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Standard Guide for Roller Hockey Playing Facilities[1]

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INTRODUCTION

The purpose of this guide is to reach common understanding by providing a guide for the design and construction of roller hockey playing facilities. Attention is called to the alternative dimensions of the playing surface depending upon the type of use and the age of the user.

In the interest of future standardization, it is recommended that surface dimensions of all new facilities be classified in accordance with those found in this guide.

It is recognized that roller hockey playing facilities also are used for figure skating, speed skating, and pleasure skating. Organizers of these sports may adopt the present standard as written, or modify the guide in accordance with their special interests.

1. Scope

1.1 This guide covers the provisions for consistent safety considerations in the design and construction of new roller hockey rinks in order to reduce potential safety hazards. It is intended to standardize game conditions and establish guidelines that will provide a level of conformity for the purpose of competition and reduce potential hazards to players and game officials.

1.2 This guide should be taken into consideration by architects, designers, engineers, construction contractors, and appropriate inspectors who may be involved in the design and construction of new roller hockey rinks. This guide applies to the development of new arenas and to existing facilities that will be renovated.

1.3 This guide takes into consideration that most ice hockey rinks with concrete surfaces can be acceptable for roller hockey. However, dasher boards must meet criteria respective of the specific activity. Facilities designed and constructed for roller hockey may not be acceptable for ice hockey use.

1.4 The values stated in inch-pound units are to be regarded as the standard. The values given in parentheses are for information only.

1.5 *This standard does not purport to address all of the safety concerns, if any, associated with its use. It is the responsibility of the user of this standard to establish appropriate safety and health practices and determine the applicability of regulatory limitations prior to use.*

1.6 *This international standard was developed in accordance with internationally recognized principles on standardization established in the Decision on Principles for the Development of International Standards, Guides and Recommendations issued by the World Trade Organization Technical Barriers to Trade (TBT) Committee.*

2. Referenced Documents

2.1 *ANSI Standard:*[2]

ANSI Z535.2 Product Safety Signs and Labels

3. Terminology

3.1 *Definitions of Terms Specific to This Standard:*

3.1.1 *blue line (optional), n*—blue line, 1 ft (30.5 cm) in width, drawn parallel to and 60 ft (18.3 m) from the goal line and extending up to the top of the boards.

3.1.2 *board cap or railing, n*—wood, plastic, or plastic-coated wood material 3 ± 1 in. (7.62 ± 2.54 cm) in width, attached at right angles to the top of the boards

3.1.3 *center circle, n*—blue circle, 2 in. (5.1 cm) in width, 30 ft (9.1 m) in diameter, whose center point is the midpoint of the center line.

3.1.4 *center face-off spot, n*—circular blue spot, 1 ft (30.5 cm) in diameter, whose center point is the midpoint of the center line circle.

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[2] Available from American National Standards Institute (ANSI), 25 W. 43rd St., 4th Floor, New York, NY 10036.

3.1.5 *center line, n*—red line, 1 ft (30.5 cm) in width, that divides the surface into two halves, drawn at right angles to the long axis of the playing surface and extending up to the top of the boards.

3.1.6 *dasher boards, n*—wall of wood or plastic-coated wood, fiberglass, or other high-impact material that encloses and is part of the playing surface; also called the boards.

3.1.7 *enclosure, n*—part of the playing facility that surrounds the perimeter of the surface and consists of a lower section (the kick-plate) that contacts the surface, the boards, and a vertical extension above the boards (the net, chain link, or glass). Together, these three elements are meant to confine the area of play.

3.1.8 *face-off circle, n*—red line, 2 in. (5.1 cm) in width, 30 ft (9.1 m) in diameter, forming a circle whose center point is 22 ft (6.7 m) from the midpoint and 20 ft (6.1 m) away from the back of the goal line.

3.1.9 *face-off spot, n*—circular red spot, 2 ft (61 cm) in diameter, whose center point is the same as the face-off circle. Within each face-off spot, draw two parallel lines 4 in. from the top and bottom of the spot. The remainder shall be painted white. All lines (center, blue, goal, goal crease, face-off circle, and spots) shall be applied below the surface except for placement on the boards.

3.1.10 *kick–plate, n*—portion of the boards that contacts the surface. It is made of a high-impact material and is also part of the playing surface, and should be yellow in color.

3.1.11 *game lines, n*—colored lines drawn on the surface that divide the playing surface into various areas as described in the rules of play.

3.1.12 *goal crease line, n*—red line, 2 in. (5.1 cm) in width, 6-ft (1.83-m) radius, forming a semi-circle with the open end facing the nearest end of the rink and whose center point is the midpoint of the goal line. This area, excluding the red lines, should be painted a light blue color.

3.1.13 *goal frame, n*—two rigid tubular vertical posts 2 in. (5.1 cm) in diameter connected at the top with a crossbar placed on the surface on the goal line, and set 6 ft (1.83 m) apart measured from the inside of the posts. Refer to the appropriate rule book for further information.

3.1.14 *goal net, n*—net of appropriate mesh and cord size to resist the penetration of a high velocity puck shot, connected to the posts and the crossbar. It should be loosely draped over and attached to the metal framework of the goal extending behind the goal line. There shall be a net made of white nylon cord attached to each goal frame which shall be draped in such a manner as to prevent the puck from coming to rest on the outside of it. The net shall be made of three-ply twisted twine (0.130-in. diameter) or equivalent braided twine of multi-filament white nylon with an appropriate tensile strength of 700 lb. The size of the mesh shall be 2½ in. (inside measurement) from each knot to each diagonal knot when fully stretched. Knotting shall be made as to ensure no sliding of the twine. The net shall be laced to the frame with medium white nylon cord no smaller in size than No. 21.

3.1.15 *roller hockey playing facility, n*— playing surface consisting of a horizontal surface surrounded by a vertical enclosure used for the sport of roller hockey. Ensure that the surface along the perimeter of the rink, known as the edge, is flush (to the kick-plate), and without any gaps.

3.1.16 *shielding, n*—transparent, shatter-resistant glass, plastic, net, or chain link, or similar material that is also part of the playing surface and extends above the boards.

4. Structures and Environment

4.1 *Surface Configuration*—Ensure that the sides of the rink are straight and the corners rounded to a 28-ft (8.1-m) radius.

4.2 *Dimensions*—The playing surface shall be in accordance with the following dimensions. The playing surface shall to be 185 ft (56 m) to 200 ft (60 m) in length and 85 ft (26 m) in width. There shall be a minimum of 20-ft clearance above the surface.

4.3 *Dasher Panels*—Dasher panels should be prefabricated in demountable sections. The design of all panels, whether straight section, curved section, or section in which a gate is located, shall be either steel, wood, or aluminum which extends the full height of the dasher panel. This frame shall allow for fastening of the polyethylene or wood facing at each end. This will ensure flush mating of the facing at the dasher panel joints.

4.3.1 *Cap Rail*—A polyethylene or wood cap rail shall be through-bolted to the top horizontal framing member. The surface side of the cap rail shall have a smooth and rounded edge flush with the dasher facing. Color of the cap rail can vary according to the owner's needs.

4.3.2 *Standard Sizes*—Standard size of straight dasher panels shall be 96 in. long by 42 to 48 in. high, and 3.5 to 6 in. (8.89 to 15.24 cm) wide. Standard size of a curved dasher panel shall be 95 in. (2.41 m) long.

4.4 *Gates:*

4.4.1 *Access Gates*—If required, access gates for public skating and other large entry use shall be built into standard 8-ft (2.4 m) sections and can vary from 3 to 5 ft in width. Gate latches shall be a single latch or can be similar to that used on the equipment gates. Gates on the radius shall have two latching points of contact.

4.4.2 *Players' Gates*—Players' gates shall be built into standard 8-ft. (2.4-m) sections and shall be 30 in. (76.2 cm) wide and should swing away from the end of the bench. The gate latch shall be a single latch type. Refer to local ADA requirements.

4.4.3 *Equipment Gates*—Equipment gates shall be double-leaf gates with a 10-ft (3.05-m) opening. Gate latches shall be of sliding bar latch type using 2-in. (5.1-cm) steel tubing. Equipment gate leaves shall lock into a dam by means of a minimum 0.5625-in. (1.43-cm) diameter sliding cane bolt. Each leaf shall be locked in the floor. Each equipment gate and access gate over 3-ft (91.4-cm) wide shall be equipped with adjustable spring-loaded swivel casters.

4.4.4 Where operation of the gate latch is required from the surface side of the doors, a push-button shall be flush mounted in the cap rail to activate the latch system. The button shall be large enough to be operated by players wearing gloves,

approximately 1.5 by 5 in. (3.81 by 12.7 cm). The push-button shall be designed to be simple to operate, yet not allow accidental opening.

4.4.5 *Hinges*—Hinges should be suitable materials to prevent breakage and prevent rusting. All hinge assemblies shall be constructed of low-carbon steel. The common hinge bracket shall be bolted to the dasher panel framing to facilitate removal of the hinge assembly. The hinges shall be complete with integral self-lubricating bushings and ball bearings for smooth precision operation. Each hinge shall incorporate a built-in vertical height adjustment feature ±0.31 in. (8 mm). The hinge assembly also shall include a grease zerk fitting for proper lubrication of the bushings or bearings (does not need grease zerk if fitted with nylon bushings). The hinge pins shall be a minimum of 0.75 in. (18.3 mm) in diameter.

4.4.6 All precision hardware, such as galvanized and stainless steel hinge pins, latches, casters, cane bolts, and miscellaneous nuts, bolts, and fasteners, shall be clear zinc electroplated to allow for smooth operation and shall not protrude into the playing area.

4.5 *Kick-Plate*—Kick-plates shall be constructed of 0.25 in. (6.35 m) or 0.5 in. (12.7 mm) thick high-density polyethylene color-impregnated sheets in 8 by 96 in. (20.3 cm by 2.44 m) segments, or 8 in. by 95 in. (20.3 cm by 2.41 m) segments at curved dasher panels. Kick-plates are to be mounted machine to the bottom portion of dasher panels by means of flush-mounted machine screws with serrated flange locking nuts for the top row and thread-cutting countersunk screws for the bottom row. Fastener heads must match the color of the kick plates. The standard color of kick plates shall be yellow.

4.6 *Thresholds*—Players' gate and access gate thresholds shall have a polypropylene or other suitable material covering that can be removed and replaced when wearing occurs.

4.6.1 Thresholds of all access gates should be flush with the floor.

4.6.2 Thresholds of players' gates shall be 8 in. (20.3 cm) above floor level, or equivalent to players' box floor level.

4.6.3 Thresholds of equipment gates shall be a maximum of 1.75 in. (4.44 cm) above floor level.

4.6.4 Tolerance between the gates shall be no greater than ⅜ in. (0.9525 cm).

4.7 Shielding shall be clear and colorless tempered glass, acrylic net, or chain link. All tempered glass must meet ASTM or CSA standard specifications. Tempered glass material will come from the same tempering furnace and tempered to minimize distortion. The edges of the tempered glass shall be seamed on channel sides and flat ground on the topside, and the top two corners shall have a 0.25-in. (6.35-mm) nub. Acrylic shielding shall conform to ASTM or equivalent CSA standard.

4.7.1 Rink shall have a minimum of height shielding on sides and a minimum of 6 ft (1.83 m) height above dasher panels on ends.

4.7.2 Rink shall have 0.5 in. (12.7 mm) thick tempered glass, acrylic, or other shielding.

4.7.3 Bench and box areas shall have 0.5 in. (12.7 mm) thick tempered glass, acrylic, or other shielding extending 7 ft (1.83 m) above dasher panels and at the ends and behind the players box.

4.7.4 *Mounting*—The shielding shall be mounted 1 to 3 in. from the edge of the cap rail on the playing surface side.

4.7.5 Enclosure support posts that form a corner and are exposed to the playing area (player and penalty benches) shall be padded to a thickness of 3.04 in. (76 mm) with a closed-cell shock absorbent material. The material shall be covered with a non-cellular flexible cover to protect against abrasion of the absorbent material. The closed-cell foam material shall meet ASTM or CSA standards, if applicable.

4.7.6 Frames for the tempered, acrylic, glass, or other shielding shall have no gap greater than 1 in. (2.54 cm) at the cap rail.

5. Players' Bench and Box

5.1 *Dimensions*—Each players' bench enclosure shall be 24 ft (7 m) minimum in length and 5 ft, 6 in. in width with the floor elevated above the surface to a height equal to the height of the kick-plate. The bench, when on the same side, shall be separated by a distance of 3 ft (0.91 m) minimum. The bench shall be securely fastened to the floor.

5.2 *Gates*—There shall be two gates, one at each end of the players' box, to facilitate player movement on and off the surface. Gates must open into the players' box.

5.3 *Shielding*—Shielding shall be installed behind and alongside, but not in front of the players' boxes. At shielding corners, a corner pad shall be supplied and installed.

6. Penalty Benches and Box

6.1 *Location*—There shall be a penalty box for each team separated by the off-rink official's box.

6.2 *Dimensions*—Each box shall be 6 ft, 6 in. in length minimum and 5 ft, 6 in. in width minimum and have one door opening away from the playing surface.

6.3 *Shielding*—Shielding shall be installed behind, alongside, and in front of the penalty boxes.

7. Off-Rink Official's Bench/Box

7.1 *Location*—The off-rink official box shall be located between the penalty boxes.

7.2 *Dimensions*—The off-rink official box shall be 5 ft in width minimum and have an access door on the back wall. A writing surface shall be provided.

7.3 *Shielding*—Shielding shall be installed behind, alongside, and in front of the off-rink official box.

7.4 *Communication Port*—On the section of glass that faces the playing surface, a hole 2⅞ in. (7.3025 cm) maximum in diameter shall be cut through the shielding at a height of 5 ft (1.5 m) from the surface to facilitate communication between the timer and scorekeeper and the referee(s).

7.5 To ensure players' safety, there should be a gate into each penalty box from the official's box so that an official can close the penalty box door.

8. Signal and Timing Devices

8.1 *Signal Device*—Each rink shall have a sound-type signal device (buzzer, siren, or horn) with controls in the off-rink official's box to signify the end of each period of play.

8.2 *Timing Device*—Each rink shall have an electrical clock for accurately indicating all time elements at all stages of the game, including the time remaining in any period and the penalty time remaining in any period for at least two non-simultaneous penalties. Controls for the timing devices shall be located in the timers and scorekeeper's box.

8.3 *Goal Lights (Optional)*—Behind each goal there shall be two lights for the use of the goal judge. A red light shall signify the scoring of a goal. A green light shall signify the end of a period or a game. The red light shall be connected to the game's timing device so that when a period ends and the green light is turned on, the red light will not function.

9. Dressing Rooms

9.1 Each rink shall have a minimum of two player dressing rooms to accommodate adequately a minimum of 10 to 15 players each and an officials' dressing room to accommodate adequately three game officials. Players' and officials' dressing rooms shall be separate and equipped with toilets and shower facilities. Each dressing room shall have fixed benches and shall provide for hanging clothes to eliminate potential tripping hazards.

10. Nets

10.1 Where there is viewing above the height of the glass, it is strongly recommended that netting material should be considered.

11. Rink Floor Design

11.1 The floor shall be a durable, level surface.

11.2 The floor shall be free from voids and cracks.

12. Illumination

12.1 To ensure adequate visibility for safety and playability, lighting should provide adequate and evenly distributed illumination at the playing surface. The Illuminating Engineer Society (IES) recommends the following horizontal foot candles for roller and ice hockey: professional–125; collegiate–100; amateur–75; and recreational–50. Light fixtures should have protective coverings to prevent breakage.

13. Emergency Medical Care

13.1 Exit(s) and corridor(s) shall be located and designed to provide for emergency vehicles access to the facility, the rink, and any room or area designated for the temporary retention of a stricken person, avoiding areas of normal patron congestion as much as possible.

13.2 Participants shall have access to communication devices (cell phones, walkie talkies, etc.) and AED in proximity to the rink.

14. Signage

14.1 Signage should comply with ASTM sport signage guidelines and ANSI Z535.2.

15. Keywords

15.1 bench; gate; rail; rink

APPENDIX

X1. RELATED STANDARDS

(Nonmandatory Information)

X1.1 ASTM Standards:[3]

X1.1.1 A185 Specification for Steel Welded Wire Reinforcement, Plain, for Concrete

X1.1.2 C150 Specifications for Portland Cement

X1.1.3 C260 Specifications for Air-Entraining Admixtures for Concrete

X1.1.4 C494/C494M Specification for Chemical Admixtures for Concrete

X1.2 ANSI Standard:[2]

X1.2.1 ANSI Z97.1 Safety Glazing Materials Used in Buildings Safety

[3] For referenced ASTM standards, visit the ASTM website, www.astm.org, or contact ASTM Customer Service at service@astm.org. For *Annual Book of ASTM Standards* volume information, refer to the standard's Document Summary page on the ASTM website.