

IWH Good Practice Note

Title	Anchor Point Inspection, Testing and Installation
Purpose	Good Practice notes inform members and providers on how to embrace best practice and how to deal with issues that may arise. They are aligned with, but do not replace regulation as well as endorse industry standards
Addressees	Fall Arrest and Rope Access Chambers
Motivator	Industry guidance for anchor points

CONTEXT

1. This document has been established as best practice guidelines for the inspection, installation and testing of Rope access / Fall arrest anchor points as an interim measure until the new occupational qualifications are registered.
2. The scope of this document: -
 - 2.1. Only single Rope access / Fall arrest anchor points chemically fixed into concrete and used in conjunction with a second chemical anchor point onto which the safety line is affixed.
 - 2.2. Only Class A1 anchors as defined in SANS 50795:1996 are covered
 - 2.3. Applicable to structural anchors and anchor points certified by the manufacturers as described in clause 4.3.1.1 having passed the static and dynamic type tests as detailed in clauses 5.2.1 and 5.3.2 of SANS 50795:1996
 - 2.4. Maximum load applied to the anchors during a fall arrest is 6.0kN
 - 2.5. In-situ testing of anchors must follow Annex A procedures of SANS50795:1996, paragraph A.2 and must also be tested or measured against allowable bending stress where applicable.
 - 2.6. Strict adherence to anchor manufacturer's data w.r.t depth of anchor in concrete, edge distances, quality of concrete, material grade, size of anchors and type of mortar / resin to be used.
 - 2.7. Anchor installer must be trained and certified by the Manufacturer / Supplier of chemically bonded anchors for installation and axial pull testing procedures
 - 2.8. Anchor installer must hold a suitable professional designation issued by the IWH Professional Body with proven competence in the selection, installation and testing of Rope access / Fall arrest anchors
 - 2.9. This GPN excludes temporary and permanent lifelines defined as "class C" in SANS 50795:1996. All lifeline designs must be proven against imposed loads relative to permitted "sag angles" established by calculation and proven against applicable load tests. All calculations pertaining to resultant line forces are to be undertaken or confirmed by competent engineering professionals.
3. Normative References: -
 - 3.1. SANS 50795:1996 – Protection against falls from a height - Anchor devices - Requirements and testing
 - 3.2. Draft Qualification 641902008 – Fall Protection Supervisor
 - 3.3. Draft Qualification 641902007 – Rope Access Supervisor

Authorised by: CEO Created by: Trade Manager	Created: March 2014 Updated: November 2018	Doc: IWH-GPN-L001	Previous Rev. 1 Current Rev. 2
---	---	-------------------	-----------------------------------

1. LOAD REQUIREMENTS

S#	Requirement	Comment
1.1	Use of anchor point	
1.2	Load on anchor point	
1.3	Orientation of anchor	
1.4	Direction of force on anchor point	
1.5	Combination of forces (shear, tension, bending)	

2. SPECIFICATIONS

S#	Requirement	Comment
2.1	Design Specifications	
2.1.1	Type of structural support	
2.2	Manufacturer's Specification – Anchor Point	
2.2.1	Name of manufacturer or supplier	
2.2.2	Steel Grade or DIN Standard	
2.2.3	Dimension "e1" – ETA 4.2.2.4 TR 029 figure 4.8	
2.3	Manufacturer's Specification – Anchor	
2.3.1	Name of manufacturer or supplier	
2.3.2	Size of anchor	
2.3.3	Embedment depth	
2.3.4	Steel Grade	
2.4	Manufacturer's – Chemical mortar /resin	
2.4.1	Name of manufacturer or supplier	
2.4.2	Type of chemical used	
2.4.3	Concrete condition; cracked / un-cracked	
2.4.4	Recommended loads Tension and Shear	

3. SHEAR VS. BENDING APPLICATION

S#	Requirement	Comment
3.1	Axial force on anchor	
3.2	Shear force on anchor	
3.3	Bending moment based on ETA 4.2.2.4 TR 029 refer figure 4.8 to calculate lever arm length	
3.4	Dimension "l" measured to ± 1 mm	

Note that maximum shear and tensile loads are indicative only and must be confirmed by calculation in the event of these loads acting in combination. This calculation is to be done / verified by competent engineering professionals.

3.1 Table of Allowable Bending moments, tension and shear forces

	Grade 5.8				Grade A4			
Anchor	M10	M12	M16	M20	M10	M12	M16	M20
BM [Nm]	22	38	98	193	23	42	106	207
T_{rec} [kN]	12.3	19.7	28.4	45.8	12.3	19.7	28.4	45.8
V_{rec} [kN]	8.3	12.1	22.4	35.0	9.3	13.5	25.1	39.2

4. TESTING

S#	Requirement	Comment
4.1	Axial Pull Test	
4.1.1	Equipment used for testing	
4.1.2	Equipment serial number	

Authorised by: CEO Created by: Trade Manager	Created: March 2014 Updated: November 2018	Doc: IWH-GPN-L001	Previous Rev. 1 Current Rev. 2
---	---	-------------------	-----------------------------------

S#	Requirement	Comment
4.1.3	Components used for testing	
4.1.4	Duration of test	
4.1.5	Test load	
4.1.6	Results of test	
4.2	Directional Test – in direction of in-service use	
4.2.1	Equipment used for testing	
4.2.2	Equipment serial number	
4.2.3	Components used for testing	
4.2.4	Direction of test on anchor point use	
4.2.5	Duration of test	
4.2.6	Test load	
4.2.7	Results of test	

5. POST VERIFICATION REPORT

S#	Requirement	Comment
5.1	Verification Company Name	
5.2	Verification Technician Name and Surname	
5.3	Type of anchor verified	
5.4	Serial Number/s for anchors	
5.5	Verification date	
5.6	Size of anchor	
5.7	Site address	
5.8	Client acceptance	

6. APPROVAL

Name and Surname	Designation	Date	Signature