

Title :Traffic Management

SUBMITTED BY : S:Blessy
S:Kavinila
V:Vinothini
S:Lavanya

Name of Institution : Ganesh college of Engineering

Address of Institution : Ganesh college of Engineering,
Attur main road,
Mettupatti (P.O), Valapady (T.K),
Salem (D.T), 636 111.

District : Salem

State : Tamilnadu

Pin : 636 111

INTRODUCTION



- Released by The Bureau of Labor Statistics.
- Total 4679 fatal work injuries.
- Highest number of fatalities.
- 40% of the fatalities caused by transportation accidents.

THE SIX KEY ISSUES OF TRAFFIC MANAGEMENT

1. Minimizing vehicle movements
2. Visibility
3. Keeping pedestrians and vehicles apart
4. People on site
5. Reversing vehicles
6. Signs and instructions



MINIMISING VEHICLE MOVEMENTS

MINIMISING VEHICLE MOVEMENTS

- External traffic control
- Internal traffic control
- Organise their sites
- Provide suitable traffic routes
 - Be usable
 - Be sufficient
- Supported by The Occupational Safety and Health Regulations 1996 Section 3.6

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MINIMIZING VEHICLE MOVEMENTS

WAYS TO MINIMIZING VEHICLE MOVEMENT

- Provide vehicle parking outside from the site.
- Make clear sign at the parking area
- Able to move freely
- No obstruction when unloading
- No danger to vehicles



MINIMISING VEHICLE MOVEMENTS

- Control vehicle to enter the site
 - Prevent overcrowded that may cause obstruction
 - Boom gate or temporary barriers
 - May delay the progress of construction works



MINIMISING VEHICLE MOVEMENTS

- Decide the storage areas to store materials
 - Rent a storage area outside the construction site.
 - Store all the materials together
 - Keep the storage area safe

- Plan a schedule for vehicle to unload stuff
 - Do not stuck at the entrance.
 - No obstruction of the roadway.

VISIBILITY

VISIBILITY

There are 4 things to consider:

- Aids for drivers
- Signallers
- Lighting
- Clothing



VISIBILITY

- Allow drivers to see and avoid hazards.
- People who work with vehicles or mobile plant are most at risk and danger.
- Related to speed and distance.



VISIBILITY

There are 4 things to consider:

- Aids for drivers
- Signallers
- Lighting
- Clothing



VISIBILITY

- **AIDS FOR DRIVERS**

- To prevent hazards
- Reversing alarms, CCTV camera, blind spot mirrors



"Stand well clear,
vehicle reversing"



VISIBILITY

- **SIGNALLERS**

- Flaggers
- To give signal to the driver

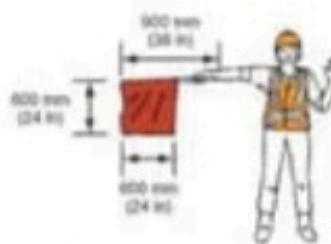
Flaggers should be able to demonstrate following abilities:

- Ability to receive and communicate specific instructions clearly, firmly, and courteously
- Ability to control signalling devices (such as flags)
- Ability to understand and apply safe traffic control practices, sometimes in stressful or emergency situations
- Ability to move and act quickly in order to avoid danger from errant vehicles

PREFERRED METHOD
STOP/SLOW Paddle



EMERGENCY SITUATIONS ONLY
Red Flag



TO STOP TRAFFIC



TO LET
TRAFFIC PROCEED



TO ALERT AND
SLOW TRAFFIC

VISIBILITY

- **LIGHTING**

- Adequate lit

Every workplace should have suitable and sufficient lighting, particularly in areas where:

- vehicles manoeuvre, or pedestrians and vehicles circulate and cross
- loading and unloading takes place



VISIBILITY

- **CLOTHING**

- People who in charge of traffic control or work in construction site should fulfill the Personal Protective Equipment (PPE) as following:

FOOT PROTECTION

- Work shoes or boots with slip-resistant and puncture-resistant
- Safety-toed footwear to prevent crushed toes

HAND PROTECTION

- Gloves should be fit
- Wear right gloves for job

HEAD PROTECTION

- Wear hard hats (safety helmet)

ATTIRE

- Safety jacket





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KEEPING PEDESTRIANS AND VEHICLES APART

WAYS TO HELP KEEPING PEDESTRIANS AND VEHICLES APART:

1. Providing separate traffic routes for pedestrians and vehicles
2. Crossings
3. Visibility
4. Barriers
5. Obstructions
6. Design a specific parking areas for workers and visitors vehicles outside the construction area
7. Scheduling work

KEEPING PEDESTRIANS AND VEHICLES APART

1. PROVIDING SEPARATE TRAFFIC ROUTES FOR PEDESTRIANS AND VEHICLES

- **For vehicles:**

Create pedestrian's exclusion zones for powered mobile plants.

- **For pedestrians:**

Create vehicle exclusion zones for pedestrians only.

- **The general principles of traffic routes for vehicles and pedestrians:**

1. Ensure the traffic routes is wide enough.
2. Make sure the surfaces are suitable for vehicles and pedestrians to use.
3. Avoid steep slope.
4. Avoid sharp corners and blind bends.
5. Avoid obstruction to the routes.
6. Must be clearly marked and signposted
7. Maintain the routes.



KEEPING PEDESTRIANS AND VEHICLES APART

2. CROSSINGS

- Crossing points = The place that pedestrians and vehicles routes cross
- Driver, pedestrians or cyclists should see each other clearly.
- Should be marked and signposted.



KEEPING PEDESTRIANS AND VEHICLES APART

2. CROSSINGS

- Should include dropped kerbs.



- Use deterrent paving to guide pedestrians to the crossing points.



KEEPING PEDESTRIANS AND VEHICLES APART

2. CROSSINGS

- At busy crossing places, use traffic lights and zebra crossings.



- Limit the vehicles on the roadway during peak hour.



KEEPING PEDESTRIANS AND VEHICLES APART

3. VISIBILITY

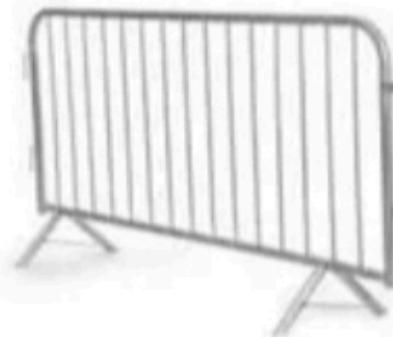
- Ensure driver can see both ways along the walkway clearly.
- Ensure driver aware of pedestrians before driving out.
- Using:
 - Traffic controller
 - Mirrors
 - Stop signs



KEEPING PEDESTRIANS AND VEHICLES APART

4. BARRIERS

- Install barrier between walkways and roadways.
- Example of barrier :
 - Pedestrian barriers
 - Traffic control barricades
 - Cones
 - Chains
 - Bollards



Pedestrian barriers



Traffic control barricades



Bollards



Cones

KEEPING PEDESTRIANS AND VEHICLES APART

5. OBSTRUCTIONS

- Always ensure that the walkways are not blocking.
- Prevent the pedestrians step onto the vehicle route.

6. DESIGN A SPECIFIC PARKING AREAS FOR WORKERS AND VISITORS VEHICLES OUTSIDE THE CONSTRUCTION AREA



7. SCHEDULING WORK

- Prevent powered mobile plants, vehicles and pedestrians gather in a same area at the same time.

KEEPING PEDESTRIANS AND VEHICLES APART

CAUSES OF FAIL TO KEEP PEDESTRIANS AND VEHICLES APART:

- Insufficient risk assessment.
- Contractor is lack of experience in planning the segregation.
- The segregation is not well-designed.
- Traffic routes did not fulfill the general principles.
- Hire unqualified competent person and traffic controller.
- Fail to schedule work for powered mobile plants, vehicles and pedestrians.

PEOPLE ON SITE

PEOPLE ON SITE

WAYS TO ENSURE ALL WORKERS ARE COMPETENT TO OPERATE THE POWERED MOBILE PLANTS, MACHINES AND ATTACHMENTS THEY USE ON SITE:

1. Checks the qualifications of the contractor or operator when hiring them.
2. Manage the activities of visiting drivers.
3. Provide training to drivers and operators.

PEOPLE ON SITE

1. CHECKS THE QUALIFICATIONS OF THE CONTRACTOR OR OPERATOR WHEN HIRING THEM

- Incidents may occur when the workers who operate the construction vehicles are untrained, unqualified and lack of experience.
- Therefore, the person who conducting the business should ensure the worker hiring:
 - Understand the traffic rules
 - Understand the safety policies
 - Understand the procedures for the workplace
 - Have necessary training
 - Have necessary qualifications
 - Have necessary licenses to operate the vehicles

PEOPLE ON SITE

2. MANAGE THE ACTIVITIES OF VISITING DRIVERS

- Visitors or visitor drivers should :
 - Aware of the site traffic safety rules and procedures.
 - Aware of restrictions on the size and type of vehicles before make deliveries to the site.
 - Take reasonable care for their own health and safety.
 - Take reasonable care not to affect other's health and safety.
 - Must follow reasonable instructions given.
- Contractors should also include the WHS (Work Health and Safety) management plan.

PEOPLE ON SITE

3. PROVIDE TRAINING TO DRIVERS AND OPERATORS

- The person conducting the business are responsible to provide :
 - Information.
 - Instruction or supervision.
 - Training to all workers on the correct way to operate the vehicles.
 - Special training to the workers with specific responsibilities.
- To ensure that:
 - All workers are protected from risks.
 - All workers alerted to the risk.
 - All workers know the correct way to operate the vehicles and machines.
 - All workers know the safety precaution when conducting the construction work.

REVERSING VEHICLES

REVERSING VEHICLES

Most of the reversing accidents do not result in injury, it only causes costly damage to vehicles, equipment and premises. Most of these accidents happen at low speeds, for example when reversing into loading bays. These problems can be avoided by taking simple precautions.



REVERSING VEHICLES

WAYS TO REDUCE RISK ASSOCIATED WITH REVERSING VEHICLES

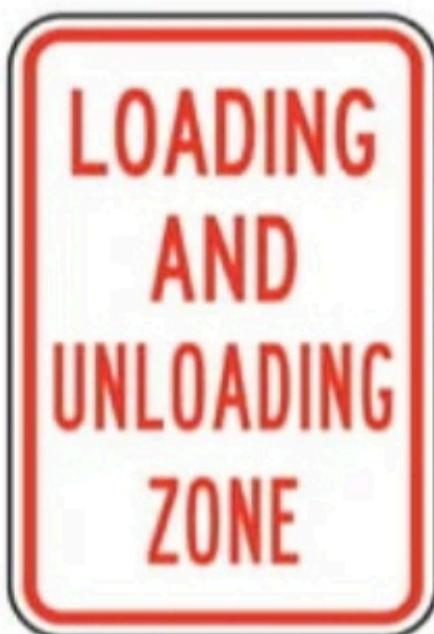
- Remove the need for reversing.
- Exclude people from the area in which vehicles are permitted to reverse.
- Make sure all staff are adequately trained.
- Make sure all visiting drivers are briefed.
- Make sure all vehicle operations are properly supervised.
- Increase the area the driver can see.
- Use other safety devices.



REVERSING VEHICLES

1. Remove the need for reversing

- Create one way systems.
- Set up "drive through" for loading or unloading location.
- Provide greater space for storing materials.
- Avoiding reversing before allow vehicles to reverse.



REVERSING VEHICLES

2. EXCLUDE PEOPLE FROM THE AREA IN WHICH VEHICLES ARE PERMITTED TO REVERSE

- Ensure that your system prevents people from unnecessarily entering these danger areas.
- Try to design and construct the areas so that segregation lines can be seen by drivers and pedestrians who may need to enter.
- Create a specific area for vehicle only and preventing the workers and visiting drivers from entering this zone by using warning signs
- Wear a high visibility clothing near reversing vehicles so that drivers can see them clearly

REVERSING VEHICLES

3. MAKE SURE ALL STAFF ARE ADEQUATELY TRAINED

- Recognize all the people who are involved with the reversing of vehicles and take into account their abilities when allocating tasks and deciding what training they should be given
- Drivers should be trained and knowledgeable to operate their vehicles safely.



REVERSING VEHICLES

4. MAKE SURE ALL VISITING DRIVERS ARE BRIEFED

- Try to make the drivers who are not your employees familiar with the design of the workplace and follow your instruction and rules for reversing.
- For example: require the visiting drivers to report and receive instructions before entering the workplace.



REVERSING VEHICLES

5. MAKE SURE ALL VEHICLE OPERATIONS ARE PROPERLY SUPERVISED

- Management should manage and monitor transport operations to make sure safe systems of work are always followed.
- All employees and visiting drivers should be aware of how you operate and supervise your safe system of work



REVERSING VEHICLES

6. INCREASE THE AREA THE DRIVER CAN SEE

- Site plan can be designed to increase visibility for drivers and pedestrians.
- Most vehicles already use external, side mounted and rear view mirrors to maximum benefit.
- The use of refractive lenses in the rear window or a closed circuit television system in the cab.



REVERSING VEHICLES

7. USE OTHER SAFETY DEVICES

- For example, Trip devices fitted to the rear of the vehicle that stop it when something is hit may be appropriate in some specific situations.
- Sensing devices that scan the area into which the vehicle is reversing may warn the driver of a hazard they have not seen.
- None of these measures are sufficient on their own, but a carefully chosen combination of precautions may be effective.

SIGN AND INSTRUCTION

WHAT IS SAFETY SIGN?

A safety or health sign is an 'information or instruction about health and safety at work on a signboard, a colour, an illuminated sign or acoustic signal, a verbal communication or hand signal.' These terms are all detailed in guidance to the regulations. A signboard is including shape, colour and symbol or pictogram made visible by adequate lighting and which may have supplementary text.

SIGN AND INSTRUCTION

PURPOSE OF SAFETY SIGNS

Safety signs are used to:

- draw attention to health and safety hazards
- point out hazards that may not be obvious
- provide general information and directions
- remind employees where personal protective equipment must be worn show where emergency equipment is located
- indicate where certain actions are prohibited



TYPES OF SIGNS

- Safety sign includes prohibition signs, mandatory signs, safe condition signs, hazard signs and fire equipment signs.
- Prohibition signs is a sign prohibiting behavior likely to increase or cause danger. It is usually red in colour.
- Mandatory signs is a sign prescribing specific behavior. It is usually blue in colour.
- Safe condition signs is used to indicate emergency exits or rescue equipment. It is usually green in colour.
- Hazard signs is a sign giving warning of a hazard or danger. It is usually yellow in colour.
- Fire equipment signs is used to indicate the location of fire fighting equipment. It is also usually red in colour.

SIGN AND INSTRUCTION

EXAMPLES OF PROHIBITED SIGNS



SIGN AND INSTRUCTION

EXAMPLES OF MANDATORY SIGNS



**Safety
helmets
must be
worn**



**Protective
footwear
must be
worn**



**All visitors
and drivers
must report
to site office**

SIGN AND INSTRUCTION

EXAMPLES OF SAFE CONDITION SIGNS



SIGN AND INSTRUCTION

EXAMPLES OF FIRE FIGHTING SIGNS



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