

Aspects of Safe Scaffolding

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References

- EM385-1-1, Section 22
- OSHA 29CFR 1926.450 (Subpart 'L')
- NFGS-01525[Latest] Parts 1.10.1 & 3.3.3
- ANSI A10.8 - 1988

General Requirements

Work Platforms in General:

Preferred: Scaffold-Platform-Temp. Floor

- ▲ Erected and used IAW Manufacturer
- ▲ Recommendations Available or SSFI Guidance
- ▲ Appropriate Access & Fall Protection
 - ✉ Delineated in Hazard Analysis

Prohibited Practices

- 📄 Ladders: Small Tools/Light Material ONLY.
- 📄 NO: Ladder Jacks, Lean-to, Prop-Scaffolds
- 📄 No Work From Descent Devices

Use of Platforms

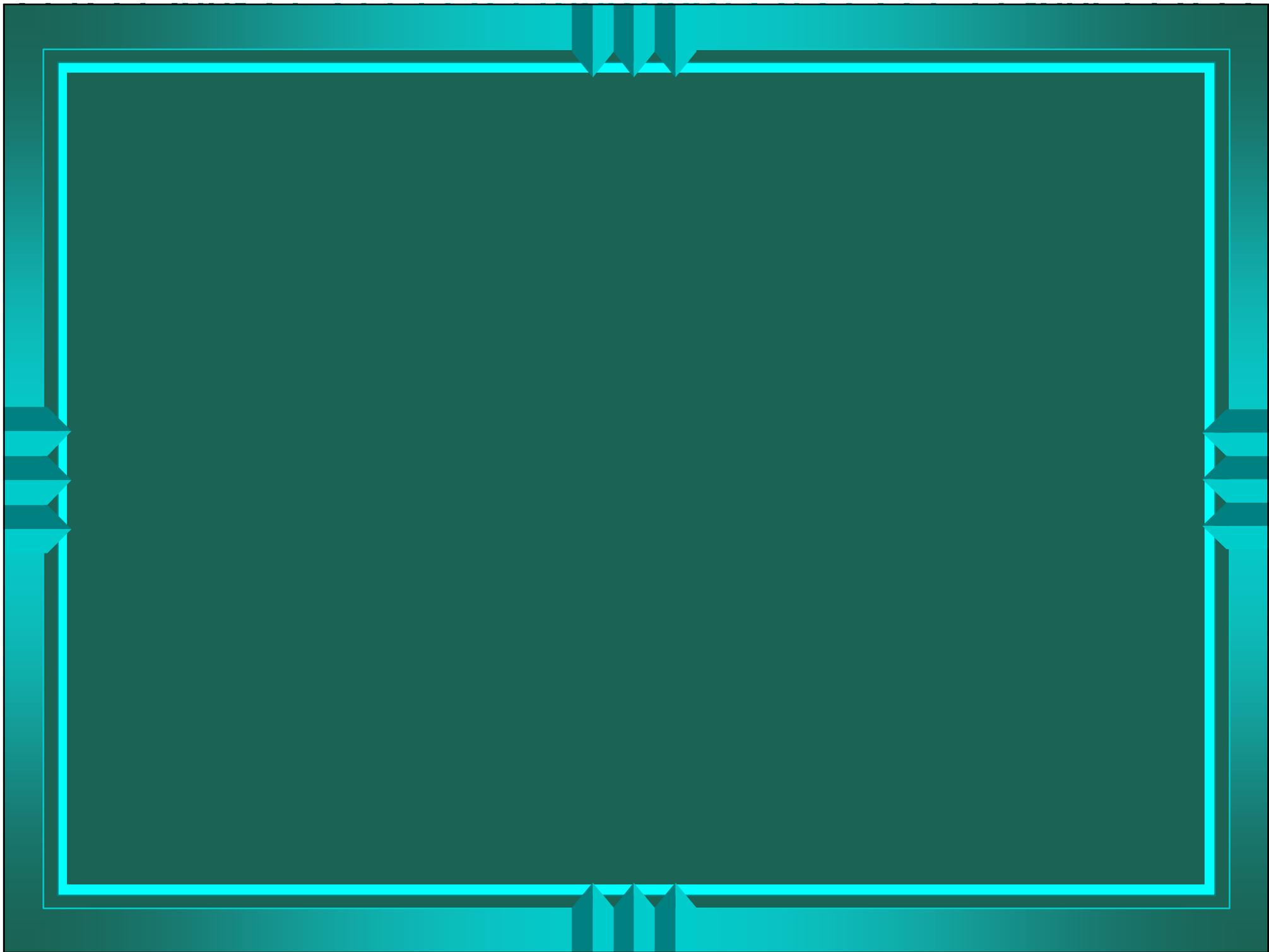
- ☞ Safety Supervision to Erect/Dismantle/Alter
- ☞ Protection from Electrical Contact
- ☞ Reinforce/Brace for outriggers or hoists
- ☞ Screen if Work Underneath

Scaffold Capacity

- Supports 4X Maximum Intended Load
- Resists 4X Tipping Moment
- Plumb and Level
- Supported Scaffold: "Adequate Foundation"
- Fully Planked Working Levels

Planking

- ❏ Overlapped 12" or Secured
- ❏ 6" Min. Overhang (unless made w/hooks)
- ❏ 12" Maximum Overhang
- ❏ W/in 14" of Vertical or Use Fall Protection
- ❏ Prevent Deflection or Displacement
- ❏ Planks/Platforms Fastened Scaffold



Scaffold Platforms

1926.451(b)

- Fully planked, max. 1" gap, unless erecting
- Minimum width 18 inches
- Max. 14" to work face, or guardrail
- Extension: 6"-12" | Overlap: Min. 12"
- Directional Change, angle planks first
- Deflection maintained $< \text{Length}/60$

Safe Scaffold Access

1926.451(e)

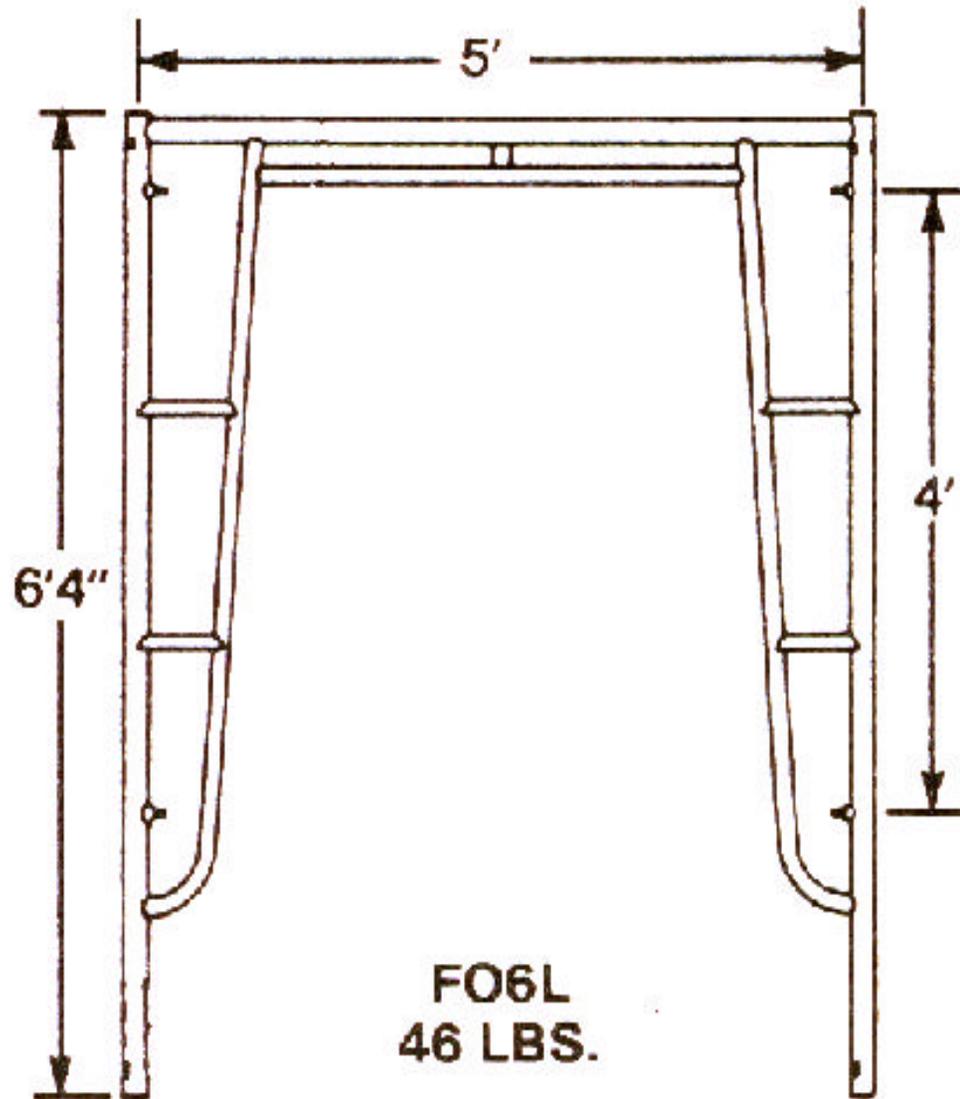
- ☞ Max. 2' vertically, 14" horizontally
- ☞ Rest platforms at 35' interval
- ☞ Frame access if:
 - ▲ Designed as ladder rung
 - ▲ Min. 8" rung width
 - ▲ Uniform spacing, max. 16 3/4", in-line
 - ▲ Safe access for erectors, max. 22"
- ☞ Climbing braces prohibited

Scaffold Capacity & Loading

29 CFR 1926.451(a)&(f)

- 4x max intended load applied or transmitted
- Built by & loaded IAW design
- Leg load capacity given by manufacturer
- Calculate load to base of leg
- Maintain adequate load distribution at base
- Leg load divided by square footage =

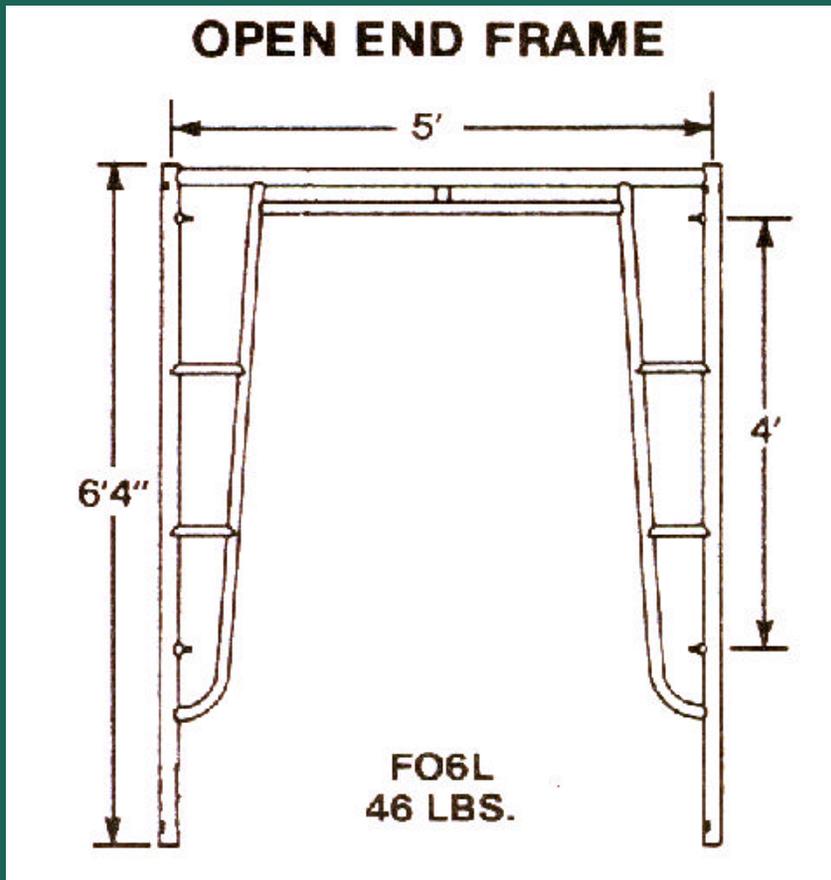
OPEN END FRAME



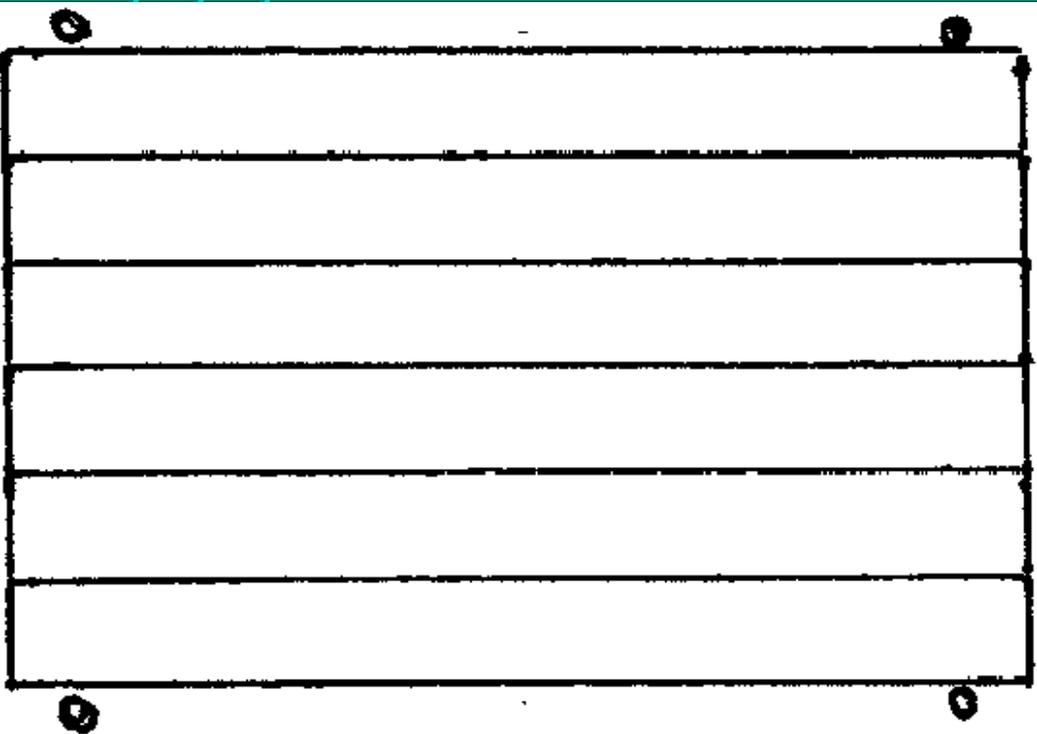
FO6L
46 LBS.

Specified Leg Load

Eg.: Safway Frame



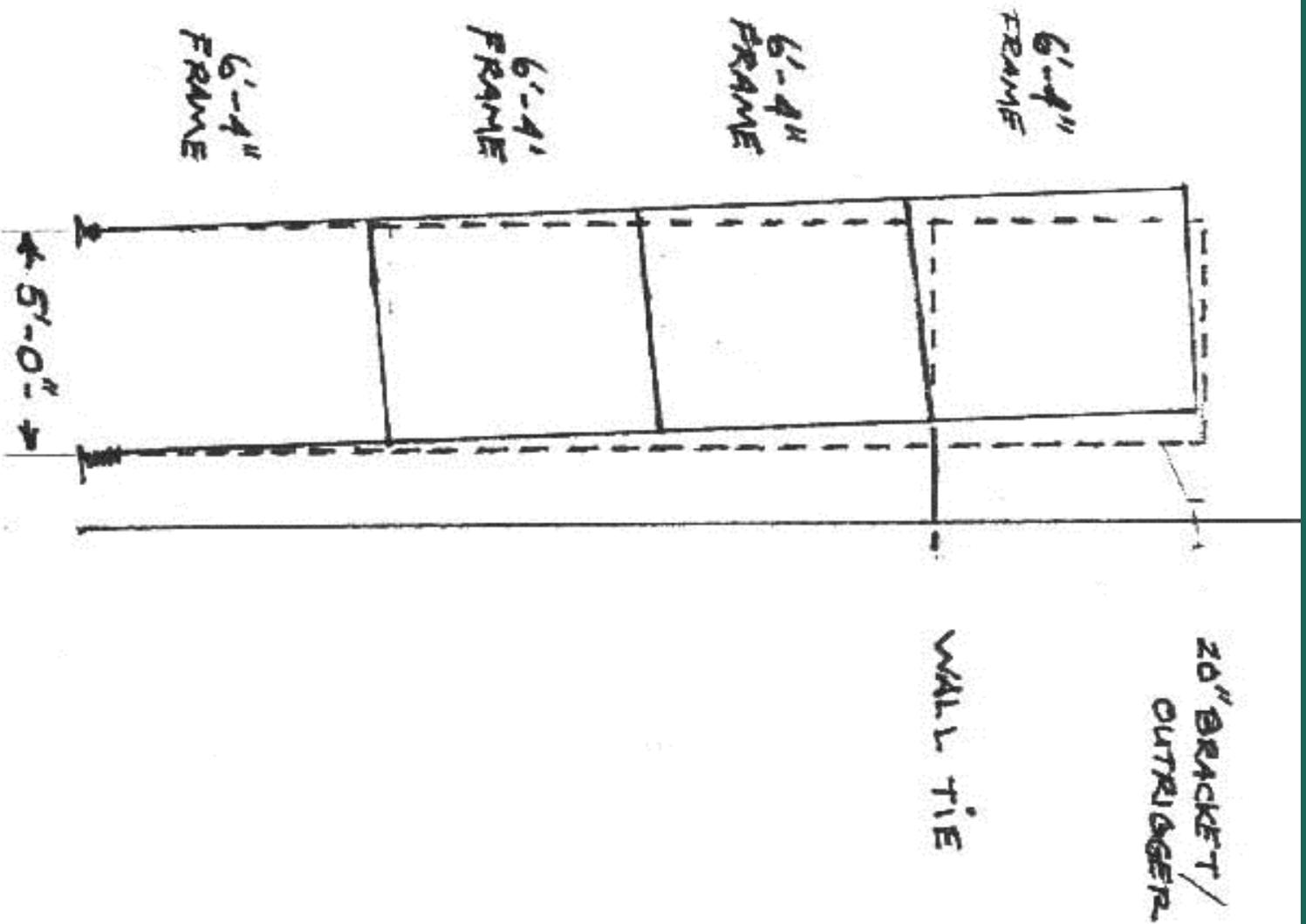
- 1-Allowable Load: 2400#
- 2-Uniform load: 4000#
- 3-Ultimate Load: 9600#



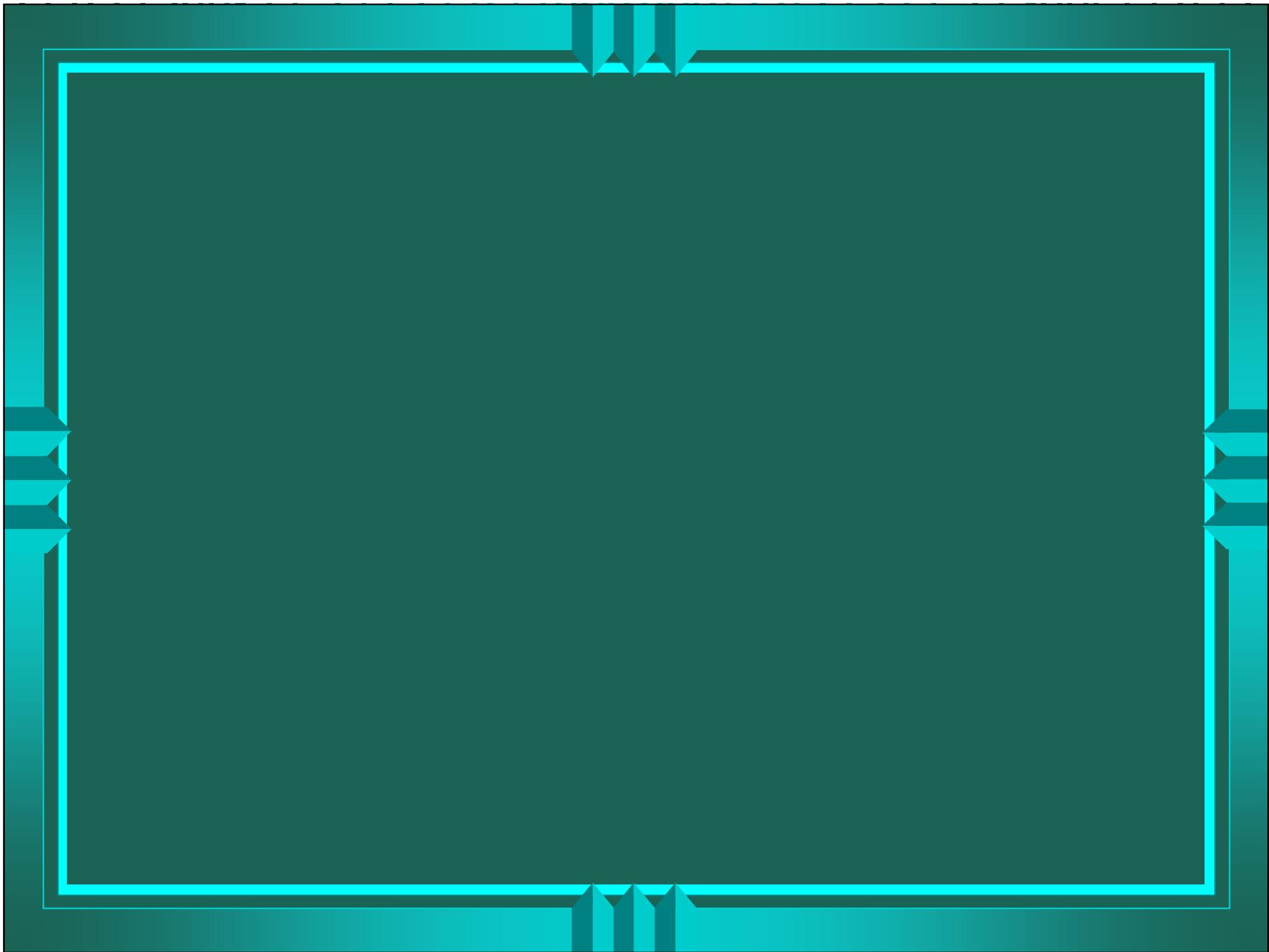
5'x7' TOWER W/ 8' LAM. PLANK

PLAN VIEW

$\frac{1}{2}'' = 1'-0''$



ELEV. VIEW



Scaffold Bases

1926.451(c)

- ☞ "...base plates & mudsills or other adequate foundation"
 - ▲ "Sound, level, rigid... w/o settling..."
 - ▲ No "Unstable objects"
- ☞ Base plates - no bare tubes (even on concrete)
 - ▲ Minimum 12" 2 x 10 mudsill, increase as necessary based on load and surface.

Scaffold Ties

1926.451(c)(1)

- First at 4x minimum base width
- On post at horizontal & 26'x 30' min.
- Account for eccentric loads
- Positive (non-friction) ties if possible
- Increase # & pin frames if enclosed
- Consider wind force on surface area





WIND FORCE TABLE

Miles Per Hour (MPH)	Force Per Square Foot in Pounds	Miles Per Hour (MPH)	Force Per Square Foot in Pounds
1	0.005	20	1.969
2	0.020	25	3.075
3	0.044	30	4.429
4	0.079	35	6.027
5	0.123	40	7.873
6	0.177	45	9.963
7	0.241	50	12.30
8	0.315	55	14.9
9	0.400	60	17.71
10	0.492	65	20.85
12	0.708	70	24.1
14	0.964	75	27.7
15	1.107	80	31.49
16	1.25	100	49.2
18	1.55		



Scaffold Use

1926.451(f)

- ★ Lesser of max. intended load/capacity
- 🕒 No lean-to scaffolds
- 🕒 Inspection: B4 Shift & after damage
 - ▲ Repair, Replace, Brace
- 🕒 Powerline Clearance
- 🕒 Competent Person Supervision

Fall Protection

1926.451(g)

Guardrail at 10 feet or PFAS

- ▲ 36"(38) to 45", toeboard = 3 1/2"
- ▲ Manufactured vs. job-built guardrails
- ▲ Cross brace midpoint = midrail at 20-30"
- ▲ Midpoint = guardrail at 38-48"

Fall Protection for Builders

☞ Feasible? - Greater Hazard?

☞ Competent Person Evaluation

▲ Available anchorage?

☒ Scaffold Structural Component?

▲ Choice of equipment?

☒ Lifeline/rope grab?

☒ Retractable?

▲ Training to work w/PFAS

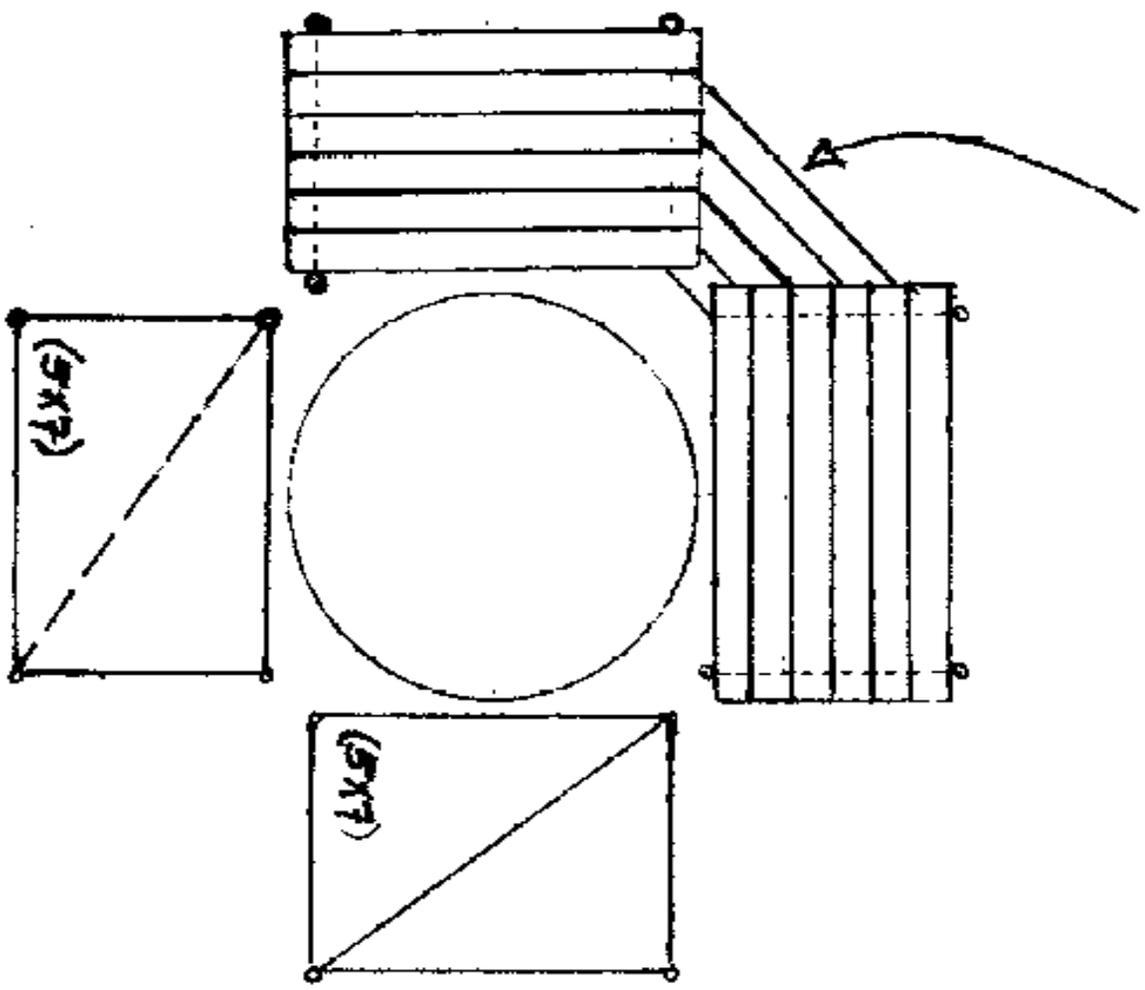
▲ Scaffold frame as anchorage?

Fall Protection for Builders

Scaffold Use

- ✘ Control of hoisted loads - tagline?
- ✘ Eliminate debris accumulation
- ✘ No slippery surfaces
- ✘ Ladder on platform
- ✘ "Makeshift devices"

CROSS PLANK DOWN FIRST



1/4" = 1'-0"















