

**BEXLEY ROAD TRANSITIONAL LEARNING CENTRE
– Access & Maintenance Strategy**

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Cleaning Access & Maintenance Strategy

This report is an overview of the proposed access strategy for maintenance and cleaning of all areas of the project within Pozzoni's scope. The reason for this report is to set down strategies envisaged during the design of the project to indicate possible ways of accessing the buildings safely for maintenance during its lifetime based upon the technology available at the time of writing.

The requirements have been determined with the advice of the project design team with the guidance of manufacturer/supplier information. Further development and revisions maybe required subject to specification variation and sub-contractor design portions.

Maintenance in this report is defined as cleaning, inspection, repair and replacement of certain elements such as plant and glazing. The designer's approach is to choose a level of safety, whilst not compromising planning constraints and aesthetic qualities of the building.

For information on maintenance procedures and specification of building elements, please refer to the specialist subcontractor drawings and documentation in the Health and Safety File.

This document provides an overview only of how maintenance could be safely undertaken, however before undertaking any work at it is the operator's duty to assess the risks and choose the safest feasible means of access and method of work.

The building is generally steel frame with SFS with a reinforced concrete slab with piled foundations. The external materials are generally brickwork and timber cladding with aluminum windows and curtain walling. The roof is flat with a green roof system and PV array along with a small plant enclosure. Internal partitions are plasterboard metal stud type.

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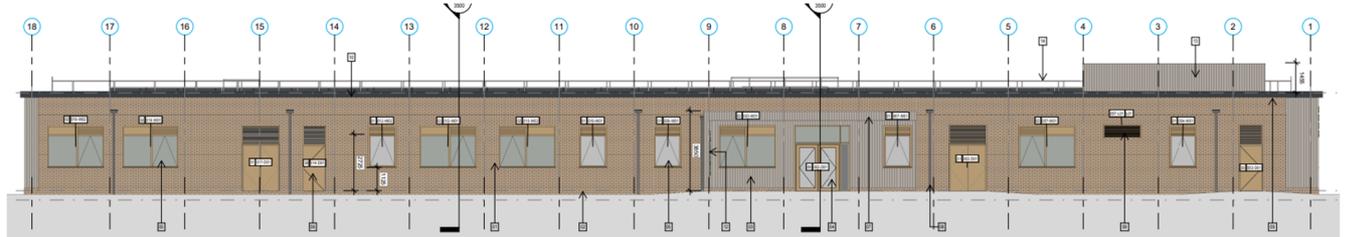
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1. External Window Access & Maintenance

As this is a single-storey building all external windows and glazing should be cleaned and maintained externally at ground level. The cleaning of external window surfaces from inside the building will not be possible. Since the HSE frowns upon the use of ladders for anything but short duration work then ladders should not be considered as an option.



External windows can be reached and washed from Ground Floor level using the following method.

- Long reach water-fed pole systems



*Example: Reach and Wash system Ionic Swift Pole
(Size range 12.4m to 23.2m reach) and Ionic task Trolley*

Internally, a MEWP can be used to access the high-level windows, even for short-term work. Plywood protection is to be used on the whole route of any MEWP to spread weight and protect the flooring below.

To be reviewed in Stage 3: Structural load capacity of floors internally to support MEWP, and door widths / heights to allow MEWP access.

(Ref: HSE Questions and Answers Brief for the construction industry on the Work at Height Regulations 2005).

1.1 Long Reach Poles

1.1.1 BS 8213-1:2004 and the Work at Height Regulations gives preference to the use of long-pole systems for cleaning glass, to avoid work at height.

1.1.2 No windows have been identified that cannot be reached via a water-fed pole, refer to Building Elevations for further information.

1.1.3 The top of the highest window, curtain wall or cladding from Ground Floor level is a maximum height of 5.5m.

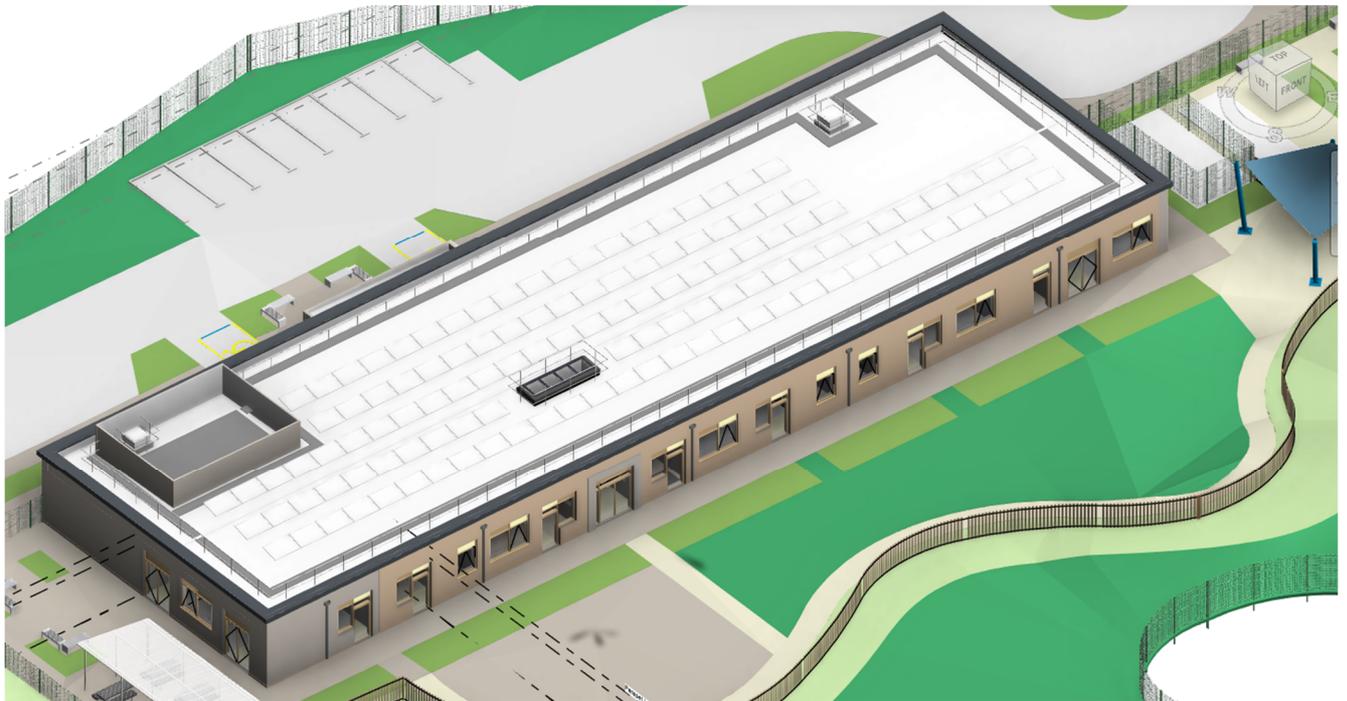
1.1.4 The length of the pole necessary to clean the glazing from Ground Floor level would be in the region of 4m. This operation must only be undertaken by competent and fully trained operators. Guidance has been indicated in Appendix 1.

1.1.5 Water back packs will be required for areas that are not close to the source of water. [Provision of water sources externally to be reviewed as part of stage 3 coordination.](#)

Conclusion:

Long-pole systems are the preferred method for cleaning windows externally, avoiding work at height. A hardstanding route is provided around the complete building perimeter.

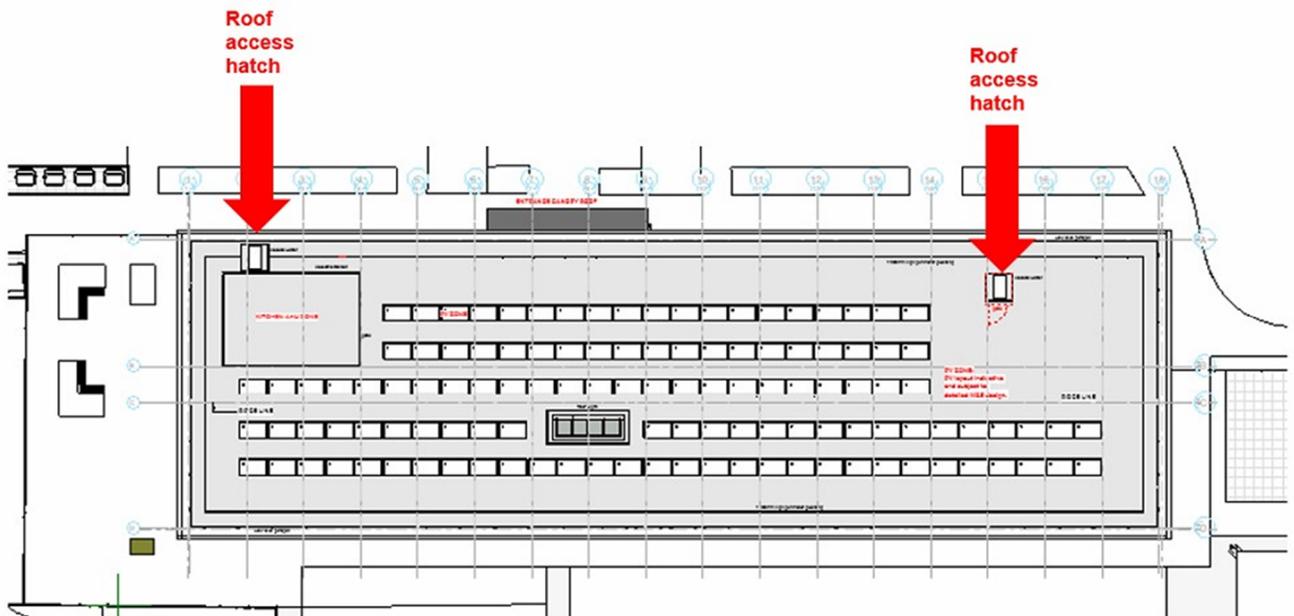
Only competent contractors who are fully trained in the above methods shall be contracted to perform cleaning, inspection, and maintenance duties. Full and detailed method statements and risk assessments must be provided prior to any work commencing onsite.



Aerial 3D View showing roof configuration / Perimeter handrail / Plant enclosure / Roof light / PV / Access Hatches

2. Roof Access

2.1 In accordance with Eliminate, Reduce, Inform and Control (ERIC) principles or hierarchy, the building has been designed to negate the requirement for the use of fall restraint systems in carrying out routine roof maintenance. Although the roof has a low-level parapet, an 1100mm high metal guard rail will be provided to provide edge protection when accessing the roof for maintenance purposes and a fixed access hatch and ladder located within the plant enclosure provides access to the roof area. A secondary egress is provided, in line with the fire strategy for the building, via another access hatch with integral retractable ladder above the large plant room. Defined cross-roof access routes are provided to allow access between roofs and around MEP layouts.



2.2 Rainwater pipes are all externally located. For inspection and maintenance purposes, roof outlets can be accessed from on the roof.

2.3 Operatives and the centre are reminded that, where persons require roof access for any reason, this should only be allowed after a person competent to do so has assessed the risks and drawn up a full method statement.

2.4 No roof lighting installed with all roof access to be undertaken during daylight hours.

2.5 Cleaning and maintenance of roof mounted photovoltaics, gutter outlets and rooflight undertaken via the roof access hatches and fixed / retractable ladders.

2.6 An 2000mm high (open top) enclosed plant area is provided immediately above the access hatch located in the kitchen lobby to accommodate kitchen AHU, extract along with any other plant associated with the server room etc. Maintenance of these items can therefore be undertaken without accessing the outer areas of roof.

3. Glass / Cladding Maintenance / Replacement

3.1 Windows are generally internally beaded and therefore glass replacement will mostly be at floor levels. High level glazing or cladding that cannot be replaced internally/externally from floor level will need to be replaced using a MEWP. An assessment of a suitable mobile elevated platform for the task should then be carried out.

3.2 Larger glass or cladding panels may also require the use of vacuum lifting equipment (example images below). In this event an access statement should be provided by a competent subcontractor.



3.3 Reference should be made to the specialist subcontractor's information regarding replacement procedures. Full and detailed method statements and risk assessments must be provided by the maintainer before any maintenance work is undertaken.

3.4 Subject to risk assessment any glass panes that are at high level above occupied spaces should be replaced out of operational hours and the areas directly below should be cordoned off. Rooflight glass cleaning and replacement via roof access stair.

4. Balustrade Maintenance / Replacement

4.1 Balustrades consist of mild steel vertical bars to avoid the need for cleaning.

5. Internal High-Level Access & Maintenance

5.1 When choosing MEWP for use inside of the building the maximum allowable floor loads must not be exceeded. For maximum permissible loads for floors refer to Section 7, Structural Loadings.

5.2 Door openings, barrier openings and maximum loading capacity will restrict the maximum width and height for mobile platforms moving within the building.

5.3 Method statements defining safe working methods must be provided before any inspection / maintenance work is undertaken.

6. MEP Access & Maintenance

6.1 All light fittings can be maintained from small towers or from a MEWP.

6.2 General installation is all accessible from standard steps and platforms throughout the building with the exception of the following, which will require MEWP access.

- Lighting to the Dining (LED so 5-10 yearly access)
- Lighting to external areas on columns (LED so 5-10 yearly access)
- Smoke detection to voids (can be accessed from pole equipment from floor level)

6.3 The electrical services are all mounted within the plant and store areas and again would be accessed with steps and platforms.

7. Structural Imposed Loadings

- Classrooms & Corridors 4kN/m² (includes 1kN/m² partition load)
- Roof General 0.75kN/m²
- Plant Space 7.5kN/m²
- Halls 5.0kN/m²
- Ceilings & Services 0.5 kN/m²

Appendix 1 – Safety in window cleaning using Water-fed Pole Systems, Federation of Window Cleaners

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 water-fed pole systems that facilitate the cleaning of windows up to 60ft/20 metres 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 building owners, 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 accepting water-fed pole cleaning.
- Water-fed poles are not suitable for all types of windows and access.

Legal changes resulting from the Work at height regulations (2005) have further tightened safe practice i.e., window cleaning should be done from Ground level if it can be. 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 reasonably practicable, taking into account the needs of the job. It has been prepared in co-operation with the Federation of Window Cleaners (Formerly National Federation of Master Window and General Cleaners) and Water-fed Pole manufacturers.

Scope

For the purpose of this guidance, the term "water-fed 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, water-fed poles and other ancillary accessories such as hose reels and warning signs.

Avoiding Risk

The use of water-fed poles removes the need to work at height and providing the window to be cleaned can be viewed from the ground without obstruction, it is possible to clean using a waterfed pole.

Although adopting water-fed use may remove the risks involved when working at height consideration must be given to both operational risks and other obvious risks that apply to water-fed 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 regarding 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 tank systems and equipment that are heavy, unstable, unsecured or incorrectly installed within a vehicle, as well as the small/slight potential for the spread of legionella disease caused by poorly maintained filter systems.

Safety in window cleaning using Water-fed Pole Systems

Buildings on both industrial estates 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. Consideration should also be given to size of working and in the event of the water-fed pole being dropped or blown over.

Hazards associated with the use of water-fed poles:

- Trip hazards to general public presented by trailing hoses.
- Slip hazard presented from wet pathways.
- Slip hazard for operator while concentrating on work.
- Falls from height when working from flat roofs.
- Electrocution from pole coming into contact with overhead power source.
- Injury to others from falling poles or fabric of the building that may be 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 overloaded, 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 the 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 of overloading.
- The security of water-fed poles, hose reels and ancillaries etc.
- Driving conditions and braking distances.
- Design and manufacture of tank systems and equipment should comply with HASAWA 1974 and PUWER.

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.

Legionnaires Disease

Legionella Bacteria can be found in low levels in most water sources, the presence of a few bacteria in itself unlikely to cause a problem, it is when they begin to multiply that the risk increases. Legionella requires 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 are in the residue after the water has evaporated. Watered 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 (optimum temperature 37 degrees).

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

- Replacements of filters at recommended intervals.
- Following the manufactures 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 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.

The 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 water-fed 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, water-fed poles may be used for the entire cleaning operation. Due to the physical rigor or prolonged use of 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 overreach i.e. do not use a 45ft pole to clean a window which is 20ft high.

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

Purified water may be delivered to the water-fed pole by flexible hose from a variety of sources, those 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

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

Water-fed poles should be subject 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 practice three monthly inspections are recommended.
- Procedures should be in place for handling any defects found that would include repair or replacement.
- The use of water-fed poles requires little skill but can be physically demanding unless the correct techniques are employed. Water-fed 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 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 in the vehicle 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 water-fed poles

When extending water-fed 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

It feels more natural to operate a water-fed pole by movement of the arms alone and this is acceptable for poles that extend to a height of 10 metres. For water-fed poles that extend beyond 10 metres 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 metres 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 metres are used. It is important both for 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 metres.

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 vice versa.
- Taking regular breaks to undertake other tasks.
- Taking periodic breaks free from activity.

Adverse Weather

In windy conditions extra care should be taken especially when moving from a sheltered elevation to one more affected by the wind. Water-fed pole use is not recommended in winds above 25mph. Regardless of wind strength, water-fed 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 water-fed 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 water-fed poles. Systems that deliver hot water may 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 or other systems.
- 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. E.g., on a busy street or near electric.

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 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 water-fed poles and is limited to protection against adverse weather conditions however the risks should be adequately assessed, and appropriate PPE should be provided by the Employer to the operative.

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

Training & Competence

All water-fed 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 Water-fed Poles. New employees will therefore claim competence on joining a company. Management must access 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 / consideration to out of hours working.
- Common Hazards.
- Do's and Do not's.

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

Water-fed pole specific training covering all aspects covered in these guidance notes in greater detail is available from: The Federation of Window Cleaners (Accredited Certificate Institution Occupational Safety & Health IOSH) And the British Window Cleaning Academy (Accredited City & Guilds NVQ centre).

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 work if the danger is too great.
- Know their limitations and not be frightened to ask for help.

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 Do not's:

- Do not use a defective water-fed pole.
- Do not use a water-fed pole in high winds.
- Do not use a water-fed pole near to overhead power lines.
- Do not use a water-fed 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 1998
- Road Vehicle (construction and use) Regulations
- 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
- Work at Height Regulations 2005
- PUWER: Provision and Use of Work Equipment Regulation
- HASAWA: Health and Safety at Work Act 1974
- MANAGEMENT REGS: Management of Health and Safety at Work Regs
- PPE REGS: Personal Protective Equipment Regulations

The Federation of Window Cleaners (Formerly “National Federation of Master Window & General Cleaners”) and the industry wrote this Water fed Pole guidance.

The following companies contributed to this document:

- Federation of Window Cleaners
- Andrews Water treatment
- Brodex
- Facelift
- Ionic Systems Ltd
- Outreach
- Tucker Pole UK