

## Workplace Safety and Health Advice

### --- Portable Ladders ---

14<sup>th</sup> August 2013

The **Singapore Arboriculture Society (SAS)** the professional body representing the Arboriculture Industry in Singapore, ***advises to avoid the use of Portable Ladders in tree work operations***

The use of portable ladders in tree work is known to present hazards to tree workers involved to which in many situations there are limited methods for effectively controlling the risks to make for a safe operation.

Risks arising from use of portable ladders in tree work include (but not limited to):-

#### **Firmness of ground supporting the foot or base of ladder**

- In tree work situations the ground is often uneven, maybe soft ground or become soft from heavy rain, such elements may cause disability of ladder whether it be secured to tree at the time or not. Disability of the ladder at any time may result in the tree worker *Fall From Height (FFH)* with potentially serious consequence

#### **Tree worker holding the ladder base whilst another tree worker ascends the ladder to perform the tree work**

- Ascending the ladder may result in the tree worker climbing the stiles to a potentially injurious height before being in position to secure the ladder to tree and securing himself via work positioning harness system.
- Should the ground be uneven or soft or should the tree worker holding the foot of the ladder have insufficient strength to support the combined load of ladder and worker; FFH may result with serious consequence
- In the situation that a tree worker is working aloft upon portable ladder and the foot of ladder is being held by another tree worker, debris being pruned from trees at height may fall and strike worker holding the foot of the ladder. This risk is known and may be illustrated by the example of pruning fruits and fronds off palm trees (eg: de-fruited of coconut palm trees).

### **Manual handling of portable ladders**

- Tree work common height work requirements means that in the case portable ladders are used, that ladders (A-Frame or Extendable types) are large and cumbersome to move by manual means, from transport vehicles to work areas and between the work trees themselves.
- Whilst manual carrying of ladders may be shared between two or more workers, positioning of ladders against trees is often restrictive to one person, in order to coordinate the final positioning of ladder at work destination.

**Contract owners, employers and tree workers are advised to consider the following as alternative methods to those using Portable Ladders:-**

**1. Tree workers are advised to avoid Working at Height (WAH) in the performance of tree work.**

- Consider whether the tree work can be performed safely from ground level in such situations whereby pruning can be performed by operating hand-held extendable chainsaw or pole-saw or hedge trimmer from ground level instead.
- Only suitably trained and experienced tree workers are to operate mechanically driven equipment.

**2. In the situations that WAH is unavoidable, tree workers are advised to use a Mobile Elevated Work Platform (MEWP) in the cases that work site access for safe use of MEWP is available**

- Only suitably trained and experienced tree work operators are to work from MEWP work bucket
- Consider whether the ground conditions are suitable upon which the MEWP is to work
- Consider whether the MEWP can move around and reach all parts of the tree safely, in order to complete the tree work properly, in accordance to Best Management Practices and Tree Pruning Guidelines<sup>1</sup>

**3. In the situations that WAH is unavoidable and work site access prevents effective use of MEWP, tree workers are advised to use Rope Access/ Work Positioning System designed and intended for tree work**

- Only suitably trained<sup>2</sup> and experienced tree climbers/ arborists are to use Rope Access/ Work Positioning Systems to access and work in trees.

<sup>1</sup> SAS Industry Guidelines / Best Management Practices (Refer SAS Website/ Publications)



<sup>2</sup> WSQ Basic Tree Climbing Certification (as minimum or the equivalent)

- Visual Tree Assessment (VTA) shall be performed by the competent person prior to commencing the WAH, to ensure the palm tree is safe to access;

Method advice overview for de-fruiting, de-fronding and cleaning of coconut palm trees in confined spaces (whereby MEWP access is not available)

**Method 1.** Operate from ground-level (thus avoiding WAH)

- o Suitable for coconut palms <5m trunk height
- o Extendable pole-saws and extendable chainsaws products are available from arboriculture equipment suppliers in Singapore

	
<p>Chainsaw: Models extendable to 5m</p>	<p>Polesaw: Models extendable to 5m</p>
<p>Equipment operators must ensure the appropriate PPE is being used and to be aware of the pruned debris fall path so as to remain clear from strike range risk at all times.</p>	

**Method 2.** Operate using Rope Access System

- o Suitable for coconut palms >5m trunk height
- o Operators must be trained and experienced in safe use of Rope Access System designed and intended for tree work and competent to perform the work task including use of any machinery, tools and ancillary equipment
- o Use of chainsaws in the de-fruiting or de-fronding of coconut palms is unnecessary and therefore; the use of a handsaw or extendable handsaws is advised to be used instead.
- o Pictorial guide to method is illustrated in pages below.

**Pictorial Guide for accessing coconut palm trees**



**Step 1.** Use throw-line and throw over the head of palm; the line should be close or beside the meristem (the vertical un-expanded frond shaft located in palm centre)



**Step 2.** Tie the throw line to spliced eye end on approved arborists climbing rope and pull through over palm to receive eye end

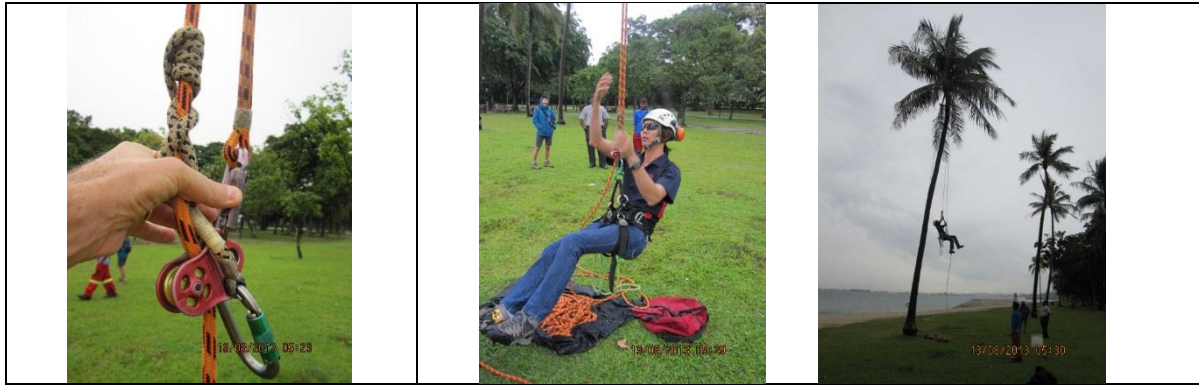
**Step 3.** Attach suitable karabiner and pulley to spliced eye end



**Step 4:** install the arborist work line through the pulley and pull the pulley right through to the live palm frond base, at that side of the palm.

**Step 5:** secure the pulley work line on the opposing side of the palm by choking palm stem, use belay device at the top of the system to facilitate in the case of ground rescue/ lowering operation and back-up the device to a 2<sup>nd</sup> karabiner





**Step 6:** Attach climbing system to work line and ascend to meet pulley located at live palm frond base, energy saving devices that use the legs may be used in conjunction with climbing system.



**Step 7:** Position at work area and secure 2<sup>nd</sup> line/ lanyard before commencing pruning work

**Step 8:** Perform the pruning work, ensuring securely connected to the work line and safety lanyard at all times



**Step 9:** Descend on the work line to ground level, detach from the climbing system and de-rig/ remove the Rope Access components from palm tree.

**Important note:** Tree workers competent in use of Rope Access Systems yet not familiar with the palm access method itself are advised to seek task specific on-the-job or suitable training from a SAS professional practitioner or an Approved Training Provider (ATP) prior to undertaking the WAH operation.

**Text and images:**

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**Acknowledgments:**

- + National Parks Board
  - For allowing SAS access and use of Coconut palm trees at East Coast Park for demonstrating and documenting method 2
- + Mr Boo Ghim Yew:
  - SAS Vice President and Director of Arbsolutions Asia Pte Ltd for volunteering his time and equipment to demonstrate method 2.