



Bar Bending & Concreting Level II

Learning Guide # 42

**Unit of Competence: Carry -out Concrete Bursting cut,
core and Crushing Operations**

**Module Title: Carrying-out Concrete Bursting
cut, core and Crushing Operations**

LG Code: EIS BBC2 M12 LO2 LG-42

TTLM Code: EIS BBC2 TTLM 1019 v1

LO2: Prepare worksite

This learning guide is developed to provide you the necessary information regarding the following content coverage and topics

- 2.1 Conducting an audit of property/dilapidation survey to determine condition of worksite
- 2.2 obtaining Confirmation from supervisor/regulatory authorities
- 2.3 Identifying hazardous material for separate handling
- 2.4 installing and anchoring fall protection devices
- 2.5 positioning mechanical equipment/plant in operating locations

This guide will also assist you to attain the learning outcome stated in the cover page. Specifically, upon completion of this Learning Guide, you will be able to –

- 2.1 Conduct an audit of property/dilapidation survey to determine condition of worksite and surrounds prior to work commencing
- 2.2 Obtain confirmation from supervisor/regulatory authorities that all existing services have been disconnected
- 2.3 Identify hazardous material for separate handling in accordance with workplace requirements and instructions
- 2.4 Install and anchor / secure fall protection devices and anchored/ secured in accordance with workplace requirements
- 2.5 Position mechanical equipment/plant in operating locations and appropriate exclusion zone/traffic control is arranged

Learning Instructions:

1. Read the specific objectives of this Learning Guide.
2. Follow the instructions described in number 3 to 7.
3. Read the information written for each “Information Sheets given below
4. Accomplish the “Self-check after reading & understanding of each information sheet
5. If you earned a satisfactory evaluation from the “Self-check” proceed to “Operation Sheet
6. Lastly do the “LAP test
7. If you have any question ask your teacher

Information Sheet- 1	Conducting an audit of property/dilapidation survey to determine condition of worksite
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2.1 Conducting an audit of property/dilapidation survey to determine condition of worksite

Conducting audit of Property/Dilapidation Survey

A dilapidation survey done by a Professional Building Surveyor is an inspection of the existing structural condition of the surrounding buildings and structures before the commencement of a demolition, construction or development.



Fig1 Carking Wall

A dilapidation report is a report on the condition of a property at a given point in time. It records any existing damage, and the state of any particular aspects of the property that are likely to be affected by construction work, excavation or demolition dilapidation surveys are important tools in your hand to protect yourself and your hard-earned money from being caught up in a bad property

deal. This detailed assessment is necessary when a building is about to go into demolition or new development phase or when it is about to be sold or purchased.

The responsibility of assessing whether *protection of adjoining property protection* works are required for certain building works lies with the relevant *building surveyor* for the project. The *building surveyor* will consider the impact of the new works associated with adjoining property, building and public protection. Examples of building work that will invoke *protection of adjoining property* notification procedures under the *Building Act 1993* include:

- Retaining walls in close proximity to the property boundary.
- Bulk excavation works in close proximity to the property boundary.
- Structures proposed to be built right up the boundary.
- Underpinning or footing works that may undermine the adjoining owners footings, property, footpaths, or garden beds.
- The placement of anchor fixings that go under adjoining properties.
- New works that are supported by an existing common party wall.
- Structures in close proximity to the property boundary line and that are being built higher than the existing adjoining structures.
- Demolition works in close proximity to the boundary.
- Access to the adjoining property for the construction of works associated with the *protection works*.

Self-Check 1	Written Test
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Instructions: say true or false

- 1 .A dilapidation survey done by a Professional Building
2. The necessary work site preparation level will depend on the size of the surface
3. Dilapidation report is a report on the condition of a property at a given point in time.

Note: Satisfactory rating - 2 points Unsatisfactory - below 2 points

You can ask you teacher for the copy of the correct answers.

Answer Sheet

Score = _____

Rating: _____

Answer of the question(2 point)

1.True

2.true

3.True

2.2 obtaining Confirmation from supervisor/regulatory authorities

- **What is the role of supervisor**

Civil engineering professionals work as consultants for engineering consulting companies. They plan, design and execute structures like buildings, highways, water treatment plants, airports, railroads, etc. A consultant in a construction project must do the following to serve the client:

1. The consultant must provide guidance and advice on setting up a project.
2. He must define the project with perfect clarification.
3. The consultant not only must develop the project design but also co-ordinate the design.
4. He collects and prepares the product information and the documents for tender.
5. The client carries out the contract administration.
6. He must inspect and correct the works of the contractors.

In short, civil engineering consultants are functioned to perform an extensive analysis of the structure under consideration. They also analyze the environmental factors so that the structure finally constructed is durable, sustainable, functional and safe buildings

How to obtaining Confirmation from supervisor/regulatory authorities

- **Building regulations approval**

Building Regulations approval can usually be obtained in 1 of 3 ways:-

1. By the full plans method where drawings are deposited with a Building Control Body such as an Approved Inspector or the Local Authority and are subsequently checked for compliance with the Building Regulations.

The various stages of the work are also inspected and checked for compliance with the relevant technical requirements of the Building Regulations; by a Building Control Surveyor employed by either the Building Control Body (BCB).

Unlike planning permission, work may start before approval has been granted. It is also quite usual for the final building to differ in some respects to that which received full plans approval, in which

case amended "as built" plans are often required to be submitted to the appropriate Building Control Body.

2. By the building notice method where notice of commencement of (minor) building work is given to the Local Authority at least 2 days prior to the commencement of work. The various stages of the work are then inspected and approved by the L.A but no plans are checked. Note that this method may not be used if the premises contain a workplace, or creates new flats.

3. Approved inspectors must issue their "Initial Notice" (stating that that particular Approved Inspector is the building control body for the specified work project, at a specific address and/or building site) to the relevant local authority before any controlled building work starts on site.

Generally Fees are paid to the Building Control Body, with each application, will vary depending on the size and value of the project and between different Local authorities across the country and each Approved Inspector is free to set their own levels of charges. Some types of work may be exempt fees, e.g. adaptations or alterations for Disabled Persons.

Some work such as Electrical and Heating installations can be carried out by persons who can certify work as being Building Regulation compliant, without further inspection by either the Local Authority or an Approved Inspector. Any work certified in this way must however be registered with the Local Authority in the geographical area in which the work has been carried out.

A Building Control Body should issue a "Completion Certificate" or "Final Certificate" upon the practical completion of each building project, to state that the work meets the technical requirements of the Building Regulations.

If an Approved Inspector cannot do this due to omissions and/or known failures of the building work to show compliance with the relevant technical requirements of the Building Regulations, then the relevant local authority should investigate and consider the need to take appropriate enforcement action recorded in the Local Lands Charges Register, held as a 'public record' by the relevant local authority. Solicitors must search these records prior to any purchase of any building.

Where to get approval?

The role of checking that Building Regulations are being complied with falls to Building Control Bodies (BCBs). There are two types of BCB;—

- Local Authority Building Control (LABC) and
- Private sector Approved Inspector Building Control (AIBC).

Customers are free to choose which type of Building Control Body they use on their project. There are voluntary Performance Standards in place for Building Control Bodies.

Local Authority.

- ✓ Approved Inspector

Approved Inspectors are companies or individuals authorised under the Building to carry out building control work.

- ✓ **Competent Person Self-certification**

Competent person schemes were introduced by the Government to allow individuals and enterprises to self-certify that their work complies with the Building Regulations as an alternative to submitting a building notice or using an approved inspector.

- ✓ **3rd Party Certification**

The performance of an element of a building will be partly dependent on two things:

- ✓ Building Control Performance Standards

These Standards and the associated guidance have now been revised by the Building Control Performance Standards Advisory Group (BCPSAG).

- ✓ **Building Regulations:**

Ensure that only properly trained and familiarized personnel are authorized to operate with powered equipment as referenced in the Statement of Best Practices of General Training and Familiarization.

Read and understand the manufacturer's instructions for all equipment to be used.

Choose the correct AWP equipment to reach the work.

Monitor the operator/occupant(s) performance and supervise the work to ensure the application and operation of the AWP equipment is in conformance with the lift manufacturer's operator's manual and all applicable standards, regulations and safety rules.

Direct and monitor the operator(s)/occupant(s) who operate with equipment to ensure that each person wears PFP equipment when required.

Ensure that only qualified personnel inspect and maintain PFP equipment. Ensure that each operator/occupant is properly trained.

Immediately remove from service personal fall arrest systems or components subjected to impact loading (e.g., involved in a fall). Use PFP equipment only for its intended use.

Avoid PFP equipment contact with sharp edges. Ensure that all edges that PFP equipment may come in contact with are smooth, rounded or chamfered.

Ensure that the AWP equipment guardrail system is properly installed and positioned, and access gate(s) and opening(s) closed per the manufacturer's recommendations.

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Self-Check .2	Written Test
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Instructions: say true or false

- 1 .**Supervisor** are heavily involved in planning, organizing and controlling projects
2. **Construction Supervisors** are responsible for supervising to safe work environment
3. **full plans is the one requirement to** Confirmation from supervisor

Note: Satisfactory rating - 2 points Unsatisfactory - below 2 points
 You can ask you teacher for the copy of the correct answers.

Answer Sheet

Score = _____
Rating: _____

Answer of the question(2 point)

- 1.True
- 2.true
- 3.True

Information Sheet- 3	Identify hazardous material for separate handling in accordance
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2.3 Identify hazardous material for separate handling in accordance

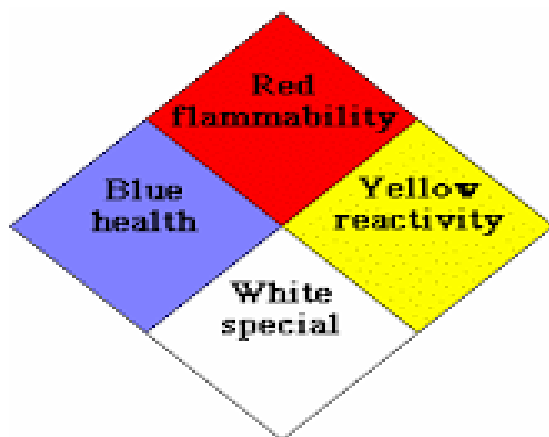
The construction industry has been seen as one of the hazardous industries. This is because the industry has a poor health and safety performance record compared to other industries all over the world.

Hazardous materials must be disposed of properly to protect human health, safety and the environment. Many materials being used at the University present some type of hazard (biological, chemical, physical, or radiation) and specific disposal procedures are required. Therefore, all materials being used by a laboratory or laboratory-related unit shall be disposed in accordance with the University of Kansas Hazardous Materials Waste Management Program.

Hazardous materials are often subject to chemical regulations which include *materials* that are radioactive, flammable, explosive, corrosive, oxidizing, asphyxiating, bio hazardous, *toxic*, pathogenic, or allergenic.

- **Identifying Hazardous materials**

The Hazardous Materials Identification System (HMIS) is a numerical hazard rating that incorporates the use of labels with color-coded bars as well as training materials.



NFPA 704 Hazard Identification System

Blue/Health

The Health section conveys the health hazards of the material. In the latest version of HMIS, the Health bar has two spaces, one for an asterisk and one for a numeric hazard rating. If present, the asterisk signifies a chronic health hazard, meaning that long-term exposure to the material could cause a health problem such as emphysema or kidney damage.

Red/Flammability

For HMIS I and II, the criteria used to assign numeric values (0 = low hazard to 4 = high hazard) are identical to those used by NFPA. In other words, in this category, the systems are identical

Orange/Physical Hazard

Reactivity hazard are assessed using the OSHA criterion of physical hazard. Seven such hazard classes are recognized: Water Reactive, Organic Peroxides, Explosives, Compressed gases, Pyrophoric materials, Oxidizers, and Unstable Reactive.

White/Personal Protection

This is by far the largest area of difference between the NFPA and HMIS systems. In the NFPA system, the white area is used to convey special hazards whereas HMIS uses the white section to indicate what personal protective equipment (PPE) should be used when working with the material.

1.2 How to construction Hazardous material handling

1. Carefully read the ingredient list of any product or chemical you use. ...
2. Purchase the proper personal protective equipment like gloves or goggles. ...
3. Be aware of the hazardous materials you come in contact with. ...
4. Follow safe procedures when you handle hazardous material.

Self-Check 1	say true or false
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Instructions: 1 say true or false

- 1 . The construction industry has been seen as not one of the hazardous industries.
2. Hazardous materials must be disposed of properly to protect human health,
3. **Blue** Health section conveys the health hazards of the material

Self-Check 2	Matching
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Instructions:2 match column A with Column B

Machining

- | | |
|----------|------------------------|
| 4.Blue | A. Flammability |
| 5.Red | B. Personal Protection |
| 6.Orange | C. Health |
| 7.White | D. Physical Hazard |

Note: Satisfactory rating - 2 points Unsatisfactory - below 2 points
 You can ask you teacher for the copy of the correct answers.

Answer Sheet

Score = _____
Rating: _____

Answer of the question(2 point)

- 1.False
- 2.True
- 3.True
- 4.C
- 5.A
- 6.d
- 7.B

2.4 Installing and anchoring Fall protection devices

Anchors, otherwise known as an earth, percussion driven or mechanical anchors, are versatile devices used to hold, restrain and support building, civil engineering and other structures, either permanently or temporarily

Worker at risk of falling certain distances must be protected by guardrails or, if guardrails are not practical, by a travel restraint system, fall-restricting system, fall-arrest system, or safety net. This chapter describes travel-restraint systems and fall-arrest systems. Personal fall protection equipment consists of the components shown in the following illustration.



Fig.1 anchoring work

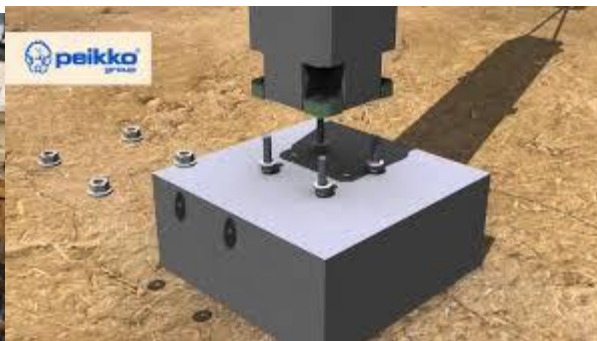
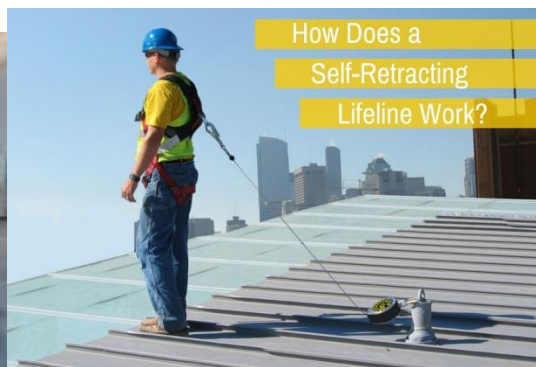


Fig.1.1 cast anchoring



Fig.1.2



1.3

Safety Net

The personnel **safety net must** be **installed** within at least 4.6 m below the work area. The **net must** extend 2.4m beyond the work area on all sides. The **net must** be set up to ensure that a

falling worker ca not come in contact with another surface or any other obstruction if the worker **falls** into the **net**.

How to install anchors

All post-installed anchors require the drilling of a hole. Generally that is done with a rotary hammer. Note that a rotary hammer and a hammer drill are not the same tool. A hammer drill is a drill with a mechanism to vibrate the bit tip, which is useful for drilling holes in concrete block

How to remove anchor

- ❖ Remove the nut and washer from the anchor.
- ❖ If the hole beneath the anchor is deep enough, simply pound it into the concrete with a hammer.
- ❖ Cut off the threaded, above-ground section of the anchor. If you have a Bolt breaker, slide it over the protrusion, rock back and forth once, and rotate until the bolt snaps off below the surface. Alternatively, cut through the bolt with a hacksaw or grinding wheel.
- ❖ If necessary, make the remaining nub flush with the surrounding concrete. Sleeve anchors can often be knocked deeper into the ground with a hammer. Hammer or grind any protruding rod as necessary

Self-Check 1	True or False
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Instructions: say true or false

1. The personnel **safety net must** be **installed** within at least 4.6 m below the work area
2. The necessary work site preparation level will depend on the size of the surface
3. Anchor used to hold, restrain and support building

Note: Satisfactory rating - 2 points Unsatisfactory - below 2 points
You can ask you teacher for the copy of the correct answers.

Answer Sheet

Score = _____
Rating: _____

Answer of the question(2 point)

1. True
2. true
3. True

2.5 positioning Mechanical equipment/plant in operating locations



Fig 1 plant location

- ✓ Positioning equipment is used to handle material at a single location so that the material is in the correct position for subsequent handling, machining, transport, or storage. Unlike transport equipment, positioning equipment is usually used for handling at a single workplace
- ✓ A mechanical room or a boiler room is a room or space in a building dedicated to the mechanical equipment and its associated electrical equipment, as opposed to rooms intended for human occupancy or storage. Unless a building is served by a centralized heating plant, the size of the mechanical room is usually proportional to the size of the building. A small building or home may have at most a utility room but in large buildings mechanical rooms can be of considerable size, often requiring multiple rooms throughout the building, or even occupying one or more complete floors
- ✓ A **plant room**, (sometimes referred to as a mechanical room or boiler room), is a dedicated space containing the equipment required to provide or supply building services such as; ventilation, electrical distribution, water and so on. The size of a **plant room** is generally proportional to the size and type of building. Large buildings may have several **plant rooms**, or spaces that occupy one or more storeys and some **plant rooms** may have specific functions,

such as; battery rooms, transformer rooms boiler rooms and so on. Depending on the size of the building and the nature and complexity of the building services

What is plant on a construction site?

The term 'plant' refers to machinery, equipment or apparatus used for an industrial activity. Typically, in construction, 'plant' refers to heavy machinery and equipment used during construction works the term 'plant' refers to machinery, equipment or apparatus used for an industrial activity. Typically, in construction, 'plant' refers to heavy machinery and equipment used during construction works. Many construction companies fail to manage plant efficiently, despite the fact that it represents one of their biggest costs. Construction plant is generally re-useable, and so, as well as being purchased new, it may be purchased second hand or hired. Rented vehicles tend to be newer, and so better maintained, more reliable, and equipped with more up-to-date features. By renting plant, companies are also able to scale their fleet size up or down relatively flexibly. This can enable plant to be assigned efficiently, by listing plant and their relevant details, including availability. Relevant staff are then able to determine the availability of plant at any given time. This is particularly useful for larger companies who may have several projects in progress simultaneously and need to be able to maximize their fleet's utility..The actual costs of each contract can be easier to understand if plant costs are automatically associated with the relevant works in the accounts system. Rising costs are also easier to detect and monitor, and can help a company make informed decisions about managing the fleet, i.e. replacing an older vehicle that has had large repair bills.

Maintaining plant effectively and safely is a legal requirement, but it is also beneficial in terms of reducing costs. Management of plant involves identifying hazards for each item and having a plan for how they can be avoided through maintenance and regular inspections.

Accounting software can assist with highlighting the most appropriate time, i.e. during downtime, that an item of plant could undergo maintenance. This is useful in terms of forward planning projects that may need to use the item on-site, and scheduling specialist contractors that may be required for maintenance purposes.

- Some of the plant management benefits of using include:

- Accurate measurement of engine load, fluid temperature and pressure, idle time, fuel consumption, etc.
- Identifying operators who may be using plant incorrectly and require retraining, e.g. using excessive fuel.
- Generating data relating to machine performance and efficiency, allowing managers to reduce energy consumption and increase productivity.
- Giving a more accurate picture of when and how plant is used..
- Better predictability of when the plant is likely to require maintenance.
- Plant performance can be tracked in real time, highlighting areas not running to their full capacity.
- Plant can be tracked, helping to prevent theft and misuse.
- Alerts relating to the location of plant can be sent to workers on-site, improving their awareness and so safety.
- Automatic ordering of replacement parts as and when required. Accurate monitoring of site noise and vibration compliance.

Self-Check 5	Written Test
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Instructions: say true or false

1. 'Plant' refers to machinery, equipment or apparatus used for an industrial activity
2. **plant room**, is a dedicated space containing the equipment required
3. **Boiler room** is a room or space in a building dedicated to the mechanical equipment
4. **Positioning equipment** is used to handle material at a single location

Note: Satisfactory rating - 2 points Unsatisfactory - below 2 points
You can ask you teacher for the copy of the correct answers.

Answer Sheet

Score = _____ Rating: _____

Answer of the question(2 point)

- 1.True
- 2.true
- 3.True
- 4.True