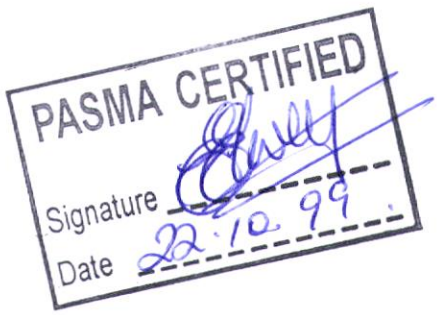
ITEM NO: 90.029

Planet Platforms Ltd

P.A.S.M.A.

Mobile Tower Scaffold Training Course Notes



PASMA
STANDARD COURSE

COURSE NOTES

PRESENTED
BY

PLANET PLATFORMS LTD
146A Wakefield Road, Ossett
Wakefield

GRAHAM STEPHENSON

PASMA STANDARD COURSE

- Issue name tags
- 2 x photo`s (ID Cards)

SAFETY EQUIPMENT

- Safety shoes
- Safety Helmets
- Safety gloves

PASMA STANDARD COURSE

Who Is PASMA

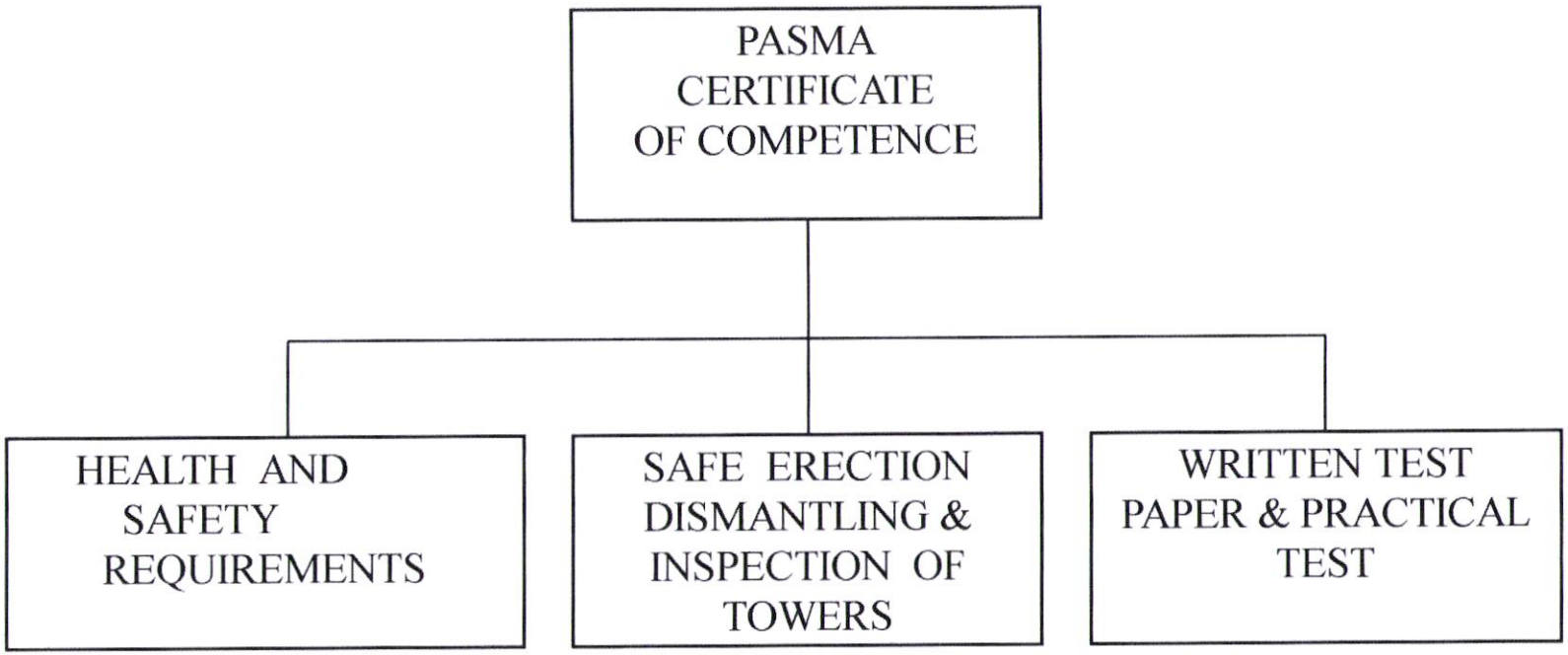
* Prefabricated
* Aluminium
* Scaffold
* Manufacturing
* Association

P.A.S.M.A.

PASMA is an association of the UK manufacturers and suppliers of prefabricated aluminium and glass fibre towers.

All the members and associate members offer equipment approved to BS1139 Part 3 (HD1004) and carries the British Kitemark or equivalent.

PASMA
STANDARD COURSE



PASMA STANDARD COURSE

INTRODUCTION

Good Morning Ladies/ Gentlemen

May I welcome all of you to the PASMA one day standard course in the safe use of Mobile Towers, after completion of which you will have a better understanding of prefabricated mobile access towers including their

Potential Hazards
Maximum Design Loads
Maintenance
Storage
Inspection for Damage
How to deal with Accidents
How to deal with damage involving Towers
Completion of Inspection Reports

You will also have a better understanding of the relevant British Standard and the laws relating to their use.

Slide 4

It is a requirement that operatives using towers must be competent. A competent person is defined in the construction (Health, Safety & Welfare) regulations as a person whom posses such TRAINING, KNOWLEDGE or EXPERIENCE as may be appropriate having regard to the nature of the activity, or be supervised by such a person.

Training, Knowledge Experience

There will be a written test during the course and I will monitor your performance during the practical part of the course. If you meet the qualifying standard you will be awarded an A4 size certificate of competency and will be given a credit card sized ID card with your photographs encapsulated on it.

Written test 26/30 =88%

This ID card will allow you to satisfy the Health & Safety Executive Inspector, or any other interested party, that you have attended and passed this course and are competent to erect/dismantle and use Mobile Access Towers and to supervise others.

Proof of competency

The ID card and certificate prove your competence is equally applicable to any towers produced by a PASMA member, provided you are in possession of the

Appropriate Instruction Manual. This is because the basic safety rules are common to all PASMA makes of towers.

My name is Graham Stephenson, I am a registered by PASMA as an instructor. PASMA stands for the PREFABRICATED, aluminium, SCAFFOLDING, MANUFACTURERS, ASSOCIATION.

Slide 1 (pasma)

PASMA members are the major manufacturers in the UK who have come together to recommend Codes of Practice, Standards etc. for the safe use of Prefabricated Mobile Towers.

It is not possible to to anticipate the level of experience of all candidates, which will of course vary between candidates. Therefor the instruction has been pitched to what we consider the lowest common denominator knowledge and experience, thus the person with a limited knowledge will still be able to follow everything whilst the person with the greater knowledge and experience will have some useful revision.

Training at lowest common denominator

However experienced and knowledgeable you are, it is increasingly necessary to be able to prove that knowledge and experience and a of course of this type is the only way that it can be done.

The original prefabricated Aluminium tower was designed and marketed by Upright scaffolds in the USA. However the design proved cumbersome, and difficult to manoeuvre when erecting or dismantling. It would be outlawed by todays requirements and attitudes.

Original manufacturer Upright

PASMA STANDARD

There are a number or Regulations, Advisory Notices, British Standards and Harmonisation Documents regarding Mobile Scaffold Towers.
We have listed the main ones and relevant points will be covered throughout the course.
With reference to BS1139 or HD1004 and Construction (Health, Safety & Welfare) Regs 1996. Where these are in variance PASMA recommend using the highest feature of safety.

SLIDE 6

LAW

CONSTRUCTION (HEALTH, SAFETY & WELFARE) REGULATIONS 1996
MANAGEMENT OF HEALTH & SAFETY AT WORK REGULATIONS 1992
PROVISION & USE OF WORK EQUIPMENT REGULATIONS 1992
PERSONAL PROTECTIVE EQUIPMENT AT WORK REGULATION 1992
MANUAL HANDLING OPERATIONS REGULATIONS 1992
REPORTING OF INJURIES, DISEASES & DANGEROUS OCCURRENCES REGULATIONS 1995 (RIDDOR)

BRITISH STANDARDS

BS1139 Part 3 1994 (HD1004 1992)
BSEN 1298

ADVISORY

HSE GUIDANCE NOTE GS42 1987
HEALTH & SAFETY IN CONSTRUCTION HS (G) 150
PASMA CODE OF PRACTICE (5TH EDITION)

SLIDE 7 HEALTH AND SAFETY AT WORK ACT 1974

SLIDE 8 EMPLOYERS DUTY TO EMPLOYEES (THE WORK)

SLIDE 9 EMPLOYERS DUTY PPE

SLIDE 10 EMPLOYERS DUTY TO EMPLOYEES MANUAL HANDLING

SLIDE 11 EMPLOYERS DUTY TO EMPLOYEES WORK EQUIPMENT

SLIDE 12 EMPLOYERS DUTY TO EMPLOYEES WORK EQUIPMENT TRAINING

SLIDE 13 EMPLOYERS DUTY TO EMPLOYEES WORKPLACE

SLIDE 14 EMPLOYERS DUTY TO EMPLOYEES WORKPLACE H & S, WELFARE

SLIDE 15 EMPLOYERS DUTY TO EMPLOYEES CAPABILITIES & TRAINING

SLIDE 16 EMPLOYERS DUTY TO EMPLOYEES SAFETY POLICY

SLIDE 17 EMPLOYERS DUTY TO EMPLOYEES CONSULTATION

SLIDE 18 EMPLOYERS DUTY TO OTHERS

SLIDE 19 RIDDOR

SLIDE 20 REPORTING OF ACCIDENTS

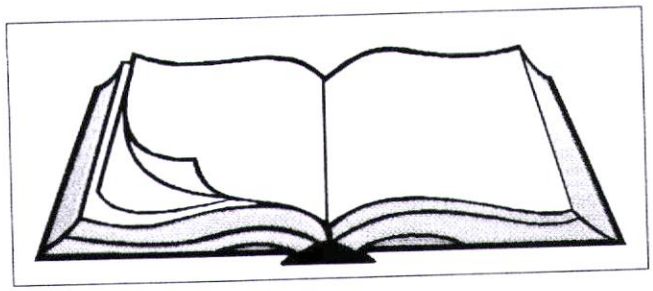
SLIDE 21 EMPLOYERS DUTY TO EMPLOYEES SAFETY CLOTHING

SLIDE 22 EMPLOYEES DUTY

SLIDE 23 POWERS OF INSPECTORS

SLIDE 24 POWERS OF INSPECTORS

HEALTH AND SAFETY AT WORK ACT 1974



AN ACT OF PARLIAMENT THROUGH WHICH LEGAL PROCEEDINGS ARE BROUGHT

AMONGST OTHER MATTERS THIS ACT PLACES THE RESPONSIBILITY FOR TRAINING FIRMLY WITH THE EMPLOYER.

EMPLOYERS DUTY TO EMPLOYEES

THE WORK

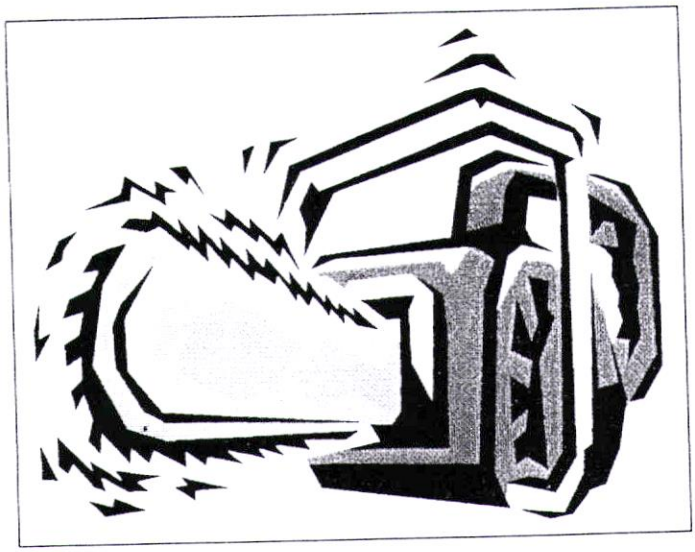
ALL EMPLOYERS MUST PROVIDE

-AND MAINTAIN SAFE PLANT AND EQUIPMENT
THEY MUST PROVIDE SAFE SYSTEMS OF WORK AT ALL TIMES

SAFE TRANSPORT AND STORAGE OF MATERIALS AND SUBSTANCES – INCLUDING SAFETY IN HANDLING

A SYSTEM TO ENSURE THAT EQUIPMENT IS SAFE, WITHOUT RISK TO HEALTH WHILE BEING USED, CLEANED OR MAINTAINED AT WORK.

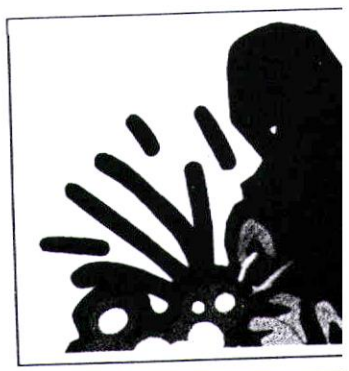
ARRANGEMENTS FOR TESTING AND EXAMINATION AS NECESSARY.



EMPLOYERS DUTY

PERSONAL PROTECTIVE EQUIPMENT

WHERE AN EMPLOYER IS REQUIRED TO ENSURE THAT PERSONAL PROTECTIVE EQUIPMENT IS PROVIDED TO AN EMPLOYEE, THE EMPLOYER SHALL ALSO ENSURE THAT THE EMPLOYEE IS PROVIDED WITH SUCH INFORMATION, INSTRUCTION AND TRAINING AS IS ADEQUATE TO ENABLE THE EMPLOYEE TO KNOW:-



(A) THE RISK OR RISKS WHICH 'PPE' WILL AVOID OR LIMIT

(B) THE PURPOSE OF WHICH AND THE MANNER IN WHICH 'PPE' IS USED AND:-

(C) ANY ACTION TO BE TAKEN BY THE EMPLOYEE TO ENSURE THE 'PPE' REMAINS IN AN EFFICIENT STATE, IN EFFECTIVE WORKING ORDER AND IN GOOD REPAIR REQUIRED BY REGULATION 7 (1)

EMPLOYERS DUTY TO EMPLOYEES

MANUAL HANDLING

REGULATION 4 (1) (A).

EVERY EMPLOYER SHALL
SO FAR AS IS REASONABLY PRACTICABLE, AVOID THE NEED FOR HIS EMPLOYEES TO UNDERTAKE ANY MANUAL HANDLING OPERATIONS AT WORK WHICH INVOLVE A RISK OF BEING INJURED.

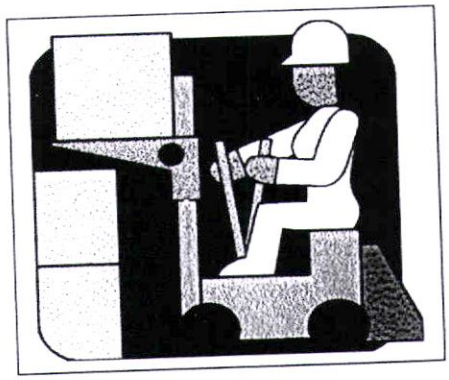
(A) CAN THE OPERATIONS BE AUTOMATED.?

(B) CAN THE OPERATIONS BE MECHANISED?

REGULATION 4 (1) (B) (2).

EVERY EMPLOYER SHALL
SO FAR AS IS REASONABLY PRACTICABLE AVOID THE NEED FOR HIS EMPLOYEES TO UNDERTAKE ANY MANUAL HANDLING OPERATIONS AT WORK WHICH INVOLVE A RISK OF BEING INJURED

TAKE APPROPRIATE STEPS TO REDUCE THE RISK OF INJURY TO THOSE EMPLOYEES ARISING OUT OF THEIR UNDERTAKING ANY SUCH MANUAL HANDLING OPERATIONS TO THE LOWEST LEVEL REASONABLY PRACTICABLE.



EMPLOYERS DUTY TO EMPLOYEES

WORK EQUIPMENT

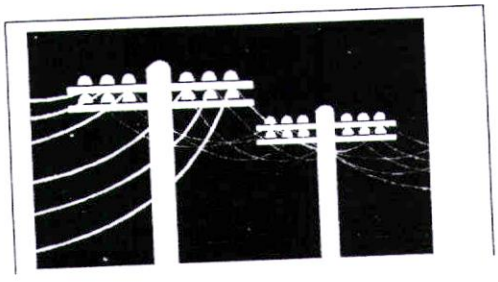
SUITABILITY OF WORK EQUIPMENT.

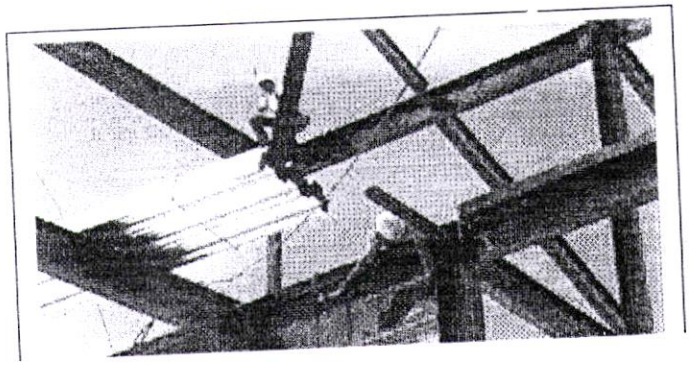
(1) EVERY EMPLOYER SHALL ENSURE THAT WORK EQUIPMENT IS SO CONSTRUCTED OR ADAPTED AS TO BE SUITABLE FOR THE PURPOSE FOR WHICH IT IS USED OR PROVIDED.

(2) IN SELECTING WORK EQUIPMENT, EVERY EMPLOYER SHALL HAVE REGARD TO THE WORKING CONDITIONS AND TO THE RISK TO HEALTH & SAFETY OF PERSONS WHICH EXIST IN THE PREMISES OR UNDERTAKING IN WHICH THAT WORK EQUIPMENT IS TO BE USED AND ADDITIONAL RISKS POSED BY THE USE OF THAT WORK EQUIPMENT.

(3) EVERY EMPLOYER SHALL ENSURE THAT WORK EQUIPMENT IS USED ONLY FOR OPERATIONS FOR WHICH, AND UNDER CONDITIONS FOR WHICH, IT IS SUITABLE.

(4) IN THIS REGULATION SUITABLE MEANS SUITABLE IN ANY RESPECT WHICH IT IS REASONABLY FORESEEABLE WILL AFFECT THE HEALTH & SAFETY OF ANY PERSON.





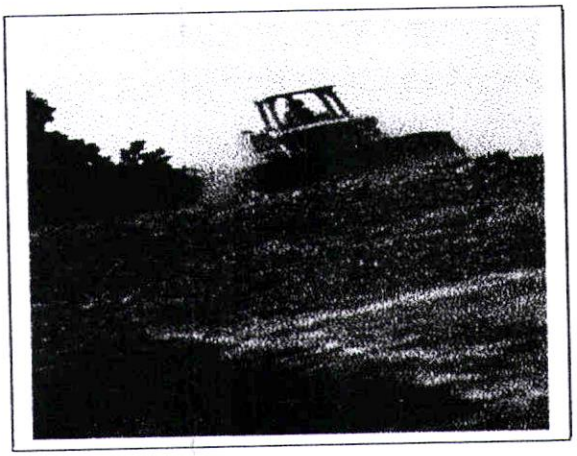
EMPLOYERS DUTY TO EMPLOYEES

WORK EQUIPMENT

TRAINING.

(1) EVERY EMPLOYER SHALL ENSURE THAT ALL PERSONS WHO USE WORK EQUIPMENT HAVE RECEIVED *ADEQUATE TRAINING* FOR THE PURPOSES OF HEALTH & SAFETY. INCLUDING TRAINING IN THE METHODS WHICH MAY BE ADOPTED WHEN USING THE WORK EQUIPMENT. ANY RISKS WHICH SUCH USE MAY ENTAIL AND PRECAUTIONS TO BE TAKEN.

(2) EVERY EMPLOYER SHALL ENSURE THAT ANY OF HIS EMPLOYEES WHO *SUPERVISES* OR MANAGES THE USE OF WORK EQUIPMENT HAS RECEIVED *ADEQUATE TRAINING* FOR PURPOSES OF HEALTH & SAFETY, INCLUDING *TRAINING* IN THE METHODS WHICH MAY BE ADOPTED WHEN USING THE WORK EQUIPMENT, ANY RISKS WHICH SUCH USE MAY ENTAIL AND PRECAUTIONS TO BE TAKEN.



EMPLOYERS DUTY TO EMPLOYEES

THE WORKPLACE

AN EMPLOYER MUST PROVIDE AND MAINTAIN A SAFE PLACE OF WORK (UNDER HIS CONTROL WITHOUT RISK TO HEALTH – INCLUDES ACCESS AND EGRESS).

AN EMPLOYER MUST PROVIDE AND MAINTAIN A SAFE WORKING ENVIRONMENT – WITHOUT RISK TO HEALTH. – INCLUDES FACILITIES FOR WELFARE.

AN EMPLOYER MUST PREVENT EMISSION OF NOXIOUS FUMES OR OFFENSIVE SUBSTANCES.

EMPLOYERS DUTY TO EMPLOYEES

WORKPLACE (HEALTH, SAFETY & WELFARE

FACILITIES FOR REST AND TO EAT MEALS.

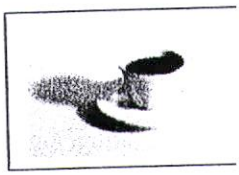
SUITABLE AND SUFFICIENT REST FACILITIES SHALL BE PROVIDED AT READILY ACCESSIBLE PLACES.

REST FACILITIES PROVIDED BY VIRTUE OF FIRST PARAGRAPH SHALL.

(A) WHERE NECESSARY FOR REASONS OF HEALTH OR SAFETY INCLUDE, IN THE CASE OF A NEW WORKPLACE, EXTENSION OR CONVERSION, REST FACILITIES PROVIDED IN ONE OR MORE REST ROOMS, OR IN OTHER CASES, REST ROOMS OR REST AREAS.

(B) INCLUDE SUITABLE FACILITIES TO EAT MEALS WHERE FOOD EATEN IN THE WORKPLACE WOULD OTHERWISE BE LIKELY TO BECOME CONTAMINATED.

REST ROOMS AND REST AREAS SHALL INCLUDE SUITABLE ARRANGEMENTS TO PROTECT NON – SMOKERS FROM DISCOMFORT CAUSED BY TOBACCO SMOKE.



SUITABLE FACILITIES SHALL BE PROVIDED FOR ANY PERSON AT WORK WHO IS A PREGNANT WOMAN OR NURSING MOTHER TO REST.

SUITABLE AND SUFFICIENT FACILITIES SHALL BE PROVIDED FOR PERSONS AT WORK TO EAT MEALS WHERE MEALS ARE REGULARLY EATEN IN THE WORKPLACE.

EMPLOYERS DUTY TO EMPLOYEES

CAPABILITIES AND TRAINING

(1) EVERY EMPLOYER SHALL, IN ENTRUSTING TASKS TO HIS EMPLOYEES, TAKE INTO ACCOUNT THEIR CAPABILITIES AS REGARDS HEALTH & SAFETY.

(2) EVERY EMPLOYER SHALL ENSURE THAT HIS EMPLOYEES ARE PROVIDED WITH *ADEQUATE HEALTH & SAFETY TRAINING.*

(A) ON BEING RECRUITED INTO THE EMPLOYERS UNDERTAKING AND,

(B) ON THEIR BEING EXPOSED TO NEW OR INCREASED RISKS BECAUSE OF

a)THEIR BEING TRANSFERRED OR GIVEN A CHANGE OF RESPONSIBILITIES WITHIN THE EMPLOYERS UNDERTAKING.

b)THE INTRODUCTION OF NEW WORK EQUIPMENT INTO OR A CHANGE RESPECTING WORK EQUIPMENT ALREADY IN USE WITHIN THE EMPLOYERS UNDERTAKING.

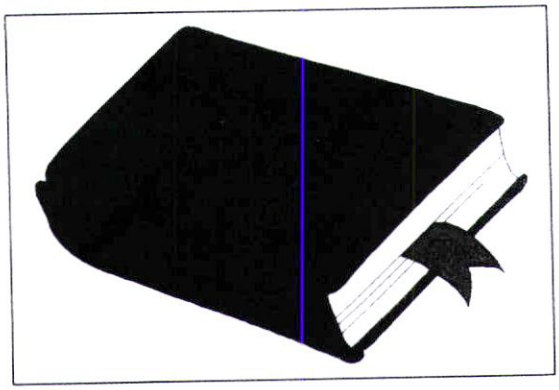
c)THE INTRODUCTION OF NEW TECHNOLOGY INTO THE EMPLOYERS UNDERTAKING.

d)THE INTRODUCTION OF A NEW SYSTEM OF WORK INTO OR A CHANGE RESPECTING A SYSTEM OF WORK ALREADY IN USE WITHIN THE EMPLOYERS UNDERTAKING.

EMPLOYERS DUTY TO EMPLOYEES

SAFETY POLICY

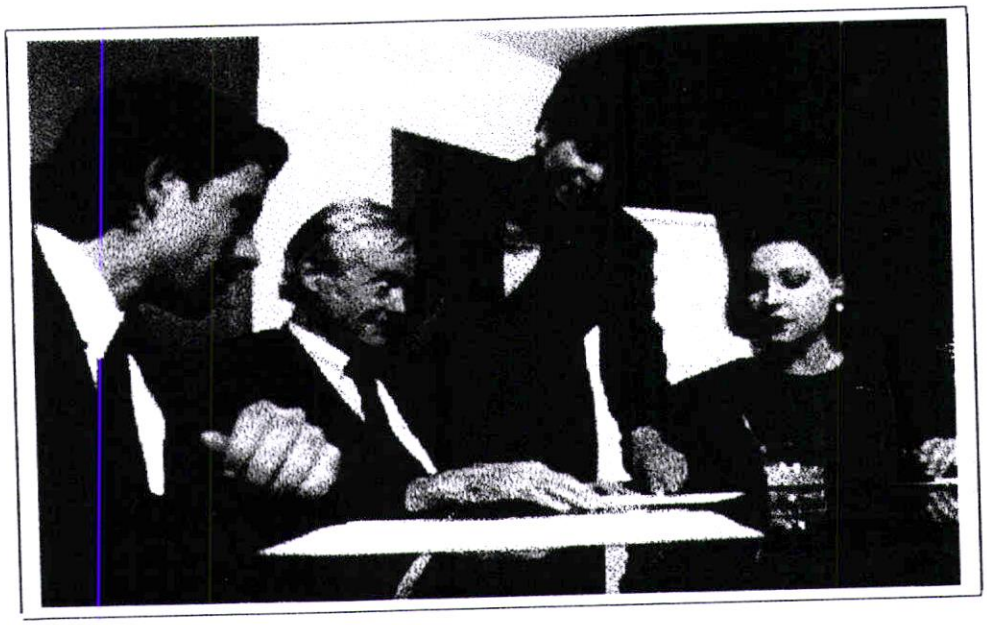
AN EMPLOYER EMPLOYING *FIVE OR MORE PEOPLE* SHALL PREPARE A WRITTEN SAFETY POLICY AND BRING IT TO THE NOTICE OF ALL EMPLOYEES.



EMPLOYERS DUTY TO EMPLOYEES

CONSULTATION

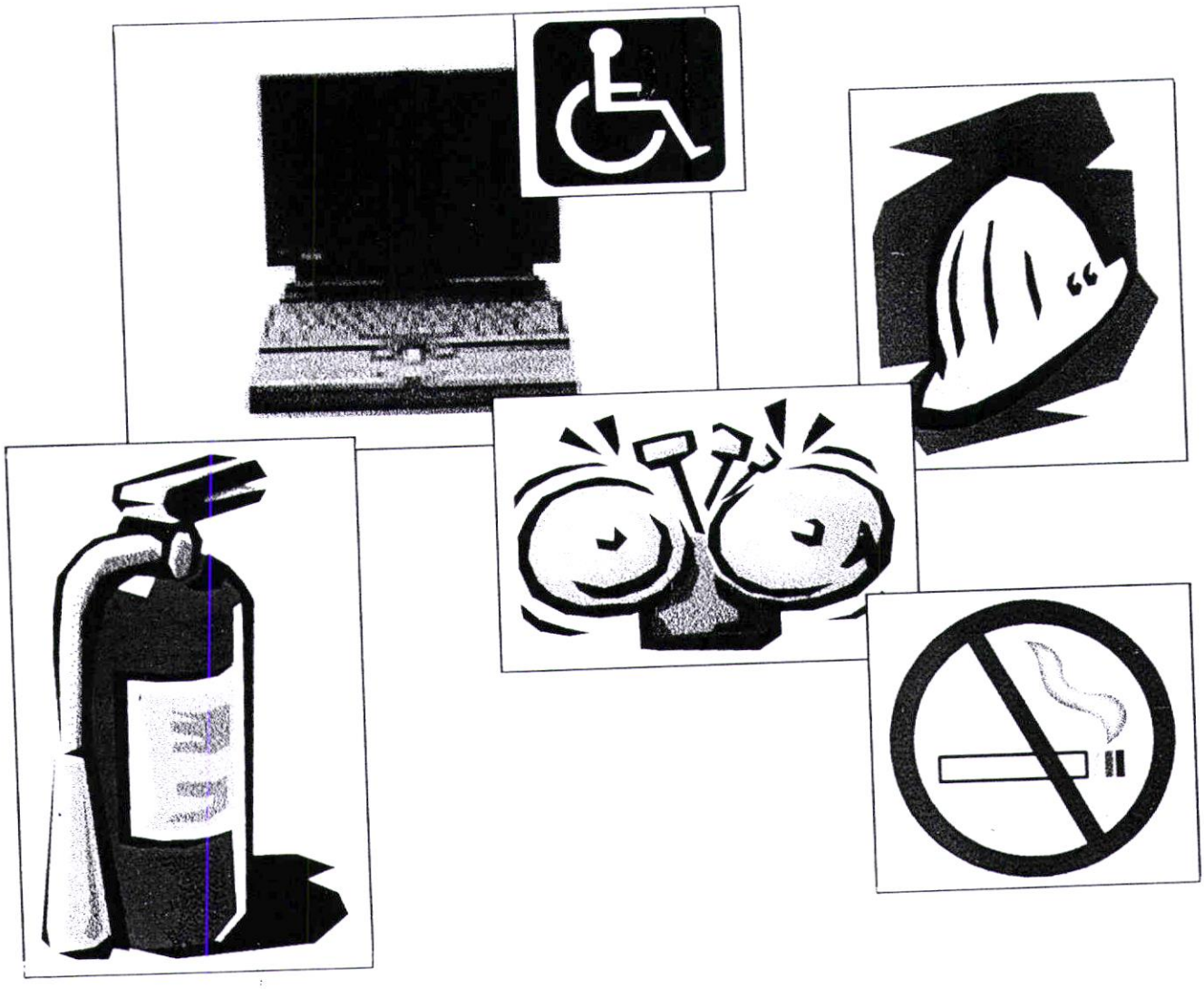
EMPLOYERS HAVE A DUTY TO CONSULT WITH SAFETY REPRESENTATIVES AND COMMITTEES AND MONITOR EFFECTIVENESS OF JOINT CONSULTATIONS.



EMPLOYERS DUTY TO OTHERS

DUTY OF CARE FOR OWN SAFETY AND THE SAFETY OF OTHERS. THIS INCLUDES THE SAFETY OF VISITORS, TRESPASSERS etc.

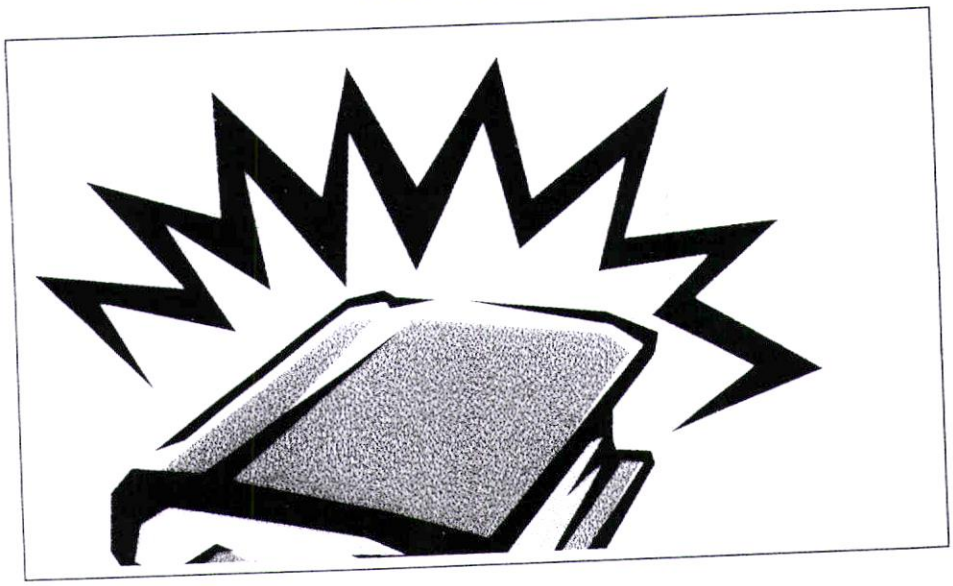
TO PROVIDE INFORMATION OF HAZARDS etc. WHICH MIGHT AFFECT OTHERS



RIDDOR

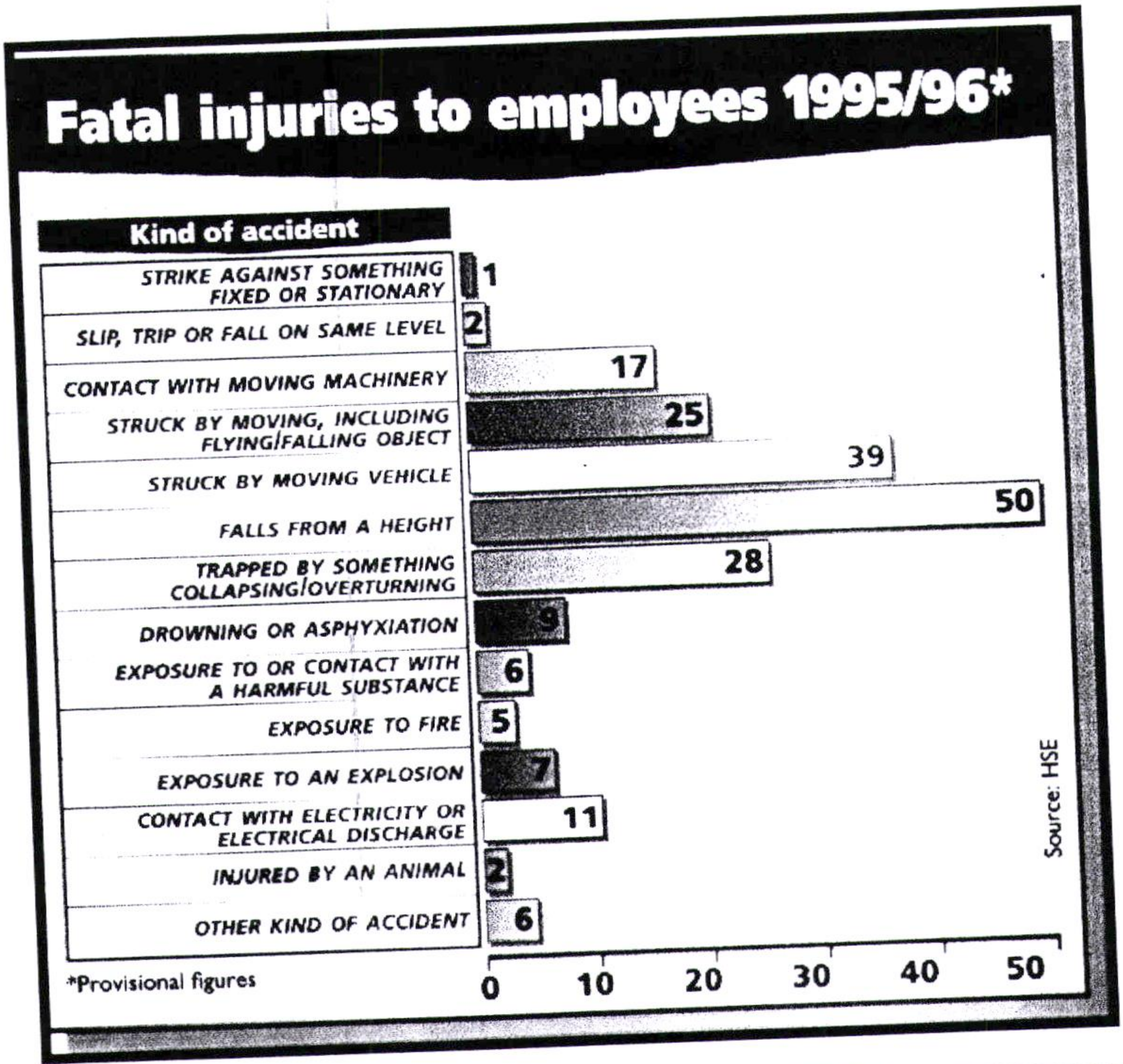
REPORTING OF INJURIES, DISEASES & DANGEROUS OCCURRENCES REGULATIONS 1995.

EMPLOYERS MUST ESTABLISH A SYSTEM WHEREBY EVERY ACCIDENT, NEAR MISS OR RELATED DISEASE CAN BE RECORDED.



ACCIDENT BOOK

SO USE IT



Injuries reported to enforcement authorities 1995 – 96*

Type of Injury	[illegible]	[illegible]	[illegible]	[illegible]
Fatal	206	48	[illegible]	[illegible]
Non-Fatal	16,406	[illegible]	[illegible]	[illegible]
Over 3 Day	[illegible]	[illegible]	[illegible]	[illegible]

SOURCE: HSC Annual Report

*provisional figures

REPORTING ACCIDENTS

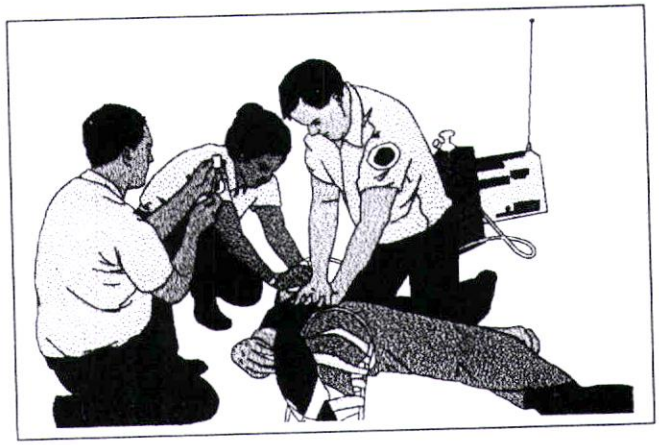
EMPLOYEES MUST REPORT CERTAIN INJURIES & INCIDENTS!

INJURIES

DEATH OF A PERSON
FRACTURED SKULL, SPINE OR PELVIS
FRACTURED BONE IN ARM / WRIST (NOT HAND)
FRACTURED BONE IN LEG / ANKLE (NOT FOOT)
AMPUTATION OF HAND, FOOT, FINGER, THUMB, TOE
LOSS OF SIGHT
INJURY RESULTING IN IMMEDIATE HOSPITALISATION FOR OVER 24 HOURS.

INCIDENTS

COLLAPSE OF SCAFFOLD OVER '5 METRES' HIGH
COLLAPSE OF WALL OR FLOOR



EMPLOYERS DUTY TO EMPLOYEES

SAFETY CLOTHING AND EQUIPMENT

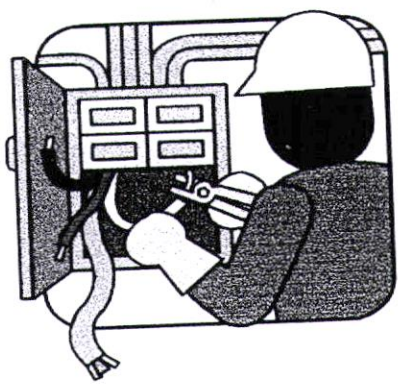
AN EMPLOYER MUST NOT CHARGE EMPLOYEES FOR SAFETY CLOTHING AND EQUIPMENT REQUIRED UNDER STATUTE

EMPLOYEES DUTY

CARE OF OWN SAFTY AND
THE SAFETY OF OTHERS WHO
MIGHT BE AFFECTED BY
ACTIONS OR OMISSIONS

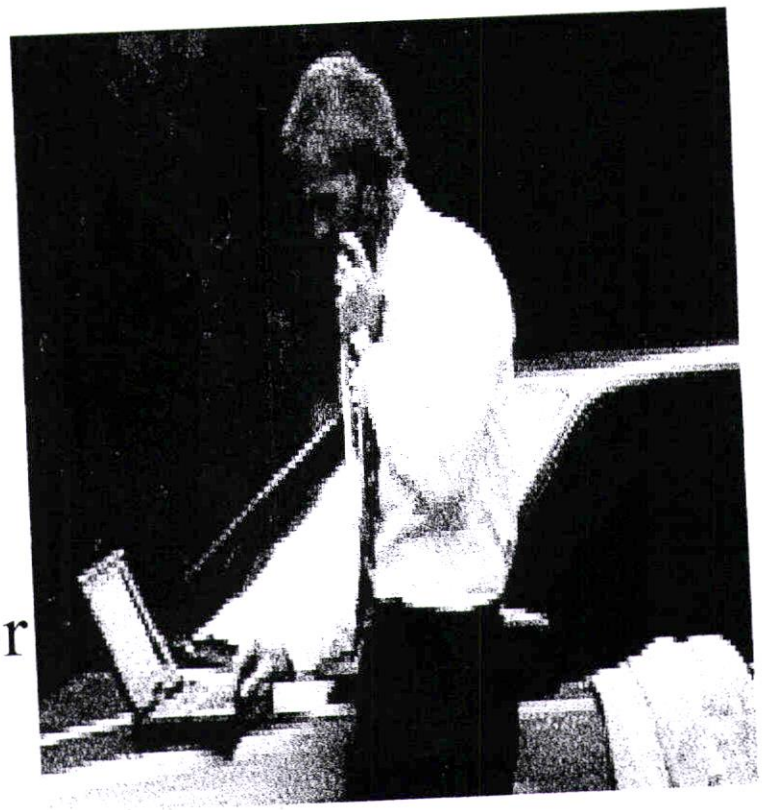
CO-OPERATE WITH EMPLOYER
IN DISCHARGING
STATUTORY OBLIGATIONS

NOT INTERFERE WITH OR
MISUSE EQUIPMENT
PROVIDED FOR SAFETY



POWERS OF THE INSPECTOR

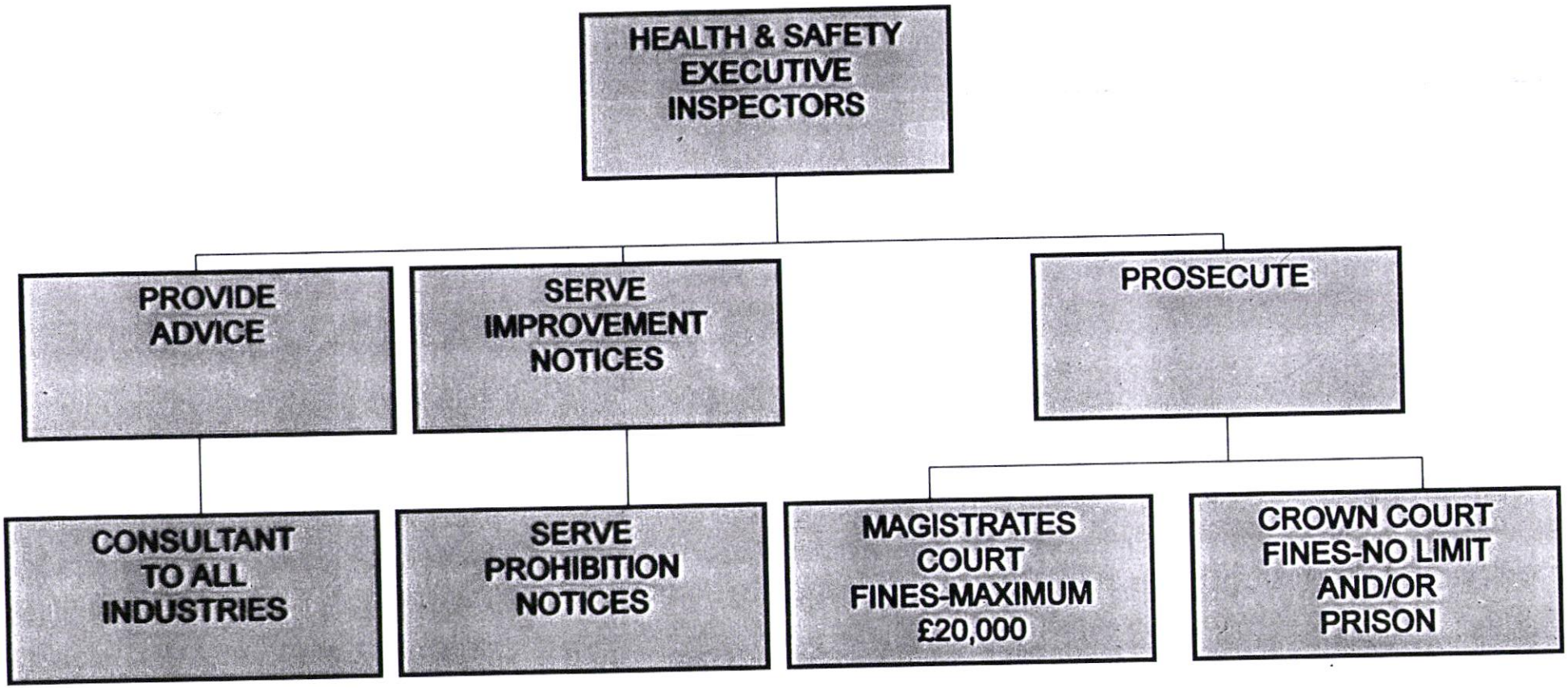
- Right of entry without appointment
- Right to investigate & examine
- Right to take photographs or samples or equipment
- Right to see documents & take copies



POWERS OF THE INSPECTOR

- Right to dismantle or take away substances
- Right to assistance
- Right to ask questions
- Right to seize articles or substances

RESPONSIBILITIES OF INSPECTORS



PASMA STANDARD COURSE

BASIC INFORMATION

WHY CHOOSE AN ALUMINIUM TOWER AS A WORKING TOOL

A) Economic reasons
B) Easy to use
C) Easy to move
D) Easy to dismantle

BEFORE CHOOSING AN ALUMINIUM TOWER WHAT SHOULD YOU TAKE INTO ACCOUNT

Site Conditions

A) Ground conditions
B) Site or road traffic
C) Site personnel or members of the public
D) Actual or possible wind conditions
E) Overhead hazards

Potholes, manholes, etc

Beaufort Scale
Electric cables

Suitability of Route

A) All of the above
B) Impeding access
C) Blocking doors
D) Fire and emergency routes

WHAT IS THE MAIN OVERHEAD HAZARD

Overhead cranes and changes in wind force are serious problems but the main hazard has to be ELECTRICITY/ OVERHEAD CABLES.

There is a Health & Safety Executive guidance note (GS6) that offers recommended clearances.

15 metres pilons

9metres electric cables

CONSIDER OBTAINING PERMISSION FROM THE ELECTRICITY AUTHORITY BEFORE ENTERING ANY SITE.

WIND CONDITIONS

Slide 26

The maximum recommended wind speed for a free standing tower is BEAUFORT 4 , this describes the wind as a moderate breeze with effect of Wind raising dust and loose paper, small branches move (speed 13-18 mph)

HD1004 Recommends

A)	at 17.2mph	Cease to work
B)	at 25mph	Tie tower in
C)	at 40mph	Dismantle tower

But some obvious advice, if you feel the wind conditions to be too windy to safely carry out your work. Stop and seek advice.

SO YOU ARE HAPPY WITH THE CONDITIONS, WHAT DO YOU NEED TO KNOW BEFORE ORDERING YOUR TOWER.

Platform Length	6ft,8ft,10ft
Platform Width	S/W or D/W
Platform Height	This determines the quantities of each component in accordance with legislation. Stabilisers/Outriggers Are used when frequent moving is required, however serious thought needs to be given to which you choose and you will see why later.

YOUR TOWER ARRIVES ON SITE, SO WHATS NEXT, WHATS THE NEXT THING YOU NEED TO DO

A) Ensure you have the manufacturers instruction manual (the supplier is obliged to supply one with every sale/hire)
B) Check the components are correct as per the delivery note
C) Check the quantity of the components against those stated in the instruction manual and free from damage, return or segregate any dam aged equipment.

REMEMBER YOUR EMPLOYER HAS A LEGAL RESPONSIBILITY FOR YOUR SAFETY, BUT SO DO YOU AND YOUR FELLOW EMPLOYEES.

ADVERSE WEATHER CONDITIONS

HIGH WINDS

WIND DESCRIP	BEAUFORT FORCE	SPEED (MPH)	VISIBLE INDICATIONS	ACTION REQ'D
Medium breeze	4	13-18	Raise dust & loose paper small branches move on trees.	Safe to work
Fresh Breeze	5	19-24	Small trees in leaf begin to sway.	Cease to work on tower
Strong Breeze	6	25-31	Large branches in motion umbrellas used with difficulty, telegraph wire	Ensure that tower is tied to a rigid structure
Gale Force	8	39-46	Twigs break off trees, progress generally impeded	Dismantle towers if storm forcast.

Consider wind speeds when working inside long open ended buildings, between buildings where a tunnel effect may be created or at the corner of a building

FOR THE AVOIDANCE OF DOUBT WE WILL NOW IDENTIFY THE COMPONENT PARTS OF MOBILE SCAFFOLD TOWER.

SLIDE 27 CASTORS, BASE PLATES, ADJUSTABLE LEGS, STABILISERS, OUTRIGGERS

SLIDE 28 DOUBLE / SINGLE WIDTH FRAMES

SLIDE 29 INTEGRAL, CLIP IN / EXTENDING LADDERS

SLIDE 30 DIAGONAL / HORIZONTAL BRACE

SLIDE 31 PLAIN / HATCH PLATFORMS

SLIDE 32 TOE BOARDS / HAND RAIL FRAMES

PASMA STANDARD COURSE

TOWER COMPONENTS

Castors

are not to be used on un-firm ground, always locked unless moving the tower, are available in differing sizes with different loading capacities accordingly. Usually stamped on side of housing.

Base Plates

are used when working on un-firm ground ie shale, grass, we would also recommend the use of sole pads with this item in such conditions.

Adjustable Legs

are designed to help in the levelling of the tower only, not as a means of gaining additional height. It is advised that one leg must always be fully retracted.
A quick release mechanism also helps make infinite adjustments.
Able to except both Castors or Base Plates.

Double Width Frames

Available traditionally in four standard sizes accepts two platforms side by side, one must be a Hatch Platform. Some systems have dedicated Base and Handrail frames.

Single Width Frames

As above but for one change, will only accept one platform at each level, must be all Hatch Platforms.

Integral Ladder Frames

Available in both Single and Double Width sizes with again four main standard heights, the ladders are built as an integral part of the framework thus making the climb a vertical one.

Horizontal Brace

Are the only brace having an identical length to the platform, have a locking mechanism at each end of the brace. Used both as hand rails and when basing the tower out. Should always face outwards.
May have distinct colour coding.

Diagonal Brace

2-3 inches longer than the above again having a locking mechanism at each end of the brace, Hooks Should always be facing to the ground whilst seated on the horizontals of the end frames. May have distinguishing colour coding.

PASMA STANDARD COURSE

Clip In Ladders

Available generally in one lift heights (6`6"), both as vertical or inclined, has three/four hooks on the ladders styles each having a locking mechanism.

45 Degree Stair Ladders

Used in conjunction with full hatch platforms.

16 Inclined Ladders

Similar method of use to clip in ladders, but allows greater distance between platform landings.

Standard Platforms

Units normally comprise a frame with a hook at each corner. Platform hooks locate over the horizontal members of the frames of the tower and are normally provided with locking mechanisms to prevent wind up lift.

Anti slip timber decking of approximately 600mm wide are provide a suitable working environment.

S.W.L. 225kgs generally but seek advice from supplier or instruction manual.

Hatch Platform

As the same as the Plain Platform , but having an Hinged hatch measuring approximately 600mm x 400mm.

Hinge must always face to the outside of the tower.

Full Hatch Platforms

Used for use in stairway type scaffold towers, accompanied by 45 degrees ladders. Must also have the hinge sited to the outside edge to en able access onto the working platform

Cannot use Full Hatch Platforms on Single Width Towers.

Toe Boards (Double/ Single Width)

Should be a minimum of 150mm high x the modular length of the scaffold tower , be fitted to all working platforms over 2mts unless the platform is a rest platform. Used to stop materials falling from heights.

Stabilisers

Increase the EFFECTIVE BASE DIMENSION of the tower and must always be fitted when required by the suppliers instructions manual, to obtain the maximum outreach the stabilisers bottom arm should rest in the horizontal position. Has a rubber foot pad which must always be in contact with the ground.

PASMA STANDARD COURSE

Clip In Ladders

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45 Degree Stair Ladders

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Standard Platforms

Units normally comprise a frame with a hook at each corner. Platform hooks locate over the horizontal members of the frames of the tower and are normally provided with locking mechanisms to prevent wind uplift. Anti slip timber decking of approximately 600mm wide are provide a suitable working environment.
S.W.L. 225kgs generally but seek advice from supplier or instruction manual.

Hatch Platform

As the same as the Plain Platform , but having an Hinged hatch measuring approximately 600mm x 400mm.
Hinge must always face to the outside of the tower.

Full Hatch Platforms

Used for use in stairway type scaffold towers, accompanied by 45 degrees ladders.

Toe Boards (Double/ Single Width)

Should be a minimum of 150mm high x the modular length of the scaffold tower , be fitted to all working platforms over 2mts unless the platform is a rest platform. Used to stop materials falling from heights.

Stabilisers

Increase the EFFECTIVE BASE DIMENSION of the tower and must always be fitted when required by the suppliers instructions manual, to obtain the maximum outreach the stabilisers bottom arm should rest in the

PASMA STANDARD COURSE

MAXIMUM DESIGN LOAD (MDL)

The MDL Maximum Design Load is provided for you by the manufacturer and can be found in your manufacturers instruction manual

It is calculated by their engineers and takes into account the horizontal pressures as well as the vertical loads

How ever you must remember to deduct the self weight of the tower if the MDL is shown as gross.

A typical MDL IS 750 KGS
We will use this for todays exercise.

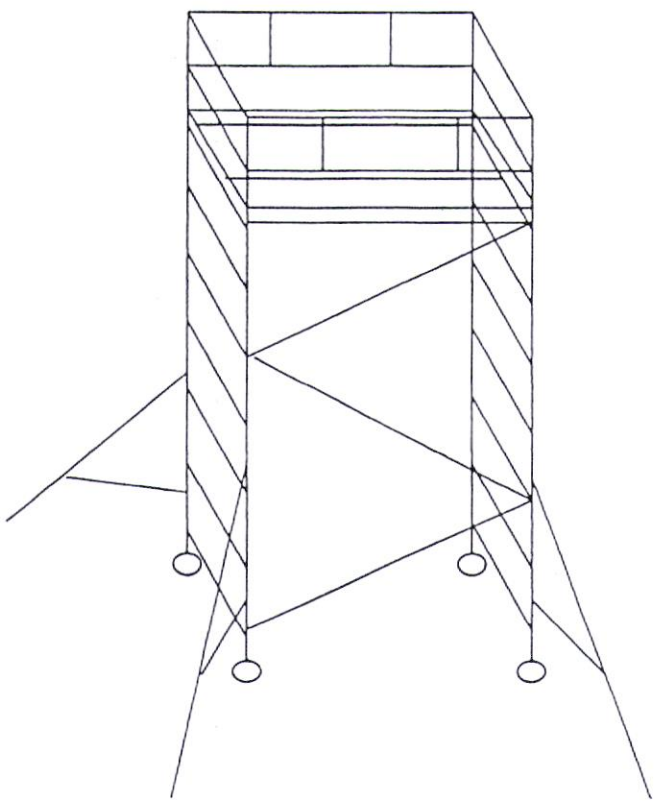
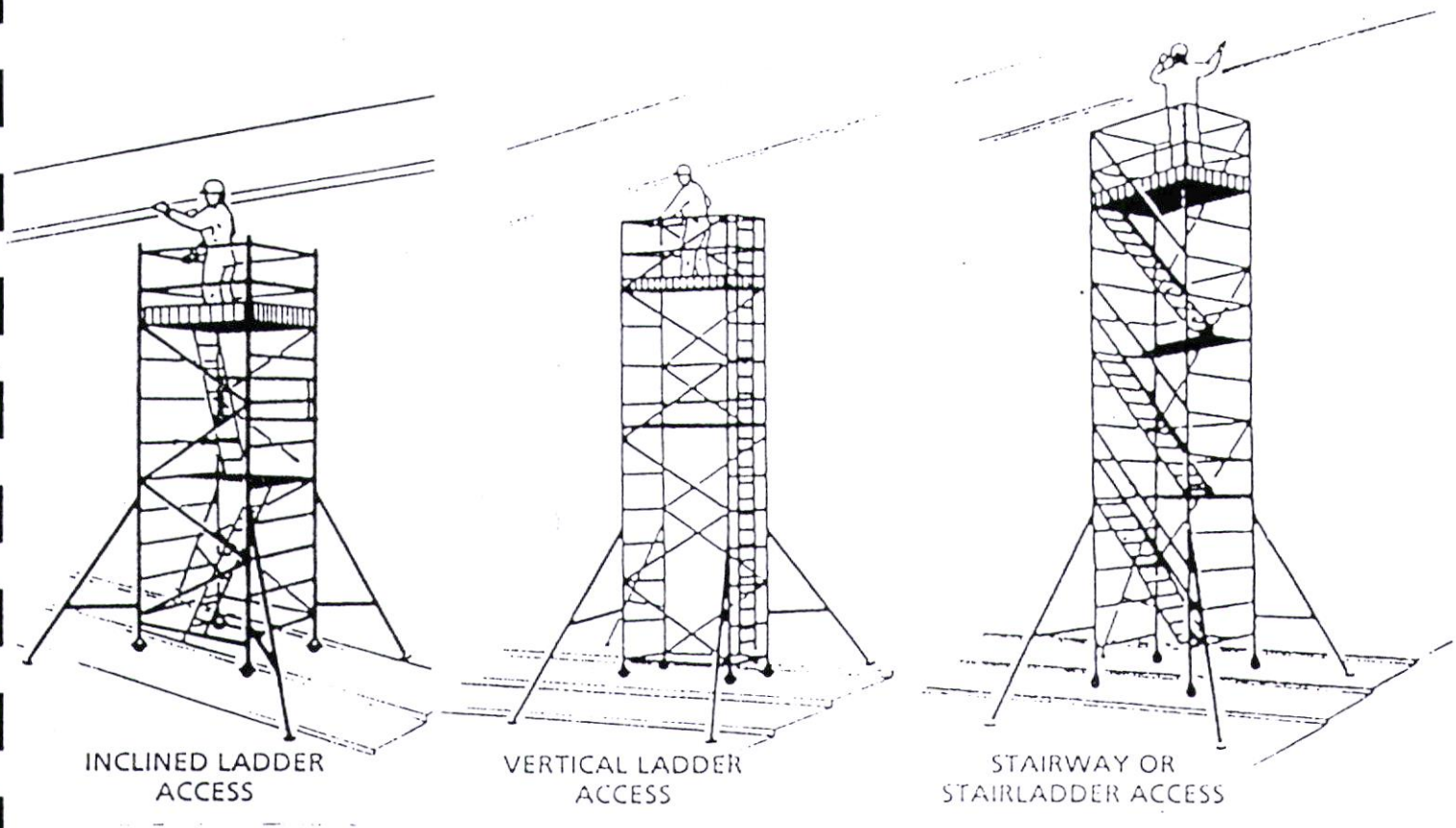


FIG. 1

THREE TYPICAL TYPES OF PREFABRICATED ALUMINIUM ALLOY TOWERS



STABILITY OF THE TOWER

To date we have mentioned events that would effect the stability of the structure, such as wind and ground conditions.

One main cause of instability in a tower is the lack of knowledge along with complacency.

There is a direct connection between the base dimension and the height of a tower. In particular the narrowest base dimension.
So how do we increase the base size, We use Stabilisers or Outriggers.

SLIDE 33 PLAN VIEW	No Stabilisers	Slide 33
SLIDE 34 PLAN VIEW	With Stabilisers/ Outriggers	Slide 34
SLIDE 35 PLAN VIEW	Shows Stabilisers / Outriggers correctly positioned up against a wall.	Slide 35 & 35a

Stabilisers shall always be fitted where specified, these increase the effected base area of the tower and increase its stability as a free standing structure. Best effect is obtained from the stabilisers when they are arranged in a foot as near as possible to a square. When using the tower against a strong wall they may be positioned as in slide 35, but the wall must be at least 2/3rds the height of the top working platform. Towers which are left unattended in exposed positions should be tied in to a rigid structure or alternatively dismantled.

Horizontal forces, such as that exerted against a tower during drilling into a wall face, can generate instability in the structure and must not exceed more than 20kgs. The tower should not be used as a means of access to any adjacent structure, Towers are not designed to be suspended.

WE WOULD ADVISE THAT A TOWER SHOULD BE TIED IN WHENEVER AND WHEREVER POSSIBLE.

THERE ARE THREE PHYSICAL FEATURES AFFECTING STABILITY OF A TOWER

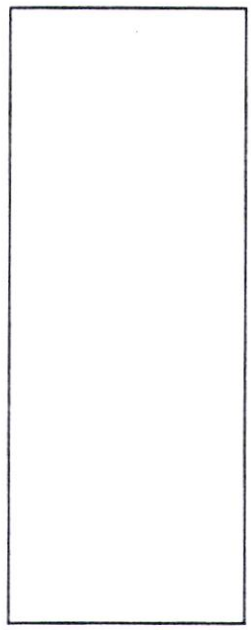
A) The narrowest Base Dimension
B) The Height
C) The Stabilisers

* It is no longer appropriate to apply the simple rule of thumb measure of height to base ratio (3 x height of minimum base dimension for external use or 3.5 for the internal use).

* To calculate maximum height you must always refer to the manufacturers assembly instructions.

*

Tower

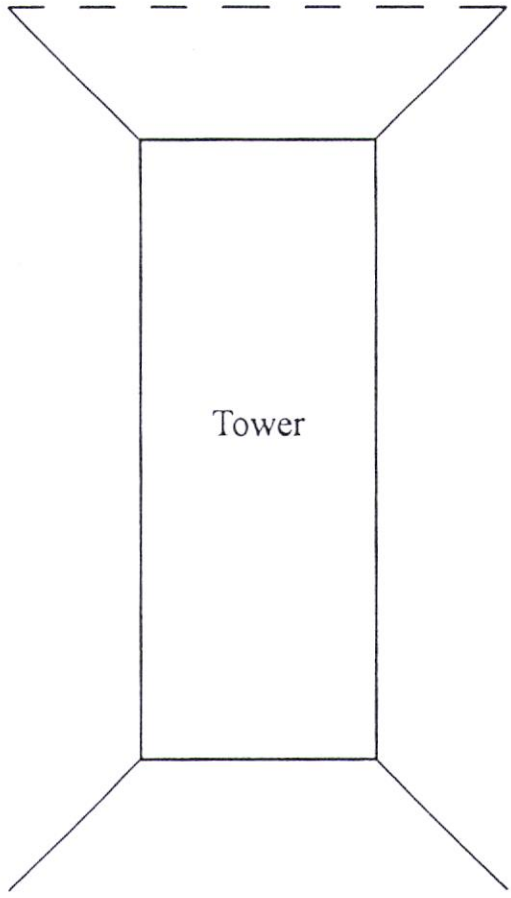


Tower without Stabilisers

* It is no longer appropriate to apply the simple rule of thumb measure of height to base ratio (3 x height of minimum base dimension for external use or 3.5 for the internal use).

* To calculate maximum height you must always refer to the manufacturers assembly instructions.

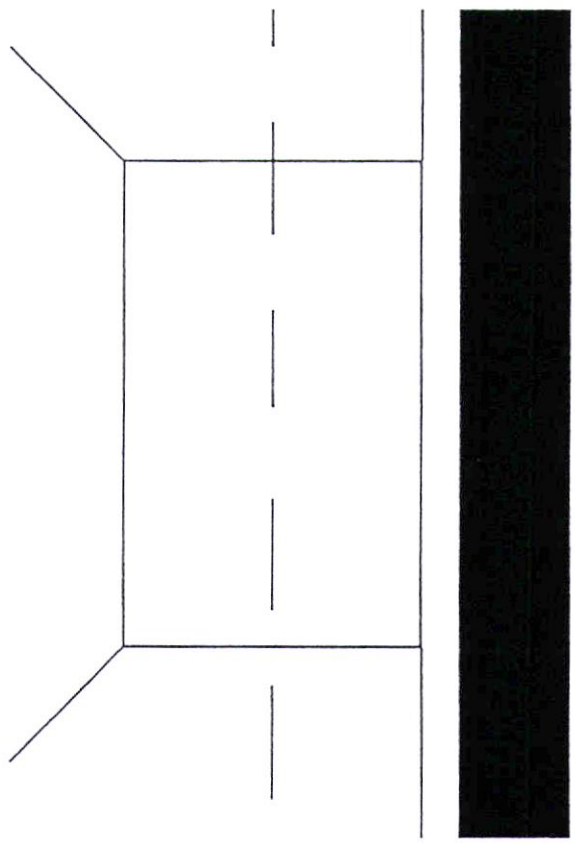
* However, as a general rule, stabilisers or outriggers will required after the first lift.



Tower with Stabilisers

STABILISERS

* Make sure the tower is no more than 2/3rds the height of the wall
* Measure from the most extreme point (end of the stabiliser) to the centre of the scaffold.
* Times by 2 to establish permisible height of the tower.



PASMA STANDARD COURSE

TOWER ERECTION PROCEDURE

These instructions have been designed, in accordance with European Standard EN 1298-1M-en, providing the tower user with systematic instructions to ensure that the tower supplied will be erected and used with MAXIMUM of ease and safety.

SAFETY NOTES

A) Minimum of two operatives are required to erect the tower

B) Refer to the manufacturers instructions manual for the maximum design loads, safe tower erection procedure and component quantities.

C) Temporary means of gaining additional height e.g. Stepladders or Trestles placed on the top of the working platform must not be used.

D) Access to or from the working platform must be gained only via the ladder access provided. In all cases the user must climb within the structure of the tower– never by climbing the outer face of the tower.

E) Tower components must be raised/lowered in a controlled manner, never thrown or dropped. If using a rope, a reliable knot should be employed.

F) Where restricted ground space prohibits the attachment of stabilisers physical ties or ballast weights must be employed– in such circumstances the supplier should be consulted for guidance.

IT IS VITAL TO HAVE THE MANUFACTURERS INSTRUCTION MANUAL TO HAND THROUGHOUT THE ERECTION PROCEDURE. THIS WILL INFORM THE ERECTORS OF THE COMPONENTS REQUIRED AND ADVISE WHEN THE TOWER CEASES TO BE FREE STANDING AND REQUIRES TO BE TIED IN TO A SECURE STRUCTURE

IF YOU CANNOT DO WHAT IS DICTATED BY THE SAFETY CONSIDERATIONS WHEN ABOUT TO ASSEMBLE A TOWER , DO NOT DO SO UNTIL YOU HAVE SOUGHT ADVICE FROM YOUR EMPLOYEE.

PASMA STANDARD COURSE

TOWER ERECTION PROCEDURE

Step 1

Identify which of the three variations of ladder access have been supplied with your tower equipment LADDER FRAME, CLIP IN LADDERS or EXTENSION LADDERS.

Step 2

Insert castor/adjustable leg assemblies into the base of one of one the ladder frame and one standard frame, allowing approximately 75mm of extended leg for levelling. Press down firmly on braking mechanism to lock castors.

The only time that castors may used in the unlocked position is when the tower is being moved.

Step 3

Fit horizontal (short) brace on to the vertical member of one frame, rest ing directly on the casting at the first horizontal rung position. Ensure that the spring trigger faces to the outside of the tower.

Step 4

Join second base frame to first ensuring brace hook again rests directly onto the casting directly opposite, Level around the base of the tower by moving a spirit level in sequence, around the three positions making adjustments as you do.

Step 5

Fit diagonal (longer) brace in cross formation from 1st to 3rd horizontal rungs.

Single width towers require only a single diagonal brace to each face of the tower, these should be fitted in the opposite directions.

Step 6

Fit stabilisers to each corner of the tower. Maximum effect is gained from the stabilisers if the bottom arm is positioned horizontally against the frames.

Telescopic and semi-jumbo stabilisers are designed to be used fully ex tended.

Locate temporary platform.

Stabilisers should be fitted as soon as sufficient height has been achieved (usually 2 metres)

Step 7

Fit additional frames, ensuring that all the four interlocking clips are engaged.

Step 8

Double width towers – fit a pair of diagonal braces to each face of the tower, 1st to 3rd horizontal rung. Single width towers – fit a single diagonal brace to each face of the tower, in opposing directions, 1st to 3rd horizontal rung.

Step 9

Move temporary platform to a convenient height. Fit one standard and one hatch to the top rung, hatch directly above the ladder section such that the hatch opens outwards (hinges on the outer face of the tower). Single width towers – only hatch platforms may be used.

Step 10

Fit a guard-rail or three rung frame to each end of the tower and engage the interlock clips, Add two horizontal braces (or gate frame) unit to each face of the tower, hooks facing outwards. Fit toe board set around plat form.
Mandatory requirement for all working platforms over TWO METRES.

n.b. MAXIMUM PERMITTED DISTANCE BETWEEN GUARD RAILS IS 470MM (18.5INCHES)

Step 11

Where a rest platform is required, it is advisable to reverse the ladder frames to prevent continuos ascent / descent, Rest platforms over two metres high must have double side handrails to both faces.
BS 1139 AND HD1004 BOTH REQUIRE THAT THE MAXIMUM DISTANCE BETWEEN PLATFORMS IS 4 METRES.

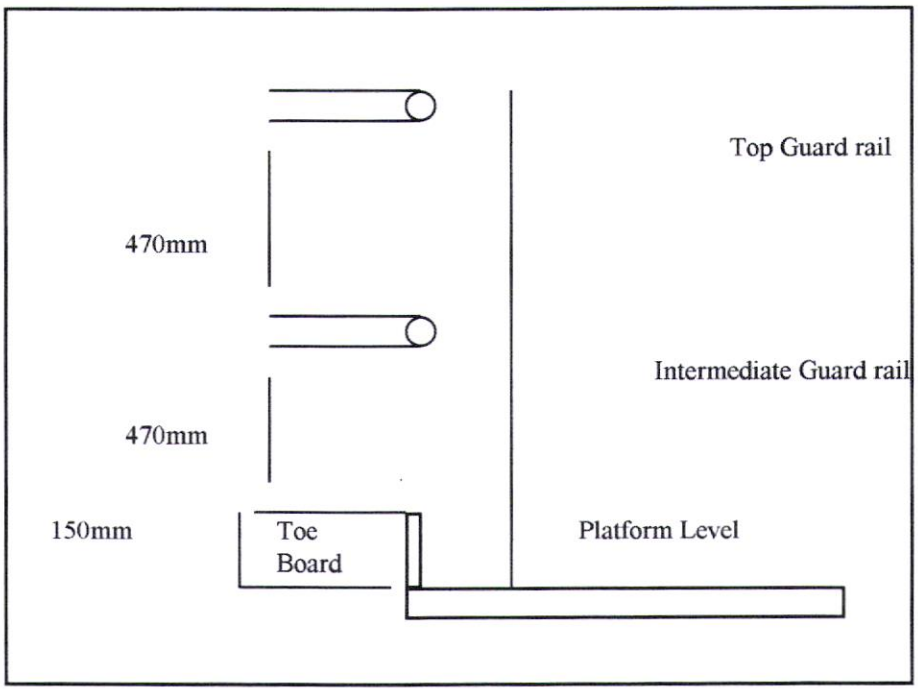
BS 1139 REQUIRES THAT THE MINIMUM HEIGHT OF A MAIN GUARD RAIL ABOVE THE PLATFORM IS 970MM +/- 50MM.

Explain difference between HD 1004 and C(H,S &W) Regs

Re distance between platforms etc.

PASMA STANDARD COURSE

Guard Rail Height



The Construction (Health, Safety & Welfare) Regulations 1996

Regulation 6 – falls

Suitable & Sufficent steps shall be taken to prevent, so far as is rea sonable practicable, any person from falling.

Risk of fall of 2m or above

600mm Wide working platform
Guard rail at least 1000mm =/- 50mm
No gap greater than 470mm
Toe boards 150mm high

LADDER OPTIONS

EXTENDING LADDER OPTION

Step A

Using standard frames only follow LADDER FRAME tower instructions to step 8. Install extending ladder .

Step B

Place platforms with hatch directly over the ladder, hinges to outer face

Step C

Fit guard rails and toe boards as at step 10

Step D

Extending ladders can be complemented with clip in ladders with clip in ladder in base.

CLIP IN LADDER OPTION

Step A1

Using standard frames only follow Ladder frame tower to step 5. Place standard platform on top rung, Add stabilisers at this point.

Step B1

Add frames ensuring interlocking clips are in placed side hand rail unit, positioned as described at step 11.

Step C1

Add diagonal bracing, fix clip in ladder to top rung of frame.

Step D1

Add platforms, hatch directly above ladder, hinges to outer face of tower.

Step E1

Fit guard rails and toe boards as step 10.

PASMA STANDARD COURSE

TYING IN THE TOWER

You should tie in a tower whenever and wherever possible

The tower we have discussed throughout this course are designed for use as free standing units up to heights of 8metres OUTDOORS and 12metres INDOORS Towers in excess of these heights, where the optimum base dimension cannot be achieved, will need to be tied to a secure structure. Special couplers, which will accommodate differing diameters of scaffold tube and alloy tube, are available from your supplier.

The next three diagrams show typical ties, ie RING BOLT, THROUGH TIE and RING ANCHOR. Manufacturers instructions should be followed where anchor bolts are to be used.

Of all the ties available one tie has only 50% effectiveness, this is known as the REVEAL TIE. Therefore no more than 50% of the ties used can be reveals.

A word of warning, using rope to tie in is not acceptable, nor is tying to gutters or down spouts, they are not secure structures.

PASMA STANDARD COURSE

MOVING THE TOWER

Moving the tower is a serious business, the risk of overturn is at its greatest.

Never use mechanical means to lift tower and reposition (ie dock yards)

Ensure that sufficient manpower is available to move the tower (MINIMUM OF TWO PERSONS)

Check that the route to be followed is free of ground or overhead obstructions e.g. Roof Trusses, Electricity Cables, raised manholes/ gratings etc.

The tower shall be moved only by Manual Pushing. At or near to its base NEVER BY MECHANICAL MEANS such as a fork lift etc.

Neither men or materials should be present on the tower while it is being moved.

Lift stabilisers 12mm off the ground. Great care must be taken when moving a tower over uneven ground. Stabilisers should be raised a mini mum amount to clear ground obstructions.

The tower must be reduced to point where the tower becomes free standing, progressively removing all ties.

Remove all ties

Unlock castors

Having re-sited the tower, remember to check the alignment vertical and in both planes to ensure that it is still level in both planes.

Check that the stabilisers positions are unaltered, and that all four are still in contact with the ground (particularly those that run parallel to the buildings.)

Only time to be in unlock position

Ensure that the castors are re-locked and that the frames interlocking clips are still engaged

Remember to tie in again if the tower was tied in before. If it was not it may now need to be.

Check that no environmental changes influence the safe use of the tower.

WIND CONDITIONS HAVE CONSIDERABLE BEARING ON THE SAFE USE OF THE TOWER.

Due care and attention must be paid to certain circumstances where wind conditions are magnified e.g. in long open ended buildings, between buildings where the wind may have a funnelling effect. Or where the tower is positioned close to the corner of a building.

NEVER ATTACH TARPAULINS OR OTHER COVERING TO A MOBILE TOWER WITHOUT FIRST CONSULTING YOUR SUPPLIERS ADVICE.

PASMA STANDARD COURSE

TOWERS IN PUBLIC PLACES

When towers are left in public places, or where vandals can gain access to the towers, it is advisable to provide security fencing around the tower base to a suitable height to prevent access, and tie in whenever possible.

In certain locations, a pavement licence may be required from the local authority, which may impose special conditions such as the use of pavement frames, lighting, etc.

PASMA STANDARD COURSE

INSPECTION OF ALUMINIUM TOWERS

The person who produced the Construction (Health, Safety & Welfare) Regulations 1996, were mindful that towers are frequently used for a very short duration of time at any particular position on a site. They therefore incorporated under Report 30 (b) a dispensation that " Nothing in this Regulation shall require a report to be prepared in respect of any Mobile Tower Scaffold unless it remains erected in the same place for a period of seven days or more", or if a person cannot fall more than 2 metres.

Or if a person cannot fall more than 2 metres.

Whilst if moved or dismantled before seven days this absolves the person assembling the tower of the need to produce a report at the time of assembly. If it will be or does remain in the same place for seven days or more, then a report is necessary both at the time of assembly and within seven days of assembly. Aluminium towers are so easy to erect and so versatile they are increasingly being used where a conventional tubular scaffold or a system scaffold would have been used and are now more frequently used in the same position for seven days of more.

The particulars to be included in a report of inspection are as follows

SCHEDULE 8 – REGULATION 30

1 Name and address of person on whose behalf the inspection was carried out.
2 Location of the place of work inspected.
3 Description of the place of work or part of that place inspected (including any plant and equipment and materials, if any.
4 Date and time of inspection.
5 Details of any matter identified that could give rise to Health or Safety of any person.
6 Details of any action taken as a result of any matter identified in paragraph 5 above.
7 Details of any further action considered necessary.
8 Name and position of the person making the report

The proprietary SCAFFTAG SYSTEM has much to commend it when meeting and reporting safety requirements on Mobile Access Towers.

If you are assembling the tower for a third party, it is necessary to provide a METHOD STATEMENT. This sets out your responsibilities to a third party, his responsibilities, and points out potential hazards. A handing over certificate and an inspection report may be required.

PASMA STANDARD COURSE

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INCOMPLETE

PASMA STANDARD COURSE

CARE AND MAINTENANCE

Those responsible for the care and maintenance of prefabricated towers should regularly check the components for damage, rivets, joints and locking devices.

Any defects should be made good before the component is used further. Very few parts in prefabricated towers need lubrication but if the supplier recommends it, the mechanism for locking hooks, adjustable legs and castors should be lubricated with a suitable lubricant.

REPAIRS

REPAIRS SHOULD ONLY BE CARRIED OUT BY THE SUPPLIER OR OTHER COMPETENT PERSONS APPROVED BY THE SUPPLIER.

Platforms and other items should not be painted in such a manor as may conceal any defects, Any instruction signs must be checked and replaced as necessary.

HANDLING AND STORAGE

The life of prefabricated towers will be increased if proper care is taken of them during handling, erection, transportation and storage. Before storage components should be cleaned. Any unwanted substances should be removed.

Proper stacking will reduce any damage, and will make identification of the components easier for re-issue.

Similarly, during transportation equipment should be properly stacked on vehicles Space can be saved by systematically placing braces, platforms, stairways etc in available space within vertically stacked frames.

PASMA STANDARD COURSE

Handout question paper to each candidate.

Explain that pass mark required is 26 out of 30 (88%)

Any person having difficulties with any question to ask for assistance.

Exam is testing individuals ability therefore no conferring allowed, how ever candidates may refer to course notes.

Mark test papers in presence of candidates discussing any discrepancies.

Issue successful candidates with PASMA CODE OF PRACTICE.

Attain signatures for course notes handed out together with any additional information.

Work one to c
if / where
necessary

QUESTION

1. What is the definition of a competent person given by the Construction (Health, Safety & Welfare) Regulations 1996?

2. What vital document must you be in possession of when erecting a Mobile Aluminium Tower?

3. When you have established the Height, cross sectional area and MD (SWL) capacity of the Mobile Aluminium Tower, how do you establish the components you require?

4. How do you establish at what height a Mobile Aluminum Tower must be tied in?

5. When should you inspect the components?

6. Guardrails and toeboards are required on a working platform if a person can otherwise fall a certain height, what is that height?

7. Why are guardrails and toeboards required?

8. What exception to the above rule, with regard to toeboards, is there?

9. When should a Mobile Aluminium Tower be tied into a rigid structure?

10. What are two important factors (other than wind and ground conditions) that affect the stability of a Mobile Aluminium Tower?

11. At what stage would you fit the stabilisers/outriggers?

ANSWER

QUESTION

12. When moving a Mobile Aluminium Tower fitted with stabilisers, what height should the stabiliser feet be from the ground?

13. When moving a Mobile Aluminium Tower, where should the physical effort be applied?

14. What is the only way to climb a Mobile Aluminium Tower?

15. Under BS 1139 what is the maximum height between platforms?

16. What is a typical maximum designed load capacity (SWL) of a Mobile Aluminium Tower?

17. How many guardrails are required on each side of the working platform?

18. What is the maximum unprotected gap permissible by the Construction (Health, Safety & Welfare) Regulations 1996 between any guardrails, toeboards, barrier or other similar means of protection?

19. What is the height of a main guardrail above the edge of the platform as required by BS 1139?

20. When moving or assembling a Mobile Aluminium Tower, what major overhead hazard should you be aware of?

21. What two things should not be on a tower when it is being moved?

22. When fitting a full hatch platform to a Mobile Aluminium Tower, where should the hinge be sited?

ANSWER

QUESTION

23. After fitting one frame onto another, what is the next thing you must do

24. What type of coupler must not be used on PASMA type Mobile Aluminium Towers.

25. What is the maximum wind condition suitable for working on a Mobile Aluminium Tower?

26. If you need to gain additional height to work, how should you achieve it?

27. When is the only occasion that castors may be left in the unlocked condition?

28. Your employers has legal responsibilities relative to safety, who else may be held legally responsible if an accident occurs.

29. What is the overriding general principal you must abide by when about to assemble a Mobile Aluminium Tower.

30. When should an inspection report be made on the Mobile Aluminium Tower, from which some one can fall 2 metres or more if it remains in the same place for a period of 7 days or longer.
    a) Before being taken into use for the first time.
    b) After any substantial addition, dismantling or other alteration.
    c) After any event likely to have affected its strength or stability.
    d) At regular intervals not exceeding 7 days since the last inspection.
    e) All of the above.

ANSWER

QUESTION	ANSWER
1. What is the definition of a competent person given by the Construction (Health, Safety & Welfare) Regulations 1996?	The operator is required to possess such training, knowledge or experience as may be appropriate having regard to the nature of the activity, or to be supervised by such a person.
2. What vital document must you be in possession of when erecting a Mobile Aluminium Tower?	Instruction Manual
3. When you have established the Height, cross sectional area and MD (SWL) capacity of the Mobile Aluminium Tower, how do you establish the components you require?	By referring to the Instruction Manual
4. How do you establish at what height a Mobile Aluminum Tower must be tied in?	By referring to the Instruction Manual.
5. When should you inspect the components?	Before assembling the Mobile Aluminium Tower.
6. Guardrails and toeboards are required on a working platform if a person can otherwise fall a certain height, what is that height?	2 metres and above
7. Why are guardrails and toeboards required?	To prevent persons or materials falling from the platform.
8. What exception to the above rule, with regard to toeboards, is there?	If the platform is not a working platform and if nothing is stored on it then no toeboards are necessary.
9. When should a Mobile Aluminium Tower be tied into a rigid structure?	On every possible occasion.
10. What are two important factors (other than wind and ground conditions) that affect the stability of a Mobile Aluminium Tower?	The narrowest base dimension, the height or stabilisers.
11. At what stage would you fit the stabilisers/outriggers?	As soon as sufficient height of Mobile Aluminium Tower has been built, usually 2 metres.

QUESTION	ANSWER
12. When moving a Mobile Aluminium Tower fitted with stabilisers, what height should the stabiliser feet be from the ground?	12mm (1/2 inch)
13. When moving a Mobile Aluminium Tower, where should the physical effort be applied?	By pushing at the base (physical effort only). No mechanical means to be used.
14. What is the only way to climb a Mobile Aluminium Tower?	Using the method provided inside the Mobile Aluminium Tower. You should never climb outside the tower.
15. Under BS 1139 what is the maximum height between platforms?	4 metres
16. What is a typical maximum designed load capacity (SWL) of a Mobile Aluminium Tower?	750 Kg U.D.L.
17. How many guardrails are required on each side of the working platform?	Two
18. What is the maximum unprotected gap permissible by the Construction (Health, Safety & Welfare) Regulations 1996 between any guardrails, toeboards, barrier or other similar means of protection?	470mm (18.5 inches).
19. What is the height of a main guardrail above the edge of the platform as required by BS 1139?	1 metre plus or minus 50mm
20. When moving or assembling a Mobile Aluminium Tower, what major overhead hazard should you be aware of?	Electricity Cables
21. What two things should not be on a tower when it is being moved?	Men and Materials.
22. When fitting a full hatch platform to a Mobile Aluminium Tower, where should the hinge be sited?	On the outboard side of the tower.

QUESTION	ANSWER
23. After fitting one frame onto another, what is the next thing you must do	Ensure the locking mechanism has engaged.
24. What type of coupler must not be used on PASMA type Mobile Aluminium Towers.	Conventional scaffold couplers i.e. 29/32 inches (48.4mm) OD.
25. What is the maximum wind condition suitable for working on a Mobile Aluminium Tower?	Beaufort Scale 4 i.e. 17.2 mph
26. If you need to gain additional height to work, how should you achieve it?	Use additional equipment.
27. When is the only occasion that castors may be left in the unlocked condition?	Whilst moving the Mobile Aluminium Tower.
28. Your employers has legal responsibilities relative to safety, who else may be held legally responsible if an accident occurs.	You and your fellow employees.
29. What is the overriding general principal you must abide by when about to assemble a Mobile Aluminium Tower.	If you cannot do what is dictated by safety considerations when about to assemble a tower, do not do the job until you have sought advice from your employer.
30. When should an inspection report be made on the Mobile Aluminium Tower, from which some one can fall 2 metres or more if it remains in the same place for a period of 7 days or longer. a) Before being taken into use for the first time. b) After any substantial addition, dismantling or other alteration. c) After any event likely to have affected its strength or stability. d) At regular intervals not exceeding 7 days since the last inspection. e) All of the above.	Item (e). All of these.