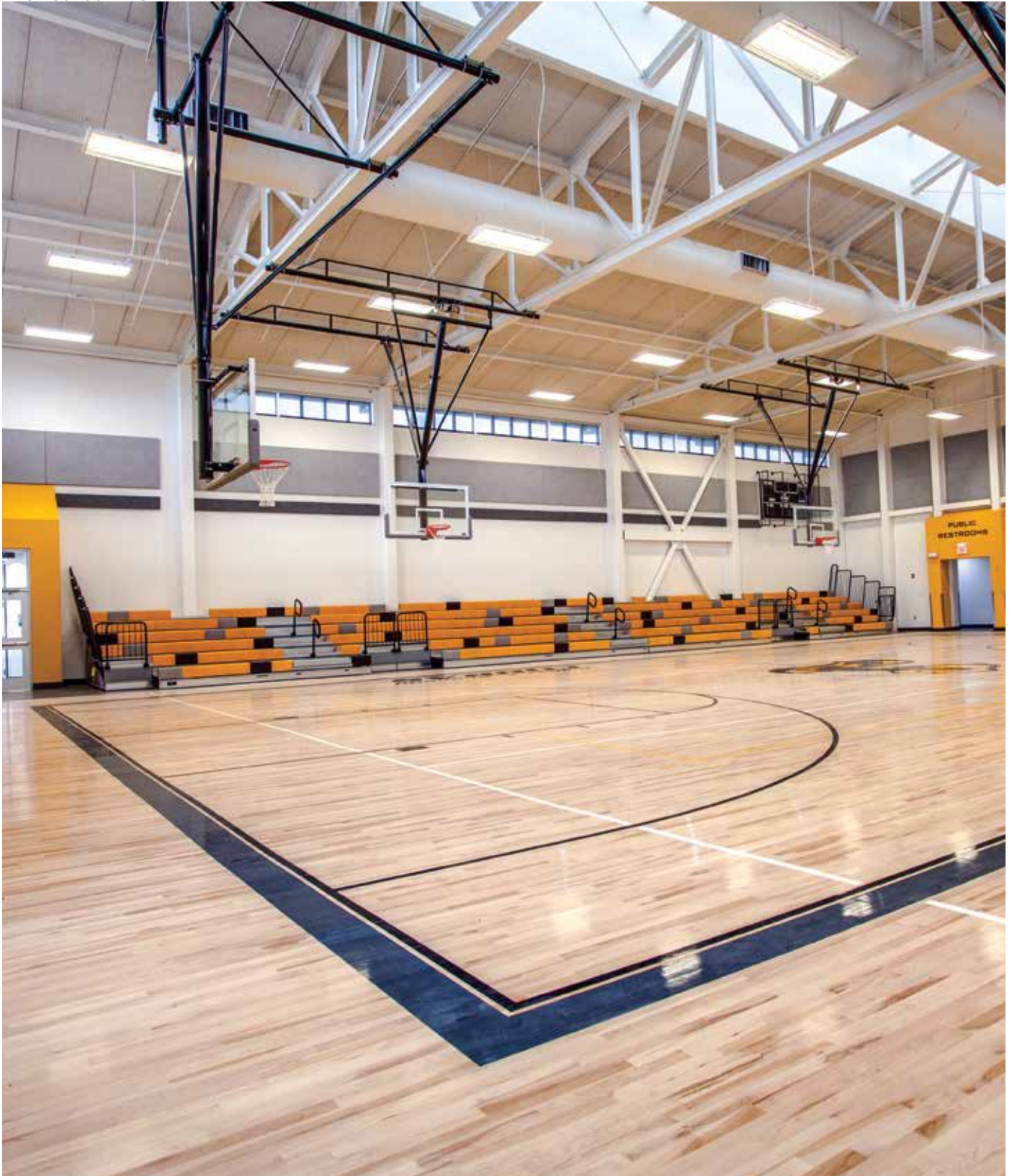
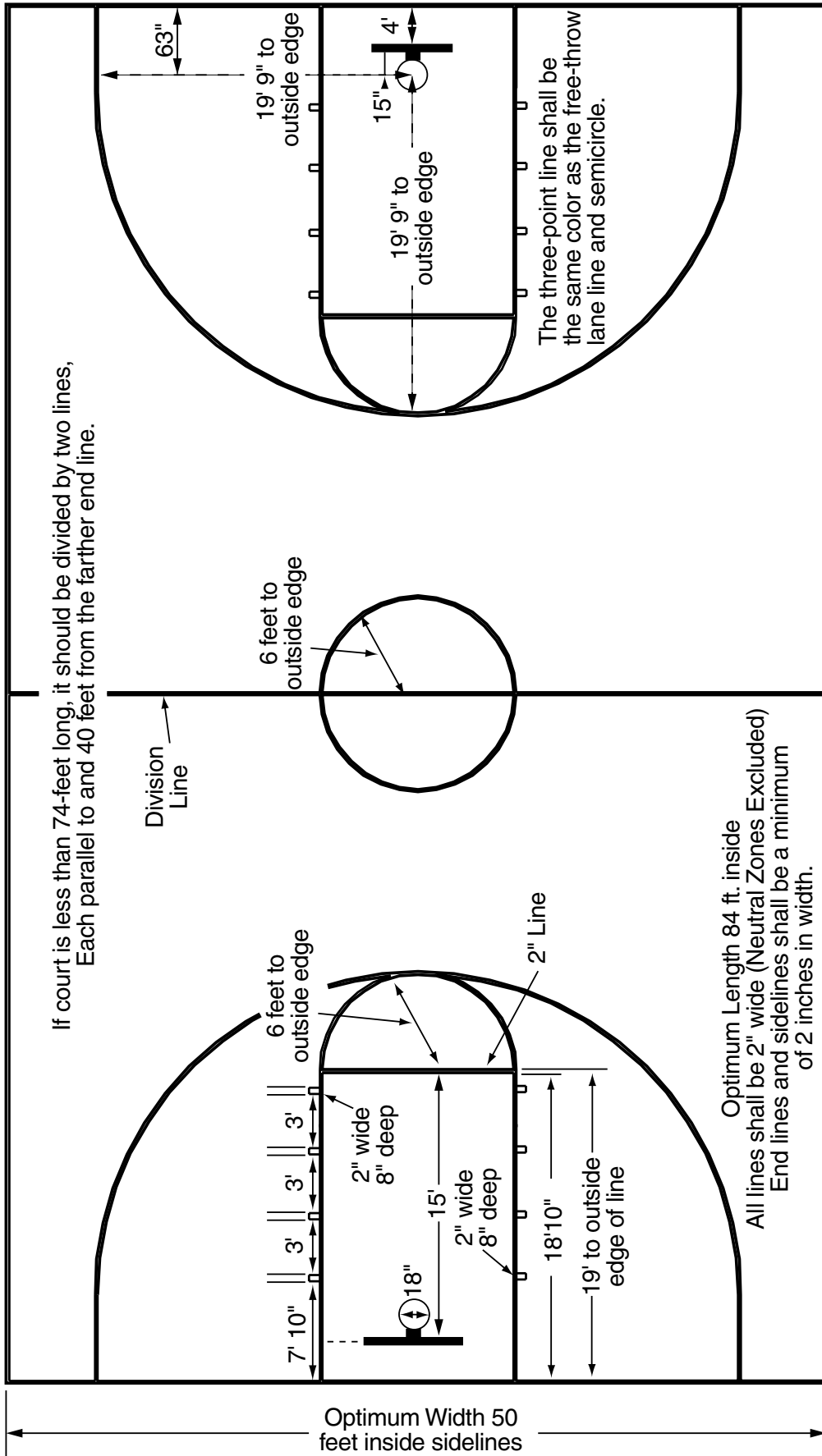


# GYMNASIUM EQUIPMENT COURT DESIGN & RULES

HIGH SCHOOL BASKETBALL AND VOLLEYBALL



# High School—Basketball Court Diagram



Right End Shows  
Fan Backboard  
54-inches Wide

**MINIMUM OF 3 FEET**  
Preferably 10 feet of unobstructed space outside. If impossible to provide 3 feet, a narrow broken 1-inch line should be marked inside the court parallel with and 3 feet inside the boundary.

Left End Shows  
Rectangular Backboard  
72-inches Wide

## **High School—Basketball Court Layout and Equipment Rules**

### **Court Specifications:**

1. If possible, building plans should provide for a court with ideal measurements as stated in Rule 1-1, ample out-of-bounds area and necessary seating space. A long court permits use of two crosswise courts for practice and informal games.
2. It is recommended that the area above the court be clear of any obstructions and be at least 25 feet or higher.
3. Instead of the 2-inch minimum boundaries, it is legal to use contrasting-colored floor areas by painting the out-of-bounds area, the center restraining circle, and the restricted parts of the free-throw lanes so that the mathematical line between the two colors is the boundary. If such contrasting colored out-of-bounds belt is used, it should be at least 8 inches wide.
4. It is recommended that a belt 8 inches wide or more in width be used to mark the boundaries on all courts which have at least 10 feet of open space between the boundary lines and the seating. This plan is urged for all new construction and for other similar courts when the boundaries are remarked.
5. It is recommended that there be a 2-inch wide broken line consisting of 12-inch segments, 12 inches apart, of a color different from that of the boundary, at a minimum of 6 feet outside the court extending from sideline to sideline and parallel to the end line.
6. Optional coaching box—tableside. Bounded by a line drawn 14 feet from the end line towards the division line. At this point, a line drawn from the sideline toward the team bench becomes the end of the coaching box going towards the end line. From this line go another 14 feet towards the division line, then a line drawn towards the bench becomes the end of the coaching box closest to the division line. The coaching box is 14 feet long placed in the middle of the regulation 42 feet long half court. Located off the court and 2 inches wide. The same directions should be followed for the other side of the scorer's table.

**NOTE:** State associations may, on an individual basis, allow alternating bench locations.

7. The court should be uniformly and adequately lighted. Lighting engineers should be placed in charge of this important factor when planning any new installations. For information on recommended specifications for lighting, you may contact: Illuminating Engineering Society of North America, 120 Wall St., 17th Floor, New York, NY 10005, 212-248-5000.

### **Rule 1: Court and Equipment**

#### **Section 1: Playing Court Dimensions:**

*The NFHS does not perform scientific tests on any specific items of equipment to determine if the equipment poses undue risks to student-athletes, coaches, officials or spectators. Such determinations are the responsibility of equipment manufacturers.*

The playing court shall be a rectangular surface free from obstructions and with dimensions not greater than 94 feet in length by 50 feet in width. IDEAL MEASUREMENTS ARE: High School Age-84 by 50 feet. These are the dimensions for the playing court only.

#### **Section 2: Sidelines, Endlines:**

**Article 1:** The playing court shall be marked with sidelines, end lines and other lines. There shall be at least 3 feet (and preferably 10 feet) of unobstructed space outside boundaries. The sidelines and end lines shall be a minimum of 2 inches in width.

**Article 2:** If, on an unofficial court, there is less than 3 feet of unobstructed space outside any sideline or end line, a narrow broken line shall be marked on the court parallel with and 3 feet inside that boundary. This restraining line becomes the boundary line during a throw-in on that side or end. It continues to be the boundary until the ball crosses the line.

#### **Section 3: Center Restraining Circle, Dividing Line:**

**Article 1:** A restraining circle shall be drawn at the center of the court with a radius of 6 feet measured to the outside edge. The edge of the circle shall be designated with a minimum of a ¼-inch wide single line but no wider than 2 inches. Spaces for nonjumpers around the center restraining circle are 36 inches deep.

**Article 2:** A division line 2 inches wide, shall divide the court into two equal parts. If the court is less than 74 feet long, it should be divided by two lines, each parallel to and 40 feet from the farther end line.

**Article 3:** Shadow-bordered lines are permissible. A shadow line is a line that designates the required width by use of border or outline lines at least ¼-inch wide which shall lie within the required width. Border lines that are the natural color of the court are permissible. The area within these lines need not be one color, but the continuous outline must be clearly visible to the officials. If the floor has a logo in the center of the court, that logo should not distract from the visibility of the division line or center circle.

#### **Section 4: Three-Point Line:**

**Article 1:** A three-point field-goal line, 2 inches wide in the form of a semicircle, shall be drawn at each end of the court. The semicircle has a radius of 19 feet 9 inches from a point in the middle of the free-throw lane directly below the center of the basket. The semicircle shall be extended with a 2-inch wide line perpendicular to the end line, the length of which shall be 63 inches from the inside edge of the end line.

**Article 2:** The three-point line shall be the same color as the free-throw lane boundary lines and free-throw semicircle.

#### **Section 5: Free-Throw Lane:**

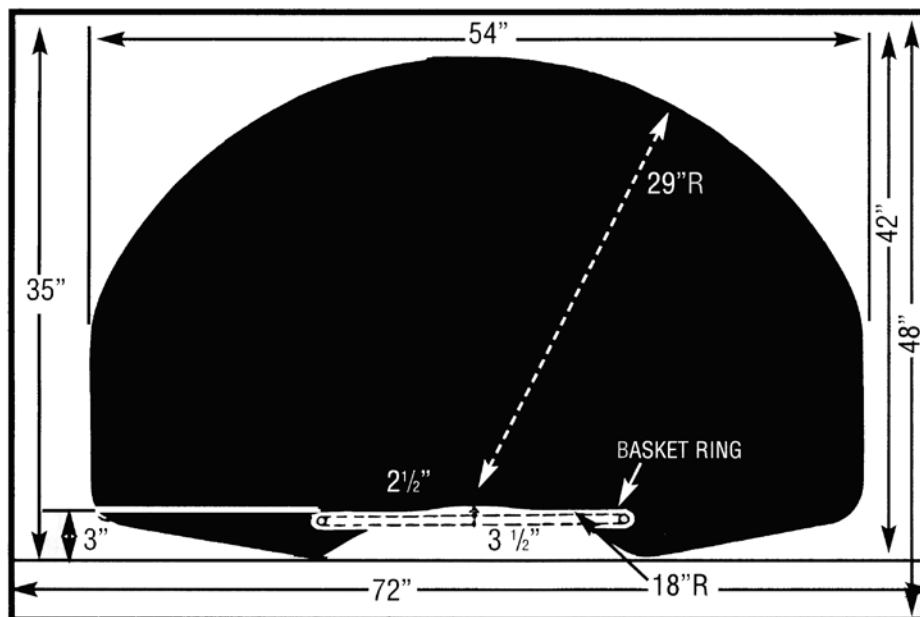
**Article 1:** A free-throw lane, 12 feet wide measured to the outside of each lane boundary, and the semicircle with the free-throw line as a diameter, shall be marked at each end of the court with dimensions and markings as shown in Figure 1-1. All lines designating the free-throw lane, but not lane-space marks are part of the lane.

**Article 2:** The lane-space marks (2 Inches by 8 inches) identify areas which extend 36 inches from the outer edge of the lane lines toward the sidelines. There are three lane spaces on each lane boundary line.

**Article 3:** The free-throw lane line and semicircle shall be the same color as the three-point line.

#### **Section 6: Free-Throw Line:**

A free-throw line, 2 inches wide, shall be drawn across both semicircles, which have an outside radius of 6 feet. It shall be parallel to the end line and shall have its farthest edge 15 feet from the plane of the face of the backboard.



#### **Section 7: Backboards Line:**

**Article 1:** The backboards shall be the same size at both ends of the court. The backboard shall be one of three types: (1) a rectangle 6 feet horizontally and 4 feet vertically; or (2) a rectangle 6 feet horizontally and 3½ feet vertically; or (3) a fan-shaped backboard, 54 inches wide and with dimensions.

**NOTE:** The 6-foot horizontal and 3½-foot vertical dimensions are recommended for replacement backboards or new installations.

**Article 2:** Each of the backboards shall be of any rigid material. The front surface shall be flat and, unless it is transparent, it shall be white. Tinted glass backboards are prohibited.

*The figure on the previous page gives specifications for the three types of backboards. See Rule 1, Sections 7, 8, & 9. It is not legal to paint a fan-shaped board on a rectangular backboard.*

**NOTE:** For the fan-shaped backboard in transparent material, the recurved cut-out at the bottom may be filled in and the ring attached to the front of the backboard.

**Article 3:** If the backboard is transparent, it shall be marked as follows: A rectangle shall be centered behind the ring and marked by a 2-inch white line. The rectangle shall have outside dimensions of 24 inches horizontally and 18 inches vertically. For the rectangular backboard, the top edge of the baseline shall be level with the ring. For the fan-shaped backboard, the baseline shall be omitted, and the two vertical lines shall be extended to the bottom of the backboard. The rectangular target in a bright orange or black color may be used on a nontransparent backboard. The border of the backboard shall be marked with a white line. The border shall be 3 inches or less in width.

**Article 4:** Either type backboard may be transparent or nontransparent. No logo, marking, lettering, etc., is permitted on the backboard, backboard padding, or basket.

### **Section 8: Backboard Position:**

**Article 1:** Each backboard shall be midway between the sidelines, with the plane of its front face perpendicular to the floor, parallel to the end line, and 4 feet from it.

**Article 2:** The upper edge of the backboard shall be 13 feet above the floor for the rectangular, and 12 feet 8 inches for the fan-shaped. The backboard shall be protected from spectators to a distance of at least 3 feet at each end.

### **Section 9: Backboard Padding, Support Systems:**

**Article 1:** The bottom and each side of the all-rectangular backboards shall be padded with a poly high-carb vinyl-type material that meets the Bashor resilience test with a range of 20-30. The padding must cover the bottom surface of the board and the side surface to a distance of 15 inches up from the bottom. The front and back surfaces must be covered to a minimum distance of 3/4 inch from the bottom of the backboard. The padding shall be 1 inch thick from the front and back surfaces of the backboard. The material shall be 2 inches from the bottom edge of the backboard. It is recommended that the padding be mounted on the backboard by adhesive or material such as Velcro, channel, etc. The padding shall be a single, solid color and shall be the same color on both backboards.

**Article 2:** Any backboard support behind the backboard and at a height of less than 9 feet above the floor shall be padded on the bottom surface to a distance of 2 feet from the face of the backboard. All portable backstops must have the bases padded to a height of 7 feet on the court-side surface.

**Article 3:** Clearances - As below and behind backboards, all support systems should be at least 8 feet behind the plane of the backboard face and at a height of 7 feet or more above the floor.

**Article 4:** Any backboard support, all of which is not directly behind the backboard, should be at least 6 inches behind it if the support extends above the top and at least 2 feet behind it if the support extends beyond the side. Any overhead backboard support structure which must be forward-braced due to space limitations, architectural or structural restraints, shall meet the following requirements: A front, diagonal-brace system must be located above a line extending upward and into the playing court at a maximum 45-degree angle from a point on a vertical line located a minimum of 6 inches behind the front side of the backboard at a minimum height of 4 feet 6 inches above the basket ring.

**Article 5:** Warning on misuse of portable backstops—Manufacturers and administrators should be aware of an “extreme-caution” warning relative to the misuse of portable backstops. A high degree of injury potential and a severe liability problem exists when players or spectators are allowed to hang, sit or stand on the basket ring or backboard. Administrators must see that this practice is eliminated or that the portable units are lowered at the completion of the game. There is a high risk of severe injury, even death, if this practice continues. A recommended warning or inscription such as “Danger—please do not get on the ring/backboard” is desirable.

### **Section 10: Basket Size, Material**

**Article 1:** Each basket shall consist of a single metal ring, 18 inches in inside diameter, its flange and braces, and a white-cord 12-mesh net, 15 to 18 inches in length, suspended from beneath the ring.

**Article 2:** Each ring shall not be more than 5/8 inch in diameter, with the possible addition of small-gauge loops on

the bottom edge for attaching a 12-mesh net. The ring and its attaching flange and braces shall be bright orange in color.

**Article 3:** The cord of the net shall be not less than 120-thread nor more than 144-thread twine, or plastic material of comparable dimensions with no additional extensions. It shall be constructed to momentarily check the ball as it passes through.

### **Section 11: Basket Ring**

**Article 1:** Each basket ring shall be securely attached to the backboard/support system with a ring-restraining device. Such a device shall ensure that the basket stays attached in the event a glass backboard breaks. Each basket ring shall have its upper edge 10 feet above and parallel to the floor and shall be equidistant from the vertical edges of the backboard. The nearest point of the inside edge of the ring shall be 6 inches from the plane of the face of the backboard.

**Article 2:** Positive-lock breakaway, flex breakaway and fixed rings are legal. Breakaway basket rings shall have rebound characteristics similar to those of fixed rings. The pressure-release mechanism should ensure these characteristics, as well as protect both the ring and backboard. The design of the ring and its construction should ensure player safety.

**Article 3:** For those rings with a breakaway mechanism, the pressure-release mechanism must be preset so that rings do not deflect more than 1/2 inch when subjected to static load of 50 pounds and may be sealed or field adjustable. When released, the positive-lock breakaway ring shall not rotate more than 30 degrees below the original horizontal position. After release and with the load no longer applied, the ring shall return automatically and instantaneously to the original position.

*NOTE: It is recommended that schools have the basket rings tested for rules compliance.*

### **Section 13: Team Bench Locations, Coaching Box, Time-Out Area**

**Article 1:** The location of each team's bench shall be designated by game management. It is recommended that the benches for team members and coaches of both teams be placed along that side of the court on which the scorer's and timer's table is located.

**Article 2:** The coaching box shall be outlined outside the side of the court on which the scorer's and timer's table and team benches are located. The area shall be bounded by a line drawn 14 feet from the end line towards the division line. At this point, a line drawn from the sideline toward the team bench becomes the end of the coaching box going towards the end line. From this line go another 14 feet towards the division line, then a line drawn towards the bench becomes the end of the coaching box closest to the division line. The coaching box is 14 feet long placed in the middle of the regulation 42 feet long half court. These lines should be located off the court and be 2 inches wide. The same directions should be followed for the other side of the scorer's and timer's table.

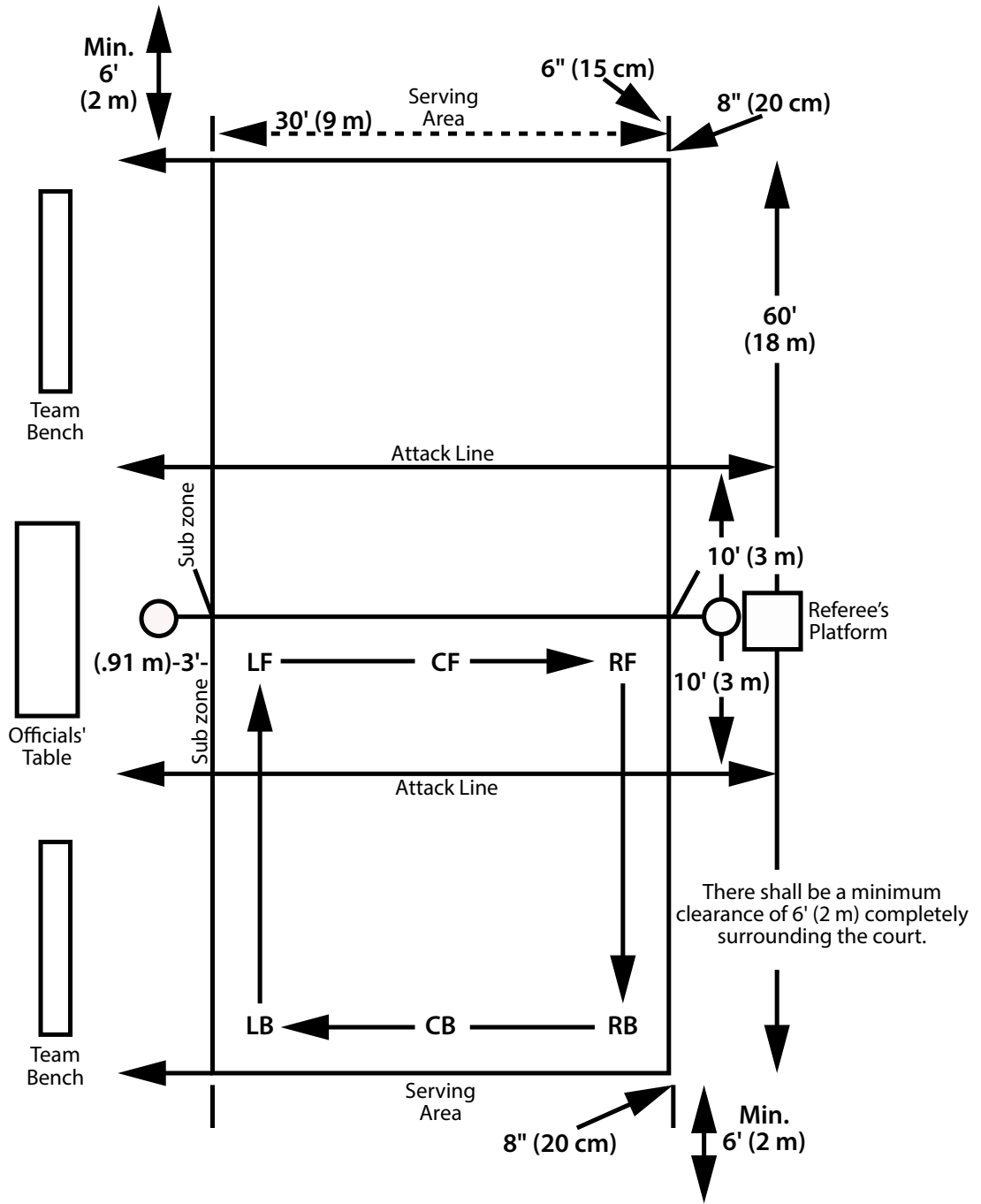
*NOTE: State associations may alter the length and placement of the 14-foot (maximum) coaching box.*

**Article 3:** The time-out area shall be the area inside an imaginary rectangle formed by the boundaries of the sideline (including the bench), end line, and an imaginary line extended from the free-throw lane line nearest the bench area meeting an imaginary line extended from the coaching-box line.

### **Section 14: Red/Red LED Light, Audible Signal**

A red light behind each backboard or an LED light on each backboard is permitted to signal that time has expired for a quarter or extra period. In facilities without a red light behind or an LED light on each backboard, the audible timer's signal shall indicate that time has expired.

## High School—Volleyball Court Diagram



## **High School—Volleyball Court Layout and Equipment Rules**

### **Rule 2: The Court**

#### **Section 1: The Court and Markings**

**Article 1:** The court shall be 60 feet (18 meters) long and 30 feet (9 meters) wide, measured to the outer edges of the boundary lines. The court and adjacent playable area must be flat, smooth and free of obstructions other than required equipment and padding. It is recommended that the area above the court be clear of any obstructions and at least 23 feet (7 meters) high.

**Article 2:** It is recommended all boundary lines be of one clearly visible color contrasting to the color of the floor and other lines on the floor.

**Article 3:** Boundary lines shall be 2 inches (5 centimeters) wide. There shall be at least 6 feet (2 meters) from walls or obstacles and preferably 10 feet (3 meters) of unobstructed space outside the boundary lines. The end lines are the boundary lines on the short sides of the court. The sidelines are the boundary lines on the long sides of the court.

**Article 4:** A continuous line, 2 inches (5 centimeters) wide, parallel to and equidistant from the end lines, shall separate the court into two playing areas.

**Note:** A solid or shadow-bordered 2-inch (5 cm) wide center line is permissible. A shadow line is a line that designates the required 2-inch (5 cm) width by use of border or outline lines at least 1/4-inch (.64 cm) wide, which shall be within the 2-inch (5 cm) width. Border lines that are the natural color of the court are permissible. The area within these lines need not be one color but the continuous 2-inch (5 cm) wide outline must be clearly visible to the officials. If the floor has a logo in the center of the court, that logo should not distract from the visibility of the center line.

**Article 5:** An attack line, 2 inches (5 centimeters) wide, shall be drawn across each playing area from sideline to sideline, the midpoint of which shall be 10 feet (3 meters) from the midpoint of the center line and parallel to it.

**Article 6:** A serving area which is 30 feet (9 meters) wide shall be provided behind and excluding the end line. It shall be laterally limited by two short lines, each 6 inches (15 centimeters) long by 2 inches (5 centimeters) wide, drawn 8 inches (20 centimeters) behind and perpendicular to the end line, as extensions of the sidelines. Both lines are included in the width of the serving area.

Each serving area shall be a minimum of 6 feet (2 meters) in depth. In the event that such a space is not available, the serving area shall extend into the court to whatever distance necessary to provide the minimum depth and be so marked.

**Article 7:** The substitution zone is the area near the sideline between the attack line and the center line.

**Article 8:** The libero replacement zone is the area near the sideline between the attack line and the end line.

**Article 9:** The playable area includes the court and the unobstructed space outside of the court boundary lines. The playable area outside of the court boundary lines shall be visible to all team members and officials.

**Article 10:** Nonplayable area is that space located beyond the court and surrounding playable area. It includes walls, bleachers, team benches, area behind the team benches, and any other areas identified in the pre-match conference, deemed by the first referee as unsuitable for playable area.

#### **Section 2: Playable Overhead Obstructions**

**Article 1:** A ball striking the ceiling or an overhead obstruction above a playable area shall remain in play provided the ball contacts the ceiling or obstruction on the side of the net extended that is occupied by the team that last played the ball, and the ball is legally played next by the same team.

**Article 2:** Cables, which are used to retract a ceiling-suspended net system and located only on one side of the net, are playable overhead obstructions.

#### **Rule 3: Game Equipment**

*The NFHS does not perform scientific tests on any specific items of equipment to determine if the equipment poses undue risks to student-athletes, coaches, officials or spectators. Such determinations are the responsibility of equipment manufacturers.*

#### **Section 1: The Net and Markings**

**Article 1:** The net shall be 36 inches to 39 inches (1 meter) wide overall and at least 31'6" feet (9.5 meters) to 33 feet (10 meters) in length when stretched. It shall consist of 4-inch square (10 centimeters) mesh of at least No. 21 size dark, natural or synthetic cord. A plain white 2-inch to 2-3/4-inch wide double thickness of canvas or single thickness of durable synthetic material shall be sewn along the full length of the top of the net. A white net sleeve, no wider



than 3-3/8 inches (8.6 cm) may be installed along the top of the net. It shall be secured so it does not affect the net height or interfere with play. It is permissible to place the school name, insignia, school mascot and/or advertising along the top of the net or net sleeve by way of a decal or professional printing.

Through the top shall run a 1/8 to 3/16-inch-diameter flexible steel cable (or aramid-type fiber cable no more than 14-inch thick which is no heavier, has no more stretch and has at least as much tensile strength as the required steel cable). Through the bottom shall run a 1/8 to 3/16-inch-diameter flexible steel cable or a 1/4-inch rope. Any exposed steel cable and/or metal tensioning device through the top and bottom of the net shall be covered. Through each side may be inserted a 1/2 to 1-inch-diameter wooden, metal or fiberglass rod which, when the net is installed, holds the sides perpendicular to the floor.

**NOTES:**

1. *No markings are permitted on a side tape, vertical tape markers or other net supportive straps other than the manufacturer's name/logo/trademark or reference.*
2. *Net systems which do not have a cable/rope through the top or bottom of the net are legal provided they meet all other rule specifications, and the entire net remains taut at the specified net height.*

**Article 2:** The net shall be attached to upright standards which are 3 feet (1 meter) outside the court or from its four corners to walls which are at least 6 feet (2 meters) from the sideline.

**Article 3:** The net supports include any attachments to the net used for anchoring the net to walls or upright standards, as well as the standards themselves and any attachments used for anchoring the standards to the floor or walls or ceiling. The standards, first referee's platform and floor/wall cables shall be padded as follows:

- a. Standards must be padded to a minimum height of 5½ feet with at least 1-inch-thick, resilient, shock-absorbing material (such as polyethylene foam) to encase the uprights and all tensioning devices;
- b. Front and sides of first referee's platform must be padded in the same manner as the standards;
- c. Any guy cables or rigid braces must be padded to a minimum height of 5½ feet with at least 1/2-inch-thick resilient, shock-absorbing material.

**Penalty: When the host school does not pad the standards, floor/wall cables and first referee's platform according to Rule 3-1-3, the match shall not be played, and the state association shall be notified.**

**Article 4:** Net placement shall be such that the net crosses the court midway between and parallel to the end lines. The height of the net shall be 7 feet, 4-1/8 inches (2.24 meters) for girls and 7 feet, 11-5/8 inches (2.43 meters) for boys measured at the center of the net. The net measured at the ends shall not exceed these heights by more than ¾ inch (1.92 cm).

**Article 5:** Net antennas shall be attached to the net in line with the outside edge of the sideline and extend upward at least 2½ feet but no more than 3½ feet above the net. The antennas shall be fastened securely to the top and bottom of the net. They shall be of an unbreakable material no more than 3/8 inch in diameter with alternating 4-inch to 6-inch white and orange or red bands.

**Article 6:** A safe, stable platform, which elevates the referee's head to between 2 and 3 feet above the top of the net, is required. It is recommended the top of the platform be at least 18 inches long by 12 inches wide, and that steps up to the platform be provided.

#### **Section 4: The Officials' Table**

The officials' table, where the official scorer libero tracker, timer and their respective assistants sit, shall be placed at least 6 feet (10 feet preferred when space permits) outside the court sideline opposite the first referee.

#### **Section 5: Team Benches**

Team benches shall be on the same side of the court as the officials' table, placed no closer to the sideline than 6 feet (2 meters) and no closer to the out-of-bounds extension of the center line than 10 feet (3 meters).

**Penalty: When game equipment, other than required padding, does not meet rule specifications, the match shall be conducted, and the improper conditions reported to the appropriate authority as determined by the state association.**

## *Sources*

### **High School Basketball:**

2015-16 NHFS Basketball Rules Book, Theresa Wynns, Ed. 2015, National Federation of State High School Associations, Indianapolis, Indiana. [www.nfhs.org](http://www.nfhs.org). Use of materials by permission of the National Federation of State High School Associations.

### **High School Volleyball:**

2016-17 NHFS Volleyball Rules Book, Becky Oakes, Ed. 2016, National Federation of State High School Associations, Indianapolis, Indiana. [www.nfhs.org](http://www.nfhs.org). Use of materials by permission of the National Federation of State High School Associations.

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411 S. Pearl St., Spiceland, IN 47385 USA ■ 765-987-7999

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