



Consolidated Contractors International Company

QGX II and QCS Projects

Ras Laffan

Qatar

2009

Scaffolding / Rigging

Job Safety Task Instruction

JSTI

Every Task

Ricki Morgan
CCIC Scaffolding Manager
QGX and QCS Project
Ras Laffan
Qatar



WORKING AT HEIGHTS HARNESSESS AND LIFELINES

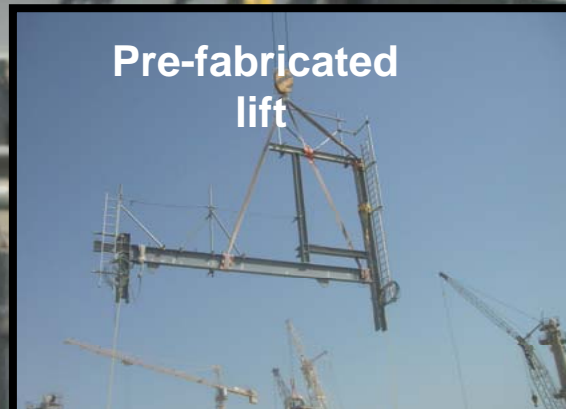
TOOL BOX TALK PLUS USER GUIDE AND SAFE PRACTICES

Ricki Morgan
CCIC Scaffolding Manager
QGX and QCS Project
Ras Laffan
Qatar

Access for erectors using lifelines to erect Steel work



Pre-fabricated lift



**STEP BY STEP HOW
TO INSPECT YOUR
HARNESS**

**MANDATORY
BEFORE USE
EVERY TIME**

SAFETY HARNESS CHECK POINTS:

Check all Stitching and Webbing for signs of Fraying, Splitting, Parting Scorch marks, Undue Wear and Tear or any signs of Decay.

All Belts, Buckles, Straps or any other type of fastening Device are in good working order.

Karabiners or any other type of connecting device to be on good working order and are self Closing and Locking.

All Metal Devices to be free of rust, Twists, Bends, and for any Signs of Excessive Wear and Tear.

And must be free of excessive grease oil or paint.

SAFETY HARNESS / LANYARDS

Harnesses must always be attached to suitable strong anchor points

Whenever it is possible anchor points should be above head height and no lower than waist height.

When this is not possible special consideration as to the a strength and location of anchor points should be placed if below waist height.

All options must be considered to prevent this and all efforts made to use the anchor points as recommended and all efforts to use above the head of the user taken.

The least distance a person can fall must always be taken whenever possible.

Harness Inspection



Stitching in good Order
Free of decay

1.



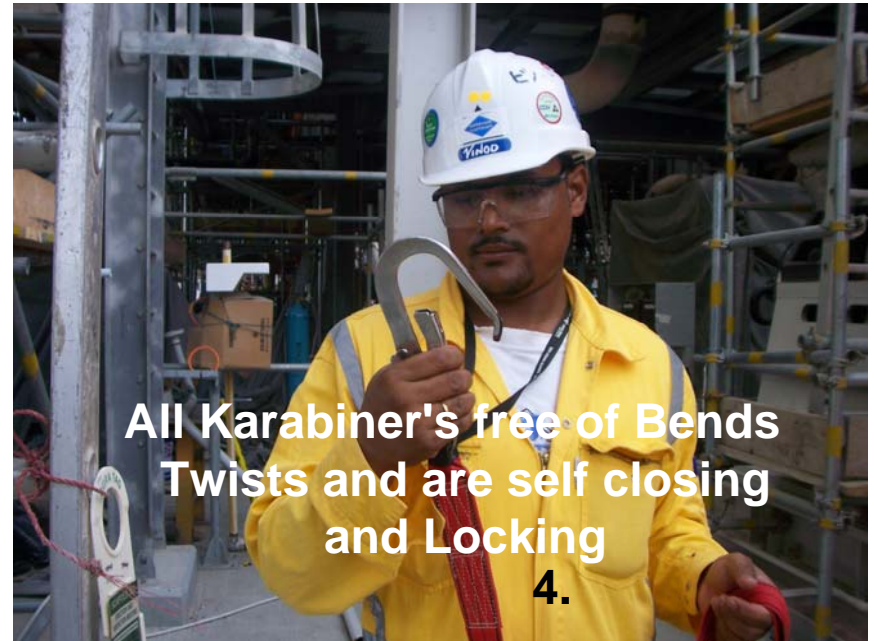
Lanyards in Good Order
Free of decay no fraying

2.



All Karabiner's are self closing
and Locking

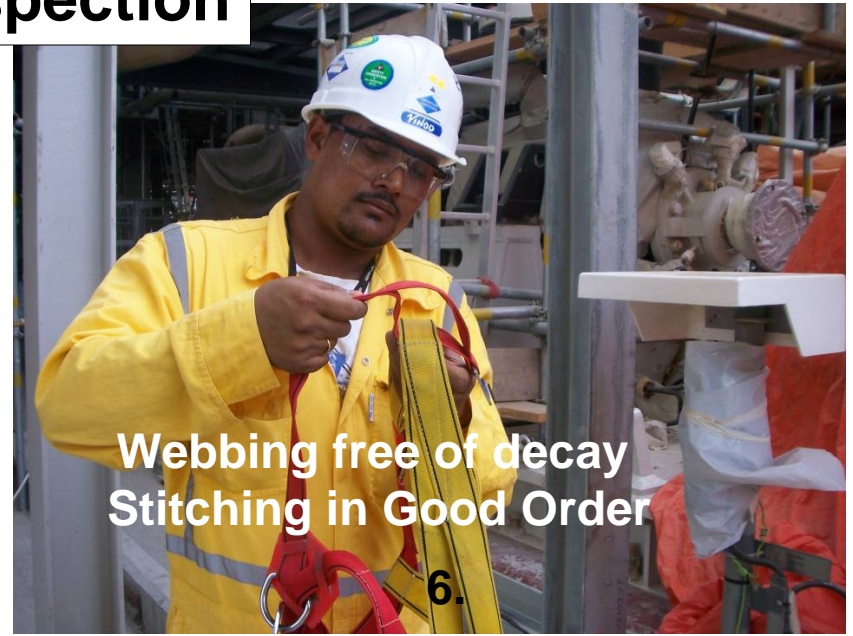
3.



All Karabiner's free of Bends
Twists and are self closing
and Locking

4.

Harness Inspection



Check the Grablock



Check the Karabiner



Check Green insert of Scaff Tag



Check yellow side to ensure That inspection has been carried out in the last 7 days

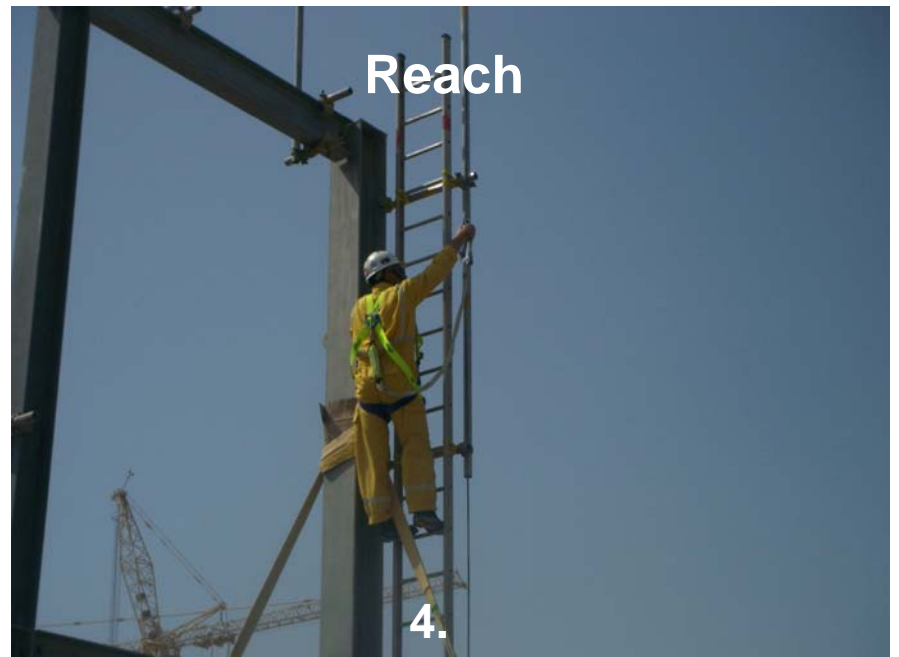
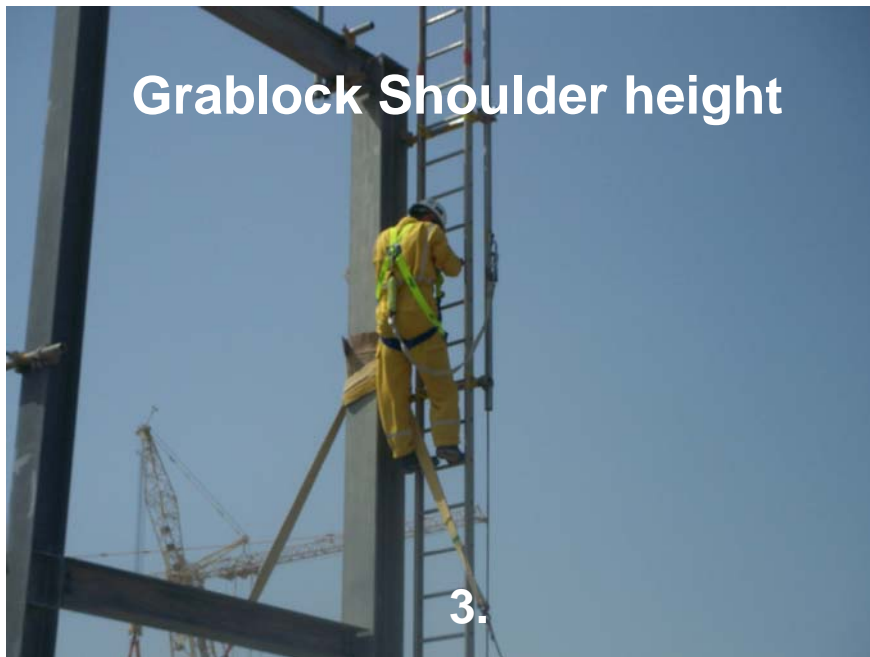
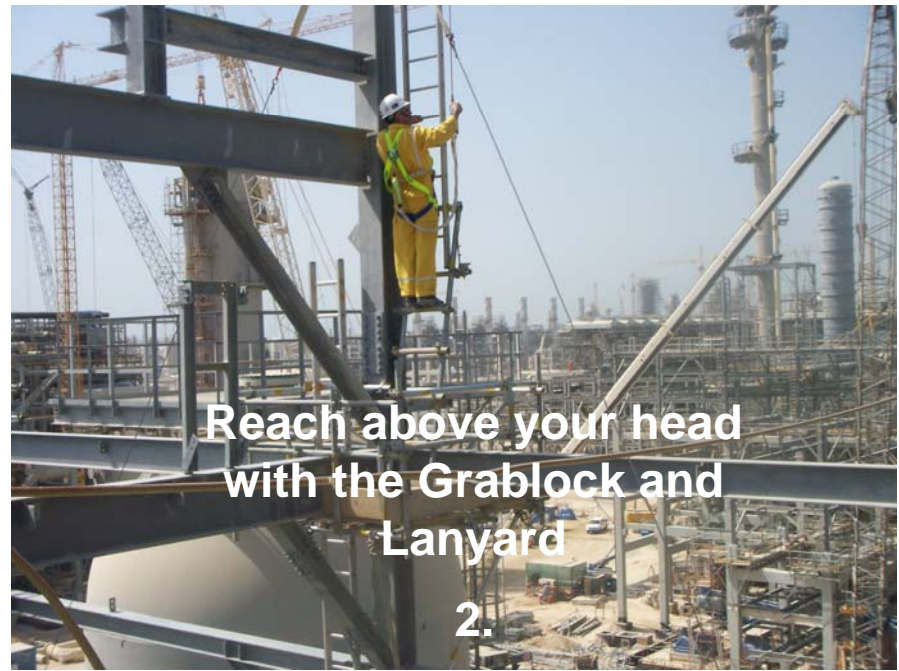


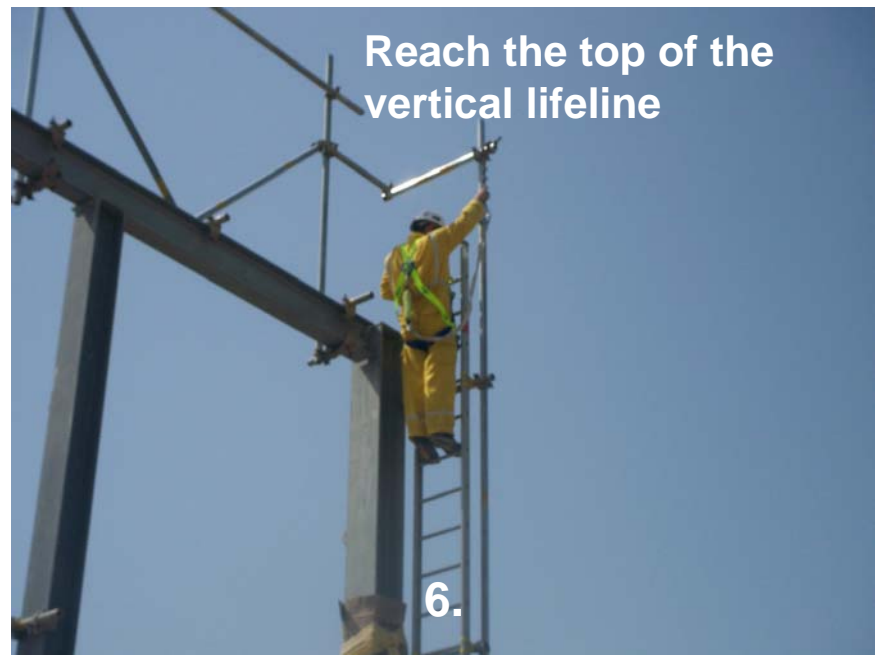
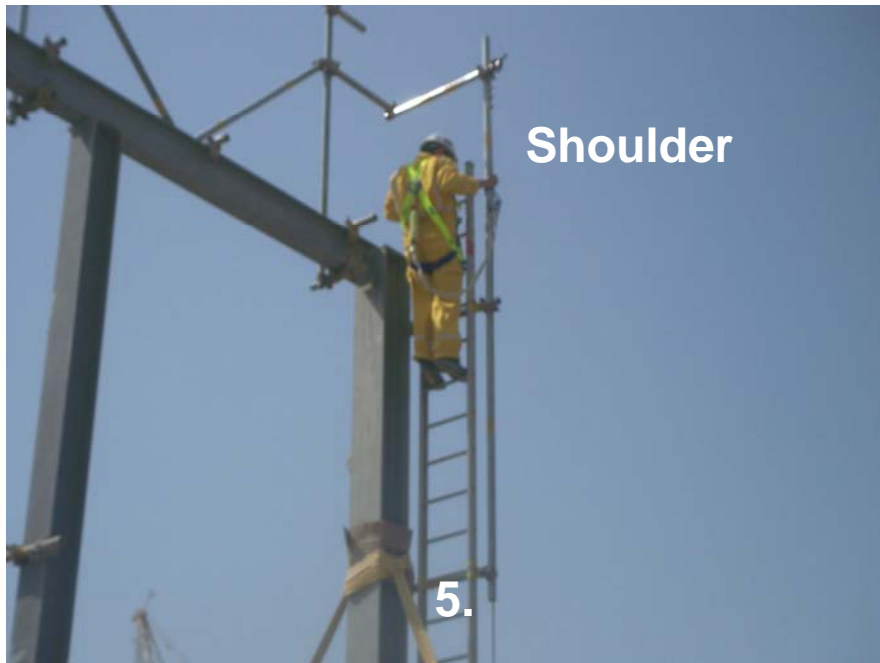
Vertical lifelines

Safe method of Climbing

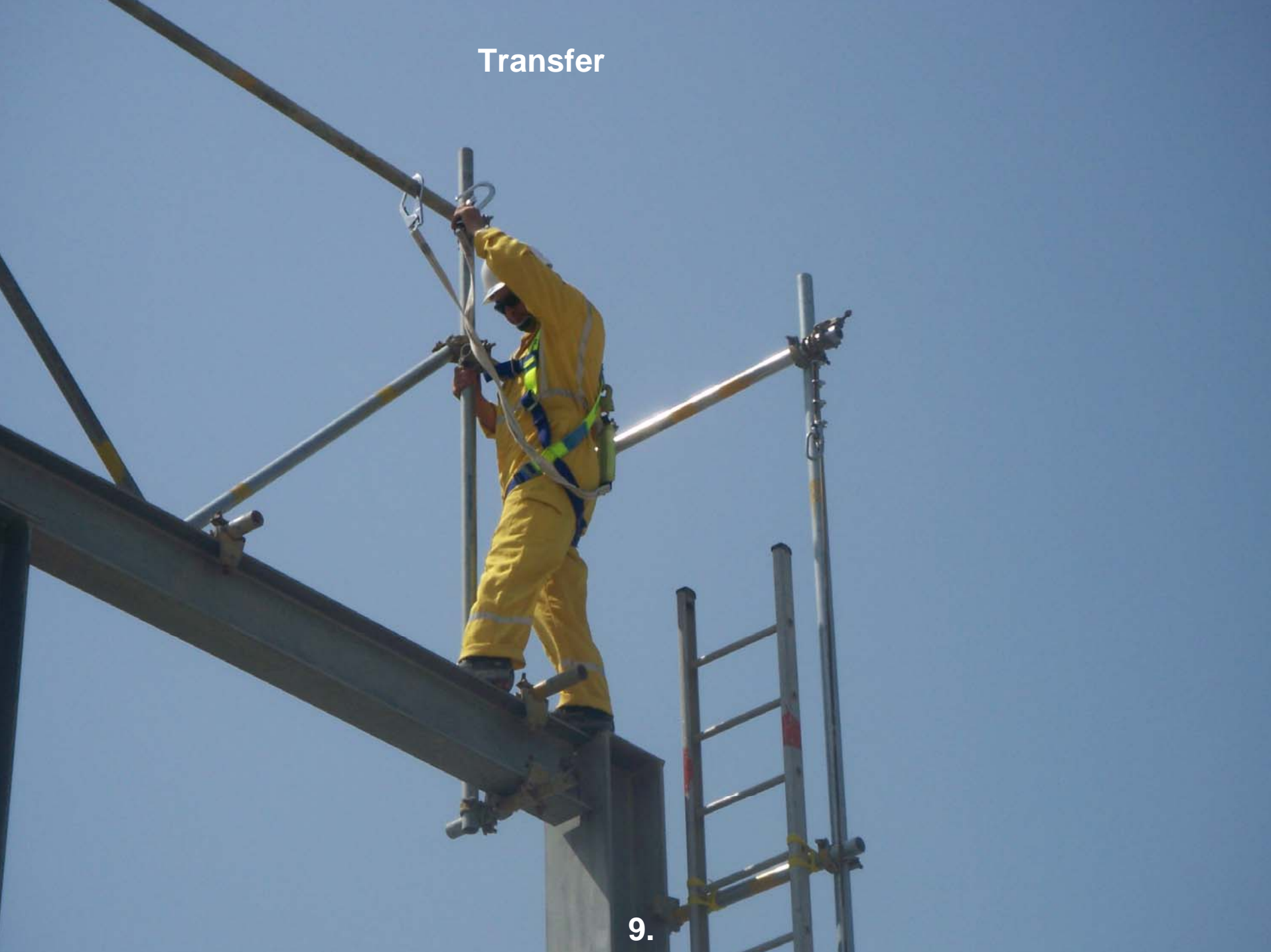
Good Practice

TOOL BOX TALK





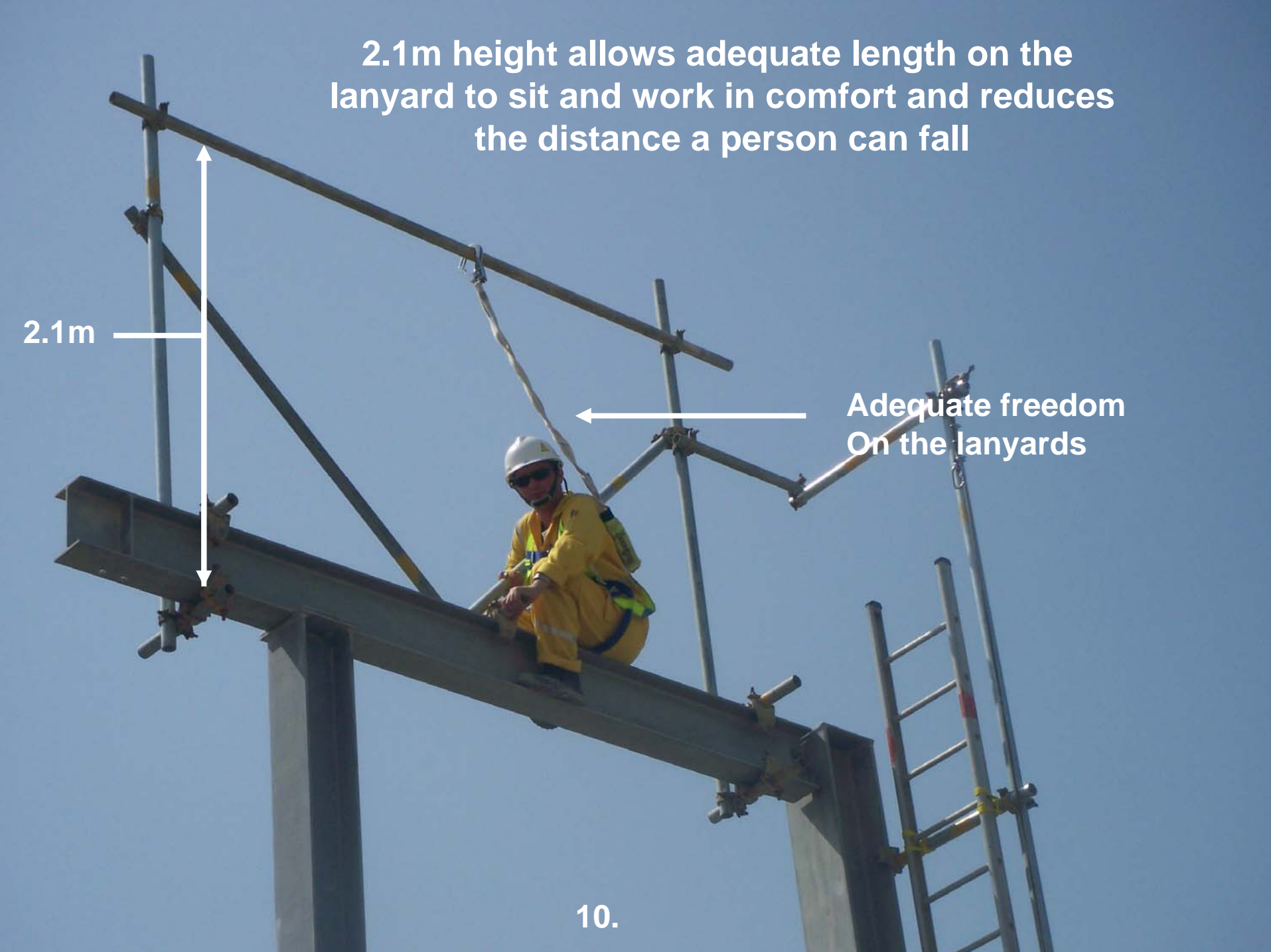
Transfer



2.1m height allows adequate length on the lanyard to sit and work in comfort and reduces the distance a person can fall

2.1m

**Adequate freedom
On the lanyards**



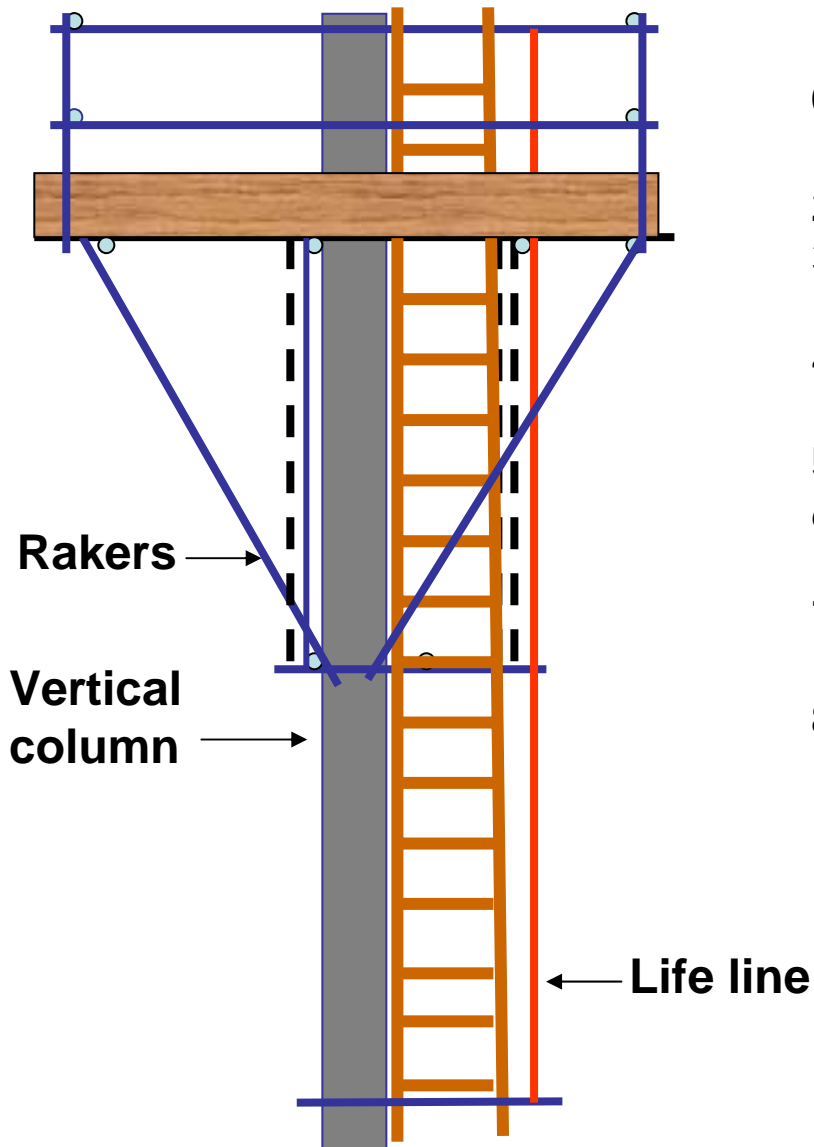
Access to Crows Nest Scaffold using vertical lifelines and ladders



SAFE TO USE



Crows nest Cantilever Scaffold Vertical Stanchion prefabricated before lifting into position by crane



General notes

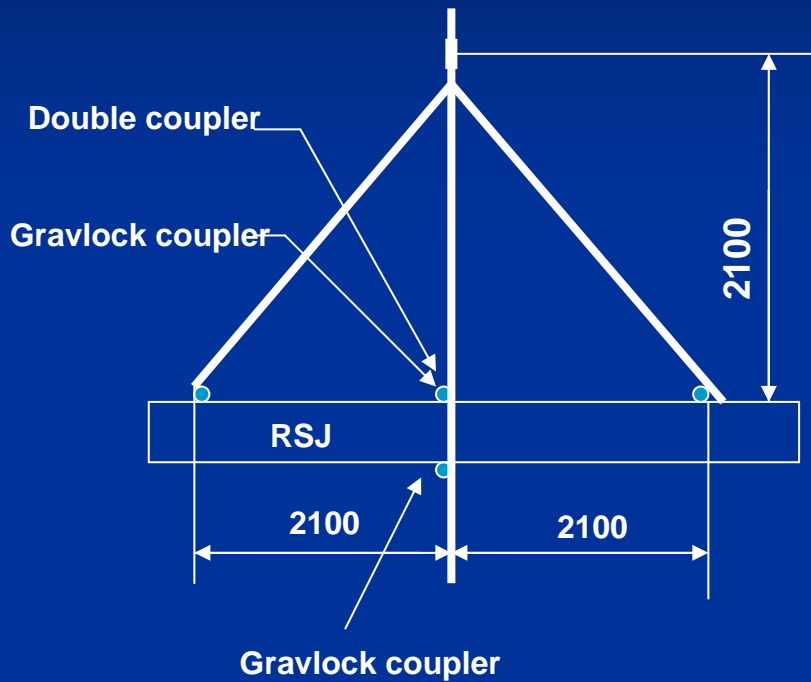
1. All scaffold materials comply with BS1139
2. Scaffold boards 38mm thickness
3. Scaffold must be built in accordance with BS 5973 1993
4. All right angle couplers must be load bearing SWL 9.4 Kn
5. All scaffold boards must be secured.
6. Ladder access to be provided in accordance to regulations
7. The platform designed to superimposed load of 1.50 Kn/ m^2
8. The scaffold will be erected and attached to the vertical column while the column is in the horizontal position. This will be carried out before it is lifted to the vertical by the crane. The scaffold will not be subject to lifting by the crane only the column which the scaffold will be attached to

LIFELINES

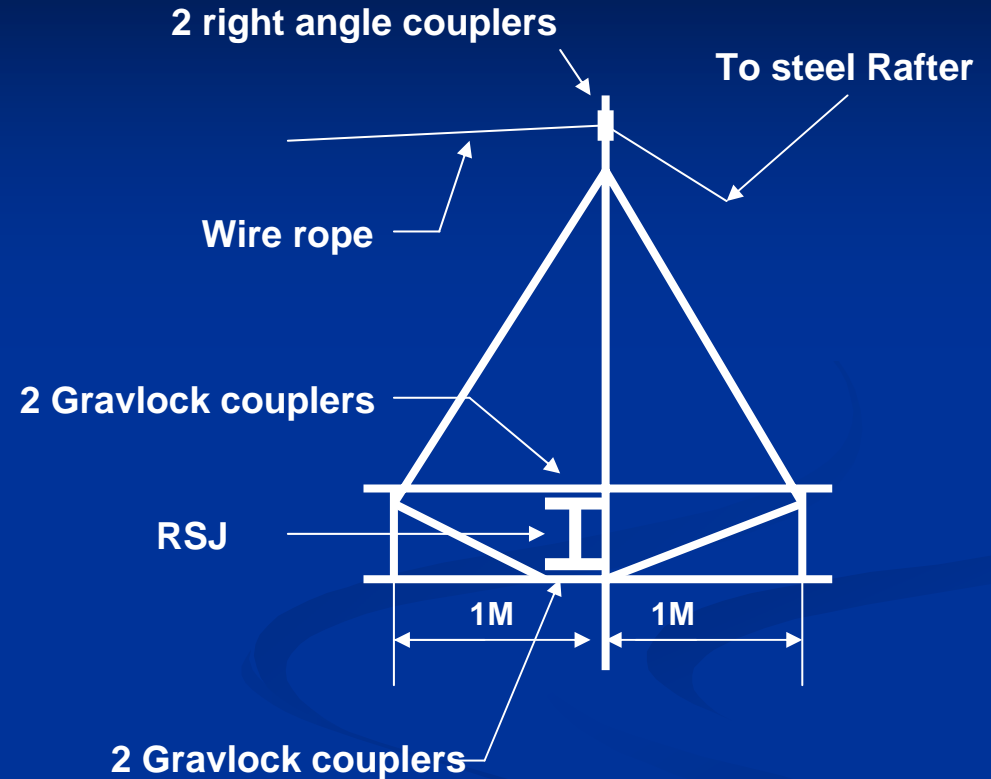
Horizontal lines designed supports

Safe Practice

ENGINEERED DESIGN



SEC. B - B

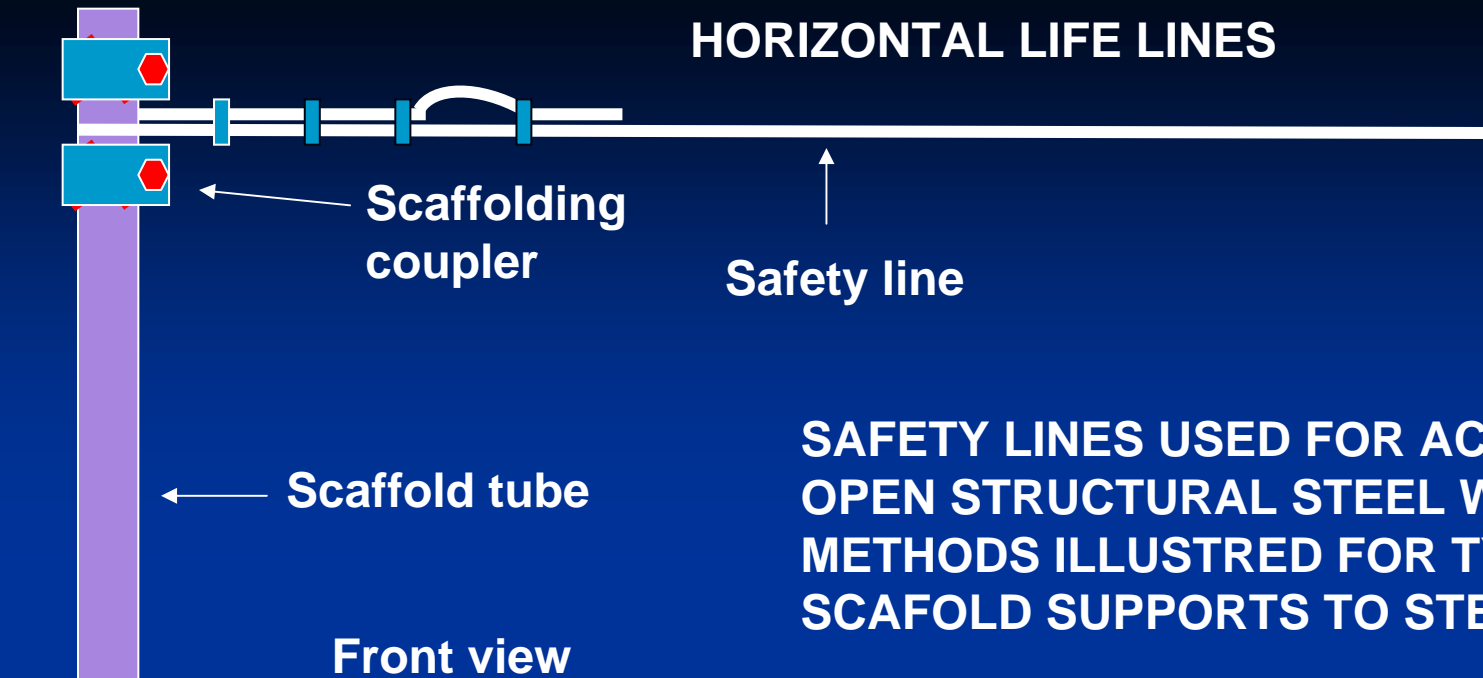


SEC A - A

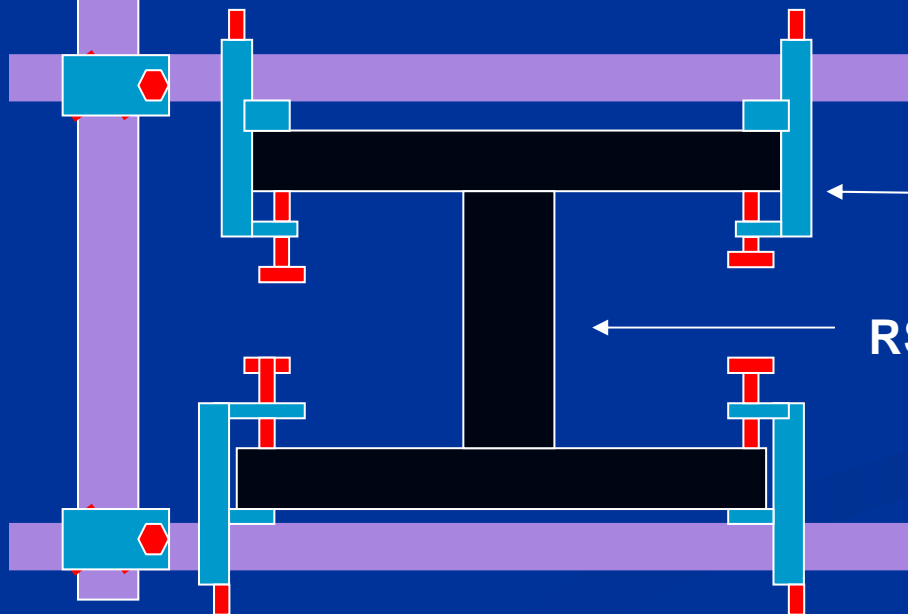
GENERAL NOTES

1. All scaffold materials to comply with Bs1139
2. Drawing must not be scaled
3. Scaffold must be built in accordance with BS5973. 1993:
4. All right angle couplers must be load bearing SWL = 6.3kN

HORIZONTAL LIFE LINES



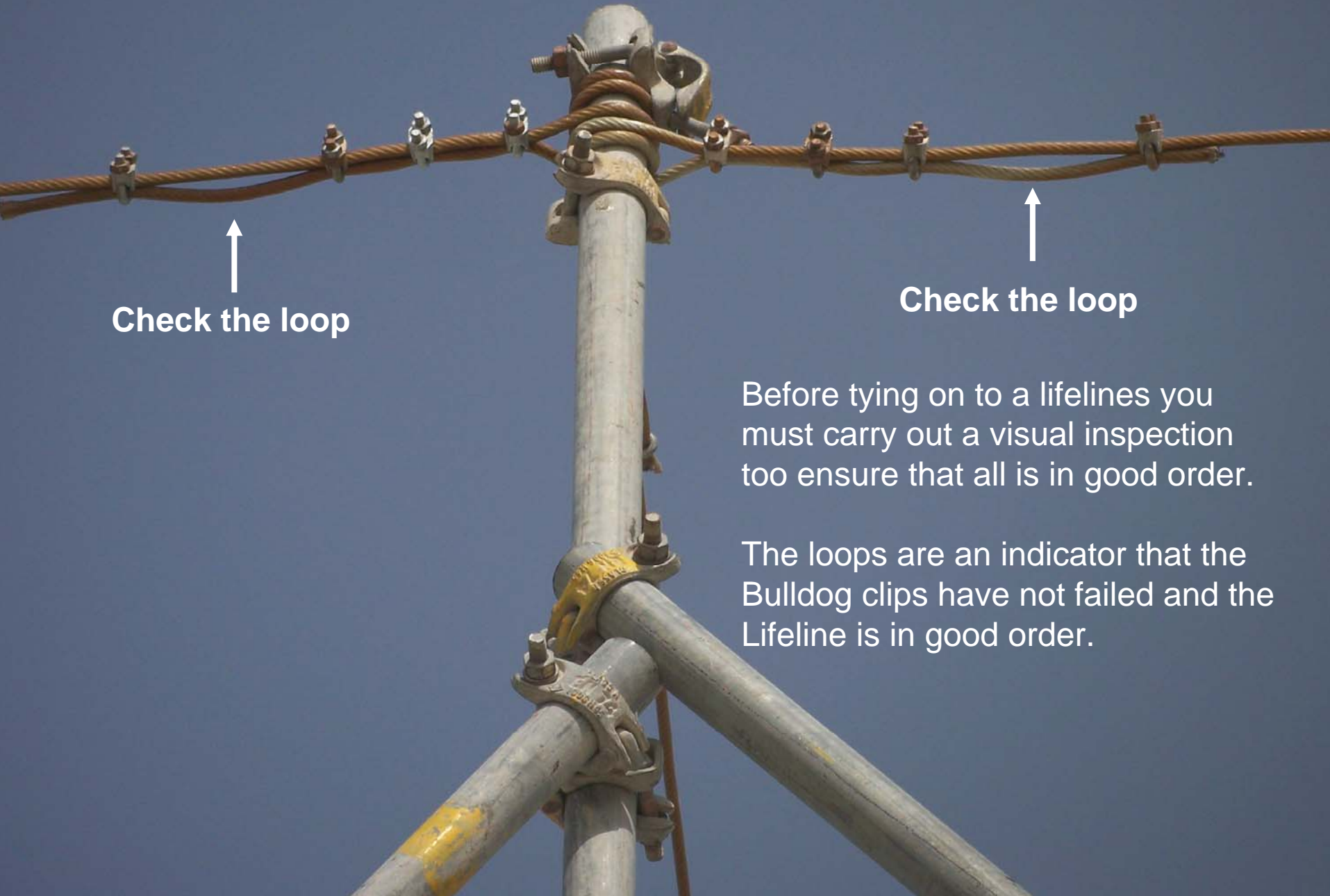
**SAFETY LINES USED FOR ACCESS ON
OPEN STRUCTURAL STEEL WORK
METHODS ILLUSTRATED FOR TYING
SCAFOLD SUPPORTS TO STEEL WORK**



**GRAVLOCKS
BEAM CLAPMS**

RSJ

Safety Loops



↑
Check the loop

↑
Check the loop

Before tying on to a lifelines you must carry out a visual inspection too ensure that all is in good order.

The loops are an indicator that the Bulldog clips have not failed and the Lifeline is in good order.

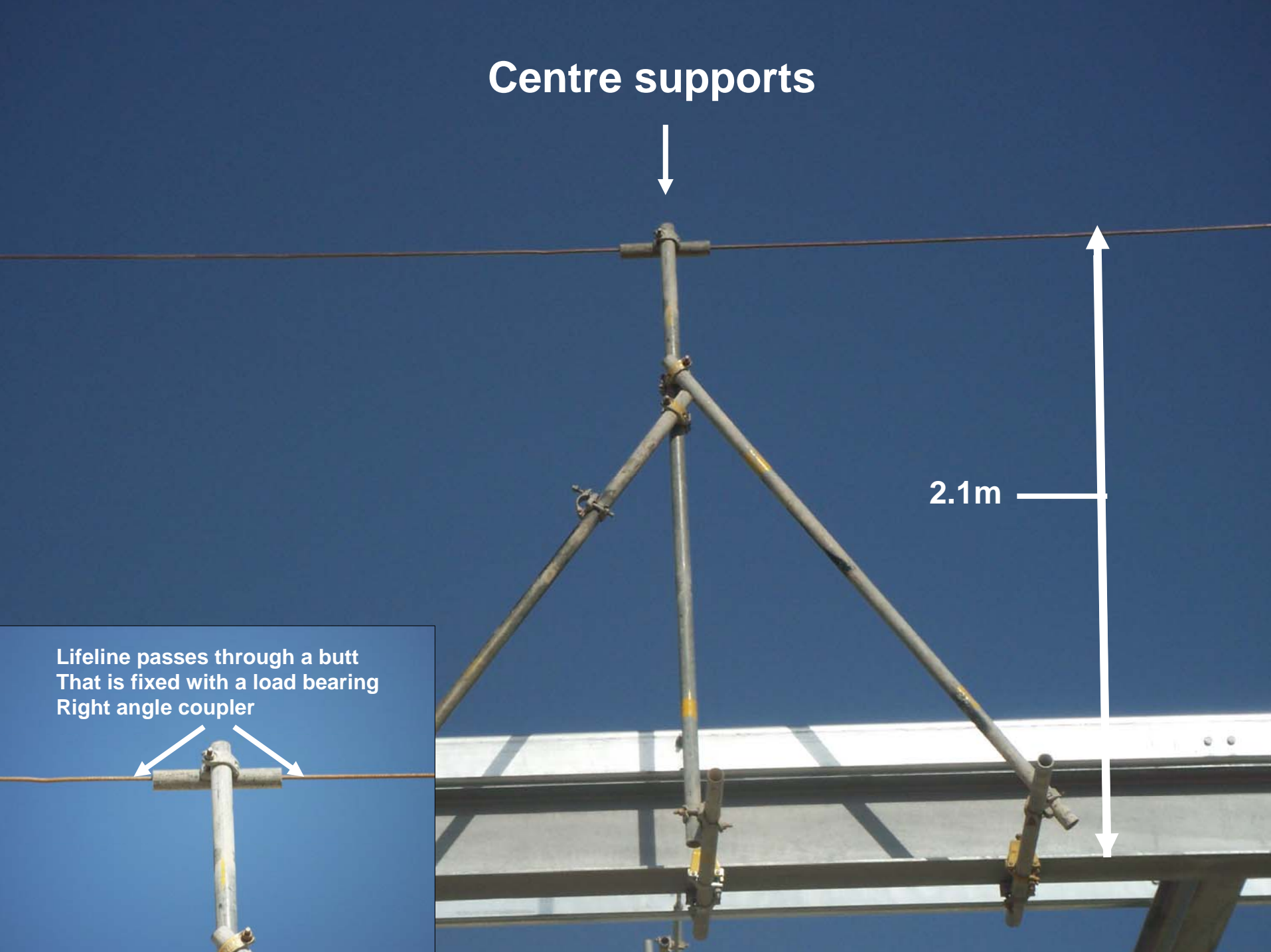
Centre supports



2.1m



Lifeline passes through a butt
That is fixed with a load bearing
Right angle coupler



Walk the beam



Cross over Change



Cross over complete



Destination reached safely



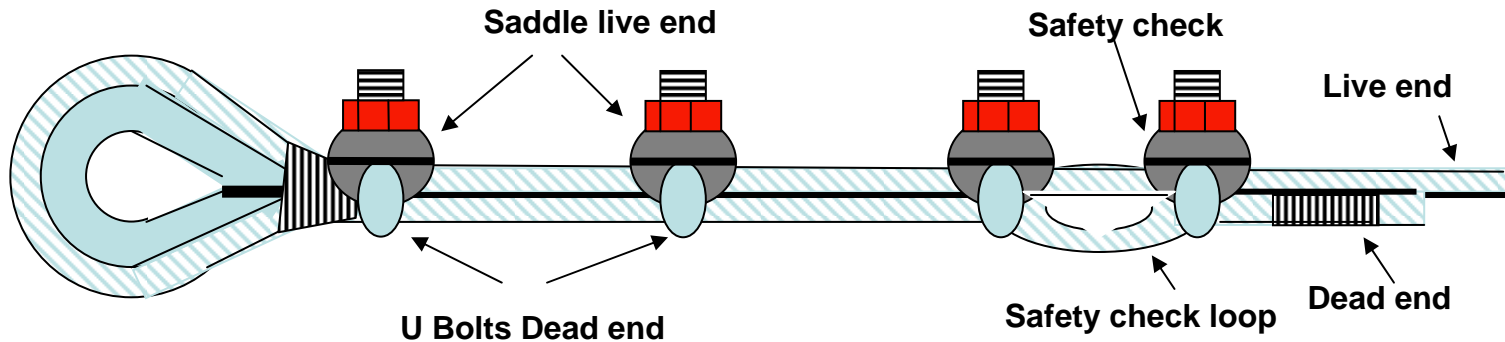
CROWS NEST

SCAFFOLDS

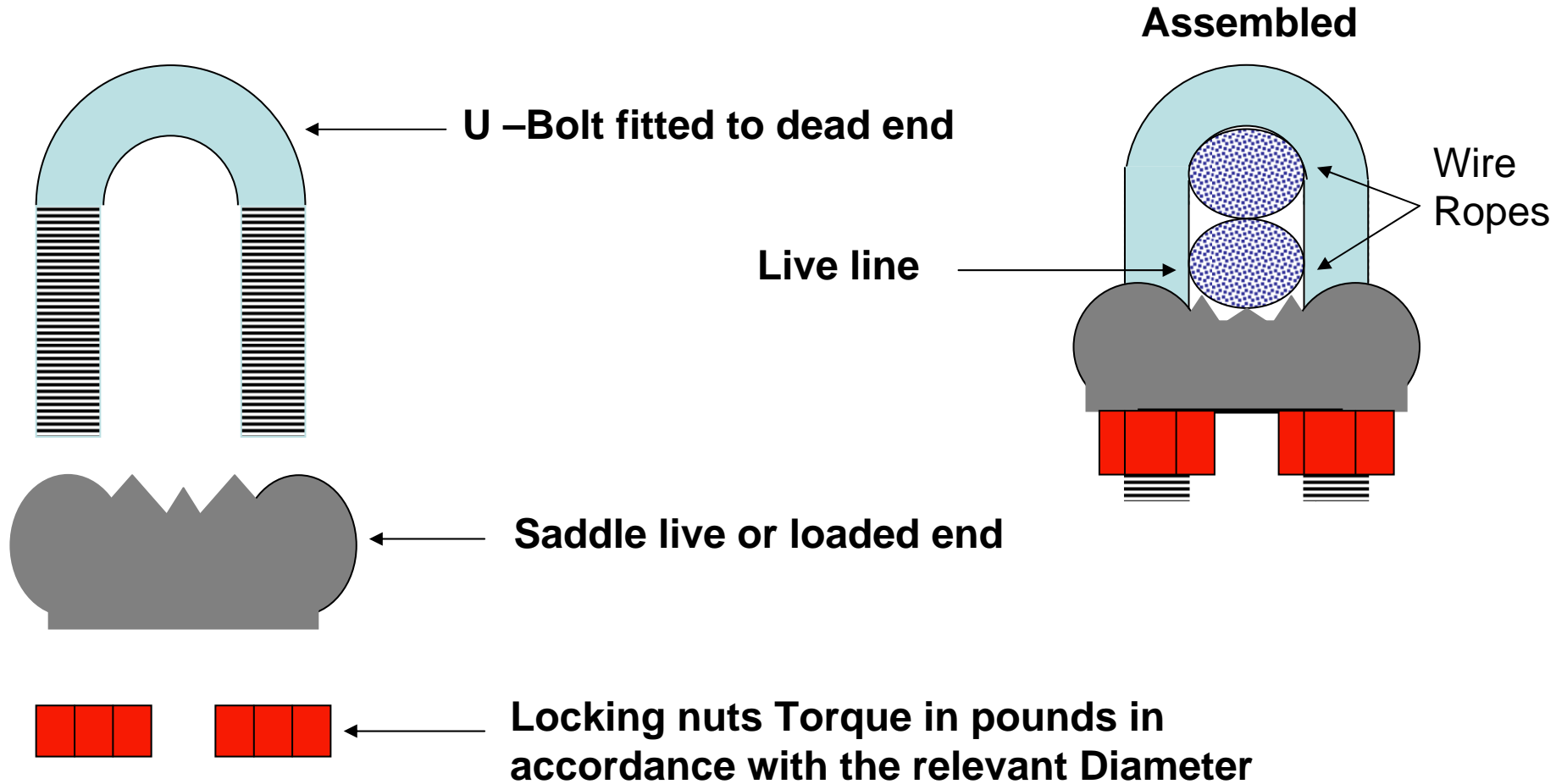
BULL DOG CLIPS

INSTALLATION OF WIRE CLIPS

| Rope diameter (inches) | Minimum No of Clips | Amount of Rope Turn back from Thimble (inches) | Torque in Foot – pounds Unlubricated Bolts |
|------------------------|---------------------|--|--|
| 1/8 | 2 | 3 ¼ | - |
| 3/16 | 2 | 3 ¾ | - |
| ¼ | 2 | 4 ¾ | 15 |
| 5/16 | 2 | 5 ½ | 30 |
| 3/8 | 2 | 6 ½ | 45 |
| 7/16 | 2 | 7 | 65 |
| ½ | 3 | 11 ½ | 65 |
| 9/16 | 3 | 12 | 95 |
| 5/8 | 3 | 12 | 95 |
| ¾ | 4 | 18 | 130 |
| 7/8 | 4 | 19 | 225 |
| 1 | 5 | 26 | 225 |



WIRE ROPE CLIPS



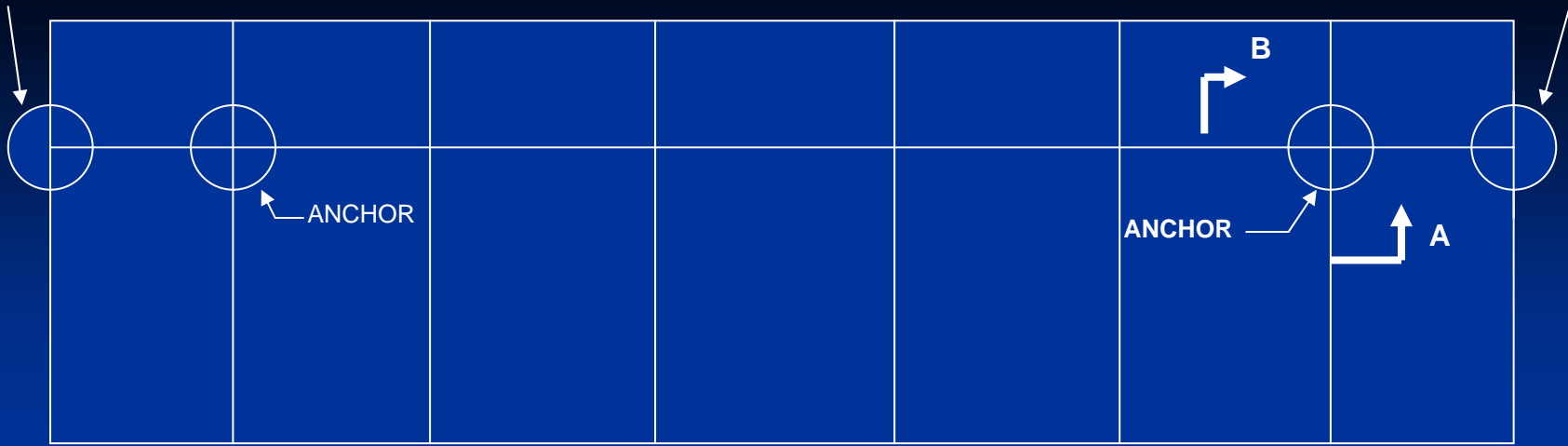
SUPPORTS

Typical arrangement for lifelines



SEE ATTACHMENT O - 4

SEE ATTACHMENT O - 4



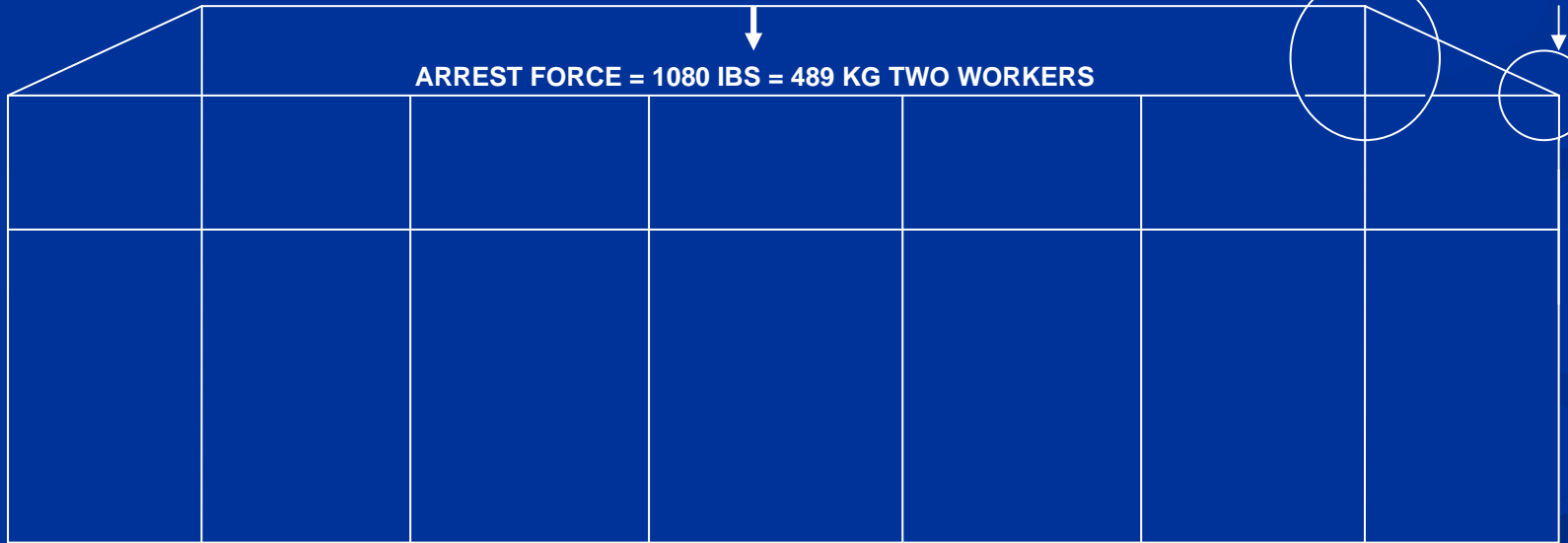
PLAN

WIRE ROPE 6 X 7 (MINIMUM
BREAKING LOAD 5.99 TON

SEE ANCHOR POINT DETAIL

SEE ATTACHMENT O - 4

ARREST FORCE = 1080 IBS = 489 KG TWO WORKERS



6000

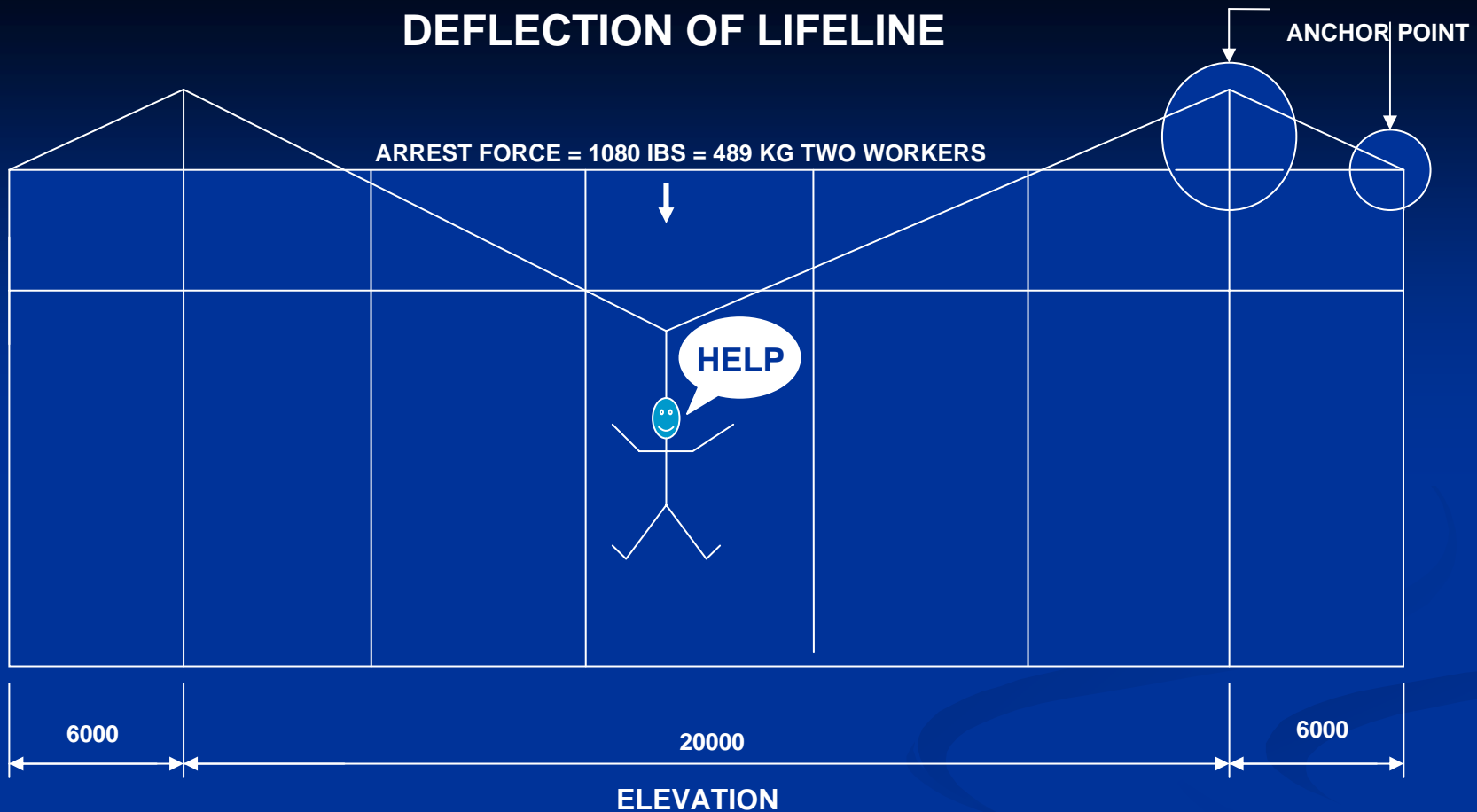
24000

6000

ELEVATION

82

DEFLECTION OF LIFELINE



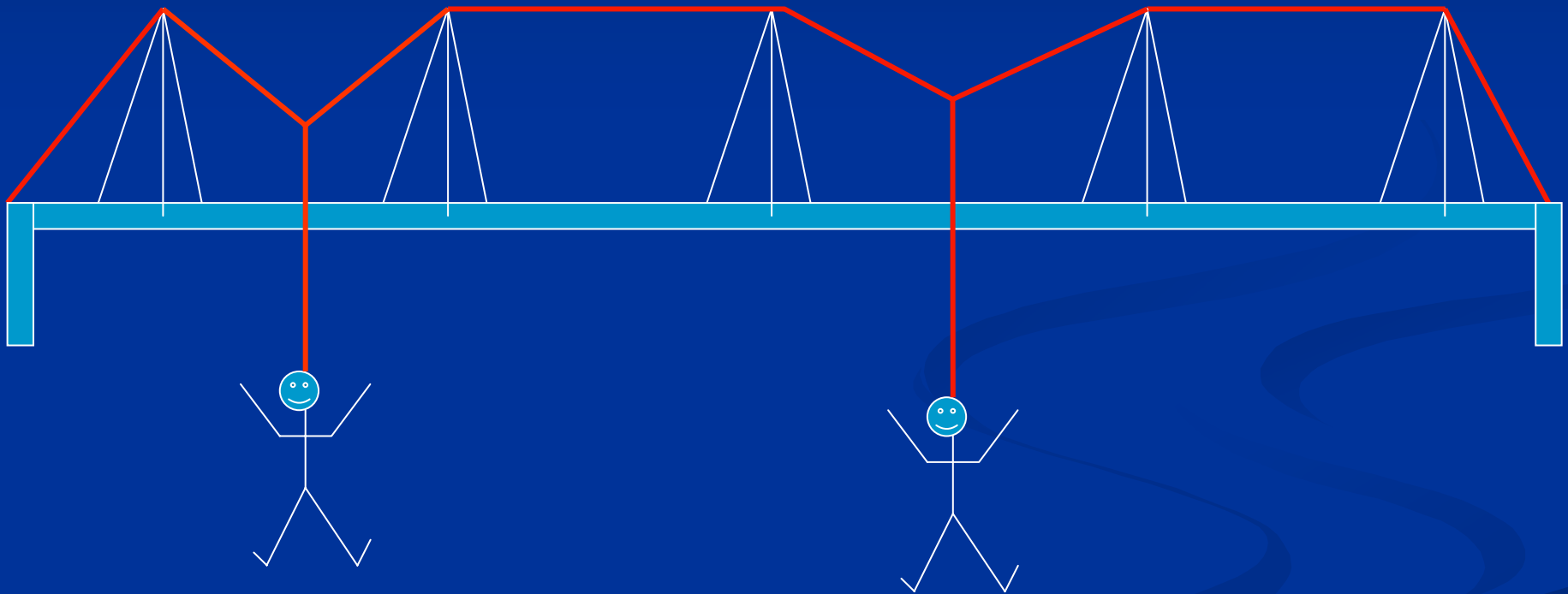
The distance between anchor point and the ground surface is equal to 5.60m + deflection of the lifeline the deflection depends on span.

For example if the span is equal to 12m the distance is equal to 5.60m + (initial deflection) + 0.66m deflection due to fall then the total = 6.040m.

For the span of 20m the distance is equal to 5.60m + 0.30m + 1.03m = 6.93m.

The lifelines are sufficiently strong enough to allow two men to use. However this can only be allowed if they are working on the lifelines that are separated and supported. As shown below.

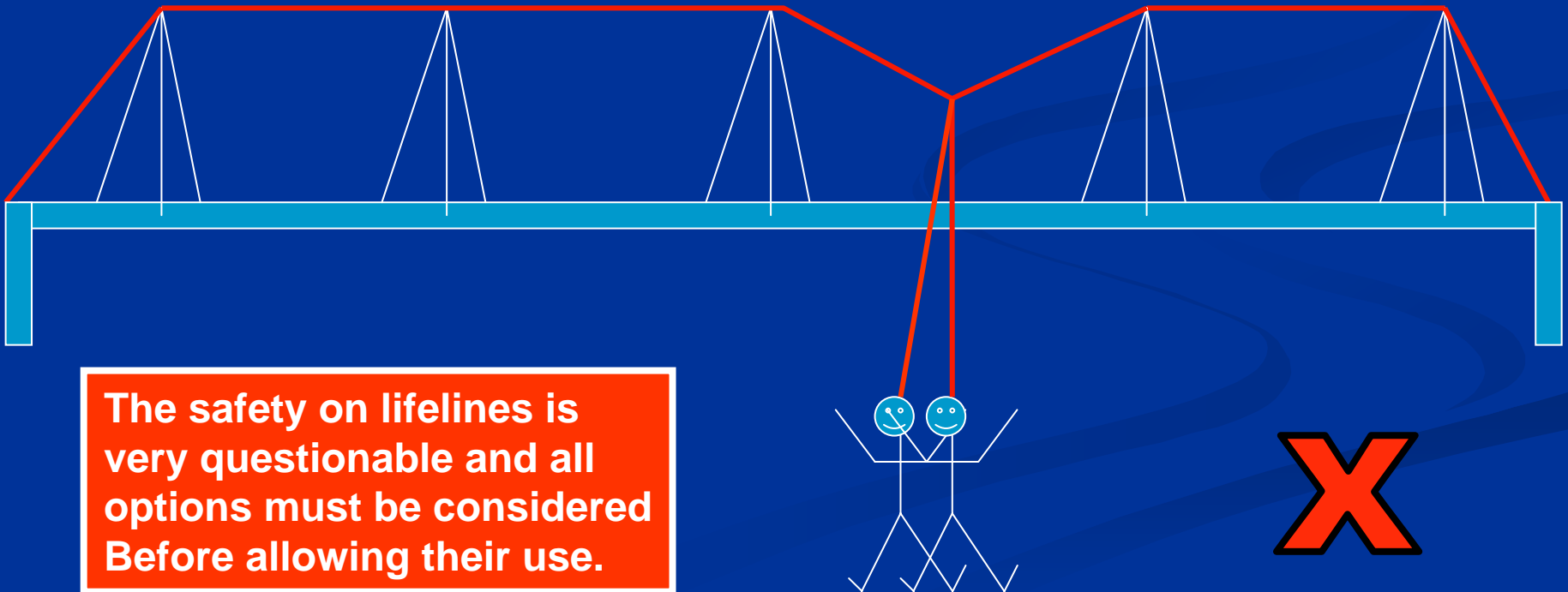
Supports are required at agreed distances to allow the use for two men. Two men on the same section is not allowed



At 6m spans the deflection on the life line is reduced
Deflection = 0.10m + 0.35m + 5.60m + 6.02m

FORBIDDEN

The lifelines are sufficiently strong enough to allow two men to use. However this can only be allowed if they are working on the lifelines that are separated and supported. Two workers falling in the same bay the results could be disastrous as shown below. One would pull the other off if a fall occurred creating a mid air collision between the two workers.



The safety on lifelines is very questionable and all options must be considered Before allowing their use.

CONCLUSION

The horizontal lifeline falls arrest have been analysed using the principal described in attachment a-10 with the loading as recommended by OSHA.

- 1. The cable tension load is less than the cable breaking total with a factor of safety equal to 2.25.**
- 2. The axial load on a tubular column is less than the permissible load and a factor of safety equal to 3.7.**
- 3. The safe working load capacity of a coupler is greater than the applied load with a factor of safety equal to 3.**

We therefore conclude on the merit of the above factual information that the Horizontal lifeline with the anchorage system is safe and fit to use.

INSPECTION SHEETS

LIFELINE CHECK LIST

LIFELINE REGISTER

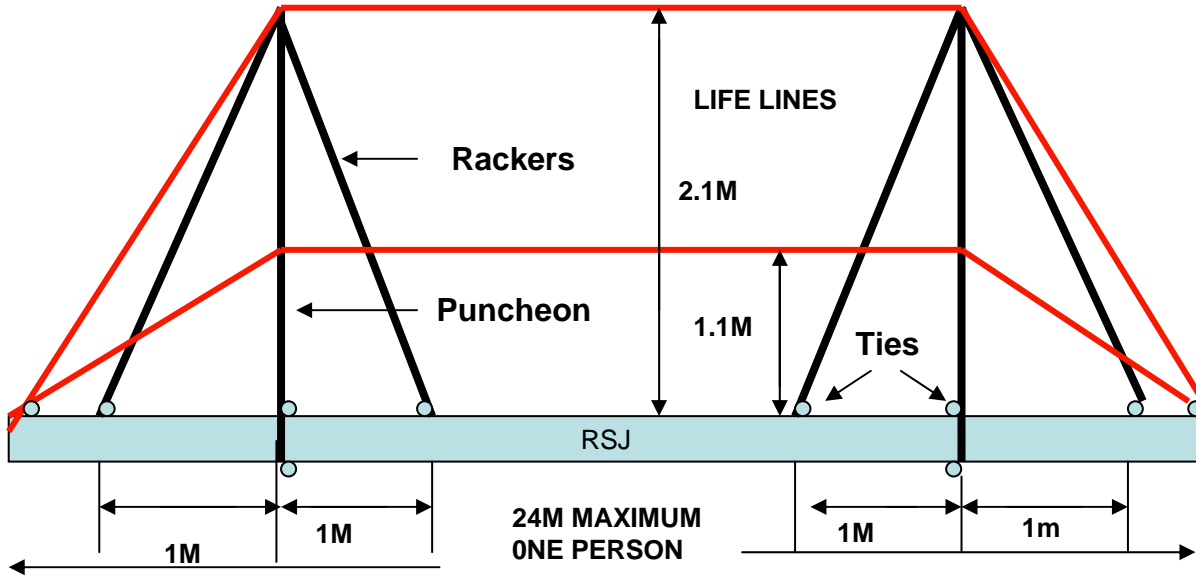


LIFE LINE INSPECTION CHECK SHEET



| Checks pass / Fail | Pass | Fail | Bull dog clips | Pass | Fail |
|--------------------|------|------|--|------|------|
| Rackers | | | Bull dog clips correctly spaced 6 x Diameter | | |
| Ties | | | Saddle on Live Line | | |
| Puncheons | | | Sufficiently tightened to correct torque | | |

| Checks pass / Fail | Pass | Fail | Life lines Checks Pass / Fail | Pass | Fail |
|---------------------|------|------|-------------------------------|------|------|
| Correct Fitting; | | | Kinks | | |
| Correct application | | | Tight | | |
| Ladders | | | Height | | |



Date _____

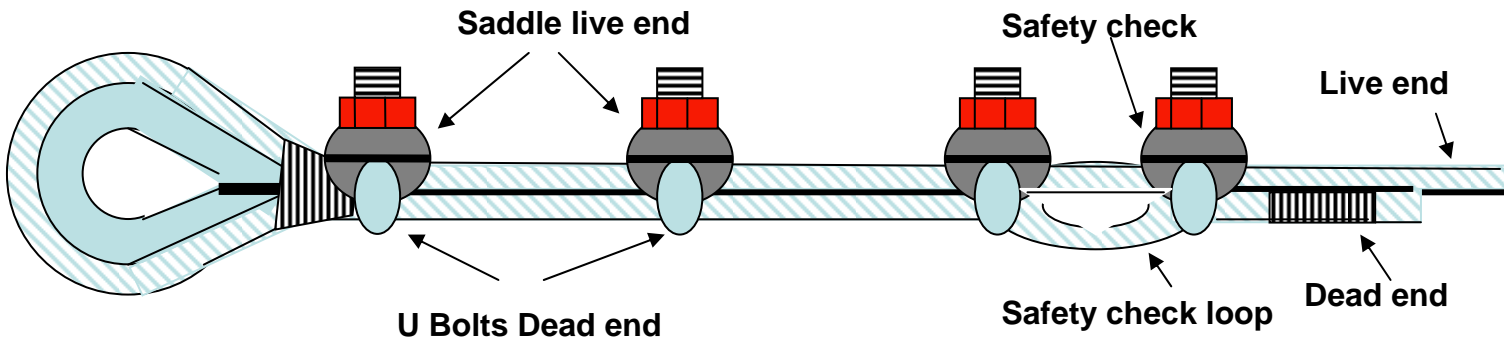
Location _____

Equipment _____

Tag No _____

Inspected by _____

Signature _____



| LIFE LINE CHECKS | | |
|-------------------------|------|------|
| Safety checks | Pass | Fail |
| Bull dog clips checked | | |
| Safety loop No slippage | | |
| Correct spacing | | |

NOT TIED OFF nearly 30M high
This is suicidal

HOW TO DIE VERY QUICKLY

