

Mobile Elevated Work Platforms



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OVERVIEW

Mobile elevating work platforms (MEWP) have inherent safety hazards and raise serious concerns during operation. Yale University's intent is to require training for those authorized in all types of elevated work platform lift operations to assure that operators have a basic understanding of related hazards and safe operation of the specific equipment used by all faculty, staff and students.

SCOPE & APPLICABILITY

Yale Environmental Health and Safety (EHS) developed this Program to establish guidelines for the maintenance, safe operation and use of MEWP equipment at Yale University. Examples of MEWP's are shown in Appendix A.

This Program is intended to comply with the OSHA standard contained in 29 CFR 1910.67 and ANSI A92 for elevated work platforms.

DEFINITIONS

Active Fall Protection: An appropriate full-body safety harness with lanyard attached to an appropriate anchor point as required by the MEWP manufacturer.

Auxiliary Controls: Operating controls located on the base of the unit which can be switched to override the basket or platform control during an emergency.

Boom: An elevating member, the lower end of which is so attached to a rotating or non-rotating base that permits elevation of the free end in the vertical plane.

Counterweight: The rear section or area of the lift which is usually made of solid steel, and/or combination of steel and the weight of the battery on electric lifts, that counterbalances the boom leverage and basket load.

Data Plate: Manufacturer's equipment specification and information data, which includes basket load rating/lift capacity, lift heights, vehicle weight, and vehicle attachments. This plate is required to be affixed to all MEWP lift equipment. This is the vehicle operator's primary source of basic information about their vehicle for safe-work and use planning.

Emergency Lowering Means: Any elevating work platform equipped with a powered elevating assembly, and having a platform height exceeding 60 inches, must be supplied with safe means of lowering the basket or platform during an emergency or malfunction.

Guard Rails: Railing around the perimeter of the work platform. This railing consists of a top rail between 39" – 45" with a mid-rail.

Mast: Part of the lifting mechanism to which the hydraulic lift cylinder or worm drive is attached that supports the basket as it is lifted and lowered.

MEWP: Acronym for Mobile Elevating Work Platform. Examples of MEWP's are shown in Appendix A.

Normal Controls: Operating controls located on the basket or work platform of the unit. These controls can only be overridden with the operator's permission or in case of an emergency.

Out Riggers: Extendable legs that are either manually set in place or, in some cases, hydraulically extended to give added stability to the unit base.

Occupants: An Occupant is anyone in the MEWP platform who is not an Operator. Occupants must receive training on fall protection systems and what to do if the Operator can no longer operate the lift.

Platform: Any personnel carrying device (bucket, basket, cage, stand, tub, or equivalent) which is a component of a MEWP.

Responsible Person: Someone who selects/procures MEWP's and/or assigns work to equipment operators. This person might be an operator's supervisor.

RESPONSIBILITIES

DEPARTMENTS

- Designate individuals as the Responsible Person for the implementation of this program within their work area.
- Ensure adequate funding is available to support this program.

RESPONSIBLE PERSON

- Ensure that responsibilities assigned within this program are carried out within their administrative work area.
- Understand proper MEWP selection, use, hazard identification and methods of mitigating hazards.
- Actively support this program as part of the work area's overall safety effort.
- Be thoroughly informed of the contents of this program and its application to their areas of responsibility and authority.
- Ensure equipment operators comply with all provisions of this program.
- Ensure equipment operators receive training certification/retraining appropriate to their assigned tasks and maintain documentation of such training.
- Ensure equipment operators are provided with and use appropriate protective equipment.
- Take prompt corrective action when unsafe conditions or practices are observed.
- Investigate injuries and incidents within their work unit related MEWP usage.
- Ensure the equipment is inspected by a qualified person annually and prior to use.

EQUIPMENT OPERATORS

- Attend all training required by this program. This includes certification from EHS prior to operating equipment and renewal every three years. Certification is specific to the group and type of the lift.
- Develop a site risk assessment and rescue plan prior to equipment use.
- Ensure occupants have a basic level of knowledge on how to work safely in the equipment and emergency procedures.
- Inspect equipment prior to use. A MEWP inspection form is provided in Appendix D.
- Immediately report any unsafe conditions or concerns related to the equipment to their Responsible Person.

CONTRACTORS/VENDORS

- Follow all applicable OSHA regulations, consensus standards such as ANSI, and manufacturer instructions.
- Coordinate all MEWP operations with relevant Departments.
- Obtain approval from relevant Departments to used Yale owned equipment.

ENVIRONMENTAL HEALTH AND SAFETY (EHS)

- Assist work units in implementing the provisions of this program.
- Periodically review and update this program.
- Communicate program changes, objectives and requirements to all departments impacted by this program.
- Develop and update training content as needed.
- Maintain equipment operator training records.
- Conduct “hands on” field training and assessment of Operator trainees.
- Periodically evaluate the overall effectiveness of this program.


SITE RISK ASSESSMENTS

All MEWP operators and those who occasionally rent MEWP equipment, must develop a site risk assessment. An effective site risk assessment should:

- Include a description of the job, location and time frame
- Identify risks related to using the MEWP or other equipment, and any hazardous materials
- List which workers have received training
- Include measures to prevent unauthorized use of a MEWP
- Describe safe work procedures and safety measures
- Be completed before work begins
- Be used to select the best MEWP for the job
- Be shared with everyone on the work site

A sample site risk assessment is provided in Appendix B. The assessment process is summarized in the following illustration.

How to Perform a Site Risk Assessment*

<p>01 Define the work.</p>	<ul style="list-style-type: none"> • Task: What specific tasks do you need to do to complete the job? • Location: Where will you be working? Will you need to transport machines? 	<ul style="list-style-type: none"> • Timing: When does the work need to be finished? Are there times of day you can't work?
<p>02 Select a MEWP.</p>		<ul style="list-style-type: none"> • Boom Lift • Scissor Lift • Vertical Lift
<p>03 Evaluate risks.</p>	<ul style="list-style-type: none"> • MEWP-related: Working at height, staying within rated capacity • Job-specific: Avoiding power lines, accessing hard-to-reach areas 	<ul style="list-style-type: none"> • Additional: Keeping workers on the ground safe, preventing unauthorized use of equipment
<p>04 Identify controls.</p>	<ul style="list-style-type: none"> • Safe work procedures: Use correct PPE, ensure understanding of fall arrest systems • Proper training: For operators, occupants, supervisors and maintenance personnel 	<ul style="list-style-type: none"> • Smart scheduling: Organize the work in ways that minimize exposure to hazards • Rescue planning: May include self-rescue, assisted rescue and/or technical rescue
<p>05 Communicate.</p>	<ul style="list-style-type: none"> • Operator is trained and authorized to operate the MEWP • Occupant has basic knowledge of MEWP use and safety 	<ul style="list-style-type: none"> • Supervisor monitors use of MEWP to ensure safety plan is followed • Technician performs MEWP maintenance in line with manufacturer's requirements

*The steps listed above are several of the necessary steps when performing a site risk assessment. Consult your site supervisor for a full list of required steps.

Credit: <https://www.jlg.com/en/destination/ansi/safe-use>

RESCUE PLAN

Emergencies during the use of a MEWP can have catastrophic consequences for the operator and potentially persons near the equipment. A rescue plan identifies several options that should be considered in a logical order depending on the seriousness of the situation that has arisen. The plan must provide for prompt rescue, be in writing and shared with everyone involved. It is vital that everyone involved in the rescue plan is aware of their responsibilities and involvement for each stage of the planning and execution of the rescue plan. See Appendix C for an example plan.

Scenarios to consider when planning include:

- A suspended equipment operator after falling out/off the MEWP platform.
- The entanglement of the platform.
- The platform/equipment malfunctions in an elevated position.

Normal and auxiliary control systems built into a MEWP will allow the operator or a person using the ground controls to bring the elevated platform safely to the ground. The equipment operator must reference the manufacturer's manual and be thoroughly familiar with these systems.

The normal controls should be employed before attempt to use auxiliary controls in an emergency. Auxiliary controls may induce a slower platform movement and impede the speed of any rescue.

Qualified persons should be identified for each of the different stages of the planning and rescue procedures. This may include briefing a designated person who remains at the ground level and within sight of the operator, to be able to lower the platform using the auxiliary controls to lower the platform if needed.

EMPLOYEE QUALIFICATIONS AND TRAINING

Each operator must successfully complete general safety training prior to using MEWP equipment. This training is typically offered in a classroom setting. The “hands-on” training is conducted using representative MEWP equipment under the direct supervision of the EHS trainer, and/or their designee, who has the knowledge, training, and experience to train MEWP operators and evaluate their competency. Field training using MEWP equipment includes demonstrations performed by the trainer, practical exercises performed by the trainee and observations by the trainer.







Operators may only use the MEWP equipment type they have been trained and certified to operate, or when under the direct supervision of persons who have the knowledge, training, and experience to train operators and evaluate their competence “in the field”. Training is conducted in a location where such MEWP equipment operation does not endanger property, the trainee, or others. Departments must arrange for their personnel to be certified by EHS to operate MEWP equipment.

RECORDKEEPING

EHS maintains a record of trained and certified operators. Responsible persons should verify that all operators have current operator certification. Every three years all operators must be reevaluated.

APPENDIX A

GROUPS AND TYPES OF MOBILE ELEVATED WORK PLATFORMS

<p>Articulating Boom Lift - An aerial device with two or more hinged boom sections.</p>	
<p>Elevating Work Platform - A device designed to elevate a platform in a substantially vertical axis. This device is stationary once setup and cannot be moved.</p>	
<p>Extensible Boom Platform - An aerial device (except ladders) with an extensible boom. Telescopic booms with personnel platform attachments are extensible boom platforms.</p>	
<p>Scissor Lift - A device designed to elevate a platform in a substantially vertical axis. This device can also be driven by an operator inside the work platform and is generally designed to carry more than one person.</p>	
<p>Trailer Mounted Lift - A device that can be towed by a vehicle to a work site, then un-hitched. These units have extendable or folding outriggers to give stability while being operated.</p>	
<p>Vehicle Mounted Lift – These devices typically have a Bucket in place of a basket, which is designed for one person. Vehicle must have the brakes set, wheels chocked, and outriggers in place while operating this device.</p>	

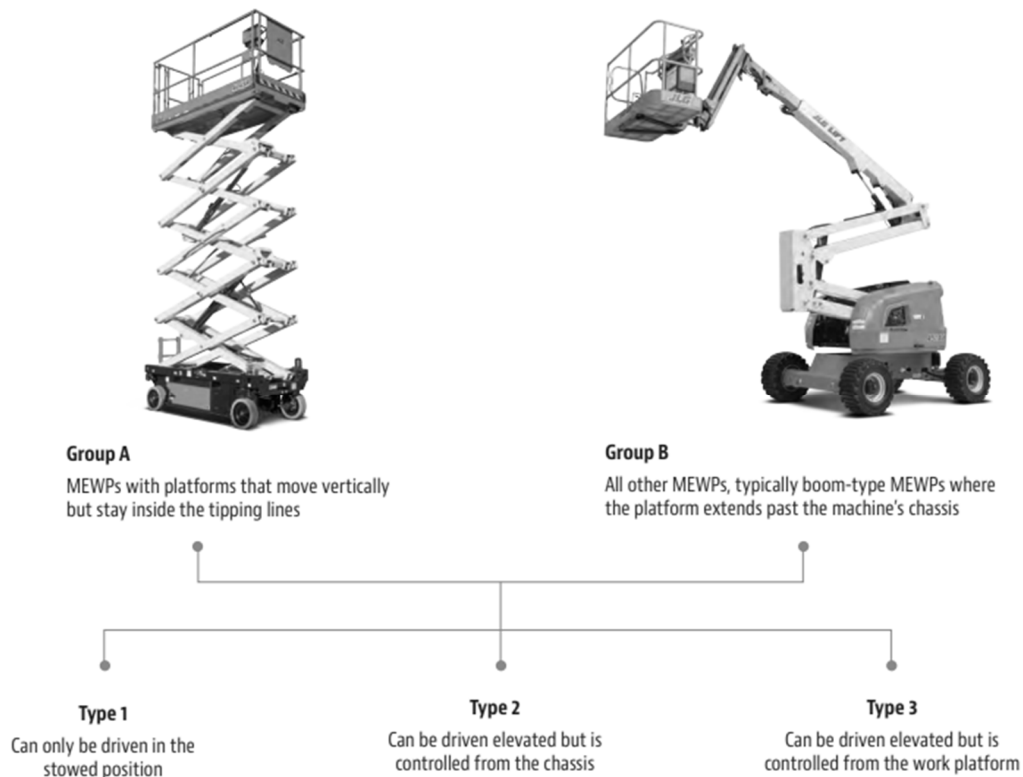
Credit: <https://bit.ly/3x9KdDk>

MEWP GROUPS

- If a MEWP moves vertically but within the tipping lines, such as a scissor lift, it is classified as Group A.
- If the MEWP can move beyond the tipping lines (outriggers or wheels) it is considered Group B. A boom lift is an example of equipment in Group B.

MEWPS FURTHER CLASSIFIED INTO TYPES

- Type 1: The equipment can only be driven with the platform in its stowed position
- Type 2: The equipment can be driven elevated but is controlled from the chassis
- Type 3: The equipment can be driven elevated, controlled from the work platform.



Credit: <https://www.jlg.com/en/destination/ansi/safe-use>

MEWP CLASSIFICATION EXAMPLES

- **Group A, Type 1 MEWP:** The aerial platform never extends beyond the chassis, and the machine may only be moved with the platform retracted ([Push-Around Stock Picker](#)).
- **Group A, Type 3 MEWP:** Both of these machines fit the description of Group A because the platform never extends beyond the equipment tipping line, and travel can be initiated from the platform ([electric scissor lift](#) or [drivable stock picker](#)).
- **Group B, Type 3 MEWP:** The aerial platform extends beyond the wheels and the machine can be moved by the operator while on the elevated work platform ([Boom lifts](#)).

APPENDIX B

MEWP LIFT SITE/OPERATION HAZARD ASSESSMENT

Department: _____ Location(s): _____

Type of Work to be conducted: _____

Instructions: An Operator must conduct a **Site Hazard Assessment** for Industrial Lift Equipment owned/operated by each department to identify all site hazards, and to select appropriate equipment for the work-task. Unlike other industrial equipment, each time a MEWP unit is used the site must be reassessed and documented on this form.

Site Evaluation	YES	NO	N/A
Is the work surface structurally strong enough to handle the lift, and free of drop-offs?			
Are surface conditions where the lift is used free of obstructions and on level surface?			
Are there proper barricades to control pedestrian and vehicle traffic in work zone?			
Are there overhead obstructions or restricted places where the lift will be operated?			
Will the basket handle the loads to be carried without exceeding the rated capacity?			
Are there ramps and other sloped surfaces that could affect the vehicle's stability?			
Will the lift be used for electrical work or near high voltage lines?			
Are there "Classified Hazardous" locations where the vehicle will be operated?			
Is there an enclosed environment(s) or other areas where insufficient ventilation or poor vehicle maintenance could cause a build-up of carbon monoxide or diesel exhaust buildup for combustion motors, or hydrogen gas buildup at electric vehicle recharging stations?			
Is wind or other weather a concern? Are there sustained winds or gusts stronger than the manufacturer's rated design allowance?			
List below other potentially hazardous site-conditions that could affect safe operation:			
Process/Use of Lift Truck	YES	NO	N/A
Has the proper Lift been chosen for the type of work being conducted?			
Does the Lift have the proper lift height and capacity for the job?			
Are proper PPE (hardhats, etc.) and full body harnesses w/lanyards available and used?			
Is the basket free of trip hazards and proper housekeeping maintained?			
Are there designated parking areas for Lift(s)? (Clear of exits, fire extinguishers, hydrants, pedestrian-aisles, doorways, footpaths, or electrical panels.)			
Is the fueling and/or charging area well ventilated?			
Is there proper lighting in the areas the Lift is being used?			
Are Propane bottles being kept in a secure area, and are they tagged "Full" or "Empty"?			
List below other potentially hazardous process-conditions that could affect safe operation:			

Operator/Evaluator: _____ Date evaluated: _____

Credit: <https://bit.ly/3x9KdDk>

APPENDIX C

RESCUE PLAN	
Date:	Plan Completed By:
MEWP Type:	Job Location:
Service Technician Name/Company: Special Instructions:	Phone Number: Hours of Availability: Expected Response Time:
Qualified Operator (s):	
Designated Person (s):	
Occupant (s):	
Others made aware of rescue plan:	
CHECKLIST	
<input type="checkbox"/> Emergency situations and proposed actions below are accurate <input type="checkbox"/> Designated Persons are familiar with auxiliary controls (lowering and brake release where applicable) <input type="checkbox"/> Occupants (where applicable) are familiar with normal controls <input type="checkbox"/> Phone available to summon emergency services if needed	

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Emergency services should be called immediately if it is identified that someone may be injured, however the rescue plan should continue and not stop. Yale EHS must also be notified of the event regardless of the severity.

EMERGENCY SITUATION	PROPOSED ACTION
Failure of normal control functions while elevated	Where the normal upper control functions fail, the operator will use the auxiliary controls from the platform to lower the boom safely to the ground.
Inability of the operator to be able to operate the MEWP functions while elevated due to the following reasons: <ul style="list-style-type: none"> • Operator incapacitated • Auxiliary functions fail to operate from normal control station. 	Where the operator is incapable of lowering the MEWP using the normal controls, an appointed person familiarized in the use of the auxiliary controls will lower the platform safely to the ground using the auxiliary ground controls.
Failure of lower auxiliary ground controls	Where the lower ground controls fail to allow the boom to be lowered safely to the ground, the designated person will use the auxiliary ground controls to lower the boom safely to the ground.
Inability to lower the platform due to a lower obstruction	Where an obstruction prevents the lowering of the platform in an emergency, the designated person will use the auxiliary controls (if available) to move the MEWP enough to clear the obstruction before lowering the platform. If the auxiliary controls are not available or not functional, the designated person will follow the equipment manufacturer instructions to release the brake and manually move it enough to clear the obstruction. The brake will be re-engaged, or the wheels chocked before lowering the platform.
Failure of ALL normal and auxiliary lowering functions	Where all normal and auxiliary functions have failed, the designated person on the ground should contact the listed service technician for support to attempt to lower the platform. If a timely response is not provided, emergency services support will be required.
Other:	

Credit: <https://bit.ly/3yaBsbY>

APPENDIX D

PRE-OPERATION INSPECTION

MEWP PRE-OPERATOIN INSPECTION CHECKLIST

Credit: <https://bit.ly/3hDizvN>

MACHINE#: _____

SERIAL#: _____

THOROUGH INSPECTION DUE DATE: _____

WEEK COMMENCING DATE: _____

All checks should be conducted in accordance with the manufacturer's manual. ✓ implies no issues.

* implies an issue was found and must be reported to the supervisor/Responsible Person.

		MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY	SUNDAY
VISUAL CHECKS	Documentation	1 Annual inspection	✓/✗	✓/✗	✓/✗	✓/✗	✓/✗	✓/✗
		2 Manufacturer's operator manual	✓/✗	✓/✗	✓/✗	✓/✗	✓/✗	✓/✗
		3 Rescue plan	✓/✗	✓/✗	✓/✗	✓/✗	✓/✗	✓/✗
	Wheels/Tires	4 Wheel security (nuts, retainers: loose, damaged, missing)	✓/✗	✓/✗	✓/✗	✓/✗	✓/✗	✓/✗
		5 Tyre pressure (pneumatic, foam filled or solid)	✓/✗	✓/✗	✓/✗	✓/✗	✓/✗	✓/✗
		6 Cuts, splits, exposed braiding, damaged rims	✓/✗	✓/✗	✓/✗	✓/✗	✓/✗	✓/✗
	Engine/power source	7 Fluid levels (engine oil, coolant, fuel)	✓/✗	✓/✗	✓/✗	✓/✗	✓/✗	✓/✗
		8 Fluid leakage on ground and around engine	✓/✗	✓/✗	✓/✗	✓/✗	✓/✗	✓/✗
		9 Battery (electrolyte, security and charging plug condition)	✓/✗	✓/✗	✓/✗	✓/✗	✓/✗	✓/✗
	Hydraulics	10 Hydraulic fluid level	✓/✗	✓/✗	✓/✗	✓/✗	✓/✗	✓/✗
		11 Leaks (hoses, pipe connections, rams, cylinders)	✓/✗	✓/✗	✓/✗	✓/✗	✓/✗	✓/✗
	Hoses and cables	12 Security and condition (cuts, chaffing, bulges)	✓/✗	✓/✗	✓/✗	✓/✗	✓/✗	✓/✗
		13 Power track cable trays (free from damage and debris)	✓/✗	✓/✗	✓/✗	✓/✗	✓/✗	✓/✗
	Outriggers, stabilizers	14 General condition, pins/retainers, footplate	✓/✗	✓/✗	✓/✗	✓/✗	✓/✗	✓/✗
		15 Spreader plates (present, condition, secure for travel)	✓/✗	✓/✗	✓/✗	✓/✗	✓/✗	✓/✗
		16 Interlocks (functioning, engaged)	✓/✗	✓/✗	✓/✗	✓/✗	✓/✗	✓/✗
	Chassis, boom, and scissor pack	17 General condition (damage, misalignment, corrosion)	✓/✗	✓/✗	✓/✗	✓/✗	✓/✗	✓/✗
		18 Cracks in weld	✓/✗	✓/✗	✓/✗	✓/✗	✓/✗	✓/✗
		19 Pins, retainers, and chains (security, signs of wear)	✓/✗	✓/✗	✓/✗	✓/✗	✓/✗	✓/✗
		20 Canopies, guards, engine covers (security and condition)	✓/✗	✓/✗	✓/✗	✓/✗	✓/✗	✓/✗
	Platform or cage	21 Steps for access/egress (secure, undamaged, clear)	✓/✗	✓/✗	✓/✗	✓/✗	✓/✗	✓/✗
		22 Entrance gate, guard rails and retaining pins	✓/✗	✓/✗	✓/✗	✓/✗	✓/✗	✓/✗
		23 Harness anchor points	✓/✗	✓/✗	✓/✗	✓/✗	✓/✗	✓/✗
		24 Clear of rubbish, debris, and obstructions	✓/✗	✓/✗	✓/✗	✓/✗	✓/✗	✓/✗
	Decals and signage	25 ID plate, safety, warning, and information decals (legible)	✓/✗	✓/✗	✓/✗	✓/✗	✓/✗	✓/✗
		26 Controls (identification decals, directional arrows)	✓/✗	✓/✗	✓/✗	✓/✗	✓/✗	✓/✗
		27 Platform loads (SWL, max. wind speed, max. number of persons)	✓/✗	✓/✗	✓/✗	✓/✗	✓/✗	✓/✗
		A N	A N	A N	A N	A N	A N	
FUNCTION CHECKS	Using Auxiliary (A) and Normal (N) controls	28 Function enabling (ignition key, foot switch, hold to run device)	✓/✗	✓/✗	✓/✗	✓/✗	✓/✗	✓/✗
		29 Emergency stops and emergency lowering system	✓/✗	✓/✗	✓/✗	✓/✗	✓/✗	✓/✗
		30 All switches, function controls (move freely, do not stick)	✓/✗	✓/✗	✓/✗	✓/✗	✓/✗	✓/✗
		31 Lifting functions (raise, lower, slew, tele-out, tele-in)	✓/✗	✓/✗	✓/✗	✓/✗	✓/✗	✓/✗
		32 Travel functions (forward, reverse, steer, brakes)	✓/✗	✓/✗	✓/✗	✓/✗	✓/✗	✓/✗
		33 Elevated drive speed (reduced or prevented)	✓/✗	✓/✗	✓/✗	✓/✗	✓/✗	✓/✗
		34 Lights, beacons, warning devices	✓/✗	✓/✗	✓/✗	✓/✗	✓/✗	✓/✗
		35 Alarms (tilt, descent, and travel)	✓/✗	✓/✗	✓/✗	✓/✗	✓/✗	✓/✗
		36 Limit switches (e.g. descent, load, outreach, rotation)	✓/✗	✓/✗	✓/✗	✓/✗	✓/✗	✓/✗
		37 Pothole protection device (fully deploys and retracts)	✓/✗	✓/✗	✓/✗	✓/✗	✓/✗	✓/✗
		38 Oscillating axle locks, extending axles	✓/✗	✓/✗	✓/✗	✓/✗	✓/✗	✓/✗
		39 Accessories, power to platform, extending decks	✓/✗	✓/✗	✓/✗	✓/✗	✓/✗	✓/✗
		40 Jacks-legs, stabilizers, outriggers, levelling devices	✓/✗	✓/✗	✓/✗	✓/✗	✓/✗	✓/✗
Only persons who are trained and authorized by their employer should operate this equipment.		Initialed:	Initialed:	Initialed:	Initialed:	Initialed:	Initialed:	