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ENGINEERING

DATA

ENGINEERING INFORMATION

STANDARD LOADING CHART

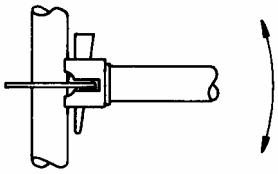
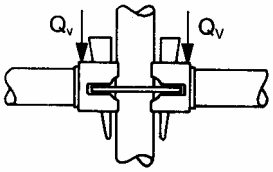
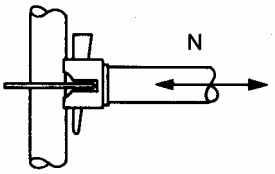
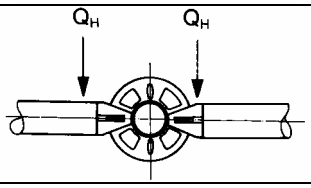
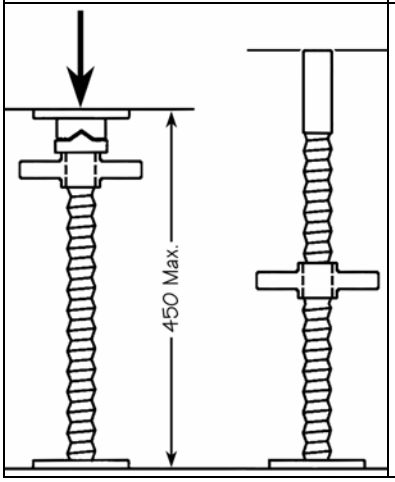
DISTANCE "Y" IS THE VERTICAL DISTANCE ON THE STANDARD BETWEEN LEDGER LEVELS, WHERE AT LEAST TWO LEDGERS ARE CONNECTED AT RIGHT ANGLES, PROVIDING SUPPORT TO THE STANDARD AGAINST MOVEMENT IN BOTH DIRECTIONS.

Factor of Safety = 4:1

DISTANCE "Y"		CAPACITY *	
2.0 M (MOST TYPICAL)	6'6"	5,000 LB	22.24 KN
1.5 M	4'11"	7,500 LB	33.36 KN
1.0 M	3'3"	9,000 LB	40.03 KN
3.0 M	9'10"	2,500 LB	11.12 KN

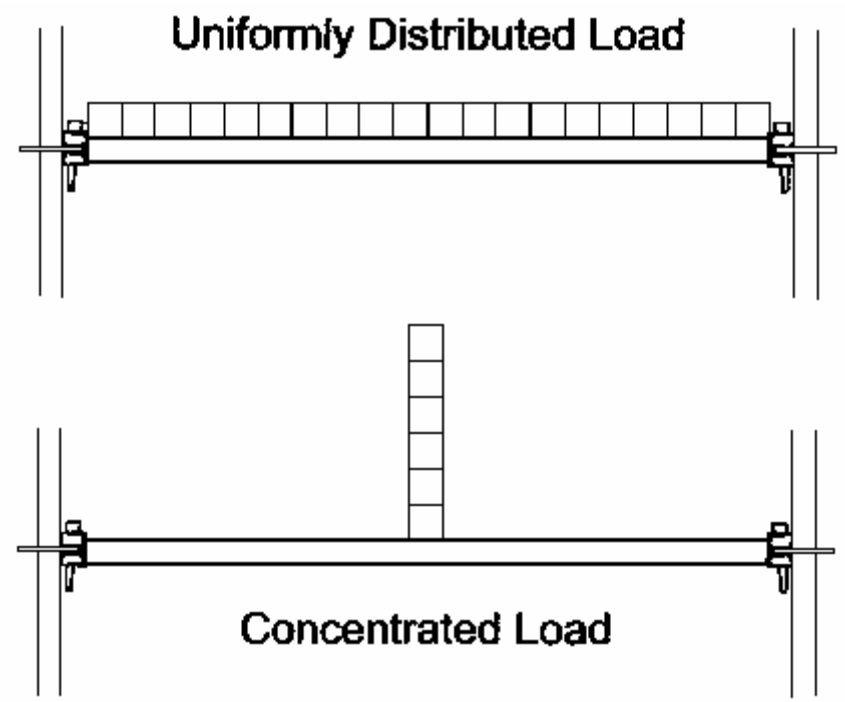
* BASED ON 3-TIER PHYSICAL TESTS CARRIED OUT IN 2011

ENGINEERING INFORMATION

CONFIGURATION	DESCRIPTION	SAFE WORKING LOAD (F.S. = 4:1)
	**Bending Moment Test --** Rotational load applied to Ledger, secured to Rosette with Wedge	6,154 lb-in
	**Vertical Shear Test --** Vertical Shear force applied to Ledgerheads, secured to Rosette with Wedges.	7,610 lb on two ledgers 3,805lb on one ledger
	**Ledger Tensile Test --** Horizontal load applied to Ledger, secured to Rosette with Wedge.	2,879 lb
	**Horizontal Shear Test** – Horizontal shear force applied to Ledgerheads, secured to Rosette with Wedges.	3,571 lb for each Ledger
	Coupling Pin Test - Axial tensile force applied to standards, secured to coupling pin with high tensile bolts.	1,200 lb
	**Screwjack Test** – Axial compressive load applied to Screwjack.	20,608 lb

ENGINEERING INFORMATION

LEDGER LOADING



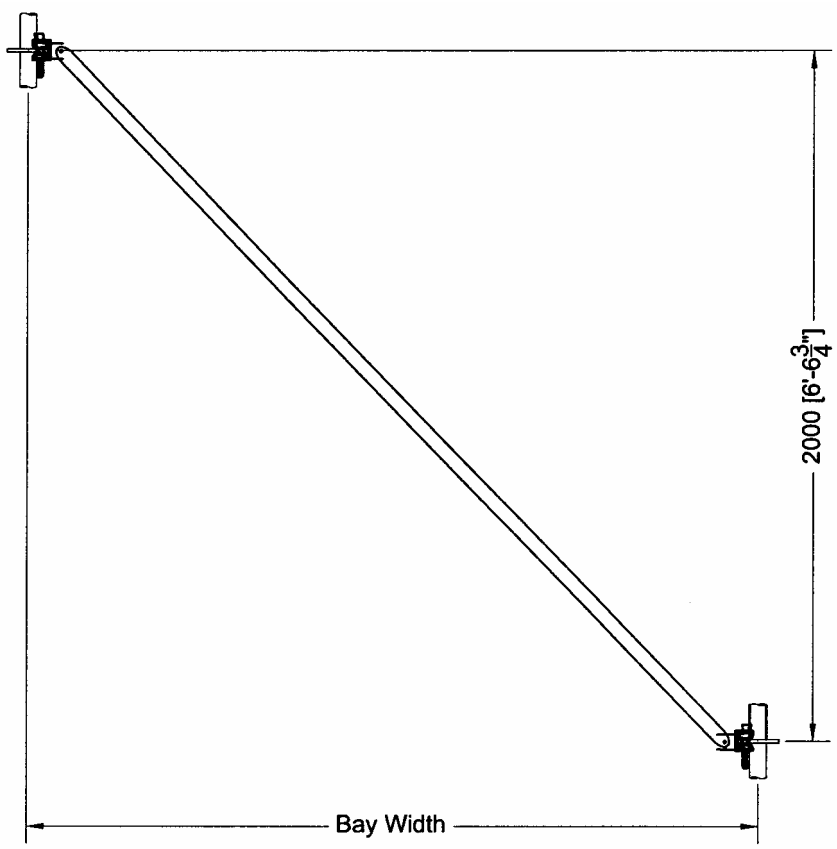
			Uniformly Distributed		Concentrated	
mm	**Ft**		**kN/m**	**Lb/ft**	**kN**	**Lb**
650	2'1⅝	cv	23.43	1,785	7.82	1,759
880	2'10	cv	13.34	1,016	5.90	1,326
1067	3'6	cv	8.71	664	4.77	1,072
1150	3'10	cv	7.27	554	4.35	978
1219	4'	cv	6.68	509	4.17	938
1524	5'	cv	4.27	325	3.34	751
1572	5'2	cv	4.00	305	3.23	726
1626	5'4	cv	3.75	286	3.13	703
1829	6	cv	2.97	226	2.78	625
2130	7	pt	2.18	166	2.39	536
2438	8	cv	1.66	127	2.09	469
3050	10	cv	1.06	81	1.67	375

Factor of Safety = 4:1

pt: physical test cv: calculated value (to be verified by test)

ENGINEERING INFORMATION

BRACE LOADING



Bay Width			Tension		Compression	
mm	Ft		kN	Lb	kN	Lb
650	2'1⅝	cv	6.45	1,450	9.97	2,242
1150	3'10	cv	6.45	1,450	8.48	1,907
1219	4'	cv	6.45	1,450	8.25	1,854
1524	5'	cv	6.45	1,450	7.21	1,620
1572	5'2	cv	6.45	1,450	7.05	1,584
1626	5'4	cv	6.45	1,450	6.87	1,544
2130	7	pt	6.45	1,450	5.36	1,204
2438	8	cv	6.45	1,450	4.60	1,033
3050	10	cv	6.45	1,450	3.42	769

Factor of Safety = 4:1

pt: physical test cv: calculated value (to be verified by test)

ORIENTEK INC.
30 Royal Crest Court, Unit 202, Markham,Ontario, L3R 9W8
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Steel planks

Engineering Data

2 sizes of steel planks have been tested in compliance with CSA-S269.2-M87.

DWG	Length		Width		Duty rating*		Weight	
	ft	m	in	mm	PSF	KN/m2	lb	kg
30107-7	7	2.13	9.5	241	75	3.6	34.6	15.7
30107-10	10	3.05	9.5	241	75	3.6	48.6	22.0

*Above duty rating is with a minimum Factor of Safety of 4:1 for US applications. Canadian applications have a minimum Factor of Safety of 2.2:1 with a concentrated load applied across the plank at its mid section.

Orientek Engineering Dept.
V01-1107

ORIENTEK INC.
30 Royal Crest Court, Unit 202, Markham,Ontario, L3R 9W8
Phone: (905) 470 - 7711 Fax: (905) 470 - 7757

Engineering Data

SIDE BRACKET
(Drawing#: 30155A)

DESCRIPTION	SPAN		UDL	
	L (m)	L (in)	(kN)	(lbs)
20" Side Bracket, tubular	**0.51**	**20"**	**3.66**	**823**

Based on ANSI/SSFI SC 100 - 5/05 standards with safety factor of 4:1.

Orientek Inc. Engineering Dept.

v.1001

ORIENTEK INC.
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Steel stairway for ring systems

TECHNICAL DATA SHEET

Drawing#:		60211 and 60212
Bay size:		7'
standard height to fit:		2m
Width (tread):		32"
Width (standard center to center):		3'6"
Material:		Steel (Q235)
Weight (a set)		130.46kgs (287.61lbs)
	Tread	7.22kgs/pc (15.9lbs/pc)
	Stringer	29.13kgs/pc (64.22lbs/pc)
Tread style:		**Diamond Grip Non-Slip Tread**
handrail:		Bay braces

The Stairway is designed and tested to have a loading capacity of
100 PSF (4.8kN/m^2) with a safety factor of 4:1. It satisfies Ontario Regulation.

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v2.1211

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Engineering Data

Side Brackets of ring systems

DESCRIPTION	DWG#	UDL	
		(KN)	(lbs)
SB 0.65m (2'2")	60210	4.9	1100
SB 0.65m (2'2")	30105A-22	4.9	1100
SB 0.88m (2'10")	30105A-210	4.9	1100
SB 1.05m (3'5")	60210DT	4.4	1000
SB 1.15m (3'10")	90401	4.4	1000
SB 1.15m (3'10")	11272	4.4	1000

*Based on 4:1 FS.
** All above based on physical tests in independent labs.

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v4-1207

ORIENTEK INC.
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Engineering Data

Mid Transom

DESCRIPTION	DWG#	UDL		POINT LOAD	
		(KN)	(lbs)	(KN)	(lbs)
Mid transom 2.13m (7')	**80253-7**	**5.8**	**1300**	**1.65**	**370**

Based on 4:1 FS.

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v2-1204

ORIENTEK INC.
30 Royal Crest Court, Unit 202, Markham,Ontario, L3R 9W8
Phone: (905) 470 - 7711 Fax: (905) 470 - 7757

Engineering Data

TRUSS LEDGERS
(Drawing#: 10260)

DESCRIPTION	SPAN	UDL		POINT LOAD	
	L (ft)	(KN/m)	(lb/ft)	(KN)	(lb)
TL 10	**10'-0"**	**4.7**	**325**	**5.60**	**1245**
TL 7	**7'-0"**	**10.6**	**725**	**9.85**	**2200**

*Based on 3:1 FS.
** All above based on physical tests in independent labs.

Orientek Inc. Engineering Dept.

v.02-1107

ORIENTEK INC.
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Phone: (905) 470 - 7711 Fax: (905) 470 - 7757

Aluminum stairway

Engineering Data

Drawing#:	10204 or 11290
Bay size:	7'
Frame height to fit:	60"or 61"
Width (tread):	22-1/2"
Width (side rail outside to outside)	24-1/2"
Material:	6061T6
Weight:	25.9kg (57lbs)
Tread style:	**Diamond Grip Non-Slip Tread**
handrail:	both inner and outer alum rail available

The Aluminum Stairway is designed and tested to have a loading capacity of 75 PSF (3.6kN/m^2) with a safety factor of 4:1. It satisfies Ontario Regulation.

Orientek Engineering Dept.

v.2-2012

ORIENTEK INC.
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Phone: (905) 470 - 7711 Fax: (905) 470 - 7757

Scaffold frames

Engineering Data

Complete scaffold towers have been tested at a reputable and independent testing laboratory in US. All tests are conducted in compliance with the ANSI/SSFI SC 100-5/05 standard.

The scaffold frames are manufactured of high strength, electric resistance welded structural steel tubing having the following properties:

1) Yield Strength: 50,000PSI minimum
2) Tensile Strength: 68,000PSI minimum
3) Elongation: 22%

Properties of the frame leg material are as follows:
1) Option 1: 42.7(1-11/16”)OD x 2.4(0.0945”)Wall
2) Option 2: 41.3(1-5/8”)OD x 2.3(0.090”)Wall

DWG#	**frame**	**Frame leg type**	**Number of tiers**	***Allowable load/leg**
DWG#90240	5’x6’4”arch frame	Option 1	1	4970lbs
			3	2635lbs
DWG#80232	5’x5’ standard frame	Option 1	1	5410lbs
			3	3585lbs
DWG#50280W	5’X6’7”arch frame	Option 2	1	5560lbs
			3	2130lbs
DWG#30154	5’X6’6”arch frame	Option 1	3	4270lbs

* allowable load/leg for workmen, materials and planking. The table reflects a **4:1** safety factor as required by the OSHA and recommended by the SSFI and CSA.

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V2-2010.

ORIENTEK INC.
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Screw jacks

Engineering data

DWG#	thread dia.	rod/tube	thread type	base plate	Safe working load in lbs	Safe working load in KN
50142T	Ø38	solid	round	flat plate	20,000	88
90402TP	Ø35	solid	round	flat plate	15,000	65
30114-2SB	Ø35	solid	square	flat plate	11,000	50
30114-2HB	Ø35	hollow	square	flat plate	7,700	35
30151-2SB	Ø35	solid	square	stamped	11,000	50
30151-2HB	Ø35	hollow	square	stamped	7,500	30
10316, 10316A	Ø32	solid	square	flat plate	11,000	50
50307M-A	Ø25	solid	round	stamped	9,000	40

*All have 4:1 Factor of Safety
** Above results are based on physical tests in independent labs.

Orientek Inc. Engineering Dept.

v.02-1209

ORIENTEK INC.
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Engineering Data

2 sizes of Aluminum/plywood decks have been tested in house, witnessed by a Professional Engineer. All tests are conducted in compliance with CSA-S269.2-M87.

DWG	Length		Width		Rail depth		Duty rating*		Weight	
	ft	m	in	mm	in	mm	PSF	KN/m2	lb	kg
40640	7	2.13	19.1	484	3.46	87.8	75	3.6	30.9	14
50146	10	3.05	19.1	484	4.60	116.8	75	3.6	47.4	21.5

*Above duty rating is with a minimum Factor of Safety of 4:1 for US applications. Canadian applications have a minimum Factor of Safety of 2.2:1 with a concentrated load applied across the plank at its mid section.

Orientek Engineering Dept.
V9.2

ORIENTEK INC.
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Phone: (905) 470 - 7711 Fax: (905) 470 - 7757

Beam clamp

Engineering data

	Rigid	Swivel
Code	10217	10436
Product	steel forged	steel forged
Tube diameter to fit	1.9"OD and 1.69"OD	1.9"OD and 1.69"OD
Finish	hot dip galvanizing	hot dip galvanizing
Weight	1.50kg	1.70kg

Distortion Capacity

On both 1.9"OD and 1.69"OD

in LBS	2000	1700
in KN	8.9	7.5

*All have 4:1 Factor of Safety.
** Based on physical tests in independent labs.

Orientek Inc. Engineering Dept.

v.01-1105

ORIENTEK INC.
30 Royal Crest Court, Unit 202, Markham,Ontario, L3R 9W8
Phone: (905) 470 - 7711 Fax: (905) 470 - 7757

Heavy duty bolt clamp

Engineering data

	Right Angle	Swivel
Code	CLAMP-RA (#80272)	CLAMP-SW (#80273)
Product	steel forged	steel forged
Tube diameter to fit	1.9"OD and 1.69"OD	1.9"OD and 1.69"OD
Finish	hot dip galvanizing	hot dip galvanizing
Weight	1.65kg	1.95kg

Distortion Capacity		
On both 1.9"OD and 1.69"OD		
On both steel and alum tubes		
in LBS	3000	2000
in KN	13.3	8.9

All have 4:1 Factor of Safety

Slip Capacity (1/4"movement)		
On 1.9"OD galvanized tube		
in LBS	1500	1500
in KN	6.6	6.6

All have 4:1 Factor of Safety

Slip Capacity (1/4"movement)	
On 1.69"OD powder coated tube	
in LBS	500
in KN	2.2

*All have 4:1 Factor of Safety
** Based on physical tests in independent labs.

Orientek Inc. Engineering Dept.

v.101

ORIENTEK INC.
30 Royal Crest Court, Unit 202, Markham,Ontario, L3R 9W8
Phone: (905) 470 - 7711 Fax: (905) 470 - 7757

Hoist For Scaffoldings

Technical Data

	imperial
Material	Ductile iron, with drop forged swivel latch hooks
Rib	5
Outside diameter	10"
Manila Rope Size	1"
Unit weight	6.7kg
Finish	electro plated

Loading Capacity

Working load	1000LBS
Safety factory	2:1