

MAKING USE OF TEMPORARY VERTICAL LIFELINES WHILE ERECTING TOWERS

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Figure 1 & 2 – Typical scenarios depicted when erecting towers.

INTRODUCTION

When it comes to erecting towers, we at Gravity have found that a large portion of our customer base struggled to have appropriate access methods to climb towers safely while the towers were being erected. Because of this, Gravity has engaged with various of our customers to develop safe and secure access methods on their behalf to ensure that climbers are safe

while erecting towers. At Gravity, we take special care to thoroughly test any new climbing methodologies introduced into the industry to ensure that these are appropriate and usable in real-world working conditions. Therefore, we have a large variety of structures where we develop and test new climbing methodologies. The conventional way of climbing towers is slow and not always possible to implement, often leading climbers to free climb towers. Gravity has, therefore, refined some climbing methods so that it is now intuitive and easy to use for the average climber who has received fall arrest and basic rescue training to climb new towers that are being erected.

CLIMBING METHODS WHEN ERECTING TOWERS

Conventional fall arrest methods, such as using shock-absorbing lanyards, is not suitable for climbing towers that are being erected. To overcome this problem, we at Gravity have started employing temporary vertical lifelines (TVLs), that are made of climbing rope, when climbers need to erect towers. With TVLs, the rope must be anchored to the topmost point of a secured tower leg. The climbers can then use this TVL to climb up and down the tower with ease. This also gives climbers the sensation of “free climbing” while being one hundred percent safe and secure.

Climber safely connected to a lifeline during the erection of a tower.

ADVANTAGES OF USING TVLS

- TVLs allow climbers to quickly climb up to the highest point of the tower without the risk of falling. Besides allowing for quick and safe ascent of a tower, this method has the added benefit of the climber being focused on his task and not looking for and creating anchor points for his shock-absorbing lanyard.



Figure 3 – Typical scenario when erecting towers.



- The climber also does not need to be concerned about a large falling distance. Studies (e.g. where a comparison was drawn between building of the Brooklyn Bridge without a safety net and then with a safety net installed) have shown that the more confident the worker is in his safety equipment the less prone he is to making mistakes that might cause a fall arrest event to occur.
- The TVLs are pre-installed to the top of a tower leg while it is still on the ground. When the tower leg is lifted, both the TVL and tower leg are lifted at the same time. As additional tower legs are erected, the climber will transfer from the TVL of the current leg that he is working on to the next leg which has its own pre-installed TVL to use. This means that each tower leg section that is lifted from the ground will have a lifeline attached and ready to use once the leg has been properly secured.



Figure 4 – Climber can move freely while connected to the lifeline.



Next climber's lifeline.

First climber attached to lifeline and ready to move.

Figure 5 – New TVL system, indicating the position and the purpose of the TVL.

CONCLUSION

Making use of TVLs has greatly increased the safety of climbers, and has also increased the efficiency with which towers are erected. Using TVLs means that less time and effort is spent looking for and creating anchor points. It also eliminates the danger of creating anchor points from precarious positions where the climber only balances himself with his legs in order to use both hands to create an anchor.

Utilizing TVLs ultimately ensures a safer and more efficient way to climb towers that are being erected, and, therefore, we would urge all climbers erecting towers to make use of TVLs while climbing. For any person that requires more information on this topic, we encourage you to contact us at Gravity.

Figure 6 – Typical site layout before the erection of the tower starts.



RECOMMENDATION

Contact Gravity if you intend to use this system or if you want further information. Additionally, you can schedule a demonstration on the use of lifelines during any lattice tower erection.

