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LOG OF MEETING
DIRECTORATE FOR ENGINEERING SCIENCES

SUBJECT: Meeting of ASTM Sub-Committee F15.44 Play Equipment for Children Under 2, F15.09 Home Playground Equipment, F15.36 Soft Contained Play Equipment, F15.29 Playground Equipment for Public Use, New Activity – Aquatic Play Equipment.

DATE OF MEETING: February 7- 11, 2000

PLACE: West Conshohocken, PA.

LOG ENTRY SOURCE: Mark Kumagai, ESME

MK

DATE OF ENTRY: March 28, 2000

COMMISSION ATTENDEES: Mark Kumagai, ESME

NON-COMMISSION ATTENDEES: See table 1

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**ASTM Subcommittee F15.44 - Playground Equipment Children under 2
February 7-8, 2000**

The subcommittee convened with approval of the minutes and reports from other groups and a discussion of the scope. The subcommittee discussed methods to differentiate between playground equipment for children under 2 and toys. Characteristics such as accessible and climbable, non-movable and height were discussed as possible ways to distinguish playground equipment versus toys. Working groups were formed to develop requirements for equipment, falls, materials and performance.

Summary of working group reports: Equipment Group - discussed the requirement for platforms over 12 inches high should have a barrier 24 inches high or greater. Stairs and ramps were considered exempt from requiring barriers. The maximum height between two adjacent platforms and stairs was discussed. The group will perform an observational experiment using two stairway models; one model constructed with 4-inch risers and 10 inch tread depths, and a second model constructed with 7-inch risers and 10 inch tread depths. The working group will fabricate the model stairways, observe and videotape children less than 2 years old using the stairs, to determine the better design. The working group limited the height of the platforms to 32 inches and considered limiting the height of the equipment.

Performance Group drafted the requirements for protrusions, adopting the requirements in F1487. The group considered soft, flexible or protrusions that move out of the way such as buttons on an activity board not to be protrusion hazards. Test methods to determine non-hazardous soft protrusions were discussed. The group proposed to add a new section, *Exemption to the Protrusion Requirement* and specific requirements will be drafted. This section would allow non-hazardous protrusions that fail the protrusion requirements by dimension. The Performance Group developed figures for slide requirements, and performance requirements to prevent pinching and crushing of fingers and finger entrapment in holes. Modification of the test probe for partially bounded openings was discussed. The neck length for a 95% 2-year-old was needed to complete the probe.

Layout Group - developed finalized draft requirements for section 9.0 *Use Zones and Placement of Play Structures/Equipment*. The draft requires use zones for equipment greater than 12 inches high, conform to the safety surfacing requirements in F1292. Play structures that are less than 12 inches high are exempt from requiring safety surfacing. Use zones for equipment 32 inches and under shall extend 48 inches around the perimeter of the play equipment. Equipment over 32 inches shall conform to public playground requirements in ASTM 1487. Exemptions and additional use zone requirements for equipment against walls, swings, slides, springing rocking equipment and composite play structures were also drafted.

Meeting Conclusion - The subcommittee discussed the maximum height of a piece of equipment where safety surfacing was needed. The layout group proposed that equipment less than 12 inches high will not require safety surfacing. The subcommittee discussed the potential for injury if a child or infant falls from a height of 12 inches and requested the CPSC staff to search for data on injuries to children due to falls. At 1200 noon, February 8, 2000, the subcommittee adjourned. The next meeting will be on May 8-9, 2000 at ASTM headquarters, W. Conshohocken PA.

ASTM Subcommittee F15.09 - Home Playground Equipment February 8-9, 2000

CPSC staff (Mark Kumagai) attended the introduction and conclusion of this meeting.

The subcommittee discussed revising requirements for Tot swings structural integrity, restraining system and tipover. The lead person for this task was not present and the activity was tabled until the next meeting.

The subcommittee discussed use of ropes on ramps. Ropes on ramps must be anchored and cannot form a loop. One member explained that his company connects the upper portion of the rope to an upright so that it can be taught and still provide the child an upper body pulling and climbing experience. The subcommittee discussed whether ropes attached to the bottom of the ramps are hazardous because of the V formed between the rope and the ramp. One manufacturer stated that their company had removed the ropes since they were concerned with groin injuries. The subcommittee requested the CPSC staff to search the databases for injuries associated with ropes on ramps.

CPSC staff showed a home playground catalog advertising a toy chest. CPSC staff requested the subcommittee to add requirements similar to the ASTM Toy Chest requirements. The subcommittee agreed to ballot the requirement, "*Any toy accessories or toy chests that are attached to playground equipment are subject to any applicable standards.*"

The subcommittee also discussed the use of buckets attached to a rope and pulley system. If the bucket is free, this equipment will not meet the requirement for ropes. The subcommittee discussed if this was a hazard. They concluded not to change the rope requirements.

The subcommittee reworked several drawing and clarified language in the current standard. A member of the subcommittee proposed a definition for Hand Gripping Components. Partially bounded openings were also reviewed as it related to the new Federal Standard on bunk beds. The subcommittee decided not to change the playground requirements. At 1200 noon, February 9, 2000, the subcommittee adjourned. The next meeting will be on May 9-10 at ASTM headquarters, W. Conshohocken PA.

**ASTM Subcommittee F15.36 – Soft Contained Playground Equipment (SCPE)
February 8-9, 2000**

The standard was published in March 1999. The majority of the subcommittee's work was to clarify and update the standard. The subcommittee organized into three working groups to address Performance/Accessibility, Equipment and Structural Integrity/Fire safety/Evacuation.

Summary of working group reports: Equipment - The working group proposed adopting applicable, with some modification, sections of ASTM 1487 for steps and step ladder requirements. The subcommittee agreed not to allow rung ladders because they can not be contained to prevent falling from the ladder. The subcommittee modified the access and egress requirements to allow handrails or alternate means of hand support such as nets. The subcommittee discussed use of handrails inside of the play equipment. The members agreed that hand rails inside the play structure should not be required when transitioning from one level to another.

A definition for an Airbounce "a play event where children play on an air filled structure or pneumatic device within a soft contained playstructure" was accepted by the subcommittee and will be letter balloted. A motion was made to add a section to require that a supervisor regulate the use of Airbounce equipment. The motion was withdrawn because the standard cannot mandate supervision. One member motioned to add a new section 7.1.5 requiring any accessible hard frame shall be padded. The subcommittee voted down the motion. A motion was made to require tube slides to have a transparent section for better supervision and to require a clear line of sight through any 6-ft section of the SCPE. The subcommittee voted down the motion because they believed it was design restrictive and not feasible to provide a clear line of sight for every 6 feet of equipment.

Structural Integrity and Fire Safety – The working group clarified requirements for dead ends in tube structures. These requirements address allow an adult to extract a child in an event of an emergency. The following wording was accepted with additional drawings:

- 12.3.2.1 Dead ends with cross sections less than 39 in. (990 mm) can have path length(s) measured along the centerline, no longer than 120 in. (3.0 m) from the passage entry point, provided there is a turn around at the end of the dead end. The turn around shall have minimum cross section dimensions of 39 in. (990 mm) in all directions. A sphere with a diameter of not less than 39 in. (990 mm) meets this requirement (see figure A1.23)
- 12.3.2.2 Dead ends with cross sections less than 39 in (990 mm) can have path length(s) measured along the centerline no longer than 72 in. (1.8 m) from the passage entry point. (See figure A1.24).
- 12.3.3 Dead ends with cross sections equal to or greater than 39 in. (990 mm) can have path length(s) measured along the centerline, no longer than 240 in. from the passage entry point. The passage entry point can be an entry ring with a diameter not less than 23 in. (580 mm) (See figure A1.25).

The revised wording and figures will be balloted.

At 1200 noon, February 9, 2000, the subcommittee adjourned. The next meeting will be on May 9-10 at ASTM headquarter, W. Conshohocken PA.

**ASTM Subcommittee F15.29 – Public Playground Equipment
February 9-10, 2000**

The subcommittee convened with approval of the minutes and reports from other groups.

CPSC staff - A study on playground equipment related injuries is underway and should be completed by September 2000 and the report should be available by 2001. The CPSC staff are also conducting a survey of home playground equipment conformance to the ASTM standard. On site visits to 35 companies have been completed and 2 remain. Preliminary results should be available by the next meeting in May.

Surfacing Committee - The free fall headform lab to lab test and evaluation has been completed. A guide to help non-members interpret the surfacing standard is being drafted.

National Playground Safety Institute – Articles in playground magazines are being published.

Accessibility – Access Board scheduled to be publish requirements this year.

National Program for Playground Safety – A grant from NASA to survey play equipment in airports across the US. In the future, NASA may promote playgrounds in airports to have a space exploration theme.

The subcommittee organized into four working groups to address the sections on Entrapment, Equipment, Materials and Accessibility. On the following day, February 10, the subcommittee reconvened to review reports from the working groups.

Summary of working group reports: **Entrapment** – The working group reviewed entrapment in partially bounded openings and the requirements in the new Federal standard for bunk beds. The group reviewed an incident with a 15-month-old child entrapped in a bunk bed structure. The working group decided not to adopt the new requirements because there were no similar injuries in playgrounds equipment and the bunk bed incident involved a child under 2 years old. The working group recommended that the subcommittee for Playground Equipment for Children Under 2 review consider the more stringent requirements in the bunk bed standard.

The diagrams showing the use of the probe for partially bounded openings were redrawn for clarity.

The working group discussed a toggle test specified in the Canadian standard for catch points. The International Playground Equipment Manufacturers Association requested CSA for clarification of the test procedure. The subcommittee was concerned that there were no force requirements and consistency of test results may be a problem. The subcommittee proposed that if this test is adopted, it should only be used only in the lab and not in the field.

Materials – The working group completed metric conversions.

Accessibility – Negatives and comments to the meaning of fall height for various equipment and playground components were resolved. The subcommittee accepted the following rewording for requirement for measuring the critical height:

The fall height of freestanding equipment such as geodesic domes shall be measured from the highest part of the climber and the protective surfaces below.

The fall height of a climbing component used to access and egress to and from a composite play structure shall be measured from the highest part of the climber and the protective surfaces below.

The fall height of sliding poles accessed from a platform shall be the distance between the platform and the protective surface below. Sliding poles not accessed from a platform or accessed from the platform where the pole extends more than 60 in. above the platform shall have a fall height of 60 in. below the highest portion of the pole, measured to the protective surface below.

The fall height measurement requirements will be re-balloted.

Equipment – The working group revised the requirements for tire swings to allow steel belted tires provided the tires do not have exposed belts. Climbing walls, a new type of equipment, were discussed and the working group determined that the existing general requirements were sufficient in addressing this type of equipment.

At 5:00 PM, February 10, 2000, the subcommittee adjourned. The next meeting will be on May 10-11 at ASTM headquarter, W. Conshohocken, PA.

Proposed New ASTM Activity – Aquatic Play Equipment for Public Use February 11, 2000

The ASTM staff manager chaired this meeting. The objective was to; 1) bring industry experts together, 2) review current activity, 3) identify specific standards needs and 4) develop structure to accomplish priority objectives. The ASTM staff manager presented the ASTM standards development process to the group. The meeting was then opened to the petitioner for the development of a standard. He requested the group to develop a safety standard similar to the public playground standard ASTM 1487 for play equipment found in public water parks and public pools. The range of equipment included waterfalls, fountain sprays, small slides, animal and boat play structures, mushroom fountains, and equipment similar to soft contained playgrounds. These play activities are located in shallow water or on a hard surface.

Members of the public playground subcommittee were concerned that public playground equipment, used in, or near a water pool environment may be unsafe since this equipment was not intended to be climbed on when wet. Other members were concerned with entrapment issues, falls, surfacing requirements, and water sanitation and drainage issues. CPSC staff did not find incident data on this type of equipment.

Two working groups were formed to determine if the standards development activity resides in the F 15.29, subcommittee on public playgrounds or F 24, subcommittee on amusement rides. The working groups decided that the standard should be developed in the F 24 subcommittee with participation of F15.29 members. A task group consisting of F24 and F15.29 members was formed to develop the scope of the standard and definition of aquatic play equipment. These items will be due to the task group by October 2000.

At 3:00 PM, February 11, 2000, the subcommittee adjourned. The next meeting will be determined at a later date.

Table 1: Non-commission Attendees

Attendee	Affiliation	Address	Under 2	Public	Soft	Home	Aquatic
Arbuthnot, Lynne	Waterplay Mfg., Inc	Penticton, BC Canada					
Artwick, Kert	Gametime	Fort Payne, AL					x
Belair, Bryan	Belair Rec. Inc.	Brantford, Ontario		x			
Benning, Russ	Bence's Toys	Farmington, MO		x			
Blanke, Jay	Sportsplay Equipment Inc	Farmington, MO	x				
Bolland, Matthew	Newco Inc	St. Luis, MO					
Briggs, Rick	SCS Interactive	Janesville, Wi		x			
Burton, Scott	Safety Play Inc.	Springfield, IL		x			
Cesar, Elizabeth	Playcare Inc.	St. Petersburg, FL					x
Christiansen, Monty	Penn State University	Wawa, PA		x			
Cleveland, Curtis	Playworld Systems Inc.	University Park, PA		x			
Cordia, David	Little Tikes Co	Lewisburg, PA		x			
Danforth, Paul	Kompan Inc	Hudson, OH	x				
De Marco, Steve	Delta Play Co	Olympia, WA		x			x
Dick, Dave	ACTS Testing Lab	BC, Canada					
Druck, James	Playground Environments Inc.	Buffolo, NY				x	
Duffy, Bill	National School Supply & Equipment Assn.	Speonk, NY	x				x
Duffy, Brett	Playland Int'l	Silver Spring, MD		x			
Frazier, Ray	Sportsplay Equipment Inc	Carrolton, GA		x			
Gaudette, Emmanuelle	Jambette Playground Equipment	St. Louis, MO		x			
Gonzenbach, Jack	Miracle Recreation Equipment	Monett, MO		x			
Grossman, Esther	Custom Playgrounds	Brooklandville, MD		x			
Hayward, Mike	Little Tikes Commercial	Farmington, MO		x	x		
Henderson, Walter	Henderson Consulting Services	Mechanicsburg, PA		x	x		x
Hendy, Terry	Site Masters Inc.	Cincinnati, OH		x			
Henry, Richard	Kennywood Entertainment	West Mifflin, PA				x	x
Howes, Steve	Kee Klamp	Paris, Canada					x
Iverson, Marylou	Iverson Associates	Kingston, WA			x		
James, W.A.	World Waterpark Assoc.	Kingston, WA	x	x			
Kalousek, Thomas	Winnebago Co Forest Preserve	Powder Springs, GA		x	x	x	x
Kanter, Ray	Safe Landings	Rockford IL		x			
Kiefer, Adolph	Kiefer Sports Group	Ridgewood, NJ	x	x			
Kutska, Kenneth	Wheaton Park District	Zion, IL					x
McWilliams, Mike	Gametime	Wheaton, IL		x			x
Minninger, Joseph	Dorney Park & Wildwater Kingdom	Fort Payne, AL		x			
Mithchell, Wayne	Walt Disney World Safety Dept	Allentown, PA					x
Mittelstaedt, Arthur	Recreation Safety Inst.	Lake Buena Vista, FL					x
Morgan, Kathie	ASTM	Port Washington, NY		x			
Mullins, Mike	Children's Factory	W. Conshohocken, PA					x
Nagelski, Keith	Soft Play	St. Louis, MO	x				
Noe, Bruce	ASTM	Charlotte, NC					
Norquist, Tom	Gametime	W. Conshohocken, PA			x		
Payne, Nina	Howell Equipment Co Inc.	Fort Payne, AL					x
		Danville, IL	x				

Attendee	Affiliation	Address	Under 2	Public	Soft	Home	Aquatic
Pencille, Bill	Playground Concepts	Rancho Dominguez, CA					
Preston, John	John Preston Consulting	Silver Spring, MD		x	x		
Rarich, Darryl	Playworld Systems Inc.	New Berlin, PA		x		x	x
Reese, Loyd	Little Tikes Commercial	Farmington, MO		x			
Rochette, Isabelle	Jambette Playground Equipment			x			x
Rogers, Marcia		Philidelphia, PA		x			
Ropella, Albert	ITS	Totowa, NJ	x				
Schappet, Jean		La Plata, MD				x	
Scott, John	Walt Disney Imagineering	Glendale, CA		x		x	
Shein, Don	Najo Emergency	Providence, RI					x
Shelton, Keith	Detriot Testing Labs	Detriot, MI					x
Sherman, Elaine		N. Aurora, IL		x			
Siglos, Peter	NBGS International	Powder Springs, GA	x	x	x		
Stluka, Robert	Miracle Recreation Equipment	Monnett, MO					x
Sutton, Wesley	Gametime	Fort Payne, AL		x			x
Tatum, Preston	The Fountain People Inc.	San Marcos, TX		x			
Thompson, Donna	University of Northern Iowa	Cedar Falls, IA					x
Wallach, Frnces	Total Recreation Mgmt	New York, NY	x	x	x	x	
Watermiller, Randy	Landscape Structrues Inc.	Delano, MN			x		
Waugh, Richard	BCI Burke Co.	Fond Du Lac, WI		x			
Welsh, Patrick	Hedstrom	Bedford, PA		x			
Wilhelm, Arthur	Sportsplay Equipment Inc	St. Louis, MO				x	
Williams, Thomas	LA Steelcraft Products	Fresno, CA		x			
Wiser, Dana	Community Playthings	Rifton, NY		x			
			x				