

FALL PROTECTION

- **SCAFFOLDS**
- **SAFE ACCESS**
- **LADDERS**



8 TYPES SCAFFOLDING IN SECTION 22. B. 11 OF COE SAFETY MANUAL

- 1. Outrigger Scaffold**
- 2. Needle Beam Scaffold**
- 3. Interior Hung Scaffold**
- 4. Bricklayers Square Scaffold**
- 5. Float/Ship Scaffold**
- 6. Boatswain's Scaffold**
- 7. Window Jack Scaffold**
- 8. Carpenter's Bracket Scaffold**

29 Types of Scaffolding

Student Binder Pages H-17 through H-29

- 1. Beside each picture is the COE reference indicating the safety requirements for each type of scaffolding.**
- 2. Two types are **PROHIBITED****
CHICKEN SCAFFOLD (Page H-19)
LADDER JACK SCAFFOLD (Page H-20)

Most Common Types Scaffolding



**Aerial Articulating
Boom Lifts (H-17)**



**Elevated Work Platform
Scissors Lifts (H-17)**

Elevated Work Platforms

- 1. Alarm Equipped to sound if 5 degrees out of level.**
- 2. Inspection Records at the work site**
- 3. Manufacturer's Inst to be with equipment**
- 4. Fall Protection IAW Manufacturer's Inst**
- 5. PFAS if platform is extended outside wheels**
- 6. See COE 22.J**



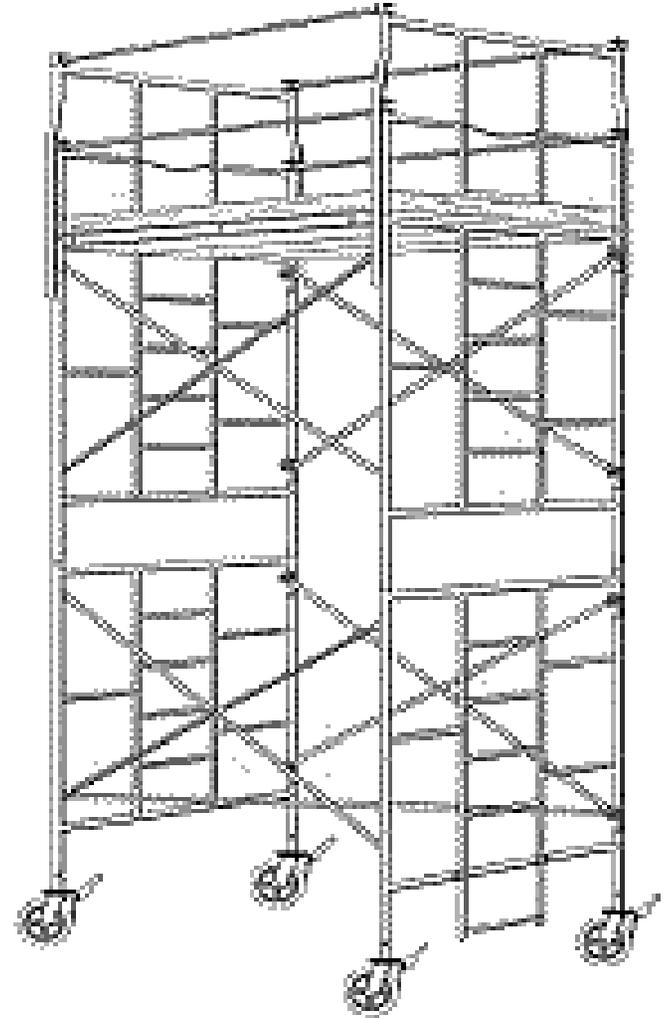
AERIAL LIFTS/BUCKET TRUCKS



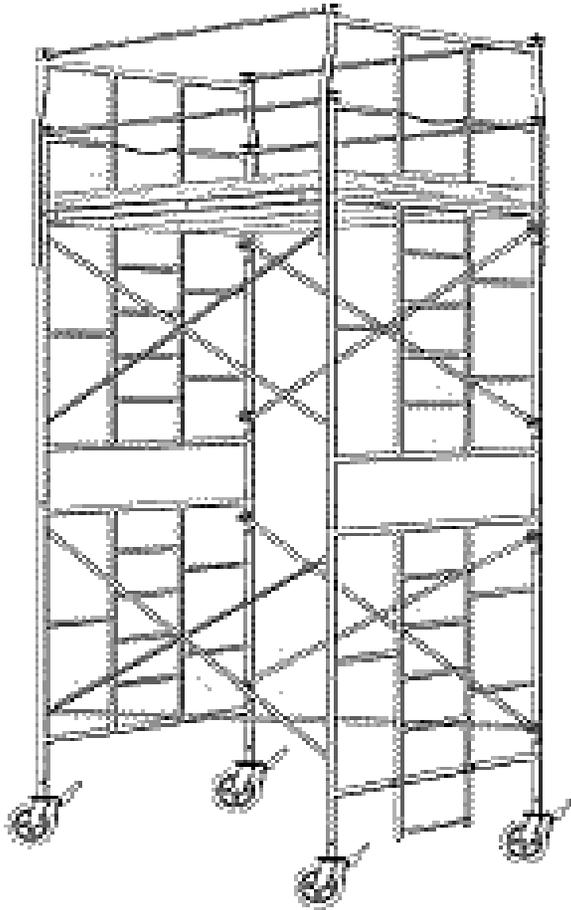
WORKERS REQUIRED TO USE PFAS

MOBIL SCAFFOLDS

- 1. Wheels Positive Locking**
- 2. Locked when in use**
- 3. Free Standing Height not more than 3 times smallest base dimension**
- 4. Proper Access**
- 5. Proper Railing**
- 6. See COE 22.C.06**



Common Types Mobil Scaffolding



Rolling/Mobil Scaffold (H20 & 21)



“Baker” Scaffolding

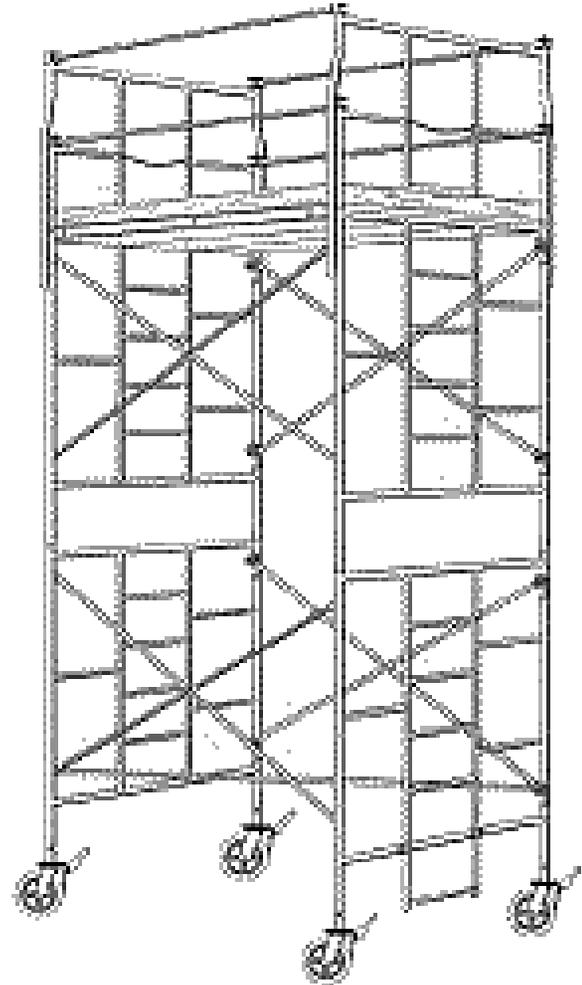


0127-006-1 shown in a typical maintenance application.

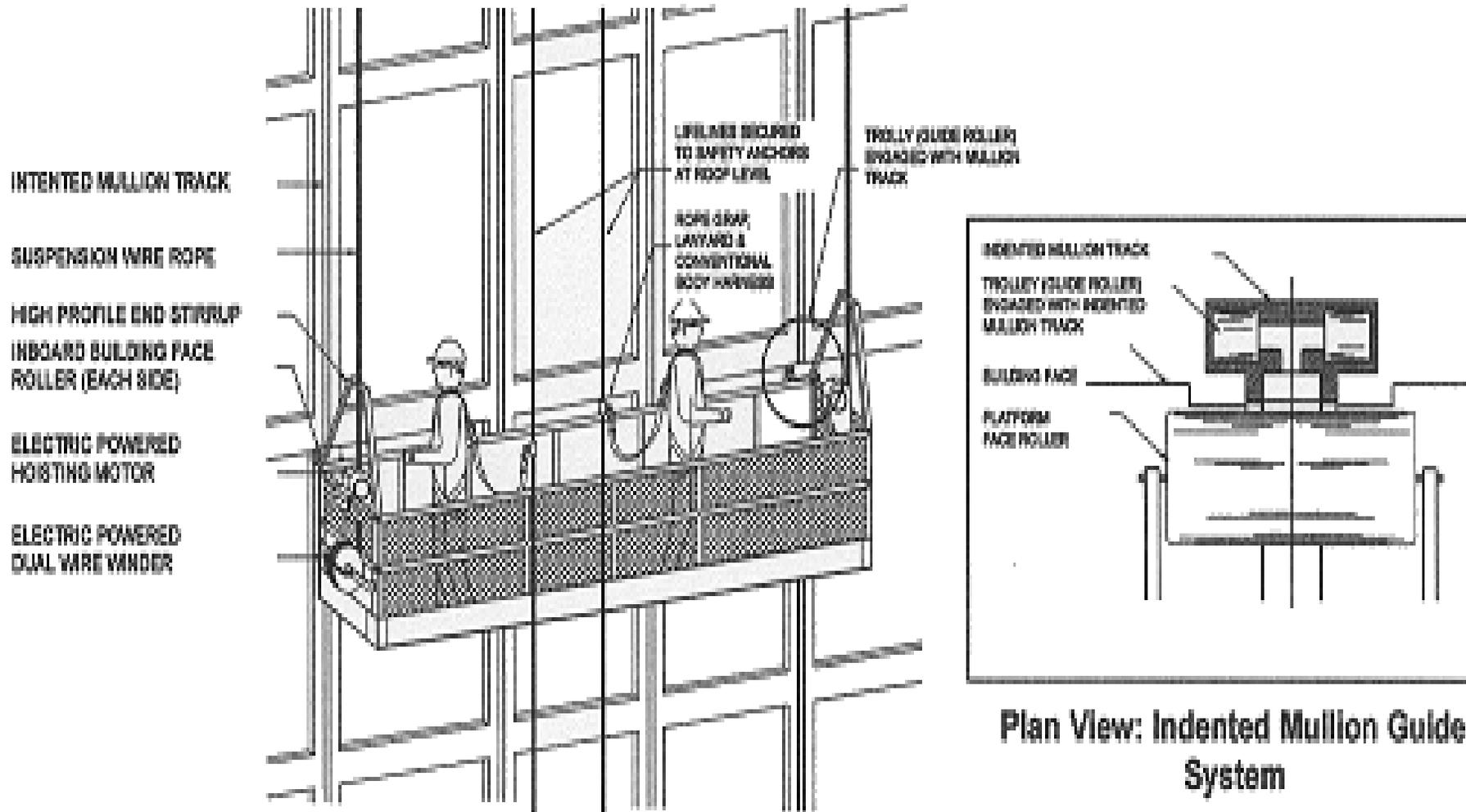
MOBIL SCAFFOLDS

Maximum allowable height of a free standing mobil scaffold (without outriggers) is **THREE TIMES** the smallest base dimension!

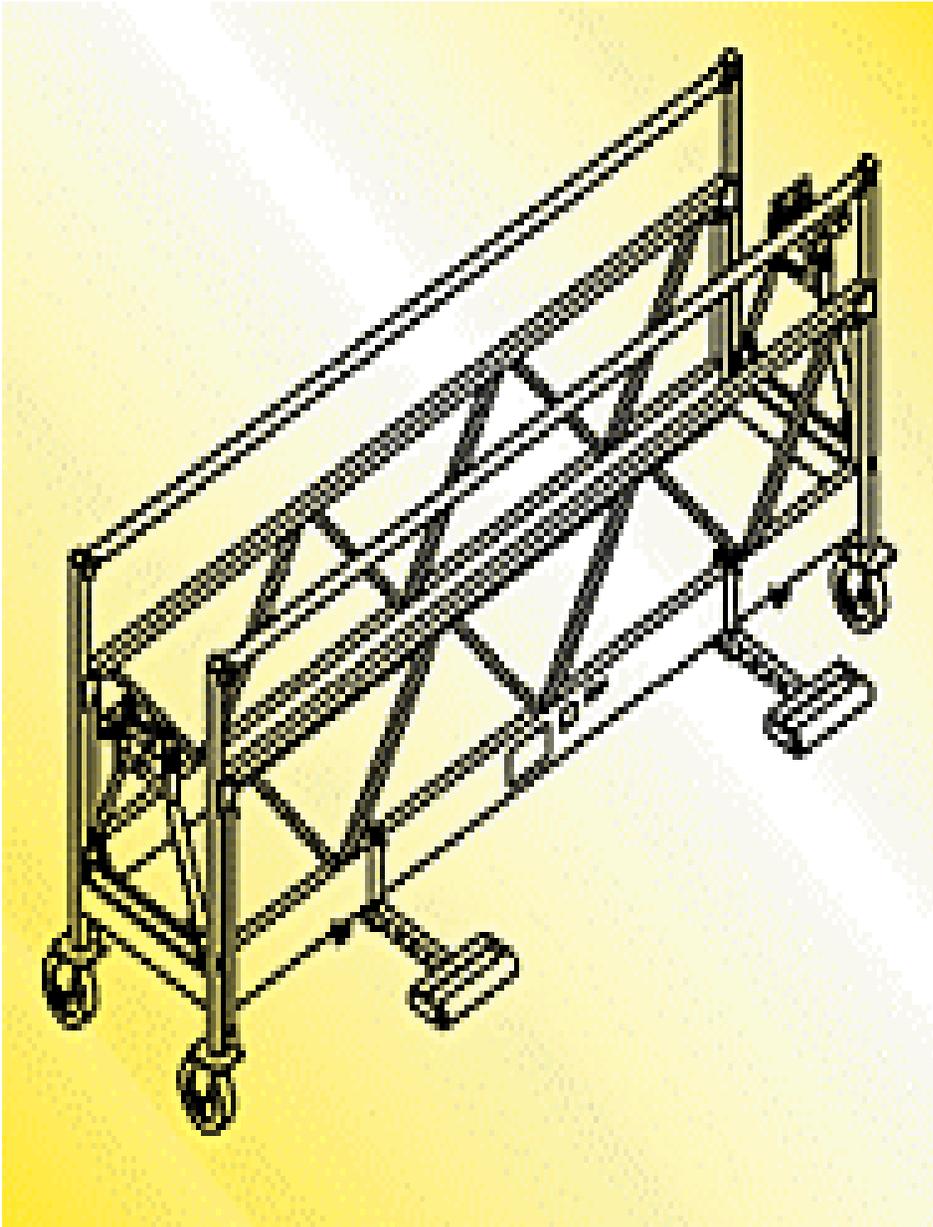
COE Section 22.C.06 e



Most Common Types Scaffolding



Suspended Scaffolding H-27)



**All parts of a
Suspended type
scaffold shall be
made of mild
steel or the
equivalent type
of material.**

**See COE manual
Section 22 E**

SUSPENDED SCAFFOLDING MAJOR SAFETY REQUIREMENTS

1. Designed/constructed/operated/inspected tested, maintained as per Operating Manual
2. Tested before use @ 2 time load
3. PFAS on individual vertical life line that is independently supported from building
4. Power hoists have separate controls
5. COE 385-1-1 Section 22.E covers **all critical safety requirements** for all types of suspended scaffolding including individual and multi-point types of scaffolding.

SUSPENDED SCAFFOLDING

The PFAS saved this workers life! He was working on a suspended scaffold, the scaffold supporting wires broke and went to the ground. The worker was left hanging by his independent vertical life line.



Most Common Types Scaffolding



Seldom allowed to be used due to system not installed correctly without proper rails, supports, and worker not following all the safety measures.

See COE 22.I

Pump Jack Scaffold (H-23)



No End Rails



No Guard Rails Used

Top & Bottom of Pump Jack Scaffold Must be Secured with Proper Fabricated Metal Brackets



Top Bracket OK



Improper Top Bracket

Pump Jack Scaffold Rules

- 1. Max Height 30 ‘ (9m)**
- 2. No More than 2 persons allowed between supports**
- 3. Max load 500 lbs or Manufacturer’s**
- 4. Pole material is specific type lumber**
- 5. Top and Bottom Bracing specific**
- 6. Positive griping brackets (pumps)**
- 7. Work bench/guard rails required**
- 8. Proper access via ladder required**
- 9. See COE 22.I and Page H-23 for other information.**

Most Common Scaffolding Fabricated Frame (Mason Scaffold)



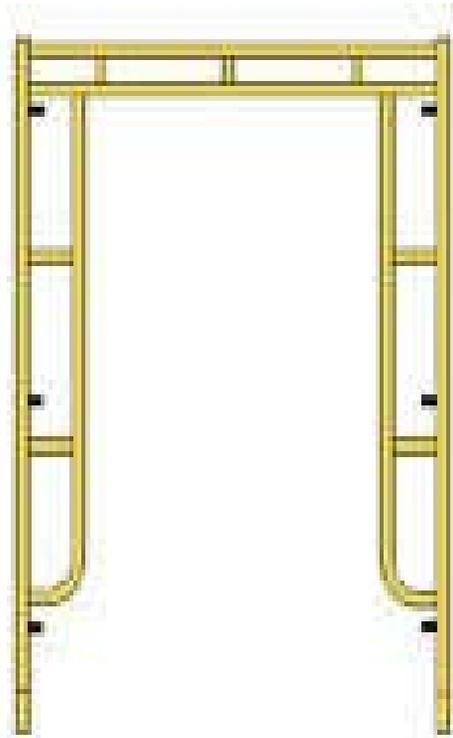
MASON FRAME SCAFFOLD

COMPETENT PERSON
REQUIRED IN WRITING
ON AHA FOR ERECTION AND
DISMANTELING

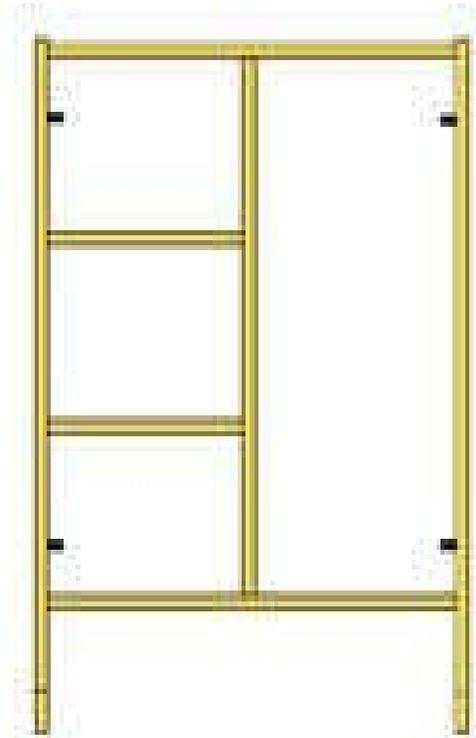
CAPABLE OF SUPPORTING
FOUR (4) TIMES INTENDED
LOAD

LIGHT, MEDIUM, & HEAVY
DUTY SCAFFOLDING.

MAJOR DIFFERENCE IS THE
SPACING OF THE FRAMES



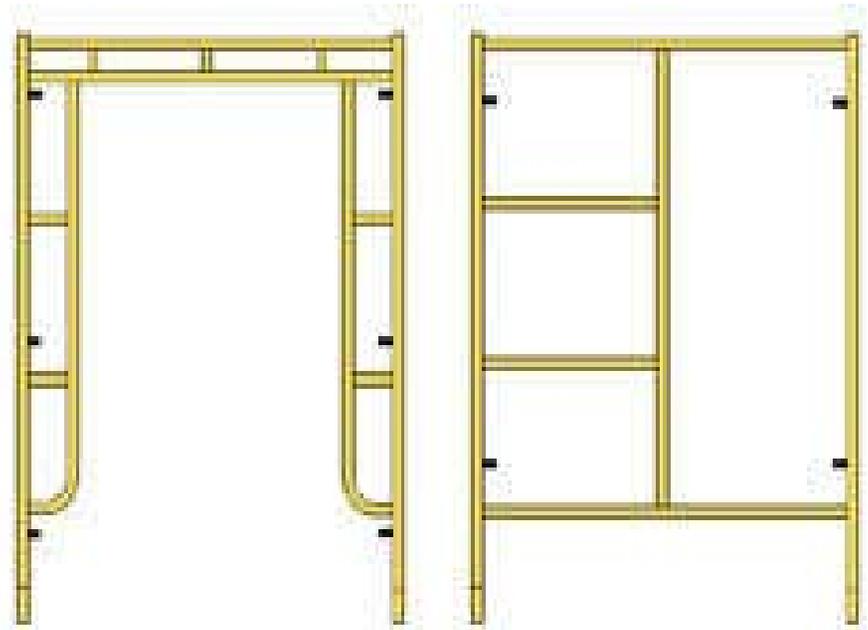
Walk Through



Single Ladder Box

Tube & Coupler Scaffold Limits

- **Light Duty Scaffold**
2" Posts, 10Ft Spacing
max load = 25PSF
- **Med. Duty Scaffold **2 1/2"****
Post, 8' Spacing max
load=50PSF
- **Heavy Duty Scaffold **2****
1/2" Post 6' Spacing max
Load= 75PSF
- **NEVER OVER 125'**
High

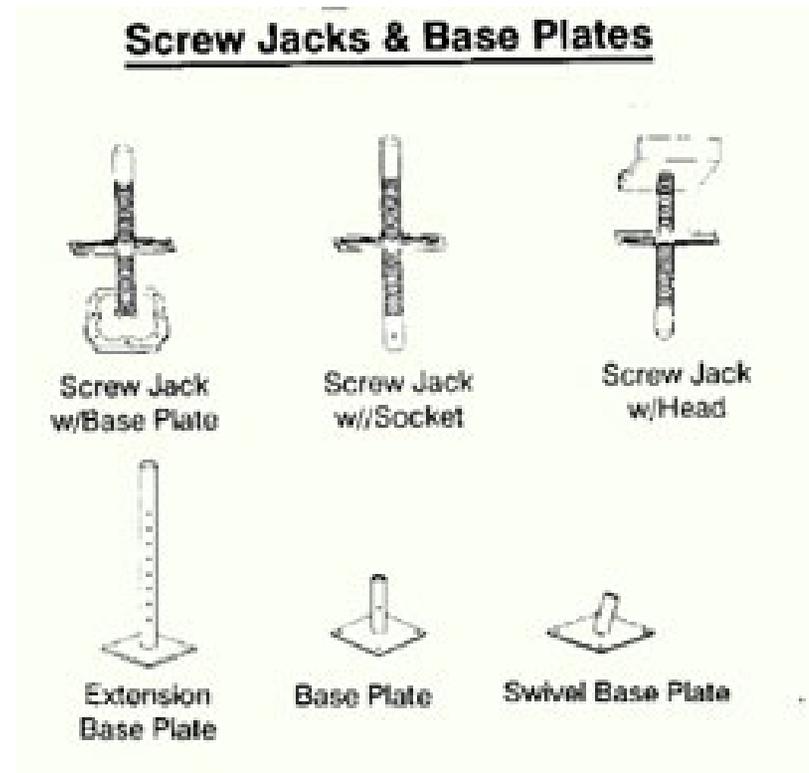


Walk Through

Single Ladder Box

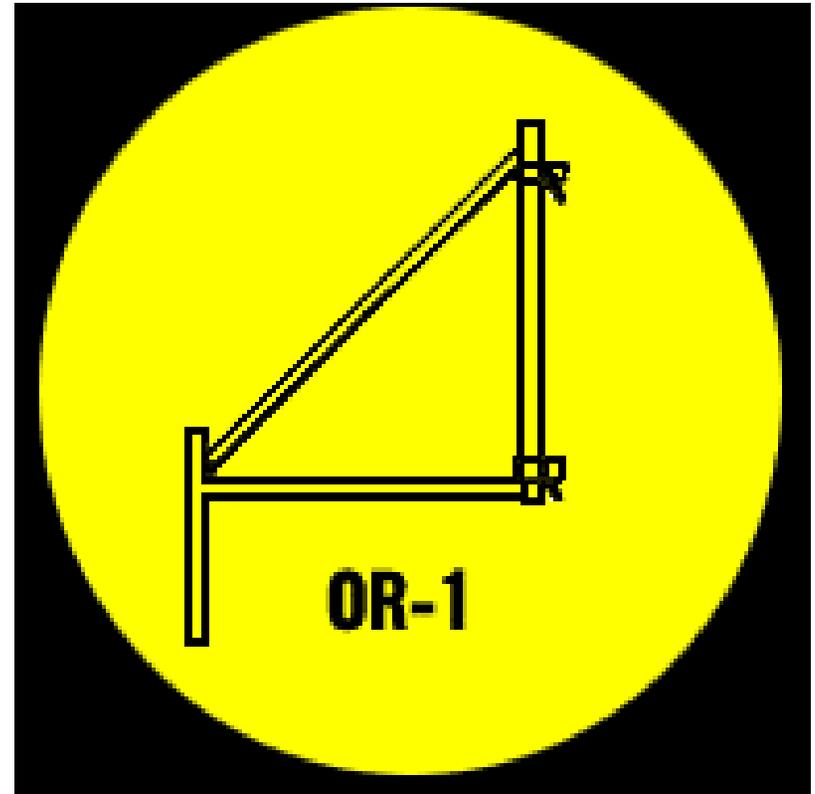
Scaffold Accessories

- Base Plates/Screw Jacks for leveling.
- Scaffolding Plumb
- Never use blocks, bricks or unapproved material under legs of scaffolding

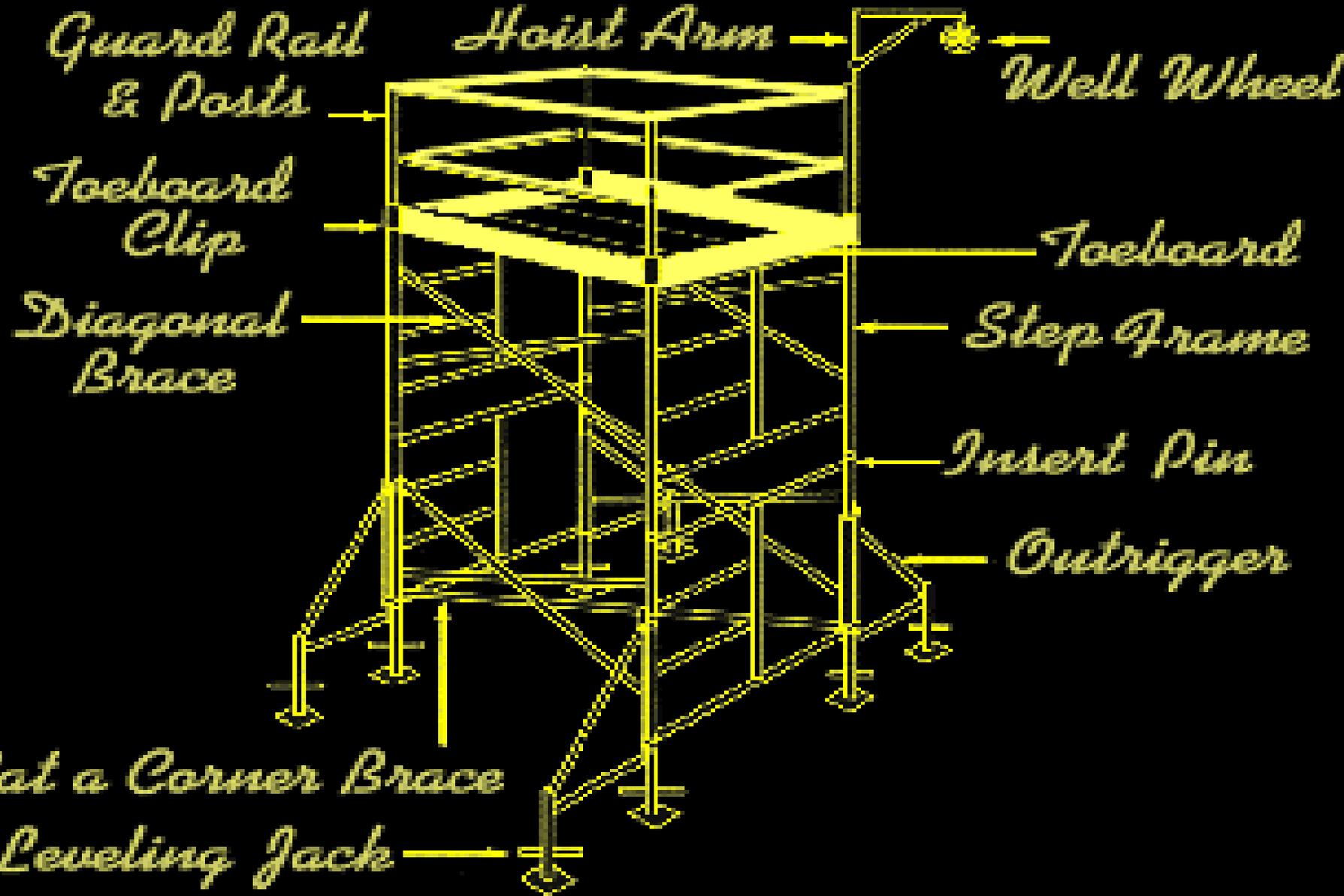


Scaffolding Accessories

- OUTRIGGER:
- TO INCREASE BASE WIDTH OF A SCAFFOLD IN ORDER TO PROVIDE SUPPORT AND INCREASE STABILITY UP TO A MAXIMUM OF 4 TO 1 RATIO

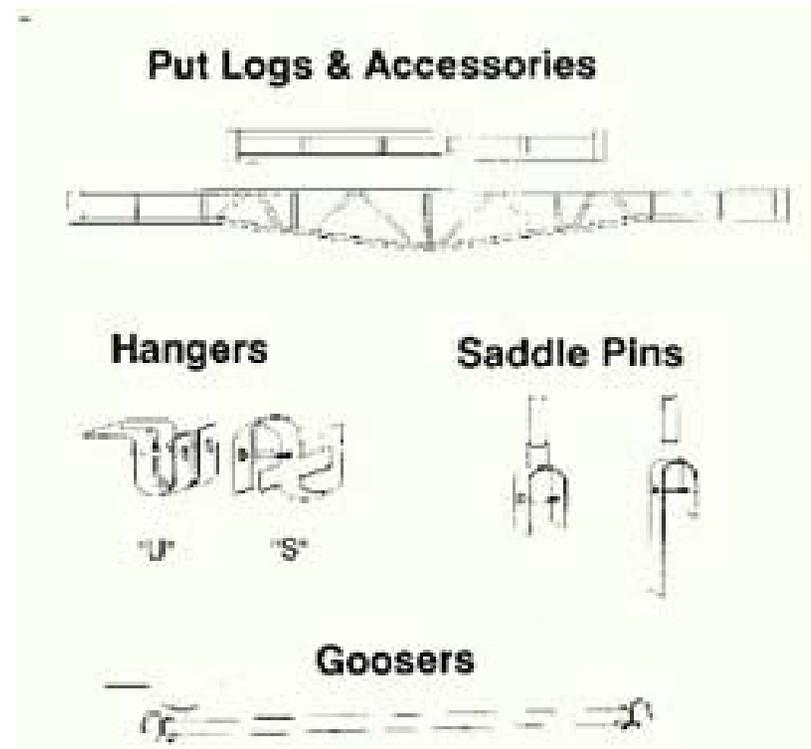


Able Scaffolding



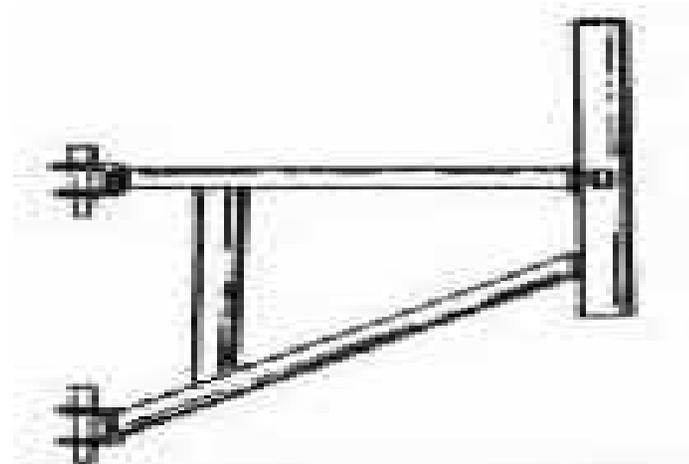
SCAFFOLD ACCESSORIES

- PUTLOGS
- TO SPAN WIDER AREAS THEN NORMAL SCAFFOLD BRACE LENGTHS. FOR AREAS OVER A DOORWAY OR OBSTRUCTIONS



SCAFFOLD ACCESSORIES

- **SIDE OR END BRACKETS FOR:**
Personnel use next to building **NEVER** on outside of scaffolding for material landing and storage to eliminate tipping effect on scaffold



Casters

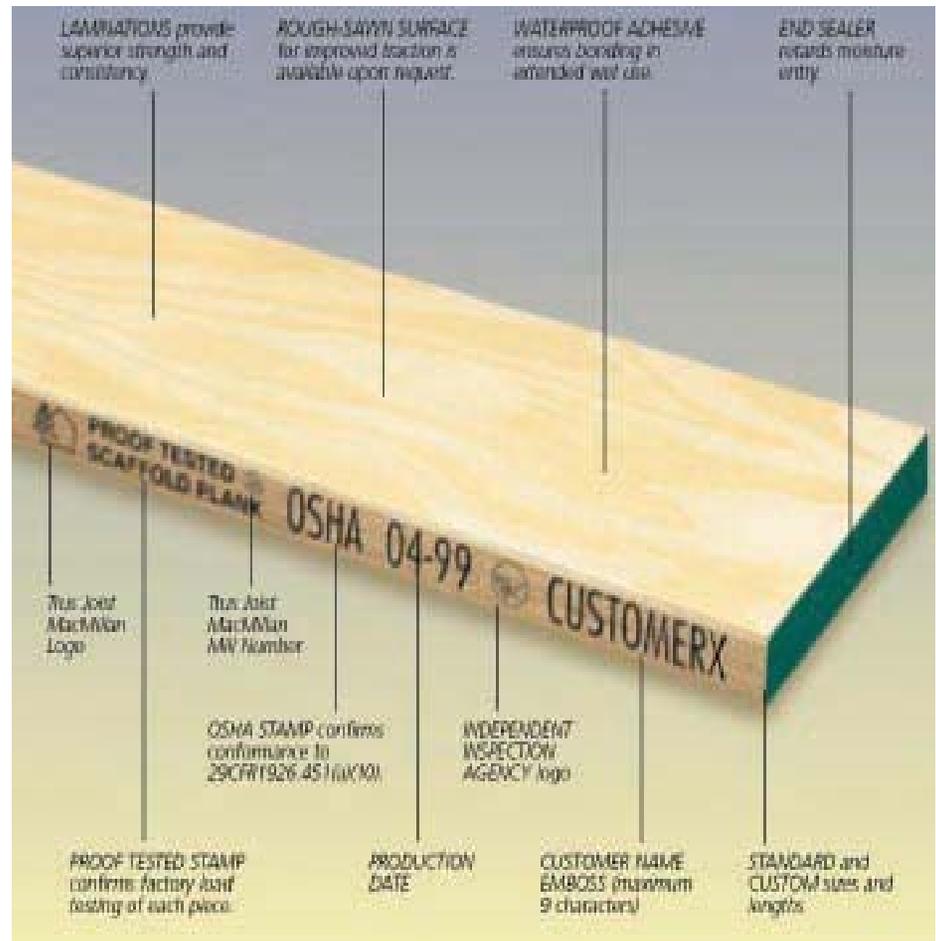


Side Bracket



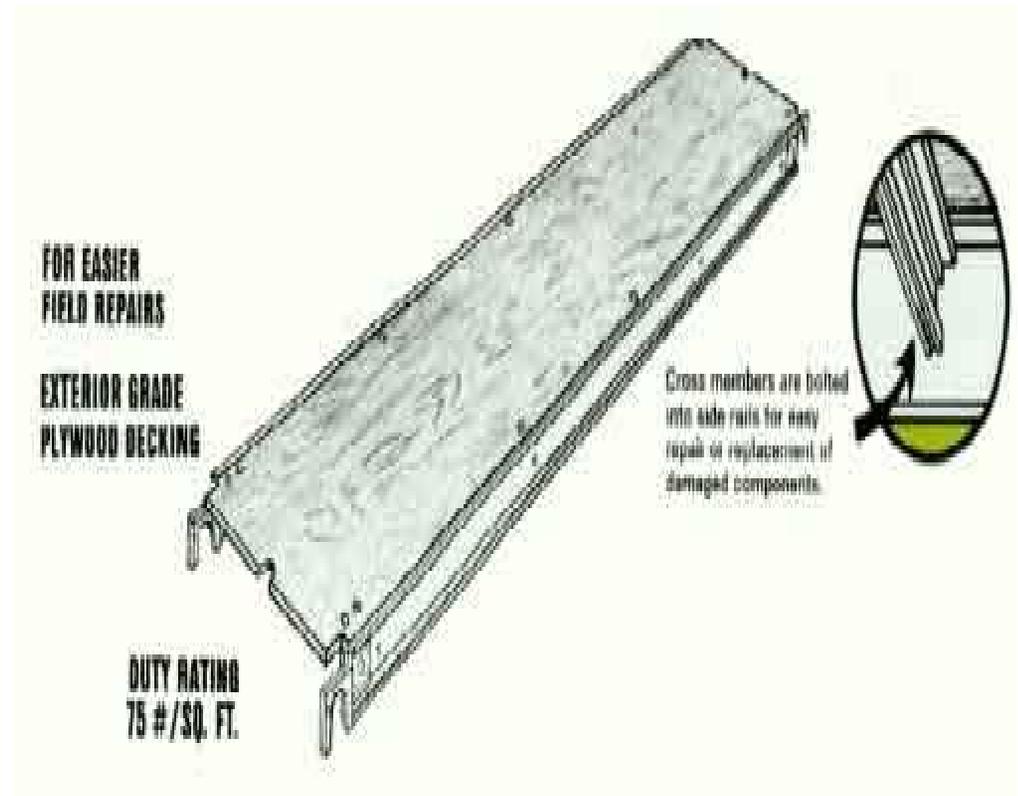
Scaffolding Planks

- Working Platform to be full width
- Scaffold Grade Planks
- Extend over ends not less than 6 or more than 12”
- Planks overlapped a minimum of 12”

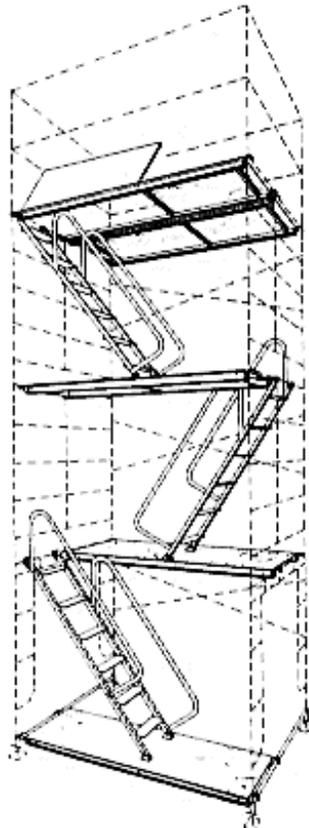


Scaffolding planks

- MANUFACTURED PLANKS
- THE WORKING LEVEL OF SCAFFOLDING IS TO BE FULLY PLANKED!



SCAFFOLD ACCESS



Accessways

Stair Units

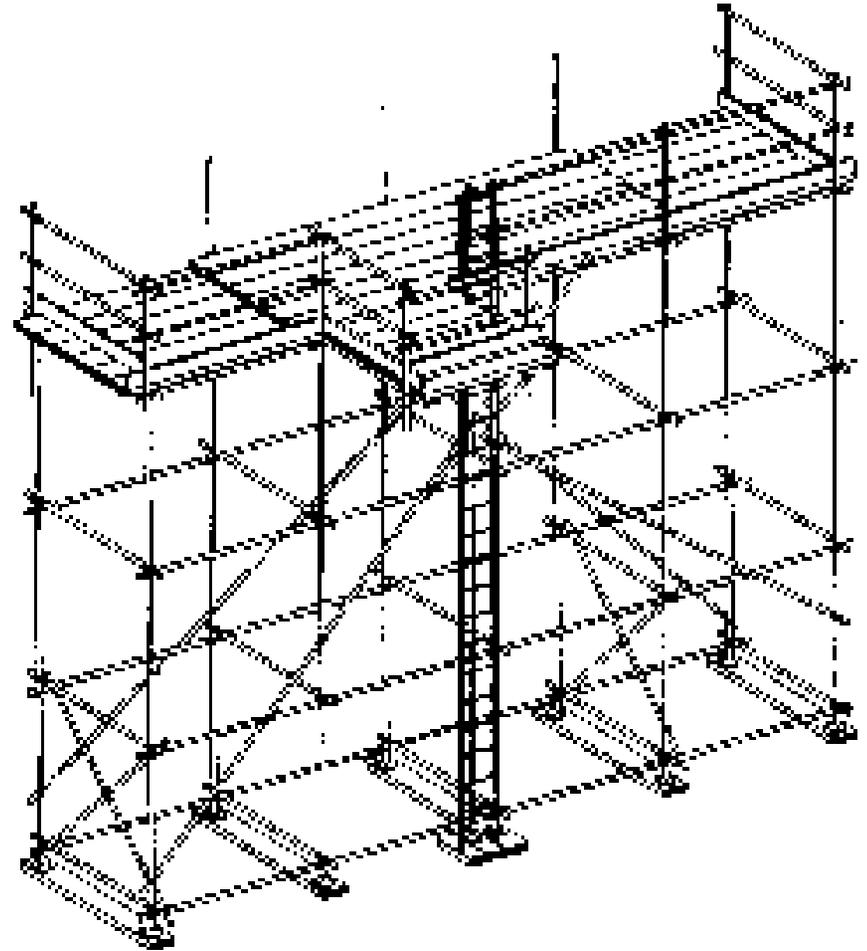


Ladder & Bracket



SECURING A SCAFFOLD TO BUILDING A CRITICAL ITEM!!

- First Tie Level is at a point that is no more than four times its narrowest base including the outriggers.
- Vertically no more than 26 Feet, and no more than the narrowest base from the top.
- Horizontally at the first tie level, at each end and no more than 9 foot apart







Ladder Jack Scaffold is **NOT LEGAL**
See Section H, Page 20

WORST EXAMPLES OF SCAFFOLDING (#1)



A MAKE SHIFT HORSE SCAFFOLD

WORST EXAMPLE OF SCAFFOLDING #2



ATTEMPT AT PUMPJACK SCAFFOLD

WORST EXAMPLE OF SCAFFOLDING #3



Pumpjack Scaffold installed improperly!!

SCAFFOLD QUESTION??

**CAN THE “X” BRACES OF A SCAFFOLD
BE USED IN PLACE OF A STANDARD
GUARD RAIL SYSTEM?**

The crossbracing (“x” bracing) is acceptable in place of a mid-rail when the crossing point is between 20” and 30” above the work platform or as a toprail when the crossing point of the braces is between 38” and 48” above the work platform. The end points at each upright shall be no more than 48” apart.

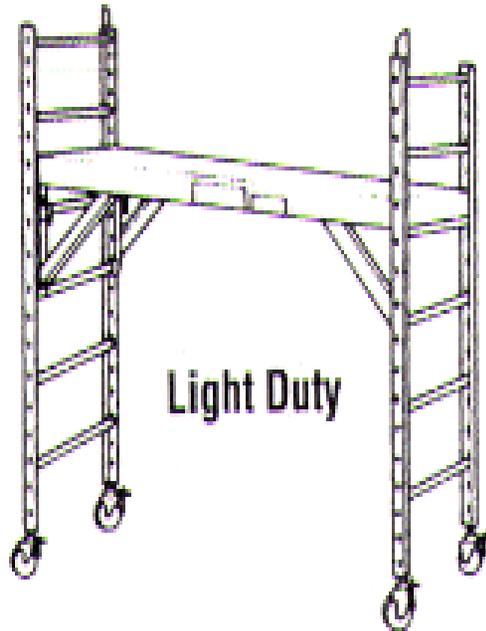
OSHA 1926 Subpart L 451(g) (4) (xv)

SCAFFOLD QUESTION??

**WHEN ERECTING OR DISMANTLING
A TUBULAR WELDED (MASON) TYPE
OF SCAFFOLD, CAN THE FRAMES
BE USED AS A LADDER TO CLIMB
THE SCAFFOLDING?**

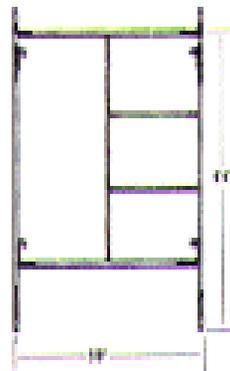
When erecting or dismantling tubular welded frame scaffolds, (end) frames, with horizontal members that are parallel, level and are not more than 22” apart vertically may be use as climbing devices for access, provided they are erected in a manner that creates a usable ladder and provides good handhold and foot space.

OSHA 1926, Subpart L, (e) (9) (iii)

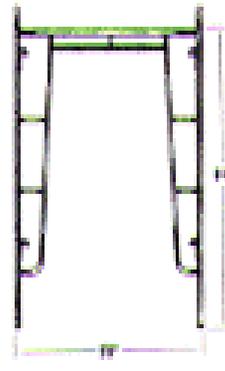


Light Duty

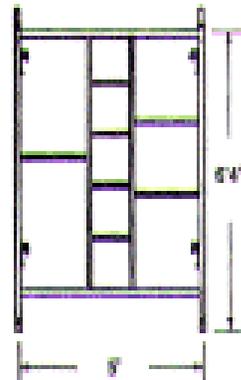
We have many frame styles. Here are some examples:



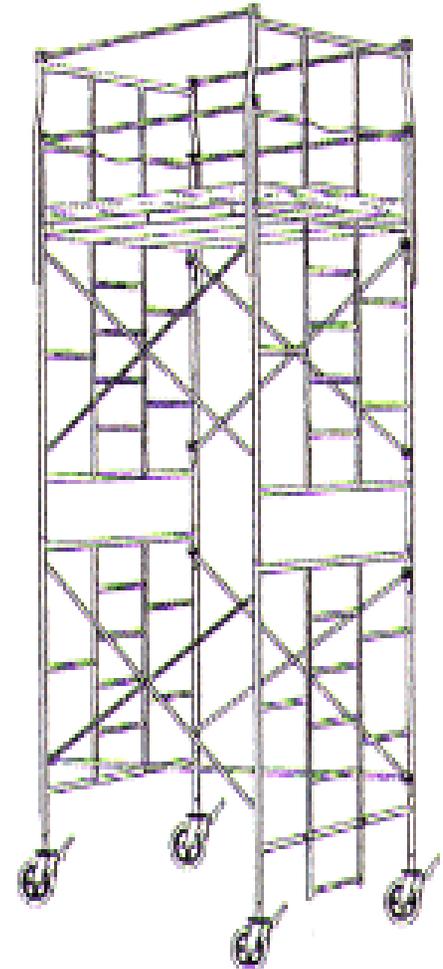
MASONRY FRAME



WALK-THRU FRAME



ACCESS LADDER FRAME



Medium Duty

SCAFFOLD QUESTIONS?

- 1. What is the maximum allowed height of a free standing mobil scaffold without outriggers?**
- 2. What is specific name for the person who is to be designated for the erection and dismantling of scaffolding? On what document should this person be designated in writing for this phase of work?**

SCAFFOLD QUESTION ANSWERS

1. A Mobile Scaffold without outriggers can be no higher than **3 times its smallest base dimension**.
2. A **Competent Person** must be designated for the erection and dismantling of Scaffolding. The **Activity Hazard Analysis (AHA)** would be the best place to indicate the competent person for the phase of work involving scaffold erection or dismantling.

SCAFFOLD QUESTIONS??

- 1. How wide is the width of the planks on the working level of scaffolding?**
- 2. When a scaffold exceeds 4 times the narrowest base (including outriggers) What is the rule for securing the horizontal and vertical ties to a structure?**

SCAFFOLDING ANSWERS

- 1. The working level of a scaffold is to be fully planked.
(22.b.05)**
- 2. A scaffold that exceeds 4 times the narrowest base including outriggers must have vertical and horizontal ties placed at this point, then vertical ties at intervals **no greater than 26 feet** & no lower from the top than the narrowest base dimension. Horizontal ties are to be at each end and spaced no greater than 30 feet apart.
(22.B.09 a, b, c)**

