANN OR
OTHER GAS UTILITY
COMPANY, 19
- BURSTING, 17
- CAB GUARDS, 54
- CABLES CHECK PROTECTION,
41
- CANTEEN, 5
- CARBON DIOXIDE, 63
- CHECK LIFTING GEAR, 36
- CHECK SUITABILITY, 32, 41
- CHEMICAL AGENTS, 16
- CHUTES, 54
- COMMUNICATION, 5, 56
- COMPOUND, 35
- COMPRESSOR, 42
- CRANES, 12, 36
- CRAWLING BOARDS, 51
- CRUSHING PLANT, 35
- CSCS, 4
- DECONTAMINATION UNIT, 25
- DE-GASSING/PURGING, 47
- DEM. POLE/PUSHER ARM, 13
- DETECTION, 56
- DETECTOR, 20
- DIVERT/OFF, 19
- DRILLING/SAWING, 15
- DRINKING WATER, 6
- DRY POWDER, 63
- DRYING/CHANGING, 6
- DUST MASKS, 33, 60
- DUST SUPPRESSION, 43
- EAR PROTECTION, 60
- EDGE PROTECTION, 30, 49
- ELECTRICITY SUPPLY BOARD
(ESB)/OR OTHER ELECTRICAL
UTILITY COMPANY, 19
- EMERGENCY ROUTE, 62
- ENVIRONMENTAL RISK
ASSESSMENT, 8
- EXAMINATION & INSPECTION,
37
- EXCLUSION ZONE, 38, 53
- EXPLOSIVES, 16
- EYE PROTECTION, 59
- FACADE RETENTION/
SHORING, 45
- FACE PROTECTION, 61
- FALL ARREST, 31
- FENCING, 27,
- FIRE/GAS/VAPOUR
CONTROLS, 9
- FIRE EXTINGUISHERS, 62
- FLAGMAN, 29, 36
- FLOOD CONTROL, 9
- FOAM, 63
- FORKS CLAMP, 34
- FORKS EXTENSION, 34
- FORMWORK, 45

DEMOLITION INDEX (cont'd)

- GENERAL MACHINE, 11
- GENERATORS OUTSIDE, 42
- GOODS/PERSON HOIST, 50
- GRAB LINES, 31
- GRAPPLE, 14
- GROUND CONDITIONS, 34
- GUARDS, 41
- HAND DIG, 11, 20
- HELMET/BOOT, 59
- HI VISIBILITY VEST, 60
- HOARDING, 27
- HOT CUTTING, 17
- HOUSEKEEPING, 28, 48
- IMPACT HAMMER, 13
- INDUCTION, 5
- JACK HAMMER/KANGO, 43
- LIAISON, 9
- LIFE RING, 30
- LIGHTING, 51
- LOAD STABILITY, 37
- LOCAL AUTHORITY etc., 19
- LOCKING ATTACHMENTS, 34
- LONG REACH, 12
- MAINTENANCE, 40
- MAN CRADLE, 38
- MECHANICAL AIDS, 58
- METHOD STATEMENT/
EMERGENCY PLANS, 8
- MOBILE ELEVATING WORK
PLATFORMS, 49
- MONITORING, 25
- NETS/ANCHORS, 50
- NO FLAMES, 21
- NO MECHANICAL DIGGING,
NO UNDERMINING, 53
- OVERHEAD LINES, 21, 39, 51
- OVERHEAD WORK, 53
- PEDESTRIAN ROUTES, 35
- PEDESTRIAN WAY, 28
- PERMIT TO WORK, 24, 56
- PERSONAL FLOTATION
DEVICE, 30
- PLAN LIFT, 37
- PLANT/EQUIPMENT
CERTIFICATION, 4
- PRIVATE PARKING, 35
- PRE-STRESSED STEEL, 46
- PRE-WEAKENING PLAN, 47
- PROPPING PLAN, 18
- PUBLIC EXCLUSION ZONE, 47
- REMOTE CONTROL, 12, 39
- REMOVAL METHODS, 23
- RESPIRATORY EQUIPMENT,
61
- RISK ASSESSMENT, 23, 56, 58
- ROLL OVER PROTECTION/
NO PASSENGERS, 32
- ROOF LADDER/LADDER, 51
- ROPE DEMOLITION, 15
- SAFE PASS, 4
- SAFETY CLIPS, 40
- SAFETY GLOVES, 59
- SAFETY HARNESS, 61
- SAFETY LINE, 31
- SAFETY OVERALLS, 61
- SAWS/DRILLS, 42

DEMOLITION INDEX (cont'd)

- SCAFFOLDING, 48
- SEAT BELTS, 32
- SECURITY, 28
- SHEARS/PULVERISERS, 14
- SHEETING/FANS, 54
- SIGNS, 52
- SITE CLEARANCE, 44
- SKIPS/BINS, 38
- SMOKING CONTROL, 6
- STORAGE, 22, 40, 54
- STRUCTURAL SURVEY, 6
- SUPERVISION, 4
- SURVEY MAP, 20
- SURVEY, 55
- SWL, 37
- SYRINGES, 24
- TELEPORTER, 33
- THERMIC LANCING, 18
- TIPPING, 22
- TRAFFIC CONTROL, 29
- TRAFFIC/SPEED CONTROL, 33
- TRAINING, 58
- TRENCH SHEETS/SHORING, 46
- TRIPOD, 56
- UNDERPINNING, 44
- VENTILATION/EXTRACTION, 26, 57
- VIBRATION/NOISE ASSESS, 10
- VOLTAGE, 42
- WARNING DEVICES, 33
- WARNING SIGNS, 21, 28
- WASTE MANAGEMENT, 10
- WASTE REMOVAL, 26
- WATER, 63
- WC & WASHING, 5
- WEATHER, 55
- WELDERS/FLAME CUTTERS, 43
- WET, 57
- WORK ORGANIZATION, 58
- WRECKING BALL, 14

NOTES

NOTES

NOTES

NOTES

NOTES

Safe System of Work Plan (SSWP) Demolition

*Achieving a
Healthy
and Safe
Working Life
-Together*

**HEALTH AND SAFETY
AUTHORITY HEADQUARTERS**

10 Hogan Place, Dublin 2
Tel. 1890 289 389

Callers outside Republic of
Ireland 00353 1 6147000

Fax. (01) 6147020

website: www.hsa.ie



HEALTH AND SAFETY
AUTHORITY
