

Anchor Points Best Practice

Anchor points and devices are components of a fall arrest system that a worker will connect to when working at heights. An anchor point is essentially a safety device that is designed to hold in place or catch a person after falling in order to prevent them from hitting the ground. However, it is not only the stopping of a fall that we are interested in, but rather stopping the worker's fall with the least amount of injury to the worker after the fall has been stopped.

From the earliest days when man started conquering mountains, some of the most basic equipment and terminology involved ropes and points that were identified to be anchored to. This needed to be done in order to secure oneself so as not to fall from the height ascended.

These concepts are still very much in use in the climbing and industrial work at height industries today and are some of the most misguided and misunderstood topics. There are so many factors pertaining to anchor devices that are unknown to the untrained installer and user, and if installed and used incorrectly, could be fatal.

Anchor points can be permanently installed, such as on rooftops and windows. There may also be situations where workers must access a work area where there is no permanently installed system, such as heavy machinery, and they will need to make use of the structures and substrates that are available to them.

There are several guidelines on the use of anchor points to help workers make informed decisions when connecting at heights.

1

SELECTING PERMANENT ANCHORS

There are a range of anchor devices on the market that are promoted as being a “permanent system”. These devices are designed and manufactured to be installed into a structure and generally remain installed over an extended period of time. This is common for high frequency access areas such as building maintenance, rooftops that need regular maintenance for air conditioning units. Etc.

Even though some anchor points may be “permanent”, they are still exposed to environmental elements (such as rust, heat, chemicals, etc.) and also regular use, which could wear them down over time. For this reason, it is a legal requirement

that all anchor points that have been permanently installed, undergo annual testing and recertification to ensure the safety of the connection.

A year is quite a long time to wait to see if an anchor point is still safe to use and it is therefore recommended that quarterly inspections are performed by the user. It may very well be that these inspections find points that would consider the anchor unsafe, such as loose fittings, corruptions or bends and cracks to the anchor bolt itself. This type of inspection should be done to manufacturer specification by a **competent person**.

2

ANGLES OF LOADS

There is a large variety of anchor points that are purposefully manufactured to be used for Rope access or Fall arrest applications. It is important to recognise that each one of these devices have their own limitations in terms of working load limits ((WLL) and directional application of the load. Anchor points hold the weight of the worker and all of their personal protective equipment. When a worker falls

while connected to an anchor point, there are certain forces exerted on the anchor and these forces are vary depending on the amount of weight imposed.

Always use an anchor point in accordance with the manufacturer’s guidelines on the loading capabilities as well as the angles of connection.

3

POSITION OF ANCHOR POINTS

Anchors should be planned and placed to ensure there is always safe access to and from the anchor point. In some cases, this may mean the provision of additional anchors or other access equipment (e.g. Stairs, ladders, guardrails) to allow access to the required location.

Anchors should also be placed to allow the workers to access their work area as

safely and conveniently as possible. This is generally done through an Anchor Point Plan that is prepared by a **competent person** prior to work commencing.

For technical information on how and where to install anchor points, the installer refers to the relevant standards which are SANS 50795, BS 8610 and BS 7883.

4

ANCHOR TYPES

All **anchor points** must be selected to meet the specific requirements of the scope of work.

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The installation of anchor points must comply with the manufacturer's instructions; and the applied force and direction of the force be adhered to. There is a major concern with installers using alternative methods of anchor types such as eye nuts, as most eye nuts can only be exposed to axial forces and cannot take any lateral loads.

5

LOAD TESTING OF ANCHORS AFTER INSTALLATION

All anchor points should be subjected to a load test to verify correct installation. Load testing must be done at the prescribed minimum load and in the direction of the applied force by a certified and trained professional only.

In many cases anchors are merely tested for resistance to axial loading i.e., what is known as "pull-out" tests, but mostly ignoring the reality of bending moments and shear forces.

All installed chemical anchors must follow the instructions of the manufacturer and special attention must be paid to the minimum depth, drill diameter, hole preparation etc. Minimum edge distances and the condition of the concrete is of fundamental importance.

After a successful load test has been completed the anchor point should have

visible markings on them to inform the user of the following;

- a. Name of Installer
- b. Installation date and any related service and inspection / testing history
- b. Serial number
- c. Safe working load
- d. SANS standard to which the anchor conforms

Is it recommended to test and certify at the following intervals:

- Frequently used anchor points: Every 3-6 months
- Rarely used anchor points: Annually or prior to next use (not exceeding 6 months)

A certificate should be issued per anchor with the results of the inspection / test.

The topic regarding anchors should not be taken lightly. Due to the many factors that need to be considered; from the regulations, planning phase, selection of anchors and chemical mortar, to the momentum, forces applied to anchors and the testing and certification.

Although we find many operators in the industry installing and testing anchors without the correct competency and certification to do so; this is certainly a task best left to the professionals. It can be regarded as gross negligence to contract an anchor planner, installer and tester without the right credentials.

Always ensure there is an anchor plan in place for anchors that are being installed and once installed, ensure the anchor plan is factored into the Site Fall Protection Plan and access to and from the anchors points has been risk assessed. This must include identifying possible rescues using the anchor points.
