ARBORCANADA

ANCHOR CONSIDERATIONS

Principles

Use resilient anchor systems.

Resiliency is defined as: The ability to be installed and retrieved with simplicity and the ability to preform with consistency and predictability under adverse conditions, angles and loads

Methods

Employ all anchor considerations Lowerable Base Anchor Self Equalizing Base Abchor Canopy Choke with Ring Friction Saver

NON CERTIFIED ANCHORS

Anchor skillfully judged by an authorized competent person to bear the intended load and configuration.

CERTIFIED ANCHORS

The anchor point has undergone specific testing or analysis using a recognized engineering method under the supervision of a qualified person.

ATTENTION PLEASE!

Arborists are skillfully qualified technicians trained to assess/judge noncertified anchors for life support.

Tree climbers use both certified and non-certified anchors. Training, skill and experience define the climber as a qualified person to select and establish anchors in trees.

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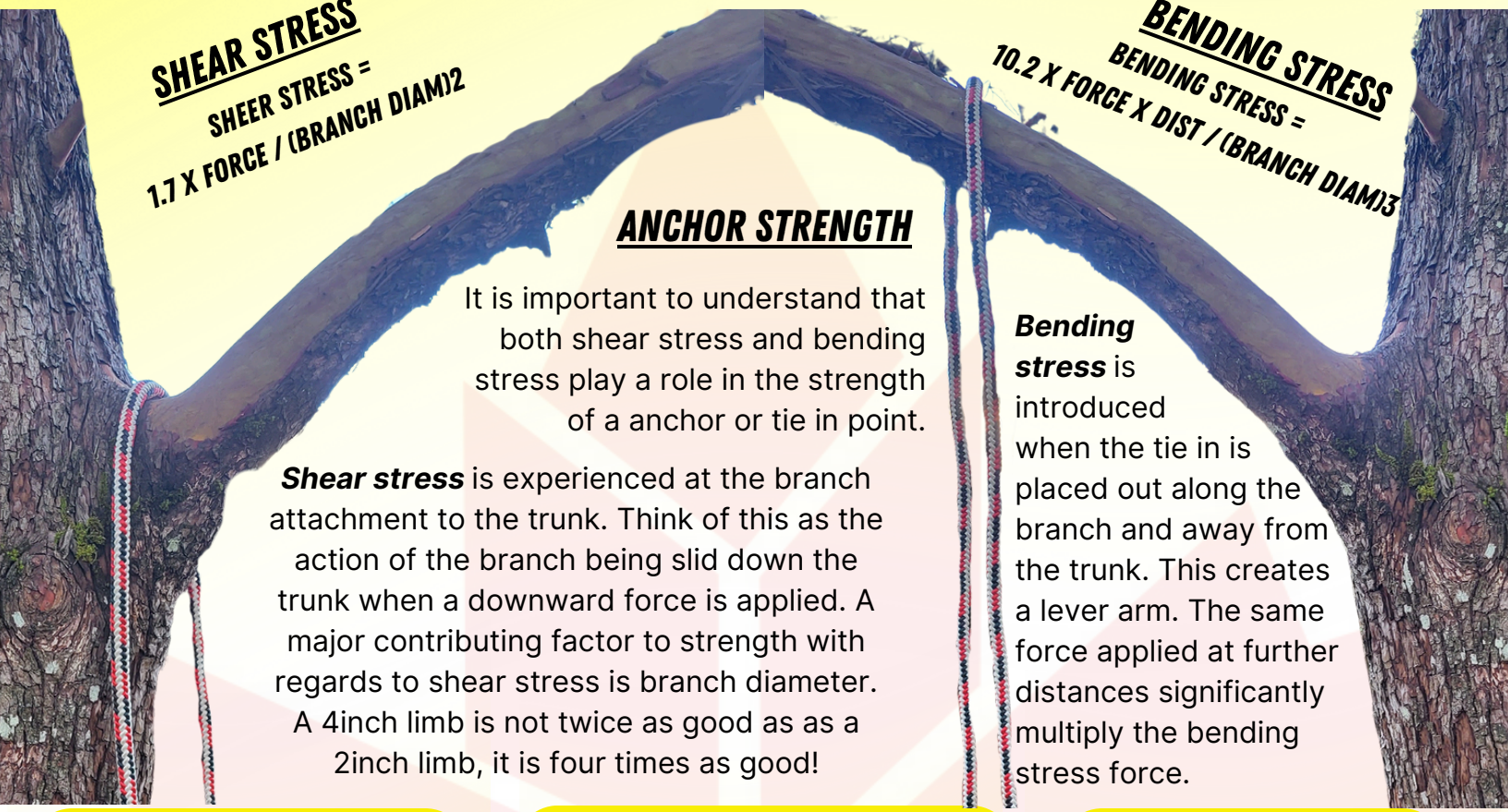
SELECTING A TIE IN POINT



SHEAR STRESS

SHEER STRESS =
1.7 X FORCE / (BRANCH DIAM)2

BENDING STRESS

BENDING STRESS =
10.2 X FORCE X DIST / (BRANCH DIAM)3

ANCHOR STRENGTH

It is important to understand that both shear stress and bending stress play a role in the strength of a anchor or tie in point.

Shear stress is experienced at the branch attachment to the trunk. Think of this as the action of the branch being slid down the trunk when a downward force is applied. A major contributing factor to strength with regards to shear stress is branch diameter. A 4inch limb is not twice as good as as a 2inch limb, it is four times as good!

Bending stress is introduced when the tie in is placed out along the branch and away from the trunk. This creates a lever arm. The same force applied at further distances significantly multiply the bending stress force.

WOOD QUALITY

Assess Wood Quality. Make sure no significant signs of decay, cracking or poor structural signs such as included bark or V shaped unions.

CLOSE PROXIMITY

Always be as tight/close to the trunk within the union (crotch) as possible. This again ensures that there is no significant leverage placed onto the structural parts of the tree.

MAIN STEM

Anchor around most vertical branches/trunk. The less bending moment or leverage input from a load will maximize the overall strength of the tree.

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ANCHOR CONSIDERATIONS

☐ TYPE

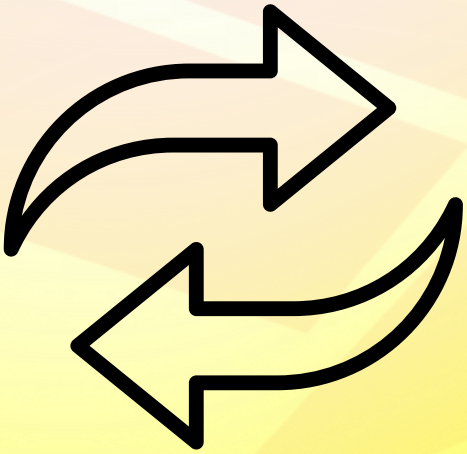
Is the anchor rated or non rated? What is the anchor made of? What traits does the anchor have?

EASE OF ☐ INSTALLATION

How efficient is the installation? Is is complicated or straight forward?

CHANCE OF ☐ MISCONFIGURATION

How likely is it to miss-use or incorrectly install?



☐ RETRIEVABILITY

Is it easily retrievable? Can it be removed without causing significant stress?

☐ PURPOSE

Does it fit the desired purpose? Is it achieving a goal?

☐ ACCEPTABLE

Is it recognized by your peers? Does the general professional consensus agree with the method or tie in point?

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BASAL ANCHOR CONFIGURATIONS

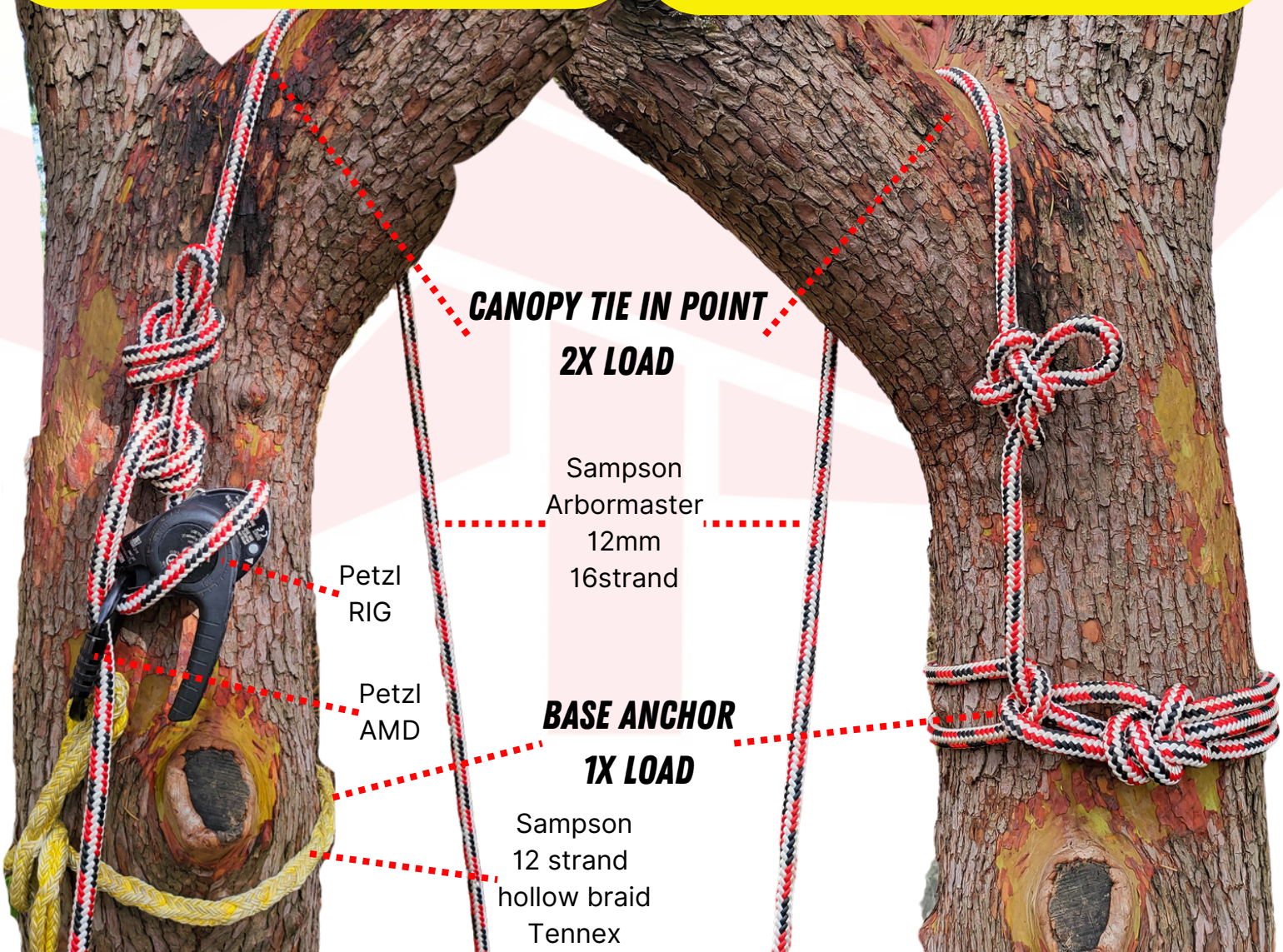
Point at the base of the pedestal of the tree used to tie off a configuration for life support. Often this set up will also contain a canopy anchor/tie in point which is double loaded due to force multiplication. Shown below are two different basal anchor configurations. This is only 2 examples of configurations out of multiple approved ways to assemble a basal anchor configuration.

LOWERABLE BASAL ANCHOR TIE OFF METHOD

This lowerable basal anchor allows for quick belay for rescue purposes from a tree. It is locked off and finished with bite through the carabiner into a half hitch on a bight and capped at the top with a square knot on a bight. This a solid system for easy basal lower.

SELF EQUALIZING BASAL ANCHOR TIE OFF METHOD

This basal anchor tie off method has the advantage of being self equalizing. Useful on large diameter trees, this only requires rope. It begins like a cow hitch. There is a cross and then tied back to itself with a bowline and Yosemite finish. A midline knot is placed above for rescue purposes.



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CANOPY ANCHOR CONFIGURATIONS

This is a tie in point selected as the primary life support anchor in the canopy of the tree. It is important that anchor consideration are employed when selecting suitable canopy anchors. It is important to note that both of these canopy anchors require the tie in point to be isolated. Meaning nothing is between the anchor point and the configuration.

Show bellow is an adjustable friction saver. This Teufelburger multisaver has a smal and large ring, which allows it to be retrieved and installed from the ground. the small english thimble prusik allow for the friction saver to be adjusted to the appropriate size of canopy anchor.

Depicted below is a retrievable canopy choking method. This method employs a ring to reduce friction upon retrieval. the ring is tied with a girth hitch made out of a three ring bowline (midline knot).

ADJUSTABLE FRICTION SAVER

CANOPY CHOKE ON RING