



Safety in window cleaning using waterfed pole systems

Introduction

Traditionally window cleaners have relied upon portable ladders, platforms, scaffolds, bosun's chair and cradles for access for window cleaning.

In recent years many window cleaners have adopted the use of waterfed pole systems that facilitate the cleaning of windows up to 60ft/20mtrs high from ground level.

Avoiding the need to work at height is an obvious immediate attraction, however there are various considerations to be taken into account.

These will include:

- Provision of uncluttered access to building facades.
- Designers of buildings to ensure reasonable access.
- Acceptance by everyone, including homeowners, that if they want clean windows they will have to accept that windows will be left in a wet condition and that the process may take 2-3 cleans before acceptable standards are achieved.
- Window cleaners adopting waterfed pole cleaning.

Legal changes resulting from the Work at Height regulations 2005 will further tighten safe practice. All those involved in window cleaning need to adapt if deaths and injuries are to be reduced.

This information sheet sets out practical precautions to help window cleaners reduce risks to as low a level as possible, taking into account the needs of the job. It has been prepared in co-operation with the British Window Cleaning Academy Ltd, the Federation of Window Cleaners and Waterfed Pole manufacturers.

Scope

For the purpose of this guidance, the term "waterfed pole" is defined as a telescopic pole fitted with a brush and a means of delivering purified water for window cleaning. The use of purified water is an integral part of the cleaning process.

The term "Load" is defined as the water treatment system/water delivery tank, waterfed poles, and other ancillary accessories such as hose reels and warning signs.

Avoiding Risk

The use of waterfed poles removes the need to work at height and provided the window to be cleaned can be viewed from the ground without obstruction, it is possible to clean using a waterfed pole. Although adopting waterfed pole use may remove the risks involved when working at height consideration must be given to both

operational risks and other less obvious risks that apply to waterfed pole use.

When assessing operational risks consideration must be given to the location of the building, its design, site conditions, obstacles, terrain underfoot, weather conditions and overhead power sources. The suitability of the operator with regard to their level of fitness and medical history and the need to identify any muscular or skeletal disorders that may develop as a result of operating a pole using poor technique.

Less obvious risks include the consequences of carrying tanks, systems and equipment that are heavy unstable, unsecured or incorrectly installed within a vehicle, as well as the potential for the spread of legionella disease caused by poorly maintained filter systems.

Buildings on both industrial sites and domestic properties can present different risks than those in busy town or city locations, consideration must be given to the time of cleaning and traffic conditions and preventing public access to the working area. Warning signs should be displayed to warn of trip hazards presented from trailing hoses and the slip hazard presented by wet, slippery surfaces. Hi-viz clothing should be worn by operators, especially when near to pedestrian and vehicular traffic, consideration should be given to adverse weather conditions

Hazards associated with the use of waterfed poles.

- Trip hazard presented by trailing hoses.
- Slip hazard presented from wet pathways.
- Trip hazard for operator while concentrating on work.
- Falls while working from flat roofs.
- Electrocution from pole coming into contact with overhead power source.
- Injury to others from falling poles or objects than may become dislodged.
- Injury to others from falling poles caused by incorrect handling, or failure of pole.
- Injury through incorrect manual handling of poles and other equipment.
- Spread of legionella disease through poor maintenance of the system.
- Hazards from carrying tanks, systems and equipment that are heavy, unstable, unsecured or incorrectly installed within a vehicle.

Road safety

Journeys to and from the workplace are subject to documented risk assessment. Assessment of these risks will include security of the load to ensure that it does not

shift under normal driving conditions, emergency braking or during a collision. Responsibility rests with the driver of the vehicle, however business owners have a responsibility to provide suitable vehicles, equipment, and means of securing the load.

Consideration should also be given to the potential for the overloading of vehicles fitted with water tanks, for when a water tank is full, a vehicle is likely to be close to its maximum payload capacity. To assess road safety risks consideration should be given to:

- The design of water treatment/delivery tanks.
- The manufacture of water treatment/delivery tanks.
- The installation/anchorage of water treatment/delivery tanks.
- The payload capacity of the vehicle and the potential for overloading.
- The security of waterfed poles, hose reels and ancillaries etc.
- Driving conditions and braking distances.

Design and manufacture of tank systems and equipment should comply with HASAWA 1974.

Both professional and self-installations in vehicles should meet the requirements of;

- The Road Traffic Act.
- The Road Vehicle (construction & use) regulations.
- The Code of Practice "Safety of Loads on Vehicles".
- BS: 12195 Load Restraint Regulations.

Drivers of vehicles fitted with tank systems and equipment should be aware that the load might affect the handling and braking characteristics. Drivers should give consideration to the need to reduce speed and allow greater braking distance when tanks are full. Drivers should also be aware of the limitations of their driving license and towing capacity of their vehicle when trailer mounted equipment is used.

Legionnaires Disease

Legionella Bacteria can be found in low levels in most water sources, the presence of a few bacteria is in itself unlikely to cause a problem, it is when they begin to multiply that the risk increases. They require nutrients to multiply, these can be provided by sediment, scale, sludge and biofilms. These materials build up in the filters used to purify water, if not replaced at specified intervals filters may become a fertile breeding ground for legionella bacteria. Water temperature is a particularly important factor in the survival and multiplication of legionella, when the temperature of water rises above 20 degrees the bacteria begin to multiply, the optimum temperature being 37 degrees.

Contracting the disease

The disease is normally contracted after the inhalation of the bacterium in small droplets (aerosols) or in droplet nuclei that is the residue after the water has evaporated. Waterfed poles produce aerosols and it should be noted that aerosols are not restricted to the point of production.

Under suitable wind conditions, viable bacteria can travel up to 500 metres.

Legionella will not normally multiply in cold water systems or even hot water systems when the water is heated at point of use, or when the system is in regular use. However legionella will multiply when the right conditions exist, these are;

- When sediment, scale, sludge and biofilms build up in filters.
- When water temperatures rise above 20 degrees.

Measures that should be taken to control the risk of legionella are;

- Replacement of filters at recommended intervals.
- Following the manufacturers servicing recommendations.
- Keeping the system stored in a cool place when not in regular use.
- If system cannot be stored in a cool place, drain tank and filters whenever the system is to be left standing idle for more than three days during warm summer months.

The release of legionella is also subject to the Control Of Substances Hazardous To Health (COSHH) Regulations 2002.

Used filters should be disposed of in accordance with local authority guidelines.

Choice of tank system and equipment

Will be determined by:

- The duration and extent of work.
- The height of windows to be cleaned.
- The site conditions.
- The means of purified water delivery required.

For some jobs waterfed poles may be used in support of other access methods, for domestic properties to reach conservatory roofs or other windows inaccessible to ladders. On high-rise buildings to reach the lower elevations and link bridges or on glazed structures in support of abseilers.

For many buildings however waterfed poles may be used for the entire cleaning operation. Due to the physical rigor of prolonged use consideration should be given to the weight of the pole, the lightest pole being the one that adequately reaches the top of the window but does not over reach. i.e. do not use a 45ft pole to clean a window that is 20ft high.

Composite poles will be best suited for use on sites such as those near to railways, factories, and electricity generating stations or substations or any other site that poses an increased risk of electrocution.

Purified water may be delivered to the waterfed pole by flexible hose from a variety of sources, these include de-

ionising cylinders/columns or cartridges, vehicle and trailer mounted systems and static systems incorporated into the building design. Delivery hoses pose a trip hazard that can be minimised if brightly coloured hose is used and warning signs are displayed where hoses cross a walkway.

Care should be taken to ensure that the weight of the filled water tank does not exceed the vehicles payload or towing capacity and allowance should be made for the weight of other equipment that may need to be carried as well as the weight of personnel travelling in the vehicle.

Maintenance

Waterfed poles are work equipment subject to the requirements of the provision and use of work equipment regulations 1998 (PUWER).

Waterfed poles should be subjected to;

- Pre-use visual inspection – Obvious defects, i.e. worn/fractured/dented/bends in pole sections, loose clamps, head/brush, fittings, worn butt rings etc.
- Regular, documented management inspections that take into account the degree of use and type of pole. In practise three monthly inspections are recommended.
- Procedures should be in place for handling any defects found that would include repair or replacement.

The use of waterfed poles requires little skill but can be physically demanding unless the correct techniques are employed. Waterfed poles in a poor state of repair will require more physical effort to operate.

Regular replacement of filters ensures both the quality of the water produced for cleaning and the effective control of the legionella bacteria. Manufacturers will specify the appropriate intervals for filter replacement, generally smaller filters shall require more frequent replacement than larger filters.

In order to ensure that the installation continues to meet the requirements of regulations an annual inspection should be carried out by a competent person and any remedial work signalled by the inspection should be carried out.

Use of waterfed poles

When extending waterfed poles it is desirable to raise the pole vertically, when this is not possible it will be necessary to extend the pole to the desired length horizontally along the ground. Raising the pole from this position will be a two-person operation, one to stabilise the base and steady the pole while the second “walks” the pole up.

Manual Handling (Waterfed Poles)

It feels more natural to operate a waterfed pole by movement of the arms alone and this is acceptable for poles that extend to a height of 10 m. For waterfed poles that extend beyond 10 m excessive strain may be exerted upon the upper body when operated for extended

periods. It is recommended that when operating poles that extend above 10 m use of arms be reduced by greater use of leg/whole body movement. With experience comes the ability to work with the natural balance of the pole, less effort is expended once the operator has mastered the balance technique and has learned to use the stored energy generated in the bending and flexing of pole as it is guided through the cleaning task. Even with the benefit of training these techniques take time to master and they are easier to acquire when shorter poles up to 10 m are used. It is important both for the development of new skills and in order to deliver acceptable cleaning standards, that new staff become experienced using short poles before moving up to poles that extend above 10 m.

Measures to reduce fatigue:

- Operate poles with greater use of the legs, by stepping a single stride forward and back use of the arms may be significantly reduced.
- Pole sharing with other members of the team.
- Switching from the left hand side of the body to the right, and visa versa.
- Taking regular breaks to undertake other tasks.
- Taking periodic breaks free from activity.

Recovering a Falling Waterfed Pole

During proper use it would be unlikely for a waterfed pole operator to lose control of the pole to the extent where it may fall to the ground. However, in the event that a waterfed pole begins to fall to either side then swift action is required by the operator to bring the pole back under control. By stepping quickly in the direction of the fall the operator should be able to recover the pole to the vertical position, the quicker the reaction the easier it will be to recover the pole. It is easy to create a simulated pole fall in a simple drill that can be practiced during training sessions and it is recommended that waterfed pole operators become familiar with this technique by undertaking regular practice sessions.

Manual Handling (Portable Systems)

Portable waterfed pole systems include trolleys and backpack's (modified garden sprayers), as well as providing a useful solution for difficult to access areas, portable systems present themselves as “starter systems”. Due to their limited capacity frequent refilling is necessary, one favoured method is to decant purified water from 25 litre plastic containers. At the upper limit of an individuals lifting capability, lifting and then pouring with a bent back should be avoided or be carried out by two persons, using a pump would be a more suitable means of transferring water. When filled or even partially filled, lifting either trolleys or backpacks in and out of vehicles should be avoided, portable systems should be emptied prior to lifting single handedly, lifting 50 litre capacity trolleys with any amount of water should be carried out by two persons. A more suitable means of moving trolleys in and out of vehicles is by means of a ramp.

When filled backpack sprayers are heavy and difficult to

install on the wearers back, ideally assistance should be sort from a second person, alternatively lift a filled backpack to a suitable staging position such as a garden wall or other platform at waist height. In normal use backpack sprayers are used for short duration tasks such as spraying weed-killer and the operator maintains his/her balance because they will normally be directing their attention toward the ground. The potential to lose ones balance will be increased for an operator using a waterfed pole with arms raised and head extended, for this reason the maximum height for cleaning should be limited to first floor only. Backpack users should not attempt to carry additional water containers to the job site while wearing a filled backpack.

Adverse weather

In windy conditions extra care should be taken especially when moving from a sheltered elevation to one more affected by the wind. Waterfed pole use is not recommended in winds above 30mph. Regardless of wind strength, waterfed poles should never be left unattended in an elevated position.

Purified water is a poor conductor of electricity, however waterfed poles of aluminium construction should not be operated in any environment where they may contact or come within 2 m of a source of high voltage electricity. Any waterfed pole should not be operated when a risk of an electrical/lightning storm exists.

During cold spells the likelihood of purified water freezing in the delivery hoses will adversely affect the use of waterfed poles. Systems that deliver hot water will be affected to a lesser extent and precautions should be taken to ensure that any water that may fall on to walkways is prevented from freezing by the prior application of sodium grit.

Working in exposed positions

The need to concentrate on overhead activity may expose the operator to further hazards that may include:

- Trips or falls.
- Falls from flat roofs.
- Collision with pedestrians or road traffic.

Risk Assessment

The purpose of risk assessment is simply to identify particular risks on any job in order to take precautions to minimise them, typically these may include:

- Instruction in the need for the operator to be vigilant with regard to the surroundings.
- Providing adequate PPE and or roof edge protection.
- Giving consideration to the day and time of cleaning.
- Provision of hi-viz clothing.
- Cordoning off work areas to prevent public access.

Lone Working

Lone workers are defined as employees who work by themselves without close contact or direct supervision (this section does not apply to self-employed window cleaners). No window cleaner should work alone in any area or location that would involve increased risk to their safety. eg on a busy street.

If working in a team on a single site, regular (hourly) checks should be made on any lone worker.

If a window cleaner is dropped on a job to work solo, intervals between contacts should be not exceed one hour.

If a window cleaner is working solo for a full shift or day, a one hour contact system should be established, e.g. mobile phone or radio.

Personal protective equipment (PPE)

PPE is not directly relevant to the use of waterfed poles and is limited to protection against adverse weather conditions.

Hard hats may however be appropriate when use of waterfed poles may dislodge defective parts of the building fabric.

Training & Competence

All waterfed pole users should be suitably trained and competent. They should have appropriate knowledge, experience and practical skills for the work being undertaken. Personnel with different levels of responsibility, such as managers, will require different types of competence.

There are at present no nationally recognised qualifications with regard to Use of waterfed poles. New employees will therefore claim competence on joining a company. Management must assess proof of competence at the earliest opportunity. This competence is best assessed on a live contract.

The following criteria should be used at initial and ongoing assessments:

- Daily pre use check;
- Manual handling;
- Ground conditions;
- Cordoning off;
- Common hazards;
- Do's and don'ts.

Any gaps in knowledge should be assessed and suitable training and/or supervision be provided until competence is achieved.

Competent Person

A competent person may be defined as a designated person, suitably trained or qualified by knowledge and practical experience to enable them to:

- Carry out their required duties at their level of responsibility;
- Fully understand any potential hazards related to their work;
- Detect any defects or omissions in that work, recognise any implications for health and safety, and be able to specify appropriate remedial action

needed, including refusal to do the work if the danger is too great.

In other words a competent person should not only be able to discover defects, but tell what effect they are likely to have.

Do's and Don'ts

- Don't use a defective waterfed pole;
- Don't use a waterfed pole in high winds;
- Don't use a waterfed pole near to overhead power lines;
- Don't use a waterfed pole during thunder and lightning.

Do carry out pre-use checks of equipment;

Always cordon off and/or display suitable warning signs when working in public areas.

Further reading

Road Traffic Act 1988.

Road Vehicle (construction and use) Regulations.

Approved Code of Practice: Safety of Loads on Vehicles.

BS EN: 12195 Load Restraint Regulations.

Control Of Substances Hazardous To Health (COSHH) Regulations 2002.

Approved Code Of Practice (L8): The Control of Legionella Bacteria In Water Systems 2000.

Workplace Health, Safety and Welfare Regulations 1992.

Manual Handling Operations Regulations 1992.

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