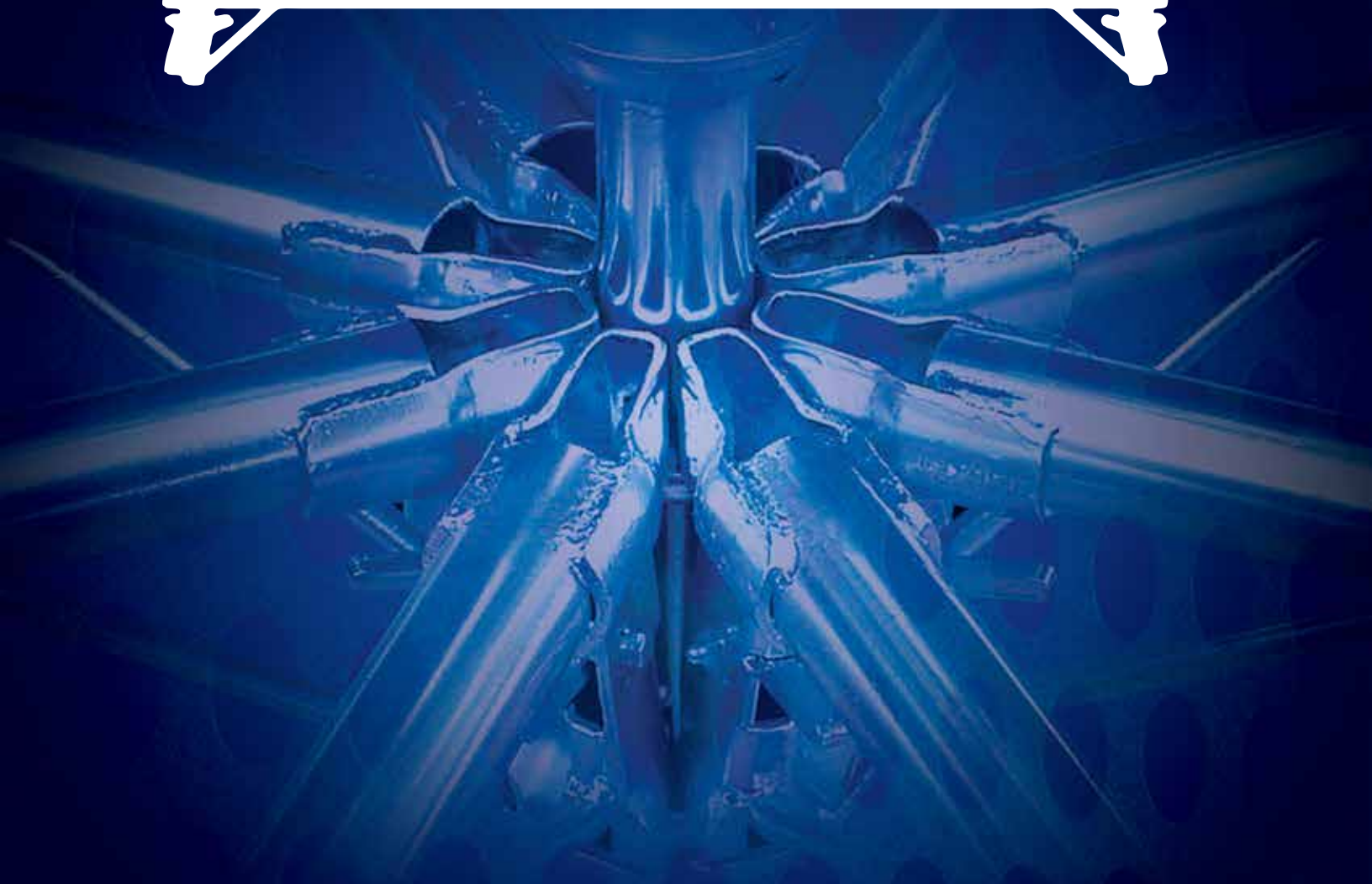
EXCEL

MODULAR SCAFFOLD



EXCEL MODULAR STANDARD SCAFFOLD COMPONENT TECHNICAL MANUAL

EMSLC-TSM-1001

Engineering Approval: Lance Smith
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INTRODUCTION

This manual does not replace OSHA 1926/1910 and/or CAL-OSHA documents.

1. Compatibility of Excel Modular Scaffold:

   Excel scaffold is designed and engineered to be compatible with standard tube and clamp components (i.e.: clamps, poles, ladders and ladder brackets) that are currently available within the scaffold industry. These tube and clamp components are generally used for:

   - Tie-offs when needed for seismic considerations.
   - When needed to transition horizontally to get around obstacles.
   - When needed to transition vertically to get around interference.
   - Ladders and ladder brackets for access to work platforms.
   - As needed for structural bracing and reinforcement.

2. General erection criteria:

   Excel was designed and engineered to be constructed using the same requirements specified by OSHA and CAL-OSHA, that have been historically used with tube and clamp and other types of system scaffold.

   Excel expects all users to be familiar with all Federal, State and local regulations governing scaffold construction and use.

   Excel expects all users to erect, modify or dismantle scaffolding using only qualified and competent personnel with adequate supervision.

   Excel expects all users to provide supervision that is competent and qualified, and who can inspect and sign off on each scaffold before authorization is given for general use.

   Excel expects all users to follow common safety guidelines, including: pre-job briefings, procedure compliance, tagging, flagging, wearing of proper PPE, weight-loading restrictions, vertical leg placement, use of diagonal bracing, horizontal wraps, proper use of handrails, mid-rails, toe boards, safety netting, screw jacks, ladders, metal or wood decking, etc.

   Excel expects all users to utilize a registered professional engineer (licensed PE) to design and approve drawings, as required by OSHA, CAL-OSHA or any other regulatory agency.

3. Special considerations:

   Be extra careful when working with components that telescope.

   Telescoping components can move/slide while being transported, handled and passed to other workers.

   Many Excel scaffold components swivel, slide or hinge. Use caution when passing to other workers, transporting and installing these items.

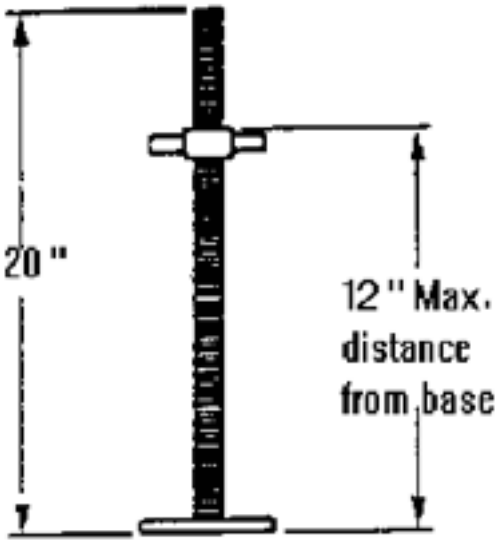
   Ensure all items containing locks or pins are secured before handling, transporting or passing these items to another worker.

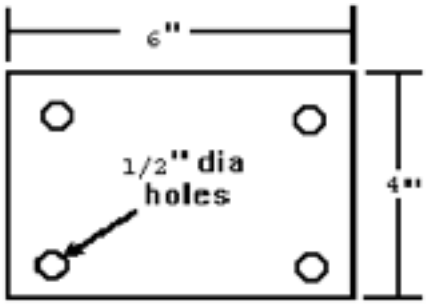
All material must be inspected prior to use! See inspection guidelines on page 99.

INTENDED USE OF EXCEL MODULAR SCAFFOLD

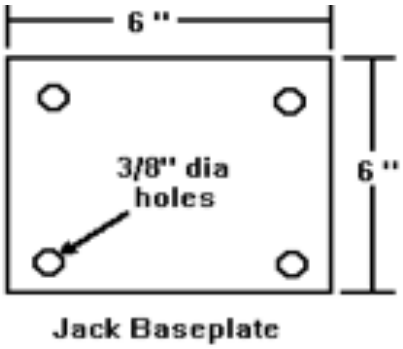
1. Unless otherwise stated, all load data presented in this manual includes the OSHA (4:1) Safety Factor.
2. Unless otherwise stated, all load data presented in this manual is for downward or compressive loading only.
3. Excel's scaffold material, when constructed for normal use, is not designed to be up- or side-loaded in excess of OSHA and ANSI requirements. When conditions require special loading, extra design features must be added to ensure proper stability.
4. Once installed and completed, scaffold should be considered part of the customer's plant equipment. Abuse or mistreatment of the scaffold material should not be tolerated.
5. The scaffold material should be inspected for damage and repaired after any incident which could affect the integrity of the scaffold material, such as:
    - The scaffold comes into contact with any moving equipment, forklifts, trucks or trailers, and other types of mobile equipment.
    - The scaffold is affected by an unintended load, flanges or piping attached to a crane or come-along, objects dropped from above or swung in from the side, etc.
    - Excessive force is applied to the scaffold from abuse or accidental contact.
    - The material is modified in any way with a torch, saw or other equipment.
    - The material is affected from corrosive chemicals that remove the coating and/or damage the base metal.
    - The material is bent or otherwise damaged.
6. The end-user should ensure their competent, qualified individuals and scaffold erection personnel are trained and fully understand the above requirements.
7. When testing of material is required, it should be conducted by qualified personnel in a testing environment. Field testing of scaffold components should not be conducted without a formal test plan approved by the manufacturer.
8. All end-users must be trained in the proper use of Excel Modular Scaffold. The tech manual is provided as a reference for training. New users should examine the Key Rules at the end of the manual.
9. OSHA requires that inspections must be made by the scaffold builder and end-user.

EXCEL MODULAR SCREW JACK





Caster Jack (FBJ2) Base



Jack Baseplate

Standard Jack (FBJ Base)

Part Number	Description	Weight (lbs.)	Maximum Allowable Load (lbs.*)
FBJ	Fixed Base Screw Jack	11.6	7,500
FBJ2	Fixed Base Caster Screw Jack	12.2	7,500

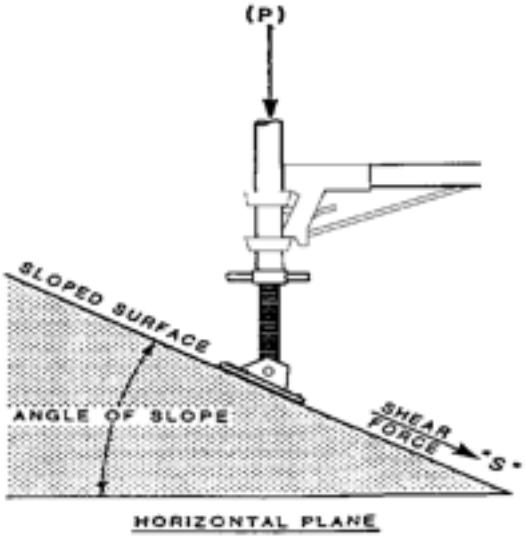
*Note: Jack cannot be extended more than 12 inches above the base.

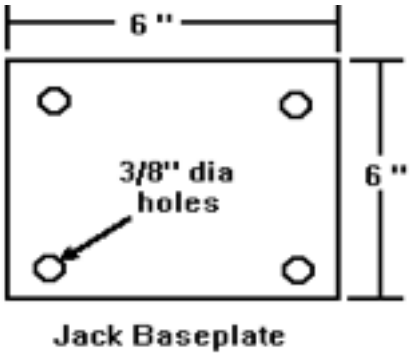
The fixed base caster screw jack has a larger base plate that is designed to allow the jack to be bolted to a standard flat top caster. The fixed base caster screw jack also has added bracing to make it stronger while attached to a caster.

Note: 7/16 x 1 1/2 inch, grade 5 or stronger bolts with flat washers must be used to bolt the caster to the fixed base caster screw jack.

All material must be inspected prior to use! See inspection guidelines on page 99.

EXCEL MODULAR SWIVEL JACK





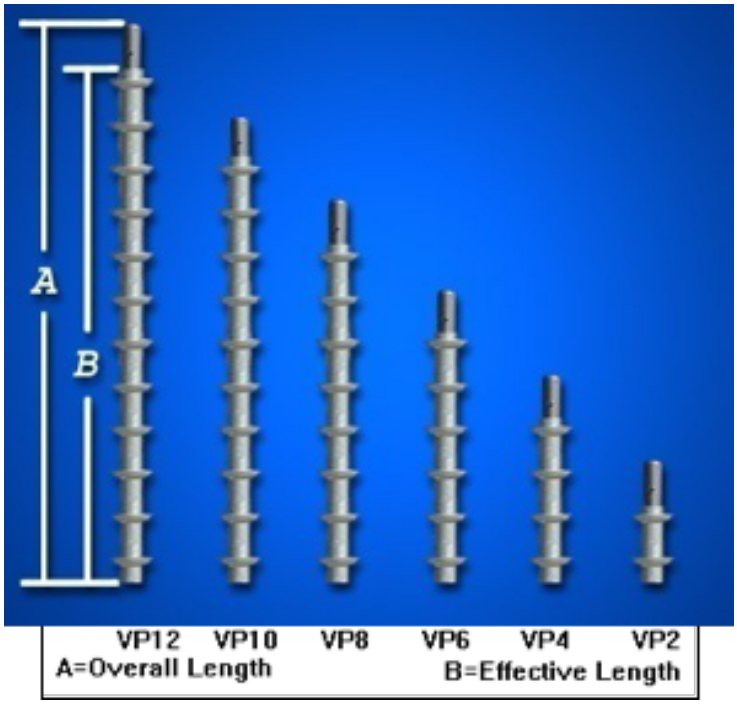
Jack Baseplate

Part Number	Description	Weight (lbs.)	Maximum Allowable Load (lbs.*) Load (P) When Angle of Slope 0°
SBJ	Swivel Base Screw Jack	7.5	5,000

*Note: Jack cannot be extended more than 12 inches above the base.

All material must be inspected prior to use! See inspection guidelines on page 99.

EXCEL MODULAR VERTICAL POST



Part Number	Description	Effective Length (inches)	Overall Length (inches)	Tube Length (inches)	Weight Galvanized (lbs.)
LP1	Vertical Pin	11.5			1
VP2	2-Cup Vertical	11.5	16.75	11.5	3.3
VP4	4-Cup Vertical	23	26.25	23	8.6
VP6	6-Cup Vertical	34.5	37.5	34.5	11.9
VP8	8-Cup Vertical	46	49.25	46	15.3
VP10	10-Cup Vertical	57.5	60.75	57.5	18.6
VP12	12-Cup Vertical	69	72.25	69	21.8
VP14	14-Cup Vertical	80.5	83.75	80.5	25.3
VP16	16-Cup Vertical	92	95.25	92	28.4
VP20	20-Cup Vertical	115	118.25	115	35.3

Note: All tubing is 1.90 diameter, 11-gauge (0.120 wall), high-strength, minimum 65,000 yield, and 75,000 tensile. Tube length is the length of tubing required to manufacture each vertical. Cup spacing is 5.75 inches. Verticals are designed to be compatible with standard 1.90 OD tube and clamp material. When connecting verticals a vertical pin with snap buttons must be used to align the verticals. Use caution when passing verticals to ensure the vertical pin is correctly fastened.

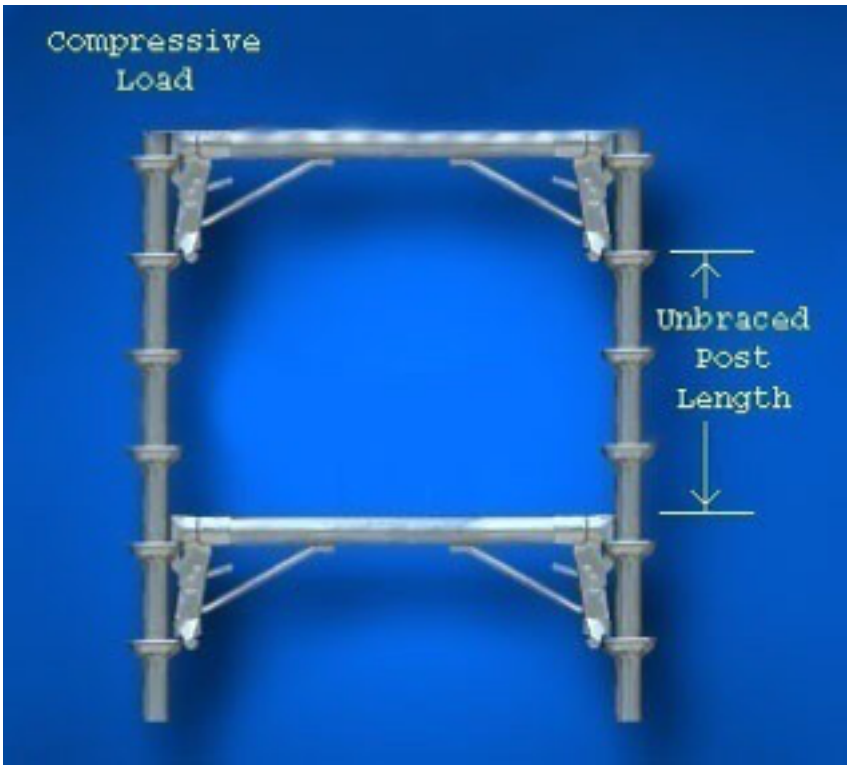
<<<CAUTION: There is a pinch point located where two verticals are pinned together..>>>

Two-cup verticals should only be used as the top member of vertical column.

Two-cup verticals cannot have a vertical pin inserted in the top and bottom. The snap buttons will not lock on both pins and may create a drop hazard.

All material must be inspected prior to use! See inspection guidelines on page 99.

EXCEL MODULAR VERTICAL POST



Unbraced Post Length (inches)	Maximum Allowable Compressive Load When Rated for Scaffold Use (lbs.)
80.5	4,500
69	6,986
57.5	7,670
46	8,230
33.75	8,690

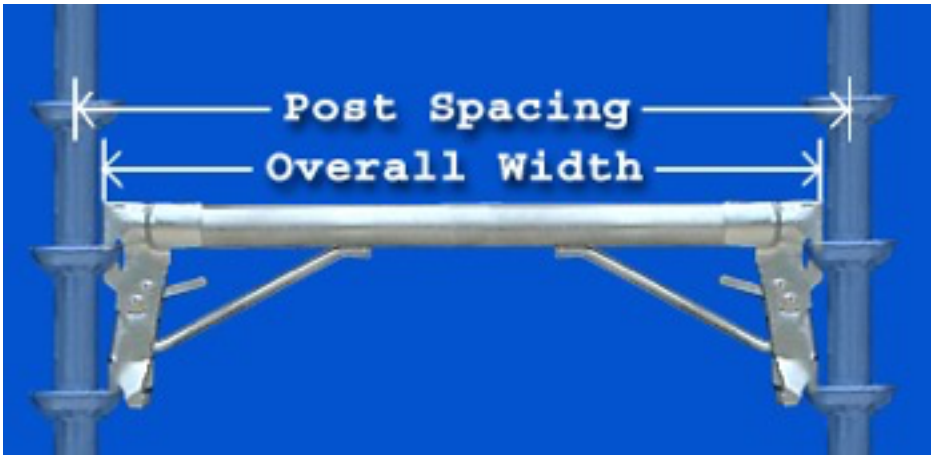
Allowable loads include OSHA (4:1) Safety Factor

When designing scaffolds with unique configurations of special loading conditions, consult with a professional structural engineer.

All material must be inspected prior to use! See inspection guidelines on page 99.

EXCEL MODULAR HORIZONTAL BAR

WITH TRIGGER GUARD



Part Number	Description	Vertical Post Spacing (inches)	Overall Width (inches)	Tube Length (inches)	Weight Galvanized (lbs.)
PB24	24" Bearer, 2-Plank Bearer	24	22	17.38	10
PB32	32" Bearer, 3-Plank Bearer	32	30	25.38	10.5
PB36	36" Bearer	36	34	29.38	11
PB42	42" Bearer, 4-Plank Bearer	42	40	35.38	12
PB48	48" Bearer, 5-Plank Bearer	48	46	41.38	12.5
PB60	60" Bearer, 6-Plank Bearer	60	58	53.38	15
PB72	6' Bearer	72	70	65.38	17.5
PB84	7' Bearer	84	82	77.38	19.5
	Horizontal Ledger				
HL96	8' Ledger	96	94	89.38	20.5
HL108	9' Ledger	108	106	101.38	21.5
HL120	10' Ledger	120	118	113.38	25

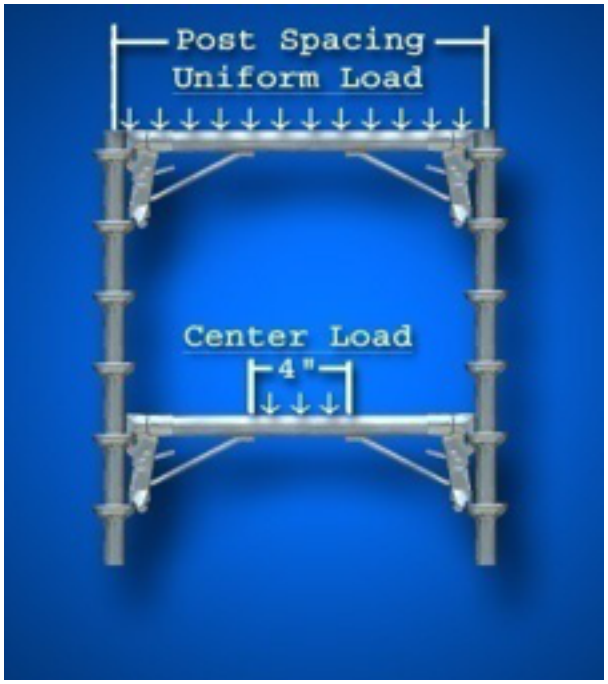
Note: Tube length is the length of tubing required to manufacture each horizontal. Horizontals are designed to be compatible with standard 1.90 OD tube and clamp material.

Tubing for the 7-foot bearer through the 10-foot ledger is 1.90 diameter, 11-gauge (0.120 wall), high-strength, minimum 65,000 yield, and 75,000 tensile. All other tubing is 13-gauge (0.083 wall), high-strength, minimum 65,000 yield, and 75,000 tensile.

<<<CAUTION: There is a pinch point when closing the trigger.>>>

All material must be inspected prior to use! See inspection guidelines on page 99.

EXCEL MODULAR HORIZONTAL BAR



Part Number	Description	Vertical Post Spacing (inches)	Allowable Center Load	Allowable Uniform Load	
			lbs.	lbs.	lbs./ft.
PB24	24" Bearer, 2-Plank Bearer	24	2,250	4,500	2,250
PB32	32" Bearer, 3-Plank Bearer	32	1,400	2,871	1,148
PB36	36" Bearer	36	1,100	2,039	680
PB42	42" Bearer, 4-Plank Bearer	42	1,000	2,000	571
PB48	48" Bearer, 5-Plank Bearer	48	900	1,800	450
PB60	60" Bearer, 6-Plank Bearer	60	625	1,250	250
PB72	6' Bearer	72	530	1,060	177
PB84	7' Bearer	84	410	820	117
	Horizontal Ledger				
HL96	8' Ledger	96	320	640	80
HL108	9' Ledger	108	275	550	61
HL120	10' Ledger	120	250	500	50

Note: Vertical leg may be the limiting load carrying member.
Center load is applied to the center four (4) inches of the bearer or ledger.

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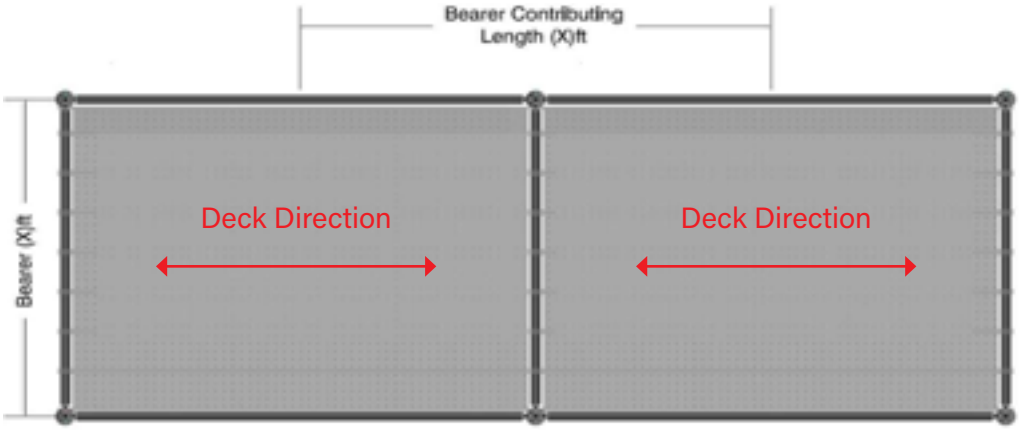
EXCEL MODULAR HORIZONTAL BAR

WITH TRIGGER GUARD



Bearer	Ledger Length											
		PB24	PB32	PB36	PB42	PB48	PB60	PB72	PB84	HL96	HL108	HL120
		24	32	36	42	48	60	72	84	96	108	120
PB24	24	1125	844	750	643	563	450	375	321	281	250	225
PB32	32	574	431	383	328	287	230	191	164	144	128	115
PB36	36	340	255	227	194	170	136	113	97	85	76	68
PB42	42	286	214	190	163	143	114	95	82	71	63	57
PB48	48	225	169	150	129	113	90	75	64	56	50	45
PB60	60	125	94	83	71	63	50	42	36	31	28	25
PB72	72	88	66	59	50	44	35	29	25	22	20	18
PB84	84	59	44	39	33	29	23	20	17	15	13	12
HL96	96	40	30	27	23	20	16	13	11	10	9	8
HL108	108	31	23	20	17	15	12	10	9	8	7	6
HL120	120	25	19	17	14	13	10	8	7	6	6	5

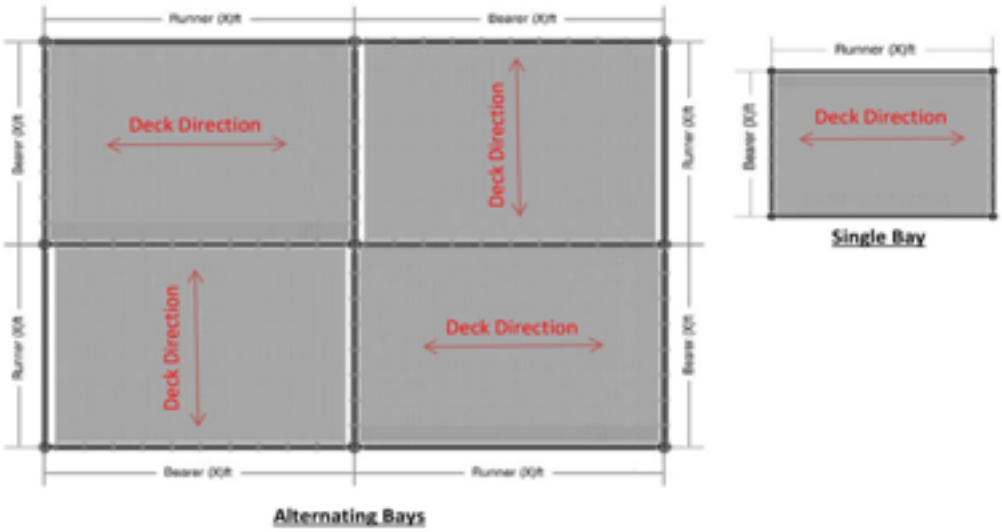
Chart shows the total allowable load per square foot (live load + dead load).

Note: All areas below 25 lbs./sq. ft. (in yellow) do not meet OSHA requirements for a light-duty scaffold. OSHA 1926.451 (a) 6 in conjunction with non-mandatory Appendix A, define uniform loads for scaffold types. Deck planking or vertical members may be the limiting load carrying member.

All material must be inspected prior to use! See inspection guidelines on page 99.

EXCEL MODULAR HORIZONTAL BAR

WITH TRIGGER GUARD



Note: Bearer supports the boards.

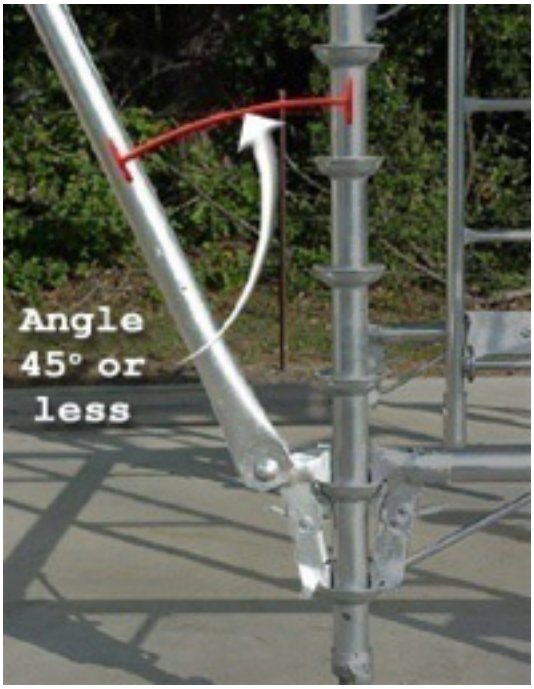
Bearer	Ledger Length											
		PB24	PB32	PB36	PB42	PB48	PB60	PB72	PB84	HL96	HL108	HL120
		24	32	36	42	48	60	72	84	96	108	120
PB24	24	2250	1688	1500	1286	1125	900	750	643	563	500	450
PB32	32	1148	861	766	656	574	459	383	328	287	255	230
PB36	36	680	510	453	388	340	272	227	194	170	151	136
PB42	42	571	429	381	327	286	229	190	163	143	127	114
PB48	48	450	338	300	257	225	180	150	129	113	100	90
PB60	60	250	188	167	143	125	100	83	71	63	56	50
PB72	72	177	133	118	101	88	71	59	50	44	39	35
PB84	84	117	88	78	67	59	47	39	33	29	26	23
HL96	96	80	60	53	46	40	32	27	23	20	18	16
HL108	108	61	46	41	35	31	24	20	17	15	14	12
HL120	120	50	38	33	29	25	20	17	14	13	11	10

Chart shows the total allowable load per square foot (live load + dead load).

Note: All areas below 25 lbs./sq. ft. (in yellow) do not meet OSHA requirements for a light-duty scaffold. OSHA 1926.451 (a) 6 in conjunction with non-mandatory Appendix A, define uniform loads for scaffold types. Deck planking or vertical members may be the limiting load carrying member.

All material must be inspected prior to use! See inspection guidelines on page 99.

BRACING EXCEL HORIZONTAL BARS



The angle of the bottom connection of the brace to the vertical post must be 45 degrees or less.

Bracing can be added to Excel horizontal bars when greater strength is required.
Diagonal swivel braces, diagonal pin braces, short diagonal braces, or tube and clamp may be used to provide additional strength to the Excel scaffold horizontal bar.

Part Number	Description	Vertical Post Spacing (inches)	Allowable Center Load	Allowable Uniform Load	
			lbs.	lbs.	lbs./ft
PB60	60" Bearer, 6-Plank Bearer	60	1,200	2,400	480
PB72	6' Bearer	72	975	1,950	325
PB84	7' Bearer	84	875	1,750	250
	Horizontal Ledger				
HL96	8' Ledger	96	750	1,500	188
HL108	9' Ledger	108	675	1,350	150
HL120	10' Ledger	120	625	1,250	125

Note: Vertical leg may be the limiting load carrying member.

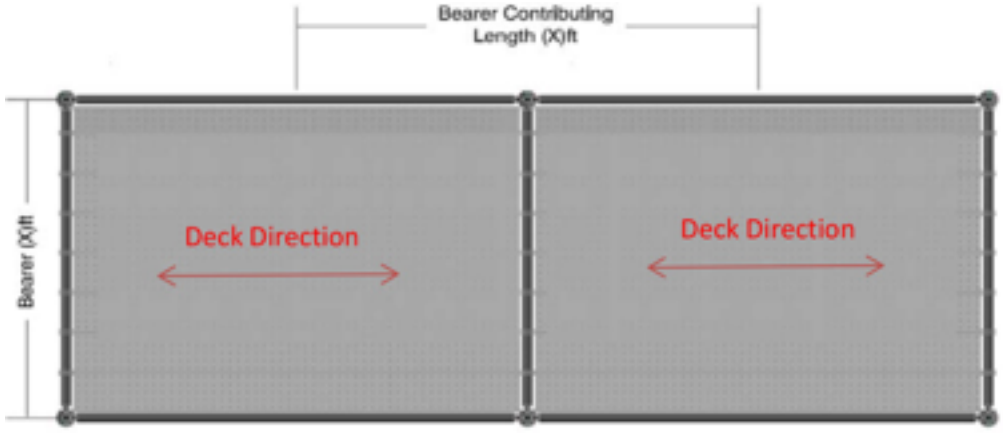
Horizontal bracing adds additional torque to the verticals, which must be considered when building heavy-duty or tall scaffolds.

Center load is applied to the center four (4) inches of the bearer or ledger.

All material must be inspected prior to use! See inspection guidelines on page 99.

EXCEL MODULAR HORIZONTAL BAR

WITH 1 BRACE



Continuous Run Scaffold

Note: Bearer supports the boards and has one (1) diagonal brace.

Standard board layout.

Bearer	Ledger Length											
		PB24	PB32	PB36	PB42	PB48	PB60	PB72	PB84	HL96	HL108	HL120
		24	32	36	42	48	60	72	84	96	108	120
PB60	60	240	180	160	137	120	96	80	69	60	53	48
PB72	72	163	122	108	93	81	65	54	46	41	36	33
PB84	84	125	94	83	71	63	50	42	36	31	28	25
HL96	96	94	70	63	54	47	38	31	27	23	21	19
HL108	108	75	56	50	43	38	30	25	21	19	17	15
HL120	120	63	47	42	36	31	25	21	18	16	14	13

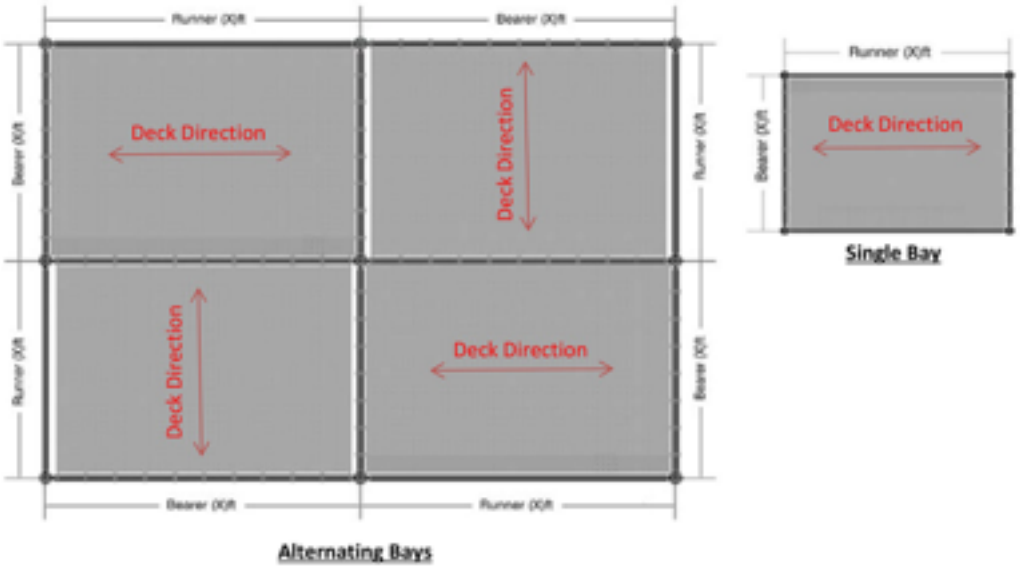
Chart shows the allowable load per square foot when horizontal is braced as defined on page 9—horizontal bracing.
Chart shows the total allowable load per square foot (live load + dead load).

Note: All areas below 25 lbs./sq. ft. (in yellow) do not meet OSHA requirements for a light-duty scaffold. OSHA 1926.451 (a) 6 in conjunction with non-mandatory Appendix A, define uniform loads for scaffold types. Deck planking or vertical members may be the limiting load carrying member.

All material must be inspected prior to use! See inspection guidelines on page 99.

EXCEL MODULAR HORIZONTAL BAR

WITH 1 BRACE



Note: Bearer supports the boards and has one (1) diagonal brace.

Single-bay scaffold or staggered board deck layout.

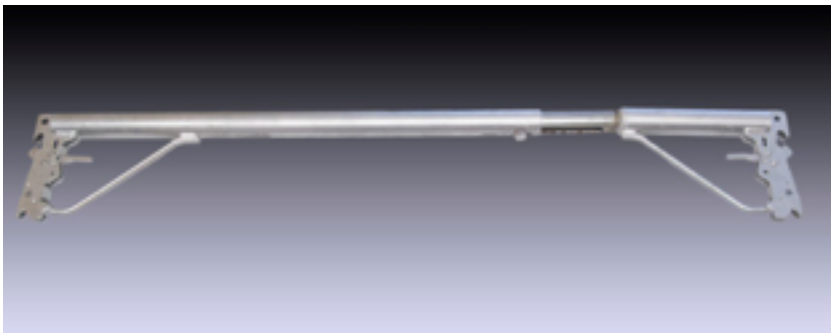
Bearer	Ledger Length											
		PB24	PB32	PB36	PB42	PB48	PB60	PB72	PB84	HL96	HL108	HL120
		24	32	36	42	48	60	72	84	96	108	120
PB60	60	480	360	320	274	240	192	160	137	120	107	96
PB72	72	325	244	217	186	163	130	108	93	81	72	65
PB84	84	250	188	167	143	125	100	83	71	63	56	50
HL96	96	188	141	125	107	94	75	63	54	47	42	38
HL108	108	150	113	100	86	75	60	50	43	38	33	30
HL120	120	125	94	83	71	63	50	42	36	31	28	25

Chart shows the allowable load per square foot when horizontal is braced as defined on page 9—horizontal bracing.
Chart shows the total allowable load per square foot (live load + dead load).

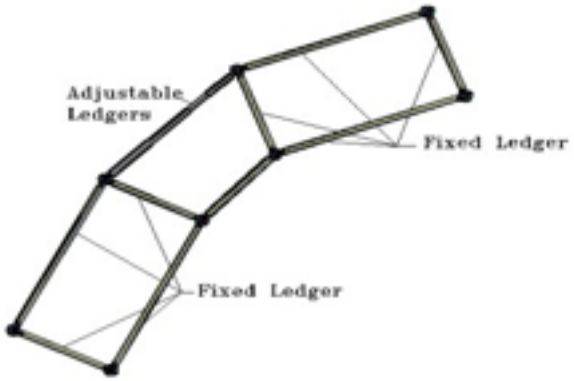
Note: All areas below 25 lbs./sq. ft. do not meet OSHA requirements for a light-duty scaffold.
OSHA 1926.451 (a) 6 in conjunction with non-mandatory Appendix A, define uniform loads for scaffold types.
Deck planking or vertical members may be the limiting load carrying member.

All material must be inspected prior to use! See inspection guidelines on page 99.

EXCEL MODULAR ADJUSTABLE BEARER



Adjustable bearers are designed to provide deck support between two self-supporting scaffold structures where traditionally only tube and clamp could be used. They may also be used to create odd-sized scaffolds (ex: 5 feet x 6 1/2 feet).



WARNING

Adjustable bearers provide limited longitudinal support.
Intermediate horizontal adapters may only be placed on adjustable bearers if designed by an engineer.

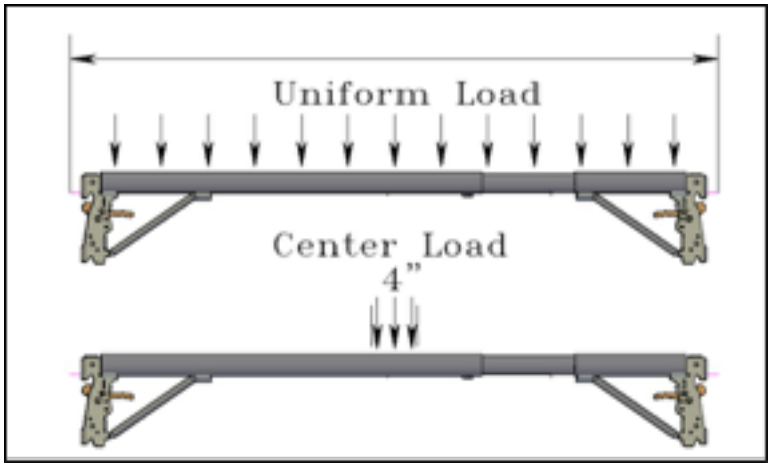
Part Number	Description	Minimum Post Spacing (inches)	Maximum Post Spacing (inches)	Weight Galvanized (lbs.)
TPB36	36" to 48" Adjustable Bearer	36	47	12
TPB48	48" to 60" Adjustable Bearer	48	59	17
TPB60	60" to 72" Adjustable Bearer	60	71	20
TPB72	72" to 84" Adjustable Bearer	72	83	23
TPB84	84" to 96" Adjustable Bearer	84	95	26
THL96	96" to 10" Adjustable Ledger	96	107	32

Note: Outer tubing is 1.90 diameter, 11-gauge (0.120 wall), high-strength, minimum 65,000 yield, and 75,000 tensile. Inner tubing is 1.625 diameter, 11-gauge (0.120 wall), high-strength, minimum 65,000 yield, and 75,000 tensile.

<<<CAUTION: There is a pinch point when closing the trigger and where the parts telescope.>>>

All material must be inspected prior to use! See inspection guidelines on page 99.

EXCEL MODULAR ADJUSTABLE BEARER



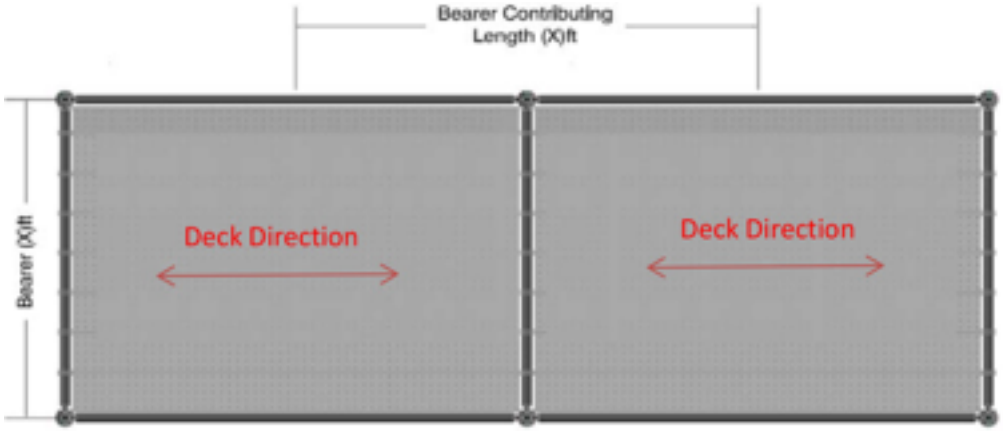
Part Number	Description	Allowable Center Load	Allowable Uniform Load Fully Extended	
		lbs.	lbs.	lbs./ft
TPB36	36" to 48" Adjustable Bearer	812	1,624	406
TPB48	48" to 60" Adjustable Bearer	625	1,250	250
TPB60	60" to 72" Adjustable Bearer	750	1,500	250
TPB72	72" to 84" Adjustable Bearer	687	1,374	196
TPB84	84" to 96" Adjustable Bearer	618	1,236	155
THL96	96" to 10" Adjustable Ledger	562	1,124	125
HL120	Ten' Ledger	625	1,250	125

Note: Vertical leg may be the limiting load carrying member.

Center load is applied to the center four (4) inches of the bearer or ledger.

All material must be inspected prior to use! See inspection guidelines on page 99.

EXCEL MODULAR ADJUSTABLE BEARER



Continuous Run Scaffold

Note: Bearer supports the boards.

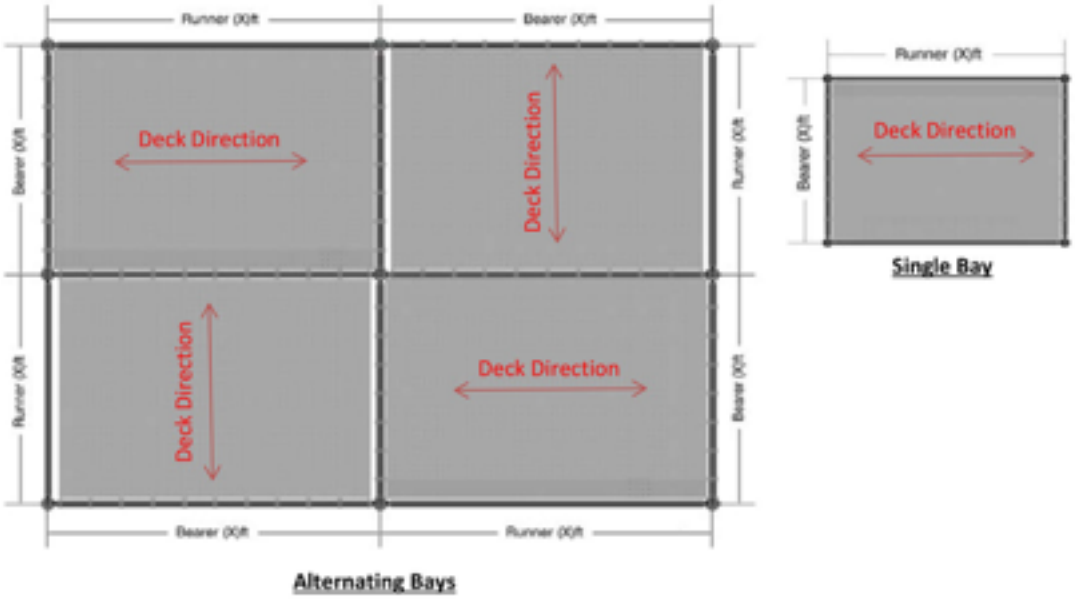
Bearer	Ledger Length											
		PB24	PB32	PB36	PB42	PB48	PB60	PB72	PB84	HL96	HL108	HL120
		24	32	36	42	48	60	72	84	96	108	120
TPB36	47	203	152	135	116	102	81	68	58	51	45	41
TPB48	59	125	94	83	71	63	50	42	36	31	28	25
TPB60	71	125	94	83	71	63	50	42	36	31	28	25
TPB72	83	98	74	65	56	49	39	33	28	25	22	20
TPB84	95	77	58	52	44	39	31	26	22	19	17	15
THL96	107	62	47	42	36	31	25	21	18	16	14	12

Chart shows the total allowable load per square foot (live load + dead load).
Chart shows worst case— adjustable bearer fully extended.

Note: All areas below 25 lbs./sq. ft. (in yellow) do not meet OSHA requirements for a light-duty scaffold.
OSHA 1926.451 (a) 6 in conjunction with non-mandatory Appendix A, define uniform loads for scaffold types.
Deck planking or vertical members may be the limiting load carrying member.

All material must be inspected prior to use! See inspection guidelines on page 99.

EXCEL MODULAR ADJUSTABLE BEARER



Note: Bearer supports the boards.

Bearer	Ledger Length											
		PB24	PB32	PB36	PB42	PB48	PB60	PB72	PB84	HL96	HL108	HL120
		24	32	36	42	48	60	72	84	96	108	120
TPB36	47	406	305	271	232	203	162	135	116	102	90	81
TPB48	59	250	188	167	143	125	100	83	71	63	56	50
TPB60	71	250	188	167	143	125	100	83	71	63	56	50
TPB72	83	196	147	131	112	98	79	65	56	49	44	39
TPB84	95	155	116	103	88	77	62	52	44	39	34	31
THL96	107	125	94	83	71	62	50	42	36	31	28	25

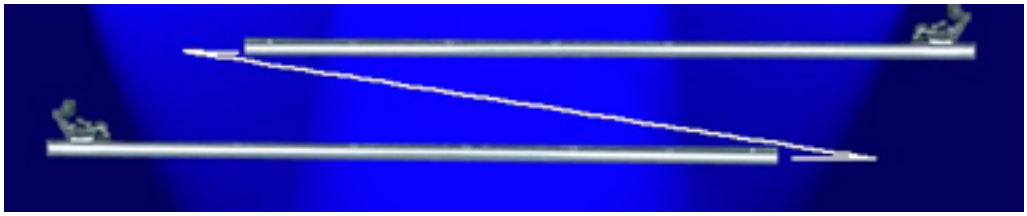
Chart shows the total allowable load per square foot (live load + dead load).
Chart shows worst case—adjustable bearer fully extended.

Note: All areas below 25 lbs./sq. ft. do not meet OSHA requirements for a light-duty scaffold.
OSHA 1926.451 (a) 6 in conjunction with non-mandatory Appendix A, define uniform loads for scaffold types.
Deck planking or vertical members may be the limiting load carrying member.

All material must be inspected prior to use! See inspection guidelines on page 99.

EXCEL MODULAR ADJUSTABLE DIAGONAL SWIVEL BRACE

The elevation for the diagonal swivel brace is different than the diagonal extendable brace. The swivel brace will fit scaffolds from three (3) fee to nine (9) feet.



Part Number	Description	Fits Post Spacing (inches)	Inner Tube Length (inches)	Outer Tube Length (inches)	Weight Galvanized (lbs.)
DSB	Diagonal Swivel Brace	36 - 108	65	65	24.8
	Bearer Description	Post Spacing	Elevation (Approx)	Brace Angle (degrees)	Hole Location
PB32	3' Bearer	36	57	57.7	Hole #1
PB42	42" Bearer	42	54	52	Hole #1
PB48	4' Bearer, 5 Plank Bearer	48	57	50	Hole #2
PB48	4' Bearer, 5 Plank Bearer	48	48	45	Hole #1
PB60	5' Bearer, 6 Plank Bearer	60	59	44.5	Hole #3
PB60	5' Bearer, 6 Plank Bearer	60	46	37.5	Hole #2
PB72	6' Bearer	72	61	40	Hole #4
PB72	6' Bearer	72	44	31.4	Hole #3
PB84	7' Bearer	84	61	36	Hole #5
PB84	7' Bearer	84	42	26.6	Hole #4
PB96	8' Ledger	96	61	32.4	Hole #6
PB96	8' Ledger	96	40	22.6	Hole #5
PB108	9' Ledger	108	36	18.4	Hole #6

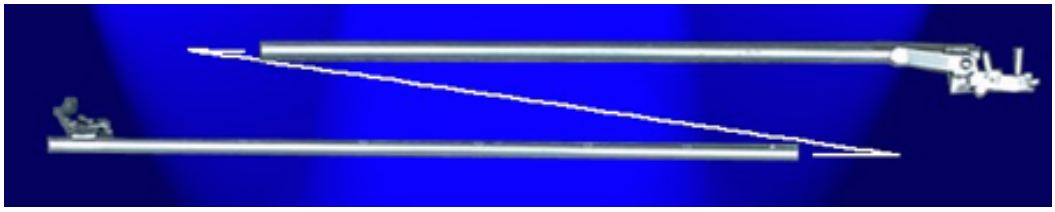
Note: Inner length is the length of tubing required to manufacture the inner tube. Outer length is the length of tubing required to manufacture the outer tube. Hole location is the location of the spacing holes, measured from the swivel connector pin. Clamp bolts should have between 40 and 65 lbs. tension. Overtightening could damage the threads, bolt or item the clamp is attached to.

<<<CAUTION: There is a pinch point at the clamps and where both parts telescope.>>>

All material must be inspected prior to use! See inspection guidelines on page 99.

EXCEL MODULAR ADJUSTABLE DIAGONAL COMBINATION BRACE

The elevation for the diagonal combination brace is different than the diagonal extendable brace and diagonal swivel brace. The combination brace will fit scaffolds from 42 inches to nine (9) feet.



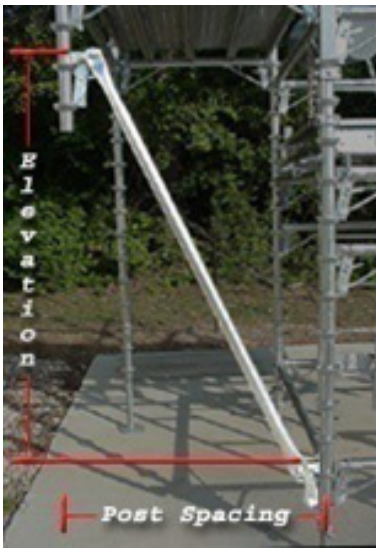
Part Number	Description	Fits Post Spacing (inches)	Inner Tube Length (inches)	Outer Tube Length (inches)	Weight Galvanized (lbs.)
DSB	Diagonal Swivel Brace	42 - 108	65	65	29
	Bearer Description	Post Spacing	Elevation (Approx)	Brace Angle (degrees)	Hole Location
PB42	42" Bearer	42	57	53.6	Hole #1
PB48	4' Bearer, 5-Plank Bearer	48	53	47.8	Hole #1
PB60	5' Bearer, 6-Plank Bearer	60	51	40.4	Hole #2
PB60	5' Bearer, 6-Plank Bearer	60	41	34.3	Hole #1
PB72	6' Bearer	72	51	35.3	Hole #3
PB72	6' Bearer	72	35	25.9	Hole #2
PB84	7' Bearer	84	51	31.3	Hole #4
PB96	8' Ledger	96	23	13.5	Hole #4
PB108	9' Ledger	108	48	24	Hole #6

Note: Inner length is the length of tubing required to manufacture the inner tube. Outer length is the length of tubing required to manufacture the outer tube. Hole location is the location of the spacing holes, measured from the swivel connector pin. Clamp bolts should have between 40 and 65 lbs. tension. Overtightening could damage the threads, bolt or item the clamp is attached to.

<<<CAUTION: There is a pinch point at the clamps and where both parts telescope.>>>

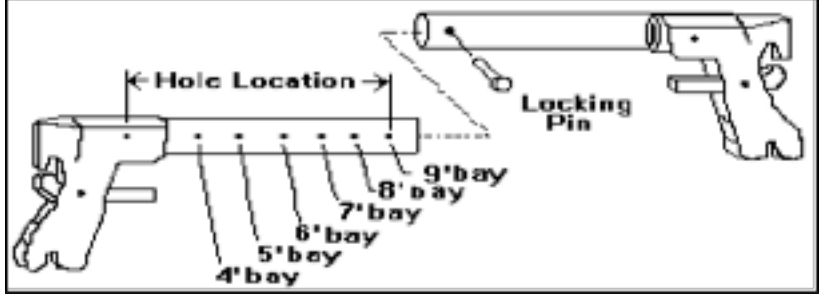
All material must be inspected prior to use! See inspection guidelines on page 99.

EXCEL MODULAR ADJUSTABLE DIAGONAL EXTENDABLE BRACE



Part Number	Description	Fits Post Spacing (inches)	Inner Tube Length (inches)	Outer Tube Length (inches)	Weight Galvanized (lbs.)
DEB	Diagonal Swivel Brace	48 - 108	65	65	29
DEB2	Diagonal Swivel Brace	48 - 120	78	78	31

DEB

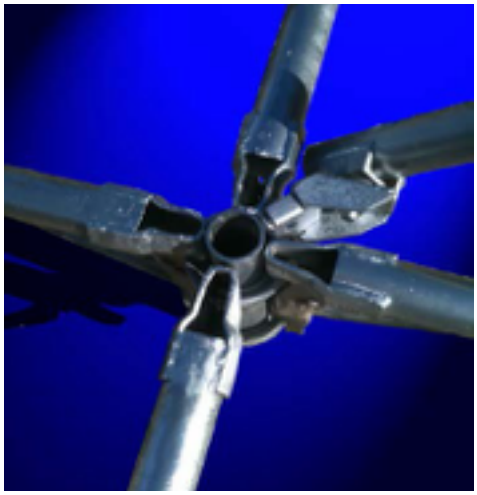


	Bearer Description	Post Spacing (inches)	Elevation (inches)	Extended Length (inches)	Hole Location
PB48	4' Bearer, 5-Plank Bearer	48	58.92	76	17.31
PB60	5' Bearer, 6-Plank Bearer	60	58.07	83.50	24.94
PB72	6' Bearer	72	57.27	92	33.44
PB84	7' Bearer	84	56.53	101.25	42.44
HL96	8' Ledger	96	56.71	111.5	52.56
HL108	9' Ledger	108	27.72	111.5	52.56

Note: Inner length is the length of tubing required to manufacture the inner tube. Outer length is the length of tubing required to manufacture the outer tube. Hole location is the location of the spacing holes, measured from the end connector pin.

All material must be inspected prior to use! See inspection guidelines on page 99.

EXCEL MODULAR ADJUSTABLE DIAGONAL EXTENDABLE BRACE

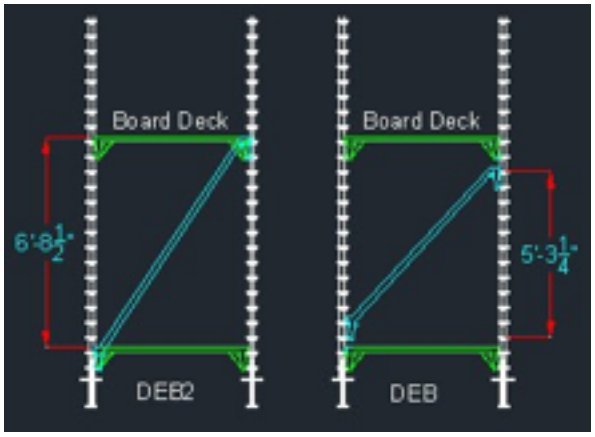


	Bearer Description	Post Spacing (inches)	Elevation (inches)	Extended Length (inches)	Hole Location
PB48	42" Bearer	42	80.5	83.5	19.25
PB48	4' Bearer, 5-Plank Bearer	48	80.5	76	220
PB60	5' Bearer, 6-Plank Bearer	60	80.5	83.5	28.375
PB72	6' Bearer	72	80.5	92	35.25
PB84	7' Bearer	84	80.5	101.25	43.25
HL96	8' Ledger	96	80.5	111.5	51.625
HL108	9' Ledger	108	80.5	111.5	59.875
HL120	10' Ledger	120	80.5	111.5	69.75

Diagonal swivel braces fit bay sizes from 108 inches to 48 inches. They fit in-line with the horizontals two (2) cups below and above the standard board wraps.

DEB2s fit bay sizes from 120 inches to 42 inches. They fit on the outside or inside of the scaffold bay, next to the horizontal wraps for standard board deck heights.

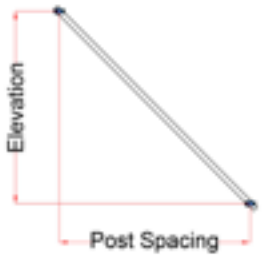
Note: Inner length is the length of tubing required to manufacture the inner tube. Outer length is the length of tubing required to manufacture the outer tube. Hole location is the location of the spacing holes, measured from the end connector pin.

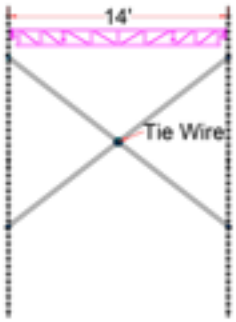


<<<CAUTION: There is a pinch point when closing the trigger and where both parts telescope.>>>

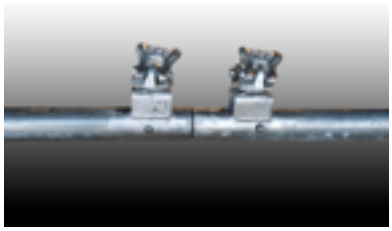
All material must be inspected prior to use! See inspection guidelines on page 99.

EXCEL MODULAR DIAGONAL PIN BRACE





The Excel Modular diagonal pin brace is designed to be a multipurpose brace. It has standard swivel clamps on each end, so it can be fastened to any scaffold vertical or horizontal. It is also drilled and fitted, so a standard vertical pin can be used to connect two or more braces together. This may be desirable when there is a need to brace longer structures up to fourteen (14) feet.



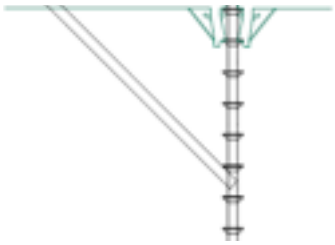
These braces are designed to be pinned together using standard vertical locking pins to create longer braces where needed.

When more than one (1) brace is used, the brace should be tied, when possible, in the middle with #9 wire or equivalent to a horizontal, vertical or another diagonal. When braces are connected together, the middle clamps may or may not be used.

Part Number	Description	Single Fits Post Spacing (inches)	Double Fits Post Spacing (inches)	Length (inches)	Weight Galvanized (lbs.)
DPB	Diagonal Pin Brace	24 - 84	96 - 168	108	24
SDPB	Short Diagonal Pin Brace	Horizontal Bracing		36	8
	Bearer Description	Post Spacing	Elevation (Approx)	Brace Angle (degrees)	Hole Location
	24" Bearer, 2-Plank Bearer	24	105.30	108	77.16
PB32	32" Bearer, 3-Plank Bearer	32	103.15	108	72.76
PB36	36" Bearer	36	101.82	108	70.53
PB42	42" Bearer, 4-Plank Bearer	42	99.5	108	67.11
PB48	48" Bearer, 5-Plank Bearer	48	96.75	108	63.61
PB60	60" Bearer, 6-Plank Bearer	60	89.8	108	56.25
PB72	6' Bearer	72	80.5	108	48.19
PB84	7' Bearer	84	67.88	108	38.94
HL96	8' Ledger	96	193.49	216	63.61
HL108	9' Ledger	108	187.06	216	60
HL120	10' Ledger	120	179.6	216	56.25
TR12	12' Truss	144	161	216	48.19
TR14	14' Truss	168	135.76	216	38.94

All material must be inspected prior to use! See inspection guidelines on page 99.

EXCEL MODULAR DIAGONAL PIN BRACE



The short diagonal pin brace can be used to provide additional support to horizontal bearers or to extend the length of a diagonal pin brace for use on a ten- (10) foot wide scaffold.

Excel's diagonal pin brace can also be used as a vertical to pass through a congested area, such as a pipe rack or cable tray.

Unbraced Post Length (inches)	Maximum Allowable Compressive Load When Rated for Scaffold Use (lbs.)
69	6,986
46	8,230
23	8,690

When used as a vertical, it must be supported by tube and clamp, braces, or tied such that there is never more than sixty-nine (69) inches of unsupported vertical.

Note: All tubing is 1.90 diameter, 11-gauge (0.120 wall), high-strength, minimum 65,000 yield, and 75,000 tensile. Diagonal pin braces are designed to be compatible with standard 1.90 OD tube and clamp material.

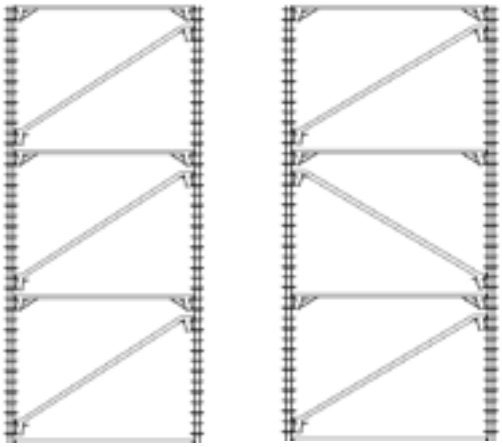
Clamp bolts should have between 40 and 65 lbs. tension. Overtightening could damage the threads, bolt or item the clamp is attached to.

<<<CAUTION: There is a pinch point at the clamps and where the parts pin together.>>>

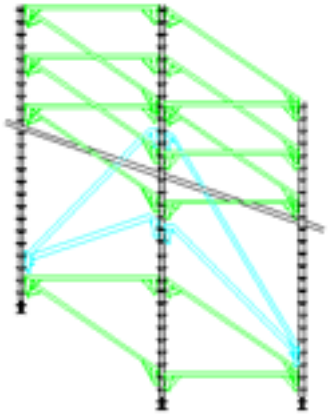
All material must be inspected prior to use! See inspection guidelines on page 99.

EXCEL MODULAR GENERAL GUIDELINES FOR BRACING

The following bracing recommendations are for all non-seismic scaffolding built using Excel scaffold components. Bracing and/or tying should be applied to any scaffold where the top of the scaffold has a movement of more than six (6) inches in any direction. The bracing should be placed to run in opposite directions on opposing sides. It may be zigzagged or run all in the same direction. (See normal bracing diagram below.)



Normal Bracing (Plain Or Zigzag)



Heavy-Duty Bracing

Bracing under the board deck that is attached diagonally from vertical to vertical should be placed every third deck when possible.

Single-bay scaffolds should be braced on a minimum of two (2) sides and when feasible on all four (4) sides, starting at the bottom and continuing to a minimum of ten (10) feet from the top of the scaffold.

All other bay configurations require bracing placed on one bay for every 30 feet of scaffold (generally every 4th bay). At a minimum, bracing should be placed on the inside and outside row of the scaffolding verticals, starting at the bottom and continuing to a minimum of ten (10) feet from the top of the scaffold.

Scaffolds that contain side brackets or outriggers where there is a possibility of tipping, must also be braced or tied, with tube and clamp, and a minimum of two (2) strands of #9 wire or equivalent to plant approved structural steel components (i.e., I-beams, handrails, grating, etc.)

The following additional bracing recommendations are for light duty, non-seismic scaffolding, built using Excel scaffold components.

Bay widths of 42 inches and less, that are less than 20-feet tall, may not require bracing. The special truss design of Excel horizontals provides the necessary bracing. Scaffolds above 20 feet tall should be braced using clamp braces or tube and clamp applied to the bottom of the scaffold, leaving an unbraced height of 20 feet or less. (Bracing should always be added if there is excessive movement of the scaffold structure.)

Scaffolds with a deck height less than ten (10) feet do not require bracing provided they are tied off with tube and clamp, and two (2) strands of #9 wire or equivalent to plant approved structural steel components (i.e., I-beams, handrails, grating, etc.).

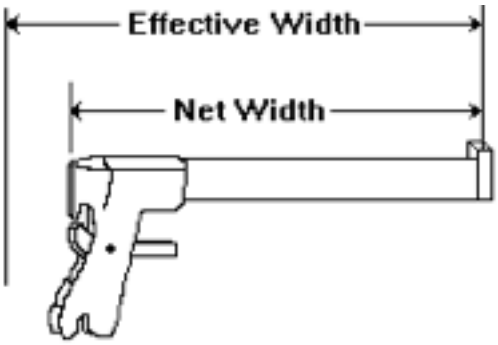
The following additional bracing recommendations are for medium- and heavy-duty, non-seismic scaffolding, built using Excel scaffold components.

Heavy-duty scaffolds should have as much bracing as required to meet the desired loading. Bracing and/or tying should be placed on all sides of the scaffold. Multi-bay scaffolds should have bracing on every other bay, front, middle and back rows. (See heavy-duty bracing diagram above.)

All material must be inspected prior to use! See inspection guidelines on page 99.

EXCEL MODULAR SIDE BRACKET

The bottom horizontal, used for support bracing, is only required for heavy-duty scaffolds or scaffolds with two (2) or more decks above the side bracket.



Part Number	Description	Effective Width (inches)	Net Width (inches)	Overall Width	Overall Height	Weight Galvanized (lbs.)
BB12	12" Board Bracket	12	11			4.8
BB12-L	12" Board Bracket Locking	12	11			5
SB24	2' Side Bracket (with pin)	24	20.5	26	19.5	14.5
SB32	32" Side Bracket (with pin)	32	30.5	34	19.5	21.2
SB36	3' Side Bracket (with pin)	36	34.5	38	19.5	23.3

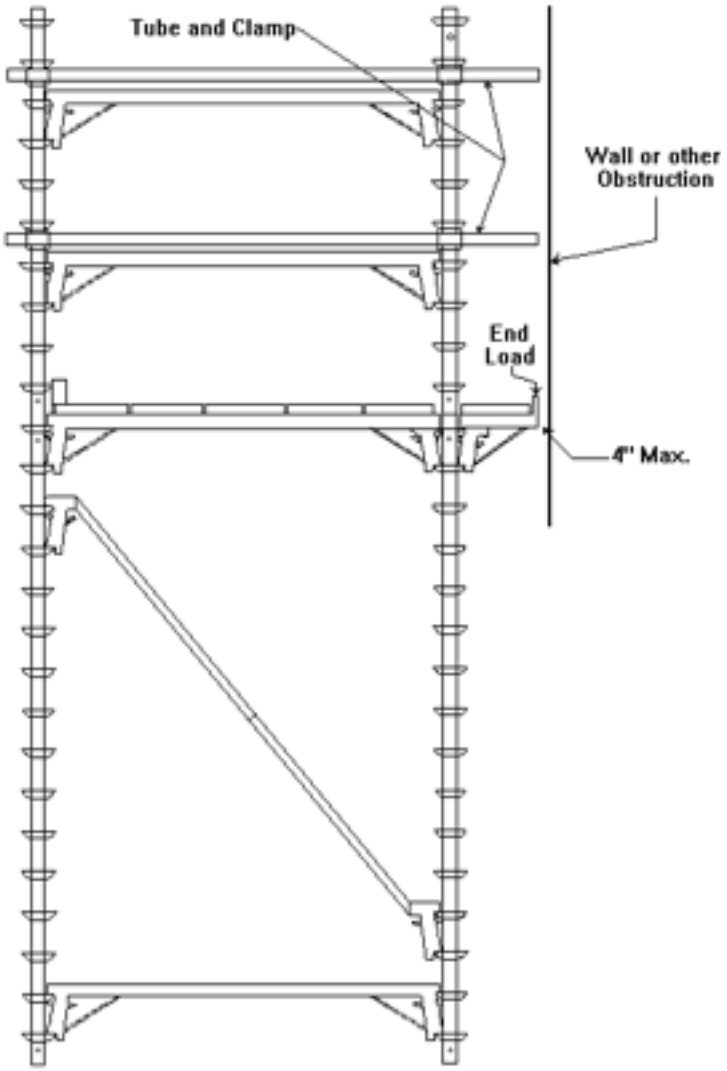
All tubing is 1.90 diameter, 11-gauge (0.120 wall), high-strength, minimum 65,000 yield, and 75,000 tensile.

<<<CAUTION: There is a pinch point when closing the trigger.>>>

Check that the vertical pin is properly secured before handling.

All material must be inspected prior to use! See inspection guidelines on page 99.

EXCEL MODULAR
SMALL SIDE BRACKET



Part Number	Description	Maximum Uniform Load (lbs. per ft.)	Maximum Load on End (lbs.)
BB12	12" Board Bracket	500	500
BB12-L	12" Board Bracket Locking	500	500

The only difference between the two board brackets is the 12-inch board bracket locking has a locking pin to hold the boards down.

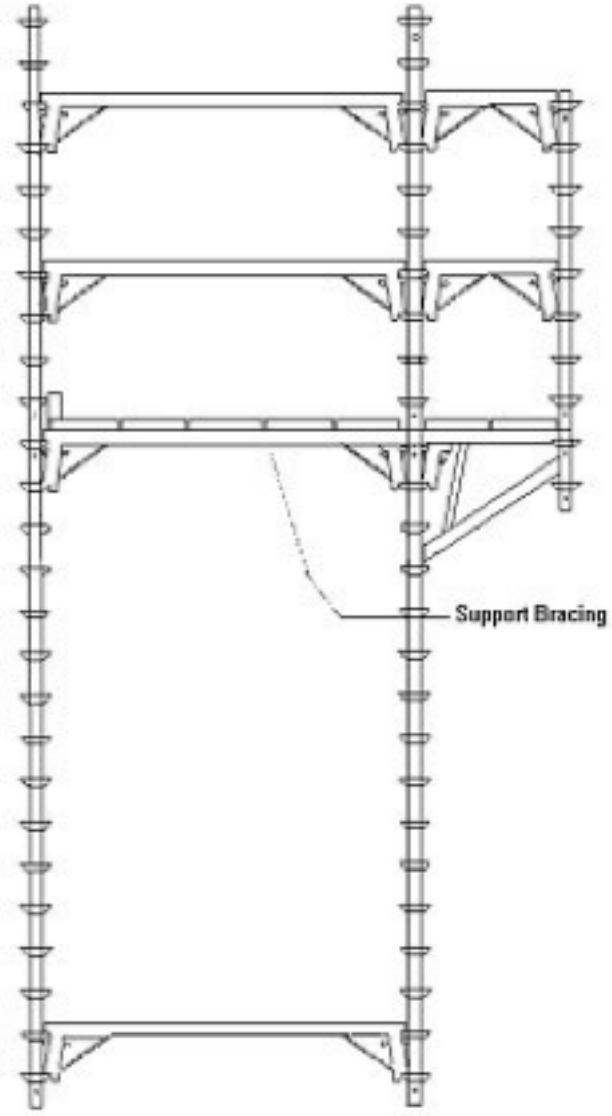
Note: The board brackets shall not be used as a handrail or mid-rail.

When used as a board deck, there must be a wall or other obstruction within four (4) inches to prevent falling.

<<<CAUTION: There is a pinch point when closing the trigger and at the locking pin of the 12-inch board bracket locking.>>>

All material must be inspected prior to use! See inspection guidelines on page 99.

EXCEL MODULAR SIDE BRACKET



Part Number	Description	Maximum Uniform Load (lbs. per ft.)	Maximum Load on End (lbs.)
SB24	2' Side Bracket (with pin)	500	500
SB32	32" Side Bracket (with pin)	400	500
SB36	3' Side Bracket (with pin)	330	500

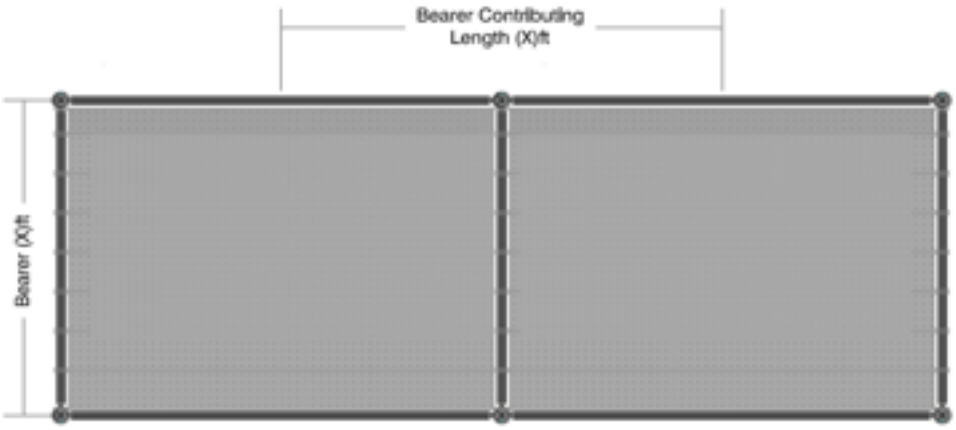
Note: Only verticals required for handrails and mid-rails should be added.

Only one (1) deck can be supported by any side bracket without any additional bracing.

<<<CAUTION: There is a pinch point when closing the trigger.>>>

All material must be inspected prior to use! See inspection guidelines on page 99.

EXCEL MODULAR SIDE BRACKET AND CANTILEVER DECK LOADING



Standard board layout using the side bracket cantilever as the bearer.

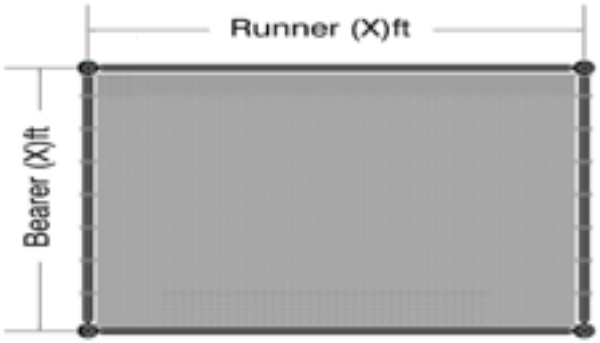
Bearer	Ledger Length										
		PB24	PB32	PB36	PB42	PB48	PB60	PB72	PB84	HL96	HL108	HL120
		24	32	36	42	48	60	72	84	96	108	120
BB12	12	250	188	167	143	125	100	83	71	63	56	50
SB24	24	125	94	83	71	63	50	42	36	31	28	25
SB32	32	100	75	67	57	50	40	33	29	25	22	20
SB36	36	83	62	55	47	41	33	28	24	21	18	17
PB42	42	71	53	48	41	36	29	24	20	18	16	14
PB48	48	63	47	42	36	31	25	21	18	16	14	13
PB60	60	50	38	33	29	25	20	17	14	13	11	10

Chart shows the total allowable load per square foot (live load + dead load).

Note: All areas below 25 lbs./sq. ft. (in yellow) do not meet OSHA requirements for a light-duty scaffold.
OSHA 1926.451 (a) 6 in conjunction with non-mandatory Appendix A, define uniform loads for scaffold types.
Deck planking or vertical members may be the limiting load carrying member.
Stability of the scaffold to prevent tipping must be considered when using any side bracket cantilever design.

All material must be inspected prior to use! See inspection guidelines on page 99.

EXCEL MODULAR SIDE BRACKET AND CANTILEVER MAX DECK LOADING



Note: Bearer supports the boards.
Standard board layout using the side bracket cantilever as the bearer.

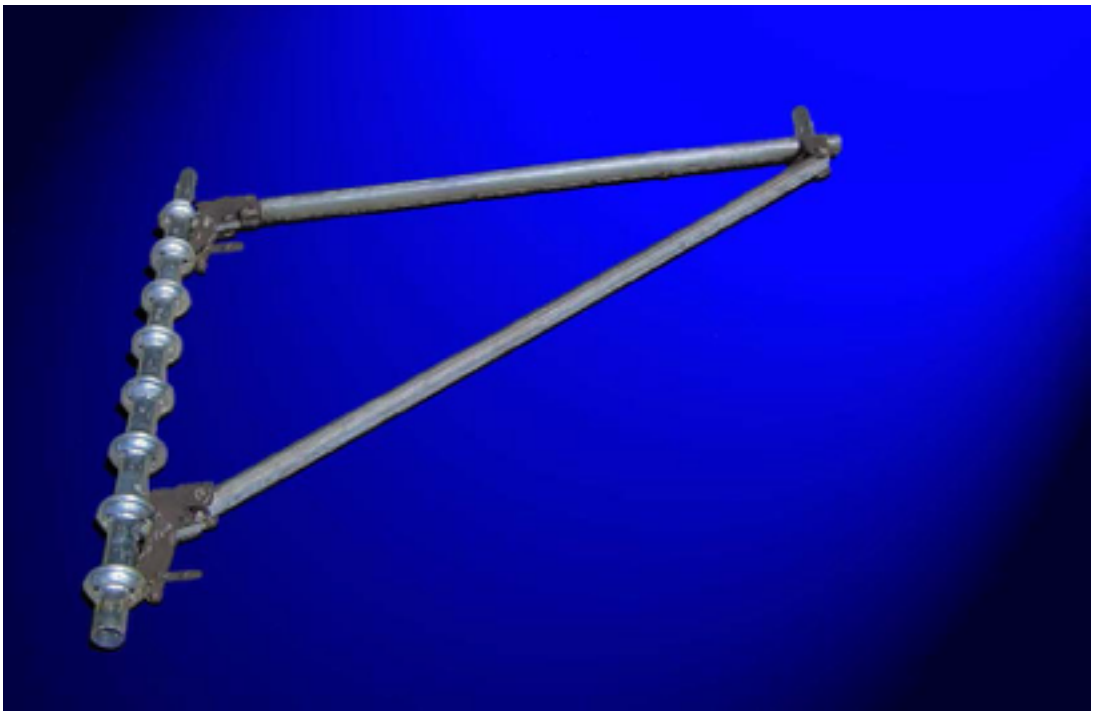
Bearer	Ledger Length											
		PB24	PB32	PB36	PB42	PB48	PB60	PB72	PB84	HL96	HL108	HL120
		24	32	36	42	48	60	72	84	96	108	120
BB12	12	500	375	333	286	250	200	167	143	125	111	100
SB24	24	250	188	167	143	125	100	83	71	63	56	50
SB32	32	200	150	133	114	100	80	67	57	50	44	40
SB36	36	165	124	110	94	83	66	55	47	41	37	33
PB42	42	143	107	95	81	71	57	48	41	36	32	29
PB48	48	125	94	83	71	63	50	42	36	31	28	25
PB60	60	100	75	67	57	50	40	33	29	25	22	20

Chart shows the total allowable load per square foot (live load + dead load).

Note: All areas below 25 lbs./sq. ft. (in yellow) do not meet OSHA requirements for a light-duty scaffold.
OSHA 1926.451 (a) 6 in conjunction with non-mandatory Appendix A, define uniform loads for scaffold types.
Deck planking or vertical members may be the limiting load carrying member.
Stability of the scaffold to prevent tipping must be considered when using any side bracket cantilever design.

All material must be inspected prior to use! See inspection guidelines on page 99.

EXCEL MODULAR FOLDING SIDE BRACKET



Excel folding side brackets are designed to provide scaffold deck extensions out to six (6) feet. They are also designed to fold up, so that they can be used inside vessels or places with small access where a normal side bracket will not fit.

Only two (2) folding side brackets can be used together. They cannot be placed on multiple scaffold bays to create a continuous deck.

The maximum deck width allowed is seven (7) feet.

Only one work deck can be supported by any folding side bracket.

Part Number	Description	Weight (lbs.)	Maximum Uniform Load (lbs. per ft.)	Maximum Load on End (lbs.)
FSB48	4' Folding Side Bracket	29.5	250	500
FSB60	5' Folding Side Bracket	33	20	500
FSB72	6' Folding Side Bracket	41.5	166	500

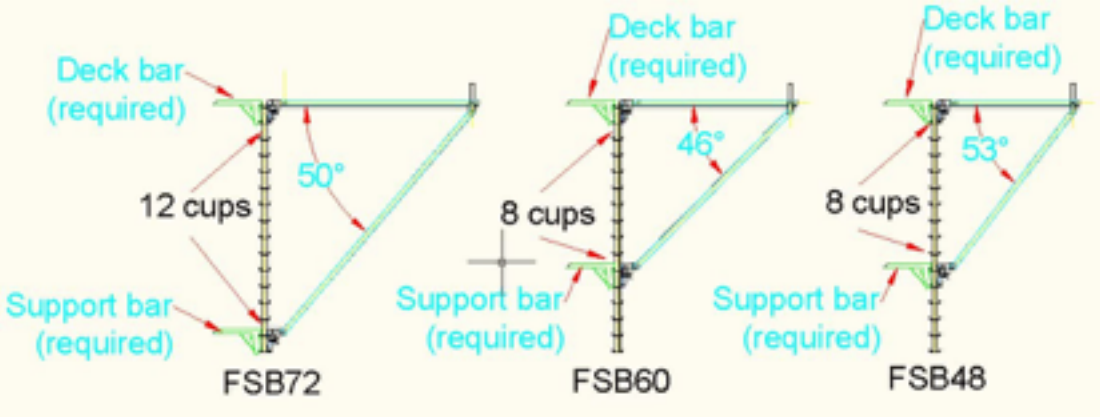
All tubing is 1.90 diameter, 11-gauge (0.120 wall), high-strength, minimum 65,000 yield, and 75,000 tensile.

<<<CAUTION: This item contains multiple pinch points when handling.>>>

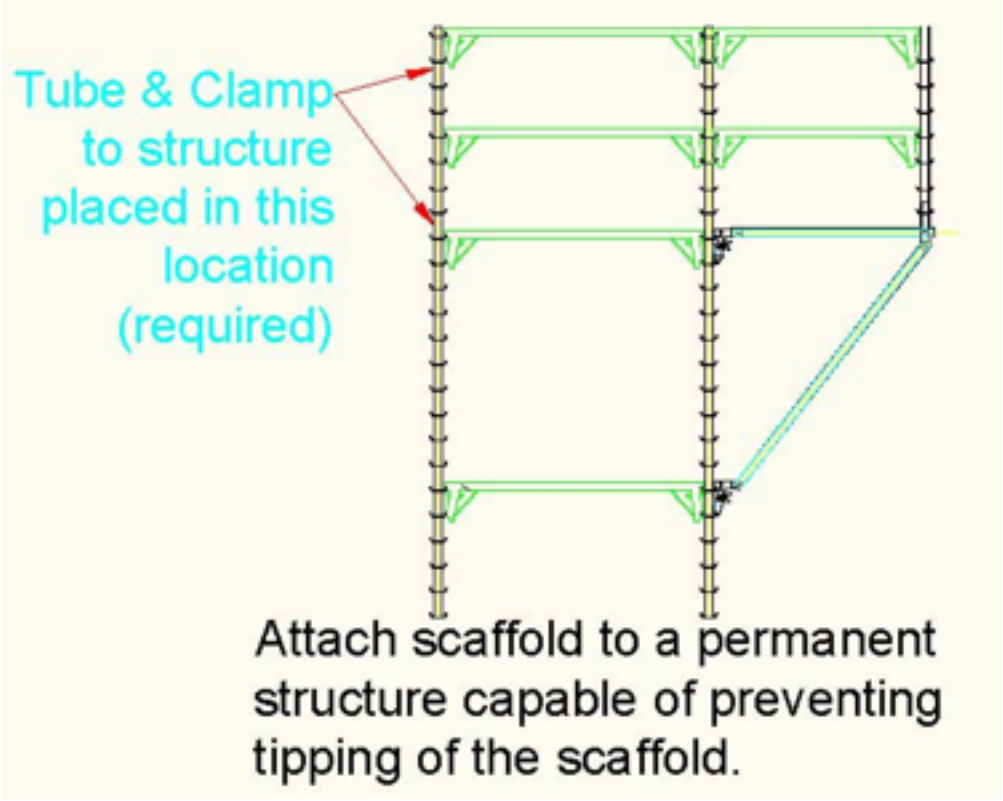
All material must be inspected prior to use! See inspection guidelines on page 99.

EXCEL MODULAR FOLDING SIDE BRACKET INSTALLATION

The scaffold supporting a folding side bracket must be properly braced and secured. Horizontal bars must be placed at the deck location and a support bar must be placed at the diagonal connection.



All scaffolds using a folding side bracket MUST be secured to a permanent structure. The minimum requirement for tying is two (2) pieces of tube and clamp secured with beam clamps from a vertical on the opposite side of the scaffold to a permanent structure. This is in addition to tying required by Federal, State or local regulations. The scaffold must be secured before the side brackets are installed. There is no width requirement of the scaffold the folding side bracket is being attached to because the scaffold MUST be secured to a permanent structure to prevent tipping.



All material must be inspected prior to use! See inspection guidelines on page 99.

EXCEL MODULAR FOLDING SIDE BRACKET INSTALLATION

Have the person on the lower level raise the side bracket using the bottom end connector until the top bar is level. Connect the bottom end connector.

Unfold the side bracket and let all of the bracket except the top end connector swing toward the ground.

Connect the top end connector to the desired point on the scaffold.

Repeat the installation procedure with a second folding side bracket of the same size.

Always use proper tie-off when handling side brackets.

All material must be inspected prior to use! See inspection guidelines on page 99.

EXCEL MODULAR FOLDING SIDE BRACKET INSTALLATION (CONT'D)

Adjust the side brackets, so they are square with the rest of the scaffold. This is best performed by gently shaking the side bracket, allowing the connectors to rotate around the cups.

Place the first scaffold board on the side bracket. Ensure the board is correctly set on the bracket.

Slide the board out toward the end of the side bracket. Begin adding the rest of the boards, placing them on the bracket and sliding them
out toward the other boards.

All material must be inspected prior to use! See inspection guidelines on page 99.

EXCEL MODULAR FOLDING SIDE BRACKET INSTALLATION (CONT'D)

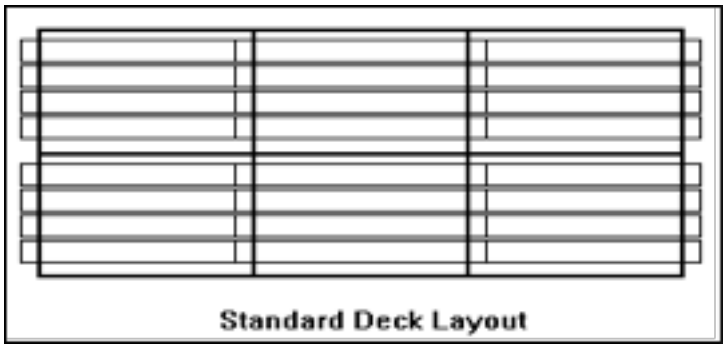
It is now safe to move out onto the deck and begin installing the handrails.

Install two (2) eight-cup verticals.

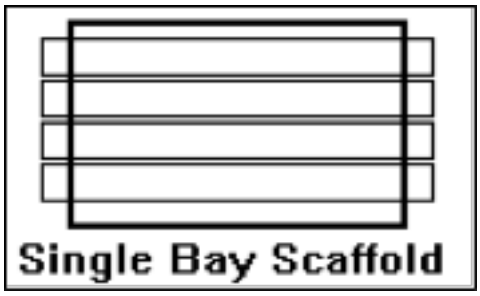
Continue the scaffold deck by installing the side handrails before installing the end handrails.

Complete the scaffold by installing the toe boards.

EXCEL MODULAR FOLDING SIDE BRACKET LOADING



Multiple-bay design is never allowed.



This is the only acceptable design.

Scaffold must be properly braced when using folding side brackets.

Note: Bearer supports the boards.

Bearer	Ledger Length											
		PB24	PB32	PB36	PB42	PB48	PB60	PB72	PB84	HL96	HL108	HL120
		24	32	36	42	48	60	72	84	96	108	120
FSB48	48	109	82	73	63	55	44	36	31	Not Allowed		
FSB60	60	88	66	58	50	44	35	29	25	Not Allowed		
FSB72	72	88	66	58	50	44	35	29	25	Not Allowed		

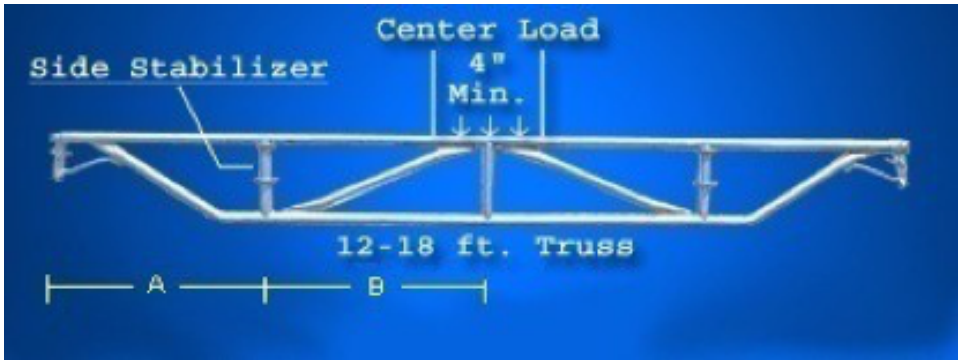
Note: All areas below 25 lbs./sq. ft. do not meet OSHA requirements for a light-duty scaffold.

OSHA 1926.451 (a) 6 in conjunction with non-mandatory Appendix A, define uniform loads for scaffold types. Deck planking or vertical members may be the limiting load carrying member.

Stability of the scaffold to prevent tipping must be considered when using any side bracket cantilever, folding side bracket design.

All material must be inspected prior to use! See inspection guidelines on page 99.

EXCEL MODULAR TRUSS



Part Number	Description	Vertical Post Spacing (ft.)	Overall Width (inches)	Depth (inches)	Distance A/B (ft)	Weight Galvanized (lbs.)
TR4	4' Truss	4	46	9.5		27
TR5	5' Truss	5	58	9.5		29
TR6	6' Truss	6	70	9.5		31
TR7	7' Truss	7	82	10.75		33
TR8	8' Truss	8	96	13.375		45.5
TR9	9' Truss	9	106	13.375		53
TR10	10' Truss	10	118	13.375		54.5
TR12	12' Truss	12	142	15	3/3	63.5
TR14	14' Truss	14	166	15	3.5/3.5	82
TR16	16' Truss	16	190	15	4/4	92
TR18	18' Truss	18	214	15	5/4	110

Note: Tube length is the length of tubing required to manufacture each truss. All Excel load-bearing tubes are 1.90 diameter, 11-gauge (0.120 wall), high-strength min. 65,000 yield, 75,000 tensile.

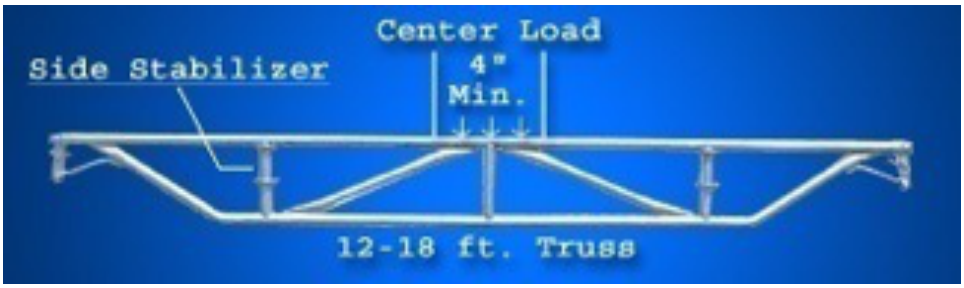
Trusses should be installed in pairs and have side stabilizers installed. When the stabilizers cannot be installed tube and clamp should be placed as close to the stabilizer location as possible.

Single trusses can be installed if properly braced, tied back to an adjacent leg or structure, and approved by an engineer.

<<<CAUTION: There is a pinch point when operating the trigger.>>>

All material must be inspected prior to use! See inspection guidelines on page 99.

EXCEL MODULAR TRUSS

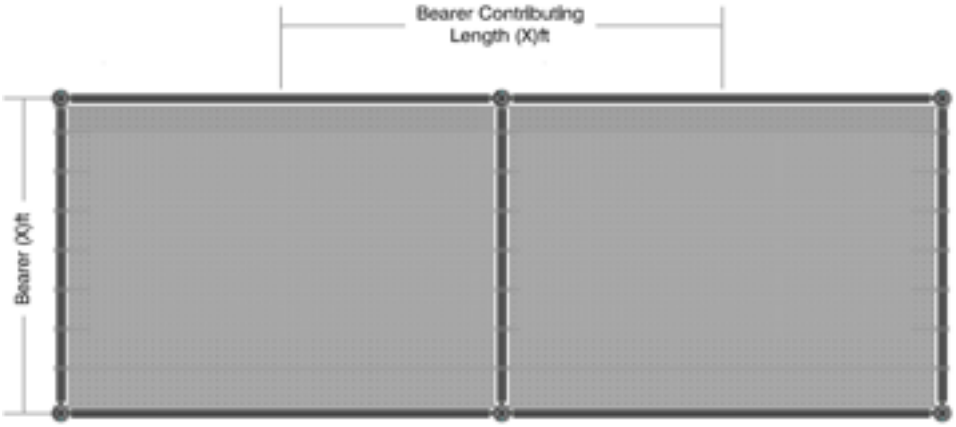


Part Number	Description Loads For Bearers with Trigger Guard	Allowable Center Load	Allowable Uniform Load	
		lbs.	lbs.	lbs./ft
TR4	4' Truss	3,000	6,000	1,200
TR5	5' Truss	3,000	6,000	1,200
TR6	6' Truss	2,750	5,500	910
			Allowable Uniform Load with Side Stabilizers	
TR7	7' Truss	3,000	5,999	857
TR8	8' Truss	3,500	7,000	875
TR9	9' Truss	3,500	6,975	775
TR10	10' Truss	3,500	7,000	700
TR12	12' Truss	3,500	6,900	575
TR14	14' Truss	3,000	5,992	428
TR16	16' Truss	2,000	4,000	250
TR18	18' Truss	2,000	3,960	220

Note: Vertical leg may be the limiting load carrying member. Center load is applied to the center four (4) inches of the truss.

All material must be inspected prior to use! See inspection guidelines on page 99.

EXCEL MODULAR TRUSS



Bearer	Ledger Length											
		PB24	PB32	PB36	PB42	PB48	PB60	PB72	PB84	HL96	HL108	HL120
		24	32	36	42	48	60	72	84	96	108	120
TR4	48	600	450	400	343	300	240	200	171	150	133	120
TR5	60	600	450	400	343	300	240	200	171	150	133	120
TR6	72	455	341	303	260	228	182	152	130	114	101	91
TR7	84	429	321	286	245	214	171	143	122	107	95	86
TR8	96	438	328	292	250	219	175	146	125	109	97	88
TR9	108	388	291	258	221	194	155	129	111	97	86	78
TR10	120	350	263	233	200	175	140	117	100	88	78	70
TR12	144	288	216	192	164	144	115	96	82	72	64	58
TR14	168	214	161	143	122	107	86	71	61	54	48	43
TR16	192	125	94	83	71	63	50	42	36	31	28	25
TR18	216	110	83	73	63	55	44	37	31	28	24	22

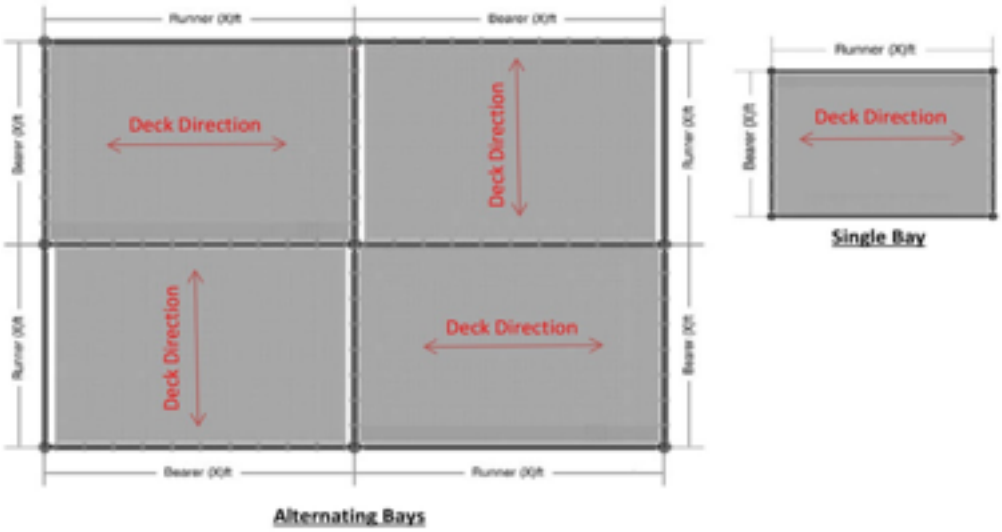
Chart shows the total allowable load per square foot (live load + dead load).

Note: All areas below 25 lbs./sq. ft. (in yellow) do not meet OSHA requirements for a light-duty scaffold.

OSHA 1926.451 (a) 6 in conjunction with non-mandatory Appendix A, define uniform loads for scaffold types. Deck planking or vertical members may be the limiting load carrying member.

All material must be inspected prior to use! See inspection guidelines on page 99.

EXCEL MODULAR TRUSS MAXIMUM ALLOWABLE LOAD



Bearer	Ledger Length											
		PB24	PB32	PB36	PB42	PB48	PB60	PB72	PB84	HL96	HL108	HL120
		24	32	36	42	48	60	72	84	96	108	120
TR4	48	1200	900	800	686	600	480	400	343	300	267	240
TR5	60	1200	900	800	686	600	480	400	343	300	267	240
TR6	72	910	683	607	520	455	364	303	260	228	202	182
TR7	84	857	643	571	490	429	343	286	245	214	190	171
TR8	96	875	656	583	500	438	350	292	250	219	194	175
TR9	108	775	581	517	443	388	310	258	221	194	172	155
TR10	120	700	525	467	400	350	280	233	200	175	156	140
TR12	144	575	431	383	329	288	230	192	164	144	128	115
TR14	168	428	321	285	245	214	171	143	122	107	95	86
TR16	192	250	188	167	143	125	100	83	71	63	56	50
TR18	216	220	165	147	126	110	88	73	63	55	49	44

Chart shows the total allowable load per square foot (live load + dead load).

Note: All areas below 25 lbs./sq. ft. do not meet OSHA requirements for a light-duty scaffold.

OSHA 1926.451 (a) 6 in conjunction with non-mandatory Appendix A, define uniform loads for scaffold types. Deck planking or vertical members may be the limiting load carrying member.

All material must be inspected prior to use! See inspection guidelines on page 99.

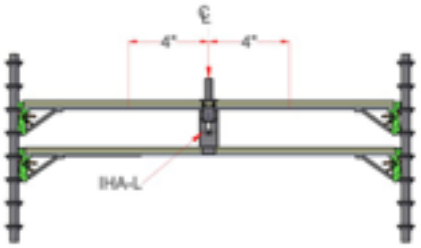
BRACING EXCEL HORIZONTAL BARS WITH LOCKING INTERMEDIATE HORIZONTAL ADAPTER

A locking intermediate horizontal adapter can be added to Excel horizontal bars when greater strength is required.

A locking intermediate horizontal adapter will NOT provide any additional support for uplift.

The locking intermediate horizontal adapter should be placed as close to the center of the bar as possible (+/- four (4) inches from center).

The locking intermediate horizontal adapter must be placed within four (4) inches of either side of the center of the horizontal.

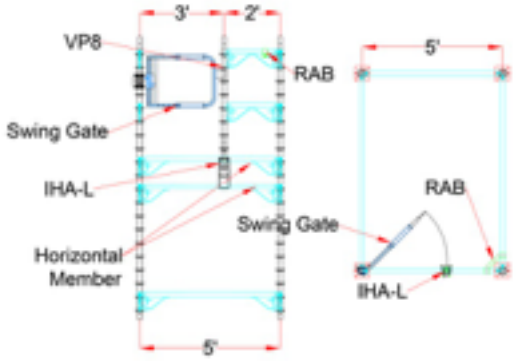


Part Number	Description Loads for Bearers with 1 Brace 18" from Center	Vertical Post Spacing (inches)	Allowable Center Load	Allowable Uniform Load	
			lbs.	lbs.	lbs./ft
PB60	60" Bearer, 6-Plank Bearer	60	1,250	2,500	500
PB72	6' Bearer	72	1,060	2,120	353
PB84	7' Bearer	84	820	1,640	234
	Horizontal Ledger				
HL96	8' Ledger	96	640	1,280	160
HL108	9' Ledger	108	550	1,100	122
HL120	10' Ledger	120	500	1,000	100

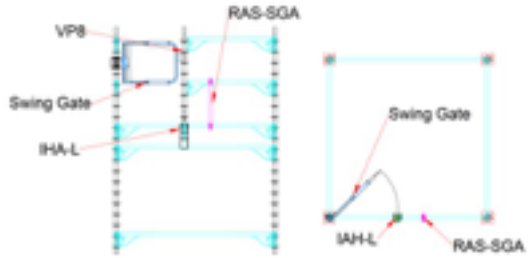
Note: Vertical leg may be the limiting load carrying member. Horizontal bracing adds additional torque to the verticals which must be considered when building heavy-duty or tall scaffolds. Center load is applied to the center four (4) inches of the bearer or ledger.

All material must be inspected prior to use! See inspection guidelines on page 99.

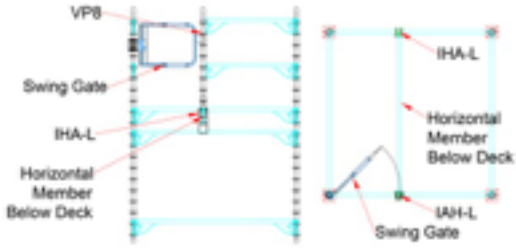
EXCEL LOCKING INTERMEDIATE HORIZONTAL ADAPTER WHEN USED FOR SWING GATE ACCESS



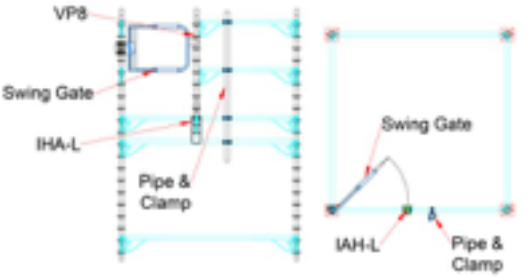
2" Handrail with Right-Angle Brace "Optional" for Additional Support



32-Inch to 7-Foot Handrail with Rapid Access Safety Gate Adapter "Optional" for Additional Support



Handrail with Double Locking Intermediate Horizontal Adapters Connected by Horizontal Connected Under Decking for Additional Support



32-Inch to 7-Foot Handrail with Tube and Clamp "Optional" for Additional Support

Part Number	Description Spacing for VP8 & IHA-L When Used with 36" Safety Gate	Vertical Post Spacing (inches)	Load at Top of VP8 lbs.	Recommended Additional Bracing Components
PB24	2' Bearer+3' SG2 = 5' Bay	24	200	RAB
PB36	3' Bearer+3' SG2 = 6' Bay	36	200	RAB or RAS-SGA
PB48	4' Bearer+3' SG2 = 7' Bay	48	200	RAS-SGA or Tube and clamp
PB60	5' Bearer+3' SG2 = 8' Bay	60	200	RAS-SGA or Tube and clamp
PB72	6' Bearer+3' SG2 = 9' Bay	72	200	RAS-SGA or Tube and clamp
PB84	7' Bearer+3' SG2 = 10' Bay	84	200	RAS-SGA or Tube and clamp

Note: Vertical leg may have significant play without the installation of one the recommended additional bracings listed above.

When using PB24s for guardrails, a right-angle brace should be used due to the configuration of the component.

All material must be inspected prior to use! See inspection guidelines on page 99.

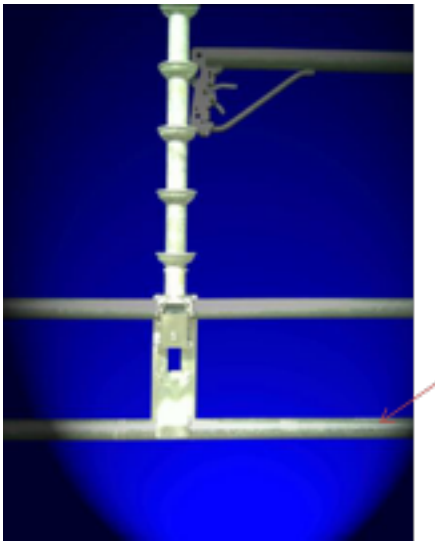
EXCEL LOCKING INTERMEDIATE

INTERMEDIATE HORIZONTAL ADAPTER AND HEAVY-DUTY INTERMEDIATE HORIZONTAL ADAPTER

The locking intermediate horizontal adapter is designed to replace both the intermediate horizontal adapter and the heavy-duty intermediate horizontal adapter.

It provides a stronger connection, safer assembly and more flexibility than either the intermediate horizontal adapter and the heavy-duty intermediate horizontal adapter.

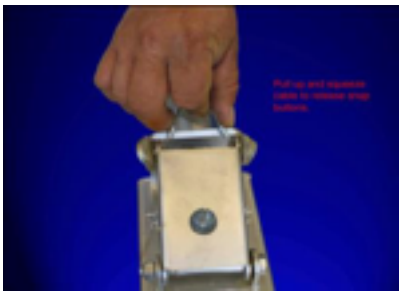
The locking intermediate horizontal adapter can be used in any application that an intermediate horizontal adapter and the heavy-duty intermediate horizontal adapter can be used.



The locking intermediate horizontal adapter does not require a second intermediate horizontal adapter or locking intermediate horizontal adapter on the opposite side of the scaffold. A lower horizontal can be installed to provide the needed support.

The locking intermediate horizontal adapter contains a locking button that prevents the it and the attached vertical from falling off the horizontal during assembly and disassembly.

To unlock the snap buttons, pull up and squeeze the cable. Then swing the locking plate outward.



EXCEL LOCKING INTERMEDIATE

INTERMEDIATE HORIZONTAL ADAPTER AND HEAVY-DUTY INTERMEDIATE HORIZONTAL ADAPTER

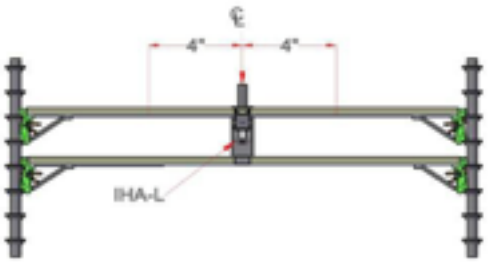
The locking intermediate horizontal adapter is designed to replace both the intermediate horizontal adapter and the heavy-duty intermediate horizontal adapter.

Intermediate Horizontal Adapter

Heavy-Duty Intermediate Horizontal Adapter

Locking Intermediate Horizontal Adapter

An intermediate horizontal adapter can be used to add a board deck or handrails in the middle of an existing horizontal or truss.



The maximum load that can be placed on the intermediate horizontal adapter is equal to the maximum center load of the horizontal or truss it is installed on, or the rated load of the intermediate horizontal adapter, whichever is less.

A ten- (10) cup leg or shorter may be used on top of an intermediate horizontal adapter, unless additional bracing is used.

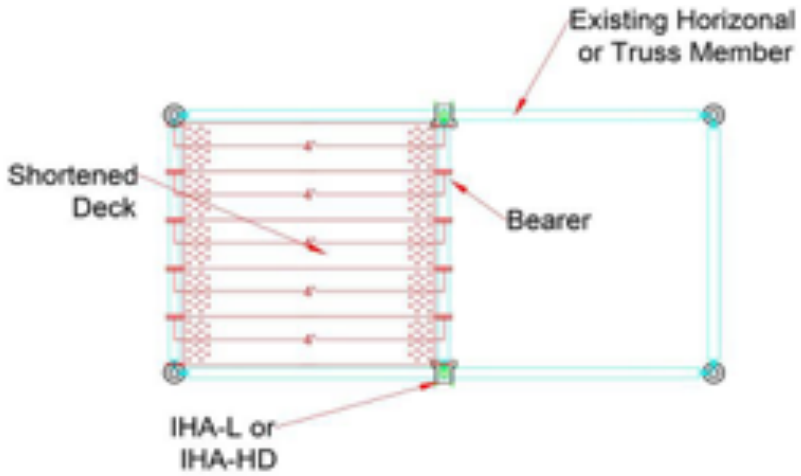
All material must be inspected prior to use! See inspection guidelines on page 99.

HEAVY-DUTY INTERMEDIATE HORIZONTAL ADAPTER

Heavy-duty intermediate horizontal adapters can be used with only two (2) horizontals connected on the vertical. Heavy-duty intermediate horizontal adapters are not compatible with normal Intermediate horizontal adapters.

Note: Heavy-duty intermediate adapters installed with only two (2) handrails must be used in sets.

When possible, intermediate horizontal adapters and heavy-duty intermediate horizontal adapters should be used in sets, adding a horizontal that is used to provide additional support. The bottom support and one (1) intermediate horizontal adapter can be replaced with other equivalent support (i.e.. a horizontal at the first cup of the vertical on top of the intermediate horizontal adapter or tube and clamp bracing). Locking intermediate horizontal adapters can be used alone with two (2) horizontal bars to provide the needed support or as a set connected by horizontal bar.



The intermediate horizontal adapter and heavy-duty intermediate horizontal adapter can be used to install a short board deck. The load carrying capacity of the board deck is limited by the maximum allowable center load for the existing horizontal. When possible, always deck to existing horizontals for greater load carrying ability.

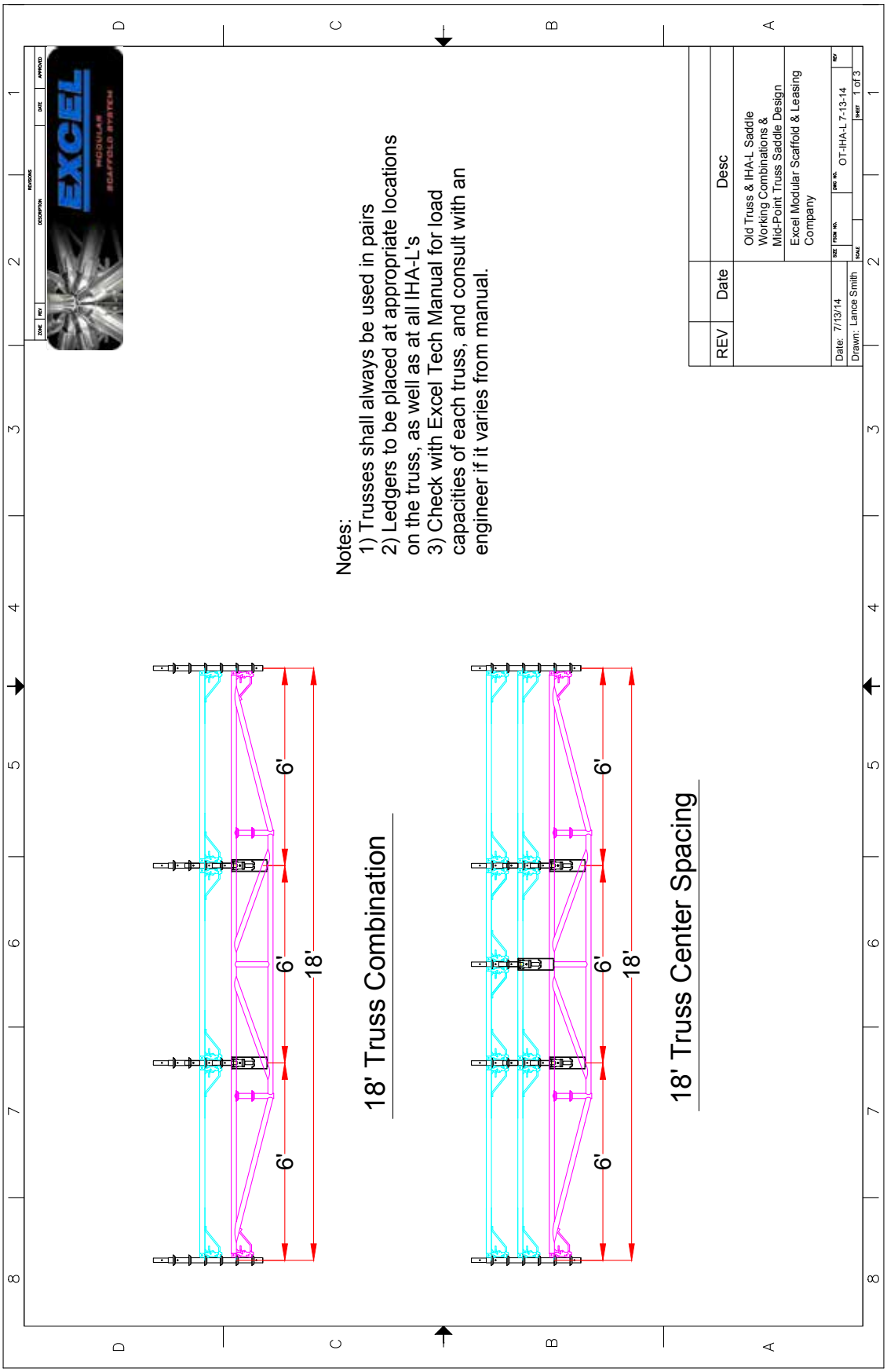
Part Number	Description	Weight (lbs.)	Maximum Vertical Load (lbs.)
IHA	Intermediate Horizontal Adapter	2	1,500
IHA-HD	Heavy-Duty Intermediate Horizontal Adapter	18	2,000
IHA-L	Locking Intermediate Horizontal Adapter	18	2,000

Note: When an intermediate horizontal adapter is supporting a board deck, the deck load must be limited to light-duty only.

Do not pass material to another employee with the intermediate horizontal adapter attached.

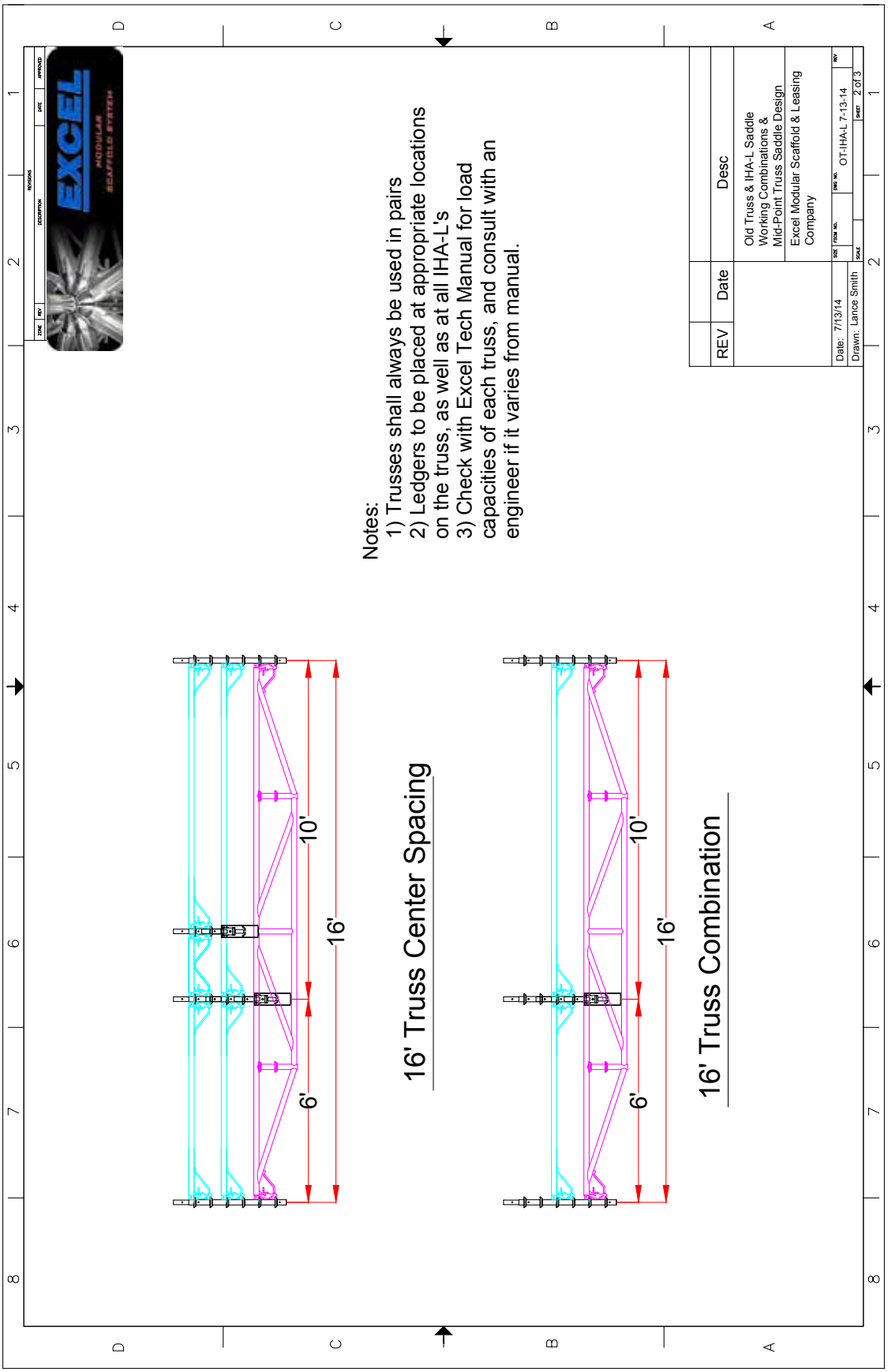
All material must be inspected prior to use! See inspection guidelines on page 99.

OLD 18' TRUSSES



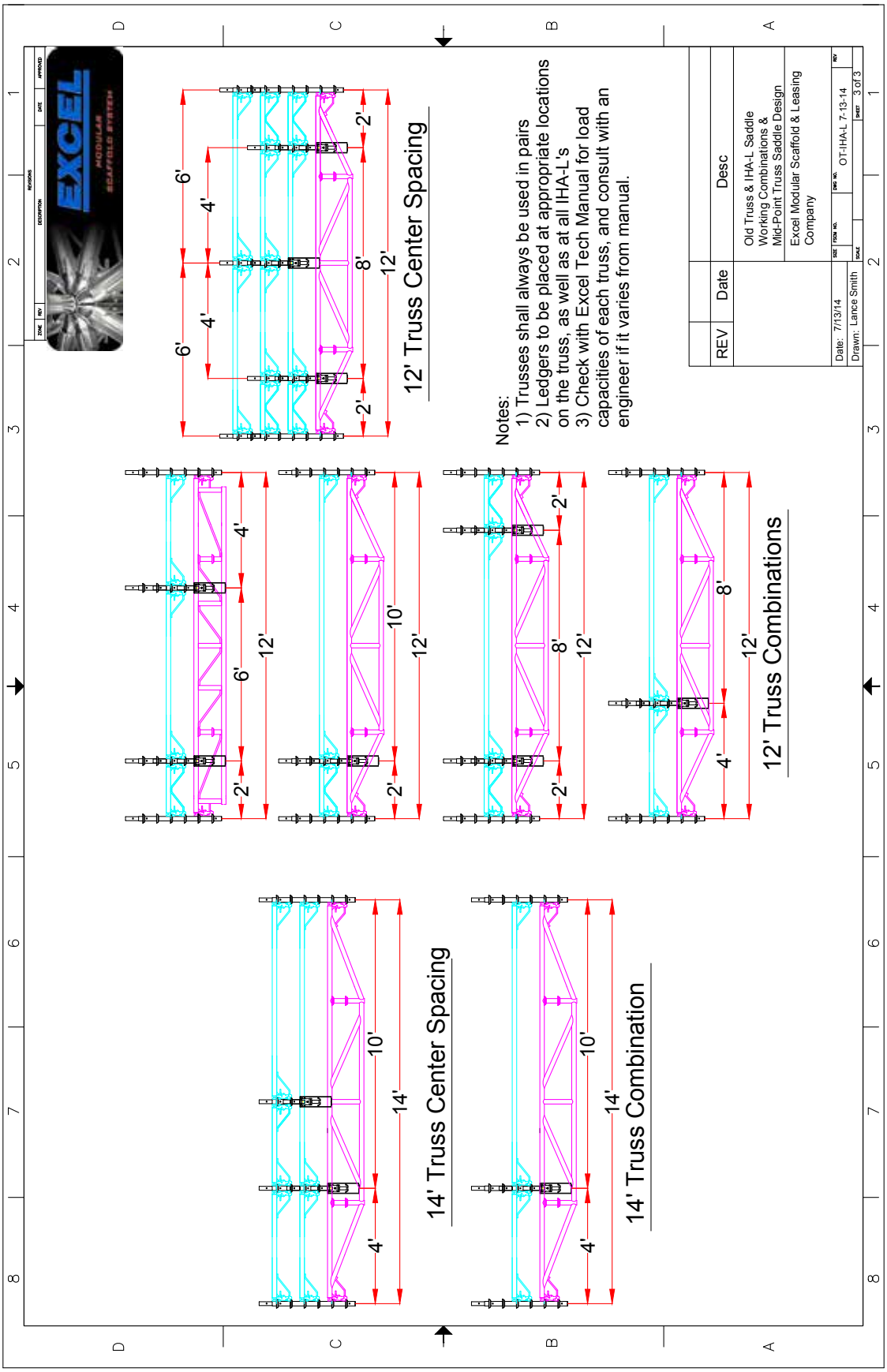
All material must be inspected prior to use! See inspection guidelines on page 99.

OLD 16' TRUSSES



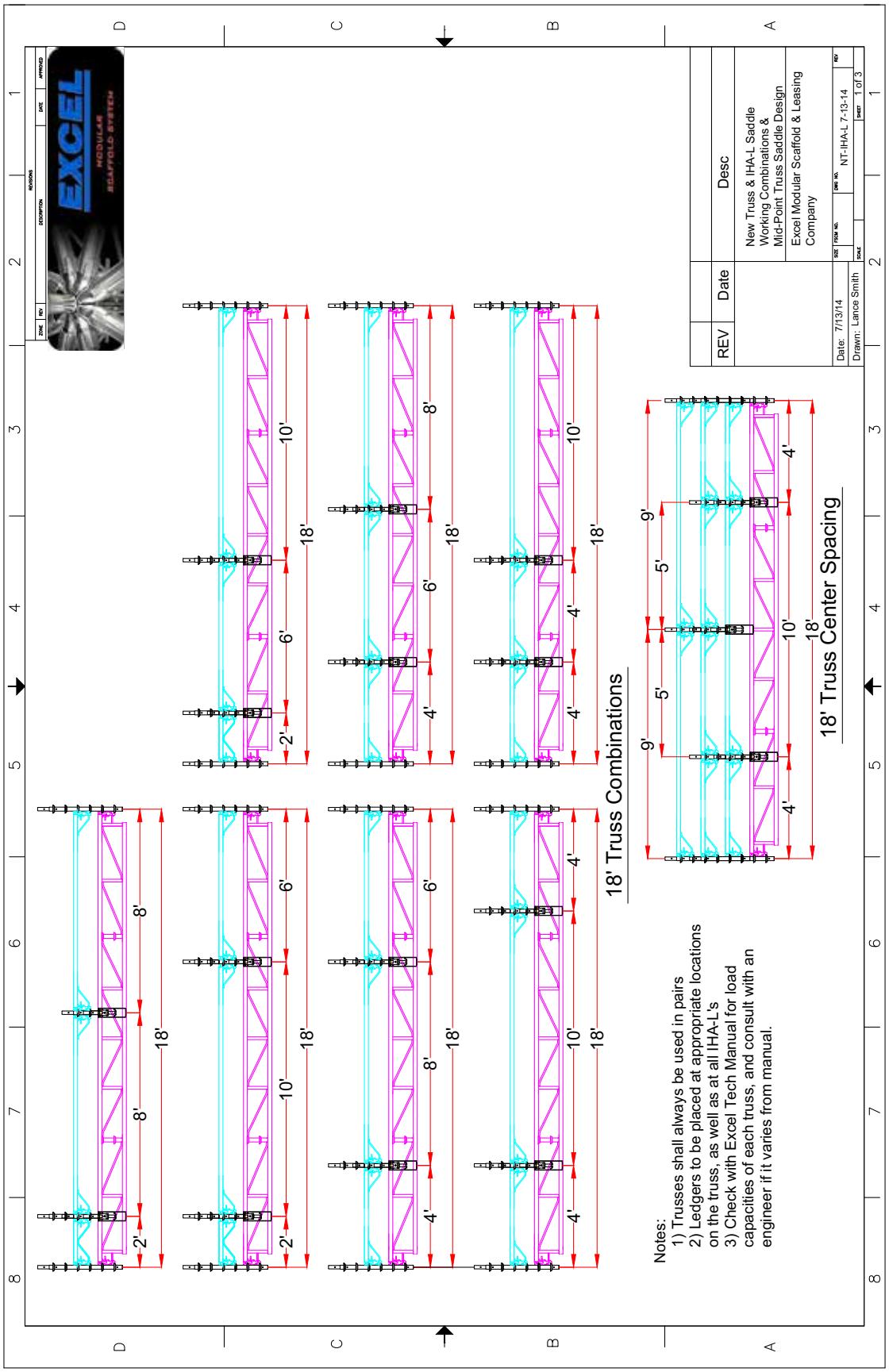
All material must be inspected prior to use! See inspection guidelines on page 99.

OLD 12' TRUSSES



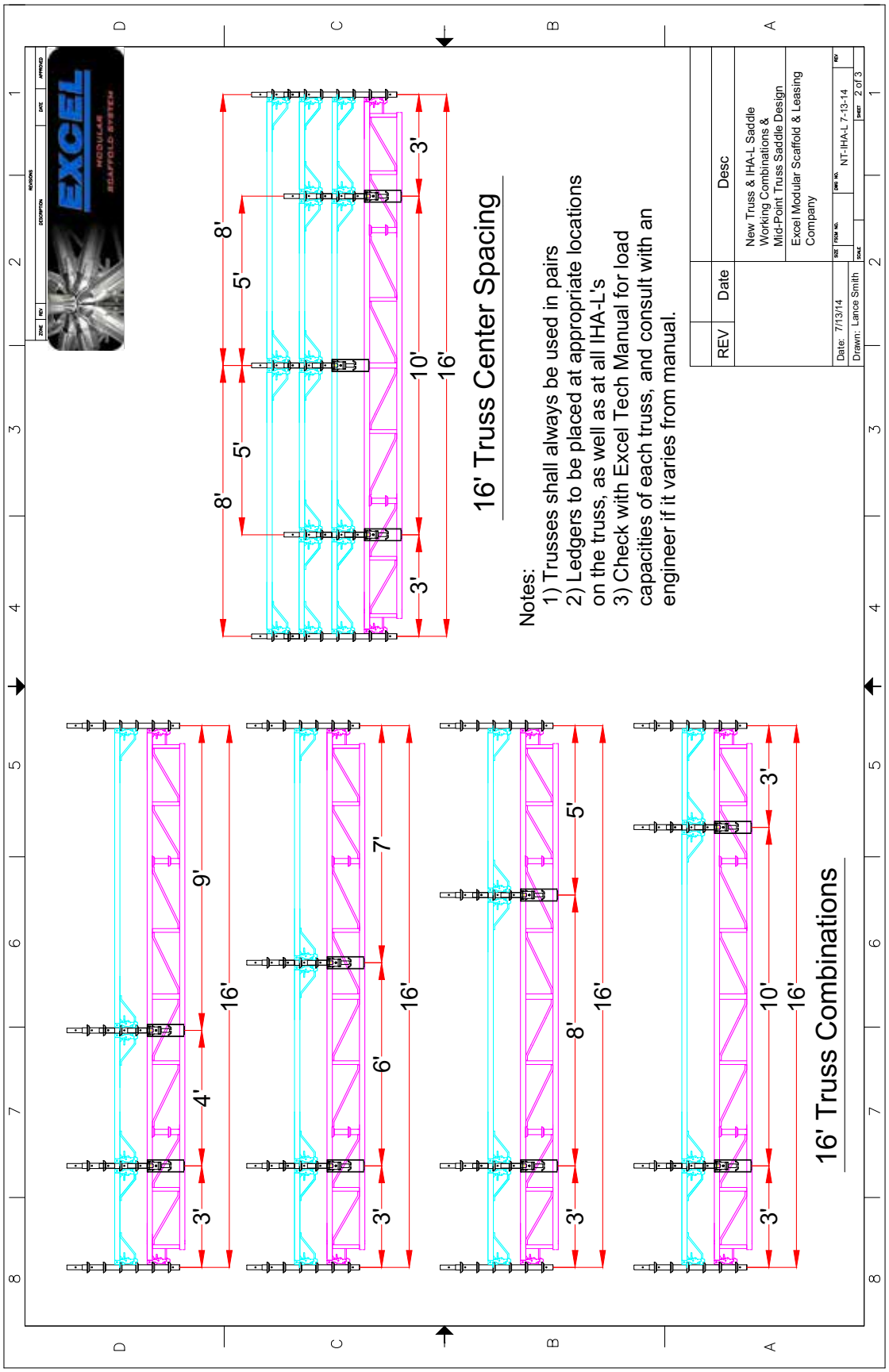
All material must be inspected prior to use! See inspection guidelines on page 99.

NEW 18' TRUSSES



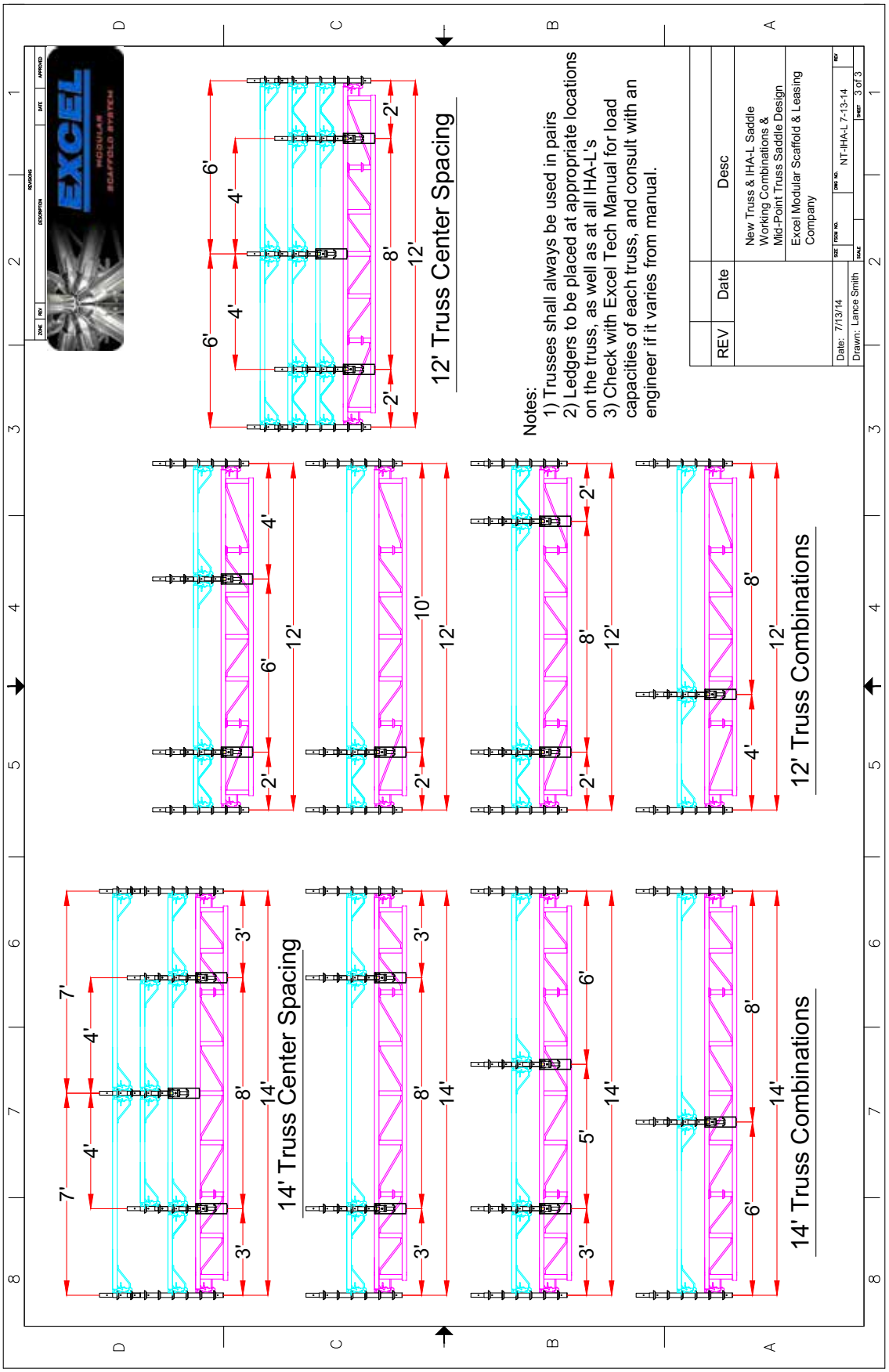
All material must be inspected prior to use! See inspection guidelines on page 99.

NEW 16' TRUSSES



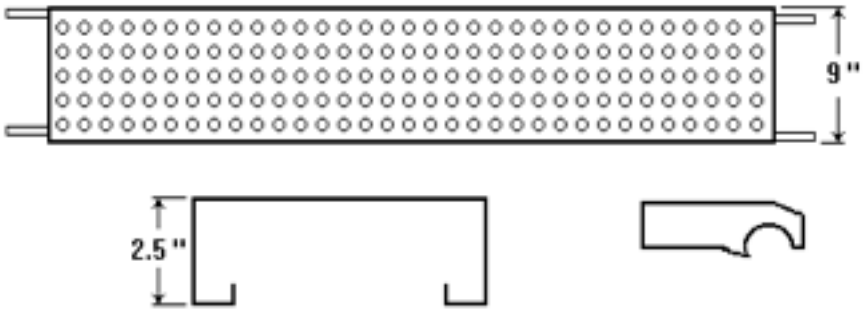
All material must be inspected prior to use! See inspection guidelines on page 99.

NEW 12' TRUSSES



All material must be inspected prior to use! See inspection guidelines on page 99.

EXCEL MODULAR METAL BOARDS

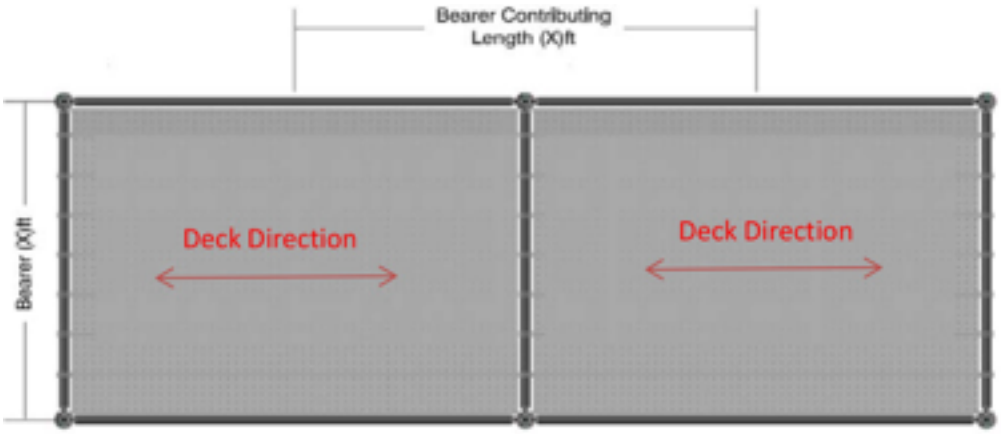


Part Number	Description	Width (inches)	Weight (lbs.)	Uniform Load (lbs./ft)	Center Load (lbs.)
SP24	2′ Plank	9	11.5	271	600
SP32	32″ Plank	9	13	271	600
SP36	3′ Plank	9	16	271	600
SP42	3.5′ Plank	9	18	232	546
SP48	4′ Plank	9	18.8	213	520
SP60	5′ Plank	9	23.5	185	480
SP72	6′ Plank	9	28.5	105	388
SP84	7′ Plank	9	30.5	100	322
SP96	8′ Plank	9	37.5	93	284
SP108	9′ Plank	9	41.5	69	250
SP120	10′ Plank	9	46.5	58	233
6SP24	6″ x 2′ Plank	6	10.5	271	600
6SP32	6″ x 32″ Plank	6	12	271	600
6SP36	6″ x 3′ Plank	6	12.9	271	600
6SP42	6″ x 3.5′ Plank	6	14.5	232	546
6SP48	6″ x 4′ Plank	6	16.1	213	520
6SP60	6″ x 5′ Plank	6	19.4	185	480
6SP72	6″ x 6′ Plank	6	22.6	105	388
6SP84	6″ x 7′ Plank	6	25.9	100	322
6SP96	6″ x 8′ Plank	6	27.7	93	284
6SP108	6″ x 9′ Plank	6	32.4	69	250
6SP120	6″ x 10′ Plank	6	35.6	58	233

Note: Where a possibility of uplift could occur, all boards should be securely attached to the scaffold with #9 wire, tie wraps, toe boards, filler plates or other equivalent means.

All material must be inspected prior to use! See inspection guidelines on page 99.

EXCEL MODULAR HORIZONTAL BAR
WITH LOCKING INTERMEDIATE HORIZONTAL ADAPTER CENTER BRACE



Continuous Run Scaffold

Standard board layout.

Bearer	Ledger Length											
		PB24	PB32	PB36	PB42	PB48	PB60	PB72	PB84	HL96	HL108	HL120
		24	32	36	42	48	60	72	84	96	108	120
PB60	60	250	188	167	143	125	100	83	71	63	56	50
PB72	72	177	133	118	101	88	71	59	50	44	39	35
PB84	84	117	88	78	67	59	47	39	33	29	26	23
HL96	96	80	60	53	46	40	32	27	23	20	18	16
HL108	108	61	46	41	35	31	24	20	17	15	14	12
HL120	120	50	38	33	29	25	20	17	14	13	11	10

Chart shows the allowable load per square foot when horizontal is braced as defined on page 38, horizontal bracing.

Chart shows the total allowable load per square foot (live load + dead load).

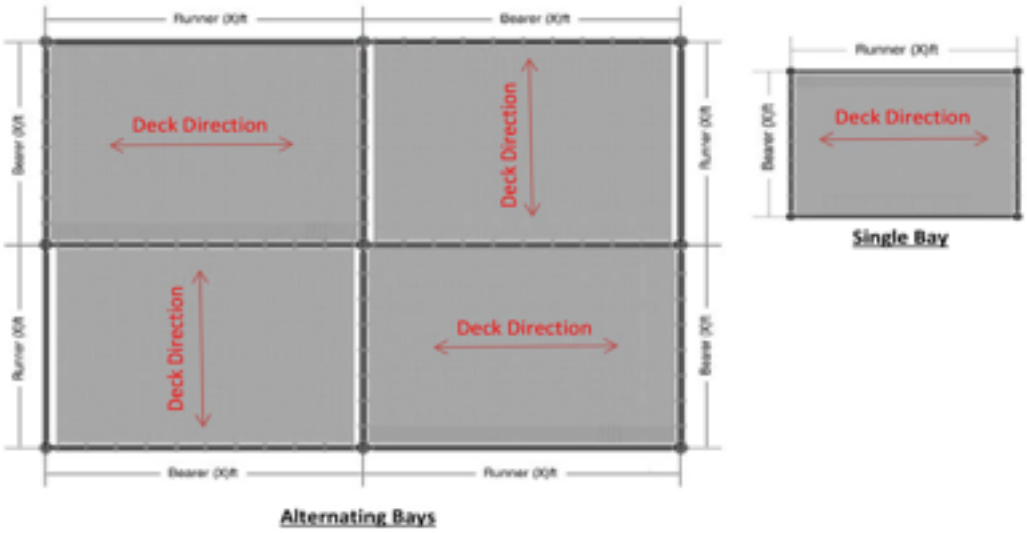
Note: All areas below 25 lbs./sq. ft. (in yellow) do not meet OSHA requirements for a light-duty scaffold.

OSHA 1926.451 (a) 6 in conjunction with non-mandatory Appendix A, define uniform loads for scaffold types. Deck planking or vertical members may be the limiting load carrying member.

All material must be inspected prior to use! See inspection guidelines on page 99.

EXCEL MODULAR HORIZONTAL BAR

WITH LOCKING INTERMEDIATE HORIZONTAL ADAPTER CENTER BRACE



Note: Bearer supports the boards and has the locking intermediate horizontal adapter installed at the center of the horizontal.

Single-bay scaffold or staggered board deck layout.

Bearer	Ledger Length											
		PB24	PB32	PB36	PB42	PB48	PB60	PB72	PB84	HL96	HL108	HL120
		24	32	36	42	48	60	72	84	96	108	120
PB60	60	250	188	167	143	125	100	83	71	63	56	50
PB72	72	177	133	118	101	88	71	59	50	44	39	35
PB84	84	117	88	78	67	59	47	39	33	29	26	23
HL96	96	80	60	53	46	40	32	27	23	20	18	16
HL108	108	61	46	41	35	31	24	20	17	15	14	12
HL120	120	50	38	33	29	25	20	17	14	13	11	10

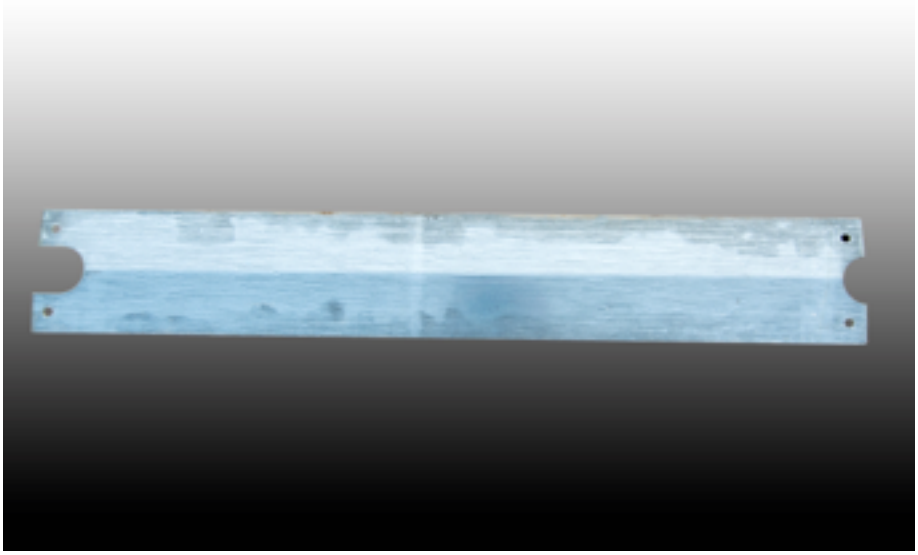
Chart shows the allowable load per square foot when horizontal is braced as defined on page 38, horizontal bracing.
Chart shows the total allowable load per square foot (live load + dead load).

Note: All areas below 25 lbs./sq. ft. (in yellow) do not meet OSHA requirements for a light-duty scaffold.

OSHA 1926.451 (a) 6 in conjunction with non-mandatory Appendix A, define uniform loads for scaffold types. Deck planking or vertical members may be the limiting load carrying member.

All material must be inspected prior to use! See inspection guidelines on page 99.

EXCEL MODULAR FILLER PLATES



Excel scaffold filler plates are designed to fit all types of scaffolding. They are designed to cover gaps between wood or metal boards.

Filler plates come in various lengths and contain holes that allow the filler plate to be tied or nailed in place.

When tying filler plates, a single strand of #9 wire at each end is required.

Filler plates are designed with one end slotted more than the other to allow the filler plate to be installed without bending.

Part Number	Description	Weight (lbs.)
FP24	Filler Plate 24"	3.1
FP32	Filler Plate 32"	4.2
FP36	Filler Plate 36"	4.7
FP42	Filler Plate 42"	5.5
FP48	Filler Plate 48"	6.3
FP60	Filler Plate 60"	7.8
FP72	Filler Plate 72"	9.4
FP84	Filler Plate 84"	10.9
FP96	Filler Plate 96"	12.5
FP108	Filler Plate 108"	14.1
FP120	Filler Plate 120"	15.6

Note: All filler plates are made from 10-gauge galvanized steel.

All material must be inspected prior to use! See inspection guidelines on page 99.

INTERMEDIATE HORIZONTAL ADAPTER WITH CLAMP

The intermediate horizontal adapter w/clamp can be used like a regular intermediate horizontal adapter. The loading and installation requirements are the same as the intermediate horizontal adapter.

When possible, the intermediate horizontal adapter w/ clamp should be used in sets, adding the tube that is used to provide additional support. The bottom support and one intermediate horizontal adapter w/ clamp can be replaced with other equivalent support.

The maximum load that can be placed on the intermediate horizontal adapter w/clamp is equal to the maximum center load of the horizontal or truss it is installed on, or the rated load of the intermediate horizontal adapter w/clamp, whichever is less. Only a ten- (10) cup leg or shorter may be used on top of a horizontal adapter unless additional bracing is used.

To install the intermediate horizontal adapter w/clamp, attach both connectors to the horizontal and then slide a piece of tube under the deck through the clamps as shown.

The clamp bolts should be tightened to between 40 and 65 lbs. tension. Overtightening could damage the threads, bolt or item the clamp is attached to.

Part Number	Description	Weight (lbs.)	Maximum Vertical Load (lbs.)
IHA-C	Intermediate Horizontal Adapter w/Clamp	3.5	1,500

Note: When an intermediate horizontal adapter w/clamp is supporting a board deck, the deck load must be limited to light-duty only.

Do not pass material to another employee with the intermediate horizontal adapter w/clamp attached.

Horizontal supports must be installed as defined for Intermediate horizontal adapters.

Intermediate horizontal adapters and intermediate horizontal adapter w/clamp should never be used to support rigging.

All material must be inspected prior to use! See inspection guidelines on page 99.

EXCEL MODULAR CASTER AND CASTER ADAPTER

Part Number	Description	Wheel Type	Weight (lbs.)	Allowable Rolling Load (lbs.)
CR8	8" Caster with pin	Plastic	17	900
CRF8	8" Caster flat base	Plastic	17.5	900
CR12	12" Caster	Plastic	23	1,300

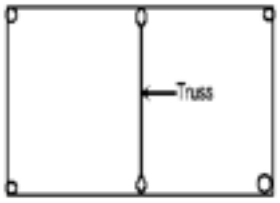
Note: Casters must be locked while working on the scaffold.

Casters should be periodically maintained. If they have grease fittings, they should be filled with a white lithium grease (ST-80 High-Performance Grease or its equivalent).

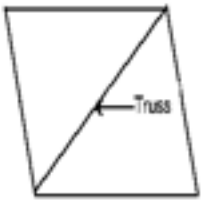
WD-40 can be used before application of grease or oil to loosen old grease and remove any rust buildup. The caster bearings must be inspected for any wear or damage. Replace any casters that show signs of wear or damage.

Check the weight of the scaffold and intended load when using casters! To maintain a 4:1 safety factor, a scaffold fifteen (15) feet high with two (2) board decks is the largest scaffold that should be built with 8-inch casters. A scaffold 21 feet high with three (3) board decks is the largest scaffold that should be built with 12-inch casters.

EXCEL MODULAR TRUSS USED AS A LIFTING RIG

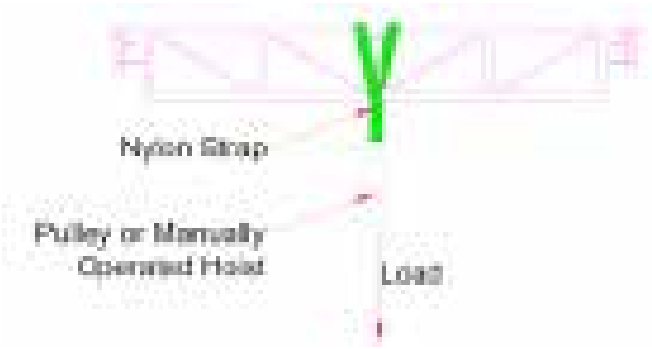


A



B

C



Note: Wire cable cannot be used for strapping. A strap must be a minimum of four (4) inches wide.

Part Number	Description	Maximum Allowable Load (lbs.)	
		Design A and B	Design C
TR4	4' Truss	3,000	6,000
TR5	5' Truss	3,000	6,000
TR6	6' Truss	2,750	5,500
TR7	7' Truss	3,000	6,000
TR8	8' Truss	3,500	7,000
TR9	9' Truss	3,500	7,000
TR10	10' Truss	3,500	7,000
TR12	12' Truss	3,500	7,000
TR14	14' Truss	3,000	6,000
TR16	16' Truss	2,000	4,000
TR18	18' Truss	2,000	4,000

Note: For design A and B, the nylon strap must be placed to prevent sideways twisting of truss.
For design C:

1. The I-beam must be a minimum of four (4) inches at the base.
2. The listed loads are for the load attached to the center of the I-beam.
3. The I-beam may be the limiting load carrying member.

All loads are calculated using Excel verticals to support the trusses. When using different configurations, the item the truss is attached to may be the load limiting component.

Trusses should not be used as lifting rigs when connected to side brackets, verticals supported by side brackets, intermediate horizontal adapters or verticals supported by intermediate horizontal adapters.

All material must be inspected prior to use! See inspection guidelines on page 99.

ADDITIONAL GUIDELINES FOR LIFTING RIGS

The reason it is required to have a minimum of a four- (4) inch wide strap is to prevent a small load area from bending the tube material on the truss. When a four- (4) inch strap is not available, the following can be used provided the new loading requirements are met:

1. The four- (4) inch wide value is defined for the maximum load applied to a truss.

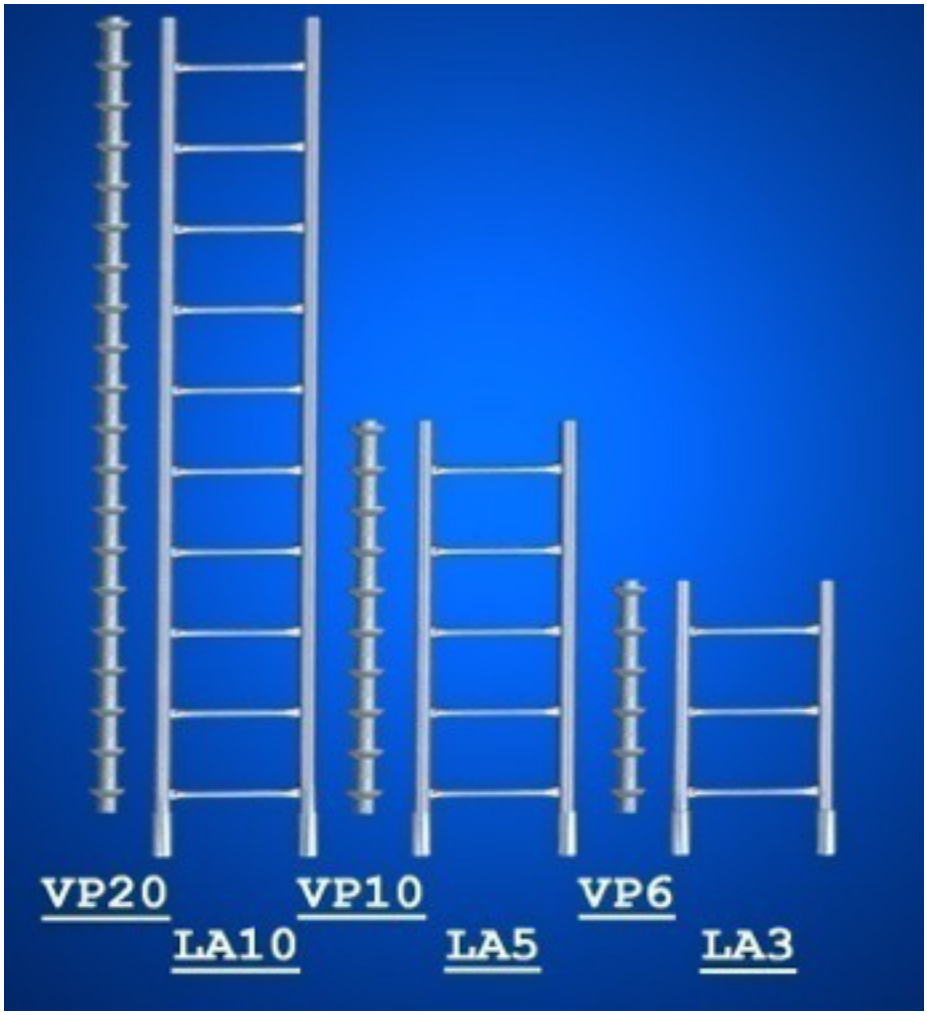
2. Two 2-inch straps placed side by side can be used instead of a single four- (4) inch strap.
   - 2,000 lbs. for sixteen- (16) and eighteen- (18) foot truss
   - 2,750 lbs. for six- (6) foot truss
   - 3,000 lbs. for five- (5), seven- (7) and fourteen- (14) foot truss
   - 3,500 lbs. for eight- (8)through twelve- (12) ft truss

3. A single two- (2) inch strap can be used if the load is reduced to:
   - 800 lbs. for sixteen- (16) and eighteen- (18) foot truss
   - 1,100 lbs. for six- (6) foot truss
   - 1,200 lbs. for five- (5), seven- (7) and fourteen- (14) foot truss
   - 1,400 lbs. for eight- (8)through twelve- (12) ft truss
   -

4. A three- (3) inch strap or two (2) 1.5-inch straps side by side can be used if the load is reduced to:
   - 1,000 lbs. for sixteen- (16) and eighteen- (18) foot truss
   - 1,375 lbs. for six- (6) foot truss
   - 1,500 lbs. for five- (5), seven- (7) and fourteen- (14) foot truss
   - 1,750 lbs. for eight- (8) through twelve- (12) ft truss

   Shown below is an acceptable method of securing a beam to the top of the truss when using design C. Other methods are possible as long as the beam is secured from sliding off the truss.

EXCEL MODULAR LADDER

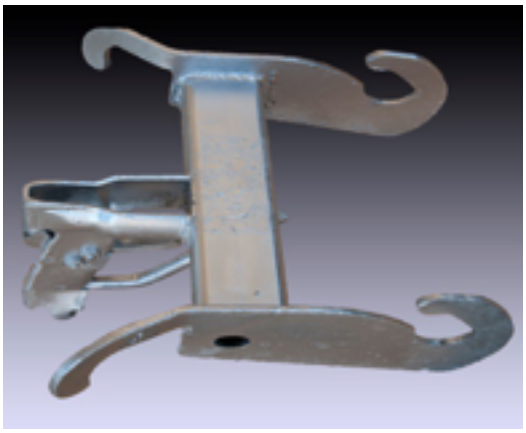


Part Number	Description	Overall Length (inches)	Max. Total Vertical Load on Ladder (lbs.)	Max. Load on One (1) Ladder Rung (lbs.)	Weight (lbs.) (Galvanized (lbs.)
LA10	10' Ladder	118	1,000	500	42
LA9	9' Ladder	106.5	1,000	500	36
LA8	8' Ladder	95	1,000	500	34
LA7	7' Ladder	83.5	1,000	500	32.1
LA5	5' Ladder	60.5	1,500	500	22.2
LA4	4' Ladder	49	1,500	500	18.3
LA3	3' Ladder	37.5	2,000	500	14.3
LA2	2' Ladder	26	2,000	500	8
LA1	1' Ladder	14.5	2,000	500	4.1

Note: Ladders are not designed to support loads, such as walkways, pipe supports, pipe hangers, lifting rigs, etc. Ladders should only be used for access to scaffolds. The ladder brackets may limit the load carrying ability of the ladder.

All material must be inspected prior to use! See inspection guidelines on page 99.

EXCEL MODULAR LADDER BRACKET



T-Bracket

The ladder must be installed in a corner, or at least one (1) T-bracket restraint for each ten (10) feet of ladder must be installed over a horizontal bar or equivalent means (i.e.. wire or clamps) to prevent the ladder from rotating around the vertical.

Clamp-Bracket

Clamp brackets may be installed on the horizontal bars or vertical posts.

Part Number	Description	Overall Width (inches)	Max Total Vertical Load on Bracket (lbs.)	Weight (lbs.)
LB2	T-Bracket	12	600	12.3
LB3	Clamp-Bracket	12	600	12.3

Note: Use more brackets when necessary to carry greater loads. The ladder may be the load limiting member. Clamp brackets and T-brackets may be used together on the same scaffold.

Clamp bolts should have between 40 and 65 lbs. tension. Overtightening could damage the threads, bolt or item the clamp is attached to.

<<<CAUTION: There is a pinch point when closing the trigger.>>>
Do not pass ladders to another employee with the ladder bracket installed.

All material must be inspected prior to use! See inspection guidelines on page 99.

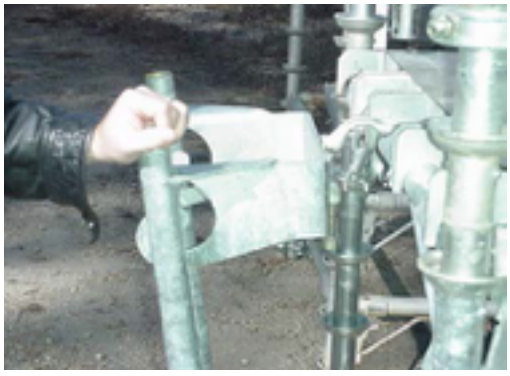
EXCEL MODULAR LADDER INSTALLATION

Step 1

Step 2

Step 3

Step 4

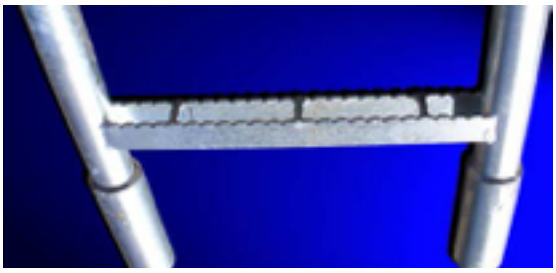


Step 5

Step 6

EXCEL MODULAR SNOW LADDER

Rugged, extra-grip rungs help prevent slips.



Snow ladders are not compatible with regular ladder brackets and must use the clamp and pin style snow ladder bracket. The base of snow ladders must be placed on grade or the deck.

Snow ladders provide a greater non-slip tread for use in snow, ice or other slippery conditions.

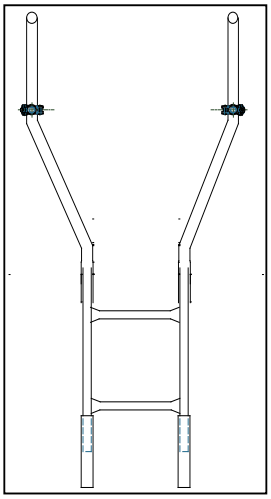
Part Number	Description	Overall Length (inches)	Max. Total Vertical Load on Ladder (inches)	Max. Load on One (1) Ladder Rung (lbs.)	Weight Galvanized (lbs.)
SLA5	5' Snow Ladder	60.5	1,500	500	19.5
SLA3	3' Snow Ladder	37.5	2,000	500	10
SLB1	Snow Ladder Bracket				3

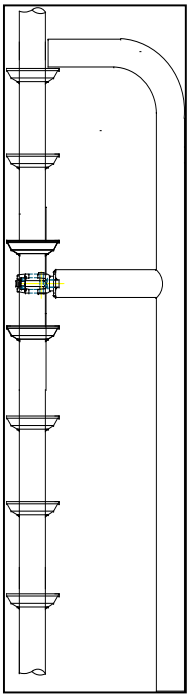
Note: Snow ladders are not designed to support loads, such as walkways, pipe supports, pipe hangers, lifting rigs, etc. Ladders should only be used for access to scaffolds.

All material must be inspected prior to use! See inspection guidelines on page 99.

EXCEL MODULAR SAFETY GATE HANDRAIL

Safety gate handrails are designed to provide the safest possible entry and exit from a scaffold platform. When used in combination with the Excel safety gate, they eliminate the need for workers to climb over or through the handrails to access the work platform.





Never attach a gate to the handrail.

Safety gate handrails are placed on top of the ladder. They lock over the top of the ladder providing safe handrail support all the way onto the scaffold platform.

Safety gate handrails can be installed on any 36-inch scaffold opening. They are designed to be used with the safety gate.

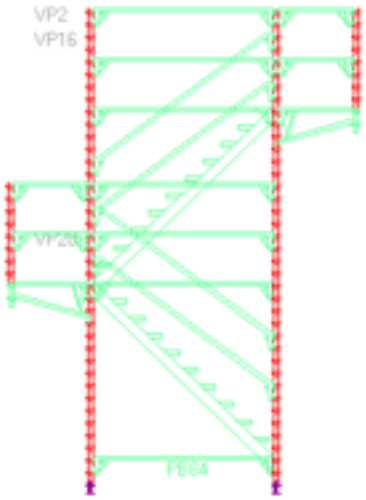
Part Number	Description	Weight (lbs.)
SGHR-L	Safety Gate Handrail with Clamps (Left)	14
SGHR-R	Safety Gate Handrail with Clamps (Right)	14

Note: The top of the ladder rail must stop at the same level as the board deck to prevent trip hazards.

Clamp bolts should have between 40 and 65 lbs. tension. Overtightening could damage the bolt, threads or item the clamp is attached to.

All material must be inspected prior to use! See inspection guidelines on page 99.

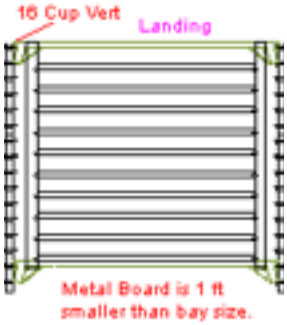
EXCEL MODULAR STAIR SYSTEM



Excel stair systems are designed to provide safe access for scaffolds. Stairs can be designed using side brackets or multi-bay scaffolds.

Excel metal boards are used as the stair treads. Stairs are designed to be any width from two (2) to nine (9) feet. All boards are self-locking, no wiring is required.

WARNING: Metal boards with bent ears shall not be used as stair treads. Ensure proper fit for all stair treads. All stair treads must be installed before the stair unit is used.



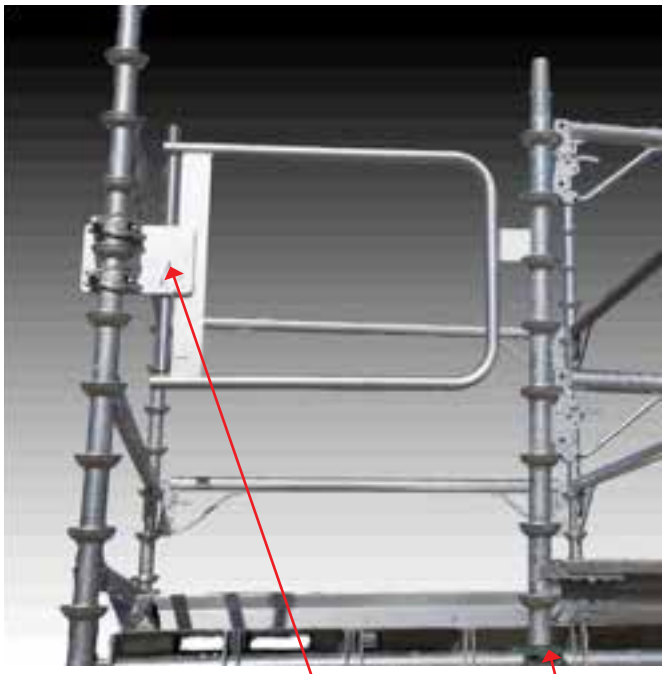
WARNING: Improper use of stairs could cause serious injury. Always use handrails and step in the center of the treads. Always walk down the stair tower, do not run, do not skip any steps. Non-slip adhesive tape may be applied to the edge of the metal boards for additional safety. Users should try to maintain 3-point contact with the stair.

Part Number	Description	Weight Galvanized (lbs.)
SS2	Universal Stair Stringer	68
HSS2	42" Universal Stair Stringer	43
SSB	Universal Stair Stringer Base	19
SSB-3	Universal Stair Stringer Base 3-Step	26
SSB-4	Universal Stair Stringer Base 4-Step	34
SSB-5	Universal Stair Stringer Base 5-Step	42
SSB-6	Universal Stair Stringer Base 6-Step	50
SSB-7	Universal Stair Stringer Base 7-Step	58
SSB-8	Universal Stair Stringer Base 8-Step	66
SSB-9	Universal Stair Stringer Base 9-Step	74
SSB-10	Universal Stair Stringer Base 10-Step	82
DSB or DEB	Handrails (Pin Removed or Snap Button Unlocked)	24.8

Note: Stair sizes six (6) to nine (9) feet are rated for light duty, 25 lbs/sq. ft. All smaller sizes two (2) to five (5) feet are rated for medium duty, 50 lb/sq ft. Excel half-clamp braces or end braces should be used with the pin removed or buttons compressed for stair handrails. When using the stair stringers, ensure locking lugs are properly pinned. Do not handle the stringers using the locking lugs.

All material must be inspected prior to use! See inspection guidelines on page 99.

EXCEL MODULAR SAFETY GATE



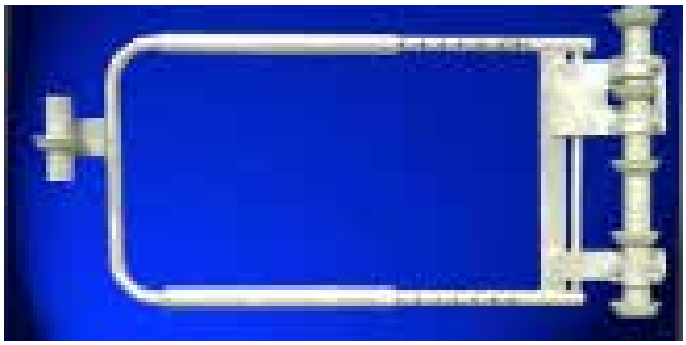
Safety Gate

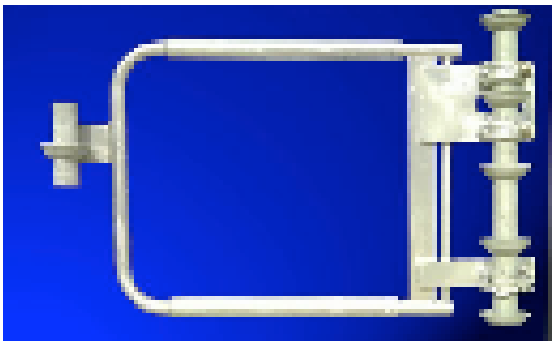
Locking Intermediate Horizontal Adapter or Heavy-Duty Intermediate Horizontal Adapter

Side Bracket of Cantilevered Deck

Note: Safety gates shall not be attached to a vertical attached to a locking intermediate horizontal adapter, heavy-duty intermediate horizontal adapter or a vertical on a non-continuous leg of a cantilevered deck.

EXCEL MODULAR ADJUSTABLE SAFETY GATES





Adjustable safety gates may be flipped to allow the gate to swing in either direction.

For greater versatility, adjustable safety gates are equipped with clamps and are designed to fit all types of scaffolding. To properly install the gate, first place the gate on the vertical and lightly secure the clamps. Then rotate the gate around the vertical toward the outside of the scaffold until the spring has enough tension that the gate remains closed. Finally, tighten the clamps to hold the gate in place. When properly placed, the strike plate should touch 50% or more of the vertical post. During periodic scaffold inspections the gate may require that the clamps be loosened and the gate rotated to re-tighten the spring.

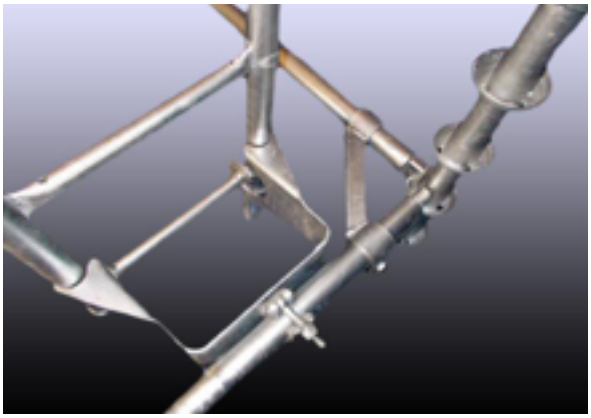
Part Number	Description	Opening (inches)	Opening (inches)	Weight (lbs.)
ASGS	Adjustable Safety Gate Small	28	36	23.5
ASGL	Adjustable Safety Gate Large	34	46	27
SG2	Safety Gate Fixed		36	21

Note: Gates should be periodically maintained. If they have grease certs, they should be filled with a white lithium grease (ST-80 High-Performance Grease or its equivalent). Gates without grease certs should be lubed with a 10-weight oil or dry graphite.

WD-40 can be used before application of grease or oil to loosen old grease and remove any rust buildup. The gate must be cycled (swung in both directions) as many times as necessary to allow the oil/grease to work in and allow the gate to swing freely.

Clamp bolts should have between 40 and 65 lbs. tension. Overtightening could damage the threads bolt or item the clamp is attached to.

EXCEL MODULAR RIGHT-ANGLE BRACE

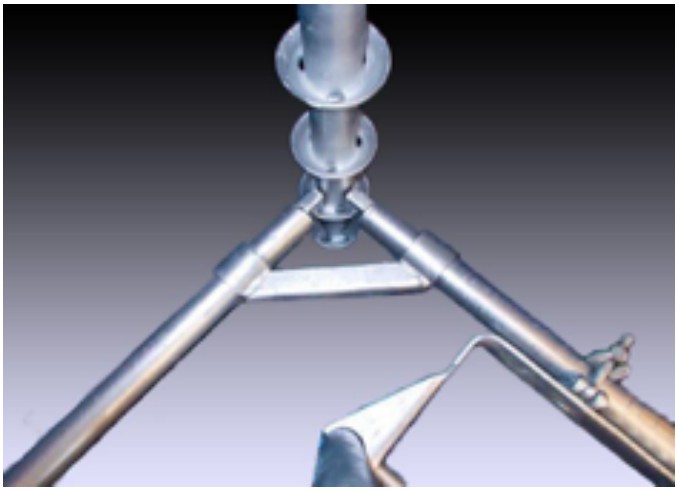


Braces must have bolts.

Right-angle braces can be used to support a stand-off (90 degree) ladder access.

A right-angle brace is used to ensure the scaffold stays square or to provide additional corner support for the end connectors.

Right-angle braces can be used for ladder additions or bracing on scaffolds with casters.

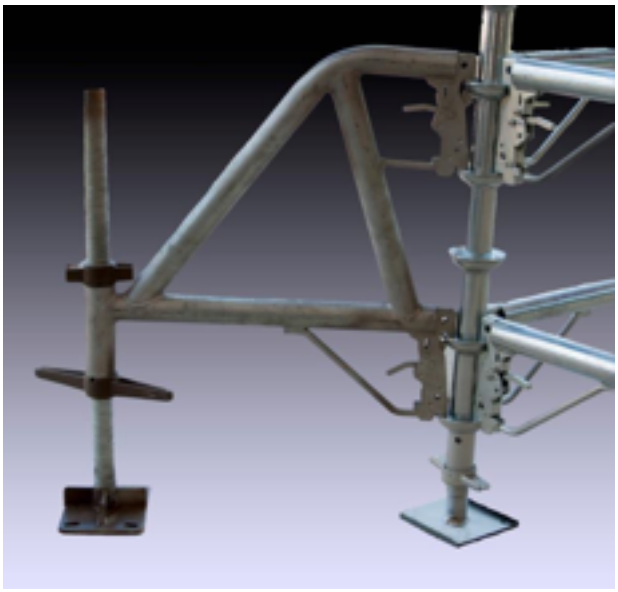


Part Number	Description	Weight (lbs.)
RAB	Right-Angle Brace	3.5

Note: Right-angle braces can be used to replace tube and clamp when installed to prevent the end connector from rotating around the cup.

All material must be inspected prior to use! See inspection guidelines on page 99.

EXCEL MODULAR SAFETY OUTRIGGER



Safety outriggers are designed to be used with scaffolds on casters or jacks that require a larger base dimension to height ratio.

While working on the scaffold, the jack in the safety outrigger should be fully down.

When moving a rolling tower, the jack on the safety outrigger should be raised until it is 1/4 inch to 1/2 inch from the floor or ground surface.

Part Number	Description	Weight (lbs.)	Maximum Allowable Load (lbs.)
OR1	Safety Outrigger	14	1,600

Note: Safety outriggers can never be used as the supporting member of a scaffold.

<<<CAUTION: There is a pinch point when closing the trigger.>>>

All material must be inspected prior to use! See inspection guidelines on page 99.

EXCEL MODULAR ROPE HOIST

At least one (1) horizontal member must be attached to the vertical to provide lateral support for the rope hoist.

The scaffold must have a complete horizontal scaffold wrap at or above the rope hoist connection.

Excel Modular rope hoists are designed to aid in scaffold construction and to provide an easy way to get tools up a ladder to the board deck.

The pulley system swivels, so that the load can be swiveled through an open Excel safety gate or above the top handrail.

Part Number	Description	Weight (lbs.)	Maximum Allowable Load (lbs.)
RPH1	Rope Hoist	35	250
Pulley	Hoist Pulley	8	250

Note: The rope pulley hoist cannot be used with chain falls, or electric or air winches. The pulley supplied by Excel requires 7/8 inch rope. Other types of wheel pulleys can be used as long as the pulley is designed to support the required loads. The diameter of the rope to be used with other pulleys will depend on the pulley's size. The attached vertical should be able to support the required loads. This pulley assembly shall not be installed on any vertical attached to an intermediate horizontal adapter, side bracket or vertical that is not properly braced.

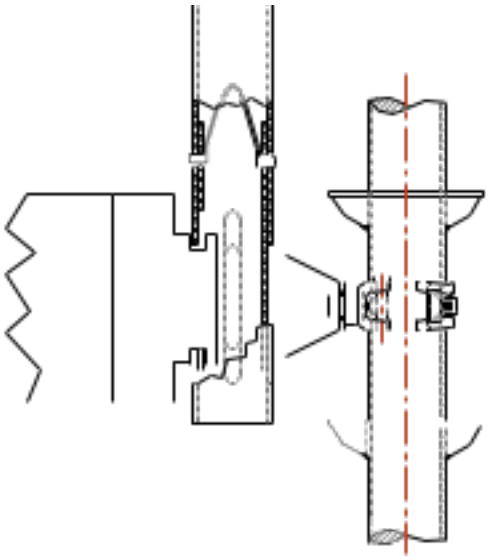
All rope must be inspected before use on each shift.

The rope pulley hoist should be periodically maintained. They should be filled with a white lithium grease (ST-80 High-Performance Grease or its equivalent). WD-40 can be used before application of grease or oil to loosen old grease and remove any rust buildup.

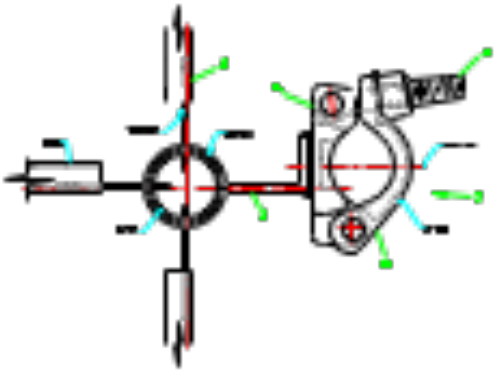
Use caution when handling, passing and installing the rope hoist. It will rotate and could spin over/flip during handling, causing serious injury to the installer. Be sure the pulley is removed or securely attached before handling or passing the rope hoist to another person.

Clamp bolts should have between 40 and 65 lbs. tension. Overtightening could damage the bolt, threads or item the clamp is attached to.

EXCEL MODULAR TOE BOARDS



The Excel scaffold toe board assembly is designed to fit all types of scaffold material. It provides each scaffold with a five- (5) inch telescoping metal toe board that locks down the scaffold boards, eliminating the need to wire boards to the horizontals.



Each toe board connector can accept one (1) to three (3) toe boards from any of three (3) directions, straight or at an angle. This allows the toe boards to be connected on almost any scaffold configuration.

The Excel toe boards are adjustable and are available in four (4) different sizes, which will accommodate any scaffold configuration possible.

All material must be inspected prior to use! See inspection guidelines on page 99.

EXCEL MODULAR TOE BOARDS

Part Number	Description	Weight (lbs.)
TBC	Toe Board Connector	6.5

Part Number	Description	Weight (lbs.)	Scaffold Sizes (inches)	
			Min,	Max,
TB14	16"–30" Adjustable Toe Board	5.1	16	30
TB24	2' – 3' Adjustable Toe Board	1	24	36
TB42	42" – 6' Adjustable Toe Board	1	42	72
TB72	7' – 10' Adjustable Toe Board	1	74	120

Note: All boards are made from 18-gauge galvanized steel.
Care must be observed while passing the adjustable portion of the toe board as the two pieces may come lose.

WARNING: Failure to ensure parts are in proper working condition could result in them coming apart causing serious injury.

Clamp bolts should have between 40 and 65 lbs. tension. Overtightening could damage the threads, bolt or item the clamp is attached to.

All material must be inspected prior to use! See inspection guidelines on page 99.

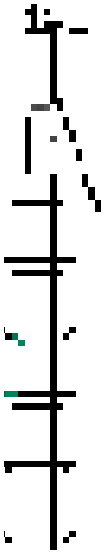
EXCEL MODULAR ALUMINUM TOE BOARDS

The aluminum toe board, with locking clips, is designed to fit all types of scaffold material. the toe board locks the scaffold boards down—eliminating the need to wire boards to the horizontals. installation times are greatly reduced with this equipment.

Part Number	Description	Width (in.)	Weight (lbs.)
ATB-24	2' Aluminum Toe Board	24	6
ATB-32	32" Aluminum Toe Board	32	7.5
ATB-36	3' Aluminum Toe Board	36	8
ATB-42	42" Aluminum Toe Board	42	9
ATB-48	4' Aluminum Toe Board	48	10
ATB-60	5' Aluminum Toe Board	60	12
ATB-72	6' Aluminum Toe Board	72	13.5
ATB-84	7' Aluminum Toe Board	84	15.5
ATB-96	8' Aluminum Toe Board	96	17.5
ATB-108	9' Aluminum Toe Board	108	19.5
ATB-120	10' Aluminum Toe Board	120	21

All material must be inspected prior to use! See inspection guidelines on page 99.

EXCEL MODULAR USED WITH TUBE AND CLAMP



The vertical tube adapter pin is designed to provide a safe, strong method to transition from Excel scaffold to tube and clamp.

Excel scaffold material is designed to be 100% compatible with most types of tube and clamp.

Part Number	Description	Weight (lbs.)
TCA	Tube and Clamp Adapter	3.5
TU-20	20' Tube	30
TU-16	16' Tube	27
TU-13	13' Tube	22
TU-10	10' Tube	21
TU-8	8' Tube	18
TU-6	6' Tube	14
TU-4	4' Tube	11
SWC	Swivel Clamp	3
RAC	Right-Angle Clamp	4
SBC	Swivel Beam Clamp	4
RBC	Rigid Beam Clamp	4
MBP-1	Male Base Plate	5

Note: When tube and clamp scaffolding is used to continue a vertical above the Excel Modular Scaffold system, the load ratings and restrictions of the tube and clamp manufacturer must be used. Swivel beam clamps and rigid beam clamps should be used only for scaffold bracing or as shown below. To support a scaffold structure use tube and clamp or heavy-duty support beam clamps designed for such use.

When the top of the beam cannot be reached because of an obstruction, tube and clamp cut to length, or tubing designed to fit between two (2) beams can be used for support.

All material must be inspected prior to use! See inspection guidelines on page 99.

EXCEL MODULAR USED WITH TUBE AND CLAMP

Beam clamps are attached to top of the I-beam where the load is not on the clamp bolt.

Secure the beam from all sides using tube and clamp as shown.

Use backup clamps to prevent slippage of the tubing.

CAUTION:
When installing a swivel and rigid beam clamps to the bottom flange, please consult pages 72 -75 of this manual for typical configurations and capacities, as well as proper installation of beam clamps.

For other configurations contact the Excel Engineering Department.

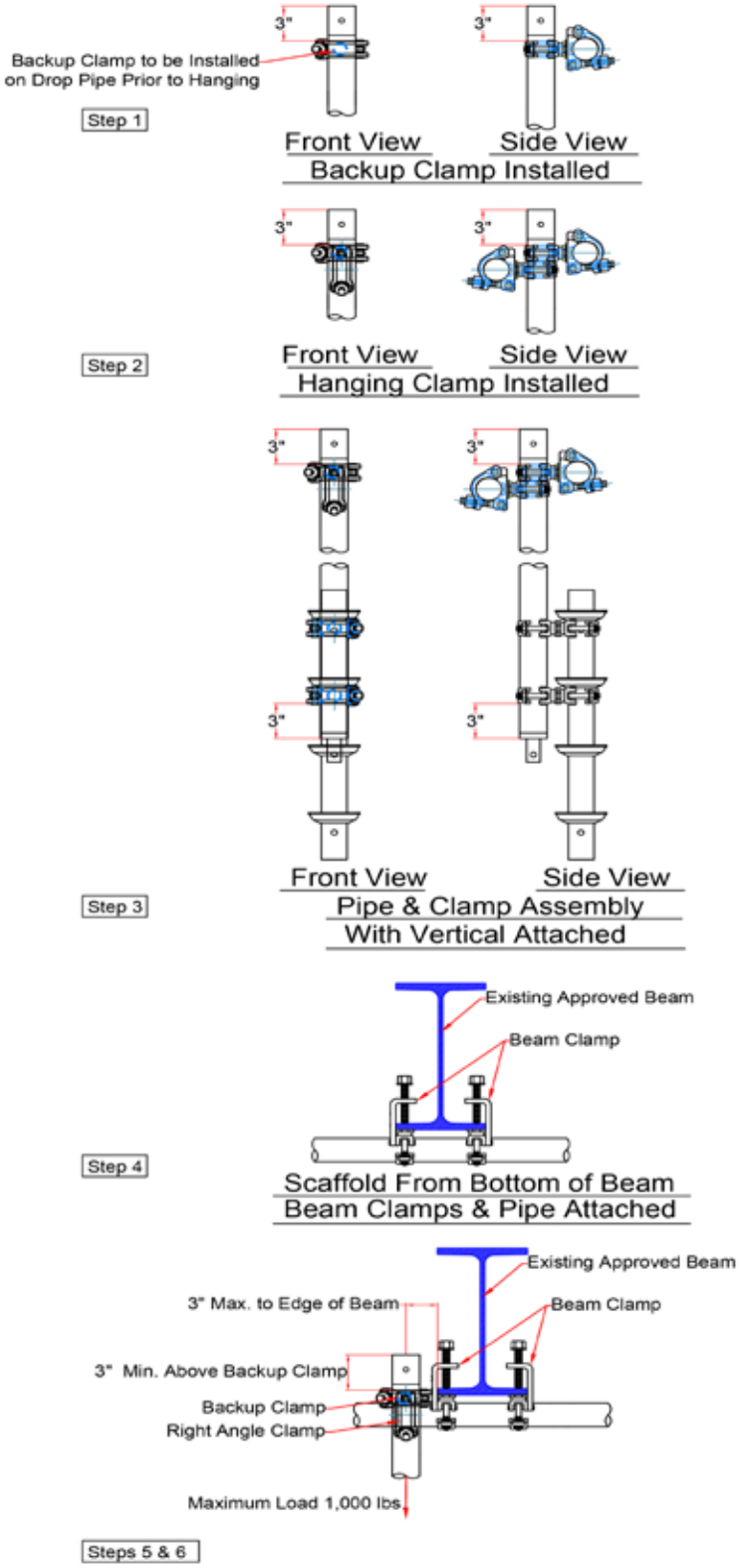
Clamps are to always be used in pairs.

When possible, use the beam clamps on the top flange of the beam.

All material must be inspected prior to use! See inspection guidelines on page 99.

BOTTOM OF BEAM INSTALL

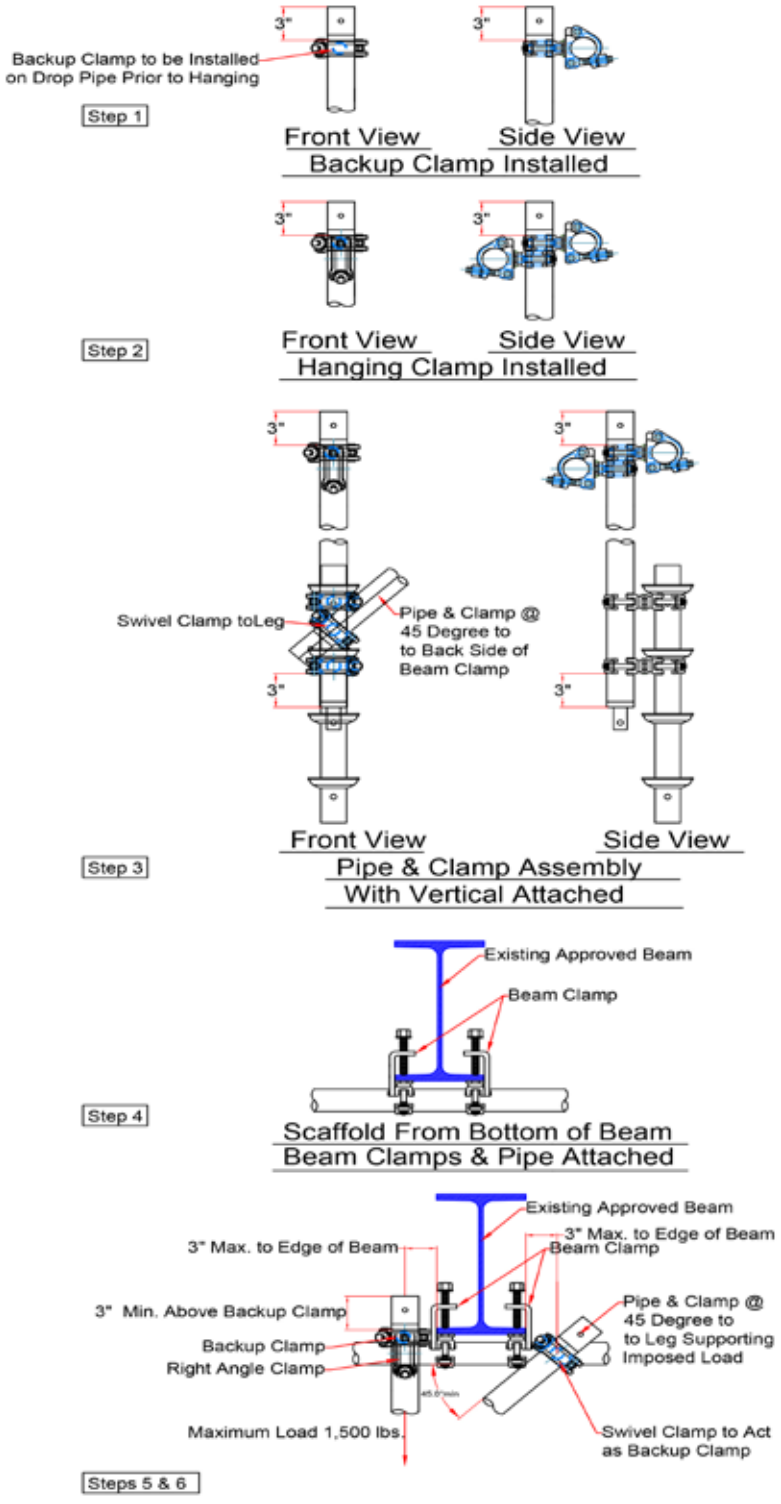
USING PIPE FOR LEG DROP



All material must be inspected prior to use! See inspection guidelines on page 99.

BOTTOM OF BEAM INSTALL

USING PIPE FOR LEG DROP WITH TUBE AND CLAMP AT A 45-DEGREE MINIMUM TO LOADED VERTICAL

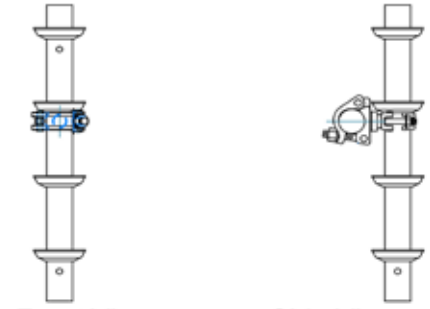


All material must be inspected prior to use! See inspection guidelines on page 99.

BOTTOM OF BEAM INSTALL

USING EXCEL VERTICAL FOR LEG DROP

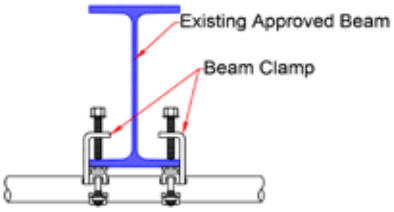
Step 1



Front View Side View

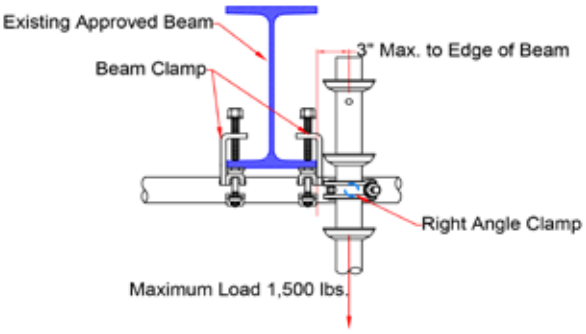
Vertical With Right Angle Clamp Attached

Step 2



Scaffold From Bottom of Beam Beam Clamps & Pipe Attached

Step 3



BOTTOM OF BEAM INSTALL

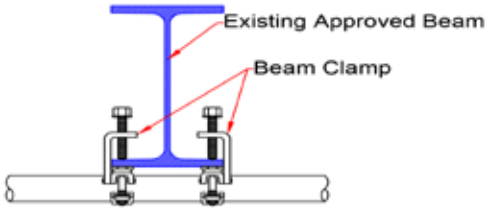
USING EXCEL VERTICAL FOR LEG DROP WITH TUBE AND CLAMP AT A 45-DEGREE MINIMUM TO LOADED VERTICAL

Step 1

Front View Side View

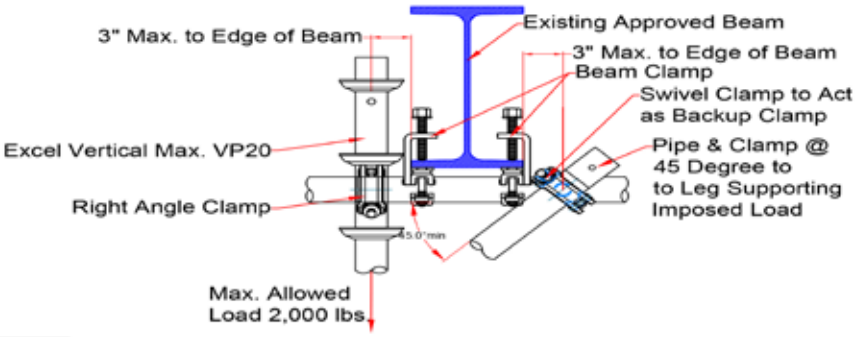
Vertical With Right Angle Clamp Attached

Step 2



Scaffold From Bottom of Beam Beam Clamps & Pipe Attached

Step 3



All material must be inspected prior to use! See inspection guidelines on page 99.

EXCEL MODULAR USED WITH TUBE AND CLAMP

Tube and clamp material is manufactured by many different vendors. There is no easy way to identify the manufacturer or the quality of material used in its construction. Always assume that the material is of lesser quality and use the most conservative designs when building with this material.

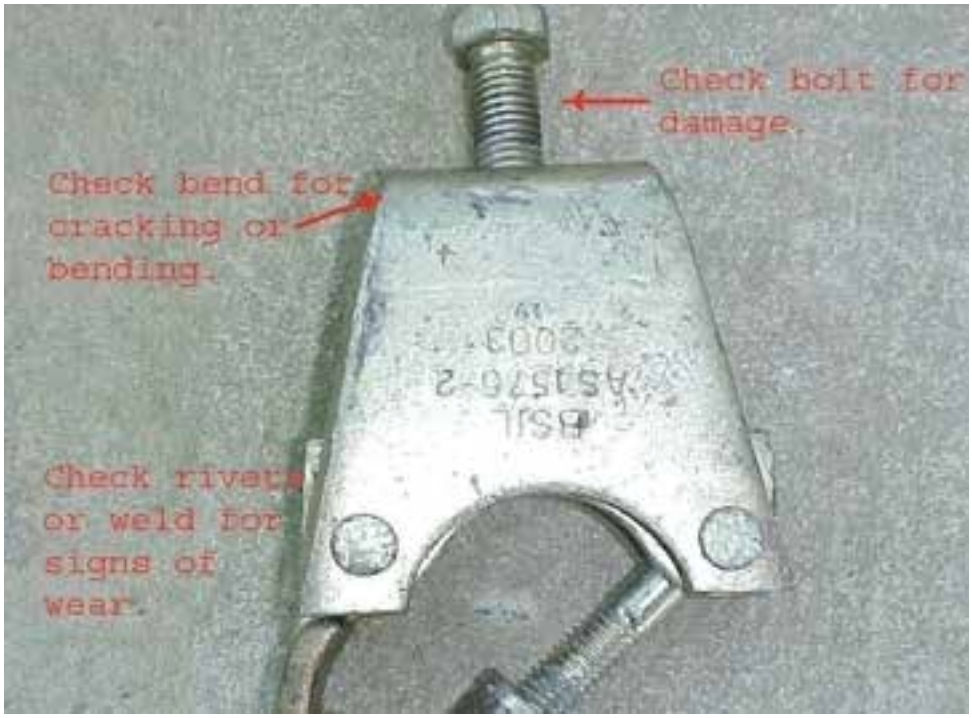
The strength of the scaffold is greatly affected by the torque on the bolted connections.

Tube lengths of 16 feet and 20 feet, without proper support, may not meet minimum requirements for scaffold loads.

Tube and clamp material must be assembled in strict accordance with all current Federal and State guidelines. (See OSHA 1926.452(b) "Tube and coupler scaffolds.")

Most tube material is manufactured with 13-gauge, 1.90 diameter tubing.

Rigid beam clamps and swivel beam clamps must be inspected for damage/cracking at the weld and the top bend of the clamp. Beam clamps have been know to fracture at the top bend area.



Clamp bolts should have between 40 lbs. and 65 lbs. tension. Overtightening could damage the clamp, bolt, threads or item the clamp is attached to.

All material must be inspected prior to use! See inspection guidelines on page 99.

EXCEL MODULAR WOOD PLANKS

Excel only purchases quality wood planks that meet the OSHA requirements for lumber type and density. The following is the required inspection/storage procedure for boards.

1.) The boards should be inspected before they are put into service for damage and wear. All planks must be inspected routinely for damage and wear, so that they can be replaced as quickly as necessary.

2.) Identification of damage. Employees shall be trained to recognize the following types of wear/damage:

a.) Decay: Boards should be examined to determine if age/weathering/wear is excessive. Wood ages and reacts to usage and will begin to show checks, splits and notches. These will vary in degree, depending on the loads a plank has carried, the weather to which it has been exposed, the length of time it has been in use, etc. Planks with splits—that is, cracks that go completely through the wood—for more than a few inches should not remain in service, as they may no longer maintain the necessary load-bearing capacity. Planks with checks—cracks that are on the surface only and do not go completely through the wood— should be watched, as the checks may develop into splits over time.

b.) Damage: Does the board contain any notches, cuts or other visual damage that would render it unsafe to use? Notched plank can lead to problems since, essentially, a portion of the plank is now missing, thereby weakening the plank at that particular area. If a scaffold plank has been used as a mudsill, it should not be returned to service on a platform. Moisture from standing water, as well as point-loading from the scaffold legs may have weakened it, making it unable to bear the weight that will be placed on it.

c.) Chemical/heat damage: Has the board been exposed to excessive chemicals/heat (soaked with oil, scorch marks)? Scaffold planks that have visible chemical or scorch marks must be removed from service.

d.) Surface covering: Is the surface free from items that may cause a slip (oil/tar/etc.)? OSHA [1926.451(b)(9)] says that scaffold planks that have accumulated layers of mortar, grout, paint, plaster, etc., are not permitted to remain in service since it is impossible to determine their conditions. Dangerous splits may be hidden underneath those coatings.

e.) Shrinkage: Has the board size decreased past its useful size?

f.) Deflection: The flex or “give” of a plank can indicate its condition. OSHA calls for deflection criteria of L/60 (the length of span in inches divided by 60) to get the maximum deflection limit at center span in inches. An example would be a seven-foot (84-inch) span between scaffold frame supports: 84/60 = 1.40 inches. Therefore, you’d never want to allow a plank to deflect more than 1-3/8 inches at the middle of that length span, regardless of type of plank being used. Only sample testing should be performed since test loading can damage the board.

All material must be inspected prior to use! See inspection guidelines on page 99.

EXCEL MODULAR WOOD PLANKS

Part Number	Description	Maximum Loading Using Full Thickness Undressed Lumber (lb/sq ft)	Weight (lbs.)	Maximum Scaffold Span (ft)
WP-4	4' Wood Plank	75	18	2
WP-6	6' Wood Plank	75	27	4
WP-8	8' Wood Plank	50	36	6
WP-10	10' Wood Plank	25	45	8
WP-12	12' Wood Plank	25	54	10

Allowable loads when rated for scaffold use include OSHA (4:1) safety factor.

Storage: When not in use, all wood planks should be stored above ground on dunnage to keep moisture from entering the bottom of the boards.

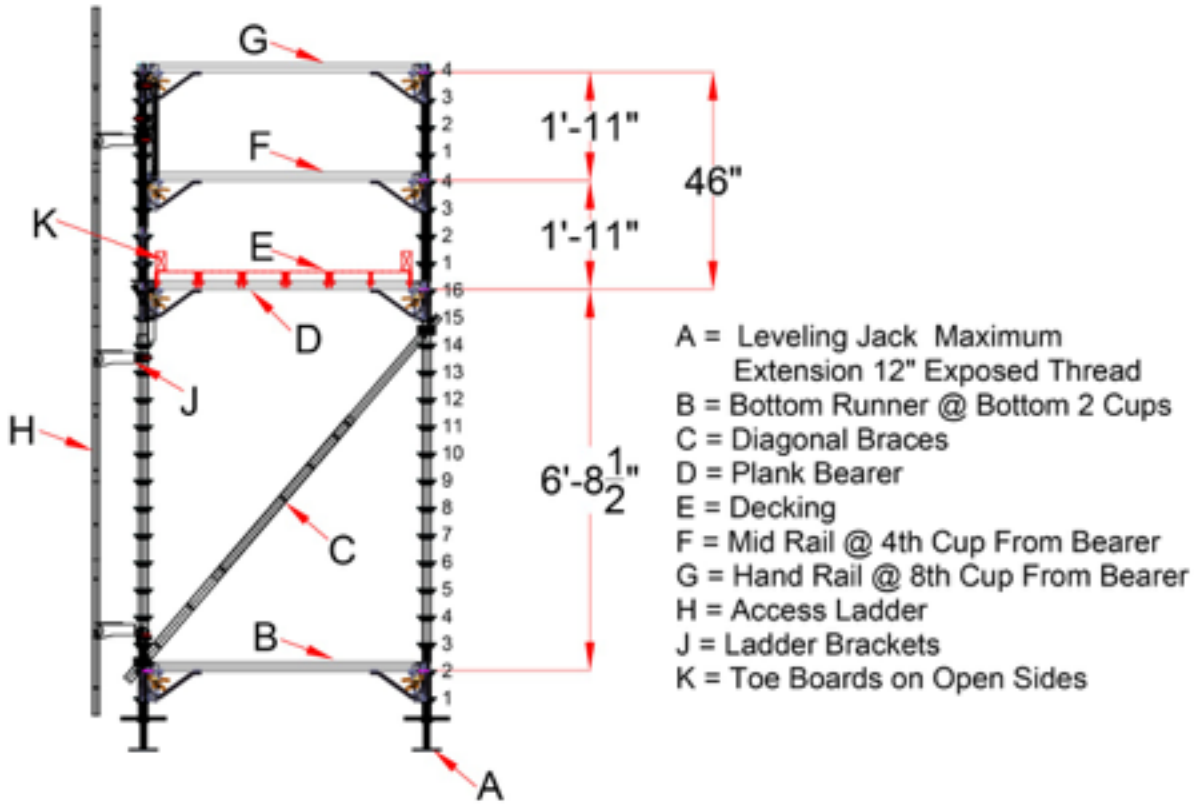
Additionally, all boards should have some sort of lath or stickers between layers to allow for air circulation through the boards.

Most important, a tarp or something as simple as a sheet of plywood should be placed over the top of the boards to prevent moisture from dropping down through the stack. Ideally, indoor storage is best.

Note: Where a possibility of uplift could occur, all boards should be securely attached to the scaffold with #9 wire, tie wraps, toe boards, filler plates or other equivalent means.

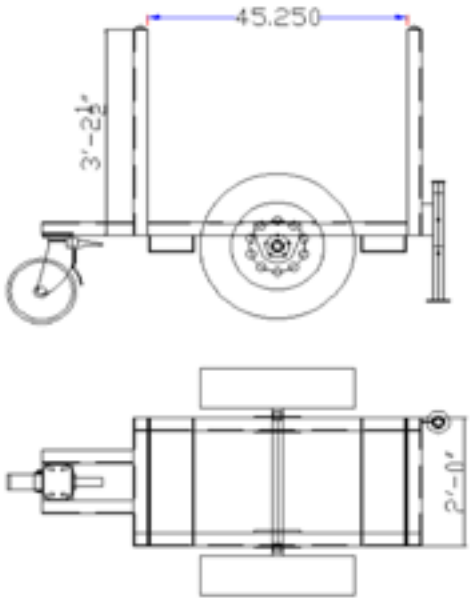
All material must be inspected prior to use! See inspection guidelines on page 99.

GENERAL ASSEMBLY INSTRUCTIONS



All material must be inspected prior to use! See inspection guidelines on page 99.

EXCEL SCAFFOLD EQUIPMENT CART



Part Number	Description	Load Capacity (lbs.)	Weight (lbs.)
S-Cart	Scaffold Cart	3,340	300

Note:
1. Cart is only to be lifted by a forklift at pockets provided and all material strapped into place prior to lifting.
2. Cart is not meant to be towed by a motorized vehicle and is to be lifted by forklift or pushed by man power.
3. Cart wheels are to be locked while loading and unloading to prevent movement.
4. The stabilizer at the back of the cart is to be used whenever the cart is stationary.

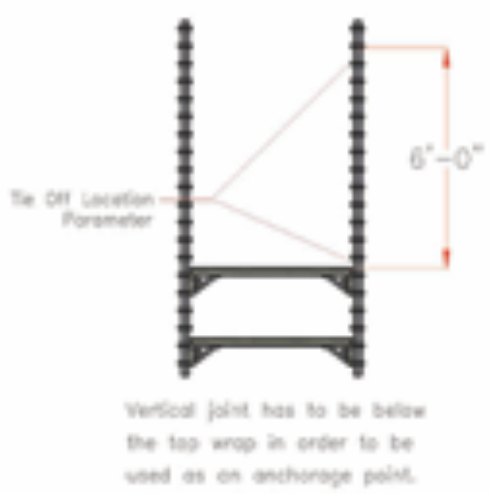
All material must be inspected prior to use! See inspection guidelines on page 99.

USING EXCEL MODULAR SCAFFOLDING AS AN ANCHORAGE POINT FOR FALL PROTECTION

Excel scaffold should only be used for a fall protection anchorage point when no other method of tie off is available. Shock absorbent lanyards, or personal retractable lanyards attached to Excel Modular Scaffold, must use the manufacturer's recommended method of attachment. Only lanyards that have a 3,500 lbs. side gate load notification shall be used on the vertical members.

In order to provide the safest work environment for all personnel, Excel recommends that the scaffold not be used as a fall protection anchorage point when other locations or methods of fall protection anchorage are available. Scaffold may be used providing the following prerequisite guidelines are followed:

1. The anchorage point may be made on a vertical up to six (6) feet above the last horizontal connection, with a minimum of two (2) horizontals spaced 80.5 inches with lateral horizontals (see Note 5), as shown in the sketch here.

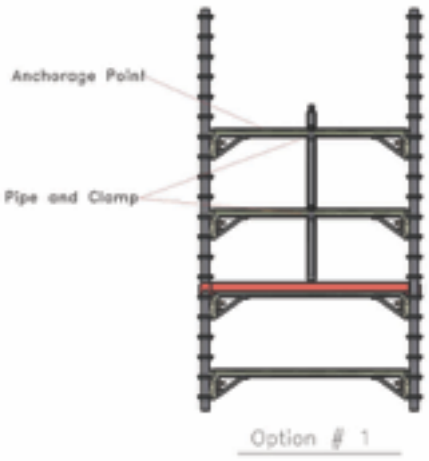


2. The anchorage point may be made to a horizontal bar provided that both end connectors are securely locked in place and the horizontal member is a(n)

   a) Excel Modular Scaffold truss top chord.

   b) Two- (2) through eight- (8) foot horizontals of any type may be used without modification for an anchorage point, as long as they are properly installed and in proper working condition.

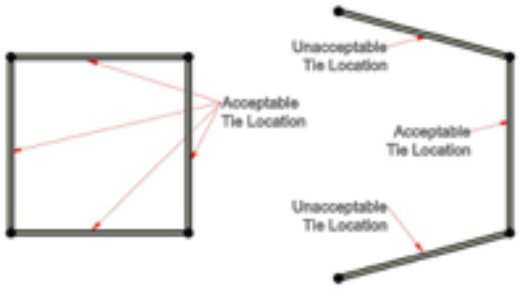
   c) Nine- (9) and ten- (10) foot horizontals with any end connector may be used if modified to include a horizontal tie-off support or a tube and clamp support that ties a minimum of two (2) horizontals together at the center (as shown in Option #1).

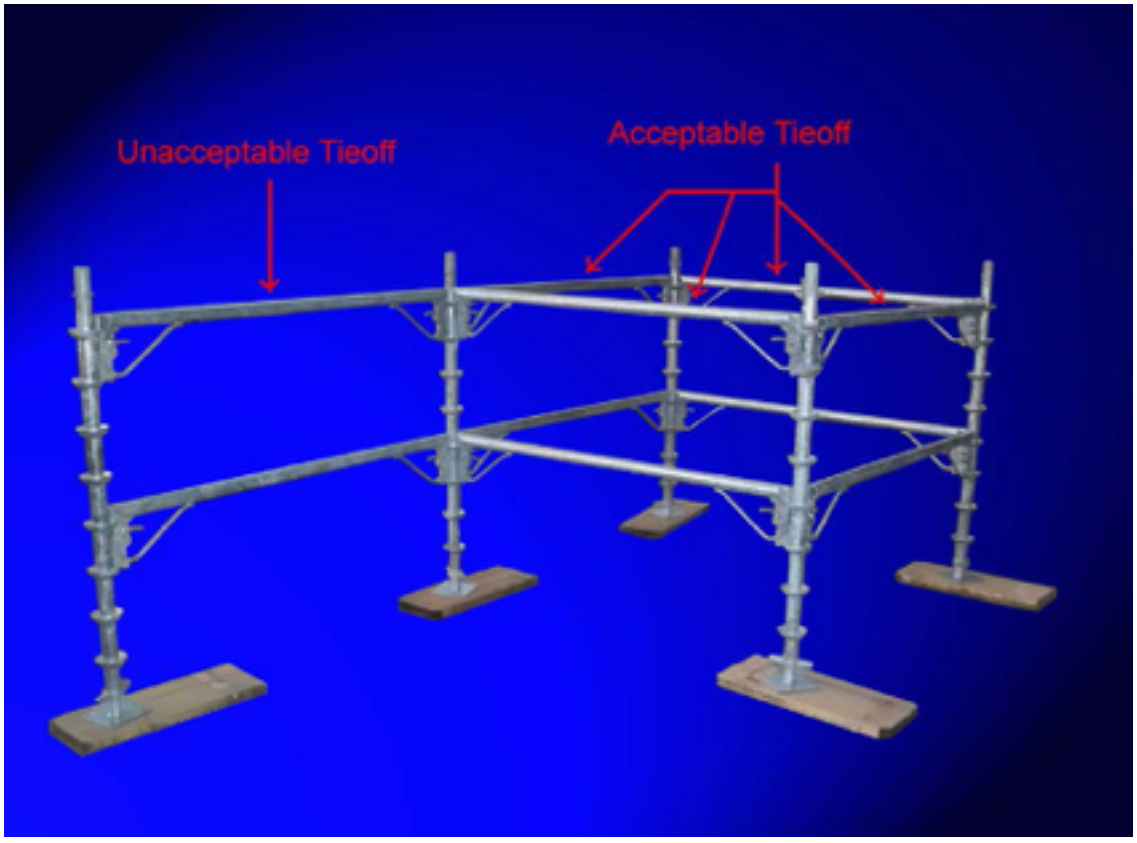


All material must be inspected prior to use! See inspection guidelines on page 99.

USING EXCEL MODULAR SCAFFOLDING AS AN ANCHORAGE POINT FOR FALL PROTECTION (CONT'D)

3. Only one individual can tie off at any anchorage point anywhere on a single vertical or horizontal. No one may tie off to any of the other members that are directly shared to an occupied anchor point.
4. The anchorage point must be as high as possible above the employee's work area.
5. When a horizontal is used as a tie-off point, each vertical the horizontal is attached to must be secured by a minimum of one other horizontal or equivalent.





All material must be inspected prior to use! See inspection guidelines on page 99.

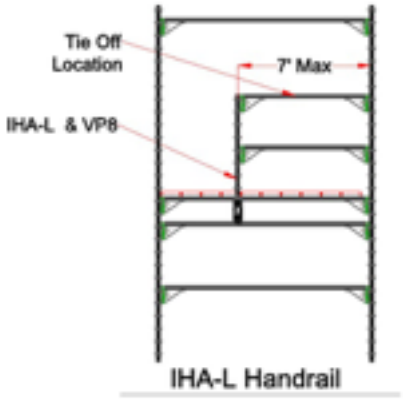
USING EXCEL MODULAR SCAFFOLDING AS AN ANCHORAGE POINT FOR FALL PROTECTION (CONT'D)

6. The anchorage point should, whenever possible, be made to a vertical that extends to the ground. Exceptions are permitted on cantilevered sections or verticals that do not extend to the ground when the following criteria are met:

   a) Only two- (2) through three- (3) foot fixed-size side brackets may have their handrails used as a tie-off location. NO folding side brackets or custom-made side bracket (tube and clamp) may be used.

   b) The tie-off location must never be made directly to the side bracket itself, but must be attached to the handrail attached to the vertical post with eight (8) cups and have a maximum length of eight (8) feet long.

   c) Attachment to handrails attached to an eight (8) cup vertical and locking intermediate horizontal adapter, such as in the instance of a swing gate assembly, may be used as long as the maximum length of the handrail does not exceed seven (7) feet long.



   d) As soon as another tie-off location becomes available, such as a horizontal that is above the worker and/or a horizontal that extends to the ground, the worker should use that as their tie-off location.

7. All scaffolds that are built on any structure other than the ground shall be properly secured to the structure and be evaluated by a competent person prior to being used for a tie-off point.

8. All scaffold anchorage points shall be evaluated by a competent person prior to being used.

9. When the scaffold contains casters:

   a) The casters shall be locked.

   b) Outriggers or a properly designed tube and clamp outrigger that extends a minimum of 20 inches from the base of the scaffold, must be installed to prevent rolling and tipping of the scaffold.

USING EXCEL MODULAR SCAFFOLDING AS AN ANCHORAGE POINT FOR FALL PROTECTION (CONT'D)

10. When possible, scaffolds that are used for a tie-off anchorage point shall be secured to a permanent structure, tied, guy-wired, or provided with outriggers. If a scaffold is to be a free-standing, the scaffold must meet the following conditions:

    a.) The scaffold is to have a minimum base of five- (5) feet long x five- (5) feet wide (excluding outriggers if used) and have a 3:1 height to base ratio.

    b.) The scaffold is to have vertical diagonal bracing installed on all four (4) sides of a single bay scaffold from the base to the underside of the deck.

    c.)When attaching to the vertical post of a free-standing scaffold, the point of connection shall have two (2) horizontal members attached at 90 degrees to each other, as close to the tie-off point as possible.

    d.) When attaching to a horizontal member, the conditions listed on Note 2 shall be adhered to at all times.

    e.) Should a smaller base, free-standing scaffold be erected, the scaffold must be designed by an engineer prior to being erected.

    f.) When available, the scaffold should be tied to an approved structure by either tube and clamp or by two strands of #9 wire as close to the top deck as possible. This tie is to be made to the vertical members only and not attached to any horizontal members.

    g.) This is in addition to tying required by Federal, State or local regulations.

    h.) Any time a free-standing scaffold is to be used for a tie-off anchorage point, it must be noted on the scaffold tag.

Excel Modular Scaffold encourages users of its scaffold material, either through independent testing, or with the aid of a professional engineer to develop their own tie-off guidelines which may be different than those listed above, as long as they are stricter and meet all OSHA requirements.

Excel Modular Scaffold may give different guidelines to depending on the specific needs of the customer and the type of scaffold maintenance program and safe regulated work areas.

Note: "Rescue considerations." As required by 1926.502(d)(20), when personal fall arrest systems are used, the employer must ensure employees can be promptly rescued or can rescue themselves should a fall occur. The availability of rescue personnel, ladders or other rescue equipment should be evaluated. In some situations, equipment which allows employees to rescue themselves after the fall has been arrested may be desirable, such as devices which have descent control built in.

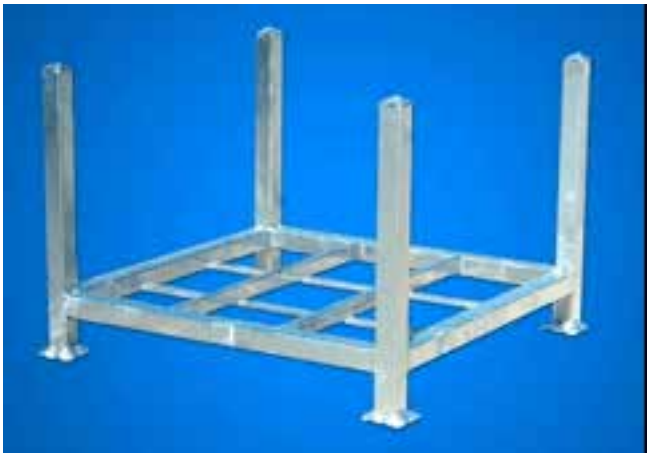
USING EXCEL MODULAR SCAFFOLDING AS AN ANCHORAGE POINT FOR FALL PROTECTION (CONT'D)

Note: "Inspection considerations." As required by 1926.502(d)(21), personal fall arrest systems must be regularly inspected. Any component with any significant defect, such as cuts, tears, abrasions, mold, or undue stretching, alterations of additions which might affect its efficiency, damage due to deterioration, contact with fire, acid, or other corrosives, distorted hooks or faulty hook springs, tongues unfitted to the shoulder of buckles, loose or damaged mountings, non-functioning parts, or wearing of internal deterioration in the ropes must be withdrawn from service immediately, and shall be tagged or marked unusable, and destroyed.

Note: Any material that is subjected to a load from a fall shall be replaced, even if there is no visible damage to the scaffold material. This includes verticals which may have been bent from the stresses from the fall. If it is not possible to immediately replace the material because of structural considerations the material must be braced with tube and clamp or equivalent means and inspected by an engineer to ensure it is safe for continued use. In most cases, the certification of a PE may be required and is strongly recommended. The material must be replaced as soon as possible and the affected equipment tagged and removed from service.

All material must be inspected prior to use! See inspection guidelines on page 99.

EXCEL MODULAR SQUARE STORAGE RACK



Square racks are designed to hold Excel Modular Scaffold verticals, diagonals and other irregularly-shaped components.

Square racks will hold 125–20-cup verticals or an equivalent number of smaller verticals pinned together.

When shipping, the square racks require two (2) pieces of banding to be placed around the base of the rack and the item being carried.

Racks are designed to hold a maximum of 5,000 lbs. of material.

Square racks may be stacked for storage. The strength of the storage surface will determine how many racks can be stacked.

On grass, dirt or other unpacked surfaces, racks should be placed singly. On prepared surfaces, racks can be placed two (2) or three (3) high. On asphalt and three (3) or more inches of concrete, racks may be stacked three (3) or four (4) units high. Racks should not be stacked more than four (4) units high.

Always inspect the surface of the area where racks are stored for any cracking or sinking and inspect the racks for tilting or leaning. Correct any problems immediately.

Square racks are designed so special casters may be placed on the bottom to allow the racks to be easily moved without a forklift.

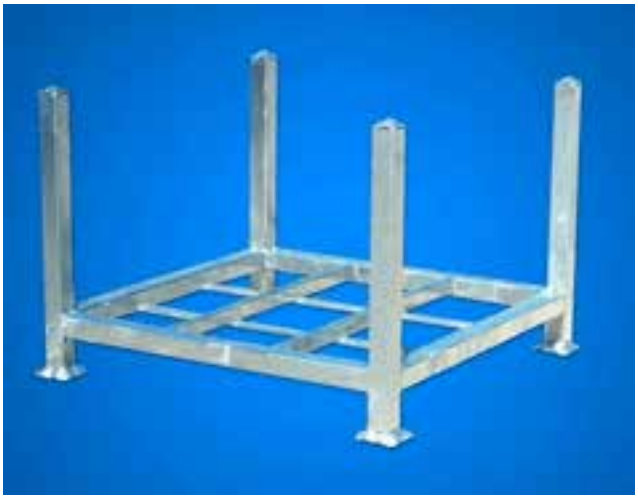
Part Number	Description	Weight (lbs.)	Dimensions (in) Length x Width x Height
SSR	Square Steel Rack	134	44.25 x 44.25 x 32.25

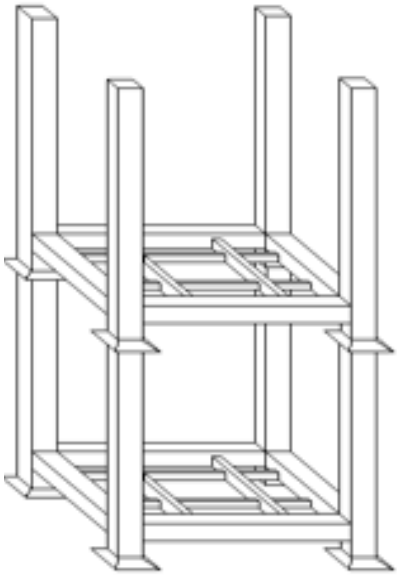
Note: Do not overload the casters when stacking a rack on top of another rack that contains casters.

Always inspect rack feet for damage before installing casters or loading the rack.

All material must be inspected prior to use! See inspection guidelines on page 99.

EXCEL MODULAR METAL BOARD STORAGE RACK





Metal board racks are designed to hold Excel Modular Scaffold metal boards and other irregularly-shaped components.

Metal board racks will hold 62 metal boards four (4) feet or longer and 124 metal boards 32 inches or shorter.

When shipping, the metal board racks require two (2) pieces of banding to be placed around the base of the rack and the item being carried.

Racks are designed to hold a maximum of 5,000 lbs. of material.

Metal board racks may be stacked for storage. The strength of the storage surface will determine how many racks can be stacked.

On grass, dirt or other unpacked surfaces, racks should be placed singly. On prepared surfaces racks can be placed two (2) or three (3) high. On asphalt and three (3) or more inches of concrete, racks may be stacked three (3) or four (4) units high. Racks should not be stacked more than four (4) units high.

Always inspect the surface of the area where racks are stored for any cracking or sinking and inspect the racks for tilting or leaning. Correct any problems immediately.

Metal board racks are designed so special casters may be placed on the bottom to allow the racks to be easily moved without a forklift.

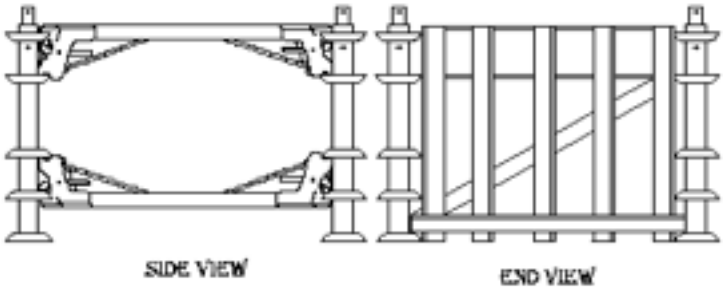
Part Number	Description	Weight (lbs.)	Dimensions (in) Length x Width x Height
SBR	Steel Board Rack	160	59.75 x 47 x 36

Note: Do not overload the casters when stacking a rack on top of another rack that contains casters.

Always inspect rack feet for damage before installing casters or loading the rack.

All material must be inspected prior to use! See inspection guidelines on page 99.

EXCEL MODULAR HORIZONTAL STORAGE RACK



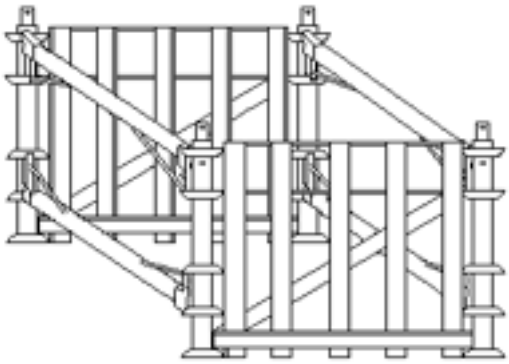
Horizontal racks are designed for easy storage and inventory of Excel Modular Scaffold horizontals. Each rack holds 96 horizontals and uses four (4) horizontals for support, for a total of 100 horizontals. To perform a quick inventory, simply count the full racks.

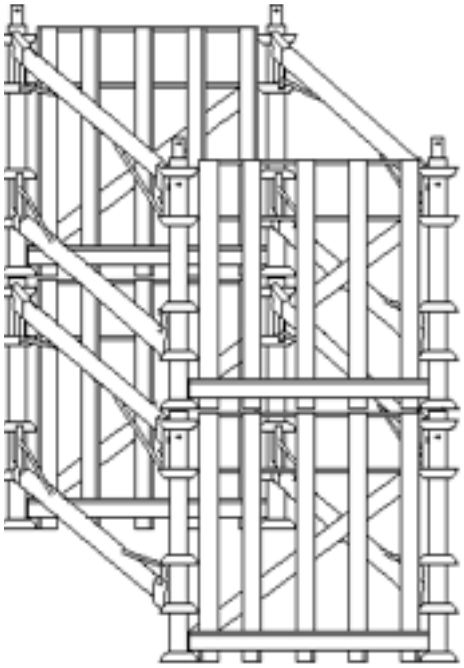
When shipping, the horizontal racks require one (1) piece of banding to be placed around the 96 center horizontals.

Horizontal racks are designed to hold a maximum of 3,000 lbs. of material.

Horizontal racks are designed to hold only Excel horizontals.

Horizontal racks may be stacked for storage. The strength of the storage surface will determine how many racks can be stacked.





On grass, dirt or other unpacked surfaces, racks should be placed singly. On prepared surfaces, racks can be placed two (2) or three (3) high. On asphalt and three (3) or more inches of concrete, racks may be stacked three (3) or four (4) units high. Racks should not be stacked more than four (4) units high.

Horizontal racks are designed so Excel casters may be placed on the bottom to allow the racks to be easily moved without a forklift. Horizontal racks MUST NOT be stacked when equipped with casters.

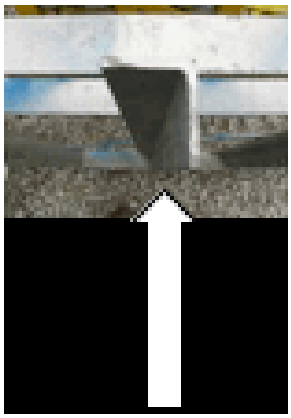
Part Number	Description	Weight (lbs.)	Dimensions (in) Length x Width x Height
HR1	Horizontal Rack	79	44.5 x 38.5

All material must be inspected prior to use! See inspection guidelines on page 99.

EXCEL MODULAR HORIZONTAL STORAGE RACK

ADDITION OF THE RACK SUPPORT

Caution should be used when assembling or disassembling horizontal racks. The racks are heavy and have rough edges that can cause injury.

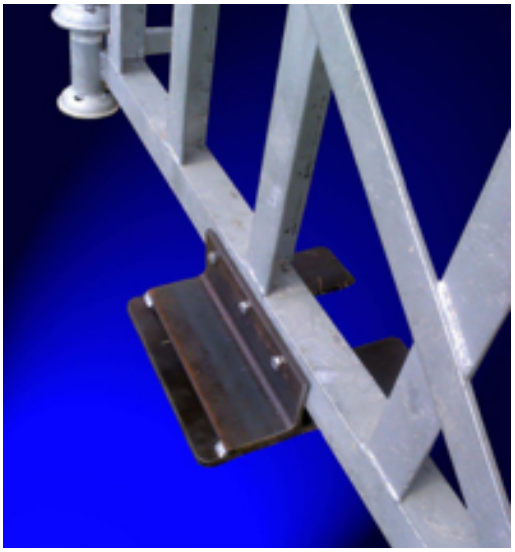


Beware Sharp Edges

Care must be taken to make sure a loose rack will not fall. It should be safely supported on the ground or held by another worker during assembly and disassembly.

Always check to ensure the bottom horizontal is securely latched before beginning disassembly. The opposite horizontal rack can fall when the bottom horizontal is released, if the horizontal is not securely latched on the other rack.

When possible always disassemble racks from the outside. Whenever assembling or disassembling racks without a rack support foot, do not leave a single rack standing without support.



A rack support foot may be added to the bottom of each horizontal rack to help prevent the rack from falling over when assembling and disassembling the racks. The rack foot will make it much harder for the rack to fall in either direction. The rack can still fall over if the ground is not level. The rack must be checked for stability before letting it stand on its own. Care must be taken to only assemble or disassemble racks on level ground.

All material must be inspected prior to use! See inspection guidelines on page 99.

EXCEL MODULAR SCAFFOLD STORAGE BASKET

Wire baskets are designed to hold Excel casters, ladder brackets, clamps and other small components only.

Wire baskets are designed to hold a maximum weight of 2,000 lbs.

Items should never be stacked above the rim in wire baskets.

When shipping, wire baskets may require a plywood lid to prevent items from bouncing out.

Wire baskets may be stacked for storage. Wire baskets should never be stacked more than two (2) units high.

Part Number	Description	Weight (lbs.)
FWB	Folding Wire Basket	240

All material must be inspected prior to use! See inspection guidelines on page 99.

CODE OF SAFE PRACTICES

Excel Modular Scaffold recognizes that the scaffold industry is considered "inherently dangerous." It is the intent of this section of the procedures manual to provide pertinent guidelines for the proper, safe use, and maintenance of scaffold components and structures. These guidelines are generalities and do not intend to cover every specific situation or component, they do not purport to be all-inclusive nor to supplant other regulatory and precautionary measures for the safe use of scaffold in usual or unusual conditions. The primary codes or regulations are those promulgated by OSHA. They are Federal laws intended to provide a safe workplace by providing minimum reference guidelines upon which related activities should be carried out. It shall be the responsibility of all users/erectors to avail himself and to comply with all applicable codes, regulations, standard and common sense practices designed to purport safety in the erection, use and dismantling of scaffold.

General Guidelines Prior to Use of Scaffolding:

1. Jobsite conditions within the boundaries of a refinery, chemical plant, manufacturing plant, pulp and paper mill, power plant or construction site may vary, and each presents unique circumstances. Efficient and proper planning of each job must be done by a competent, qualified person: OSHA 1926.451 (a) (3) No scaffold shall be erected, moved, dismantled or altered except under the supervision of competent persons.

2. The jobsite should be inspected and supervision be familiarized with proper access, proximity of power or process lines, obstructions, ground conditions, openings or pits, strength of supporting structure(s), interference with other workers, overhead protection, wind/weather protection and environmental hazards. These conditions must be evaluated and adequately provided for. Also, consider the protection of people who will be passing or working beneath or around scaffold structures.

3. The work to be done and the number of persons involved must be determined to properly calculate the loading. The total loads and the supporting ground or structure must be considered when designing a scaffold structure—leg spacing, adequate sills, horizontal bracing, etc.

4. Stationary scaffolds over 125 feet in height and rolling towers over 60 feet in height must be designed by a professional engineer.

5. All equipment must be inspected to ensure it is in good condition. Damaged or deteriorated equipment should not be used and must be removed from service.

6. Scaffolds must be designed and used in accordance with the manufacturer's specifications and recommendations. Do not intermix different brands of scaffold, unless authorized by the manufacturer, or plan to use materials in any manner other than what the manufacturer intended their design to accommodate.

7. When planning the job, remember to use common sense, sound judgment and qualified reasoning for the following:
   a.) Provide adequate foundations.
   b.) Provide proper access.
   c.) Provide proper bracing.
   d.) Provide proper handrails and toe boards.
   e.) Provide adequate decking materials.
   f.) Design scaffold structure on components to adequately compensate for all intended loads. Use only qualified personnel who are in good shape—emotionally and physically.

8. Read, understand and comply with all Federal (OSHA), State, and local codes and regulations pertaining to scaffold erection and removal.

9. When covering scaffold with plastic, tarps or other types of solid material the user must consider all wind and/or snow loading. Excel recommends that all users consult with an engineer to ensure the proper bracing for the maximum expected wind or snow loads and/or snow loading.

All material must be inspected prior to use! See inspection guidelines on page 99.

CODE OF SAFE PRACTICES

GIVE TO SCAFFOLD ERECTOR AND USER OR POST ON JOB

CODE OF SAFE PRACTICES FOR
FRAME SCAFFOLDS, SYSTEM SCAFFOLDS, Tube and clamp SCAFFOLDS and ROLLING SCAFFOLDS

DEVELOPED FOR INDUSTRY BY SCAFFOLD INDUSTRY ASSOCIATION, INC.

t shall be the responsibility of all users to read and comply with the following common sense guidelines which are designed to promote safety in the erecting, dismantling and use of scaffolds. These guidelines do not purport to be all-inclusive, nor supplant or replace other additional safety and precautionary measures to cover usual or unusual conditions. If these guidelines in any way conflict with any Federal, State, local or other government statute or regulation, said statute or regulation shall supersede these guidelines and it shall be the responsibility of each user to comply therewith.

General Guidelines

Post these scaffolding safety guidelines in a conspicuous place and be sure that all persons who erect, dismantle or use scaffolding are aware of them.

1. Follow all Federal, State, and local codes, ordinances and regulations pertaining to scaffolding.
2. Survey the jobsite. A survey shall be made of the jobsite for hazards, such as untamped earth fills, ditches, debris, high-tension wires, unguarded openings and other hazardous conditions created by other trades. These conditions should be corrected or avoided as noted in the following sections.
3. Inspect all equipment before using. Never use any equipment that is damaged or defective in any way. Remove it from the jobsite.
4. Scaffolds must be erected in accordance with design and/or manufacturer's recommendations.
5. Do not erect, dismantle or alter a scaffold unless under the supervision of a qualified person.
6. Do not abuse or misuse the scaffold equipment.
7. Erected scaffolds should be continually inspected by users to be sure that they are maintained in safe condition. Report any unsafe condition to your supervisor.
8. Never take chances! If in doubt regarding the safety or use of the scaffold, consult your scaffold supplier.
9. Never use equipment for purposes or in ways for which it was not intended.
10. Do not work on scaffolds if your physical condition is such that you feel dizzy or unsteady in any way.

Guidelines for Erection and Use of Scaffolds

1. Scaffold bases must be set on an adequate sills or pads to prevent slipping or sinking, and fixed where required. Any part of a building or structure used to support the scaffold, shall be capable of supporting the maximum intended load to be applied.
2. Use adjusting screws or other approved methods, instead of blocking to adjust to uneven grade conditions.

3. Bracing, leveling and plumbing of frame scaffolds:
   a. Plumb and level all scaffolds as the erection proceeds. Do not force frames or braces to fit—level the scaffold until proper fit can easily be made.
   b. Each frame or panel shall be braced by horizontal bracing, cross bracing, diagonal bracing or any combination thereof for securing vertical members together laterally. All brace connections shall be made secure, in accordance with the manufacturer's recommendations.

4. Bracing, leveling and plumbing of tube and clamp and system scaffolds:
   a. Posts shall be erected plumb in all directions, with the first level of runners and bearers positioned as close to the base as feasible. The distance between bearers and runners shall not exceed manufacturer's recommended procedures.
   b. Plumb, level and tie all scaffolds as erection proceeds.
   c. Fasten all couplers and/or connections securely before assembly of next level.
   d. Vertical and/or horizontal diagonal bracing must be installed according to manufacturer's recommendations.

5. Tie continuous (running) scaffolds to the wall or structure at each end and at least every 30 feet of length when scaffold height exceeds the maximum allowable free-standing dimension. Begin ties or stabilizers when the scaffold height exceeds that dimension, and repeat at vertical intervals not greater than 26 feet. The top anchor shall be placed no lower than four (4) times the base dimension from the top of the completed scaffold. Anchors must prevent scaffold from tipping into or away from wall or structure. Stabilize circular or irregular scaffolds in such a manner that the completed scaffold is secure and restrained from tipping. When scaffolds are partially- or fully-enclosed or subjected to overturning loads, specific precautions shall be taken to ensure the frequency and accuracy of ties to the wall and structure. Due to increased loads resulting from wind or overturning loads the scaffolding component to which ties are subjected shall be checked for additional loads.

6. When free-standing scaffold towers exceed four (4) times their minimum base dimension vertically, they must be restrained from tipping. (CAL-OSHA and some government agencies require stricter ratio of 3:1.)

7. Do not erect scaffolds near electrical power lines unless proper precautions are taken. Consult the power service company for advice.

8. A means of access to all platforms shall be provided.

9. Do not use ladders or makeshift devices on top of scaffolds to increase the height.

10. Provide guardrails and mid-rails at each working platform level where open sides and ends exist, and toe boards where required by code.

11. Brackets and cantilevered platforms:
   a. Brackets for system scaffolds shall be installed and used in accordance with manufacturer's recommendations.
   b. Brackets for frame scaffolds shall be seated correctly, with side bracket parallel to the frames and end brackets at 90 degrees to the frames. Brackets shall not be bent or twisted from normal position. Brackets (except mobile brackets designed to carry materials) are to be used as work platforms only and shall not be used for storage of material or equipment.
   c. Cantilevered platforms shall be designed, installed and used in accordance with manufacturer's recommendations.

All material must be inspected prior to use! See inspection guidelines on page 99.

12. All scaffolding components shall be installed and used in accordance with the manufacturers' recommended procedure. Components shall not be altered in the field. Scaffold frames and their components manufactured by different companies shall not be intermixed, unless the component parts readily fit together and the resulting scaffold's structural integrity is maintained by the user.

13. Planking:
    a. Working platforms shall cover scaffold bearer as completely as possible. Only scaffold grade wood planking or fabricated planking and decking meeting scaffold use requirements shall be used.
    b. Check each plank prior to use to be sure plank is not warped, damaged, or otherwise unsafe.
    c. Planking shall have at least twelve- (12) inch overlap and extend six (6) inches beyond center of support, or be cleated or restrained at both ends to prevent sliding off supports.
    d. Solid-sawn lumber, LVI (laminated veneer lumber) or fabricated scaffold planks and platforms (unless cleated or restrained) shall extend over their end supports not less than six (6) inches nor more than eighteen (18) inches. This overhang should not be used as a work platform.

14. For putlogs and trusses the following additional guidelines apply:
    a. Do not cantilever or extend putlogs/trusses as side brackets without thorough consideration for loads to be applied.
    b. Putlogs/trusses should be extended at least six (6) inches beyond point of support.
    c. Place recommended bracing between putlogs/trusses when the span of putlog/truss is more than twelve (12) feet.

15. For rolling scaffolds, the following additional guidelines apply:
    a. Riding a rolling scaffold is very hazardous. The Scaffold Industry Association does not recommend, nor encourage this practice. However, if you choose to do so, be sure to follow all State, Federal or other governmental guidelines.
    b. Casters with plain stems shall be attached to the panel or adjustment screw by pins or other suitable means.
    c. No more than twelve (12) inches of the screw jack shall extend between the bottom of the adjusting nut and the top of the caster.
    d. Wheels or casters shall be provided with a locking means to prevent caster rotation and scaffold movement and kept locked.
    e. Joints shall be restrained from separation.
    f. Use horizontal diagonal bracing near the bottom and at 20-foot intervals measured from the rolling surface.
    g. Do not use brackets or other platform extensions without compensating for the overturning effect.
    h. The platform height of a rolling scaffold must not exceed four (4) times the smallest base. Government agencies require a stricter ratio of 3:1).
    i. Cleat or secure all planks.
    j. Secure or remove all materials and equipment from platform before moving.
    k. Do not attempt to move a rolling scaffold without sufficient help. Watch out for holes in floor and overhead obstruction. Stabilize against tipping.

16. Safe use of scaffold:
    a. Prior to use, inspect scaffold to ensure it has not been altered and is in safe working condition.
    b. Erected scaffolds and platforms should be inspected continuously by those using them.
    c. Exercise caution when entering or leaving a work platform.
    d. Do not overload scaffold. Follow manufacturer's safe working load recommendations.
    e. Do not jump onto planks or platforms.
    f. Do not use ladders or makeshift devices on top of working platforms to increase the height or provide access from above.
    g. Climb in access areas only and USE BOTH HANDS.

All material must be inspected prior to use! See inspection guidelines on page 99.

CODE OF SAFE PRACTICES

When Dismantling Scaffolding the Following Additional Guidelines Apply:

1. Check to ensure scaffolding has not been structurally altered in a way which would make it unsafe, and if it has, reconstruct where necessary before commencing with dismantling procedures. This includes all scaffold ties.
2. Visually inspect planks prior to dismantling to be sure they are safe.
3. Consideration must be given as to the effect removal of a component will have on the rest of the scaffold prior to that component's removal.
4. Do not accumulate excess components or equipment on the level being dismantled.
5. Do not remove ties until scaffold above has been removed (dismantled).
6. Lower dismantled components in an orderly manner. Do not throw off of scaffold.
7. Dismantled equipment should be stockpiled in an orderly manner.
8. Follow erection procedures and user manuals.

These safety guidelines (Codes of Safe Practice) set forth common sense procedures for safely erecting, dismantling and using scaffolding equipment. However, equipment and scaffolding systems differ, and accordingly, reference must always be made to the instructions and procedures of the supplier and/or manufacturer of the equipment.

Since field conditions vary and are beyond the control of the Scaffold Industry Association, safe and proper use of scaffolding is the sole responsibility of the user.

OSHA COMPLIANCE OF EXCEL MODULAR SCAFFOLD

All Excel Modular Scaffold equipment can be used to construct scaffolds that are 100% compliant with OSHA regulations.

It is important to understand that OSHA does not regulate how scaffold material is manufactured. The manufacture of scaffold material is covered by ANSI and ASTM specifications. OSHA 1926.450-453,1053 governs the construction of scaffolds using different types of scaffold material. The only restrictions that OSHA places on scaffold material are a 4:1 safety factor and loading values for decks, handrails and ladders.

When Excel Modular Scaffold material is assembled according to the loading and assembly requirements in the Excel Technical Manual the completed scaffold will meet OSHA regulations.

This document is an explanation of how Excel Modular Scaffold Material meets the OSHA 1926.450-453,1053 documents.

Ultimate Load
The load values listed in our technical manual reflect all Excel scaffold components have been tested to a minimum safety factor of 4:1.

1.A.) OSHA Standard requires a 4:1 safety factor for scaffold material that does not contain suspension rope.

> 1926.451 (a)(1)
> Except as provided in paragraphs (a)(2), (a)(3), (a)(4), (a)(5) and (g) of this section, each scaffold and scaffold component shall be capable of supporting, without failure, its own weight and at least four (4) times the maximum intended load applied or transmitted to it.

Section (a)(2) refers to counterweights, section (a)(3) and (a)(4), suspension rope, section (a)(5) scaffold hoist and (g) handrails.

Excel scaffold material is tested to a better than 4:1 safety factor. ISO 9001-2000 test documentation is available upon request.

2.A.) The OSHA standard for handrails is 200 lbs.

> 1926.451(g)(1)(iv)
> Each employee on a self-contained adjustable scaffold shall be protected by a guardrail system (with minimum 200 lbs. top-rail capacity) when the platform is supported by the frame structure, and by both a personal fall arrest system and a guardrail system (with minimum 200 lbs. top-rail capacity) when the platform is supported by ropes.

All Excel scaffold handrails exceed this value.

3.A.) OSHA provides for three (3) deck-loading values 25-lbs./sq. ft., 50-lbs./sq. ft. and 75-lbs./sq. ft..

> Index to Appendix A for Subpart L
> 1. (c) Fabricated planks and platforms may be used in lieu of solid-sawn wood planks. Maximum spans for such units shall be as recommended by the manufacturer based on the maximum intended load being calculated as follows:

All material must be inspected prior to use! See inspection guidelines on page 99.

OSHA COMPLIANCE OF EXCEL MODULAR SCAFFOLD (CONT'D)

Rated Load Capacity	Intended Load
Light-Duty	25 lbs. per square foot applied uniformly over the entire span area.
Medium-Duty	50 lbs. per square foot applied uniformly over the entire span area
Heavy-Duty	75 lbs. per square foot applied uniformly over the entire span area

Note: Platform units used to make scaffold platforms intended for light-duty use shall be capable of supporting at least 25 lbs. per square foot applied uniformly over the entire unit-span area, or a 250 lbs. point load placed on the unit at the center of the span, whichever load produces the greater shear force.

4.A) The required load on stairs and ladders as defined by OSHA is two (2) loads of 250 lbs.

1926.1053
(a)(1) Ladders shall be capable of supporting the following loads without failure:

(a)(1)(i) Each self-supporting portable ladder: At least four (4) times the maximum intended load, except that each extra-heavy-duty type 1A metal or plastic ladder shall sustain at least 3.3 times the maximum intended load. The ability of a ladder to sustain the loads indicated in this paragraph shall be determined by applying or transmitting the requisite load to the ladder in a downward vertical direction. Ladders built and tested in conformance with the applicable provisions of Appendix A of this subpart will be deemed to meet this requirement.

(a)(1)(ii) Each portable ladder that is not self-supporting: At least four (4) times the maximum intended load, except that each extra-heavy-duty type 1A metal or plastic ladders shall sustain at least 3.3 times the maximum intended load. The ability of a ladder to sustain the loads indicated in this paragraph shall be determined by applying or transmitting the requisite load to the ladder in a downward vertical direction when the ladder is placed at an angle of 75 1/2 degrees from the horizontal. Ladders built and tested in conformance with the applicable provisions of appendix A will be deemed to meet this requirement.

(a)(1)(iii) Each Fixed ladder: At least two (2) loads of 250 lbs. (114 kg) each, concentrated between any two consecutive attachments (the number and position of additional concentrated loads of 250 lbs. (114 kg) each, determined from anticipated usage of the ladder, shall also be included), plus anticipated loads caused by ice buildup, winds,rigging, and impact loads resulting from the use of ladder safety devices. Each step or rung shall be capable of supporting a single concentrated load of at least 250 lbs. (114 kg) applied in the middle of the step or rung. Ladders built in conformance with the applicable provisions of appendix A will be deemed to meet this requirement.

Excel ladders and stairs have been tested to meet the above required loads.

OSHA COMPLIANCE AND MAINTENANCE OF EXCEL MODULAR SCAFFOLD

All Excel Modular Scaffold equipment can be used to construct scaffolds that are 100% compliant with OSHA regulations.

When Excel Modular Scaffold material is assembled and maintained using the requirements in Excel Technical Manual the completed scaffold will meet the OSHA regulations.

The following sections from the OSHA 1926.450-453,1053 documents must be followed by the end-user to ensure all scaffolds are correctly constructed and all scaffold components correctly installed and maintained.

1926.454
(b) The employer shall have each employee who is involved in erecting, disassembling, moving, operating, repairing, maintaining, or inspecting a scaffold trained by a competent person to recognize any hazards associated with the work in question. The training shall include the following topics, as applicable:

(b)(1) The nature of scaffold hazards,

(b)(2) The correct procedures for erecting, disassembling, moving, operating, repairing, inspecting, and maintaining the type of scaffold in question,

(b)(3) The design criteria, maximum intended load-carrying capacity and intended use of the scaffold,

(b)(4) Any other pertinent requirements of this subpart.

1926.451
(f)(3) Scaffolds and scaffold components shall be inspected for visible defects by a competent person before each work shift, and after any occurrence which could affect a scaffold's structural integrity.

(f)(4) Any part of a scaffold damaged or weakened such that its strength is less than that required by paragraph (a) of this section shall be immediately repaired or replaced, braced to meet those provisions, or removed from service until repaired.

1926.451
(d)(10) Ropes shall be inspected for defects by a competent person prior to each work-shift and after every occurrence which could affect a rope's integrity. Ropes shall be replaced if any of the following conditions exist:

(d)(10)(i) Any physical damage which impairs the function and strength of the rope.

(d)(10)(ii) Kinks that might impair the tracking or wrapping of rope around the drum(s) or sheave(s).

(d)(10)(iii) Six randomly distributed broken wires in one rope lay or three broken wires in one strand in one rope lay.

All material must be inspected prior to use! See inspection guidelines on page 99.

(d)(10)(iv) Abrasion, corrosion, scrubbing, flattening or peening causing loss of more than one-third of the original diameter of the outside wires.

(d)(10)(v) Heat damage caused by a torch or any damage caused by contact with electrical wires.

(d)(10)(vi) Evidence that the secondary brake has been activated during an over-speed condition and has engaged the suspension rope.

1926.451
(d)(12) When wire rope clips are used on suspension scaffolds: (d)(12)(i) There shall be a minimum of 3 wire rope clips installed, with the clips a minimum of 6 rope diameters apart,

(d)(12)(ii) Clips shall be installed according to the manufacturer's recommendations,

(d)(12)(iii) Clips shall be re-tightened to the manufacturer's recommendations after the initial loading,

(d)(12)(iv) Clips shall be inspected and re-tightened to the manufacturer's recommendations at the start of each work-shift thereafter,

(d)(12)(v) U-bolt clips shall not be used at the point of suspension for any scaffold hoist,

(d)(12)(vi) When U-bolt clips are used, the U-bolt shall be placed over the dead end of the rope, and the saddle shall be placed over the live end of the rope.

1926.1053
(b)(15) Ladders shall be inspected by a competent person for visible defects on a periodic basis and after any occurrence that could affect their safe use.

1926.1060
(a) The employer shall provide a training program for each employee using ladders and stairways, as necessary. The program shall enable each employee to recognize hazards related to ladders and stairways, and shall train each employee in the procedures to be followed to minimize these hazards.

(a)(1) The employer shall ensure each employee has been trained by a competent person in the following areas, as applicable:

(a)(1)(i) The nature of fall hazards in the work area,

(a)(1)(ii) The correct procedures for erecting, maintaining, and disassembling the fall protection systems to be used,

(a)(1)(iii) The proper construction, use, placement, and care in handling of all stairways and ladders,

(a)(1)(iv) The maximum intended load-carrying capacities of ladders and

(a)(1)(v) The standards contained in this subpart.

All material must be inspected prior to use! See inspection guidelines on page 99.

SCAFFOLD INSPECTION GUIDELINES

During manufacture, Excel Modular Scaffold goes through a very intensive inspection program. Each part is handled and inspected two (2) times. Items are then randomly selected for non-destructive testing and a final inspection is performed. Further visual inspection is performed as the material is loaded for shipment to any jobsite.

Even with this intensive inspection system, it is still the responsibility of the end-user to ensure each piece of scaffold material installed is free of defects.

Scaffolds are usually built by one craft group and then work is performed on and around the scaffold by many different craft groups. During normal use, it is possible that scaffold components will become damaged. The following are general guidelines to aid the end-user in identifying potential problems with Excel Modular Scaffold material. This list is by no means all-inclusive, and is provided only as a general guide.

All components must be checked every time they are used, prior to installation or removal, for any visible damage, missing or broken welds, deformed or dented parts that may affect the strength of the item, saw marks, welding burn marks, excessive rust or chemical damage. Material must be removed from service any time rust or chemical damage has affected the strength or fit of the material. This is especially critical with the trigger and spring assembly.

End-users should immediately contact Excel Modular Scaffold and Leasing Corporation at (225) 777-4157 regarding any abnormal issues or concerns.

1. **For all items with end connectors**, the end connector must be undamaged and the trigger unbroken. Look for missing bolts or nuts that hold in the trigger or spring. Examine the trigger mechanism and ensure the trigger and spring are functioning correctly. Check to ensure the trigger/spring is free of weld splatter, gunnite and other products which could affect the smooth operation of the trigger/spring. Ensure the fit of the end connector to the vertical post is not excessively loose due to damage to the end connector.

2. **Intermediate horizontal adapters** must be free of any visible damage, missing or broken welds on the cups, bent or deformed cups, bent or deformed top plate, missing or bent top pin. The part must also be free from any saw marks, welding burn marks, or other damage which may affect the strength of the member.

3. **Verticals** must be free of any visible damage, missing or broken welds on the cups, bent or deformed cups, or bent or deformed tubing. The tubing must also be free of any saw marks, welding burn marks, large dents or other damage which may affect the strength of the member.

4. **Shoring posts** require special attention because of the loads they are required to support. They must be free of any visible damage, missing or broken welds on the cups, bent or deformed cups, or bent or deformed tubing. The tubing must also be free of any saw marks, welding burn marks, large dents or other damage which may affect the strength of the member. The members must be checked to ensure they are straight and plumb.

SCAFFOLD INSPECTION GUIDELINES

5. **Shoring jacks and shoring heads** require the same attention as the shoring post. Additionally, the screw connections must be checked for broken welds or damaged threads.

6. **Vertical adapters** must be must be free of any visible damage. The tubing must also be free of any saw marks, welding burn marks, large dents or other damage which may affect the strength of the member.

7. **Horizontals** must be free of any visible damage, missing or broken welds on the end connectors or bent or deformed tubing. The tubing must also be free of any saw marks, welding burn marks, large dents or other damage which may affect the strength of the member.

8. **Adjustable bearers** must be free of any visible damage, missing or broken welds on the end connectors or bent or deformed tubing. The tubing must also be free of any saw marks, welding burn marks, large dents or other damage which may affect the strength of the member. The locking bolt must be installed and working correctly to prevent movement.

9. **Adjustable braces, adjustable swivel braces and adjustable combination braces** must be free of any visible damage, bent or deformed tubing, missing or broken welds on the end connectors or clamp assemblies. The tubing must also be free of any saw marks, welding burn marks, large dents or other damage which may affect the strength of the member. The clamp rivet must be examined for wear or bending and the bolt threads must be free of defects. Locking pins must be installed and functional.

10. **Diagonal pin braces** must be free of any visible damage, bent or deformed tubing, missing or broken welds on the clamp assemblies. The tubing must also be free of any saw marks, welding burn marks, large dents or other damage which may affect the strength of the member. The clamp rivet must be examined for wear or bending and the bolt threads must be free of defects.

11. **Side brackets** must be free of any visible damage, missing or broken welds on the end connectors or cups, bent or deformed tubing. The tubing must also be free of any saw marks, welding burn marks, large dents or other damage which may affect the strength of the member. Special attention must be placed on inspecting the end connector where it fits into the cup and the trigger to ensure it fits snugly onto the vertical cups, and that there is no visible damage or bending.

12. **Casters** must be free of any visible damage. The caster must be round, the pin assembly must be straight, and all bolts and nuts must be present.

13. **Safety outriggers** must be free of any visible damage, missing or broken welds on the end connectors or cups, bent or deformed tubing. The tubing must also be free of any saw marks, welding burn marks, large dents or other damage which may affect the strength of the member.

14. **Screw jacks and swivel jacks** must be checked for proper operation and for damaged threads or nuts.

15. **Metal boards** must be free of any visible damage, creases in the board surface, bending of the support runners, excessive rust or chemical damage, missing or broken welds on the cleats. Board strength is directly affected by the cleats and the side rails. Ensure the cleats are undamaged and all welds are intact, and ensure the side rails are straight and undamaged.

SCAFFOLD INSPECTION GUIDELINES

16. **Trusses** must be free of any visible damage, missing or broken welds on the end connectors or bent or deformed tubing. The tubing must also be free of any saw marks, welding burn marks, large dents or other damage which may affect the strength of the member.

17. **Trolley beams** must be free of any visible damage. They must not contain saw marks, welding burn marks, large dents or other damage which may affect the strength of the member. The bottom web, which supports the trolley, must be free of dents or bends.

18. **Roof adapters** must be free of any visible damage or missing or broken welds. Special attention must be placed on inspecting the end connector where it fits into the cup and the trigger to ensure it fits snugly onto the vertical cups and that there is no visible damage or bending.

19. **Ladders** must be free of any visible damage, missing or broken welds on the rungs, bent or deformed tubing or rungs. The side rails and rungs must also be free of any saw marks, welding burn marks, large dents or other damage which may affect the strength of the members.

20. **Ladder brackets** must be free of any visible damage. The clamp rivet must be examined for wear or bending and the clamp bolt threads must be free of defects.

21. **Safety gates** must be free of any visible damage, missing or broken welds. The tubing must be free of any saw marks, welding burn marks, large dents or other damage. The clamp rivet must be examined for wear or bending and the clamp bolt threads must be free of defects.

22. **Safety gate handrails** must be free of any visible damage, missing or broken welds. Special attention must be placed on inspecting the end connector where it fits into the cup and the trigger to ensure it fits snugly onto the vertical cups and that there is no visible damage or bending.

23. **Stair system parts** must be free of any visible damage, missing or broken welds, missing tread lock down clips or missing locking bolts. Stair stringers must be straight and undamaged. The tread locking clips must be able to lock down the boards when they are in place and must have the snap buttons installed. The stair base must have all bolts for locking the foot in place and the bolts must be in good working condition. The end hooks must be examined for bends, cracks or broken welds.

24. **Rope pulley hoist** must be free of any visible damage, missing or broken welds. The tubing must be free of any saw marks, welding burn marks, large dents or other damage. Special attention must be placed on inspecting the end connector where it fits into the cup and the trigger to ensure it fits snugly onto the vertical cups and that there is no visible damage or bending. The clamp rivet must be examined for wear or bending and the bolt threads must be free of defects. Locking pins must be installed and functional. Any attached pulley and rope must be inspected according to OSHA guidelines and the manufacturer's recommendations.

25. **Tube and clamp** material has been manufactured by many different vendors. When the vendor can be determined, always use their guidelines for inspection and maintenance. The tubing must be free of any visible damage, saw marks, welding burn marks, large dents or other damage. The tube ends must be securely attached to the tubing and must be undamaged. The clamp rivet must be examined for wear or bending and the bolt threads must be free of defects.

SCAFFOLD INSPECTION GUIDELINES

26. **SRL adapter** parts must be inspected daily before use. They must be free of any visible damage. The clamp rivet must be examined for wear or bending and the bolt threads must be free of defects. The adapter clamp must be free of any bending, (it must be discarded if used to prevent a fall or damaged) the bolts must free of defects. The wire rope must be inspected as required by OSHA. Wire rope shall be replaced if the rope has any physical damage which impairs its function and strength—six (6) randomly distributed broken wires in one rope lay or three (3) broken wires in one strand in one rope lay, abrasion, corrosion, scrubbing, flattening or peening causing loss of more than one-third of the original diameter of the outside wires, evidence of any heat damage resulting from a torch or any damage caused by contact with electrical wires.

27. **Horizontal tie-off support** must be inspected daily before use. They must be free of any visible damage, saw marks, welding burn marks, large dents or other damage. The clamp rivets must be examined for wear or bending and the bolt threads must be free of defects. The horizontal bearing cups must fit snugly against the horizontal members and must be examined for bends, cracks or broken welds.

28. **Lifting devices** must be inspected before use. They must be free of any visible damage, saw marks, welding burn marks, large dents or other damage. The bolts must tightened and free of defects. The vertical they are attached to must be inspected, and all vertical locking clamps installed at the joints of the vertical.

29. **Vertical locking clamp** must be inspected before use. They must be free of any visible damage, saw marks, welding burn marks, large dents or other damage. The clamp rivets must be examined for wear or bending and the bolt threads must be free of defects.

30. **Boiler equipment** must be free of any visible damage, missing or broken welds. The tubing and beams must be free of any saw marks, welding burn marks, large dents or other damage. Special attention must be placed on the shoring beams and ladders to ensure they are undamaged.

31. **Toe boards and toe board connectors** must be free of any visible damage, saw marks, welding burn marks, large dents or other damage. The clamp rivets must be examined for wear or bending and the bolt threads must be free of defects. The snap buttons must be installed and working correctly.

32. **Rapid access equipment** must be free of any visible damage, saw marks, welding burn marks, large dents or other damage. The clamp rivets must be examined for wear or bending and the bolt threads must be free of defects. Special attention must be given to the ladder hooks to ensure they are unbent and free of damage.

33. **Beam clamps–rigid and swivel** must be free of any visible damage, saw marks, welding burn marks, large dents, cracks, damaged bolt threads, lose or damaged rivets or other damage. The clamp must be examined for wear, cracking or bending and the bolt threads must be free of defects. Special attention must be given to the radius area of the clamp to ensure there are no cracks in the bend area.

GUIDELINES THAT MUST BE FOLLOWED BY EXCEL END-USERS

Repairs and maintenance activities that are authorized to be performed in the field:

1. Replacement of trigger assembly in Excel components (i.e., trusses, horizontal bars, side brackets, etc.).
   — Must order replacement triggers in advance from Excel.
2. Replacement of spring assembly in Excel components (i.e., trusses, horizontal bars, side brackets, etc.).
   —Must order replacement springs in advance from Excel.
3. Replacement of nuts and bolts that hold springs and triggers in Excel components.
   —Must order replacement nuts and bolts in advance from Excel.
4. Replacement of coupling pins in vertical legs and side brackets.
   —Must order replacement coupling pins in advance from Excel.
5. Replacement of snap buttons in coupling pins, stair stringers or other components.
   —Must order replacement snap buttons in advance from Excel.
6. Replacement of coupling pin snap buttons in vertical legs and side brackets.
   —Must order replacement coupling pins in advance from Excel.
7. Replacement of locking pins in diagonal braces components.
   —Must order replacement locking pins in advance from Excel.
8. Minor bending/straightening of the ladder bracket.
   —Ladder brackets can become bent in or out so that they will not correctly fit the ladders. Ladder brackets may be bent straight if the bend required is less than 1/2 inc.

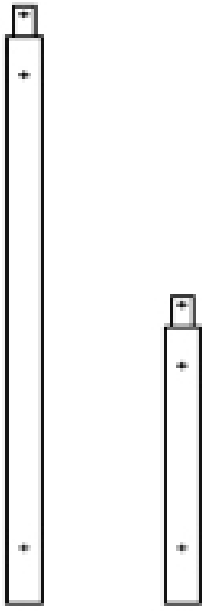
Repairs and maintenance activities that are NOT authorized to be performed in the field:

1. Re-galvanizing Excel components that have been corroded or sand blasted.
2. Straightening vertical leg assemblies that have been bent.
3. Shortening vertical leg assemblies by cutting.
4. Straightening horizontal bar assemblies that have been bent.
5. Shortening horizontal bar assemblies by cutting.
6. Any repairs to trolley movement system components.
7. Any repairs to truss components.
8. Any repairs to metal deck board components.
9. Any repairs to stair stringer components. (With the exception of replacing the snap button in the tread lock down).
10. Any repairs to rope pulley hoist components.
11. Any welding to any component.

All material that is NOT authorized to be repaired in the field must be returned back to the manufacturer as damaged material.

All material must be inspected prior to use! See inspection guidelines on page 99.

EXCEL MODULAR VERTICAL ADAPTER



Part Number	Description	Effective Length (inches)	Overall Length (inches)	Tube Length (inches)	Weight Galvanized (lbs.)
CV4	Vertical Adapter 4	23	26.25	23	5
CV8	Vertical Adapter 8	46	49.25	46	13.2

Unbraced Post Length (inches)	Maximum Allowable Compressive Load When Rated for Scaffold Use (lbs.)
69	6,986
46	8,230
23	8,690

Note: All tubing is 1.90 diameter, 11-gauge (0.120 wall), high-strength, minimum 65,000 yield, and 75,000 tensile. This item is designed to allow a vertical to pass through a congested area, such as a pipe rack or cable tray.

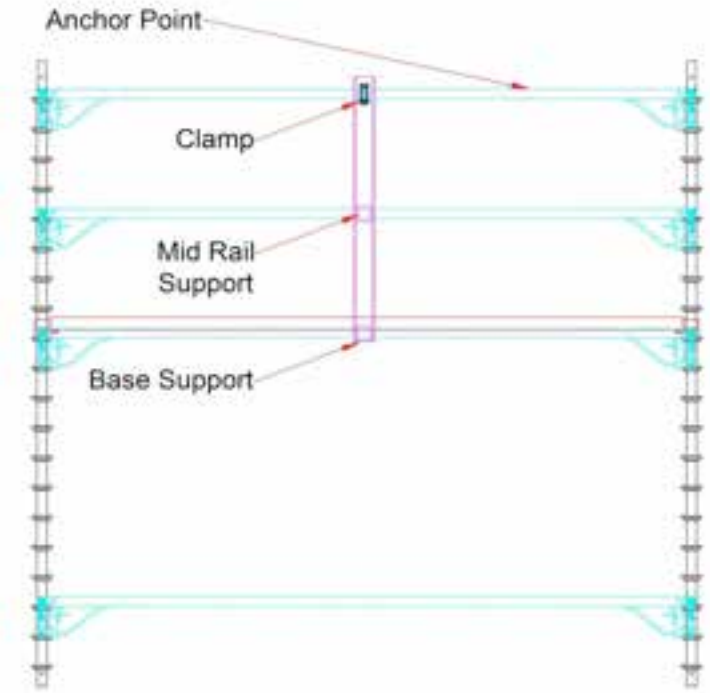
Verticals are designed to be compatible with standard 1.90 OD tube and clamp material.

Vertical adapters shall never be stacked such that there is more than 69 inches of unsupported vertical.

<<<CAUTION: There is a pinch point where two verticals are pinned together.>>>

All material must be inspected prior to use! See inspection guidelines on page 99.

HORIZONTAL TIE-OFF SUPPORT



The horizontal tie-off support is designed for quick and easy installation. The single clamp design allows for the greatest amount of support with the fastest possible installation time.

The horizontal tie-off support must always be installed in the middle of the horizontals to provide the maximum amount of support at the weakest location.

An anchorage may never be place on the middle or bottom horizontal.

Part Number	Description	Weight (lbs.)
HTS	Horizontal Tie-Off Support	11

WARNING

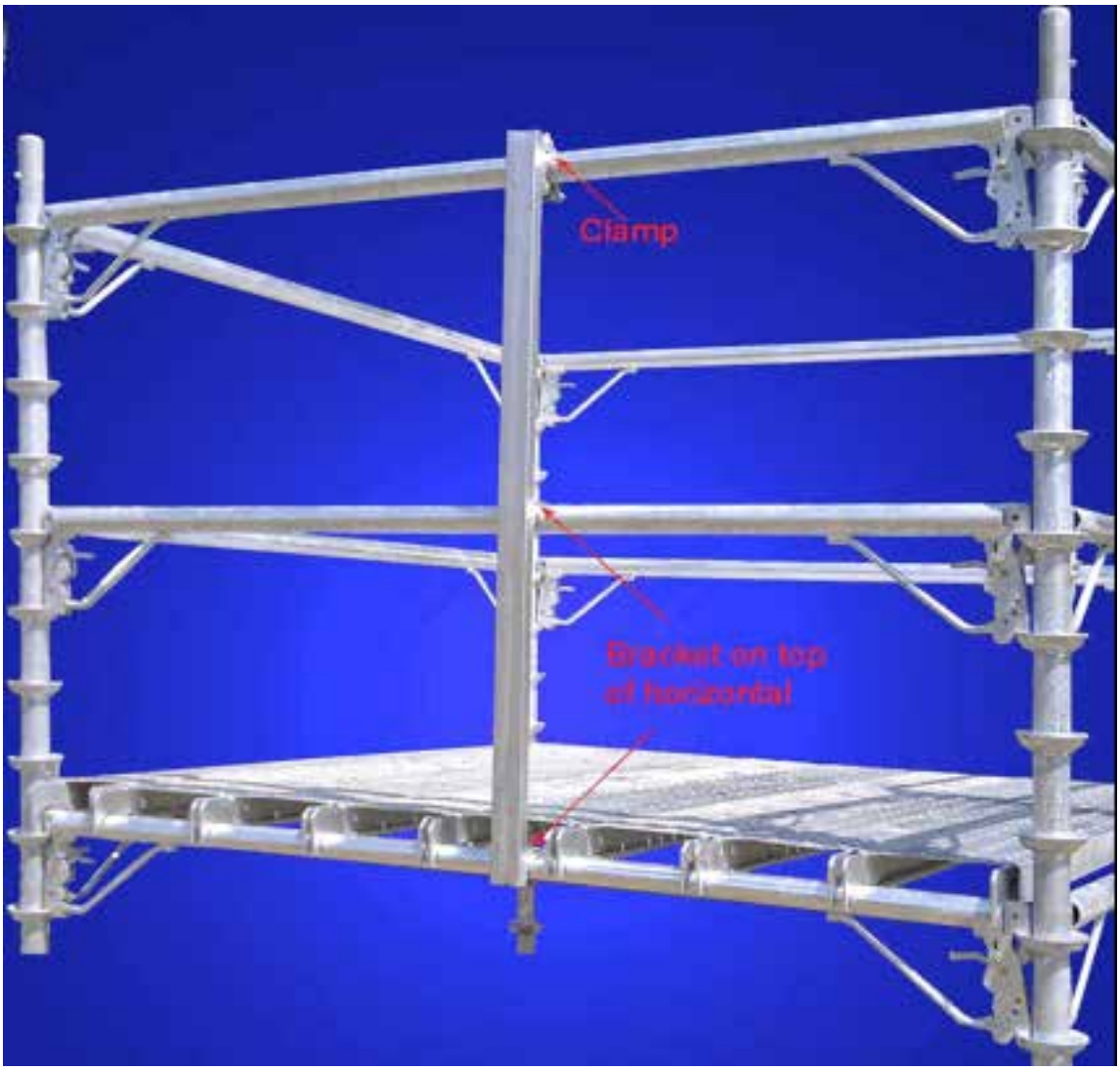
1. Before tying off to the handrail make sure the horizontal tie-off support is properly installed and the clamp tight.
2. The horizontal tie-off support should be installed as close as possible to the center of the horizontal.
3. Any horizontal tie-off support that has been used to prevent a fall must be removed from service, even if there is no visible damage.
4. The horizontal tie-off support must only be used when following the complete tie-off guidelines in this section of the technical manual.
5. Care must be taken to ensure the horizontal that the horizontal tie-off support is attached to are properly latched into place.
6. Tie-off anchorages must never be attached to this component. Only to the top horizontal it supports.

Clamp bolts should have between 40 and 65 lbs. tension. Overtightening could damage the threads, bolt or item the clamp is attached to.

All material must be inspected prior to use! See inspection guidelines on page 99.

PROPER INSTALLATION OF HORIZONTAL TIE-OFF SUPPORT

The proper way to attach a horizontal tie-off support to the horizontals is in the center of the horizontal with the clamp attached to the handrail. The clamp should slide over the handrail and the bolt should be at the bottom of the horizontal.



The top clamp may appear to be installed upside down, and this may seem improper for experienced builders since a fall will put pressure on the handrail and push down on the bolt. The horizontal tie-off support was designed this way, so that if the bolt came loose the flap would prevent the horizontal tie-off support from falling off the scaffold.

LIFTING AND MOVING EXCEL MODULAR SCAFFOLD

The following general guidelines are provided for lifting and rigging Excel Modular Scaffold material. These are general guidelines. Users should follow all Federal, State and local rigging guidelines. (See: OSHA – 1926.251, Rigging equipment for material handling, OSHA – 1926.753, Hoisting and rigging, OSHA – 1926 Subpart N, Cranes, Derricks, Hoists, Elevators, and Conveyors, other OSHA and ASME standards as applicable.)

Excel scaffold racks may be used to hold material while lifting, provided the following guidelines are followed.

1. All material must be evenly balanced in the rack.
2. All material must be secured from sliding. (Two (2) ratchet straps, two (2) wraps of banding, or other approved method of securing the material shall be used.)
3. All material must be secured to the rack. (This can be accomplished by the same strapping/banding required above.)
4. Standard rigging procedures should be used to prevent movement of the straps while lifting the load. (Use of a spreader bar when possible is preferred.)

Note:

1. All OSHA and plant safety regulations governing rigging and material handling must be followed.
2. All loose material must be removed or secured before lifting.
3. Spreader beams must be used, so that the lifting load on all vertical posts is applied in an upward direction.
4. The scaffold must be properly braced to prevent deformation during movement.
5. Scaffold weight loads must be calculated to prevent the overloading of any scaffold or lifting component.
6. All scaffold components (deck boards, etc.) must be secured to the scaffold.

Clamp bolts should have between 40 and 65 lbs. tension. Overtightening could damage the threads, bolt or item the clamp is attached to.

All material must be inspected prior to use! See inspection guidelines on page 99.

SCAFFOLD MATERIAL LOADING AND SHIPPING GUIDELINES

SAFETY IS ALWAYS OUR NUMBER ONE GOAL AND CONCERN

These are Excel's company goals regarding the shipment and receipt of Excel scaffold material. Clients are requested to comply with these common sense requirements when they are preparing scaffold shipments for return to the Walker, LA yard.

1. Upon completion of the project, Excel requires that all scaffold material be properly segregated and racked by individual components. Prior to being released for transport, customers must have completed the following actions to correctly prepare the scaffold material for shipment back to Excel:
   a.) Material must be properly segregated by size and component.
   b.) Material must be properly counted and a shipping ticket completed for each truckload.
   c.) Material must be racked or put into baskets by component.
   d.) Material must be banded to the rack to ensure it will not shift or break loose while in transit.
   e.) Advanced copies of shipping tickets must be sent to Excel.
   f.) Shipments must be coordinated in advance with our Excel warehouse.
   g.) Do not schedule material for shipment until all items have been completed.

2. Have proper client authorization request and release paper work listing material needed.
   a.) Computer load calculations are completed for total weight verification prior to loading material.
   b.) Complete initial pre-loading diagrams to ensure how and where material will be placed on truck.
   c.) Complete all shipment, tractor, trailer and driver inspection paper work.
   d.) If at all possible, you should always have material pulled and staged prior to truck arrival.
   e.) For safety reasons, always use a two-man team when loading scaffold material shipments.

3. Do not load trucks early in the morning or late at night and in instances where there is not enough light to properly and safely see after dark.
   a.) Do not let the tractor operator/driver get in the way while you are loading scaffold material.
   b.) Require driver to wear hard hat when forklifts are operating during loading and unloading.

4. Take pictures of all incoming and outgoing shipments prior to release of truck.
   a.) Use a dry erase board or other means to show date, time, ticket number, etc.
   b.) Ensure both the truck and trailer have current registration tags before loading.
   c.) Ensure the truck driver has a valid driver's license before loading.
   d.) Trailer and tractor should have good tires (not bald) on all axles before loading.
   e.) Ensure the truck driver has all of the required insurance paperwork before loading.

All material must be inspected prior to use! See inspection guidelines on page 99.

SCAFFOLD MATERIAL LOADING AND SHIPPING GUIDELINES

f.) Driver should be observed for any obvious FFD impairment problems.
g.) If all conditions cannot be properly met, do not load the truck.

5. Ensure all material is loaded and secured as required for safe handling, loading and shipment.
   a.) Material should never be free-loaded. It should be planned in advance and weighed accurately.
   b.) Material must be properly secured/banded.
   c.) Small items should be put into standard Excel baskets or boxes to prevent falling out during transit.
   d.) Material should be properly segregated by type and size of scaffold components.
   e.) Material should be properly banded/secured inside of shipping container to prevent movement.

6. When loading requires horizontal racks that are not the same length to be stacked (see pictures on previous page), the following additional guidelines MUST be met:
   a.) The rack with the longest horizontals must be placed on the truck first.
   b.) The rack with the shortest horizontals must be placed on top, so that one set of rack feet sit on top of the lower rack's post.
   c.) Cribbing must be placed on top of the horizontals, under the other set of rack feet.
   d.) The cribbing must be secured from movement by using cleats, banding or other means.
   e.) The two racks must be banded together to prevent the top rack from dislodging.
   f.) When loading requires any other racks, baskets or bundled material that are not the same length to be stacked, cribbing must be used between the racks, baskets or material to ensure it is level and will not shift during transport or unloading.
   g.) If all of the above conditions cannot be properly met, do not load or ship the material.

7. You should have an independent (two different people) double-check and verify the following:
   a.) Ensure the truck is not overweight.
   b.) Maximum material loaded height above the ground must not exceed 13.5 feet.
   c.) Material loaded must not extend beyond the width of trailer.
   d.) Never load racks of steel planks or toe boards on the back of the truck, as they can come out easily.
   e.) Once material is loaded onto the trailer, make sure it is properly secured by the driver.
   f.) Ensure the correct scaffold material components and sizes are actually on the trailer.
   g.) Ensure the driver has been given copies of all shipping paperwork before he is released.
   h.) Ensure the driver fully understands where he is going and when he is expected to arrive.
   i.) When required, instruct the driver to weigh his truck at the nearest scales to determine if he is overloaded.

8. Notify the receiving organization that the material has departed and is in transit.
   a.) Ensure the load will arrive at the designated location during normal working hours/days.
   b.) Fax a copy of exactly what material is being shipped to Excel.
   c.) Verify the location is aware that the shipment is en route and that someone will be there to receive and unload it.

9. Charges for return of Excel material not properly sorted and racked.
   The goal is for all Excel material to be returned from customers in the same manner in which it was shipped. Properly prepared Excel shipments make it easier, safer, quicker and more accurate for all involved parties in the physical inventory and return process. If for any reason the Excel material is not returned as requested, Excel will take the following corrective actions:

All material must be inspected prior to use! See inspection guidelines on page 99.

a.) Breaking down any racks or baskets of material that were improperly loaded.
b.) Properly re-racking as required by our quality assurance program.
c.) Track all of the extra man-hours/handling charges associated with re-racking material in order to store the components long term, awaiting future client orders and shipment.
d.) Excel will invoice the customer for the additional charges incurred with correcting the shipment.
e.) Excel will also invoice the customer for any fees and/or penalties related to improperly loaded or overloaded return shipments assessed to and paid by Excel.

10. Excel material quantity disputes and final inventory reconciliation.
    a.) Material shipped from the Excel warehouse facility in Walker, LA to all customers undergoes stringent quantity verification in accordance with Excel's ISO 9001 program. All outgoing and all incoming transactions are subject to two independent verification counts. If needed, a third independent count is performed to reconcile any differences before final shipping or receipt.
    b.) All shipments to customers should be verified immediately upon receipt of the material. Any discrepancies must be reported to the Excel warehouse facility in Walker, LA immediately, before any material is utilized. Excel will have 24 hours after receiving a discrepancy notice to make arrangements for an independent verification, or to submit pertinent information. During this period the material must be segregated, not moved or utilized for erection, allowing Excel the ability to respond.
    c.) Material will not be subjected to rent during this period. At the end of this period, if Excel does not independently verify the counts, the material may be used and the quantities reported by the client will be utilized in the inventory.
    d.) Upon receipt of the material at the Excel warehouse facility in Walker LA, the scaffold material is again subjected to two independent verification counts, and if needed a third reconciling count. Any discrepancies between the counts and the quantity reflected on the client prepared shipping ticket faxed to the Excel warehouse facility in Walker, LA, will be reported to the client immediately. The client will have 24 hours after receiving a discrepancy notice to make arrangements for an independent verification. Excel will segregate and hold the material awaiting the client's decision. After this period, if the client does not independently verify the counts, the material will be returned to stock and the Excel counts will be utilized in the inventory.
    e.) At the end of the project, all concerned parties will review the final inventory status, which is based on each shipping ticket (inbound and outbound). Excel will invoice the client for any material shortages or damages which would be included as part of the final closeout invoice.

Always call Excel in advance of shipping if you have any questions on the above guidelines.

The Walker, LA phone number is (225) 777-4157.

All material must be inspected prior to use! See inspection guidelines on page 99.

KEY RULES

The purpose of adding the "Key Rules Section" to this Excel Technical Manual was to have a common place to collect valuable information on lessons learned, and scaffold erection practices that would be useful to our end-users, that would make their work activates safer, easier and more efficient.

"SAFETY IS ALWAYS NUMBER ONE"

1. Always keep the most up-to-date copy of our Excel Technical Specification Manual nearby. Visit our website, where it can be downloaded as needed. www.excelscaffold.com

2. When constructing, modifying or removing Excel scaffold material, it is very important that craft personnel handling the components in the field always wear the proper PPE (hard hat, gloves, safety glasses and safety shoes). Leather gloves are especially important to prevent accidental hand injuries that could be caused by the positive-locking trigger mechanism on each end of the horizontal bars, which are a potential pinch point.

3. Two- (2) cup verticals cannot have a vertical pin inserted in the top and bottom. The snap buttons will not lock on both pins and may create a drop hazard. Two- (2) cup verticals should never be used or pinned in the middle of other verticals.

4. When building towers out of Excel modular material, utilize the exact same building techniques that you have always used with tube and clamp and other modular systems for bracing and board deck wrap requirements.

5. Take the time during your initial jobsite walk down to gather the required information and measurements required to make a detailed and accurate Excel cut list for pulling material.

6. Do not try to memorize all of the different load ratings of Excel work decks. Always refer back to the Excel technical specification manual to get the exact load ratings.

7. Do not try to build Excel towers in a tight/restricted location that has previously been found to be very difficult to build with tube and clamp. It will be extremely difficult and take longer than tube and clamp.

8. Do not use a "Porta Band Saw" mentality when building with Excel. Modular material is typically more expensive than tube and clamp and should only be cut as a last resort. If you must cut vertical legs, always cut them on the top. Keep in mind, there will be invoices for damaged material.

9. Always start tower erection with adjustable screw jacks. You must assume that the floor is not level. Always place screw jacks in middle of threads or approximately six (6) inches off the ground.

10. Always do a visual inspection of the horizontal bars as the scaffold is being constructed to make sure the triggers are properly locked in place and that they are in the up position.

11. Light tapping of the horizontal bars, on top of the end connector, is allowed to get the positive-locking trigger assembly properly locked into the cups/node points on the vertical leg.

12. Random field testing of Excel scaffold components by unqualified personnel is not allowed. Any concerns, issues or questions with supplemental testing should always be referred to the manufacturing facility in Walker, LA to the attention of Lance Smith at (443) 293-6352.

13. Use a level to get the tower totally plumb/level at the very beginning of the build, on the very first base wrap, or you will fight bar placement all the way up.

All material must be inspected prior to use! See inspection guidelines on page 99.

KEY RULES

14. Vertical leg posts are called "VPs" based on the number of cups: VP-2 is the shortest and VP-20 is the longest. They are named with even numbers—approximately one foot in length for every two cups. Remember that VP-2s have very limited use and are only used at the very top of a vertical leg to add the final cups need to attached the top handrail. They are not used for any other application

15. Vertical cups (node point, moment connections) are on 5 3/4 inch centers the entire length of the vertical leg assembly for better flexibility.

16. Always have two hands on the components at any time, especially when setting another set of vertical legs on an existing set of vertical legs.

17. When setting a vertical leg on top of an existing leg, one hand shall support the upper leg, while the other hand depresses the spring clip. Then, slowly lower the top vertical leg down. Slightly twist the vertical until the spring clip locks into place. Do not drop the upper vertical leg onto the lower vertical leg coupling pin.

18. To remove vertical legs that are connected, depress spring clip, twist (clockwise or counter clockwise) the upper vertical leg approximately 20 degrees, and with both hands lift to remove from lower vertical leg coupling pin.

19. All sizes of bearers and runners (horizontal bars) are two (2) inches shorter than the actual size, allowing for center-to-center measurement between vertical leg assemblies.

20. Two- (2) through seven (7) foot Excel horizontal bars are all load-bearing ledgers. All other Excel horizontal bars are NON-load-bearing runners only.

21. You can board-deck out to eight- (8), nine- (9) and ten- (10) foot runners, as long as you install one (1) diagonal brace back to the leg within eighteen (18) inches from the center of the runner.

22. Always install the telescoping diagonal bracing after the first horizontal wrap, but before the second board deck wrap is put into place.

23. When passing (i.e., manual chain line) any type of telescoping brace (adjustable handrail or diagonal brace) ensure components are secured together by clip prior to upward or downward movement. This applies to adjustable toe boards, as well.

24. Diagonal extendable braces typically require a twelve- (12) cup split between the top connector on one end, and the bottom connector on the other end—eight (8) cups between the two (2) ends. Swivel braces and combination braces may fit differently.

25. Do not exceed a maximum of fourteen (14) cups (6' 6") spacing between horizontal board deck wraps from the top of lower horizontal bar wrap to the top of the next horizontal bar wrap.

26. When installing your mid-rail and top handrail, you use the following spacing from the board deck: Skip two (2) cups, hit two (2) cups, skip two (2) cups, hit two (2) cups and you will be right in line with OSHA requirements. Does not require tape measure.

27. Standard handrail corner posts are always comprised of eight- (8) cup vertical leg assemblies (minimum eight- (8) cup leg length).

All material must be inspected prior to use! See inspection guidelines on page 99.

KEY RULES

28. When installing telescoping toe boards, make sure that you install the toe board end connector in the unlocked position to the vertical leg and tighten the half clamp just enough so that it won't fall off. After you have all the toe boards installed into the toe board end connector, then line everything up nice and straight and tighten up the half clamp as the very last step.

29. Clean verticals (cupless) are used to get through very tight places (cable trays, piping runs, etc) where standard vertical legs with cups will not fit. Clean verticals must not exceed 69 inches.

30. When adding a leg in the middle of thin air (i.e., in the middle of a horizontal bearer bar using and intermediate horizontal adapter, or on top of a side bracket or cantilever) that does not go all the way to the ground, you can not exceed 25 lbs./sq. ft., unless it is supported back to a primary leg with a second diagonal brace.

31. When using truss assembly lifting rigs, always ensure you use a nylon strap that is at least four (4) inches wide or greater.

32. The in-line hatch is for a light-duty, 25 lbs./sq. ft. applications only and requires a perfectly square corner for proper installation.

33. When constructing the rapid access system, remember that once completed, the work platform is limited to a light-duty application of 25 lbs./sq. ft.

34. To properly install the swing gates, rope pulley hoists and SRL adapters, always connect theses particular Excel components to the vertical leg that goes all the way to the ground for stability purposes.

35. When installing vertical access ladders, always remember that the ears on the ladder bracket always point up and are installed on the ladder first, then attached to the vertical post. Additionally, always install the vertical ladder with the male end of the ladder pointed up and the female end pointed down.

36. When installing a rope pulley hoist above the top handrail, always install another complete wrap or horizontal bars at least four (4) feet above top handrail, to tie in with the rest of the tower.

37. The approved tie-off area for fall protection is above the top handrail, where two horizontals bars connect to a vertical leg. Refer to the technical manual on how to use horizontal bars, which are now approved for tie-off purposes.

38. When installing an SRL adapter above the top handrail, you must always install another entire board deck wrap at least four (4) feet above the top handrail to tie in with the rest of tower.

39. When building hanging Excel towers, ensure you install a safety clamp onto the vertical leg directly above the Excel horizontal bar that will be holding the weight of the leg going down.

40. Always use handrails and step in the center of the treads. Always walk down the stair tower, do not run, do not skip any steps.

41. Clamp bolts should have between 40 and 65 lbs. tension. Overtightening could damage the threads, bolt or item the clamp is attached to.

42. Never use rigid beam clamps or swivel beam clamps to hang or support a scaffold with the bolts. These types of clamps should only be used for bracing a scaffold or with the flat portion supporting the load.

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KEY RULES

43. Be very careful to make sure not to overload trucks when shipping scaffold material, the maximum weight loaded should be capped at the maximum load the driver can legally carry. The user should validate the estimated weight by entering the quantity of scaffold components into a spreadsheet designed specifically to calculate and cross-check the total estimated weight. (A weight sheet can be made from our current List Price Sheet.)

44. It is a very sound work practice to get the truck driver to go directly to the closest CAT certified weigh scale after they leave the jobsite to double-check the total loaded weight. This way if the truck is overweight, the driver can quickly return to the site to have material removed to lower the gross vehicle weight, so that it is in compliance with the Federal DOT requirements.

45. When shipping Excel scaffold material, take adequate time upfront and be careful to make sure that it is always properly racked, stacked and banded prior to loading onto the flat bed trailer to prevent inadvertent shifting during transit.

46. When shipping Excel scaffold material, make sure to always use the proper racks and baskets. Do not make your own temporary racks out of miscellaneous scaffold parts that could come apart when loaded, unloaded or during transit, which could result in possible injury to personnel or property.

47. When loading racks and baskets of Excel scaffold material onto flat bed trailers, take adequate time to make sure that those items are properly secured to the flat bed trailer using multiple ratchet tie down straps for each level and row of baskets and racks to prevent shifting during transit.

48. When unloading racks and baskets of Excel scaffold material off of flat bed trailers, inspect the load to see if any items have shifted during transit prior to removing any of the ratchet tie down straps. Ensure personnel do not stand below the rows of racks being unstrapped in case any material comes loose and falls off the truck.

49. When loading a truck and stacking racks, baskets or bundles of material that are not the same length, use the proper cribbing to ensure the load is level and will not shift during transit or unloading.

50. Casters are the easiest item to overload when building a rolling scaffold. Scaffolds should be limited to two (2) work decks, fifteen- (15) feet high when using eight- (8) inch casters and three (3) work decks, 21 feet high when using twelve- (12) inch casters.

51. Always inspect horizontal bars prior to installation to ensure the trigger and spring are installed properly and functioning correctly. If you find an end connector with a broken trigger or weak spring, do not use that component. Pull it out of service and tag it for repair. Additionally, when installing ledgers or bearers, do not let go of the bar until you verify that it is properly locked into place and that the trigger is resting in the up position.

52. Always remember that when constructing Excel lifting rigs—structures that use I-beams as part of a trolley movement system for transporting live loads—this application was only designed for use with a W-6 I-beam only. No other size I-beam is authorized for use in a trolley system because they will not properly fit into the trolley strap kit and could cause a potential failure.

53. When building lifting rigs or trolley movement systems, never utilize standard intermediate horizontal adapters (IHA) to hold the up the truss that will be the load bearing component where the chain fall hoist is attached. intermediate horizontal adapters were not designed for this purpose and they can fail, causing the accidental drop of a load.

54. If you have questions regarding the contents; any ideas or suggestions on a new scaffold component design that would help make your job safer, quicker, easier; or any issues, concerns or problems regarding any Excel scaffold components please call Lance Smith, Engineering Design, in Walker, LA at (443) 293-6352.

All material must be inspected prior to use! See inspection guidelines on page 99.