REVISION 1

SQUARE AND CIRCULAR POLES

JOB NUMBER: _____ **DATE:** _____

CUSTOMER: _____

PROJECT: _____

Contact GM Poles to arrange technicians to perform a general overhaul and inspection: mm / yy

WARNING

- This pole is to be operated in CALM WEATHER only – up to 10 knots.
- This pole is a COUNTER-BALANCED device.
- DO NOT ALTER POLE MASSES either by removing, adding or changing luminaire and/or masses without the prior written consent of GM Poles. Unauthorised changes in pole masses could render the pole UNSAFE to operate, resulting in possible SERIOUS INJURY OR DEATH.
- It is mandatory for anyone who uses these mid-hinged poles to have been trained using competency-based training techniques and listed in the end users register of trained operators.
- Inspections and maintenance are to be carried out as per the guidelines within this document and recorded in a service register before use.

GMP PART NO.			
CLIENT POLE NO.			
LUMINAIRE (TYPE & PART NO.)			
LUMINAIRES QTY PER POLE			

CONTENTS

SECTION A – OPERATION AND GENERAL INFORMATION

PRODUCT DETAILS

GM Poles square mid-hinged poles and GM Poles circular mid-hinged poles enable maintenance of pole top mounted assets from ground, thus eliminating the need for an elevated work platform and eliminating risks associated with working at heights.

The product generally consists of:

- **Foundation bolts for setting into reinforced concrete footing (refer to GM Poles Footing Installation Instructions document);**
- **a baseplate mounted pole to be erected on the foundation bolts (refer GM Poles Pole Erection);**
- **and there is often an additional pole top accessory such as outreach(es) or crossarm to suit pole top mounted assets such as luminaires, cctv cameras, etc.**

FOUNDATION BOLTS

GM Poles pole products mount on proprietary foundation bolts fabricated from Class N, deformed bar with minimum yield strength of 500MPa to AS/NZS 4671. Foundation bolts are supplied complete with two nuts and washers each. One nut and washer per bolt is used underneath the baseplate for levelling the pole, the other nut and washer is the hold-down set to be tightened after levelling to snug tight.

Refer to GM Poles Foundation Bolt brochures for further specific product information.

BASEPLATE MOUNTED POLE

The pole is hot dip galvanised with a square cross-sectional area or a circular profile with rectangular base. The pole features a fixed base section which may or may not be with additional enlarged stub and atop this fixed base is a hinge. Connected to this base section is a pole top section with a counterbalanced apron below the hinge. All components except the hinge pin are hot dip galvanised steel, the hinge pin is Grade 316 Stainless Steel.

The pole has been designed and balanced by GM Poles to suit the pole top arrangement per details supplied by the customer. **Any change in the arrangement may result in UNSAFE operation which may cause SERIOUS INJURY OR DEATH thus, any alterations must be approved by GM Poles.**

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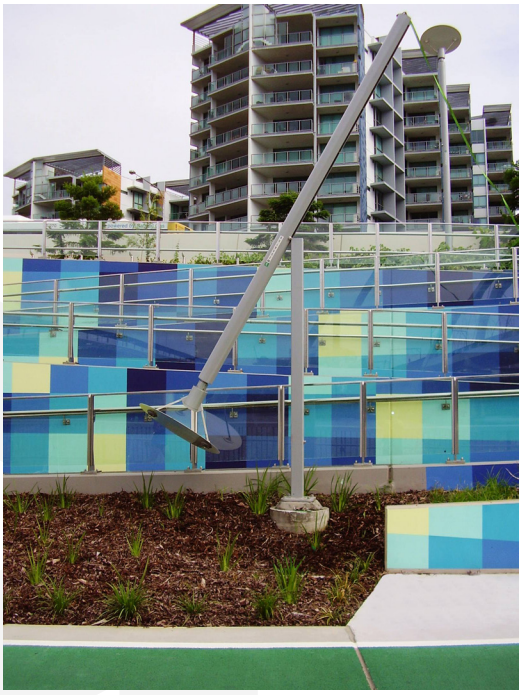

POLE TOP ACCESSORY

The pole top accessories are fabricated, and hot dip galvanised and are to be securely attached to the pole top. This connection needs to be performed carefully to ensure that there is no release of the accessory when the pole is in the lowered position. Only GM Poles mounting accessories are to be mounted to the pole top such as outreach(es) or crossarm. The accessory may be used to mount luminaires, cameras or other device per project requirements. The details of the GM Poles accessory has been included in our assessments for pole balancing, along with the assets per details supplied to us by the customer. **Any change in the arrangement may result in UNSAFE operation which may cause SERIOUS INJURY OR DEATH thus, any alterations must be approved by GM Poles.**

WIRING

Wiring of the poles is to be performed by a suitably qualified and licensed electrician. The cables used inside the pole must be flexible enough to bend through 180 degrees about a small radius at the location of the pole hinge. They must also be wear-resistant to prevent damage caused by the regular (approximately once a year) operation of these poles. It is strongly recommended that the cables within the pole be run in a flexible conduit to provide further protection at the hinge location.

ISOLATION PROCEDURE

ELECTRICAL:
Open the pole access door and switch off the circuit breaker powering the pole top electrical assets before operating the pole.

MECHANICAL:
The pole is secured in the raised position by locking screws located near the base of the apron. The pole is only secure when in the raised position with the locking bolt fitted and tightened. These screws are to be removed to lower the pole top. Procedure defined in the next section.

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LOWERING AND RAISING PROCEDURE

- All manoeuvres are to be performed in calm weather (<10 Knots).
- Personal Protective Equipment (PPE) is required and as a minimum to include: Safety Glasses, Hard Hat and Riggers Gloves.
- 'Hazardous Zone' should envelope the pole for operational area.

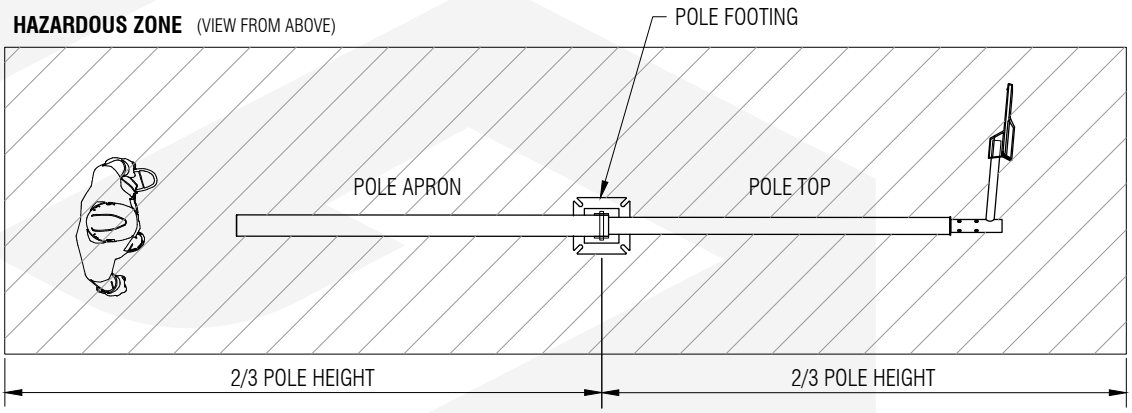

Figure 1.

1. Conduct a 100% visual check to ensure the pole foundation bolts are tight, the hinge is in place,
   the pole top accessory (if any) and pole mounted assets look secure.
2. Check maintenance log to ensure annual checks have been completed.
3. Ensure site is clear of personnel or objects in the defined 'hazardous area'. *Refer Figure 1*.
   Ensure the lowering rope and carabineer are in good order. Check that the rope length is at least 1.5x pole height. E.g. 1.5x pole height = 9m for a 6m pole.
4. Isolate the pole electrically – refer above '*Isolation Procedure*' to ensure the pole is not 'live'.
5. Connect the GM Poles mid-hinge rope supplied to the rope lug using the carabineer provided and secure the carabineer. *Refer Figure 2*.
6. Use the GM Poles rope to create a lasso tether around the apron and pole base shaft. This is to allow 'testing' of the counterweighting effort before properly lowering the pole top. *Refer Figure 2.*

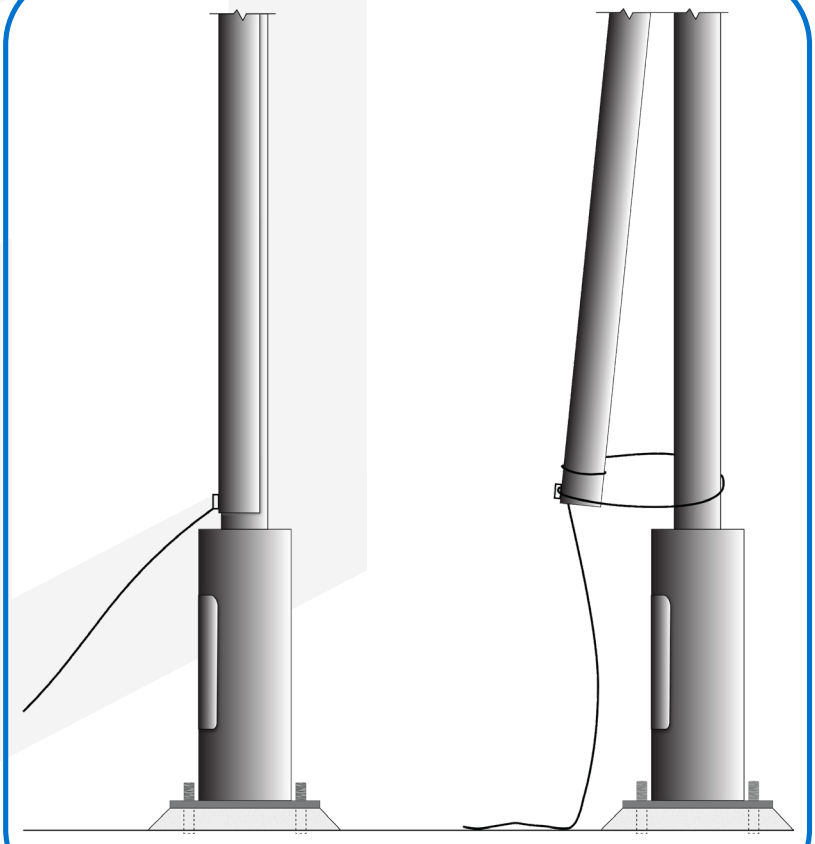

Figure 2.

7. Unwrap rope and layout in the direction of the initial apron movement to prevent tangling with the rope during the lowering procedure. Firmly hold the rope taught. **NEVER let go of this rope** until pole is fully lowered and secured. Be mindful of the rope as a potential trip hazard.

8. If this is a new pole that has not been swung before, a secondary rope needs to be attached to the top of the pole – secondary rope is by others. *Refer Figure 2.* Minimum length of the secondary rope is length of pole height plus 2m. This is in case the pole is not balanced correctly. If the apron is too heavy & the pole top does not want to swing over, then contact GM Poles for advice before proceeding further. It is important to leave the secondary rope connected to the pole top otherwise an elevated work platform may be required to change the top headframe mass. After the new mid-hinged pole has been test swung and the balancing is controllable when operating, then the secondary test rope connected to pole top can be removed.

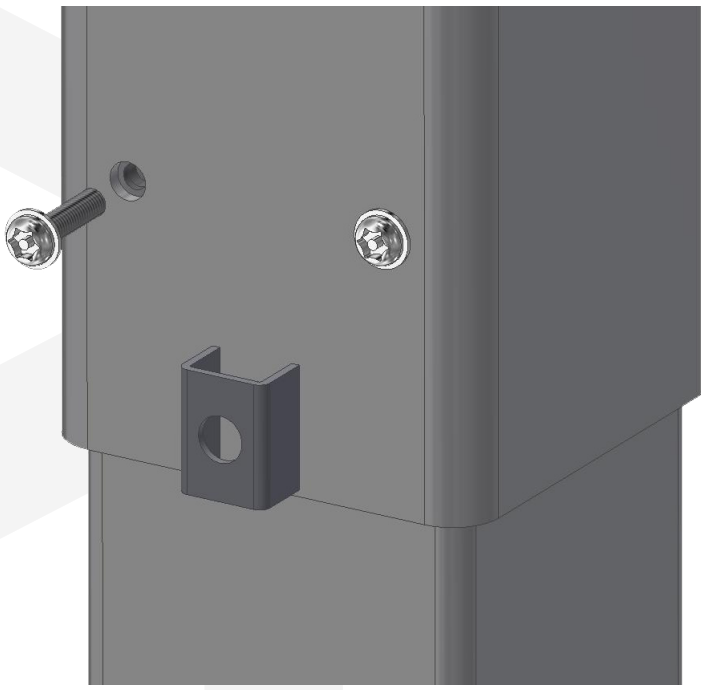

Figure 3.

9. Undo the apron retaining Post Torx screws. *Refer Figure 3.*
10. Pull on the rope and test the behaviour of the pole by opening it to the limit of the lasso tether.
    a. If the apron of the pole wants to rush back towards the pole base to its closed position and you need to exert a reasonable effort to slow it down, it is likely that the pole is "bottom heavy" and will be very difficult to get the pole top to come down.
    b. If the pole top is rotating quickly down and the apron is pulling hard on the lasso tether, then it is likely that the pole is "top heavy" and may be very difficult to control.
    c. A well-balanced pole should be easy to move back and forwards through the limited arc. If in your opinion the pole is either "top heavy" or "bottom heavy", **do not continue.**
        i. Refit the apron locking screws
        ii. Tag the pole "Out of service"
        iii. Call GM Poles asking for Technical Support. The pole may have been tampered with.
11. If you are satisfied with the balance of the pole, untie the lasso tether and proceed.

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12. Step away from the pole in the direction of the initial apron movement to 2/3 the pole height whilst holding the rope but do not pull on it at this stage.
13. When in position, tug on the rope to initiate movement. *Refer figure 4*. While holding the rope, swing the apron up to begin the lowering process. The force used to swing the apron should be just enough to rotate the apron toward and just past the horizontal position. The mechanical effort on the rope to retain the pole in a horizontal position should be no more than 16kg. *Refer figure 5*. If it is, contact GM Poles as the pole balance may have been tampered with.

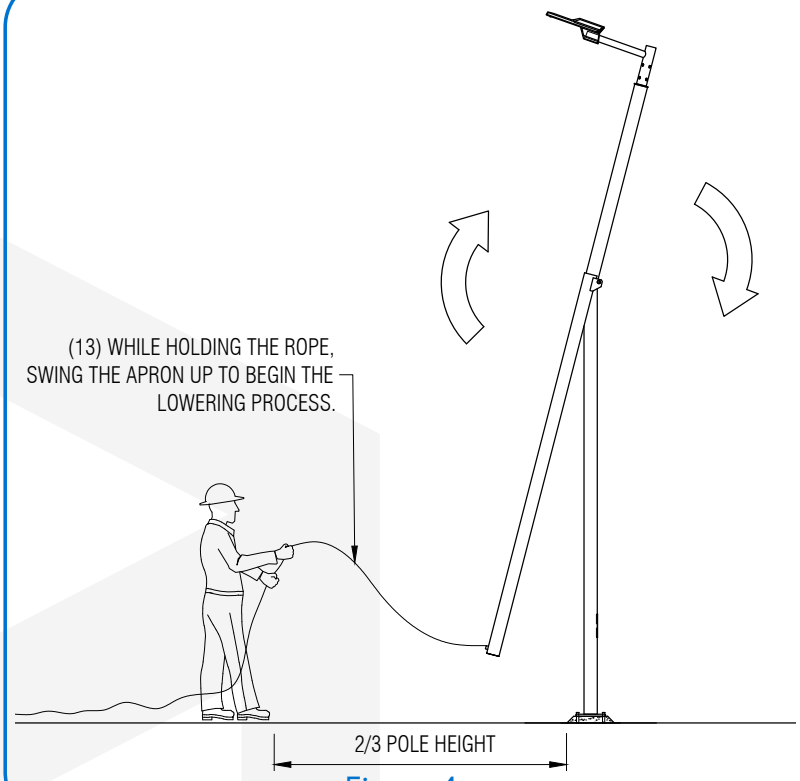

Figure 4.

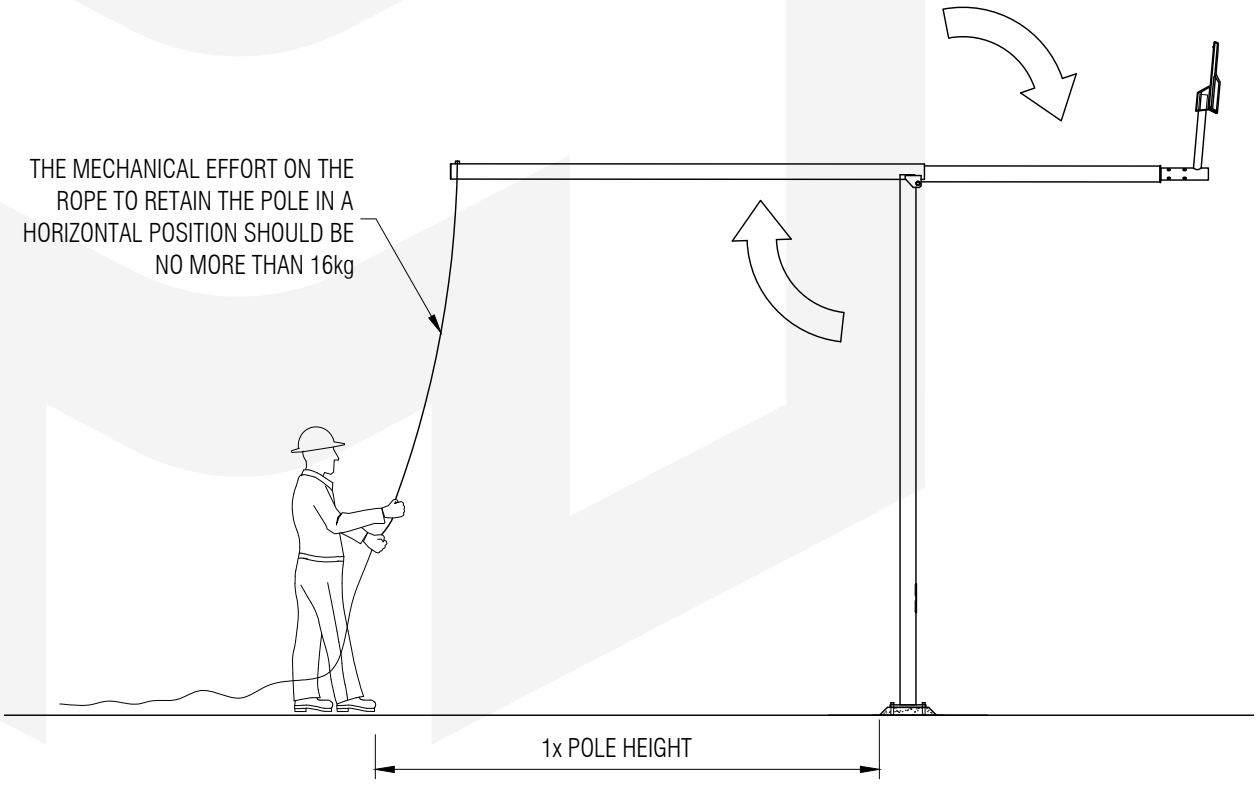

Figure 5.

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- **NEVER let the pole gain too much momentum.**
- **If the control load seems excessive or unsafe, contact GM Poles as the pole balance may have been tampered with.**

14. Once the apron has passed the horizontal position it will continue lowering under its own momentum. Begin to step back to a distance of 1x pole height to control the lowering. Do this well before the pole top reaches the bottom to provide for maximum control. Slowly feed the rope out to enable the pole to complete the lowering process. NEVER let the pole gain too much momentum.

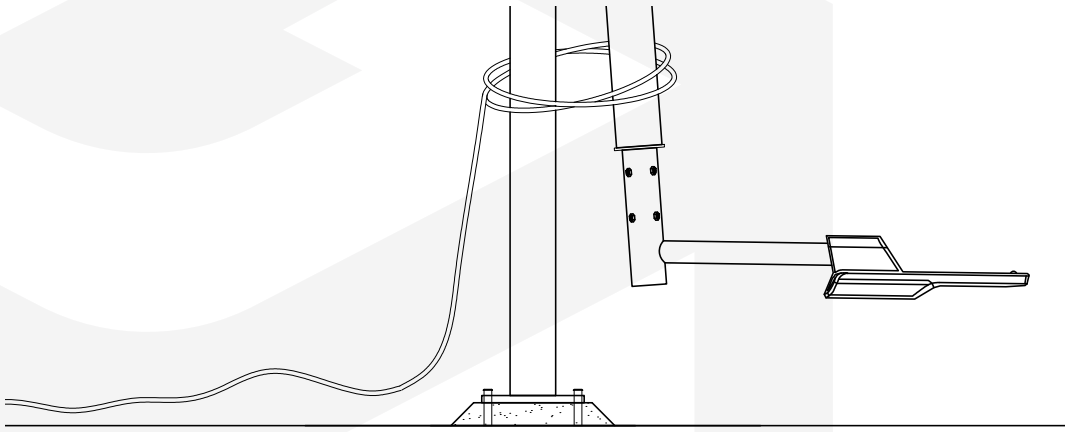

Figure 6.

15. Pay particular care as the top of the pole nears the ground to prevent the lights or headframe colliding with personnel, the pole base, or other infrastructure.
16. Secure the top of the pole to the pole base by wrapping the GM Poles rope end a number of times around both the pole base and top. *Refer Figure 6*.
17. Service the pole mounted assets/fittings.
    NOTE: do not alter pole masses either by removing, adding or changing luminaires and/or masses without the prior written consent of GM Poles. Unauthorised changes in pole masses could render the pole UNSAFE to operate, resulting in possible SERIOUS INJURY OR DEATH. Any alteration may also exceed structural capacity of the pole during design wind events.
18. To raise the pole, first ensure all bolts securing pole mounted assets, balance weights and GM Poles accessory to pole connections are tight and free from corrosion or fatigue.

- **Do not leave the pole inverted (top down) for extended periods (i.e. overnight)**
- **NEVER alter pole masses by removing, adding, or changing anything on the pole. This could cause the pole to become unbalanced and lead to SERIOUS INJURY OR DEATH.**

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19. After ensuring that there is no unauthorised persons or property in the 'hazardous area', undo the head securing rope then immediately step back 1x pole height away from the pole in the direction of the apron initial movement.
20. Once at this position, slowly pull on the rope to begin the raising process. Refer Figure 7. You may need to move toward the pole whilst pulling on the apron rope until the pole is in the horizontal position. Continue to pull the apron downwards keeping a safe distance from the apron. Once toward the base, the apron mass and small momentum should encourage the top shaft and apron to close against the pole base.

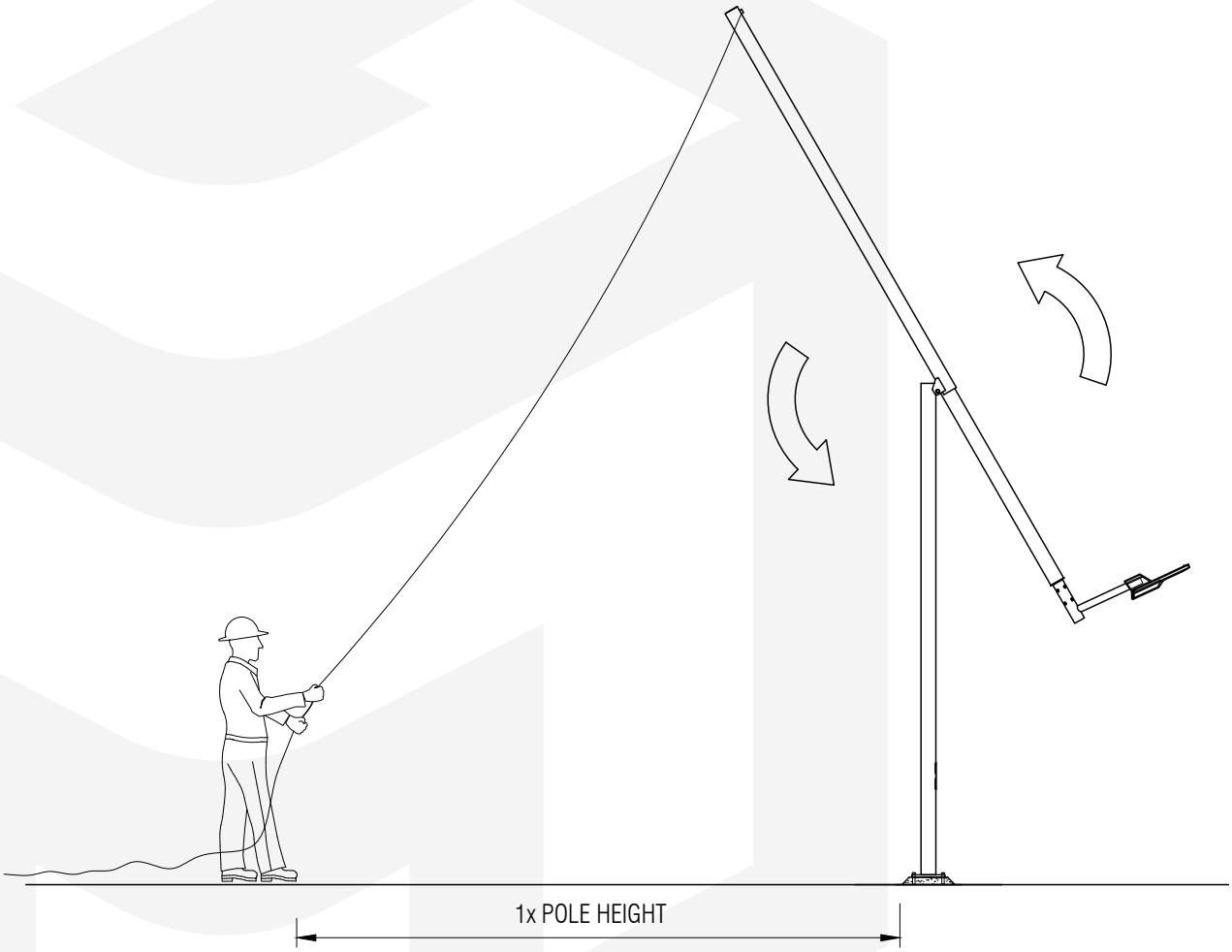

Figure 7.

21. Slow down the rope feed to prevent the pole apron from colliding into the pole base and possibly damaging the product.
22. Walk directly to the pole base and fit securing screws into the apron and tighten.
23. Re-energise pole electrically and check that the pole is not live. Refit all pole access doors.

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SECTION B – CHECKING AND MAINTENANCE

INITIAL OPERATION

The raise and lower operation of this pole has assessed and reviewed. The tuning of the pole is based on information provided to GM Poles by the customer. **Only the pole mounted assets specified shall be used and all assets combined with GM Poles accessory's must be attached before the pole is operated. Failure to comply with this requirement will result in UNSAFE use of this device and may cause SERIOUS INJURY OR DEATH and possibly damage to property.**

Care should be taken on the initial use of this pole product to ensure that the pole has been correctly balanced. It is strongly recommended that the GM Poles supplied rope and operator supplied PPE rigging gloves or similar are used each time the pole is operated.

ANNUAL INSPECTION

The mid-hinged pole should be operated a minimum of once every year with the following checks performed:

- Perform a visual inspection of pole and repair any corrosion. Refer to GM Poles Galvanising Touch Up Procedure, and Paint Touch Up Procedures if applicable.
- Inspect all hold down bolts for any signs of corrosion. All bolts are required to be snug tight and in place at all times.
- Inspect GM Poles pole top accessory (outreach, crossarm) mounting bolts for any signs of corrosion, wear or fatigue.
- Inspect apron locking screws for any signs of corrosion, wear or fatigue.
- Check that the hinge pin appears to be securely in place.
- Check that operating ropes and shackles are in good order.

IMPORTANT:

If a GM Poles component is considered defective, it must be replaced as soon as possible by a component supplied by GM Poles with the same characteristics. Contact GM Poles to discuss.

EVERY 8 YEARS

It is our advice that once every 8 years GM Poles technicians do a general overhaul and inspection.

REMOVAL OF POLE MOUNTED ASSETS

If a luminaire or cctv camera or other pole mounted asset or pole top GM Poles counterbalance weight must be removed for maintenance, then:

The pole top must be firmly secured against the pole base. Even a small amount of movement of a suddenly altered mass balance could result in injury.

- **For a short period of time (say <6hrs) during calm weather only:** ensure top of pole is positively secured to the pole base of the pole and a danger tag is installed in accordance with site specific "lock out" procedures.
- **For an extended period of time:** securely fit an equivalent weight to the exact same location as the asset that has been removed or counterbalance weight and raise the pole in accordance with this manual.

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SECTION C – ASSOCIATED AND REFERENCED DOCUMENTS

Generally, associated and referenced documents are available via direct request to GM Poles or from the GM Poles website (downloads page).

POLE FOOTING INSTALLATION

Refer to GM Poles footing installation instructions.

POLE ERECTION

Refer to GM Poles pole erection procedure.

POLE BASEPLATE GROUTING

Refer to GM Poles grouting instructions.

POLE MAINTENANCE

Refer to GM Poles general maintenance instructions and if applicable, painted pole care instructions.

POLE COATING TOUCH UP PROCEDURES

Refer to GM Poles touch up procedures for galvanising, wet spray paint and powder coat.

GM POLES WARRANTY

Refer to GM Poles standard warranty document.

CONTACT GM POLES

Should you need advice, documents, or products, please contact GM Poles.

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