



Scaffold Safety Workshop

Loss Prevention Department

Rules to follow:

- Be on time after coffee & lunch breaks
- Pagers, mobile phones & other electronic devices must be set to silent mode or shut-off
- Minimize side conversations.
- Be aware of emergency procedures for fire evacuation.
- Know the locations of smoking areas, toilets, etc.

Schedule

- 0730: Introduction
- 0745: Scaffold Components
- 0830: Exercise: Scaffold Terminology
- 0845: Coffee Break
- 0900: Harness/Lanyard Inspection & Use
- 0915: Exercise: Full-body Harness Use
- 1000: Coffee Break
- 1015: Scaffold Inspection and Tagging
- 1130: Lunch Break
- 1230: Scaffold User's Checklist
- 1330: Coffee Break
- 1345: Scaffold General Requirements
- 1430: Short Examination

Presentation Outline

- Introduction
- Scaffold Components
- Harness/Lanyard Inspection & Use
- Scaffold Inspection and Tagging
- Scaffold User's Checklist
- Scaffold General Requirements

Workshop Objectives

- Learn the different types of scaffold & its components
- Learn how to inspect & use a full body harness & lanyard
- Learn how to inspect and tag a safe or unsafe scaffold
- Learn how to use the Scaffold User's Safety Checklist
- Learn the scaffold general safety requirements



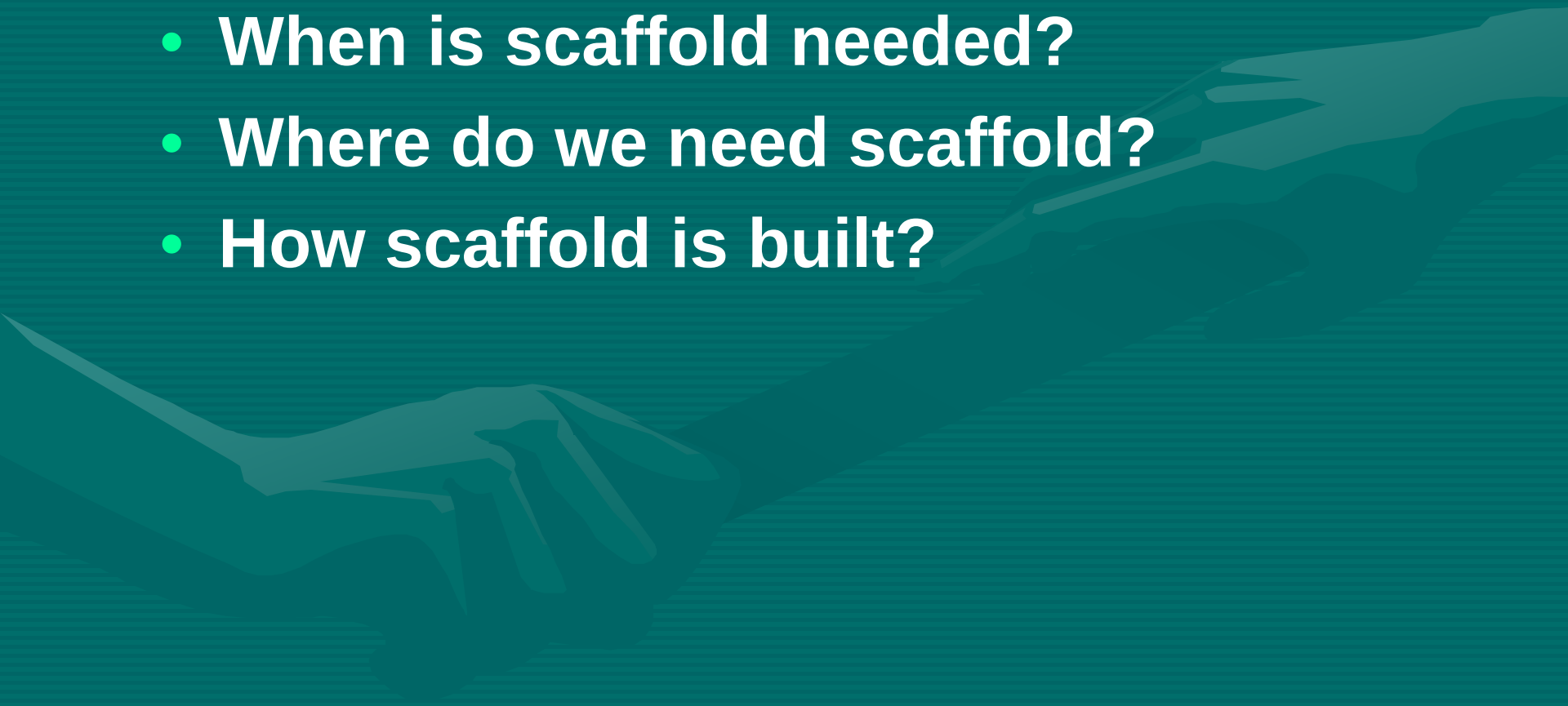
Scaffold Safety Workshop

Part - 1

INTRODUCTION & SCAFFOLD COMPONENTS

Think...

- What is a scaffold?
- When is scaffold needed?
- Where do we need scaffold?
- How scaffold is built?



What is a Scaffold?

Scaffold – is a temporary elevated platform and its supporting components used for supporting workmen, materials or both.



When is scaffold needed?

A scaffold is needed to provide temporary access & platform when work activities will be performed on plant equipment, building, or structure that are located above ground level



How scaffold is built?

Scaffold is built by connecting several components such as posts, runners, bearers etc. using either by 'couplers' or system 'connectors'



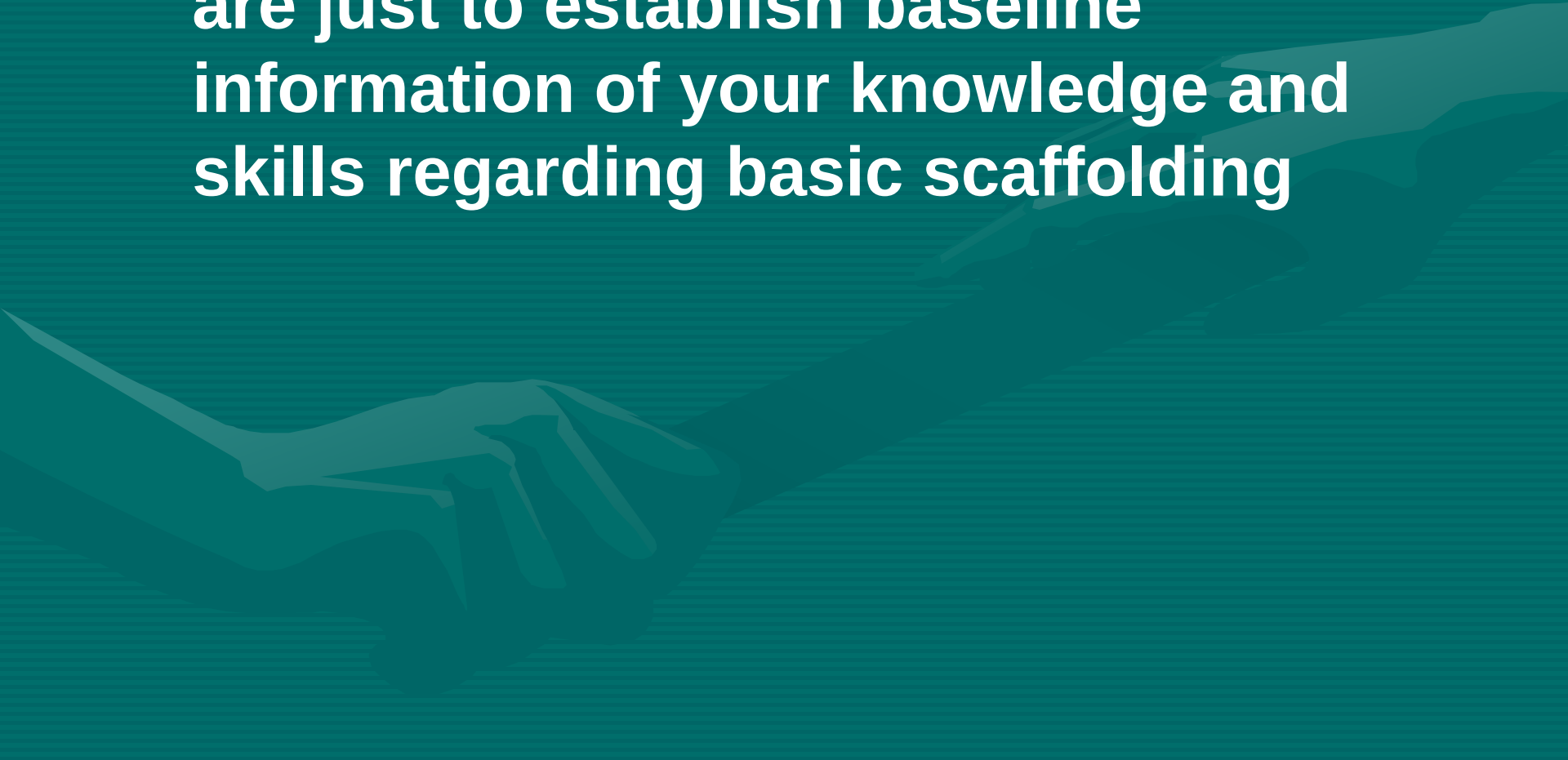
Unsafe Work Platform

- We have all seen unsafe working practices
- This man is at a big risk of a fall !
- If he fell the risk of injury is very high

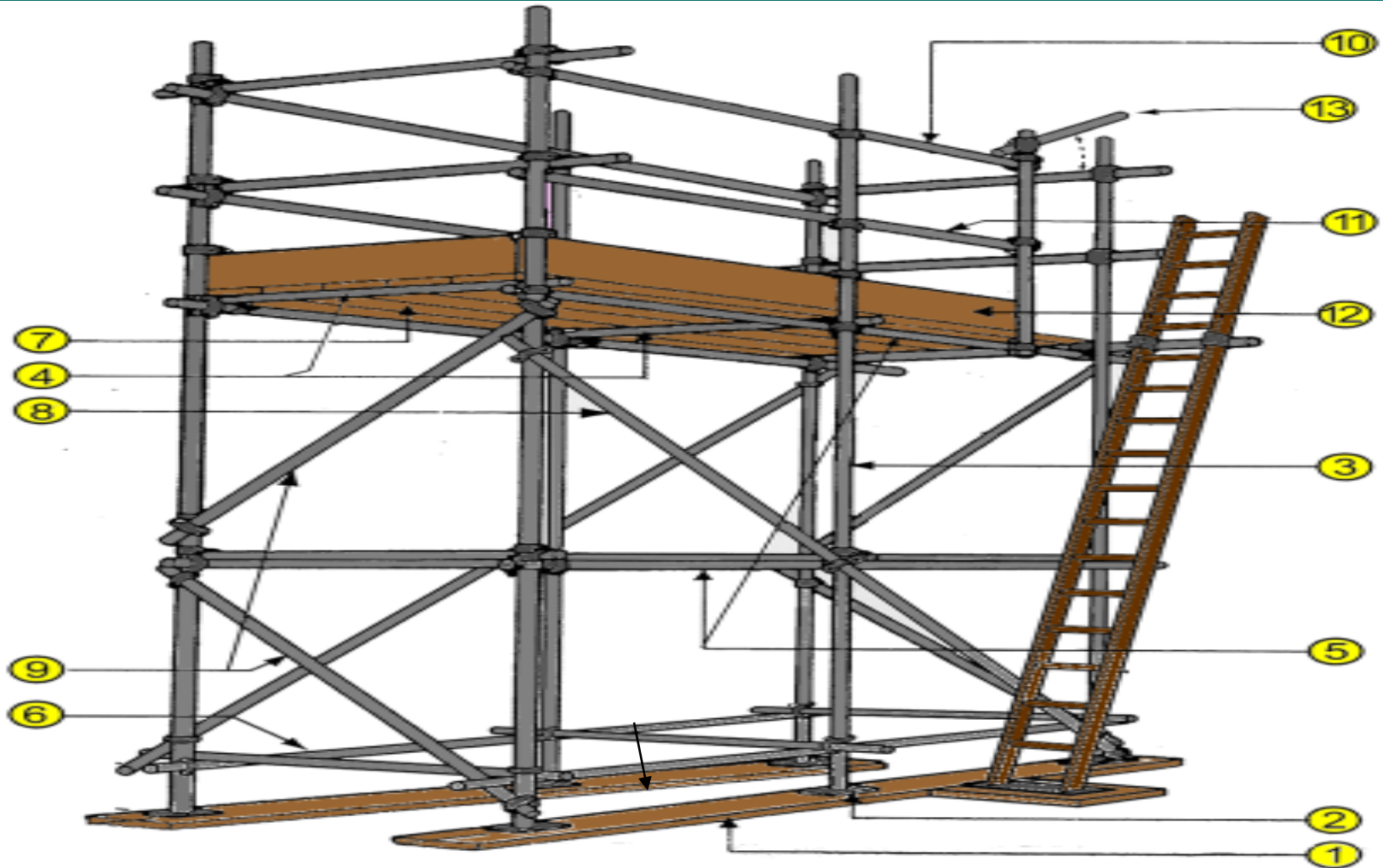


Exercises

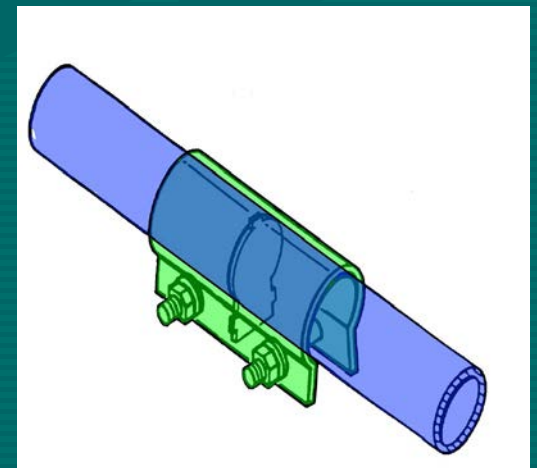
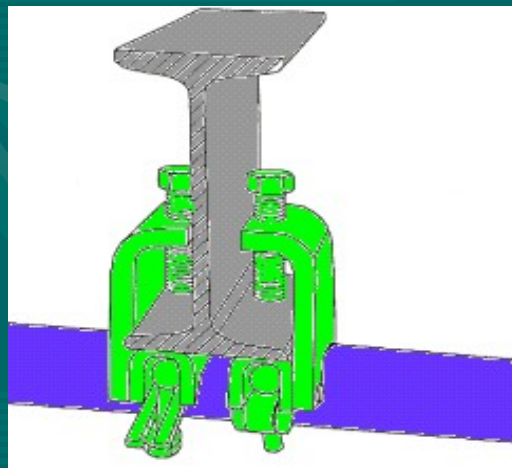
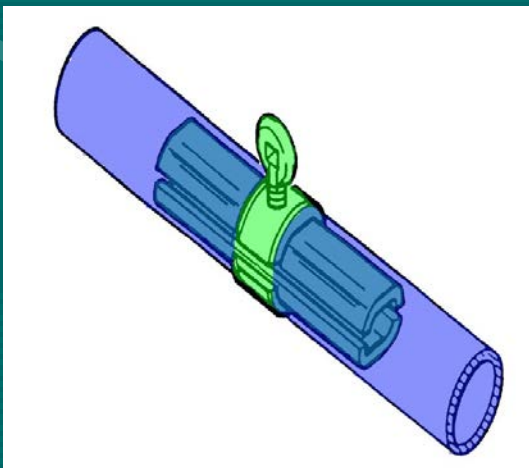
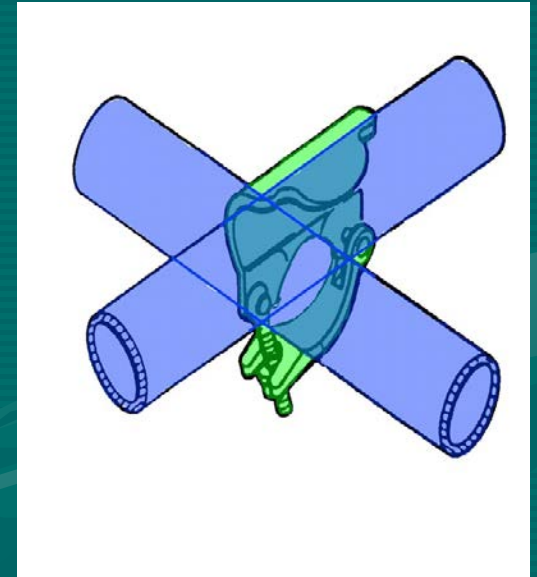
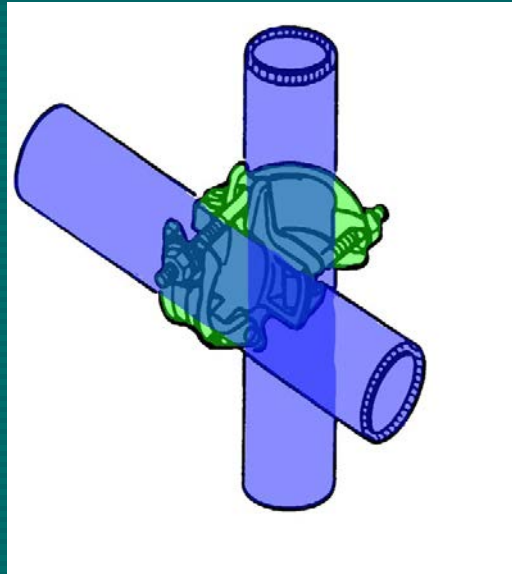
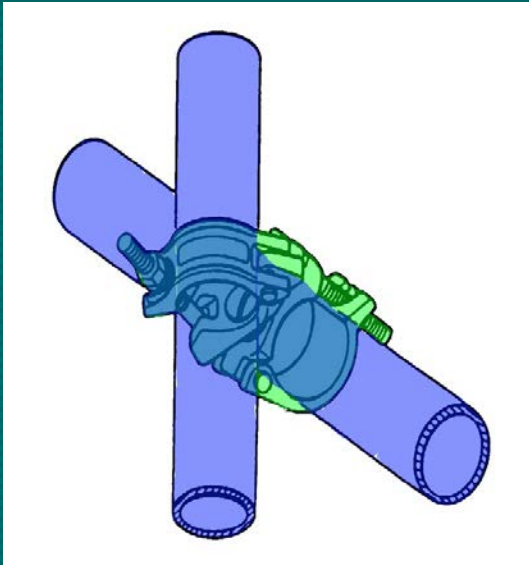
The following scaffold exercises are just to establish baseline information of your knowledge and skills regarding basic scaffolding



Exercise: Identify Components



Exercise: Identify Couplers



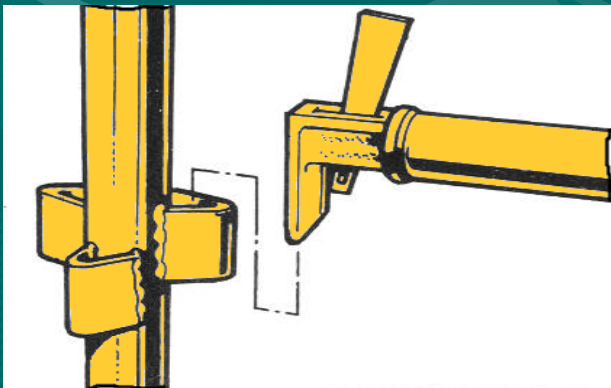
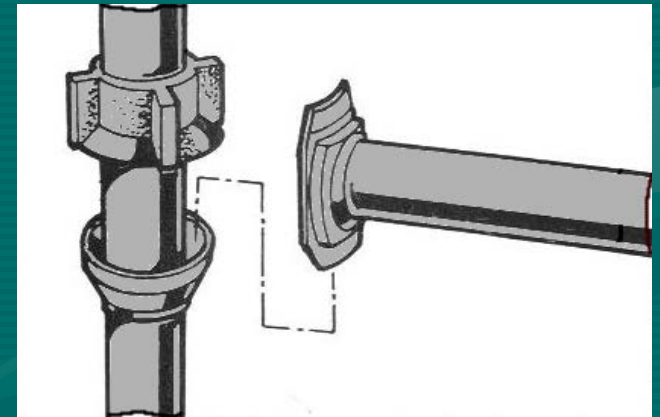
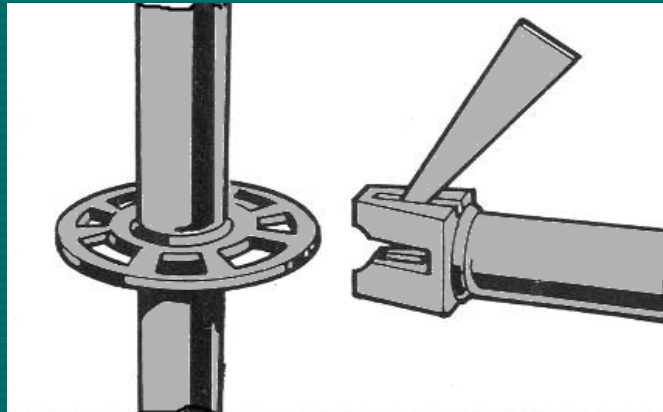
Types of Scaffold Construction

- **System type** – is a type of scaffold whose scaffold components are connected by fixed connectors
- **Tube & Coupler type** – is a type of scaffold whose scaffold components are connected by couplers

Types of 'System' Connections

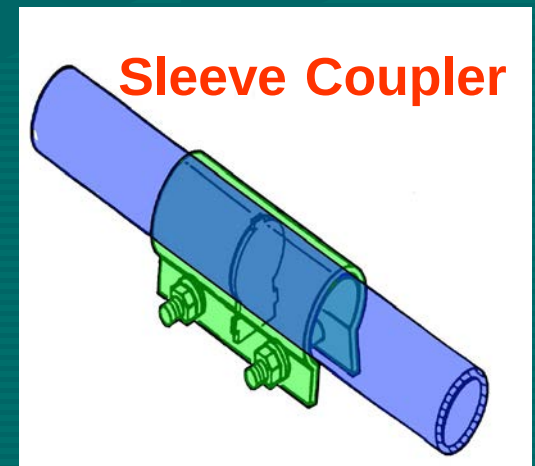
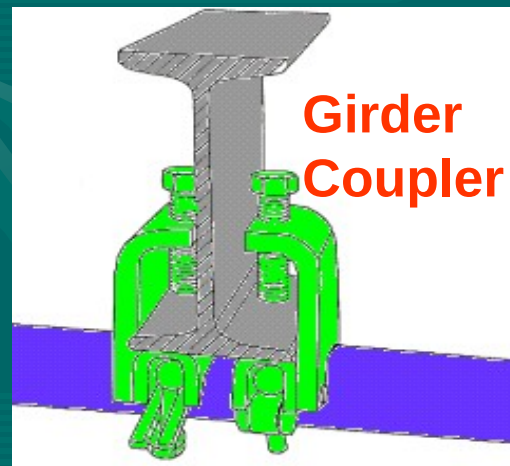
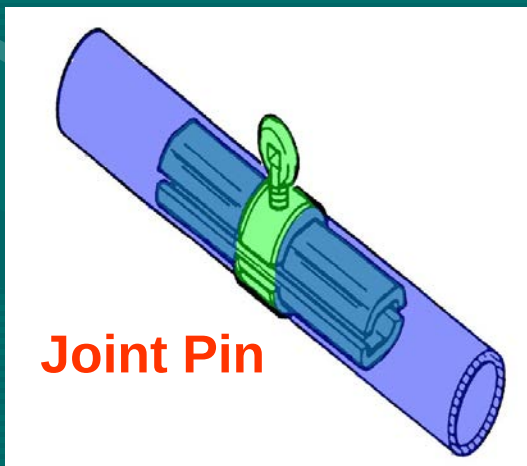
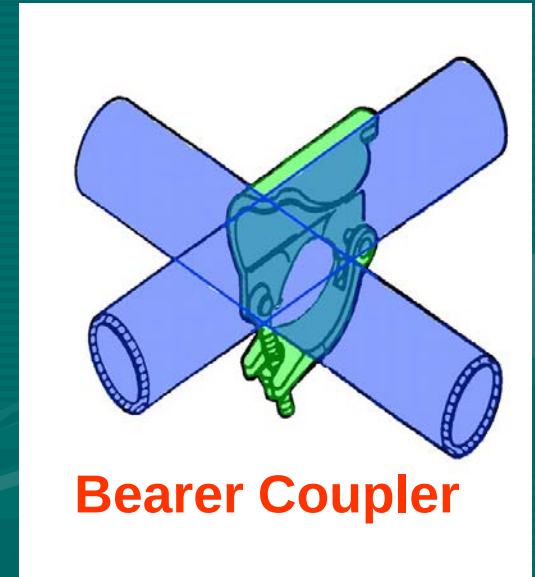
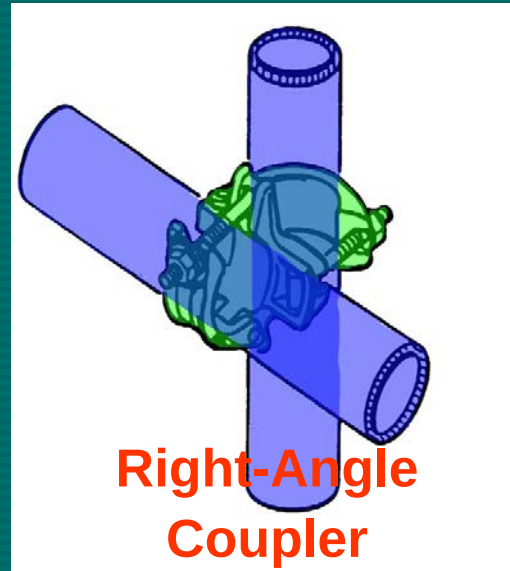
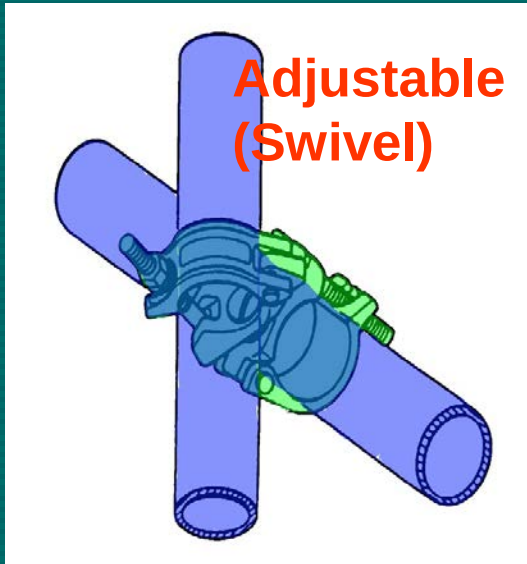
Cuplok Connections

Rosette Connections



Wedge Connections

Types of 'Tube' Connectors



Tube & Coupler Connections



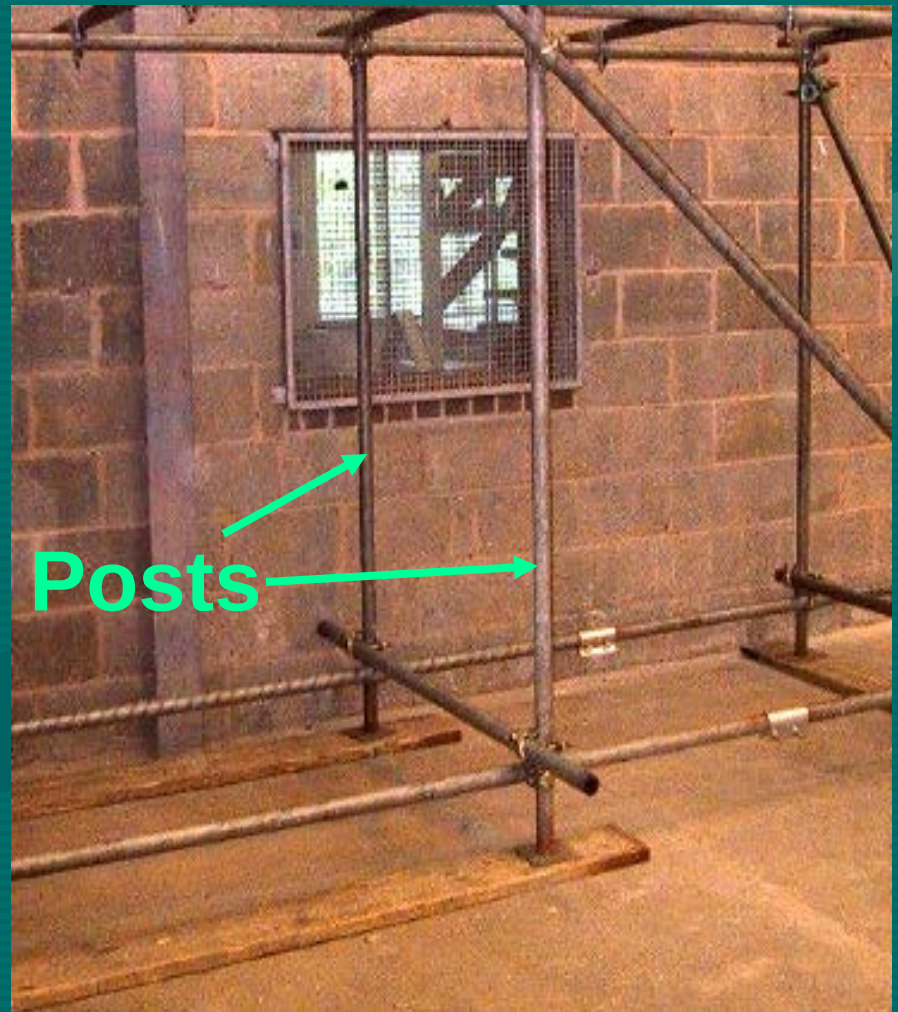
Think...

- What is a Post?
- What is a Runner?
- What is a Bearer?
- What is a Board Bearer
- What is a Plank?
- What is a Base Plate?
- What is a Sole Board?

Scaffold Components

- Post

A vertical tube that carries the weight of the scaffold.



Scaffold Components

- Runner

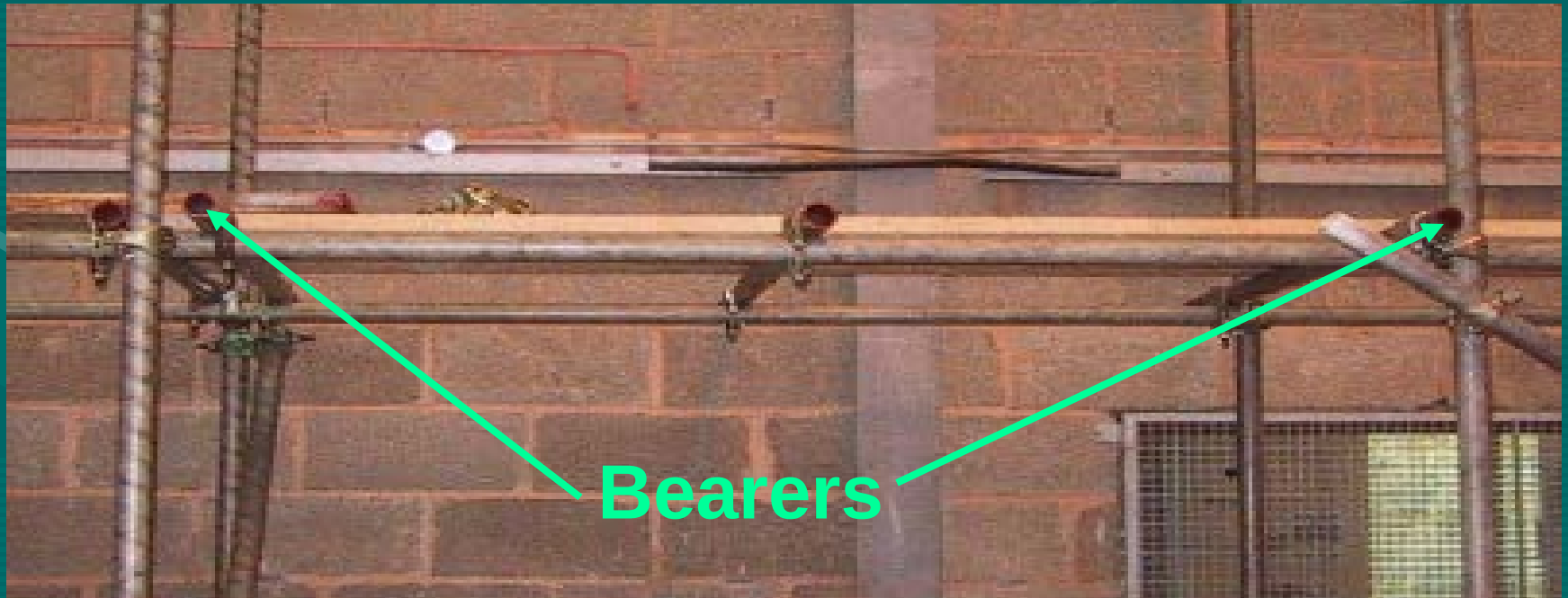
Horizontal scaffold tube that extends from post to post and supports the bearers.



Scaffold Components

- **Bearer**

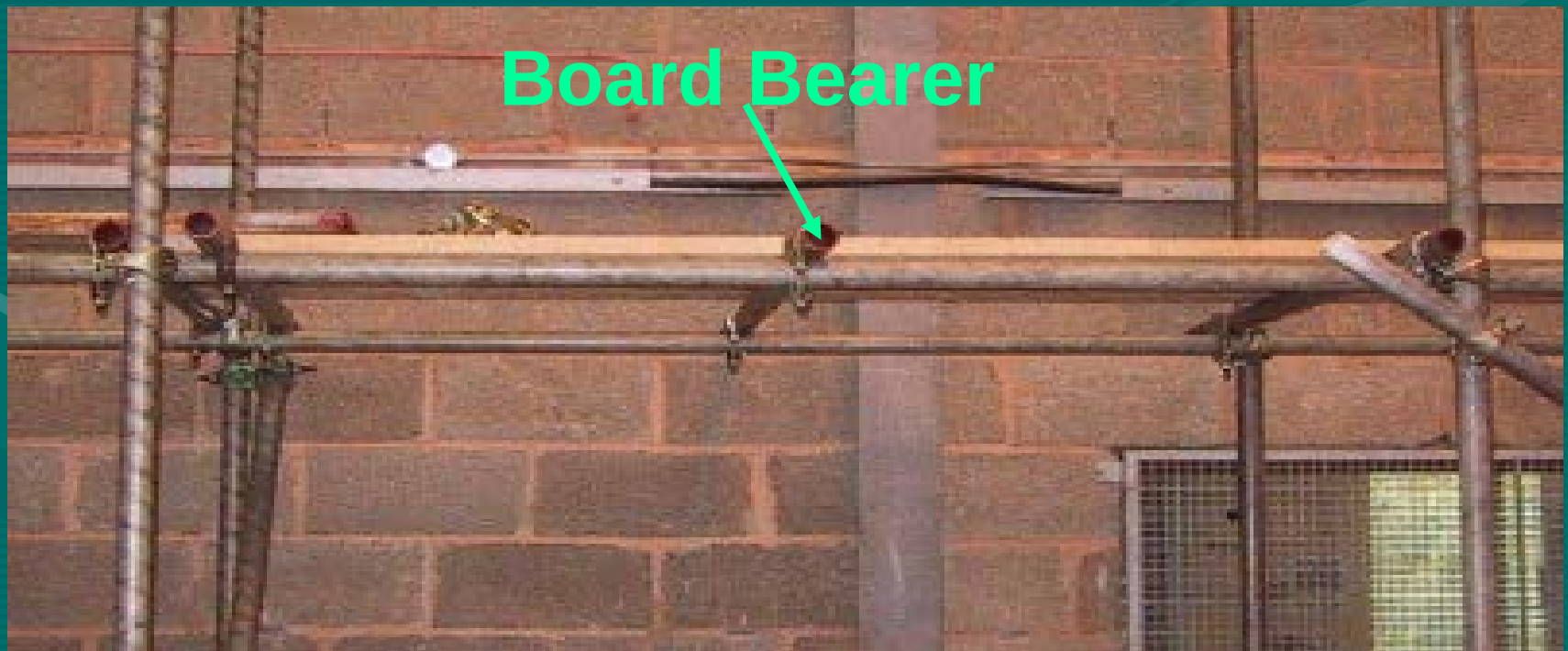
Horizontal tube fixed on top of at least 2 runners (at or near a pair of posts) and supports the weight of the planks.



Scaffold Components

- *Board Bearer*

Like a bearer, but not fixed to the posts. It helps the support planks at mid-span.



Scaffold Components

- Plank

An individual timber board that serves as flooring member of a work platform.



Scaffold Components

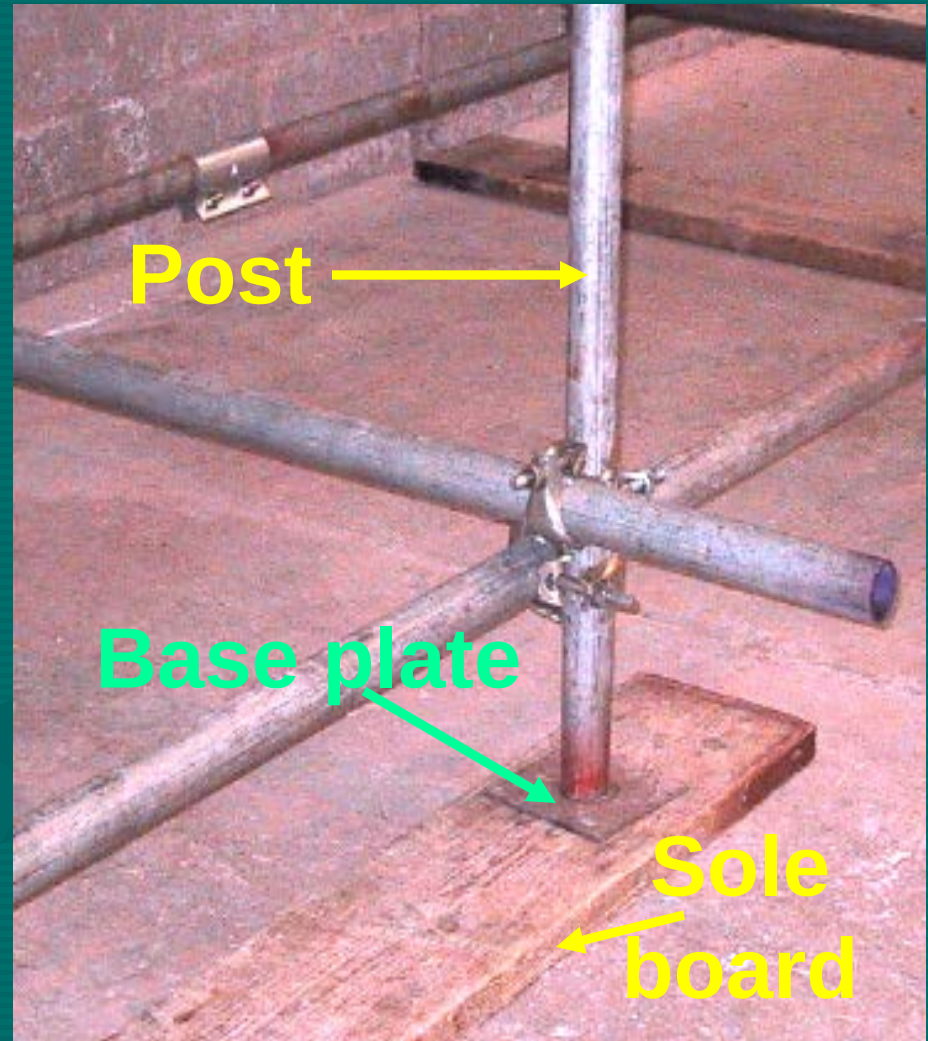
- **Laminated Veneer Lumber (LVL) Planks**
- 38 mm x 225 mm or 45 mm x 225 mm
- Typical required “OSHA” stamp for LVL planks



Scaffold Components

- Base plate

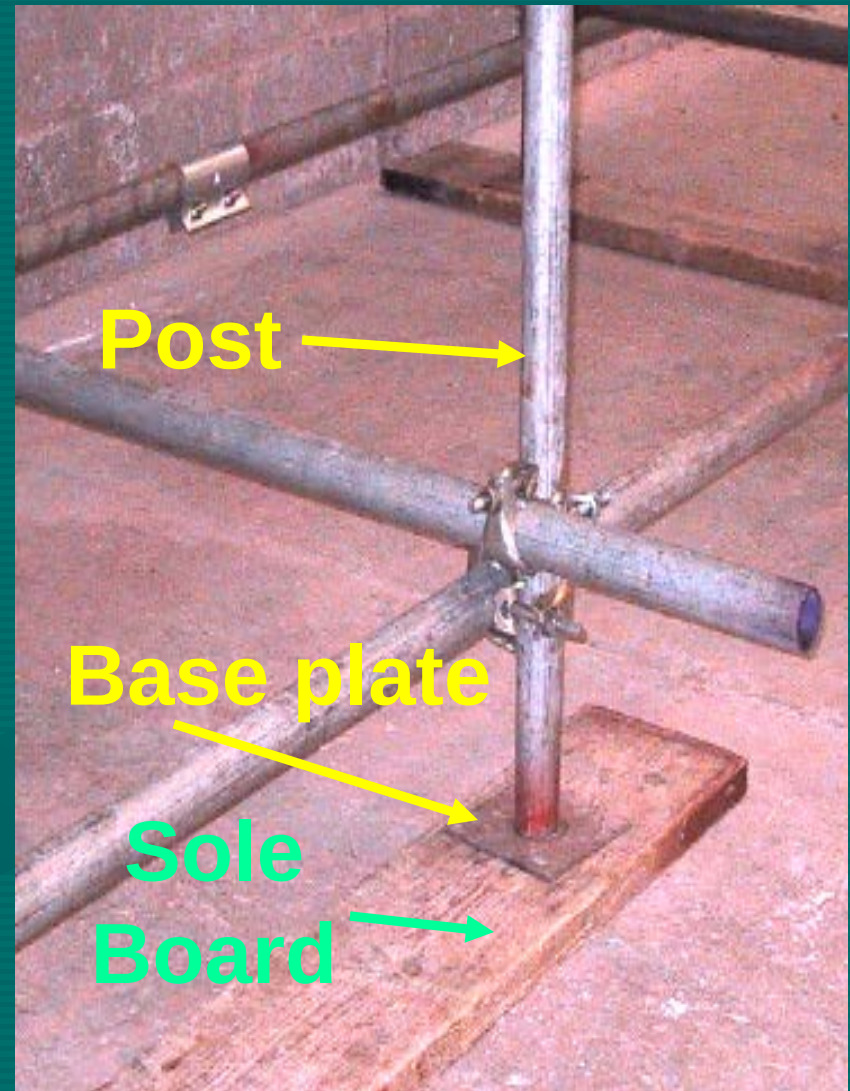
A steel plate measuring 6" by 6" used for distributing the load from the post.



Scaffold Components

- *Sole Board*

A board that measures 9" by 1 ½ " thick lumber used to distribute weight from the base plate to ground.



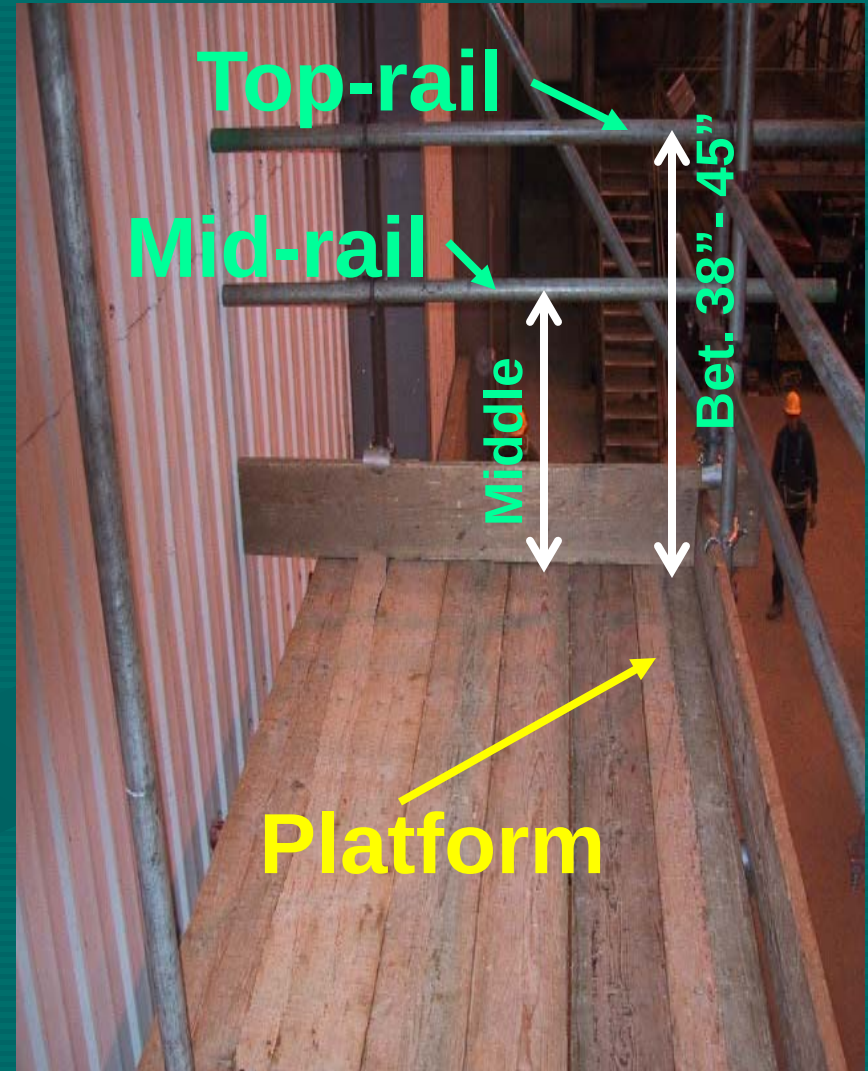
Think...

- What is a guardrail system?
- Why installed a guardrail system?
- What is the purpose of a toe-board?
- How are bracings installed?
- Why there is a need for bracing?

Scaffold Components

Guardrail System

- Top-rail: installed between 38"-45" platform
- Mid-rail: installed between top-rail & platform
- To prevent the workers from falling off the platform

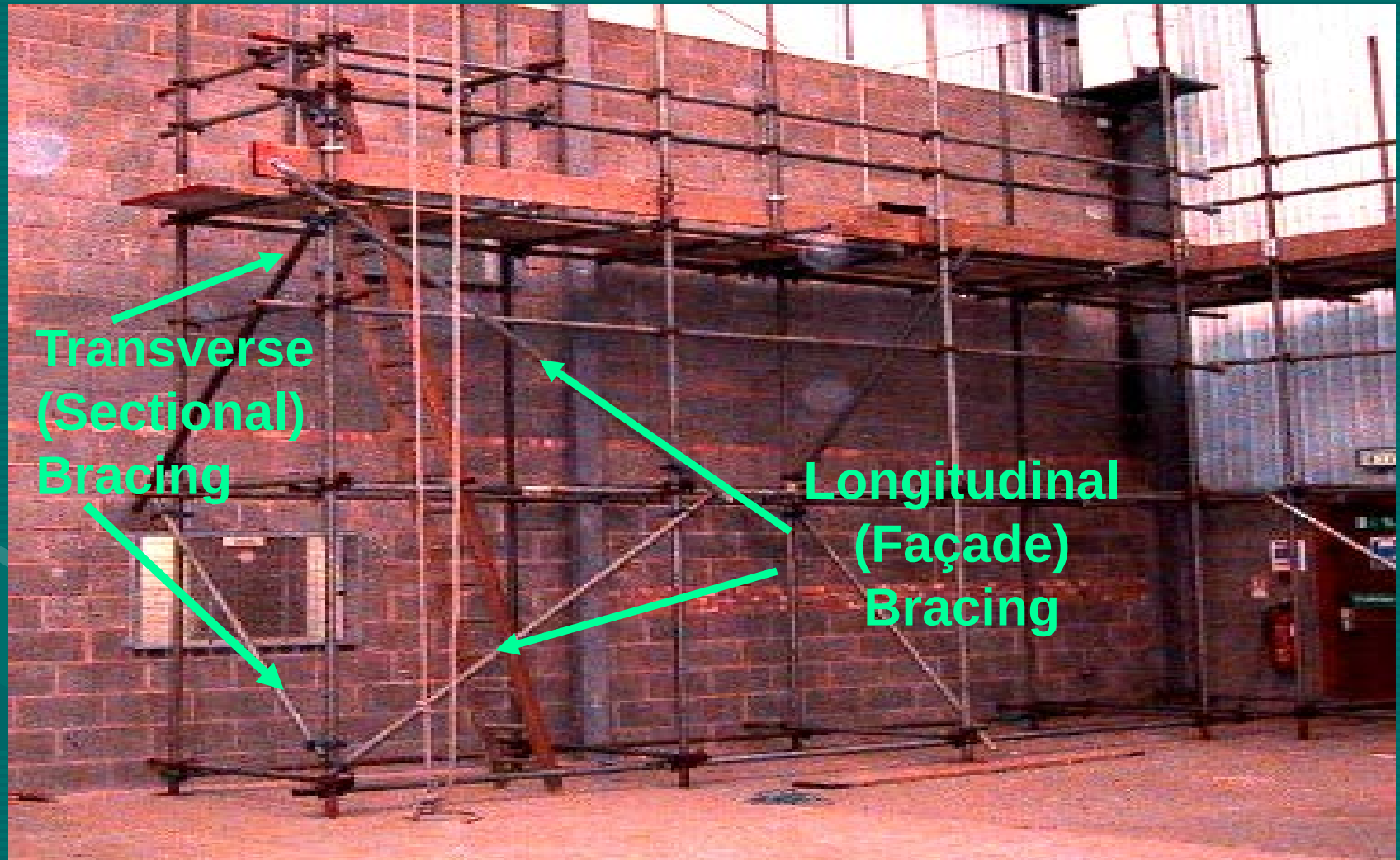


Scaffold Components

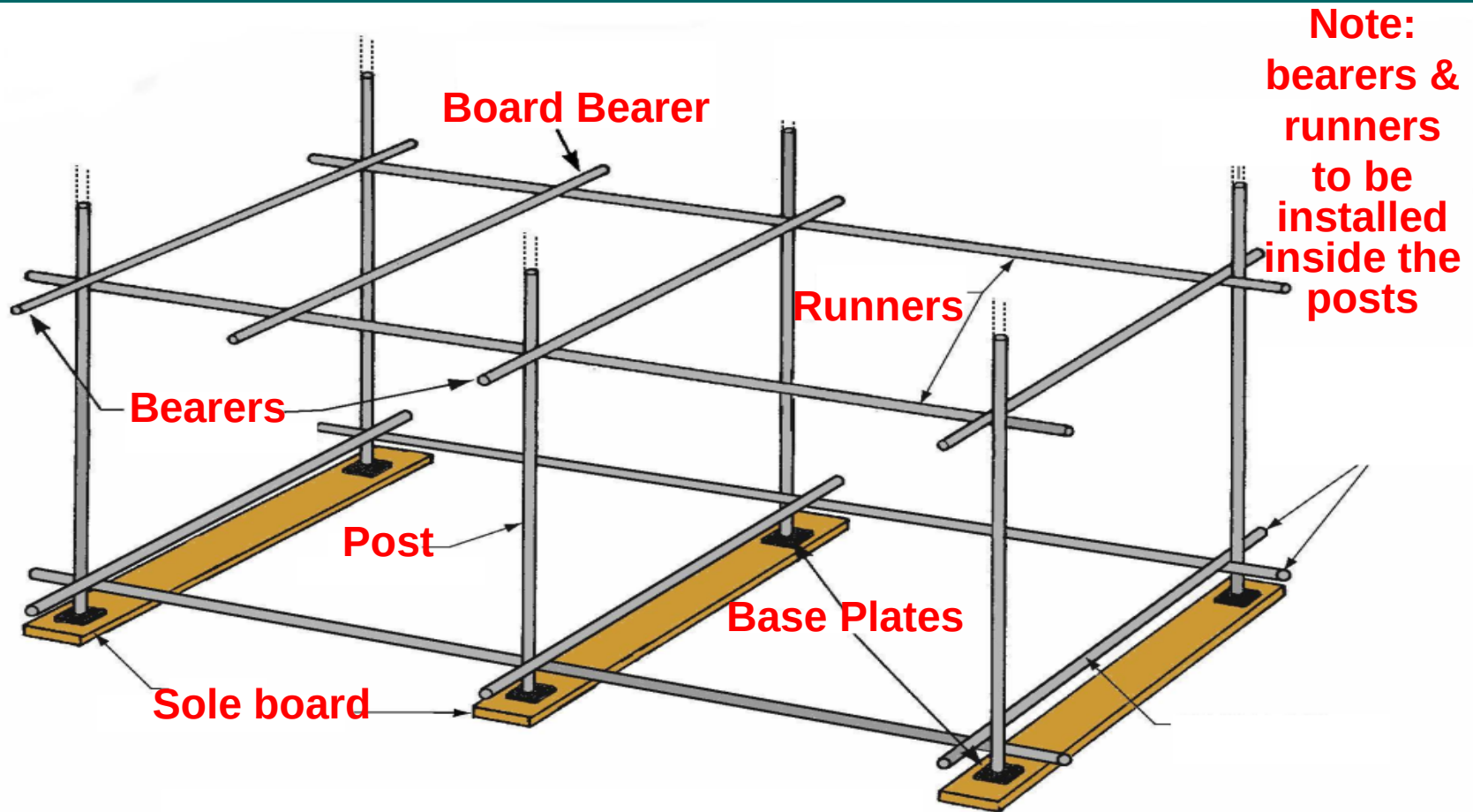
- *Toe-boards*
Are required to prevent objects from falling onto workers below the platform.



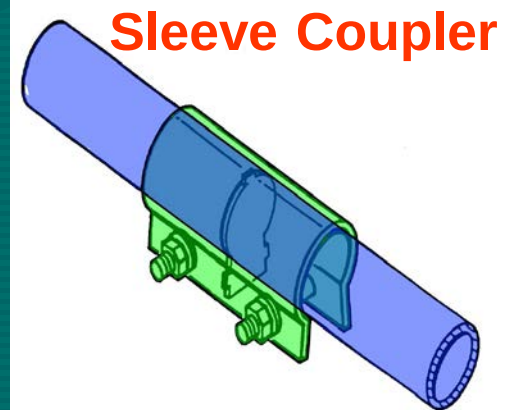
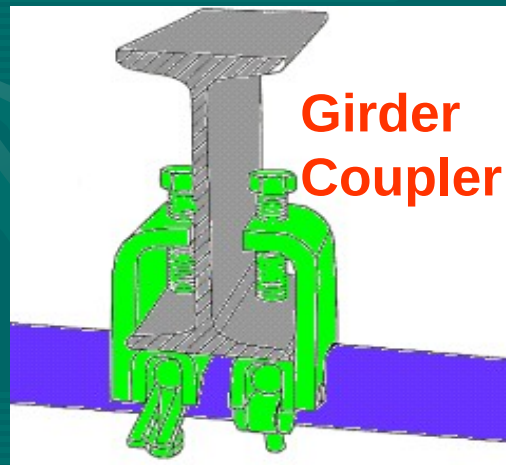
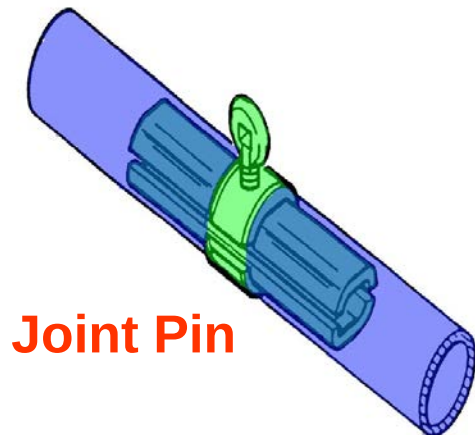
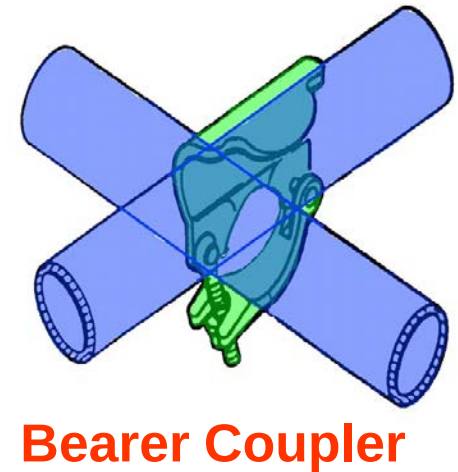
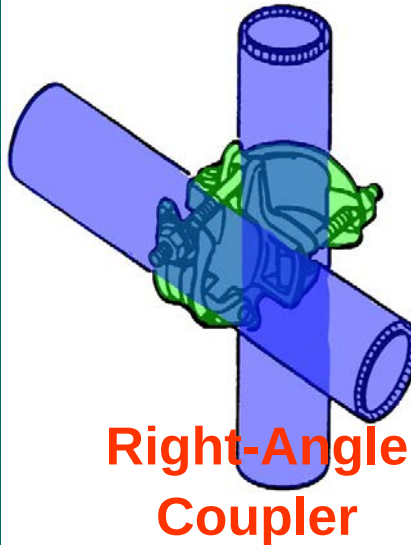
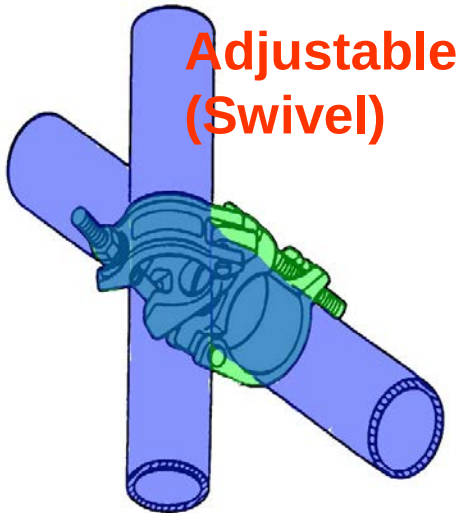
Scaffold Components



Scaffold Components Summary



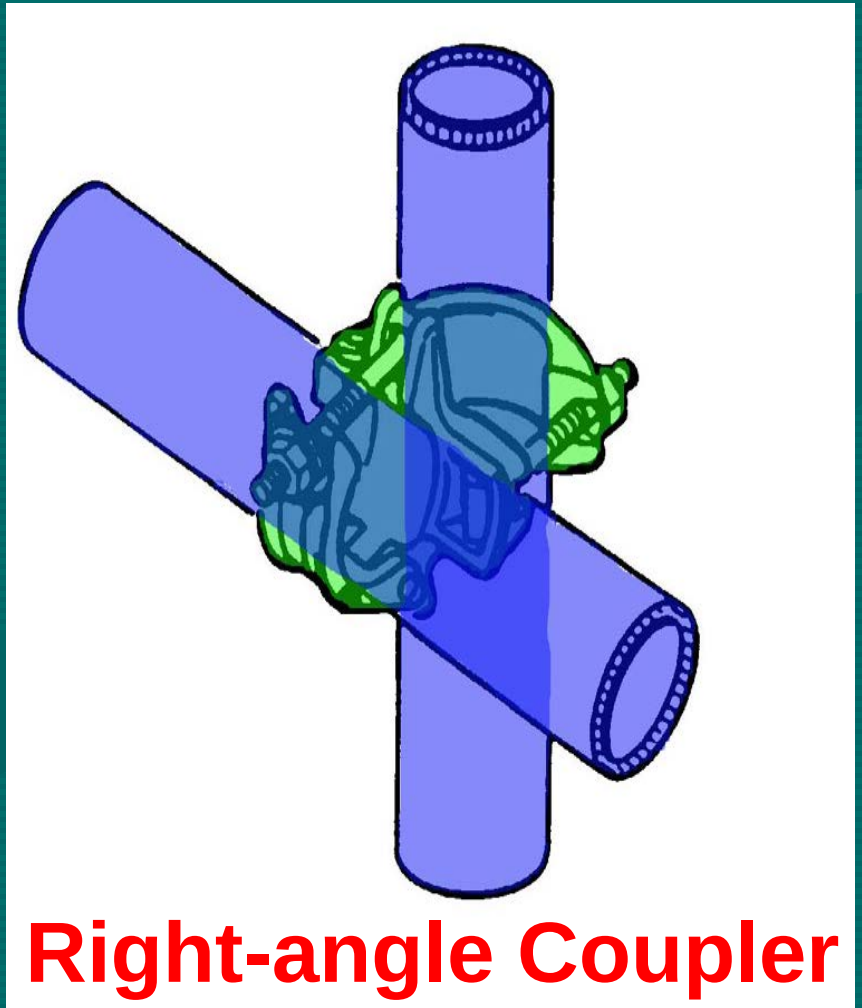
Types of Scaffold Couplers



Scaffold Couplers

Right Angle Coupler

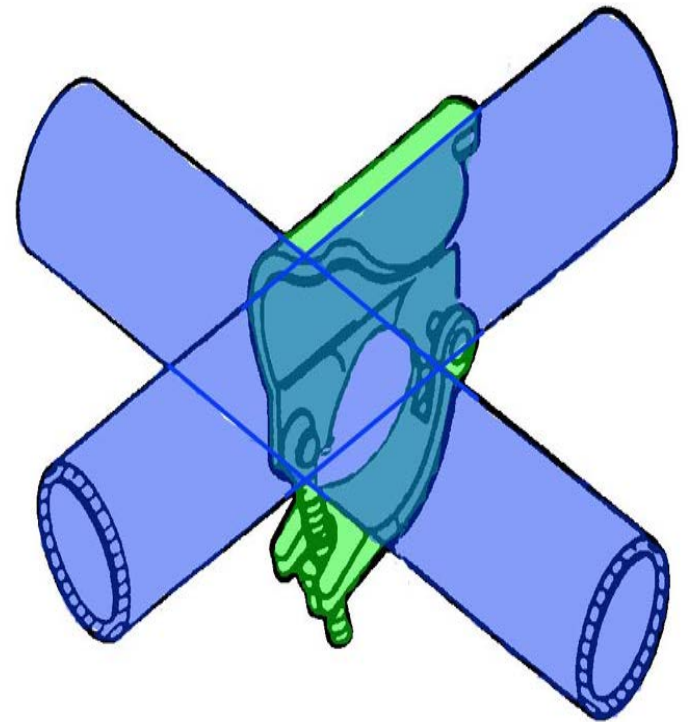
- Coupler used to connect tube at right angles
- Used to connect runners to posts
- Used for fixing of scaffold ties



Scaffold Couplers

Bearer Coupler

- Used to fix a bearer to a runner
- Used to connect scaffold tube use as guardrail to a post
- Must not be turned upside down

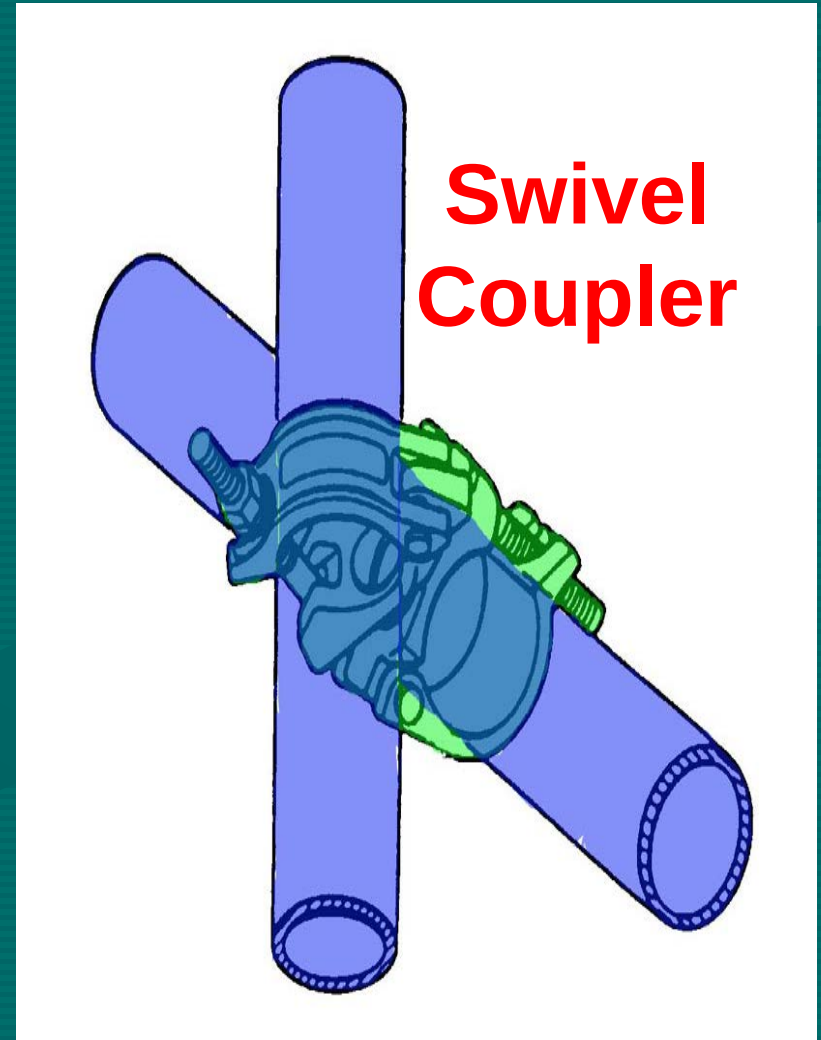


Bearer Coupler

Scaffold Couplers

Swivel Coupler

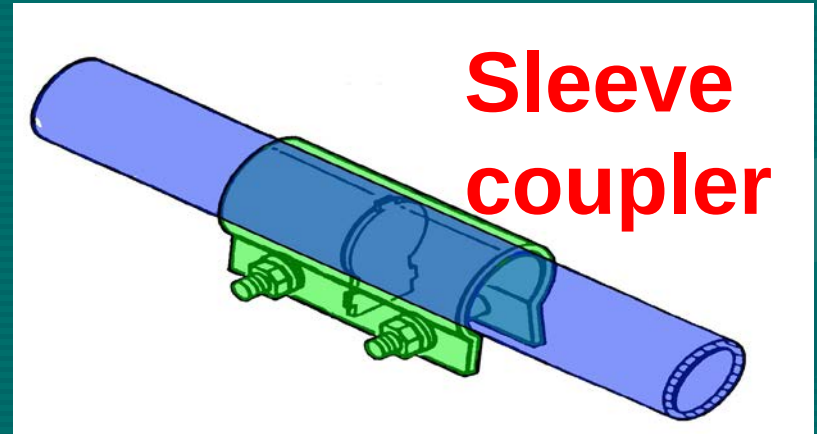
- Used to fix tubes together at various angles
- Used to fix braces
- **Not to be used to fix scaffold ties**



Scaffold Couplers

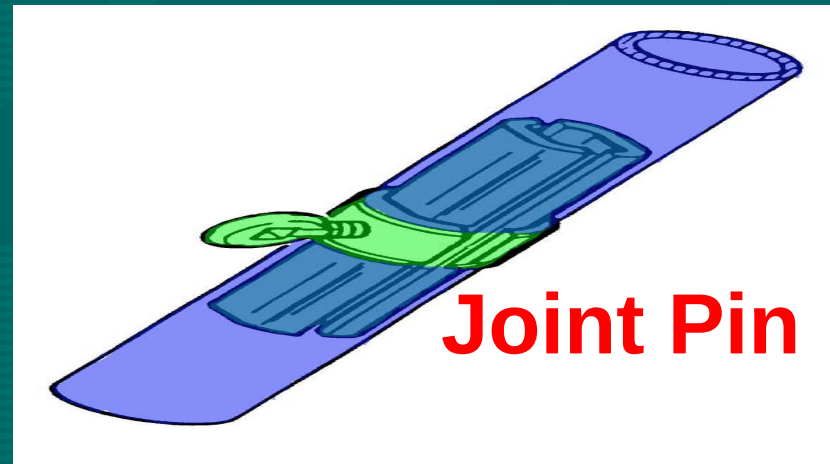
Sleeve Coupler

Used for externally joining 2 scaffold tubes co-axially end to end.



Joint Pin

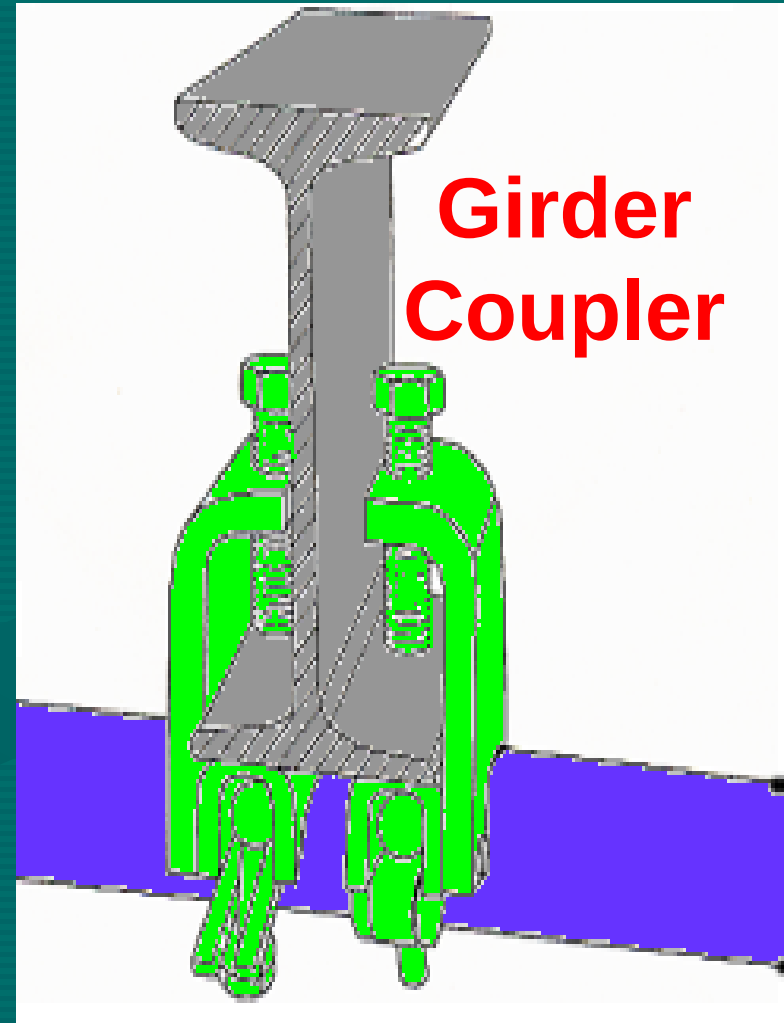
Used for posts (vertical) connections only



Scaffold Couplers

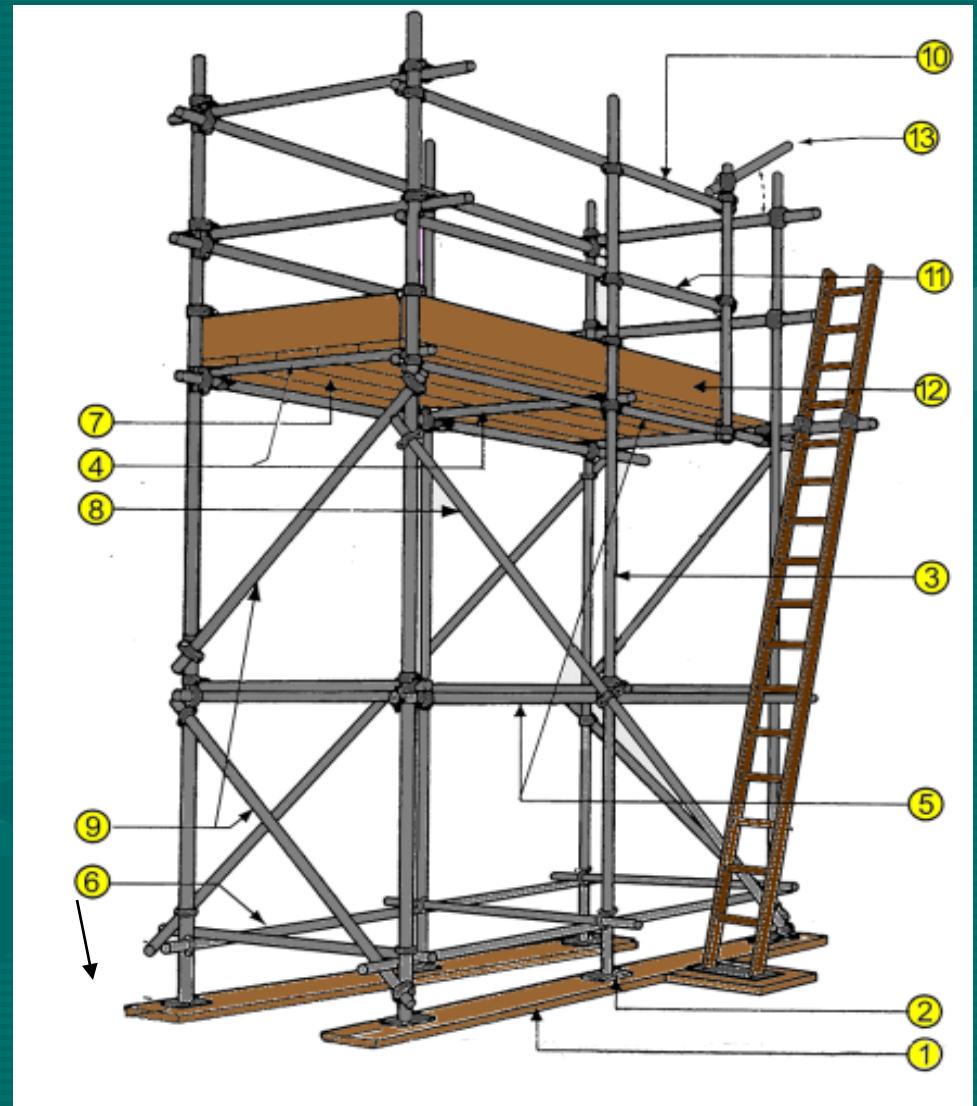
Girder Coupler

- Used to fix scaffolds to steelwork
- Must be used in pairs
- Can be used to “tie” scaffolds to steel-work



Review Questions

1. Sole Board
2. Base plate
3. Post
4. Bearers
5. Runners
6. Base Lift
7. Planks
8. Longitudinal bracing
9. Transverse bracing
10. Toprail
11. Midrail
12. Toeboard
13. Drop Bar



End of Part 1





Scaffold Safety Workshop

Part - 2

FULL-BODY HARNESS & LANYARD INSPECTION & PROPER USE

Think...

- What is a Personal Fall-Arrest System?
- What is a Full-body Harness?
- What is a “Shock-Absorbing” Lanyard?
- How and Where to anchor a Lanyard?
- What is the **safe height** at which to anchor a lanyard to avoid hitting the ground?

Full-body Harness



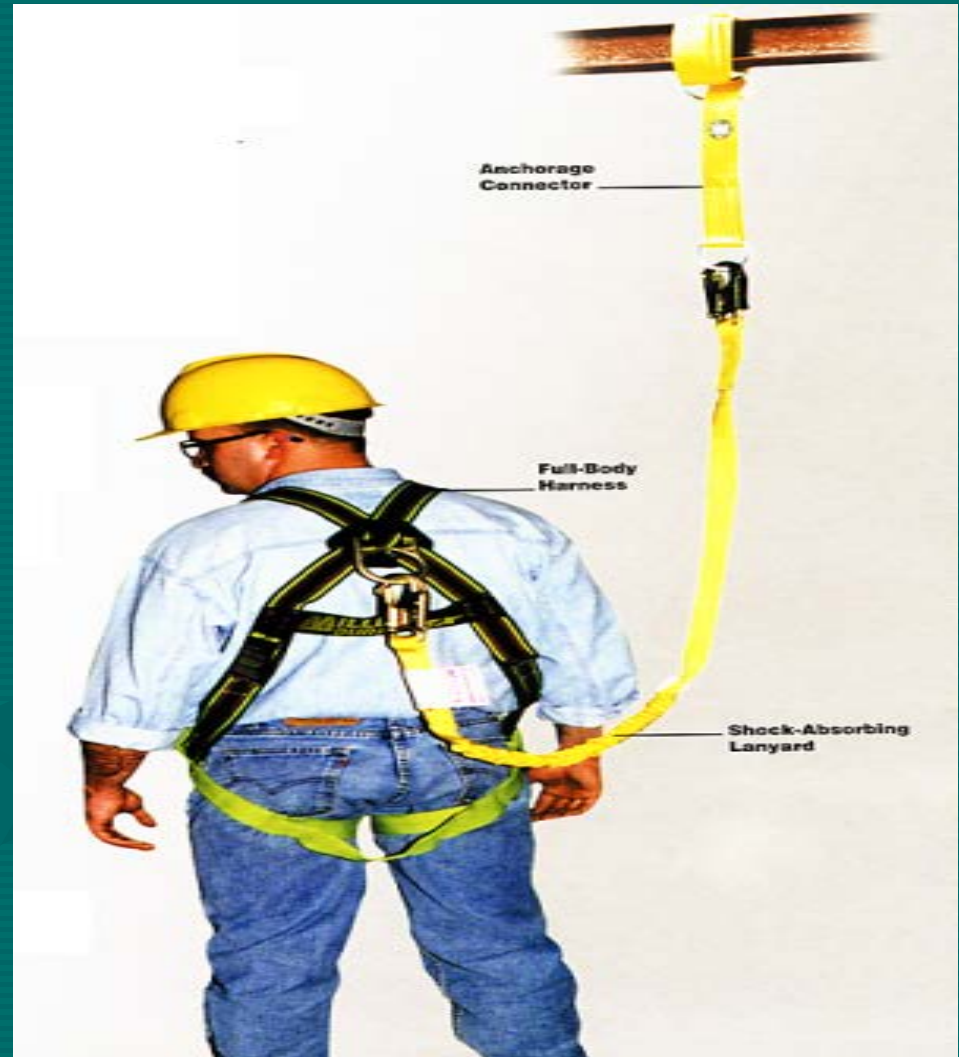
Rear
“D” Ring



Front
“D” Ring

Personal Fall Arrest System

- Full-Body Harness
- Shock Absorbing Lanyard
- Anchorage



Personal Fall Arrest System

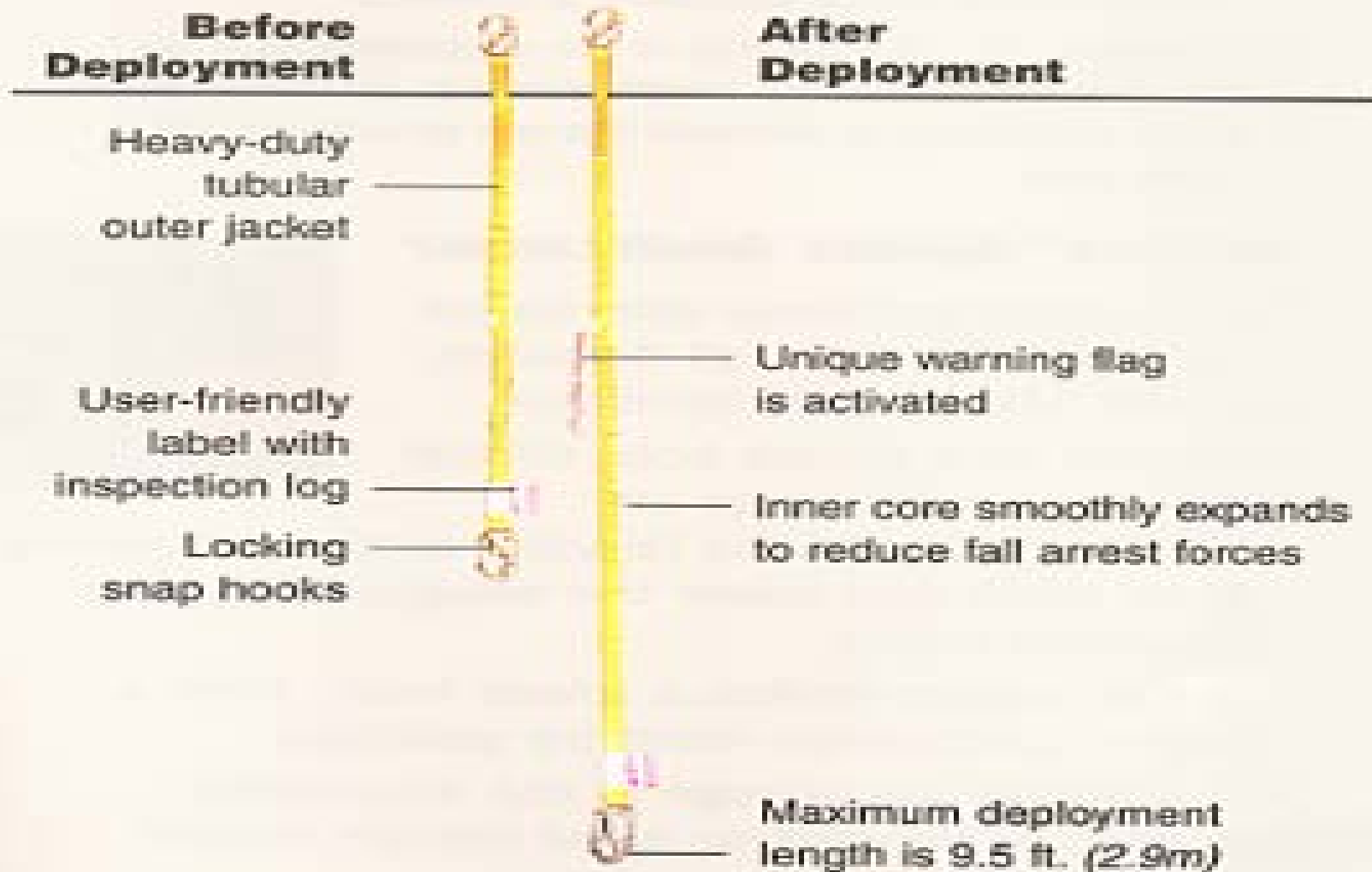
Each scaffold craftsman shall **continuously** wear a full body harness **with** a **shock-absorbing lanyard** while erecting, altering, or dismantling a scaffold.



Full-body Harness



Shock Absorbing Lanyard



Anchorage Connectors

Cross-Arm Strap

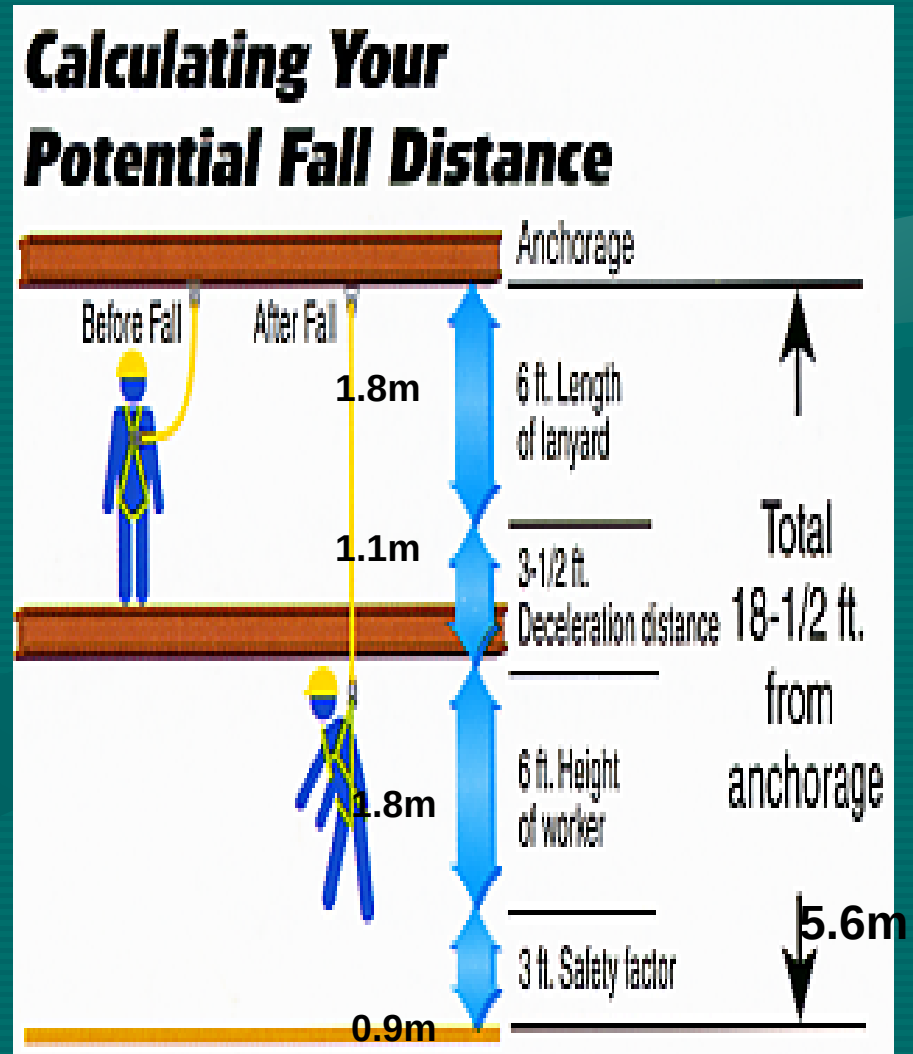


Wire Hook



Fall Distance

A total of **5.6 m** (**18½ ft**) is the **safe height** at which to anchor a lanyard to avoid contact with the level below



Harness & Lanyard Inspection



Frayed webbing

Stitching pulled apart



Harness & Lanyard Inspection



Frayed webbing

**Cuts in the webbing
or lanyard**



Use of Harness - Step 1

- Hold harness by back D-ring
- Shake harness to allow straps to fall into place
- Identify where is the front and back



Use of Harness - Step 2

- If chest, leg and/or waist straps are buckled, release them and unbuckle at this time



Use of Harness - Step 3

- Slip straps over shoulders, or in our case pull over your head, so that the D-ring is located in middle of your back between your shoulder blades



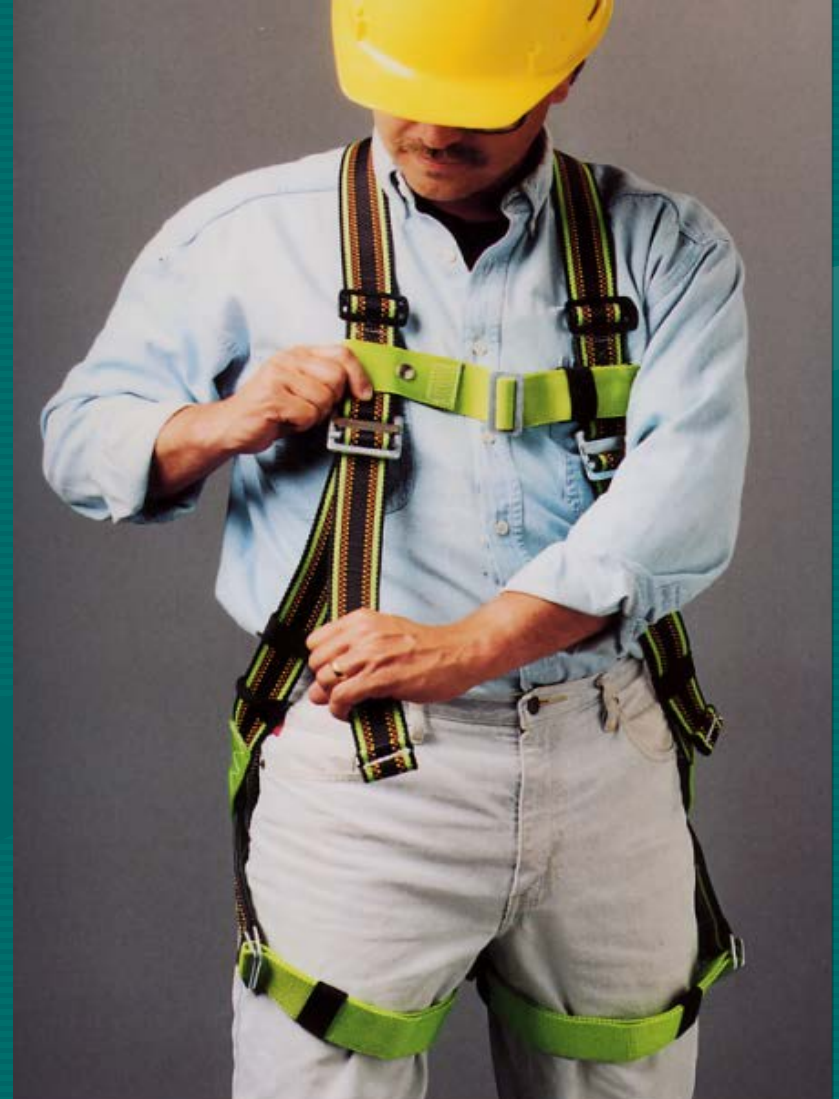
Use of Harness - Step 4

- Pull leg strap between legs and buckle to its other end
- Repeat with second leg strap



Use of Harness - Step 5

- After all straps have been buckled, tighten all buckles so that harness fits snug but allows full range of movement
- Pass excess strap through loop keepers



Exercise: Wearing of Harness



**Rear
“D” Ring**



**Front
“D” Ring**

End of Part 2





Scaffold Safety Workshop

Part - 3

SCAFFOLD

INSPECTION & TAGGING

Pre-Use Inspection

- Before we learn how to do a scaffold pre-use inspection
 - Let's see what **Scaffold Supervisors** and **Inspectors** must do, and
 - How they communicate scaffold safety requirements to us through scaffold tags
 - So we may know if things are being done properly and safely

Think...

- Who are Scaffold Supervisors?
- What are the responsibilities of being a Scaffold Supervisor?
- What are the different levels of Scaffold Supervisors?
- Who are Scaffold Inspectors?
- What are the responsibilities of being a Scaffold Inspector?

Who are Scaffold Supervisors?

- Immediate supervisors of scaffold craftsmen
- Responsible for safety of erected scaffold
- Must passed the Scaffold Supervisor certification test given by Saudi Aramco Training Dept.
- Could be Saudi Aramco or contractor employee

Supervisor Certification Levels

- Certified Scaffold Supervisor **I**
 - All scaffolds
- Certified Scaffold Supervisor **II-T**
 - Only **T**ube and Coupler
 - Less than 12.2 meters (40 feet)
- Certified Scaffold Supervisor **II-S**
 - Only **S**ystem Scaffolds (Cuplok, Kwikstage, etc.)
 - Less than 12.2 meters (40 feet)

Who Are Scaffold Inspectors ?

- Responsible in identifying scaffold hazards and verify compliance with Saudi Aramco scaffolding standards
 - For scaffolds over 6 m. (20 feet) tall
 - And, for “Special Scaffolds”
- Must passed the Scaffold Inspector certification test given by Saudi Aramco Training Dept.
- Could be Saudi Aramco or contractor employee

Reminder

- Scaffold **Inspectors** Only Required to Inspect:
 - Scaffolds **over 6 m.** (20 feet) tall, or
 - “**Special Scaffolds**”
- We will now learn the new Saudi Aramco scaffold tagging system

Think...

- How many types of scaffold tags used in Saudi Aramco?
- What is the meaning of a Red Tag?
- What is the meaning of a Green Tag?
- What is the meaning of a Yellow Tag?
- Why Tag on a Scaffold?
- When to Tag a Scaffold?
- How to Tag a Scaffold?

Saudi Aramco Scaffold Tagging System

السقالة اجتازت المعاينة
SCAFFOLD PASSED INSPECTION

SCAFFOLD LOCATION OR #:
 LOAD RATING: LIGHT (25 PSF) ☐ MEDIUM (50 PSF) ☐ SPECIAL ☐
 MAX # LEVELS WORKING: TOTAL PLANKED:

SCAFFOLD SUPERVISOR*				
Bi-weekly	Inspection # 1	Inspection # 2	Inspection # 3	Inspection # 4
PRINT NAME				
SIGNATURE				
PHONE #				
CERTIFICATE #				

SCAFFOLD INSPECTOR*				
Bi-weekly	Inspection # 1	Inspection # 2	Inspection # 3	Inspection # 4
PRINT NAME				
SIGNATURE				
PHONE #				
CERTIFICATE #				

DATE OF NEXT INSPECTION	M / D / Y	M / D / Y	M / D / Y	M / D / Y

GREEN TAG VALID UNTIL NEXT INSPECTION DATE

SAUDI ARAMCO (S.A.M.S. REF : #21-000-407-00)
 UNAUTHORIZED ALTERATION OF SCAFFOLD OR GREEN TAG VOIDS THIS TAG AND WILL MAKE YOU SUBJECT TO DISCIPLINARY ACTION
*Scaffold Supervisor shall sign if scaffold is less than 6m (20') high. Scaffold Supervisor and Scaffold Inspector shall both sign if scaffold is more than 6m (20') high or if Special Scaffold per GI 0.001.

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مطلوب ارتداء أحزمة
لأكامل الجسم
FULL BODY HARNESS REQUIRED

SCAFFOLD LOCATION OR #:
 LOAD RATING: LIGHT (25 PSF) ☐ MEDIUM (50 PSF) ☐ SPECIAL ☐
 MAX # LEVELS WORKING: TOTAL PLANKED:

SCAFFOLD SUPERVISOR*		SCAFFOLD INSPECTOR*	
PRINT NAME	SIGNATURE	PRINT NAME	SIGNATURE

DATE OF NEXT INSPECTION (M / D / Y):

YELLOW TAG VALID UNTIL NEXT INSPECTION DATE

NOTE: "Per GI 0.001, a properly anchored full body harness shall be worn at all times by all persons working on a scaffold that is tagged with a yellow scaffold tag."

SAUDI ARAMCO (S.A.M.S. REF : #21-000-408-00)
 UNAUTHORIZED ALTERATION OF SCAFFOLD OR YELLOW TAG VOIDS THIS TAG AND WILL MAKE YOU SUBJECT TO DISCIPLINARY ACTION
*Scaffold Supervisor shall sign if scaffold is less than 6m (20') high. Scaffold Supervisor and Scaffold Inspector shall both sign if scaffold is more than 6m (20') high or if Special Scaffold per GI 0.001.

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Red Scaffold Tag (Holder)

Indicates the scaffold has not been inspected or is not safe for use (by anyone other than scaffold craftsmen)



Red Scaffold Tag (Holder)

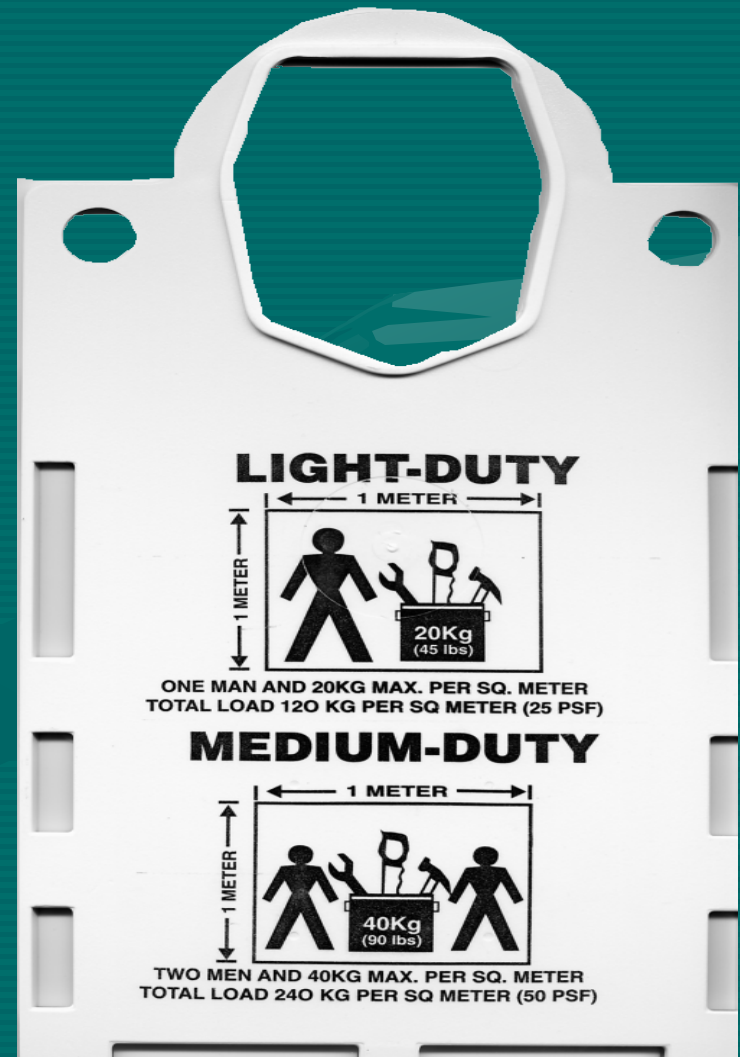
Unique ID (serial) number printed on front & back of all new holders

ID number written on green or yellow tags (inserts) must be **same** as ID number printed on its holder. Why?



Red Scaffold Tag (Holder)

- At the back of scaffold tag holder shows what “light duty” & “medium duty” scaffolding loading means
- Acts as a guide for users to ensure that they are not at risk of overloading the scaffold

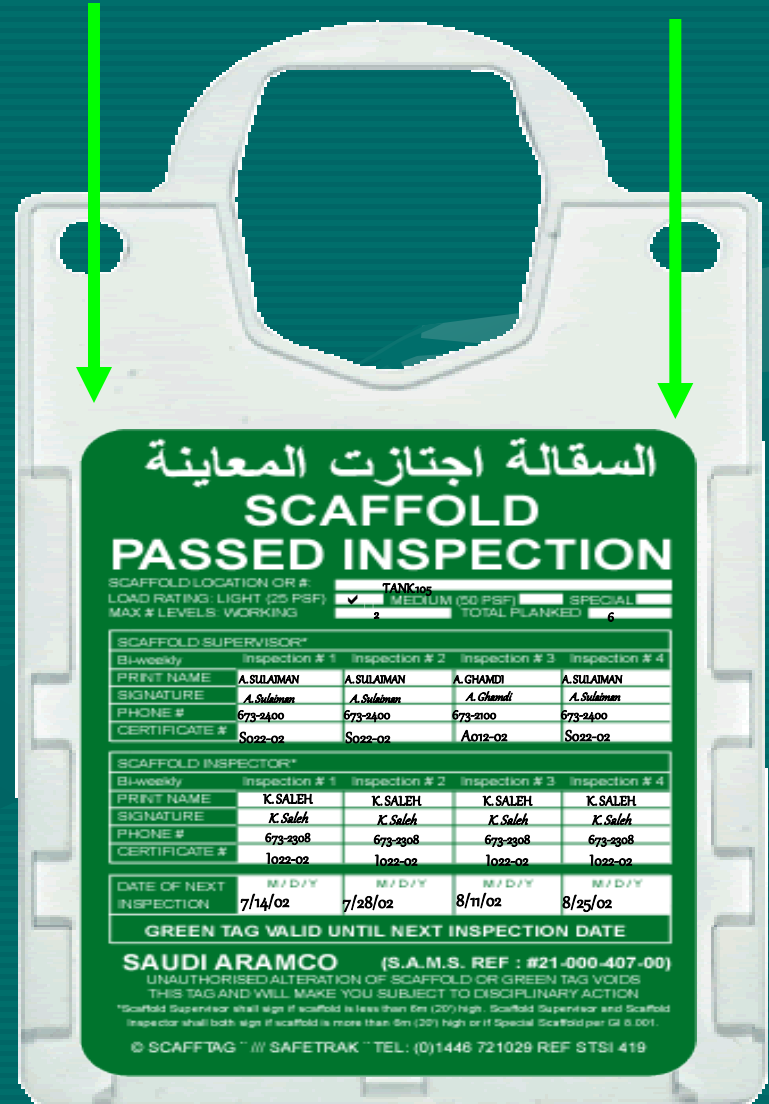


Green Scaffold Tag (Insert)

Insert fits here

Indicates scaffold is complete, has been inspected, and is safe for use at the time of inspection

GREEN scaffold tag valid for a maximum of two weeks



السقالة اجتازت المعاينة
SCAFFOLD
PASSED INSPECTION

SCAFFOLD LOCATION OR #: TANK 100
LOAD RATING: LIGHT (25 PSF) ☒ MEDIUM (50 PSF) ☐ SPECIAL ☐
MAX # LEVELS WORKING: 2 TOTAL PLANKED: 6

SCAFFOLD SUPERVISOR*				
Bi-weekly	Inspection # 1	Inspection # 2	Inspection # 3	Inspection # 4
PRINT NAME	A. SULAIMAN	A. SULAIMAN	A. GHAMDI	A. SULAIMAN
SIGNATURE	<i>A. Sulaiman</i>	<i>A. Sulaiman</i>	<i>A. Ghamedi</i>	<i>A. Sulaiman</i>
PHONE #	673-2400	673-2400	673-2100	673-2400
CERTIFICATE #	S022-02	S022-02	A012-02	S022-02

SCAFFOLD INSPECTOR*				
Bi-weekly	Inspection # 1	Inspection # 2	Inspection # 3	Inspection # 4
PRINT NAME	K. SALEH	K. SALEH	K. SALEH	K. SALEH
SIGNATURE	<i>K. Saleh</i>	<i>K. Saleh</i>	<i>K. Saleh</i>	<i>K. Saleh</i>
PHONE #	673-2308	673-2308	673-2308	673-2308
CERTIFICATE #	I022-02	I022-02	I022-02	I022-02

DATE OF NEXT INSPECTION	M / D / Y	M / D / Y	M / D / Y	M / D / Y
	7/14/02	7/28/02	8/11/02	8/25/02

GREEN TAG VALID UNTIL NEXT INSPECTION DATE

SAUDI ARAMCO (S.A.M.S. REF : #21-000-407-00)
UNAUTHORISED ALTERATION OF SCAFFOLD OR GREEN TAG VOIDS
THIS TAG AND WILL MAKE YOU SUBJECT TO DISCIPLINARY ACTION

*Scaffold Supervisor shall sign if scaffold is less than 6m (20') high. Scaffold Supervisor and Scaffold Inspector shall both sign if scaffold is more than 6m (20') high or if Special Scaffold per G2 0.001.

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Yellow Scaffold Tag (Insert)

Insert fits here

Indicates scaffold has been inspected and may be used only by workers wearing a properly anchored full body harness and lanyard

YELLOW scaffold tag valid for two weeks maximum

مطلوب ارتداء أحزمة
لكامل الجسم

**FULL BODY
HARNESS REQUIRED**

SCAFFOLD LOCATION OR #:		TANK105	
LOAD RATING: LIGHT (25 PSF)	☒	MEDIUM (50 PSF)	☐
MAX # LEVELS: WORKING		2	TOTAL PLANKED
			6
SCAFFOLD SUPERVISOR*		SCAFFOLD INSPECTOR*	
PRINT NAME	A. SULAMAN	PRINT NAME	K. SALEH
SIGNATURE	Aliamed Sulaman	SIGNATURE	Khaled Saleh
PHONE #	673-2400	PHONE #	673-2308
CERTIFICATE #	S022-02	CERTIFICATE #	I022-02
DATE OF NEXT INSPECTION (M / D / Y)		7/14/02	
YELLOW TAG VALID UNTIL NEXT INSPECTION DATE			

NOTE: *Per OHS 001, a properly anchored full body harness shall be worn at all times by all persons working on a scaffold that is tagged with a yellow scaffold tag.

SAUDI ARAMCO (S.A.M.S. REF : #21-000-408-00)

UNAUTHORISED ALTERATION OF SCAFFOLD OR YELLOW TAG VOIDES THIS TAG AND WILL MAKE YOU SUBJECT TO DISCIPLINARY ACTION

*Scaffold Supervisor shall sign if scaffold is less than 10m (30') high. Scaffold Supervisor and Scaffold Inspector shall both sign if scaffold is more than 10m (30') high or if Special Scaffold per OHS 001.

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Why Tag a Scaffold ?

- To be able to identify a scaffold on-site (ID#)
- To show on-site that a scaffold is either **safe** or **not safe** to use
- To give an on-site warning that the use of **full body harness** is required
- To be able to confirm on-site that a scaffold has been inspected

When to Tag a Scaffold

- After a work permit has been issued
- As soon as construction of scaffold starts using a Red Scaffold Tag
- All the time that a scaffold remains on site

How to Tag a Scaffold?

- **RED** scaffold tag (holder) must be built into scaffold, near each access.
- **RED** scaffold tag must be fixed by a tube placed through holder (not fixed with string, wire etc).



Think...

- When must a Scaffold Supervisor & Inspector inspect a Scaffold
- When must a Scaffold Supervisor sign a scaffold tag?
- How a scaffold green tag is filled-in, if scaffold is less than 6 m (20 feet)?
- How a scaffold green tag is filled-in, if scaffold is more than 6 m (20 feet)?

Scaffold Inspection

- **When** must Scaffold Supervisors and Inspectors **Inspect** a Scaffold ?
 - After scaffold is completely built
 - After scaffold has been altered, and before it maybe use by others
 - After high winds, impact damage or anything likely to have affected scaffold's strength
 - At regular intervals to check that it is still safe to use (every 2 weeks)

Scaffold Tagging

- If Scaffold Supervisor thinks scaffold is safe to use, he will fill in & sign, either:
 - **GREEN** (Passed Inspection) or
 - **YELLOW** (Full Body Harness Required) scaffold tag

مطلوب ارتداء أحزمة
لكامل الجسم
**FULL BODY
HARNESS REQUIRED**

SCAFFOLD LOCATION OR # _____
LOAD RATING: LIGHT (25 PSF) _____ MEDIUM (50 PSF) _____ SPECIAL _____
MAX # LEVELS WORKING _____

SCAFFOLD SUPERVISOR
PRINT NAME _____
SIGNATURE _____
PHONE # _____
CERTIFICATE # _____
DATE OF NEXT INSPECTION _____
YELLOW TAG VALID UNTIL NEXT INSPECTION DATE

NOTE: This tag is valid only if scaffold is less than 6m (20') high. Scaffold Supervisor and Scaffold Inspector must both sign if scaffold is more than 6m (20') high or if Special Scaffold per G-5 501.

SAUDI ARAMCO
UNAUTHORISED ALTERATION OF THIS TAG AND WILL MAKE YOU SUBJECT TO DISCIPLINARY ACTION

© SCAFFTAG ® / SAFETRAK

السقالة اجتازت المعاينة
**SCAFFOLD
PASSED INSPECTION**

SCAFFOLD LOCATION OR # _____
LOAD RATING: LIGHT (25 PSF) _____ MEDIUM (50 PSF) _____ SPECIAL _____
MAX # LEVELS WORKING _____

SCAFFOLD SUPERVISOR
PRINT NAME _____
SIGNATURE _____
PHONE # _____
CERTIFICATE # _____
DATE OF NEXT INSPECTION _____
GREEN TAG VALID UNTIL NEXT INSPECTION DATE

SCAFFOLD INSPECTOR
Blowdown Inspection # 1 Inspection # 2 Inspection # 3 Inspection # 4
PRINT NAME _____
SIGNATURE _____
PHONE # _____
CERTIFICATE # _____
DATE OF NEXT INSPECTION M / D / Y M / D / Y M / D / Y M / D / Y

SAUDI ARAMCO (S.A.M.S. REF : #21-000-407-00)
UNAUTHORISED ALTERATION OF SCAFFOLD OR GREEN TAG VOID
THIS TAG AND WILL MAKE YOU SUBJECT TO DISCIPLINARY ACTION
Scaffold Supervisor must sign if scaffold is less than 6m (20') high. Scaffold Supervisor and Scaffold Inspector must both sign if scaffold is more than 6m (20') high or if Special Scaffold per G-5 501.

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How GREEN Scaffold Tags are filled in

السقالة اجتازت المعاينة SCAFFOLD PASSED INSPECTION

SCAFFOLD LOCATION OR #: A01001
LOAD RATING: LIGHT (25 PSF) ☒ MEDIUM (50 PSF) ☐ SPECIAL ☐
MAX # LEVELS WORKING 2 TOTAL PLANKED 3

SCAFFOLD SUPERVISOR*				
Bi-weekly	Inspection # 1	Inspection # 2	Inspection # 3	Inspection # 4
PRINT NAME	AHMED SULAIMAN	AHMED SULAIMAN	AHMED SULAIMAN	
SIGNATURE	Ahmed Sulaiman	Ahmed Sulaiman	Ahmed Sulaiman	
PHONE #	673-2400	673-2400	673-2400	
CERTIFICATE #	S022-02	S022-02	S022-02	

SCAFFOLD INSPECTOR*				
Bi-weekly	Inspection # 1	Inspection # 2	Inspection # 3	Inspection # 4
PRINT NAME				
SIGNATURE				
PHONE #				
CERTIFICATE #				

DATE OF NEXT INSPECTION	M/D/Y	M/D/Y	M/D/Y	M/D/Y
	7/14/02	7/28/02	8/11/02	

GREEN TAG VALID UNTIL NEXT INSPECTION DATE

SAUDI ARAMCO (S.A.M.S. REF : #21-000-407-001)

UNAUTHORISED ALTERATION OF SCAFFOLD OR GREEN TAG VOIDS THIS TAG AND WILL MAKE YOU SUBJECT TO DISCIPLINARY ACTION

*Scaffold Supervisor shall sign if scaffold is less than 6m (20') high. Scaffold Supervisor and Scaffold Inspector shall both sign if scaffold is more than 6m (20') high or if Special Scaffold per GI 0.001.

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SCAFFOLD LESS THAN 6m (20 ft)
AND NOT A "SPECIAL SCAFFOLD"

Unique ID number (same red holder)

Load rating of scaffold

Total number of planked levels (max.)

Maximum number of working levels

Supervisor PRINTS his name

Supervisor's actual signature

Supervisor enters his phone #

Supervisor enters his Saudi Aramco certificate number

Date of next inspection - to be entered by Supervisor.

How GREEN Scaffold Tags are filled in

السقالة اجتازت المعاينة SCAFFOLD PASSED INSPECTION

SCAFFOLD LOCATION OR #: A01001
 LOAD RATING: LIGHT (25 PSF) ☒ MEDIUM (50 PSF) ☐ SPECIAL ☐
 MAX # LEVELS WORKING: 2 TOTAL PLANKED: 6

SCAFFOLD SUPERVISOR*				
Bi-weekly	Inspection # 1	Inspection # 2	Inspection # 3	Inspection # 4
PRINT NAME	AHMED GHAMDI			
SIGNATURE	<i>Ahmed Ghamdi</i>			
PHONE #	673-2400			
CERTIFICATE #	A012-02			

SCAFFOLD INSPECTOR*				
Bi-weekly	Inspection # 1	Inspection # 2	Inspection # 3	Inspection # 4
PRINT NAME	KHALED SALEH			
SIGNATURE	<i>Khaled Saleh</i>			
PHONE #	673-2308			
CERTIFICATE #	1022-02			

DATE OF NEXT INSPECTION	M/D/Y	M/D/Y	M/D/Y	M/D/Y
	7/14/02			

GREEN TAG VALID UNTIL NEXT INSPECTION DATE

SAUDI ARAMCO (S.A.M.S. REF : #21-000-407-00)

UNAUTHORISED ALTERATION OF SCAFFOLD OR GREEN TAG VOIDS
THIS TAG AND WILL MAKE YOU SUBJECT TO DISCIPLINARY ACTION

*Scaffold Supervisor shall sign if scaffold is less than 6m (20') high. Scaffold Supervisor and Scaffold
Inspector shall both sign if scaffold is more than 6m (20') high or if Special Scaffold per G3 0.001.

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SCAFFOLD MORE THAN 6m (20 ft)
TALL OR A "SPECIAL SCAFFOLD"

Supervisor enters all information on top
part of GREEN insert

- However, Supervisor does not enter "Date of Next Inspection" or insert tag in holder
- Supervisor gives tag to Inspector

Inspector PRINTS his name

Inspector's actual signature

Inspector enters his phone number

Inspector enters his Saudi Aramco
certificate number

Date of next inspection - to be entered by
Scaffold Inspector

Work Permit Issuer's Role?

- Do not issue a Work Permit for workers (sandblasters, painters, etc.) to USE a scaffold if:
 - **GREEN** or **YELLOW** scaffold tags *not* in place
 - **GREEN** or **YELLOW** scaffold tags *not* signed
 - “Date of Next Inspection” has passed (tag “expired”)

Work Permit Receiver's Role?

- If you're a Work Permit Receiver, or user of an erected scaffold
 - Obtain Work Permit before using a scaffold
 - Check and verify that:
 - **GREEN** or **YELLOW** scaffold tags are signed and in place
 - “Date of Next Inspection” has not passed

End of Part 3





Scaffold Safety Workshop

Part - 4

SCAFFOLD

USER'S CHECKLIST

Scaffold User's Checklist

Why have Scaffold User's Safety Checklist?

- For your safety in making sure the scaffold is safe to use.
- Just because the scaffold has a green tag does not mean it is safe
 - Scaffold could have changed since last inspection
- A convenient “Pre-Use Inspection” tool that you can use in the field

Scaffold User's Checklist

SCAFFOLD USER'S SAFETY CHECKLIST

FOUNDATION	Timber sills are used to support scaffolds on soft surfaces (sand, asphalt, etc.)? Sills are at least 765mm (30") long, 225mm (9") wide and 38mm (1-1/2") thick? Screwjacks, if used, are adjusted to not more than 2/3 of their threaded length?
POSTS (STANDARDS)	Posts (standards) are plumb and straight, not bent or damaged? Posts are not near the edge of any excavation, including trenches? Posts are mounted on at least 150 x 150mm (6"x 6") steel base plates?
POSTS FOR TUBE AND COUPLER SCAFFOLDS	Light-duty scaffold - posts not more than 1.2m (4') apart along width of scaffold? Light-duty scaffold - posts not more than 2.7m (9') apart along length of scaffold? Medium-duty - posts not more than 1.2m (4') apart along width of scaffold? Medium-duty - posts not more than 1.8m (6') apart along length of scaffold? Joints in adjacent posts do not occur within the same lift height? Joints in posts are connected with joint pins or sleeve couplers?
RUNNERS (LEDGERS) AND BEARERS (TRANSOMS)	Runners and bearers are free from defects and not deflected or bent? Runners and bearers are spaced vertically not more than 2 meters (6'-6") apart? Bearers are installed on top of, not underneath, their supporting runners? Bearers extend at least 100mm (4") beyond the runner and post centerline? Bottom runners and bearers are located as close as possible to scaffold base?
TUBING AND COUPLERS	Couplers or system connections are free from detrimental rust or defects? Only embossed (stamped) steel tubing used for Medium-duty and Special-duty? All couplers are fully tightened (no fitting is loose when tested by hand)? Threads on all coupler bolts are fully engaged?
PLANKS AND WORKING PLATFORMS	Working levels are fully planked, with no gaps larger than 25mm (1")? Planks are free from damage, decay, defects, cracks, paint and twist? Wood planks are at least 38mm (1-1/2") thick and 225mm (9") wide? Supports for 38mm (1-1/2") thick wood planks are not more than 1.5m (5') apart? Supports for 50mm (2") thick wood planks are not more than 2.4m (8') apart? Planks are firmly secured against movement at both ends? Planks overhang their end supports between 150mm (6") and 300mm (12")? Ends of all planks placed end-to-end are independently supported? Length of lap for overlapped planks is at least 300mm (12") and over a support?
GUARDRAILS AND TOEBOARDS	Toprails, midrails and toeboards installed on all open platform sides and ends? Toprails are between 0.95m (38") and 1.15m (45") above all platforms? Toprails, midrails and toeboards are fixed to the inside of the support posts?
STABILITY	Ties are provided if the scaffold height is over 4 times minimum base dimension? Scaffold is vertically braced in both directions for the full height of the scaffold? Horizontal (plan) braces are installed on tower and mobile scaffolds? Braces are attached as close as possible to post/runner/bearer intersections?
ACCESS	Working platforms have access by ladder, stair, ramp, or walkway? Ladders are free from defects, missing rungs, or broken side rails? Ladders extend at least 0.9m (3') above the landing or platform? Both side rails of straight and extension ladders are secured in place?

ALWAYS RETURN THIS GREEN SCAFFOLD TAG TO ITS SCAFFTAG HOLDER

SCAFFOLD USER'S SAFETY CHECKLIST

FOUNDATION	Timber sills are used to support scaffolds on soft surfaces (sand, asphalt, etc.)? Sills are at least 765mm (30") long, 225mm (9") wide, and 38mm (1-1/2") thick? Screwjacks, if used, are adjusted to not more than 2/3 of their threaded length?
POSTS (STANDARDS)	Posts (standards) are plumb and straight, not bent or damaged? Posts are not near the edge of any excavation, including trenches? Posts are mounted on at least 150 x 150mm (6"x 6") steel base plates?
POSTS FOR TUBE AND COUPLER SCAFFOLDS	Light-duty scaffold - posts not more than 1.2m (4') apart along width of scaffold? Light-duty scaffold - posts not more than 2.7m (9') apart along length of scaffold? Medium-duty - posts not more than 1.2m (4') apart along width of scaffold? Medium-duty - posts not more than 1.8m (6') apart along length of scaffold? Joints in adjacent posts do not occur within the same lift height? Joints in posts are connected with joint pins or sleeve couplers?
RUNNERS (LEDGERS) AND BEARERS (TRANSOMS)	Runners and bearers are free from defects and not deflected or bent? Runners and bearers are spaced vertically not more than 2 meters (6'-6") apart? Bearers are installed on top of, not underneath, their supporting runners? Bearers extend at least 100mm (4") beyond the runner and post centerline? Bottom runners and bearers are located as close as possible to scaffold base?
TUBING AND COUPLERS	Couplers or system connections are free from detrimental rust or defects? Only embossed (stamped) steel tubing used for Medium-duty and Special-duty? All couplers are fully tightened (no fitting is loose when tested by hand)? Threads on all coupler bolts are fully engaged?
PLANKS AND WORKING PLATFORMS	Working levels are fully planked, with no gaps larger than 25mm (1")? Planks are free from damage, decay, defects, cracks, paint and twist? Wood planks are at least 38mm (1-1/2") thick and 225mm (9") wide? Supports for 38mm (1-1/2") thick wood planks are not more than 1.5m (5') apart? Supports for 50mm (2") thick wood planks are not more than 2.4m (8') apart? Planks are firmly secured against movement at both ends? Planks overhang their end supports between 150mm (6") and 300mm (12")? Ends of all planks placed end-to-end are independently supported? Length of lap for overlapped planks is at least 300mm (12") and over a support?
GUARDRAILS AND TOEBOARDS	Toprails, midrails and toeboards installed on all open platform sides and ends? Toprails are between 0.95m (38") and 1.15m (45") above all platforms? Toprails, midrails and toeboards are fixed to the inside of the support posts?
STABILITY	Ties are provided if the scaffold height is over 4 times minimum base dimension? Scaffold is vertically braced in both directions for the full height of the scaffold? Horizontal (plan) braces are installed on tower and mobile scaffolds? Braces are attached as close as possible to post/runner/bearer intersections?
ACCESS	Working platforms have access by ladder, stair, ramp, or walkway? Ladders are free from defects, missing rungs, or broken side rails? Ladders extend at least 0.9m (3') above the landing or platform? Both side rails of straight and extension ladders are secured in place?

ALWAYS RETURN THIS YELLOW SCAFFOLD TAG TO ITS SCAFFTAG HOLDER

Scaffold User's Checklist

- Foundation
- Posts
- Posts for Tube & Coupler Scaffold
- Runners & Bearers
- Tubing & Couplers
- Planks & Working Platforms
- Guardrails & Toeboards
- Stability
- Access

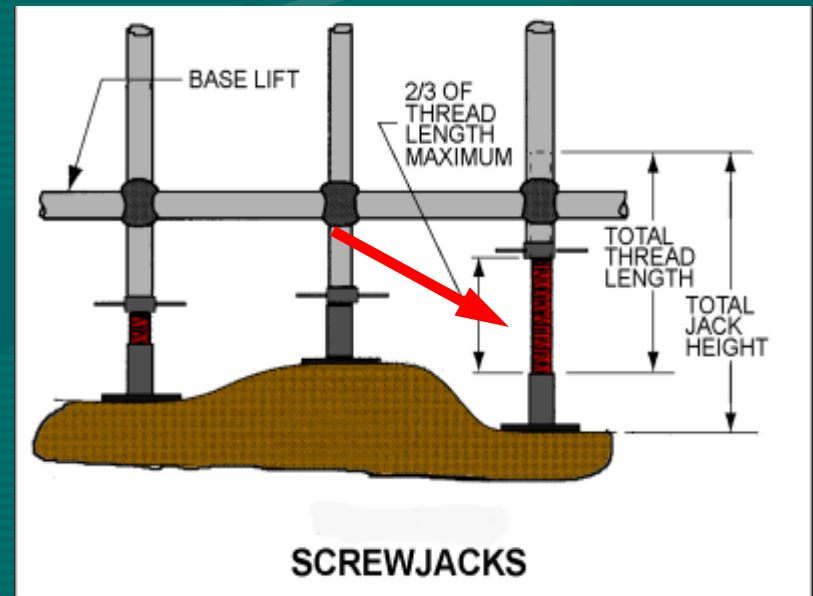
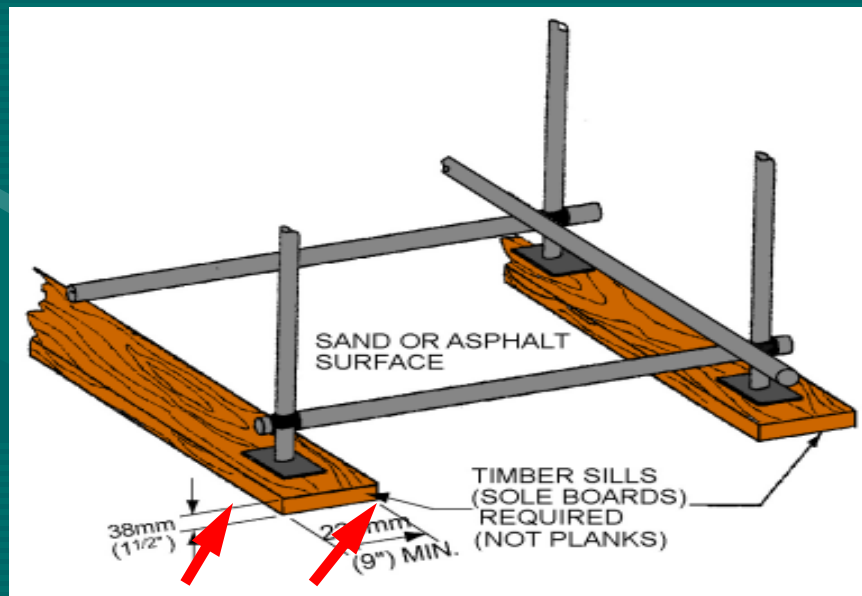
Foundation

FOUNDATION

Timber sills are used to support scaffolds on soft surfaces (sand, asphalt, etc.)?

Sills are at least 765mm (30") long, 225mm (9") wide and 38mm (1-1/2") thick?

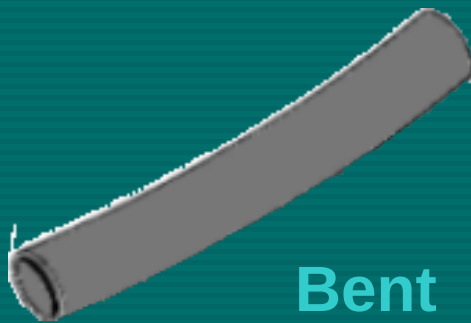
Screwjacks, if used, are adjusted to not more than $\frac{2}{3}$ of their threaded length?



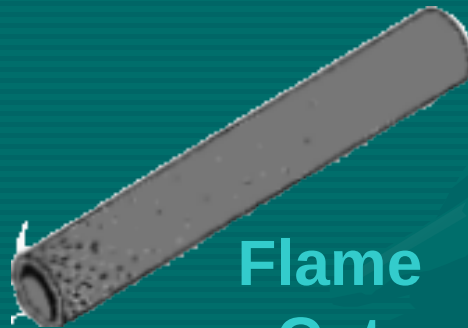
Post (Standard) Quality

POSTS
(STANDARDS)

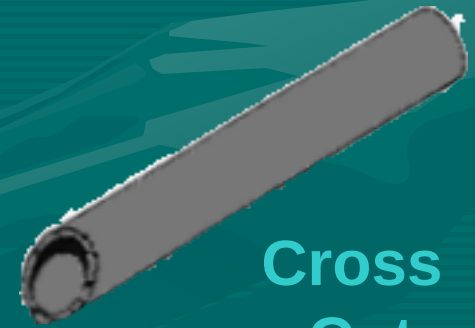
Posts (standards) are plumb and straight, not bent or damaged?



Bent



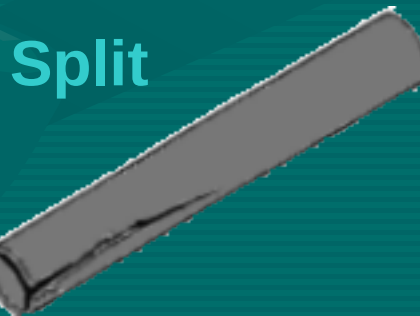
Flame
Cut



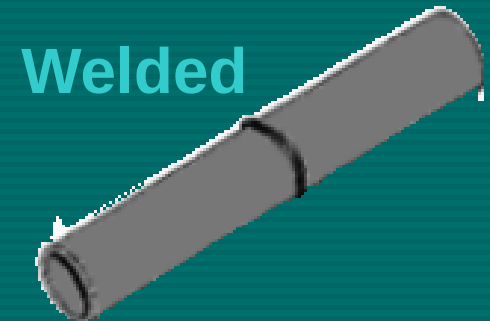
Cross
Cut



Mushroom
Head



Split



Welded

Scaffold Post Position

POSTS
(STANDARDS)

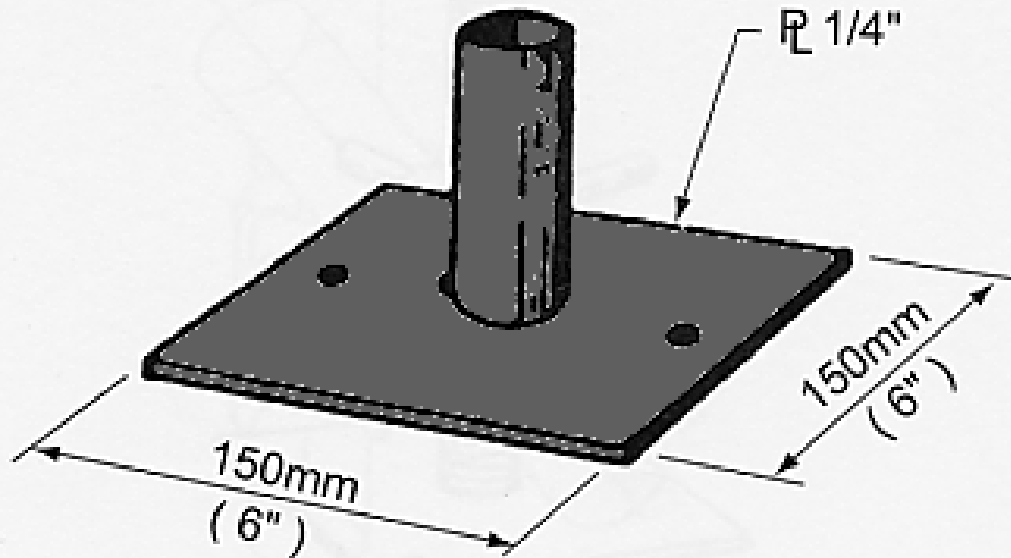
Posts are not near the edge of any excavation, including trenches?



Scaffold Base Plate

POSTS
(STANDARDS)

Posts are mounted on at least 150 x 150mm (6" x 6") steel base plates?

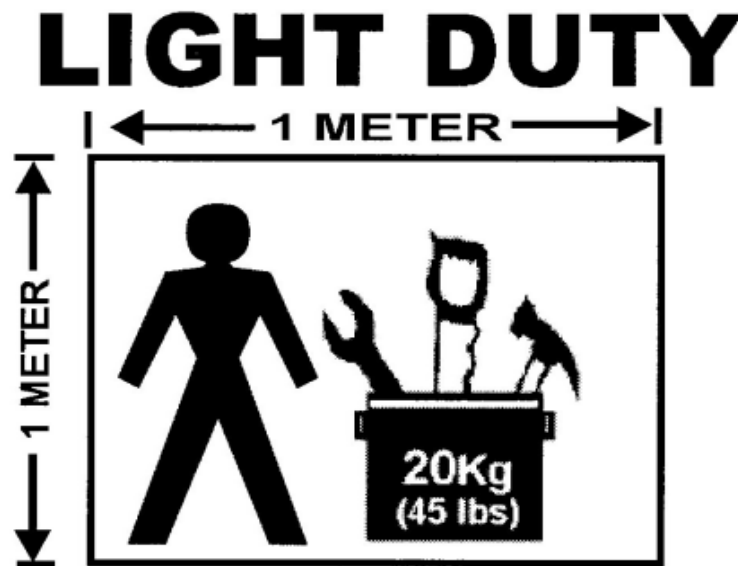


Scaffold Posts Spacing

POSTS FOR
TUBE AND
COUPLER
SCAFFOLDS

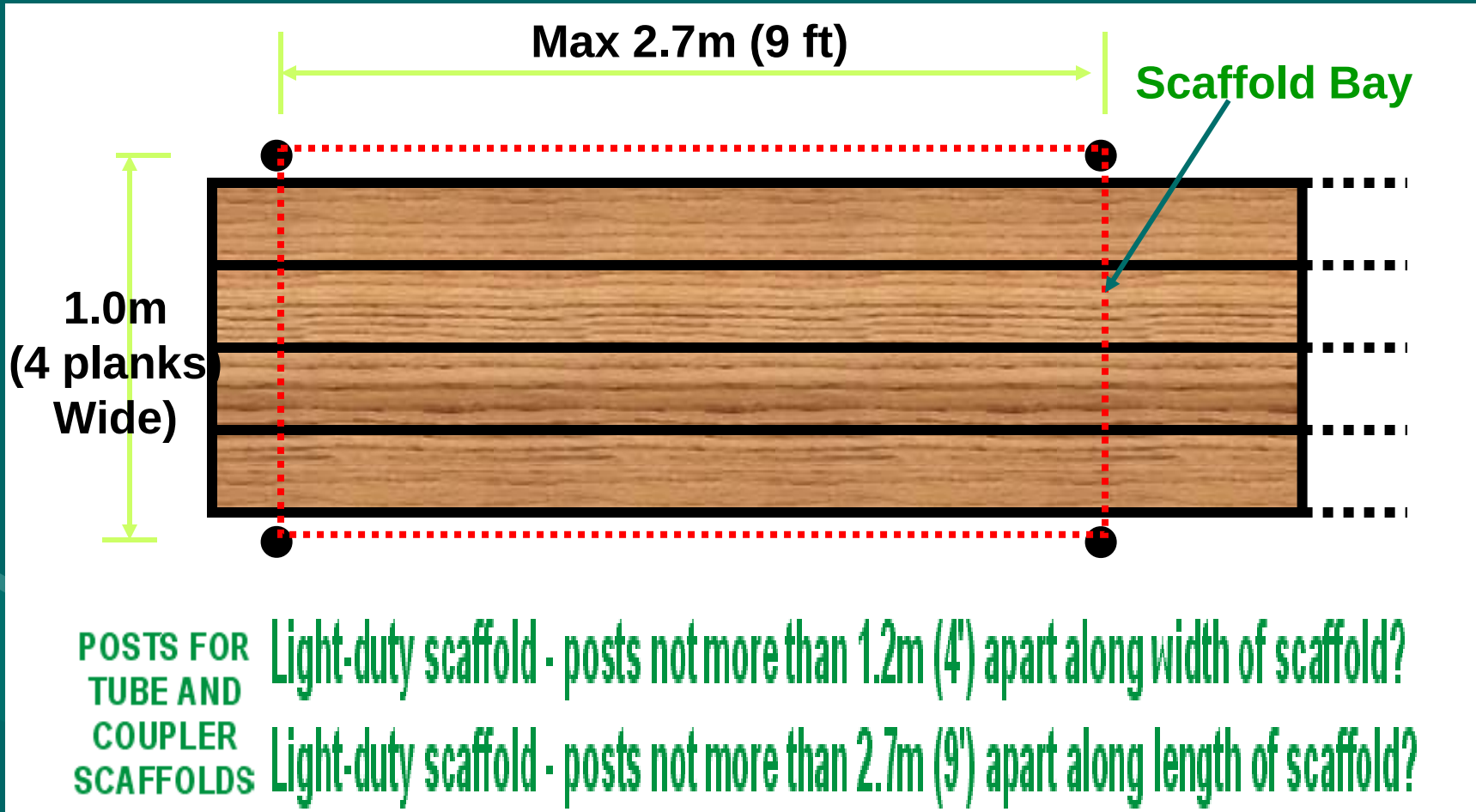
Light-duty scaffold - posts not more than 1.2m (4') apart along width of scaffold?

Light-duty scaffold - posts not more than 2.7m (9') apart along length of scaffold?



ONE MAN AND 20kg MAX. PER SQ. METER
MAX. TOTAL LOAD 120 KG
PER SQ METER (25 PSF)

Light-duty Scaffold

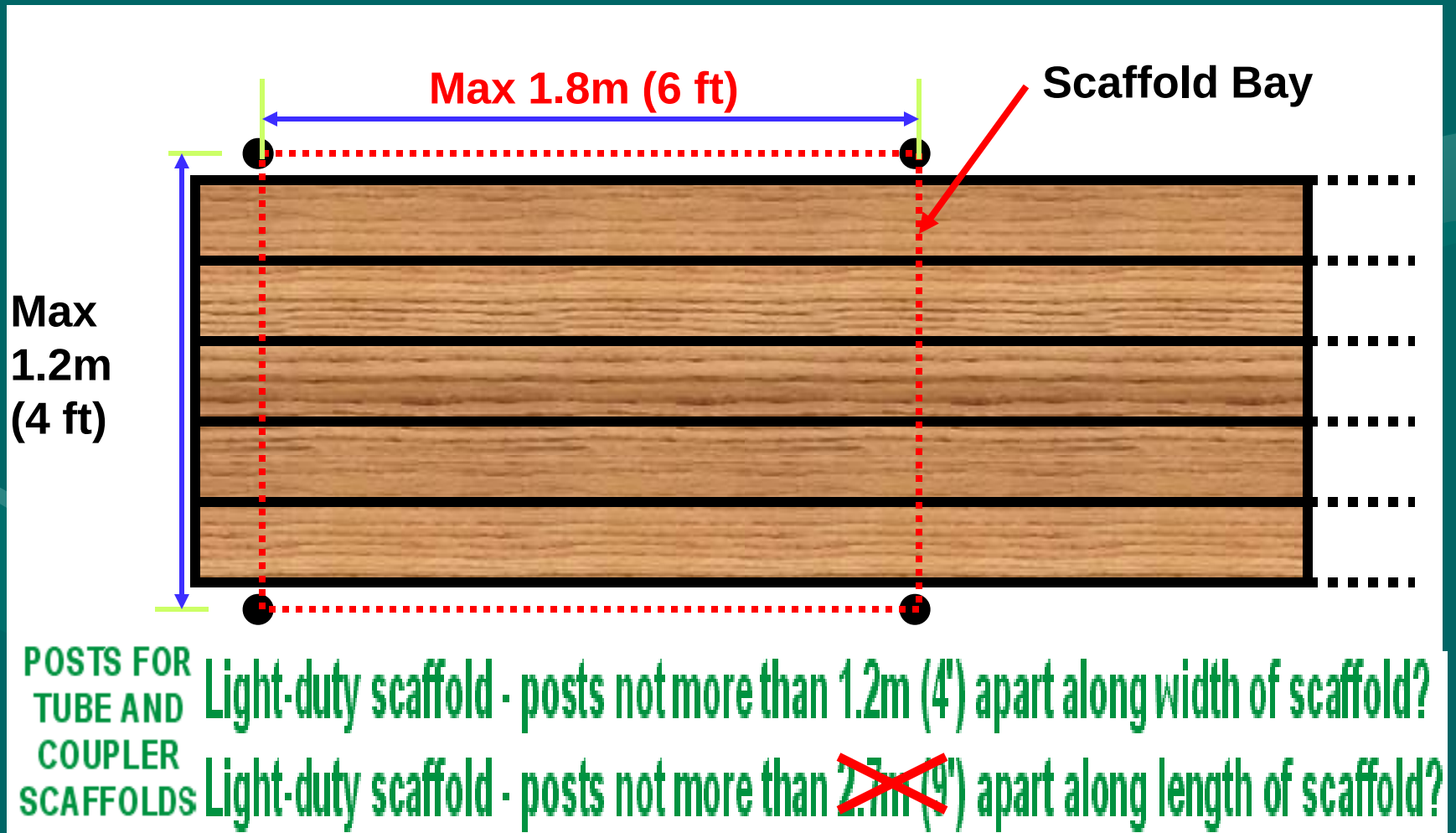


Only if **embossed** tubing is used !

Embossed Scaffold Tubing



Light-duty Tubular Scaffold for NOT Embossed Tubing



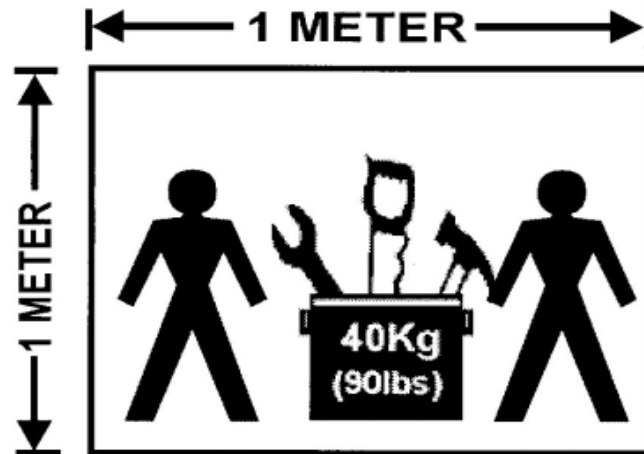
Medium Duty Tubular Scaffold

POSTS FOR
TUBE AND
COUPLER
SCAFFOLDS

Medium-duty - posts not more than 1.2m (4') apart along width of scaffold?

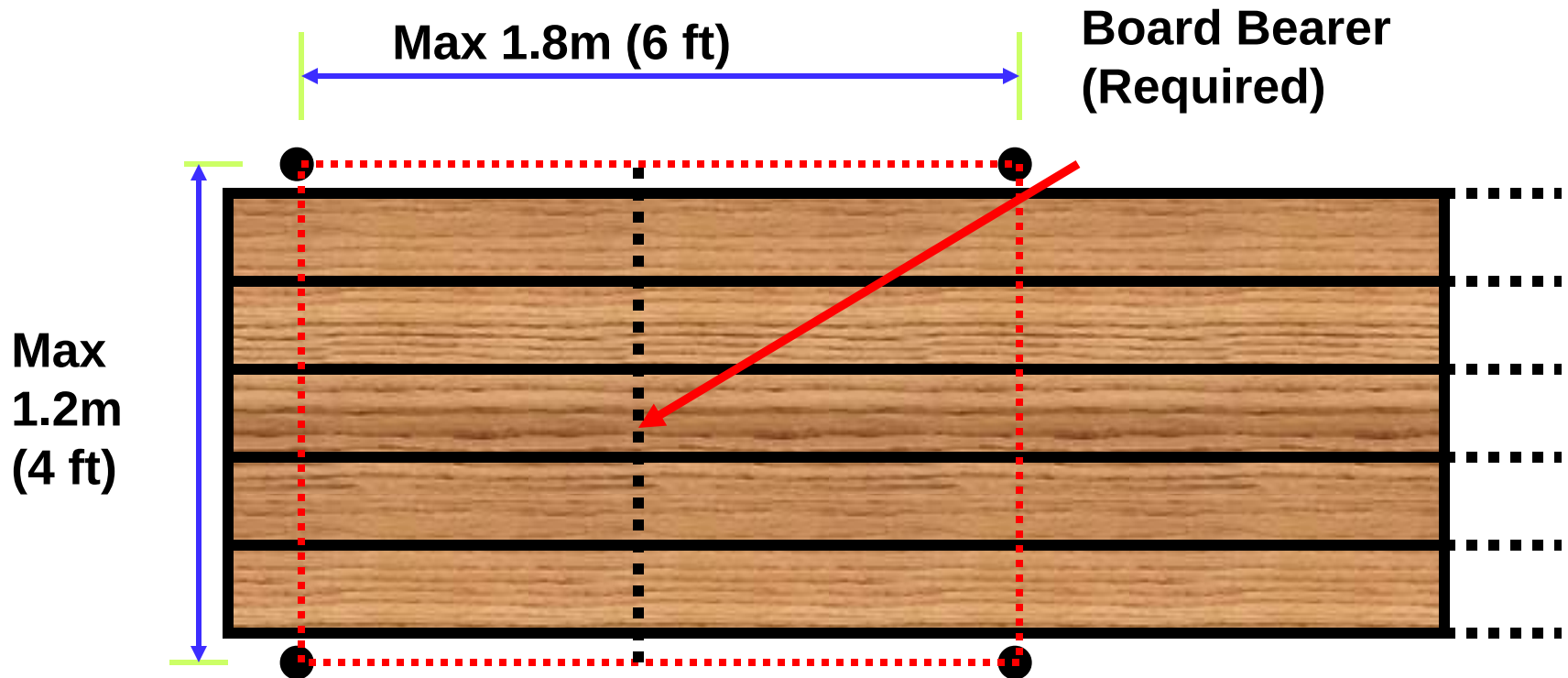
Medium-duty - posts not more than 1.8m (6') apart along length of scaffold?

MEDIUM DUTY



TWO MEN AND 40kg MAX. PER SQ. METER
MAX. TOTAL LOAD 240 KG
PER SQ METER (50 PSF)

Medium Duty Tubular Scaffold



POSTS FOR
TUBE AND
COUPLER
SCAFFOLDS

Medium-duty - posts not more than 1.2m (4') apart along width of scaffold?

Medium-duty - posts not more than 1.8m (6') apart along length of scaffold?

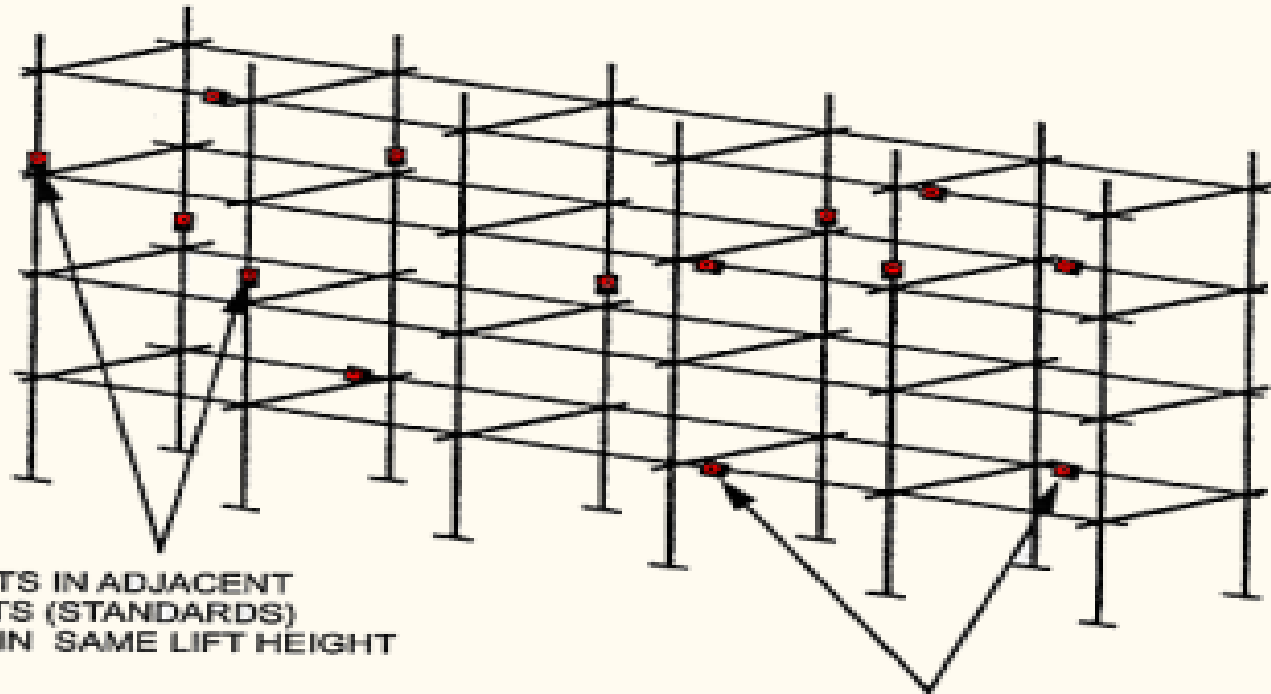
Must all be **Embossed** tubing

Joints in Posts

POSTS FOR
TUBE AND
COUPLER
SCAFFOLDS

Joints in adjacent posts do not occur within the same lift height?

Joints in posts are connected with joint pins or sleeve couplers?



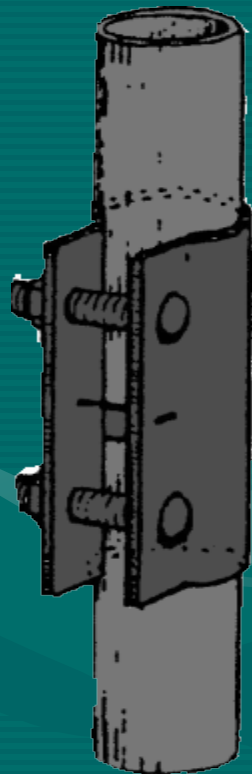
JOINTS IN ADJACENT
POSTS (STANDARDS)
NOT IN SAME LIFT HEIGHT

JOINTS IN ADJACENT RUNNERS
(LEDGERS) NOT IN SAME BAY

Posts Connectors

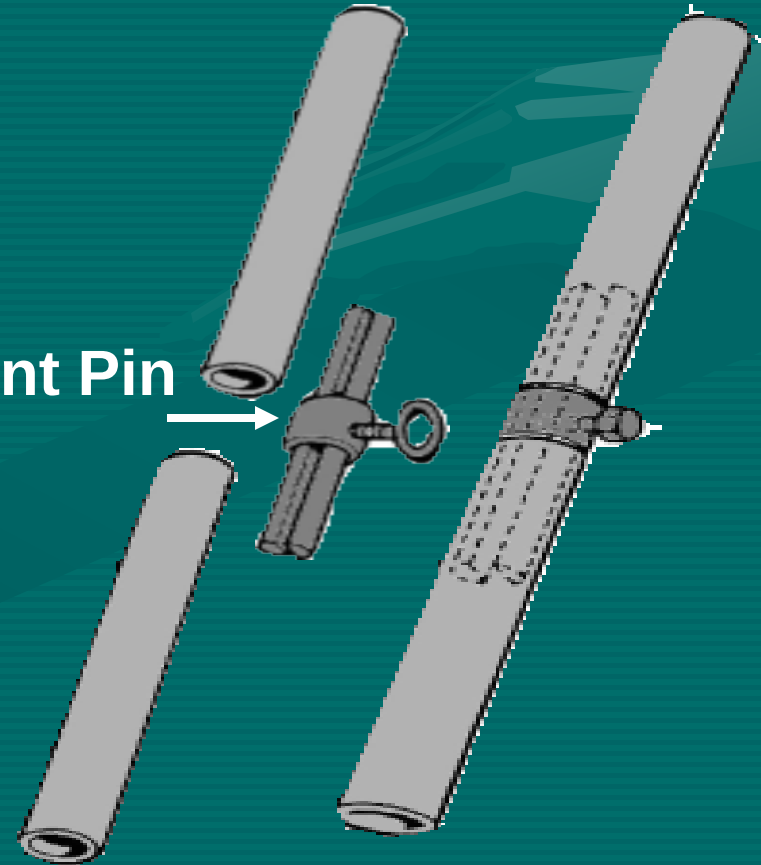
POSTS FOR
TUBE AND
COUPLER
SCAFFOLDS

Joints in posts are connected with joint pins or sleeve couplers?



Sleeve
Coupler

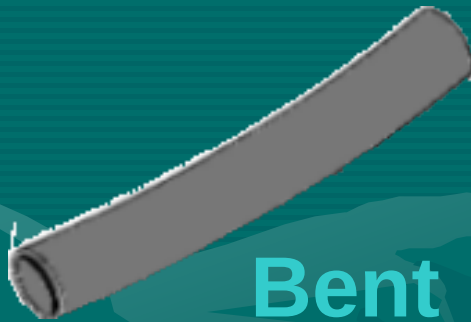
Joint Pin



Runners & Bearers Check

RUNNERS
(LEDGERS)
AND
BEARERS
(TRANSOMS)

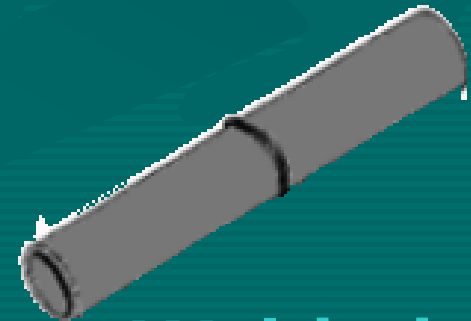
Runners and bearers are free from defects and not deflected or bent?



Bent



Split



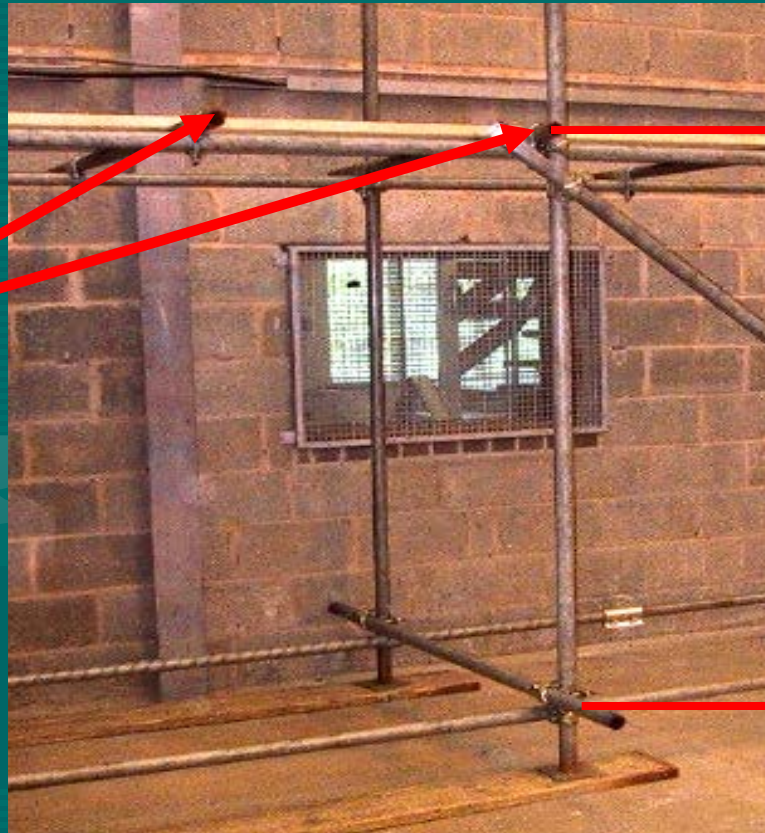
Welded

Runners & Bearers Spacing

RUNNERS
(LEDGERS)
AND
BEARERS
(TRANSOMS)

Runners and bearers are spaced vertically not more than 2 meters (6'-6") apart?
Bearers are installed on top of, not underneath, their supporting runners?

Bearers
on-top of
Runners

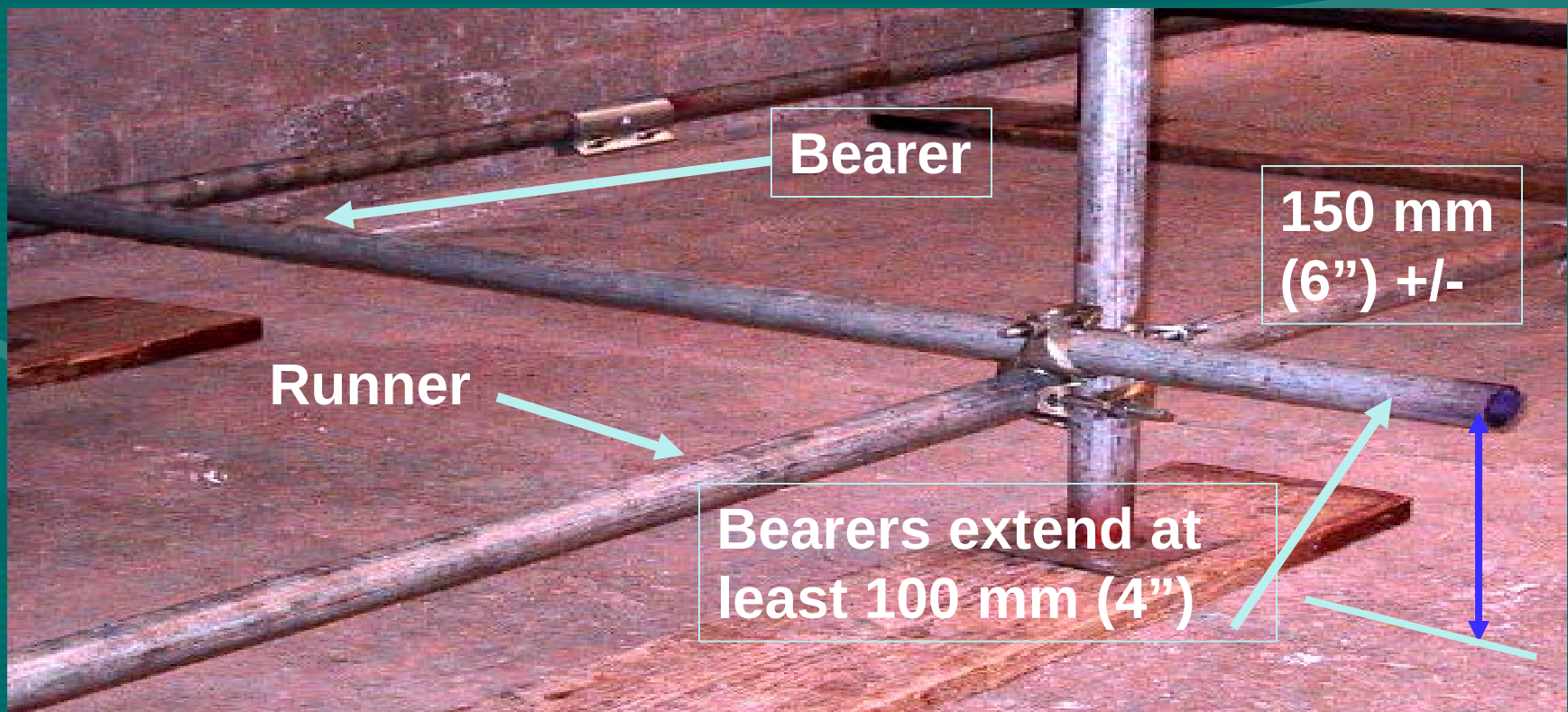


Max 2 m
(6'-6")

Bearers location

RUNNERS
(LEDGERS)
AND
BEARERS
(TRANSOMS)

Bearers are installed on top of, not underneath, their supporting runners?
Bearers extend at least 100mm (4") beyond the runner and post centerline?
Bottom runners and bearers are located as close as possible to scaffold base?



Scaffold Tubing Specs

TUBING AND COUPLERS

Only embossed (stamped) steel tubing used for Medium-duty and Special-duty?

A close-up photograph of a horizontal section of a steel pipe. The pipe has a metallic, slightly weathered appearance with some surface texture and minor discoloration. Embossed in the center of the pipe is the text "ASTM A500 Gr. B 3.76T YR 2001" in a clean, sans-serif font. The background is dark and out of focus.

ASTM A500 Gr. B 3.76T YR 2001

Couplers Quality

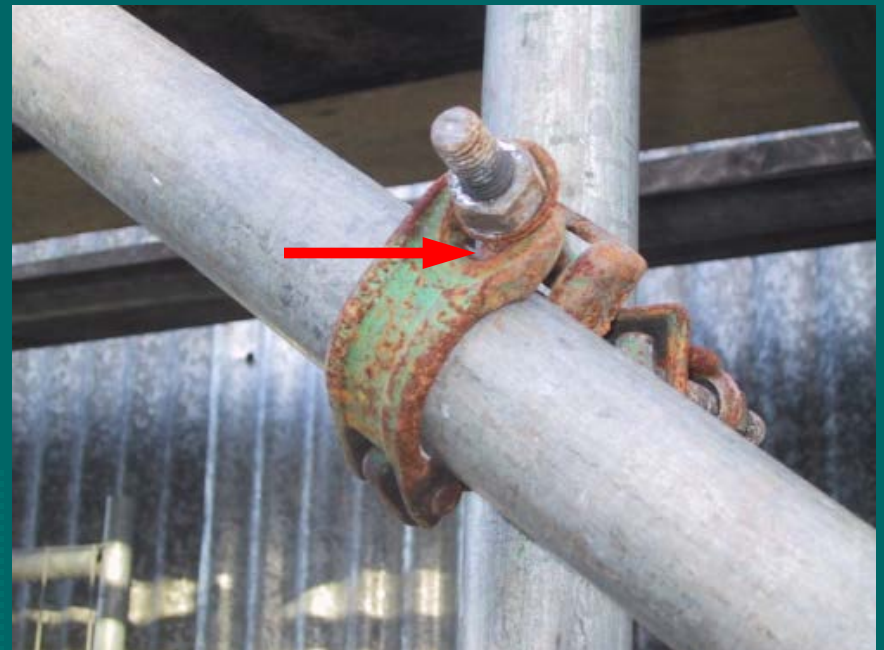
TUBING AND COUPLERS

Couplers or system connections are free from detrimental rust or defects?
All couplers are fully tightened (no fitting is loose when tested by hand)?
Threads on all coupler bolts are fully engaged?



Good Coupling

Bad Coupling



Working Platforms Quality

PLANKS AND WORKING PLATFORMS

Working levels are fully planked, with no gaps larger than 25mm (1")?

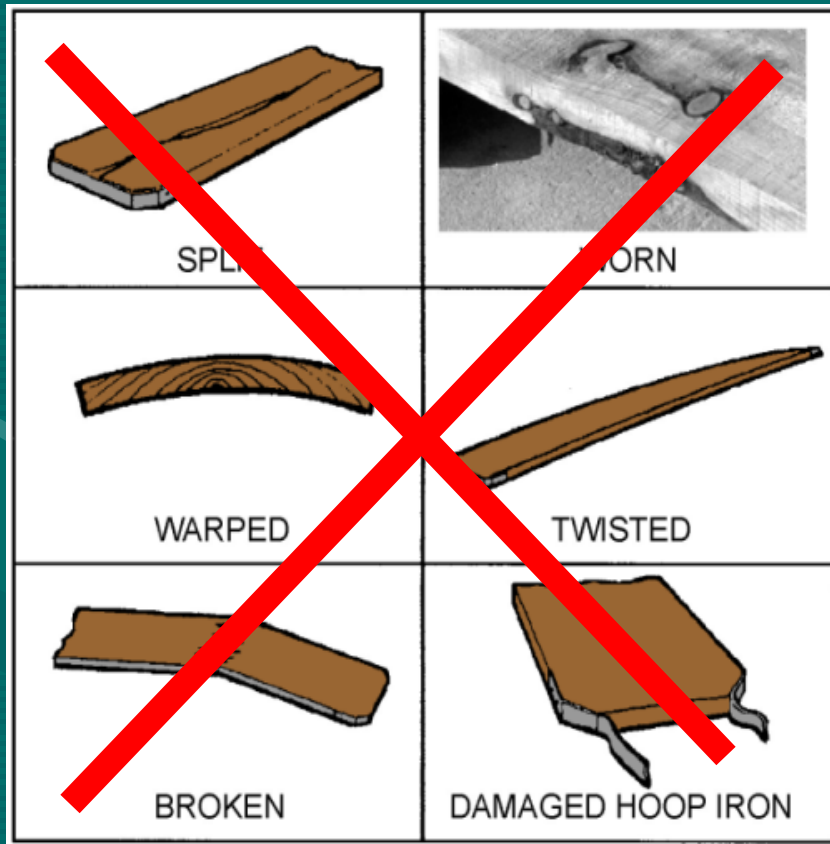
All levels
that are to
be worked
on need
planks
across the
full width
and length
of the
scaffold



Planks Quality Check

PLANKS
AND
WORKING
PLATFORMS

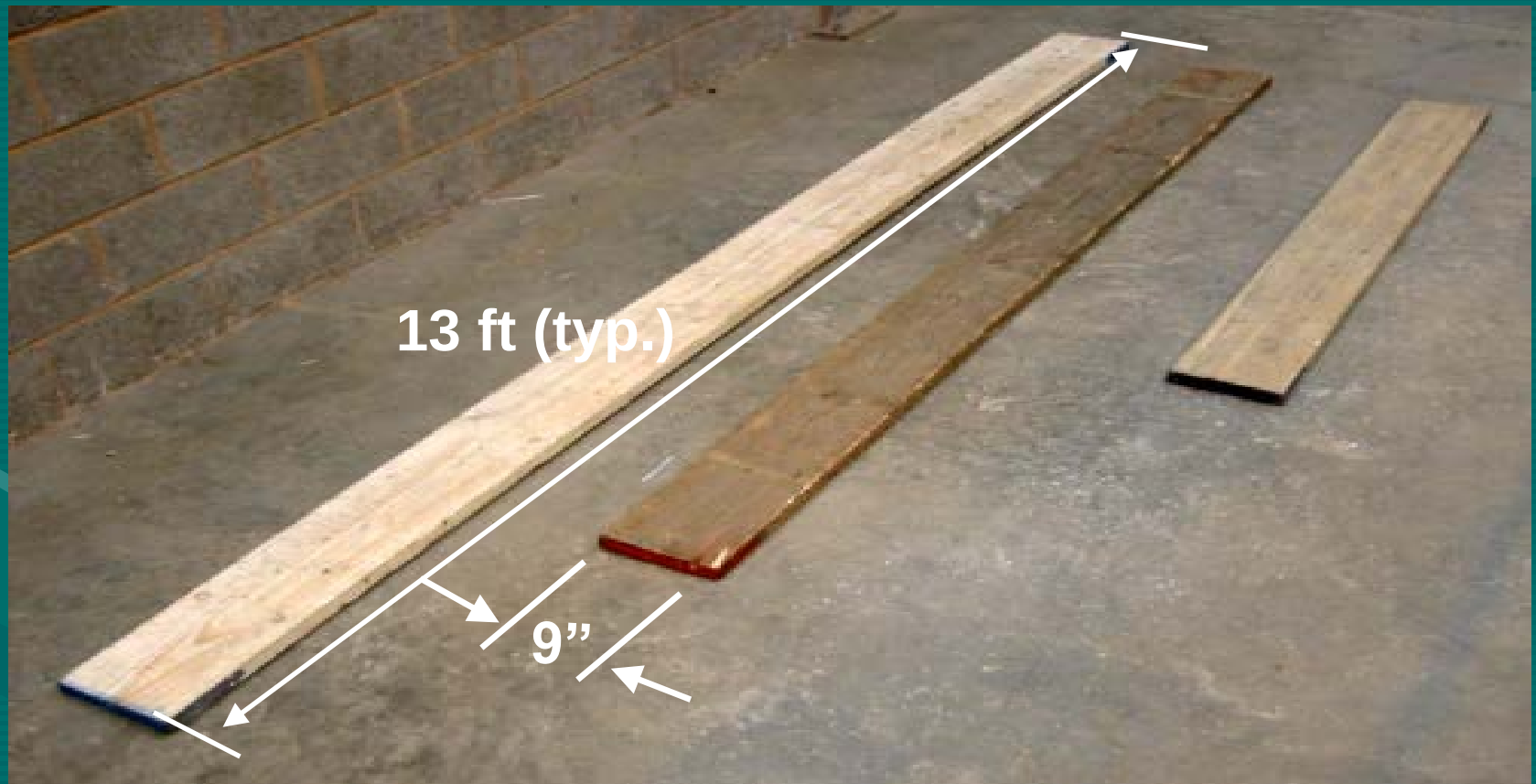
Planks are free from damage, decay, defects, cracks, paint and twist?



Planks Dimensions

PLANKS
AND
WORKING
PLATFORMS

Wood planks are at least 38mm (1-1/2") thick and 225mm (9") wide?

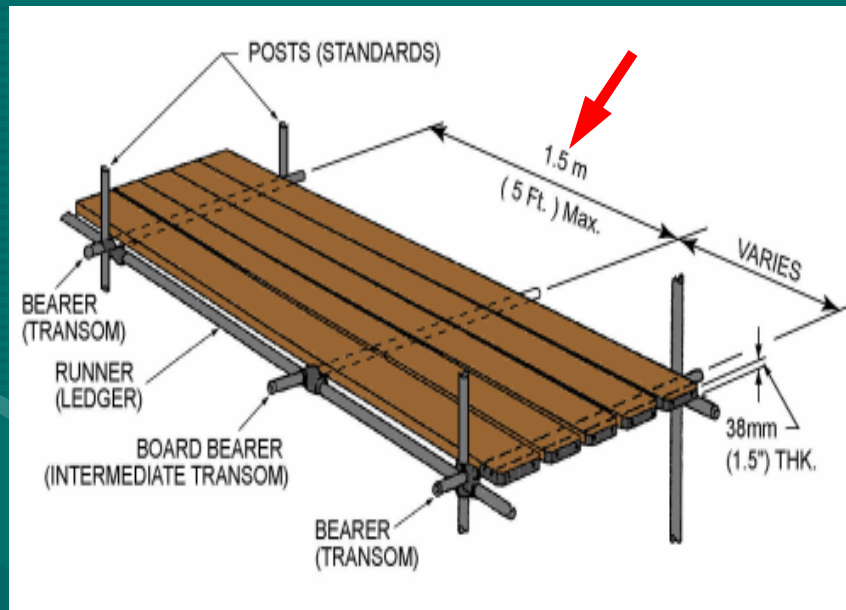


Planks Support Spacing

PLANKS AND WORKING PLATFORMS

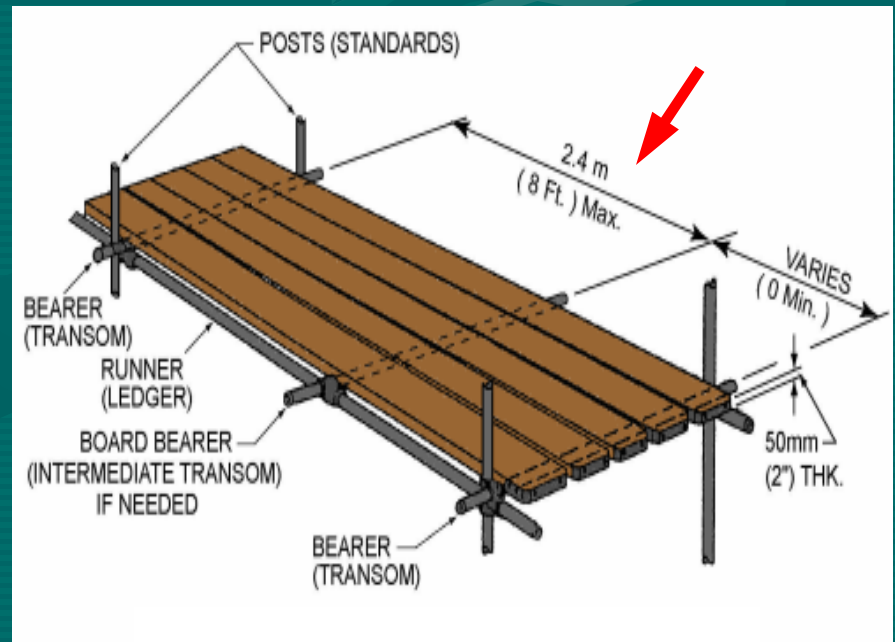
Supports for 38mm (1-1/2") thick wood planks are not more than 1.5m (5') apart?

Supports for 50mm (2") thick wood planks are not more than 2.4m (8') apart?



38mm (1½") Planks
1.5m (5') max support

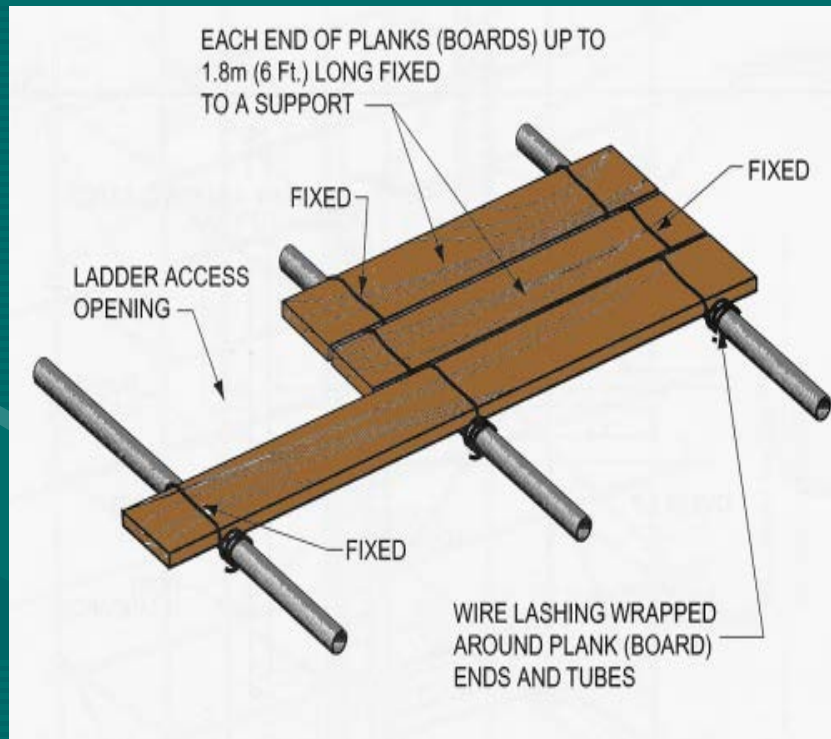
50mm (2") Planks
2.4m (8') max support



Planks Installation

PLANKS AND WORKING PLATFORMS

Planks are firmly secured against movement at both ends?



Planks lashed down

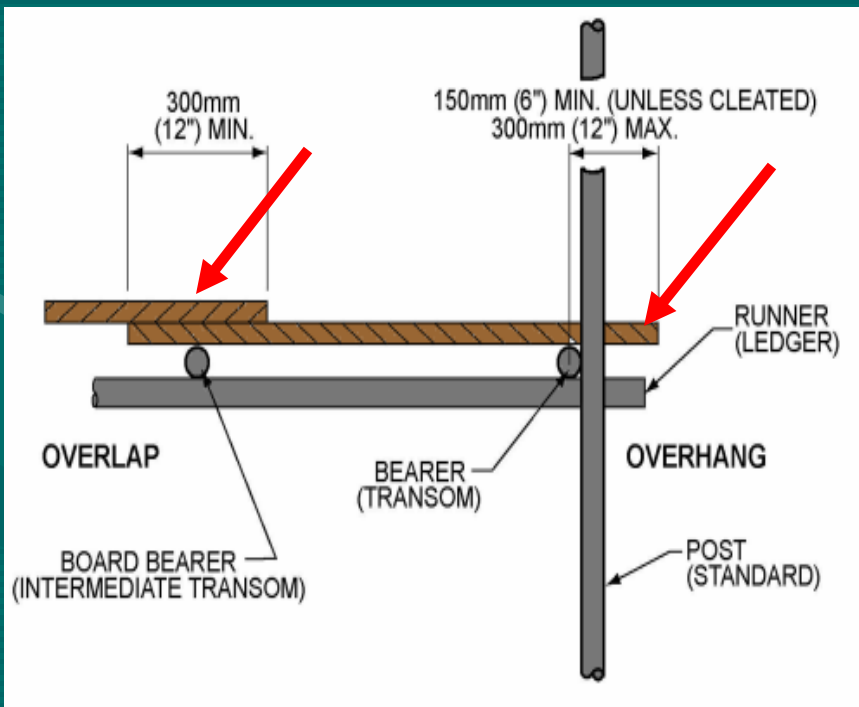
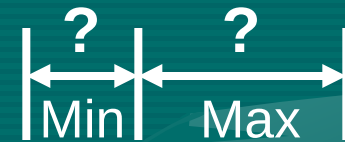
Planks trapped by toeboard



Planks Installation

PLANKS AND WORKING PLATFORMS

Planks overhang their end supports between 150mm (6") and 300mm (12")?
Ends of all planks placed end-to-end are independently supported?
Length of lap for overlapped planks is at least 300mm (12") and over a support?



Guardrail System

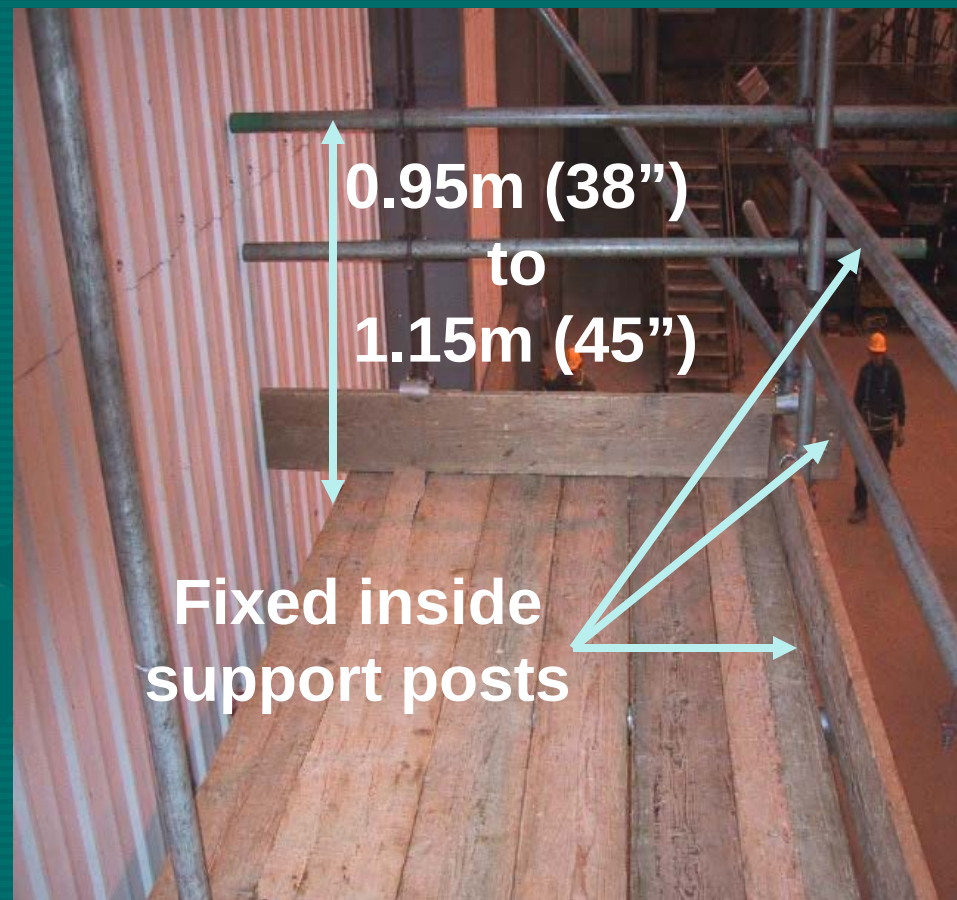
GUARDRAILS AND TOEBOARDS

Toprails, midrails and toeboards installed on all open platform sides and ends?

Toprails are between 0.95m (38") and 1.15m (45") above all platforms?

Toprails, midrails and toeboards are fixed to the inside of the support posts?

- Guardrails to stop workers from falling off the platform
- Toeboards to stop materials from falling off the platform

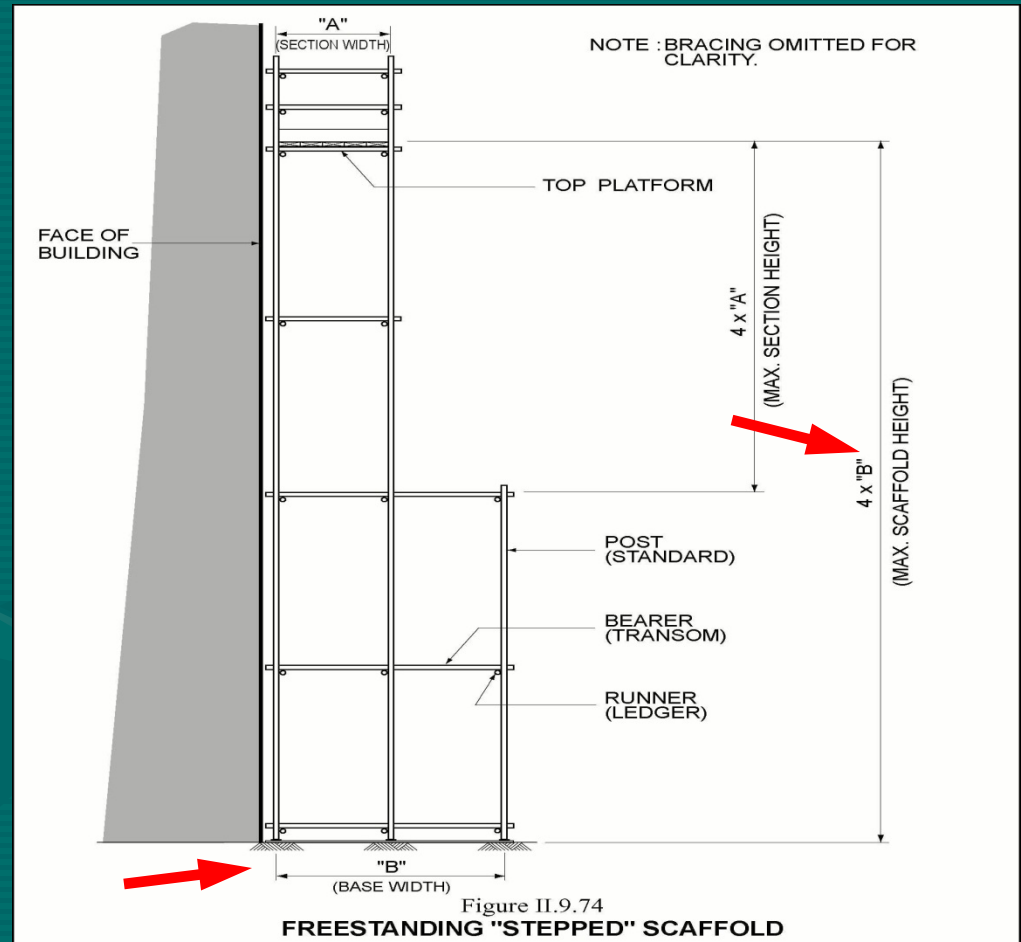


Scaffold Stability

STABILITY

Ties are provided if the scaffold height is over 4 times minimum base dimension?

A freestanding scaffold cannot be higher than 4 times its width at the base

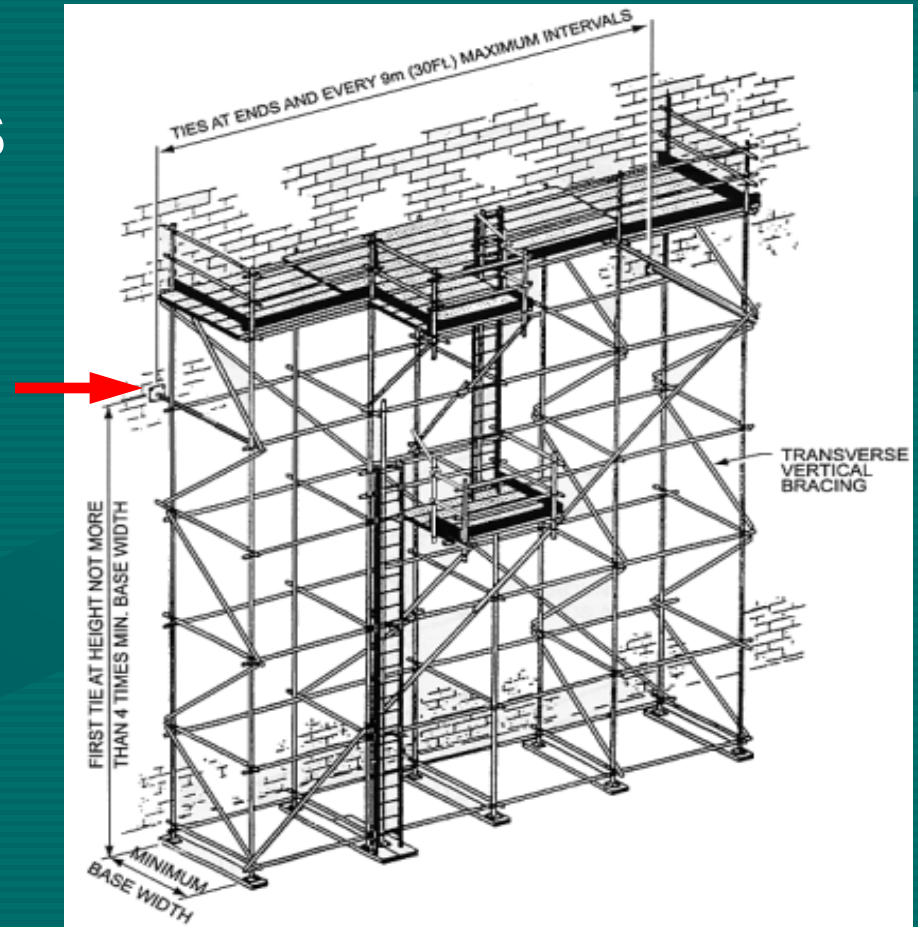


Scaffold Stability

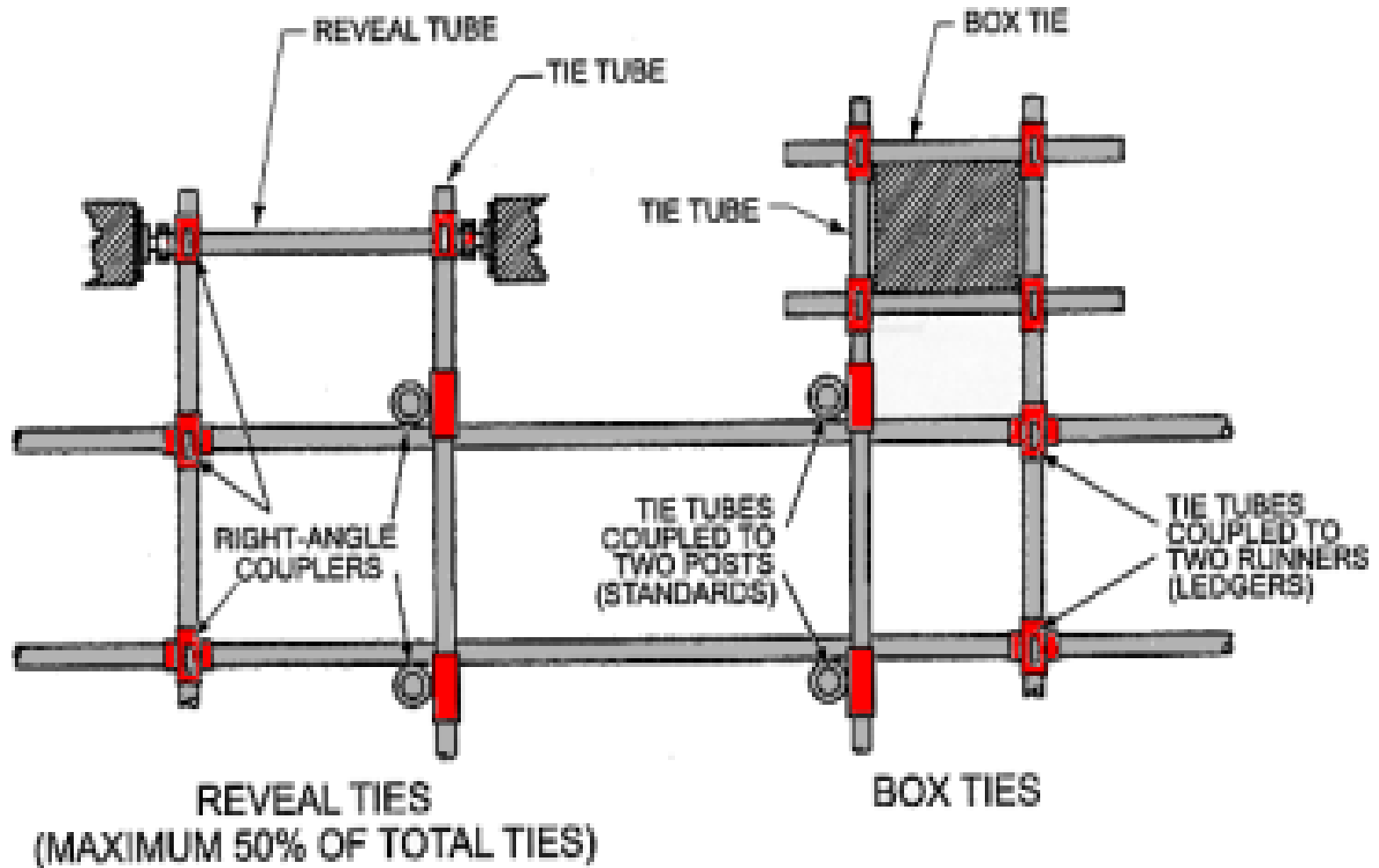
STABILITY

Ties are provided if the scaffold height is over 4 times minimum base dimension?

- If a scaffold is higher than 4 times its base width, then it must be prevented from tipping by ties, etc.
- Ties to structure, rakers, etc. are used to prevent scaffold tipping over



Types of Scaffold Ties



Types of Scaffold Ties

Box Tie

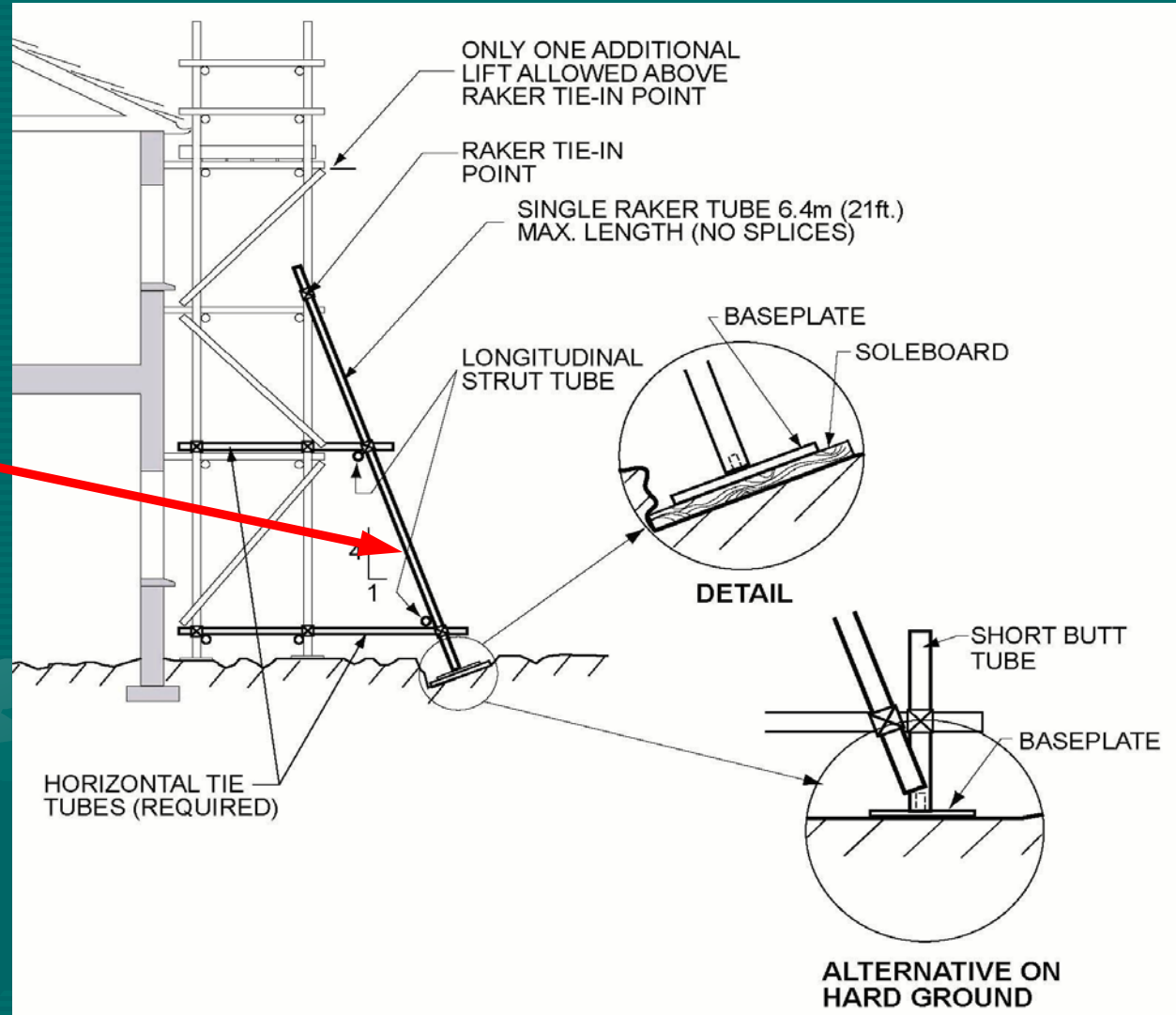


Tie to Steel-work



Tip-Over Prevention

Raker

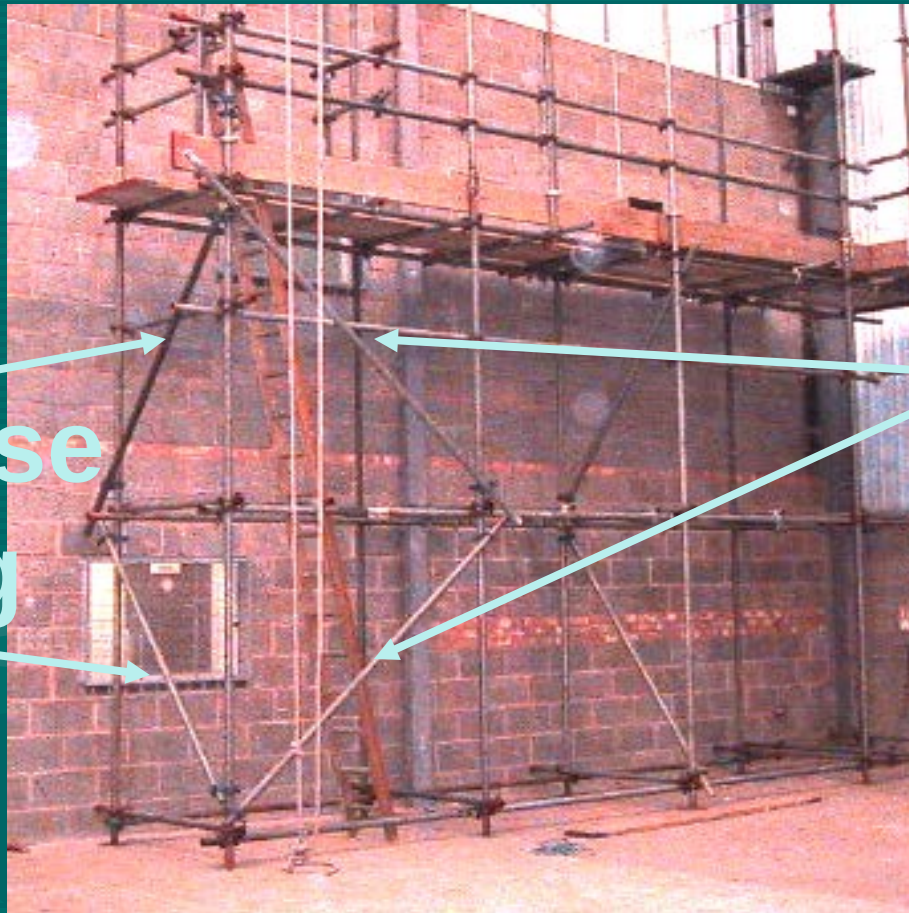


Vertical Bracing

STABILITY

Scaffold is vertically braced in both directions for the full height of the scaffold?

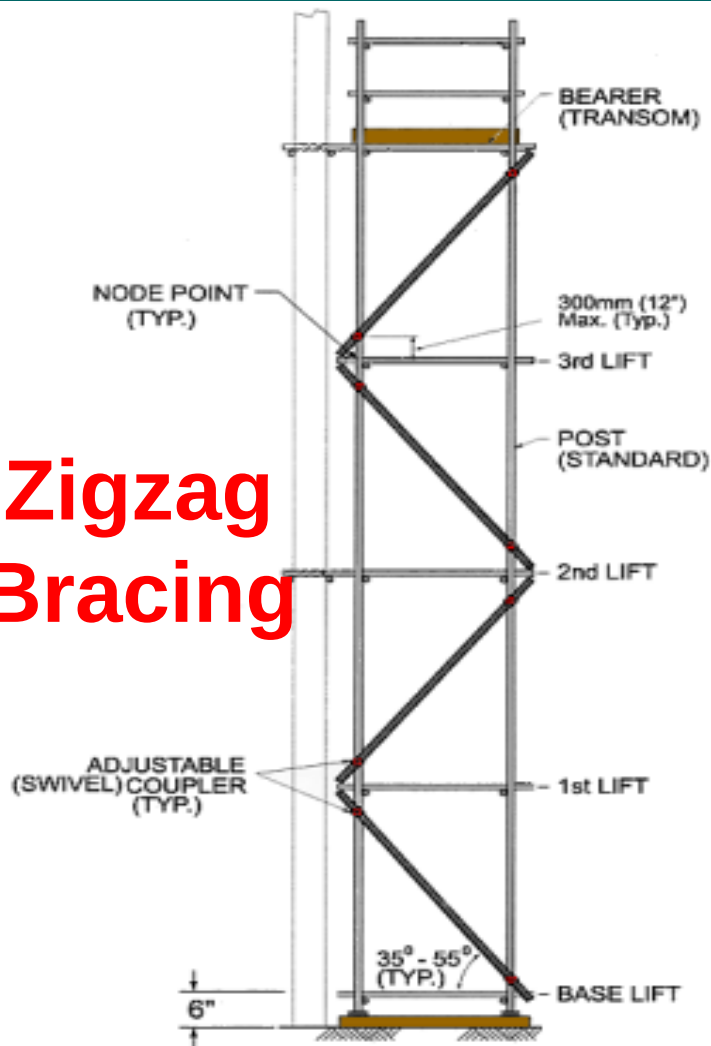
Transverse
Bracing



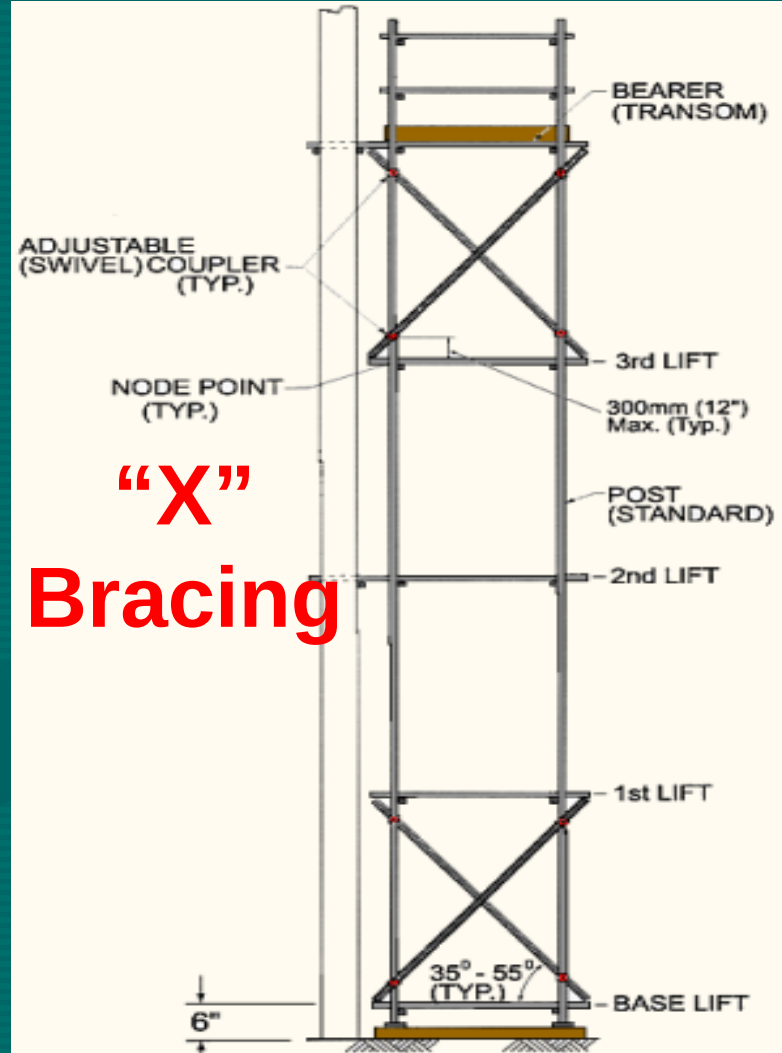
Longitudinal
Bracing

Transverse Bracing

Zigzag Bracing

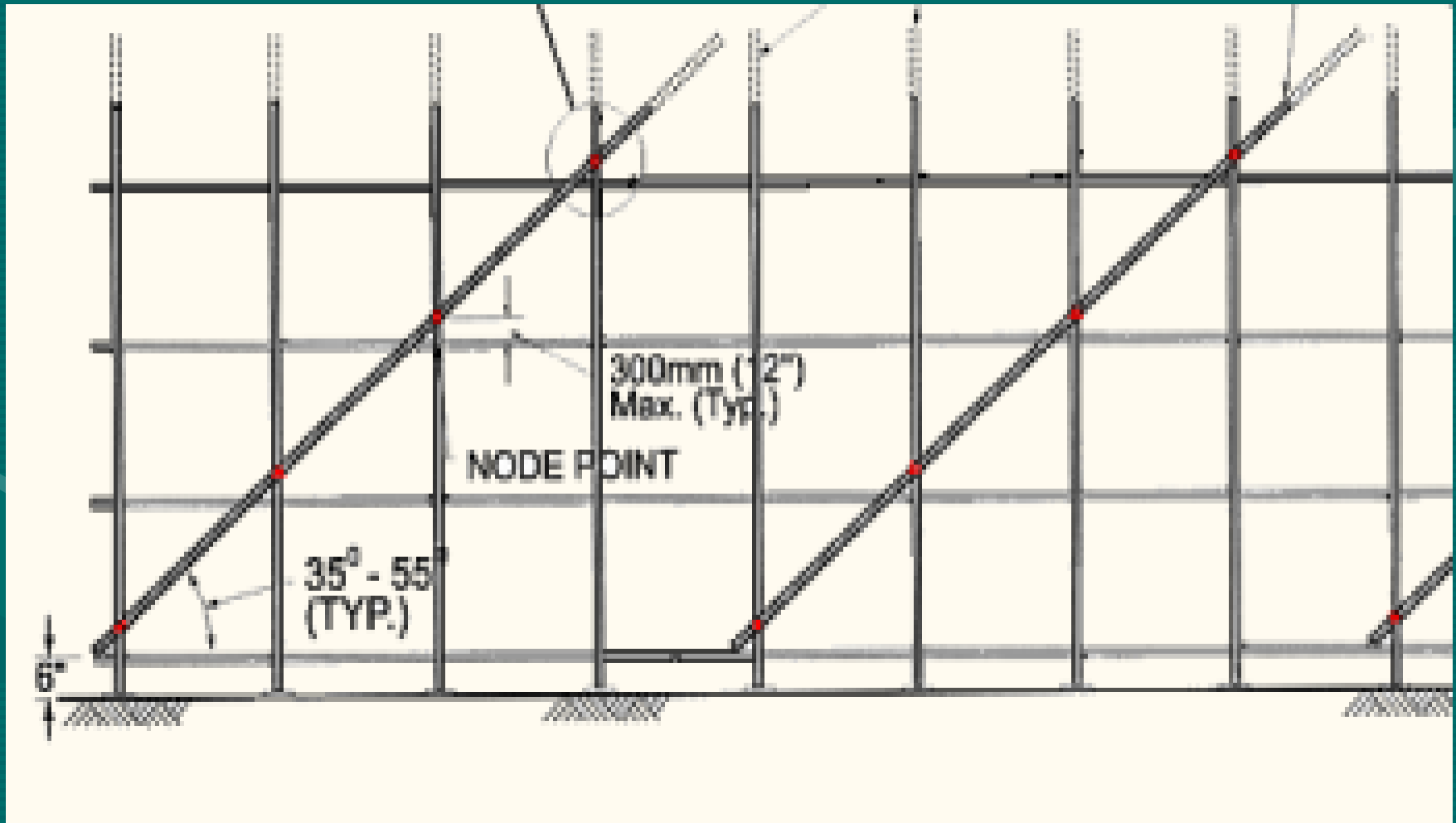


"X" Bracing



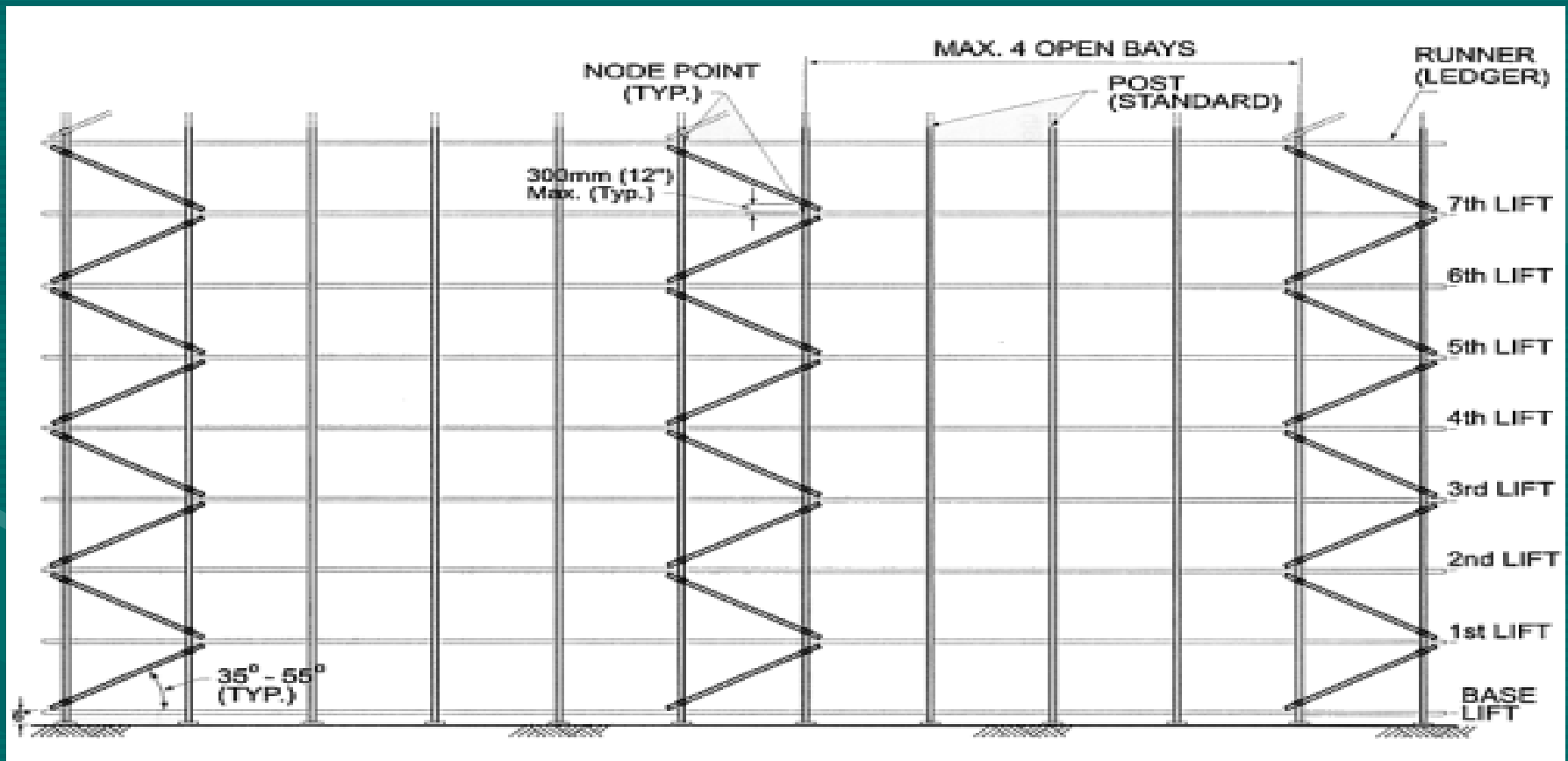
Longitudinal Bracing

Used for independent run scaffold



Longitudinal Bracing

Used for multiple bays on a birdcage scaffold

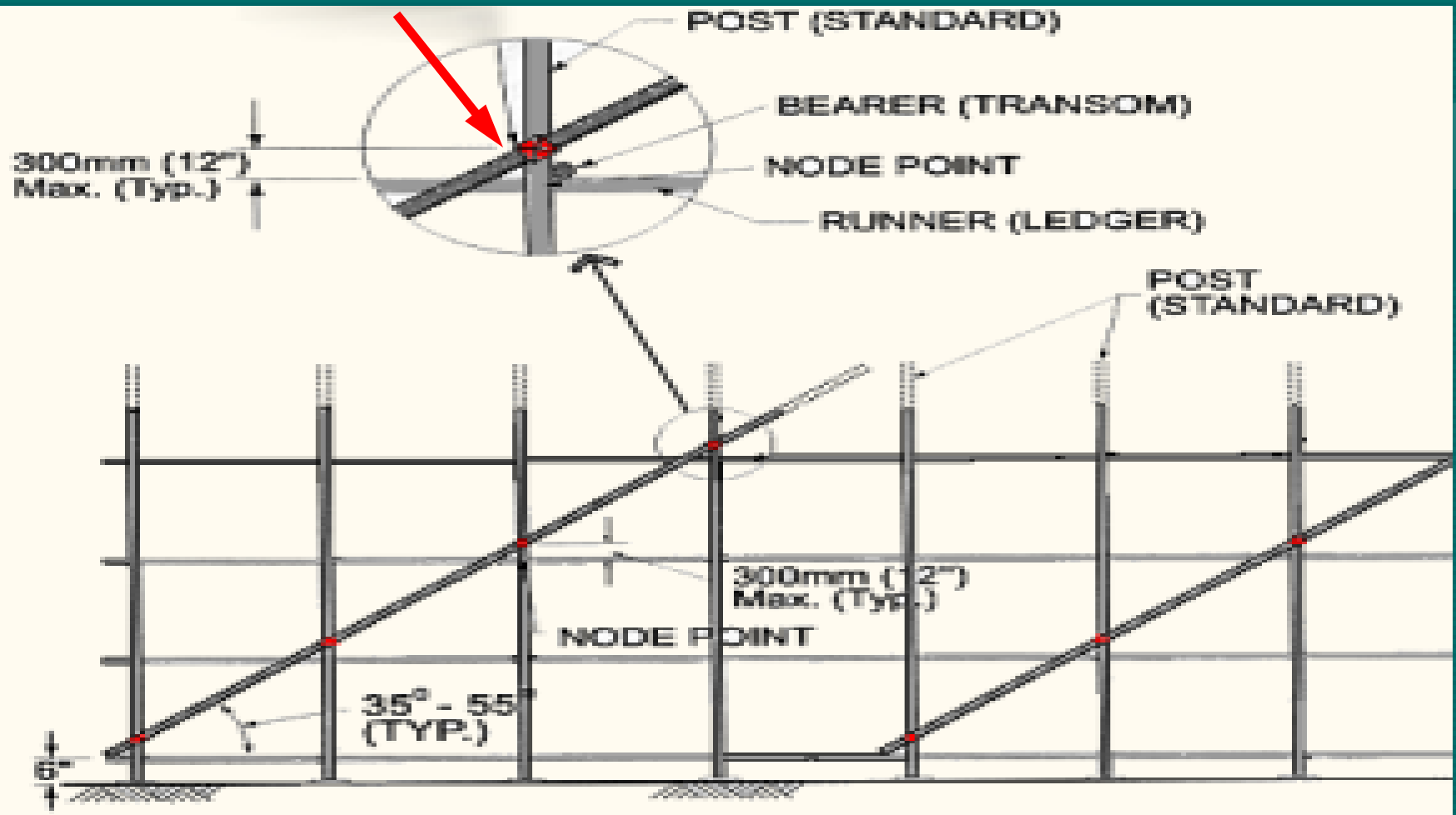


No more than 4 open bays along length of scaffold

Node Point

STABILITY

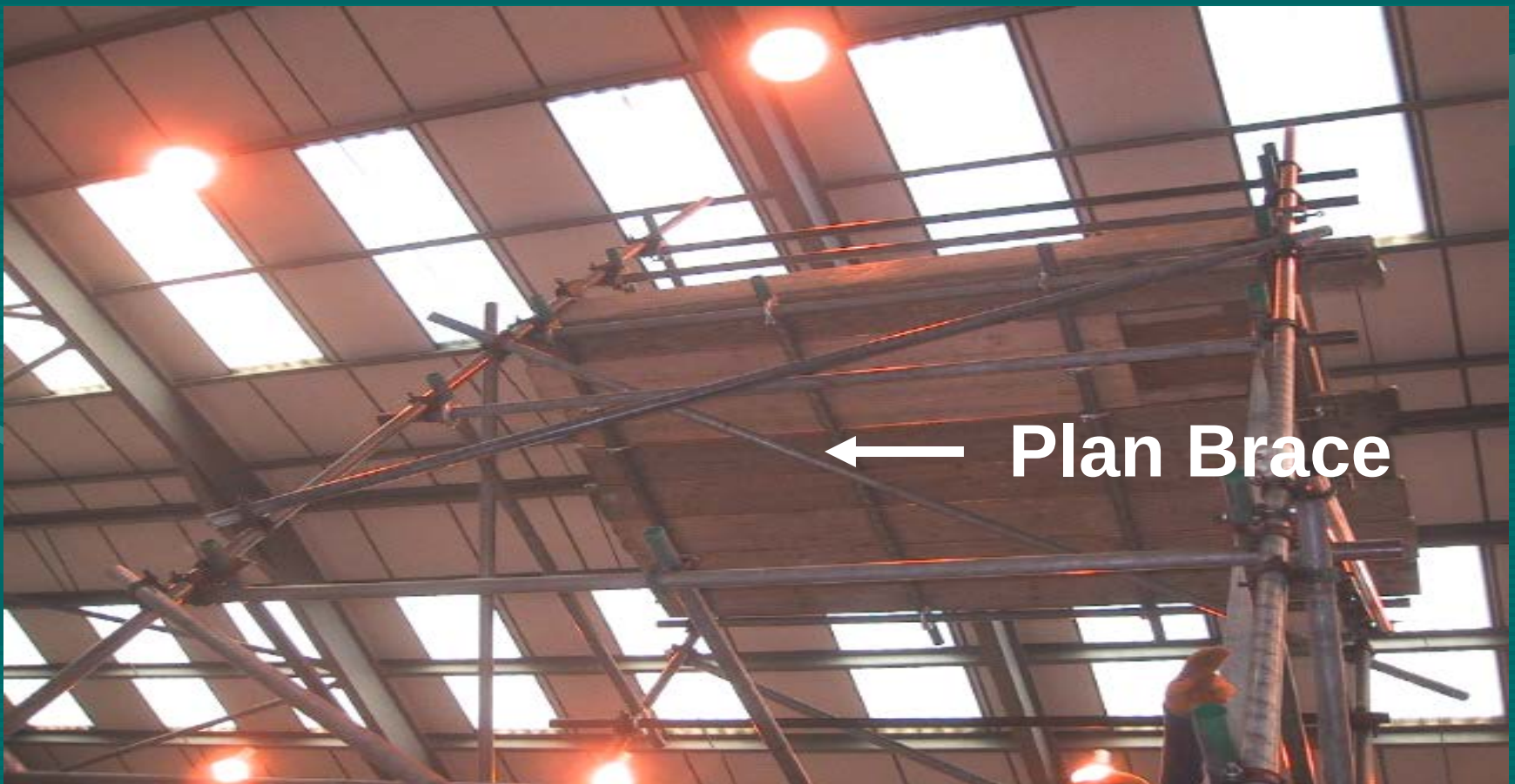
Braces are attached as close as possible to post/runner/bearer intersections?



Plan Braces

STABILITY

Horizontal (plan) braces are installed on tower and mobile scaffolds?



External Access Ladder

ACCESS

Working platforms have access by ladder, stair, ramp, or walkway?



Internal Access Ladder

Working platforms have access by ladder, stair, ramp, or walkway?

ACCESS



Temporary Stairs

ACCESS

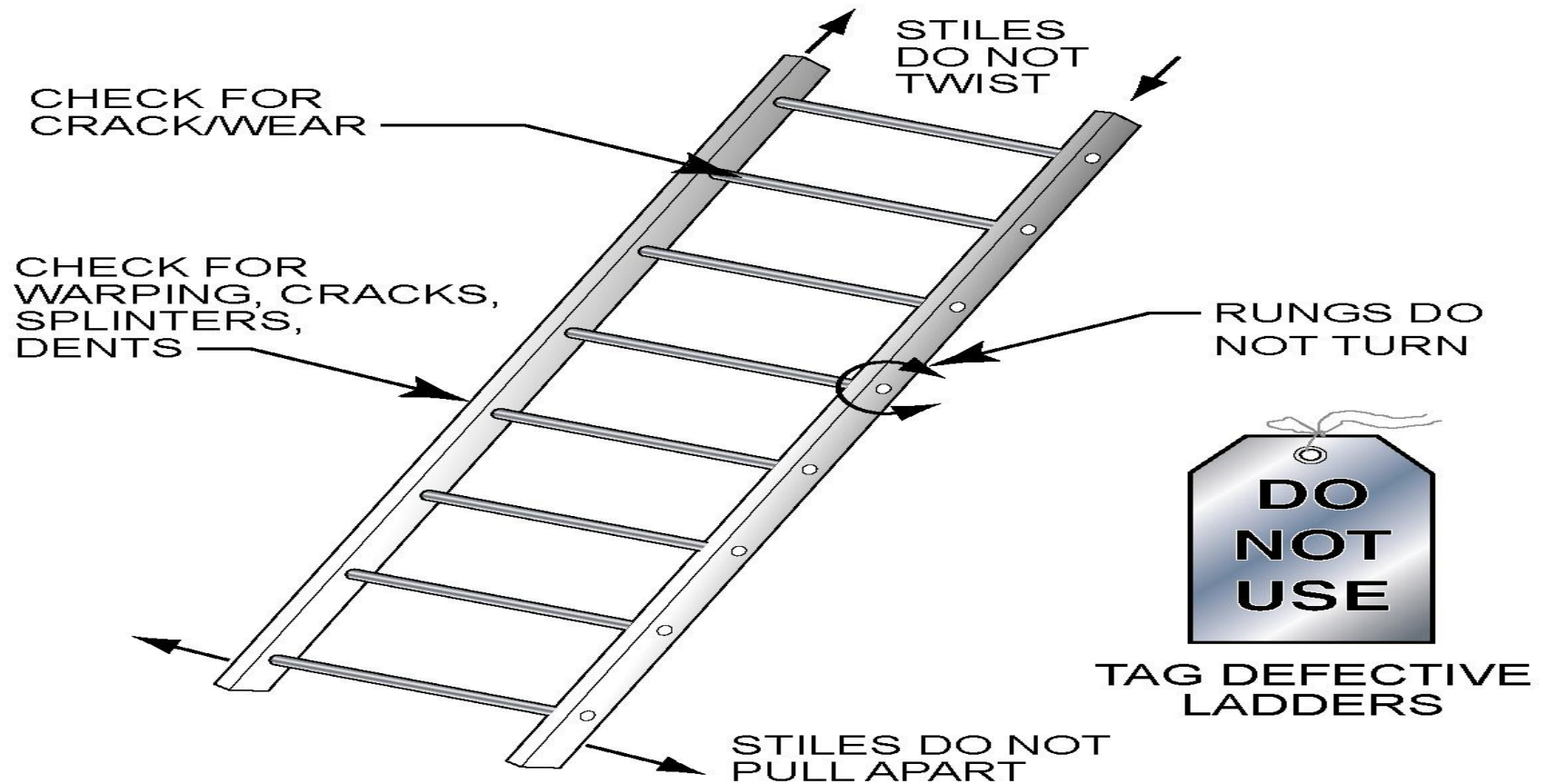
Working platforms have access by ladder, stair, ramp, or walkway?



Ladder Condition

ACCESS

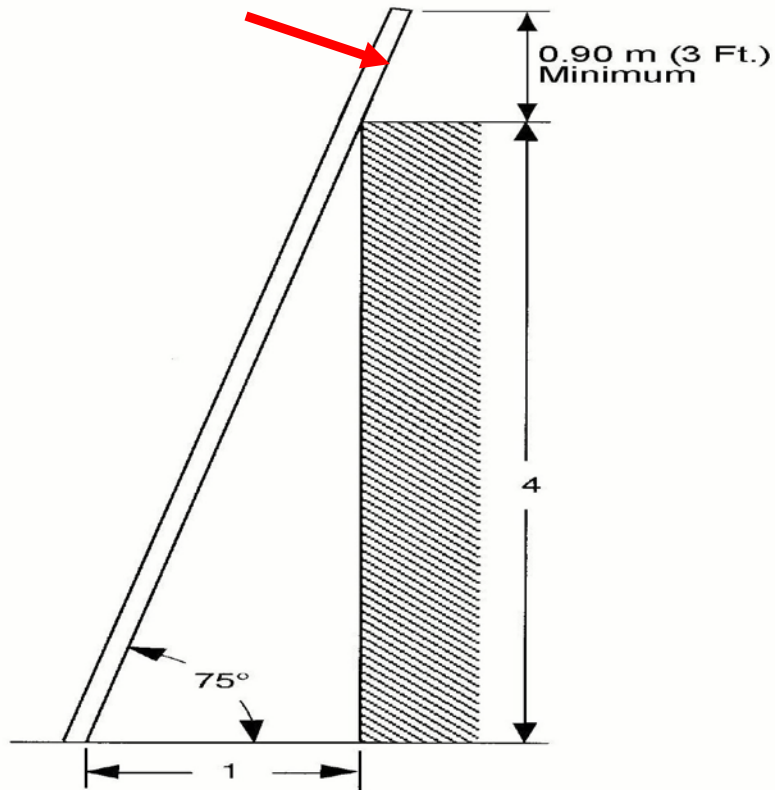
Ladders are free from defects, missing rungs, or broken side rails?



Ladder Position

ACCESS

Ladders extend at least 0.9m (3') above the landing or platform?
Both side rails of straight and extension ladders are secured in place?



**You should now know how to
use the safety checklist on the
back of the green and yellow
scaffold tags !**

Any questions?



Scaffold Safety Workshop

Part - 5

SCAFFOLD

GENERAL REQUIREMENTS

Think...

- When is scaffold plan required?
- Who are only authorized to erect scaffolds more than 40 feet or “special” scaffolds?
- Who signs the scaffold tags, if the scaffold is more than 20 feet tall?
- What are basic scaffold work flow components?

Scaffold Responsibility Matrix

Scaffold Height	Scaffold Plan (SP) Required?	SP To Be Revwd By Proponent And LP Area Office?	SP To Be Revwd By CSD?	Scaffold To Be Erected By:	Scaffold Field Inspection Checklist Completed By:	Scaffold Tag Signed By:
0 – 6m (0 - 20 ft.)	No	No	No	Qualified Scaffold Erector	Scaffold Supervisor Only	Scaffold Supvr Only
6 - 12.2m (20 – 40 ft.)	No	No	No	Qualified Scaffold Erector	Scaffold Supervisor & Inspector	Scaffold Supvr & Inspector
12.2 - 38m (40 – 125 ft.)	Yes	Yes	No	Specialize d Scaffold Erector	Scaffold Supervisor & Inspector	Scaffold Supvr & Inspector
Special Scaffold, including > 38m (125 ft.)	Yes	Yes	Yes	Specialize d Scaffold Erector	Scaffold Supervisor & Inspector	Scaffold Supvr & Inspector

Types of Scaffold

- Tower Scaffold
- Birdcage Scaffold
- Independent Run Scaffold
- Mobile Scaffold
- Suspended Scaffold
- Bracket Scaffold

Reminder

- Scaffold **Inspectors** Only Required to Inspect:
 - Scaffolds **over 6 meters** (20 feet) tall,
or
 - “**Special Scaffolds**”

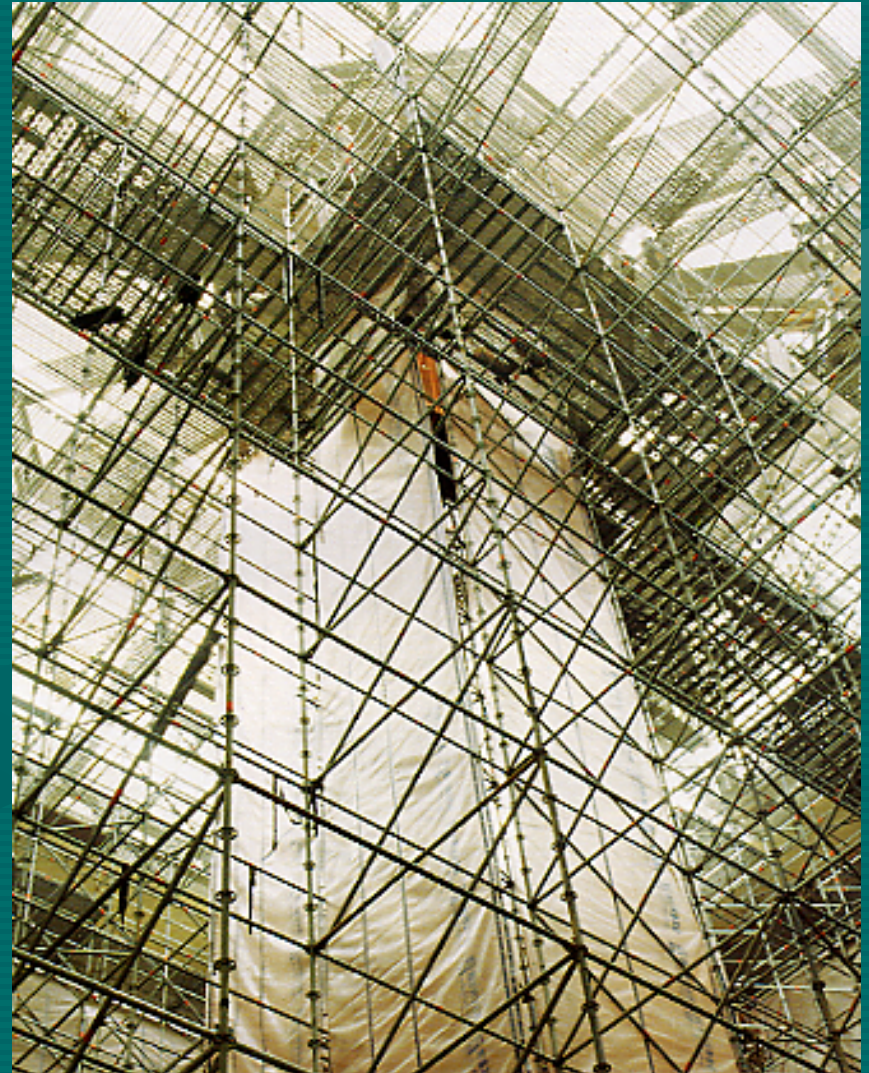
What is a “Special Scaffold” ?

- Higher than 38 meters (125 feet)
- Cantilevered (extended outward) by more than 3 meters (10 ft)
- Over 30m² (320 ft²) platform area & supported by or hung from an existing structure
- Supporting loads greater than 240 kg/m² (50 psf), such as piping or equipment

Special Scaffolds

Birdcage Scaffold

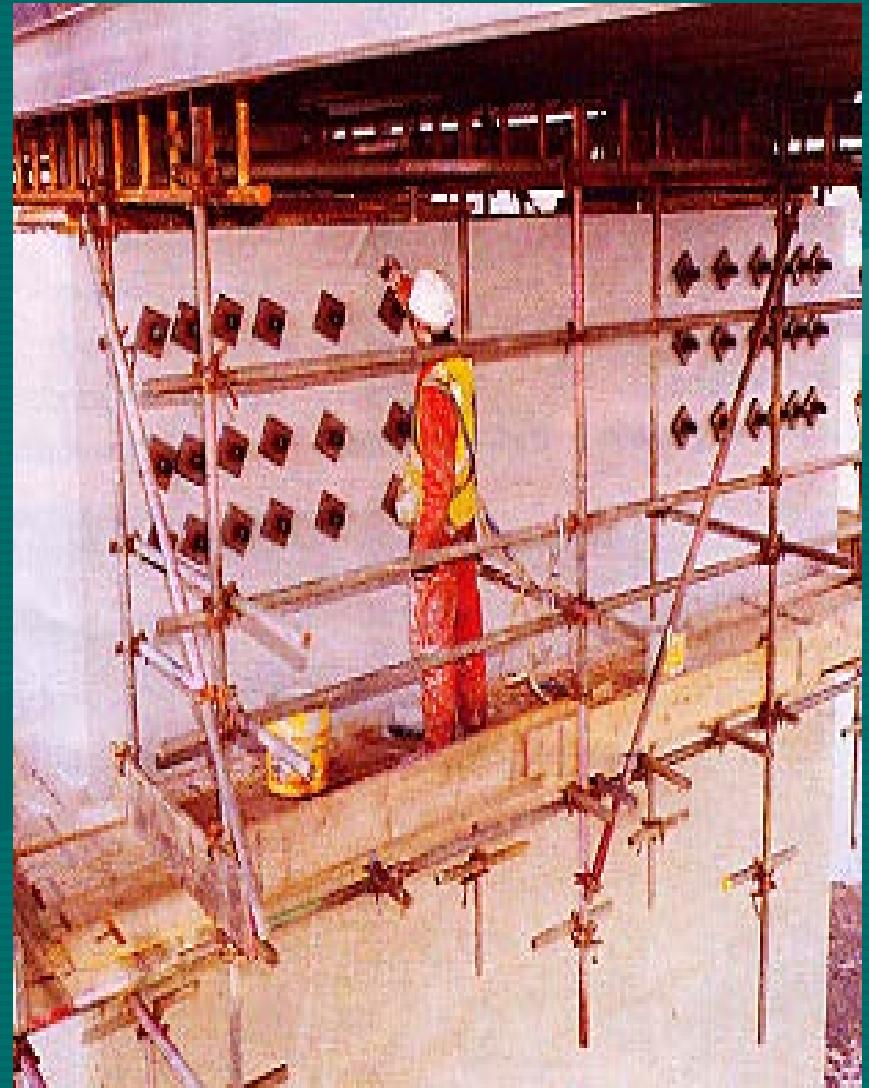
Scaffolds over 38
meters (125 feet) tall



Special Scaffolds

Suspended Scaffold

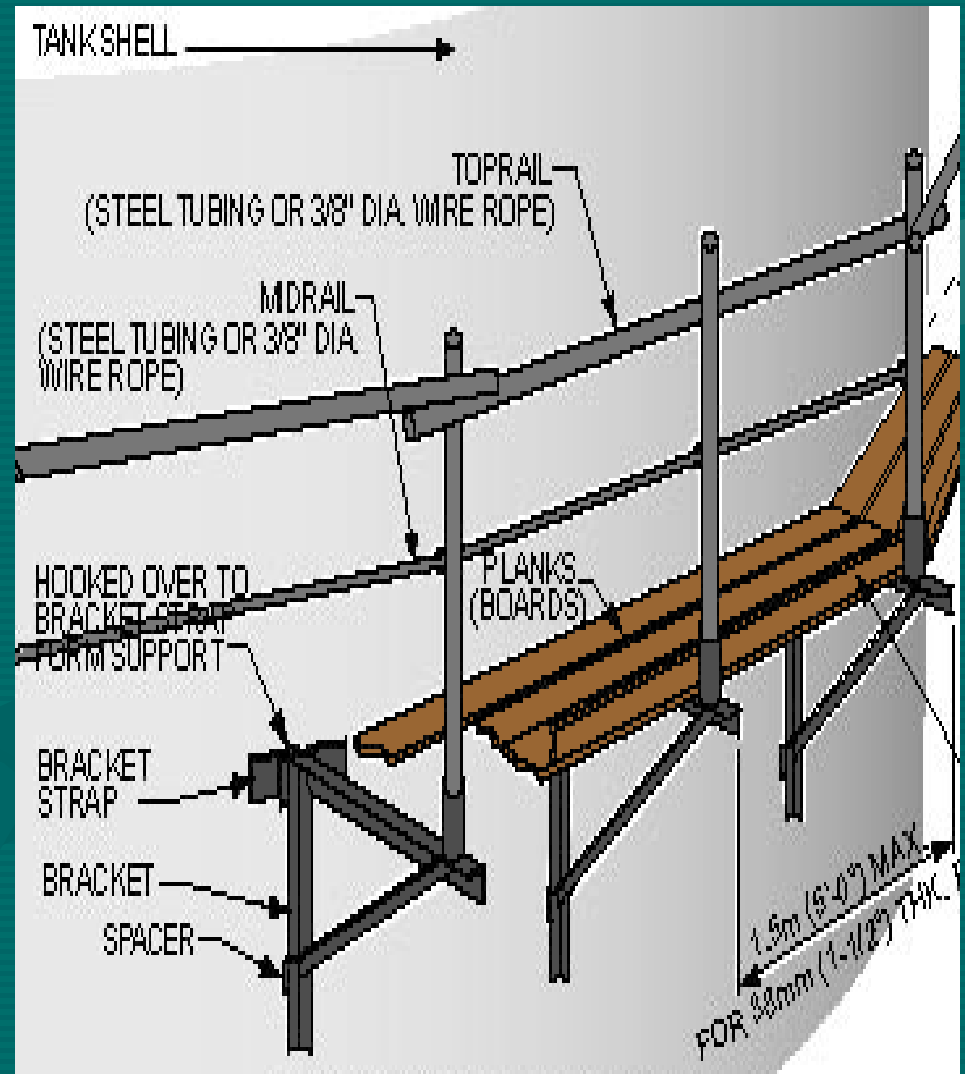
Scaffold suspended by fixed length of wire ropes or scaffold tubes to an overhead structures whose total platform area is over 30 sq m.



Special Scaffolds

Bracket Scaffold

- Used by tank builders
- Bracket straps welded to tank shell to support the bracket



Scaffold Work Flow

Scaffold **Plan** is Only
Required for

- Scaffolds **over 12.2 m**
(40 feet) tall, or
- “**Special Scaffolds**”



Scaffold Work Flow

Plan Preparation

- If scaffold is **over 12.2 meters (40 ft.)** tall, or a “**special**” scaffold, a **scaffold plan** is required



Scaffold Work Flow

Plan Review

- Scaffold plan will be reviewed by both Loss Prevention Dept. (LPD) & Consulting Services Dept. (CSD)
- Work Permit Issuer must make sure LPD & CSD “concurred with” the scaffold plan



Scaffold Work Flow

Scaffold Construction

- Issuer must write on the “Precautions” section of the Work Permit (for scaffold craftsmen to build, alter, or dismantle a scaffold) the following words:
 - “All scaffold craftsmen shall always wear a full-body harness with SHOCK-ABSORBING lanyard and shall properly anchor their lanyards.”



Scaffold Work Flow

Scaffold Inspection

- Scaffold Supervisors and Inspectors must **inspect** a Scaffold?
 - After scaffold is completely built
 - After scaffold has been altered
 - After high winds or anything likely to have affected scaffold's strength
 - At regular intervals to check that it is still safe to use (every 2 weeks)

Scaffold Work Flow

Scaffold Tagging

- If Scaffold Supervisor thinks scaffold is safe to use, he will fill in & sign, either:
 - **GREEN** (Passed Inspection) or
 - **YELLOW** (Full Body Harness Required) scaffold tag



Scaffold Potential Hazards

Do not interfere with scaffolds

- Do not take out ties !
- Do not take out braces !
- Do not remove planks or guardrails !
- Do not remove ladder access !
- Do not exceed scaffold loading !

If you need a scaffold to be altered, ask your supervisor to arrange for a scaffold craftsman to carry out the work. do not do it yourself!

Scaffold Potential Hazards

Guardrails Missing & Platform Gaps

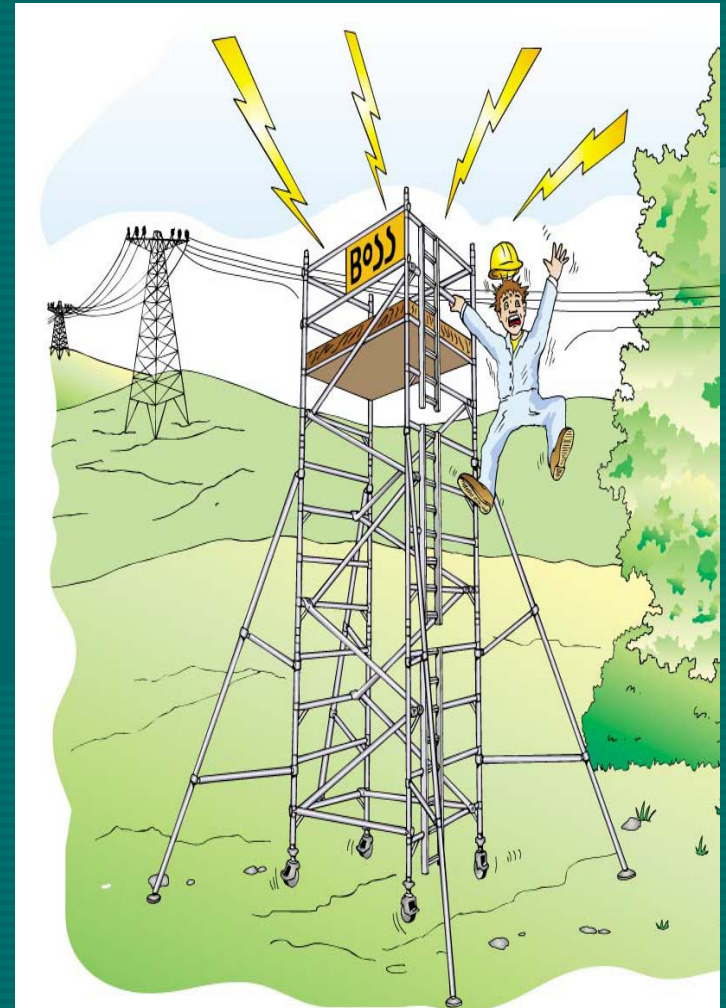
- Missing guardrails and toeboards along with a tripping hazard could lead to a fall
- Gaps in the planks could cause materials to drop through



Scaffold Potential Hazards

Electrical Hazards

- Keep away from power lines
- Make sure any conductive materials (e.g., scaffold tubing) cannot get closer than 3 m (10 ft) from a live power line



Scaffold Potential Hazards

High Winds & Lightning Hazards

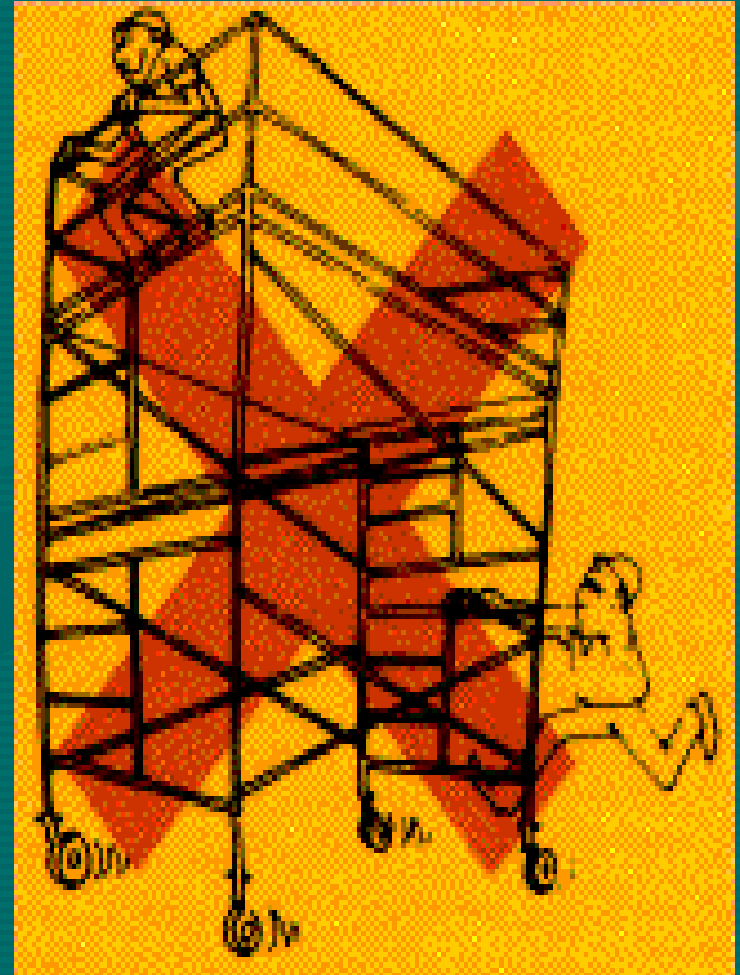
- It's not safe to work on a scaffold in high winds or when lightning is possible
- Workers shall not be up on a scaffold when the wind speed is more than **65 kph** (40 mph)



Scaffold Potential Hazards

Mobile Scaffold Hazards

- All wheels of mobile scaffolds must be locked when in use
- Do not ride on mobile scaffolds when they are being moved



Scaffold Potential Hazards

Overloading Scaffold

- Never load a scaffold beyond its rated load



Safe Loading on Platforms

- You must check on the scaffold tag to see what load the scaffold will take & ensure you don't put too much load on the platform
- Be aware what things weigh, including the number of workers
- The following slide shows some typical weights

Weights of materials

- Scaffold tube: 4 kg/m (4 lb/ft)
- Worker: 100 kg (225 lb)
- Scaffold fitting: 1-1.5 kg each (2-3.5 lbs)
- Water: 1 kg/litre (10 lb/gallon)
- Steel: 7.8 tons/m³
- Concrete: 2400 kg/m³
- 100 bricks: 275 kg (620 lbs)

Note:- all weights approximate

Loading Calculations

A light duty scaffold 1.2 m wide & 2.4 m long bays is to have a load of 2 men, a 75 kg valve and 50 kg of tools in one bay of the scaffold. **Is the scaffold safe to use with these loadings?**

Loading Calculations

$$1.2 \text{ m} \times 2.4 \text{ m} = 2.88 \text{ m}^2 \times 120 \text{ kg/m}^2 = 345 \text{ kg is allowed per bay}$$

$$2 \text{ men} \times 100 \text{ kg} = 200 \text{ kg} + 75 \text{ kg valve} + 50 \text{ kg tools} = 325 \text{ kg}$$

Allowable load is GREATER than the Actual load

Therefore the scaffold is safe to use

Loading Calculations

A light duty scaffold 1.2m wide with 1.8m long bays is to have a load of 2 men, 70kg of steel and 20kg of tools in one bay of the scaffold. **Is the scaffold safe to use with these loadings?**

Loading Calculations

$$1.2 \text{ m} \times 1.8 \text{ m} = 2.16 \text{ m}^2 \times 120 \text{ kg/m}^2 = 260 \text{ kg allowed per bay}$$

$$2 \text{ men} \times 100 \text{ kg} = 200 \text{ kg} + 70 \text{ kg steel} + 20 \text{ kg tools} = 290 \text{ kg}$$

Allowable load is LESS than
the Actual load

Therefore the scaffold is
UNSAFE to use

Exercise: Loading Calculations

A medium-duty scaffold 1.2m wide with 1.8m long bays is to have a load of 2 men, 2 bags of grit material weighing 50 kg/bag for abrasive blasting, and 100 bricks for the masonry works of the other crew. All are loaded in one bay of the scaffold. **Is the scaffold safe to use with these loadings?**



Loading Calculations

$$1.2 \text{ m} \times 1.8 \text{ m} = 2.16 \text{ m}^2 \times 240 \text{ kg/m}^2 = 518 \text{ kg allowed per bay}$$

$$2 \text{ men} \times 100 \text{ kg} = 200 \text{ kg} + 100 \text{ kg grit} \\ + 275 \text{ kg bricks} = 575 \text{ kg}$$

Allowable load is LESS than
the Actual load

Therefore the scaffold is
UNSAFE to use

Any Questions?

Thank you for attending
this workshop

