RAINBOW
PLAY SYSTEMS, INC.®
FINE RESIDENTIAL PLAY EQUIPMENT
500 Rainbow Parkway
Brookings, SD 57006 USA

Report: EUC-12-0107

Certificate of Conformity

Date of Audit: 1/23/2012

Date of Report: 1/23/2012

Model number or description: EU Original Sunshine Clubhouse Design 4A Commercial

Labeled age grading: 3-12 years



This Product **COMPLIES** with the applicable requirements of the applied standards

The purpose of the declaration described above is consistent with Directive No. 2009/48/EC of 18 June 2009 of the European Parliament and the Council on the safety of toys (include, where appropriate, other relevant guidelines, such EMC directives, materials in contact with food, with their references).

Inspector: Jesse Spurgin

R & D Director: Scott Vomacka

1/23/12

Legend: Pass (P), Fail (F), Not Applicable (NA), Dealer or Installer Supplied/Responsible (DS)

Audit Summary: EN1176-1:2008 General safety requirements & test methods

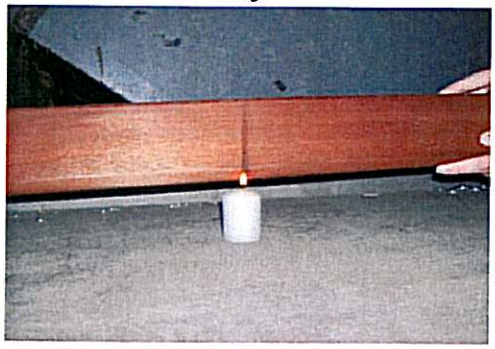
4	Safety Requirements	P	
4.1	Material	P	
4.1.1	General	P	
4.1.2	Flammability	P	
4.1.3	Timber and associated products	P	
4.1.4	Metals	P	
4.1.5	Synthetics	P	
4.1.6	Dangerous substances	P	
4.2	Design and Manufacture	P	
4.2.1	General	P	
4.2.2	Structural Integrity	P	
4.2.3	Accessibility for adults	P	
4.2.4	Protection against falling	P	
4.2.4.1	Types of protection	P	
4.2.4.2	Handrails	P	
4.2.4.3	Guardrails	P	
4.2.4.4	Barriers	P	
4.2.4.5	Strength Requirements	P	
4.2.4.6	Grip Requirements	P	
4.2.4.7	Grasp Requirements	P	
4.2.5	Finish of equipment	P	
4.2.6	Moving Parts	P	
4.2.7	Protection Against Entrapment	P	
4.2.7.1	General	P	
4.2.7.2	Entrapment of the head and neck	P	
4.2.7.3	Entrapment of clothing	P	
4.2.7.4	Entrapment of the whole body	P	
4.2.7.5	Entrapment of the foot or leg	P	
4.2.7.6	Entrapment of fingers	P	
4.2.8	Protection against injuries during movement and falling	P	
4.2.8.1	Determination of free height of fall	P	
4.2.8.2	Determination of spaces and areas	P	
4.2.8.2.1	General	P	
4.2.8.2.2	Minimum space	P	
4.2.8.2.3	Free space	P	
4.2.8.2.4	Extent of the impact area	P	
4.2.8.2.5	Extent of the falling space	P	
4.2.8.3	Protection against injuries in the free space for users undergoing a movement that is forced by the equipment	P	
4.2.8.4	Protection against injuries in the falling space	P	
4.2.8.5	Protection against injuries from the surface of the impact area	P	
4.2.8.5.1	General	P	
4.2.8.5.2	Equipment with a free height of fall greater than 600mm(23.62") or w/forced movement	P	
4.2.8.5.3	Equipment with a free height of fall not exceeding 600mm(23.62") & w/o forced movement	NA	
4.2.8.5.4	Adjacent platforms	P	
4.2.8.6	Protection against injuries due to other types of movement	P	
4.2.9	Means of access	P	
4.2.9.1	Ladders	P	

4.2.9.2	Stairs	NA	
4.2.9.3	Ramps	NA	
4.2.9.4	Steep Play elements	P	
4.2.9.5	Easily accessible playground equipment	P	
4.2.10	Connections	P	
4.2.11	Consumable components	P	
4.2.12	Ropes	P	
4.2.12.1	Ropes fixed at one end (swinging ropes)	NA	
4.2.12.2	Ropes fixed at both ends (climbing ropes)	P	
4.2.12.3	Wire ropes	NA	
4.2.12.4	Sheathed wire ropes	NA	
4.2.12.5	Fiber ropes	NA	
4.2.13	Chains	NA	
4.2.14	Foundations	P	
4.2.15	Heavy suspended beams	P	
5	Test Methods and Reports	P	
6	Information to be provided by the manufacturer/supplier	P	
6.1	playground equip	P	
6.1.1	General product information	P	
6.1.2	Pre-information	P/DS	
6.1.3	Installation information	P	
6.1.4	Inspection and maintenance information	P	
6.1.4.1	Instructions for maintenance	P	
6.1.4.2	Frequency of maintenance	P	
6.1.4.3	Instructions shall specify.....	P	
6.2	Pre-information	P	
6.2.1	Pre-information	P/DS	
6.2.2	Installation	NA/DS	
6.2.3	Inspection and maintenance	NA/DS	
6.2.4	Identification of impact-attenuating playground surfacing	NA/DS	
7	Marking	P	
7.1	Equipment identification	P/DS	
7.2	Basic level mark	P/DS	

Audit Summary: EN 1176-3: 2008 Additional specific safety requirements & testing for slides

4	Safety requirements	P	
4.1	General	P	19" - 4°
4.2	Access	P	19" - 4°
4.3	Starting section	P	
4.3.1	Starting section: length and angle	P	
4.3.2	Starting section: barriers	P	
4.3.3	Starting section: width	P	
4.3.4	Starting section: lateral protections (sides)	P	
4.4	Sliding section	P	
4.4.1	Sliding section: angle	P	33°
4.4.2	Sliding section: width	P	16.5"
4.4.3	Sides and profile of the slide	P	
4.5	Run-out section	P	24" - 2°
4.6	Surface of the slide	P	
4.7	Free space	P	
4.8	Impact area	P	
4.9	Tunnel and mixed tunnel slides	NA	
4.9.1	Tunnel and mixed tunnel slides: Clearance	NA	
4.9.2	Tunnel and mixed tunnel slides: Position	NA	
5	Test reports	P	
6	Marking (*Applied during installation)	P	

4.1.2 Flammability





Conclusion: A 1.5" diameter candle was used to test the flammability of a board used on this barrier. The candle was lit and the board was held on it for 6 seconds. The board did not ignite.

Structural Integrity 4.2.2

A.2.6.5 Access ladders and stairs





Monkey Bar Support

1 step = 25.5" x 7" = 178.5 in^2 .115 mm^2

.115m^2/.36 = .319 => 1 = n

n=5 steps

$F_{tot;v}$ = 820 lbs(3648N)

Step Ladder

1 step = 18" x 7" = 126 in^2 .081 mm^2

.081m^2/.36 = .22 => 1 = n

n=6 steps

$F_{tot;v}$ = 984 lbs(3977N)

Discussion and conclusion: A step ladder was tested according to instructions outlined in section A.3.3 and B.3.4. A pre-test inspection found that the ladder was attached according to assembly instructions with no visible cracks or deformations. As calculated, the step ladder was to withstand a force of 3977N(984 lbs-f). The ladder withstood a force of 1000lbs (4448N). This surpasses the requirement of 3977N. A post-test inspection of the ladder and support structure showed that there was no deformations of any kind on the ladder or support structure.

Discussion and conclusion: A monkey bar ladder was tested according to instructions outlined in section A.3.3 and B.3.4. A pre-test inspection found that the ladder was attached according to assembly instructions with no visible cracks or deformations. As calculated, the ladder was to withstand a force of 3648N(820 lbs-f). The ladder withstood a force of 860lbs (3825N). This surpasses the requirement of 3648N. A post-test inspection of the ladder and support structure showed that there was no deformations of any kind on the ladder or support structure.

Test: A.2.6.6-Barriers and Guard Rails

The horizontal load on barriers and guard rails is 750 N/m acting in a horizontal direction on the top rail

750N/m=4.28 lb/in
29.25 in x 4.28 lb=125.19 lb



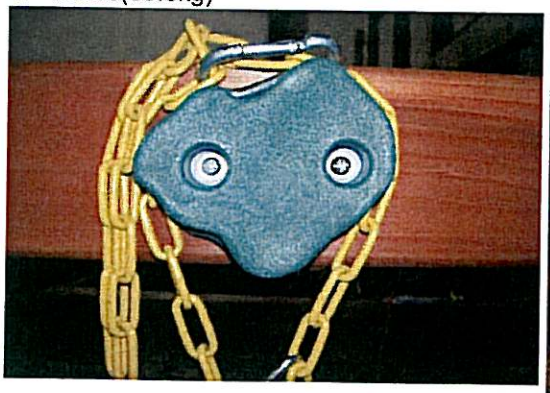




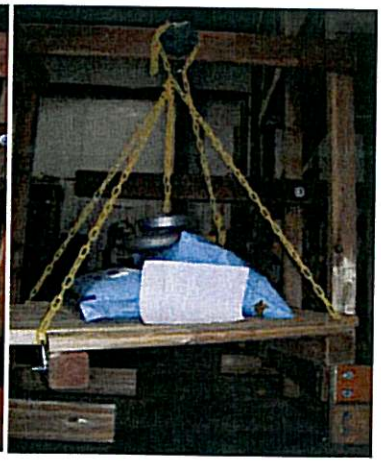
Conclusion: The purpose of this test was to gauge the structural integrity of our barrier. A pulley was used to change direction of force in a horizontal direction. The barrier tested was attached according to installation instructions. An inspection of the barrier was done prior to the test. There were no visible cracks or deformations before or after the test. A load of 136 pounds was applied laterally to the top rail, which surpasses the requirement of 125.4 pounds.

Test A.3.2 Number of users on a point (Rock Wall)

n=153lbs(69.5kg)







Conclusion: A single rock from a rock wall was mounted to a 2x6 piece of lumber according to assembly instructions. A load of 156 lbs (70.76kg) was attached to the rock. This load surpasses the requirement specified in A.3.2

Test: A.3.4-Number of users on an area

Platform #1 Deck Size=54"(1.37m) x 54"(1.37m) = 2916in^2 (1.88m^2)

1.88m^2 / 0.36 = 5.22=6

n= 6

$F_{tot;v}$ = 4380N (985lbs)



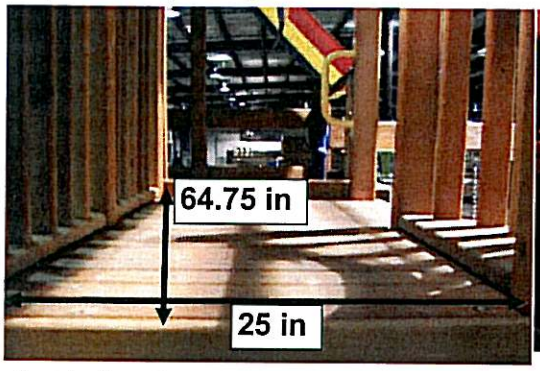
Conclusion: Structural integrity of the platform was tested using the calculation outlined in section B.3.2. A pre-test inspection was performed. The platform was assembled according to assembly instructions. A load of 1000 lbs was applied to the platform and left for 5 minutes. A post-test inspection was performed, and there were no visible deformations.

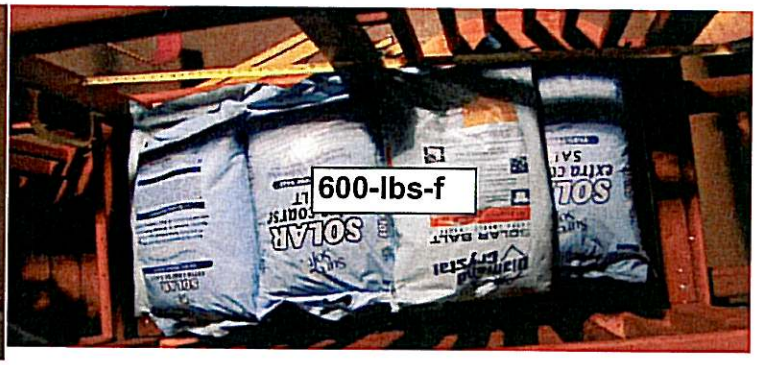
Platform #2 Penthouse Deck =64.75"(1.64m) x 25"(0.635m) = 1619in^2 (1.04m^2)

1.04m^2 / 0.36 = 2.88 => 3

n= 3

$F_{tot;v}$ =2516N (566lbs)





Conclusion: Structural integrity of the penthouse platform was tested using the calculation outlined in section B.3.2. A pre-test inspection was performed. The platform was assembled according to assembly instructions. A load of 600 lbs was applied to the platform and left for 5 minutes. A post-test inspection was performed, and there were no visible deformations.

Platform #3 Picnic Table Size=60"(1.52m) x 31"(0.79m) = 1860in^2 (1.2m^2)

1.2m^2 / 0.36 = 3.33 => 4

n= 4

$F_{tot;v}$ =3356N (759lbs)



Conclusion: Structural integrity of the picnic table top platform was tested using the calculation outlined in section B.3.2. A pre-test inspection was performed. The platform was assembled according to assembly instructions. A load of 760 lbs was applied to the platform and left for 5 minutes. A post-test inspection was performed, and there were no visible deformations.

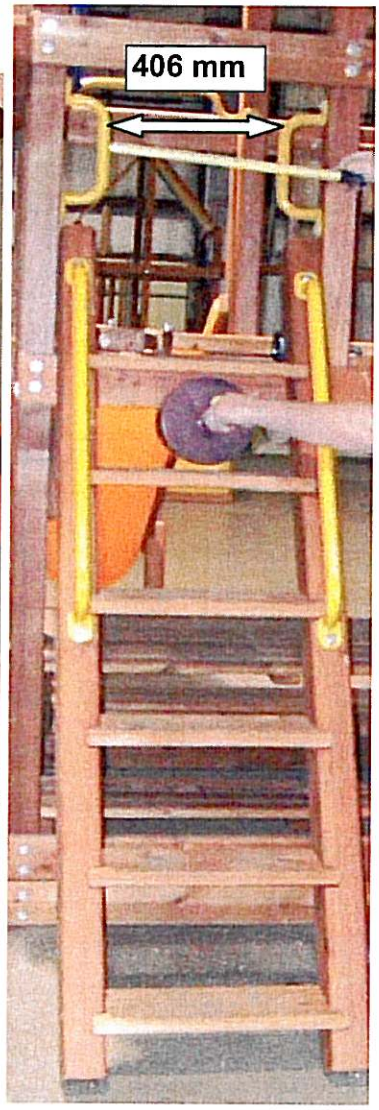
Platform #4 Picnic Table Seat Size=60"(1.52m) x 11"(0.28m) = 1860in^2 (0.43m^2)
0.43m^2 / 0.36 = 1.18 => 2
n= 2
$F_{tot;v}$ =1948N (438lbs)



Conclusion: Structural integrity of the picnic table seat was tested using the calculation outlined in section B.3.2. A pre-test inspection was performed. The platform was assembled according to assembly instructions. A load of 440 lbs was applied to the platform and left for 5 minutes. A post-test inspection was performed, and there were no visible deformations.

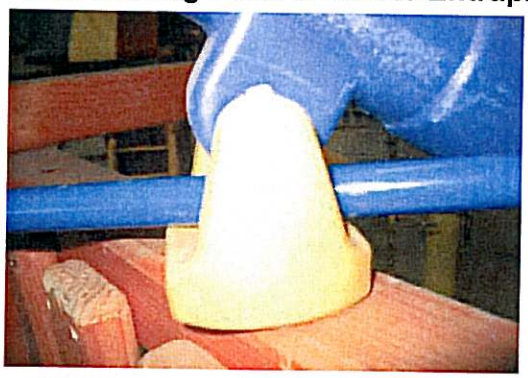
Barriers 4.2.4.4





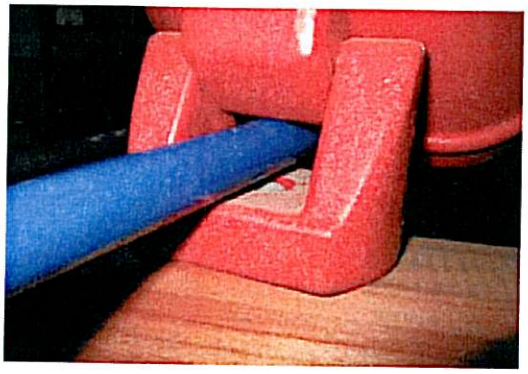
Conclusion: The exit entrances on both opening must be more than 500-mmwdth of entrance and exit openings in barriers shall have a clear opening of 500-mm maximum unless a guardrail is provided across the opening. The rockwall entrance and exit openings measure 457-mm (18") and the step ladder opening measures 406-mm (16") .

4.2.6 Moving Parts & 4.2.7.6 Entrapment of Fingers

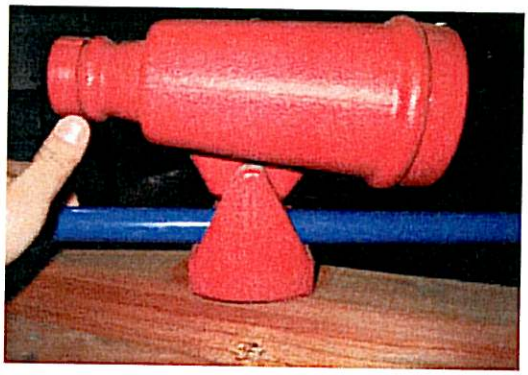


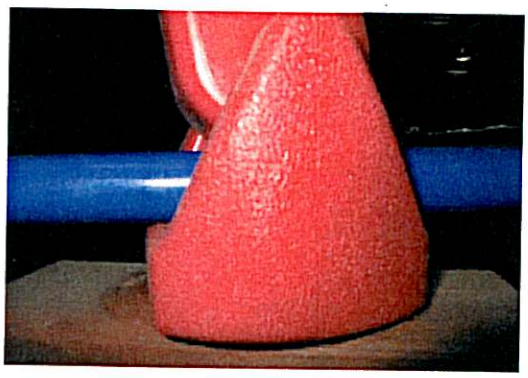
Telescope



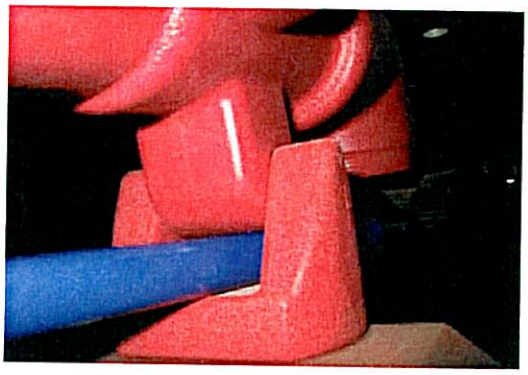


Binoculars



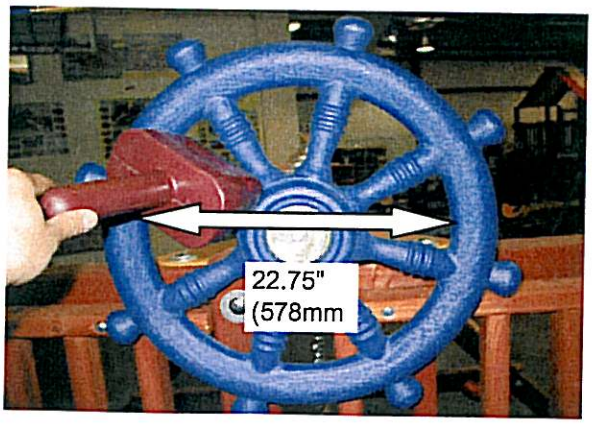


Periscope

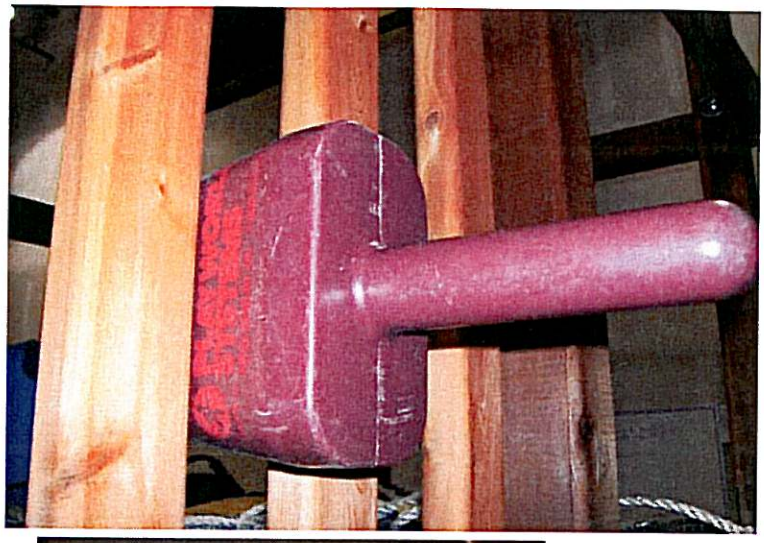


Conclusion: If the 8mm(0.315") rod passes through the opening, the 25mm (1") finger rod shall also pass through the opening, provided that the opening does not permit access to another finger entrapment site.

4.2.7 Protection Against Entrapment



Conclusion: The shipswheel does not allow the torso probe.



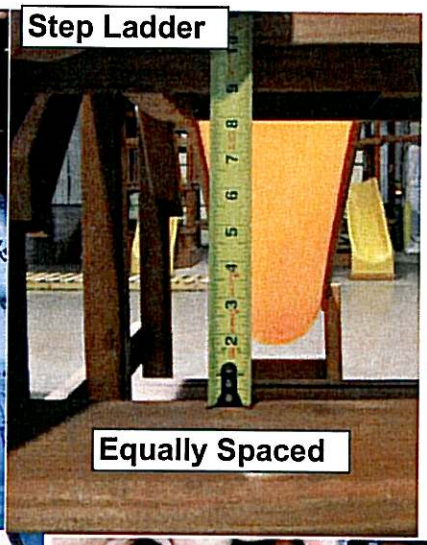


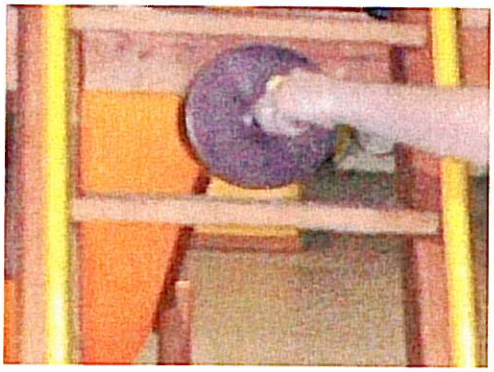


Conclusion: Probes C or E shall not pass through any opening unless it also allows the passage of the large head probe D. None of the above probes pass through the barrier or under the handles.

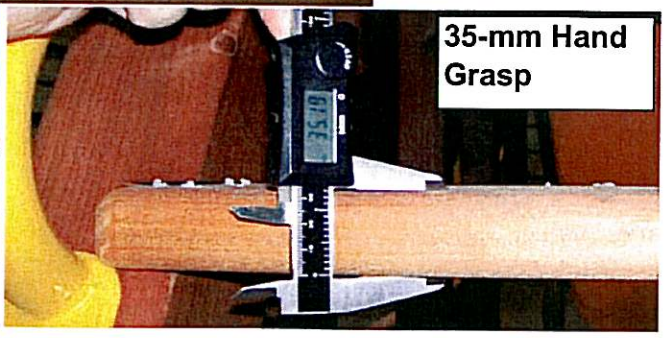
4.2.9.1 Ladders



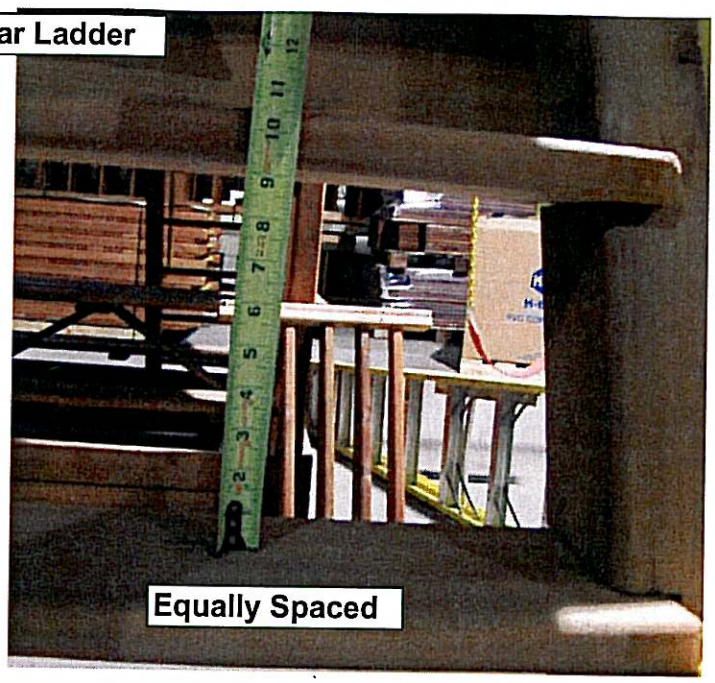




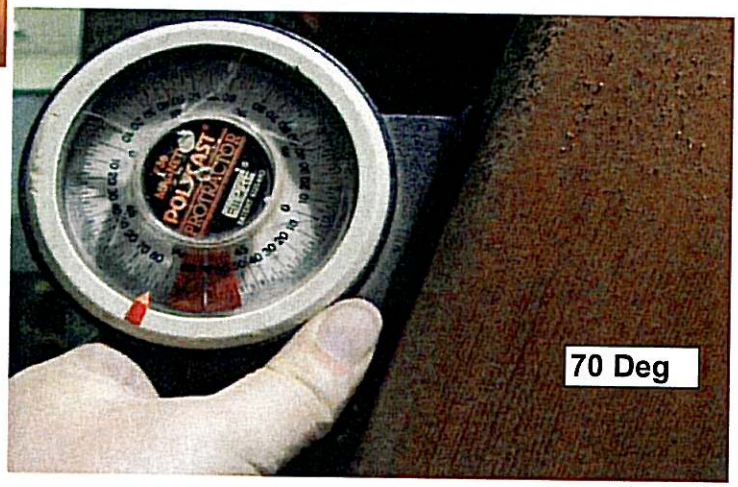








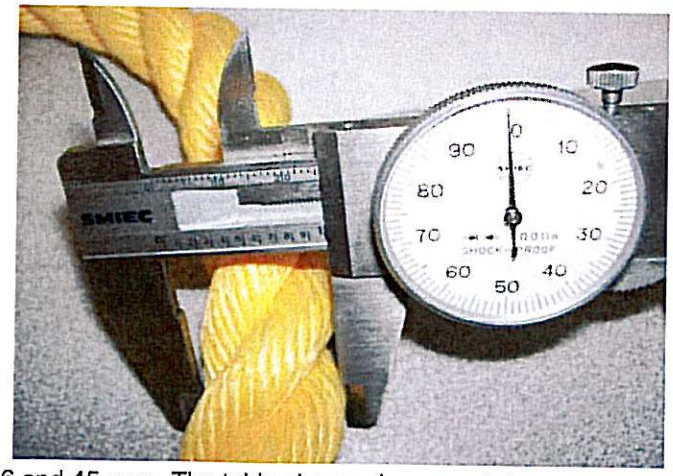




Ladders shall have steps that conform to the head entrapment requirments, shall be equally spaced, shall have positive connections that cannot be shifter or undone, shall be an unubstructed sape at the rear of the ladder of at least 90-mm from the center of the tread and have treads or that confrom to the requirments for grasp.

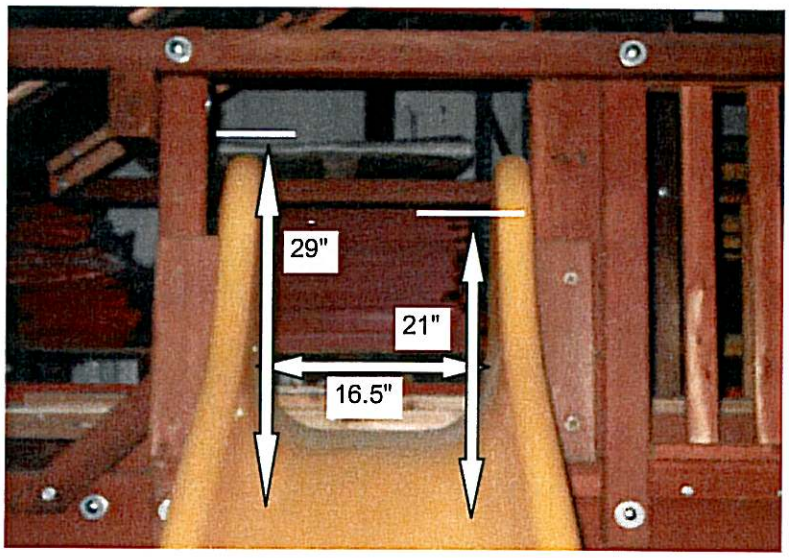
4.2.12.2 Ropes fixed at both ends Climbing ropes

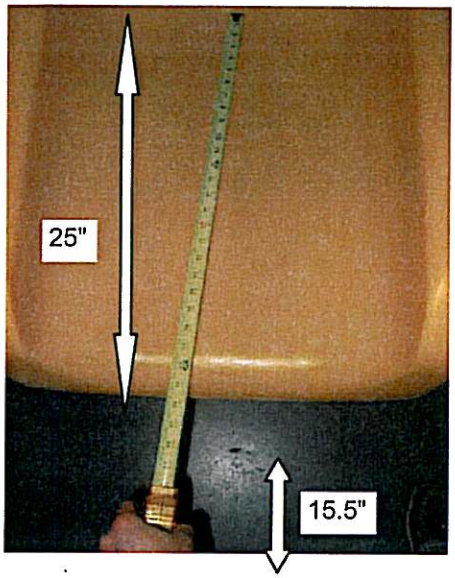
Inches	
1.07	
0.963	
0.975	
0.937	
0.962	
0.9814	**Average width**



Conclusion: The rope diameter shall be between 16 and 45-mm. The table shown above contains measurements taken at different points of the rope. The average dimaeter in (25-mm) .9814 inches

EN 1176-3:2008 Additional specific safety requirments and test methods for slides





4.5 Runout section

4.4.1 Sliding section: Angle

The angle of declination to the horizontal of the sliding section shall not exceed 60 degrees at any point and shall not exceed an average of 40 degrees. The declination of the sliding section shall be measured from the centerline.

