

SECTION 116623 - GYMNASIUM EQUIPMENT

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes the following gymnasium equipment:
 - 1. Basketball Equipment
 - 2. Volleyball Equipment
 - 3. Badminton Equipment
 - 4. Exercise Equipment
 - 5. Safety Pads
 - 6. Gymnasium Floor Cover
 - 7. Ball Carts
- B. Related Sections include the following:
 - 1. Section 033000 "Cast-in-Place Concrete" for installation of floor insert sleeves to be cast in concrete slabs and footings.
 - 2. Section 114800 "Scoreboards" for scoreboard and control console.
 - 3. Section 116653 "Gymnasium Dividers" for roll up gym divider.
 - 4. Division 26 "Electrical" for any electric powered equipment.

1.3 DEFINITIONS

- A. NFHS: The National Federation of State High School Associations.

1.4 ACTION SUBMITTALS

- A. Product Data: For each type of product indicated.
 - 1. If applicable, include assembly, disassembly, and storage instructions for removable equipment.
 - 2. Motors: Show nameplate data, ratings, characteristics, and mounting arrangements.
- B. Shop Drawings: For gymnasium equipment. Include plans, elevations, sections, details, attachments to other work, and the following:

1. Method of field assembly for removable equipment, connections, installation details, mountings, floor inserts, attachments to other work, and operational clearances.
 2. Transport and storage accessories for removable equipment.
- C. Samples for Initial Selection: For each type of gymnasium equipment indicated.
- D. Samples for Verification: For the following products:
1. Pad Fabric: Not less than 3 inches (76 mm) square, with specified treatments applied. Mark face of material.
- E. Structural analysis data signed and sealed by the qualified professional engineer responsible for their preparation including loads, point reactions, and locations for attachment of gymnasium equipment to structure.

1.5 INFORMATIONAL SUBMITTALS

- A. Coordination Drawings: Court layout plans, drawn to scale, and coordinating floor inserts, game lines, and markers applied to finished flooring.
- B. Qualification Data: For Installer and Professional Engineer.
- C. Product Certificates: For each type of gymnasium equipment, signed by product manufacturer.
- D. Warranty: Special warranty specified in this Section.

1.6 CLOSEOUT SUBMITTALS

- A. Operation and Maintenance Data: For gymnasium equipment to include in emergency, operation, and maintenance manuals.
- B. Division 00 and Division 01 Closeout requirements.

1.7 QUALITY ASSURANCE

- A. Installer Qualifications: An employer of workers trained and approved by manufacturer.
- B. Source Limitations: Obtain each type of gymnasium equipment through one source from a single manufacturer.
- C. Electrical Components, Devices, and Accessories: Listed and labeled as defined in NFPA 70, Article 100, by a testing agency acceptable to authorities having jurisdiction, and marked for intended use.
- D. Standards: Provide gymnasium equipment complying with or exceeding requirements of “NFS: National Federation of State High School Associations”.

1.8 PROJECT CONDITIONS

- A. Environmental Limitations: Do not install gymnasium equipment until spaces are enclosed and weatherproof, wet work in spaces is complete and dry, and ambient temperature and humidity conditions are maintained at the levels indicated for Project when occupied for its intended use.
- B. Field Measurements: Verify position and elevation of floor inserts and layout for gymnasium equipment.

1.9 COORDINATION

- A. Coordinate installation of floor inserts with structural floors and finish flooring installation and with court layout and game lines and markers on finish flooring.
- B. Coordinate layout and installation of overhead-supported gymnasium equipment and suspension system components with other construction including light fixtures, HVAC equipment, fire-suppression-system components, and partition assemblies.

1.10 WARRANTY

- A. Special Warranty: Manufacturers' standard form in which manufacturer agrees to repair or replace components of gymnasium equipment that fails in material or workmanship within specified warranty period.
 - 1. Failures include, but are not limited to the following: basketball backboard failures including glass breakage.
 - 2. Warranty period: one year from Substantial Completion.

PART 2 - PRODUCTS

2.1 MATERIALS

- A. Aluminum: Alloy and temper recommended by manufacturer for type of use and finish indicated.
 - 1. Extruded Bars, Profiles, and Tubes: ASTM B 221 (ASTM B 221M).
 - 2. Cast Aluminum: ASTM B 179.
 - 3. Flat Sheet: ASTM B 209 (ASTM B 209M).
- B. Steel: Comply with the following:
 - 1. Steel Plates, Shapes, and Bars: ASTM A 36/A 36M.
 - 2. Steel Tubing: ASTM A 500 or ASTM A 513, cold formed.
 - 3. Steel Sheet: ASTM A 1011/A 1011M.

- C. Support Cable: Manufacturer's standard galvanized steel aircraft cable with a breaking strength of 7000 lb (3175 kg). Provide fittings complying with cable manufacturer's written instructions for size, number, and method of installation.
- D. Support Chain and Fittings: Grade 80 hardened alloy steel chain rated for overhead lifting, ASTM A 391/A 391M, with commercial-quality, hot-dip galvanized or zinc-plated steel connectors and hangars.
- E. Castings and Hangers: Malleable iron, ASTM A 47/A 47M, grade required for structural loading.
- F. Composite Wood Products: Products shall comply with the testing and product requirements of the California Department of Health Services' "Standard Practice for the Testing of Volatile Organic Emissions from Various Sources Using Small-Scale Environmental Chambers."
- G. Softwood Plywood: DOC PS 1, exterior.
- H. Particleboard: ANSI A208.1, made with binder containing no urea formaldehyde.
- I. Equipment Wall-Mounting Board: Wood, painted, to match adjacent wall color(s), finish, size, and quantity as required to mount gymnasium equipment according to manufacturer's written instructions.
- J. Anchors, Fasteners, Fittings and Hardware: Manufacturer's standard corrosion-resistant or non-corrodible units; concealed; tamperproof, vandal- and theft-resistant design.
- K. Grout: Non-shrink, non-metallic, premixed, factory packaged, non-staining, non-corrosive, non-gaseous grout complying with ASTM C 1107 with minimum strength recommended in writing by gymnasium equipment manufacturer.

2.2 BASKETBALL EQUIPMENT

- A. Basis-of-Design Product: Subject to compliance with requirements, provide Porter Athletic Equipment Company, or a comparable product by one of the following:
 - 1. Draper Inc.
 - 2. Jaypro Sports, LLC.
 - 3. American Athletic, Inc.
 - 4. Performance Sports Systems (PSS)
- B. General: Provide equipment complying with requirements in NFHS's "NFHS Basketball Rule Book."
- C. Protruding fasteners or exposed bolt heads on front face of backboards are not permitted.
- D. Overhead-Supported Backboard (G6 as indicated on Drawings):
 - 1. Folding Type: Provide manufacturer's standard assembly for front-folding, rear braced backboard, with hardware and fittings to permit folding.

2. Framing: Steel pipe, tubing, and shapes. Design framing to minimize vibration during play.
 - a. Center-Mast Frame: Welded and bolted or clamped with side sway bracing.
 - b. Finish: Manufacturer's standard powder-coat finish.
 3. Goal Height Adjuster: Adjustable from 8 to 10 feet (2.4 to 3 m) with gear-drive mechanism, locking in any position within adjustment range, with visible height scale attached to side of framing.
 - a. Operation: Main Court Backboards to be Electric with integral gear-drive motor, with limit switches preset to goal heights, and one detachable electric control device(s).
 - b. Operation: Side Court Backboards to be Manually operated with detachable crank-style handle.
- E. Wall-Mounted Backboards (G7 as indicated on Drawings): Complete assembly extending from wall, including support framing to building structure, bracing, cables, chains, pulleys, fittings, hardware, pipe anchors, equipment pads, and fasteners.
1. Folding Type: Provide manufacturer's standard assembly for front folding backboard, with hardware and fittings to permit folding.
 2. Framing: Steel pipe, tubing, and shapes. Design framing to minimize vibration during play.
 - a. Finish: Manufacturer's standard powder-coat finish.
 3. Extension: 48 to 120 inches (1220 to 3050 mm).
 4. Goal Height Adjuster: Adjustable from 8 to 10 feet (2.4 to 3 m) with gear-drive mechanism, locking in any position within adjustment range, with visible height scale attached to side of framing.
 - a. Operation: Electric with integral gear-drive motor, with limit switches preset to goal heights, and one detachable electric control device(s).
- F. Wall-Mounted Backboards (G8 as indicated on Drawings): Complete assembly extending from wall, including support framing to building structure, bracing, cables, chains, pulleys, fittings, hardware, pipe anchors, equipment pads, and fasteners.
1. Fixed Type: Provide manufacturer's standard assembly for wall mounted backboard, with hardware and fittings to permit folding.
 2. Framing: Steel pipe, tubing, and shapes. Design framing to minimize vibration during play.
 - a. Finish: Manufacturer's standard powder-coat finish.
 3. Extension: 48 to 120 inches (1220 to 3050 mm).
 4. Goal Height Adjuster: Adjustable from 8 to 10 feet (2.4 to 3 m) with gear-drive mechanism, locking in any position within adjustment range, with visible height scale attached to side of framing.

- a. Operation: Electric with integral gear-drive motor, with limit switches preset to goal heights, and one detachable electric control device(s).
- G. Backboard Safety Device: Designed to limit free fall if support cable, support chain, pulleys, fittings, winch, or related components fail; with mechanical automatic reset; 6000-lb (2722-kg) load capacity; one per folding backboard .
 1. Retractor Device: Manufacturer's standard device designed to retract both support and safety cables, chains, and straps away from play of the basketball when backboard is in playing position; one per folding backboard .
- H. Backboard Electric Operator: Provide operating machine of size and capacity recommended by manufacturer for equipment specified, with electric motor and factory-prewired motor controls, starter, gear-reduction unit, and remote controls. Coordinate wiring requirements and electrical characteristics with building electrical system.
 1. Operator Type: Cable drum with grooved drum and cable tension device to automatically take up cable slack and retain cable in grooves.
 2. Operator Mounting: Backstop superstructure mounted.
 3. Motor Characteristics: Sufficient to start, accelerate, reverse, and operate connected loads at designated speeds within installed environment and with indicated operating sequence, and without exceeding nameplate rating or considering service factor. Comply with NEMA MG 1, and the following:
 4. Voltage: 208-220 V.
 5. Horsepower: 1/2 hp.
 6. Enclosure: Manufacturer's standard.
 7. Duty: Continuous duty at ambient temperature of 105 deg F (40 deg C) and at altitude of 3300 feet (1005 m) above sea level.
 8. Service Factor: 1.15 for open drip-proof motors; 1.0 for totally enclosed motors.
 9. Phase: One.
 10. Remote-Control Station(s): NEMA ICS 6, Type 1 enclosure for fully recessed mounting, momentary-contact, three-position switch-operated control with up, down, and off functions.
 - a. Group Key Switch Control Stations: One switch per each backboard.
 - b. Keys: Provide two keys per station.
 - c. Switches, Ganged: Single faceplate with multiple switch cut-outs as indicated.
 - d. Control Station Enclosure: Provide prime-painted metal enclosure with key access with two sets of keys per enclosure.
 11. Limit Switches: Adjustable switches, interlocked with motor controls and set to automatically stop basketball equipment at fully retracted and fully lowered positions.
- I. Basketball Backboard:
 1. Shape and Size:
 - a. Rectangular, 72 by 42 inches (1800 by 1050 mm) width by height.

2. Backboard Material: With predrilled holes or preset inserts for mounting goals, and as follows:
 - a. Glass (Main Court and Side Courts): Not less than 1/2-inch- (13-mm-) thick, transparent tempered glass. Provide glass with impact-absorbing resilient rubber or PVC gasket around perimeter in a fully welded, painted steel frame, with steel sub-frame, reinforcement, and bracing, including center-strut frame reinforcement, and with mounting slots for mounting backboard frame to backboard support framing.
 - 1) Direct Mount: Designed for mounting backboard frame to center mast of backboard framing to maximize relief of stresses on backboard frame and glass.
 - 2) Rim-Restraining Device: Complying with NCAA and NFHS rules and designed to ensure that basket remains attached if glass backboard breaks.
 3. Target Area and Border Markings for Glass Backboards: Permanently etched in white color, marked in manufacturer's standard pattern and stripe width.
- J. Goal Mounting Assembly: Compatible with goal, backboard, and support framing; with hole pattern that is manufacturer's standard for goal attachment.
1. Glass Backboard Goal Mounting Assembly: Goal support framing and reinforcement designed to transmit load from goal to backboard frame and to minimize stresses on glass backboard.
 2. Direct mount: Designed for mounting goal directly and independently to center mast of backboard support framing so no force, transmitted by ring, is directly applied to backboard and rigidity and stability of goal are maximized.
- K. Basketball Goals: Complete with flanges, braces, attachment plate, and evenly spaced loops welded around underside of ring.
1. Single-Rim Basket Ring Competition Goal: Materials, dimensions, and fabrication complying with referenced rules and per manufacturer's standard design.
 2. Type: Movable, breakaway design with manufacturer's standard breakaway mechanism including positive-lock, preset pressure release, set to release at 230-lb (105-kg) load, and automatic reset. Provide movable ring with rebound characteristics identical to those of fixed, non-movable ring.
 3. Mount: Front.
 4. Net Attachment: No-tie loops for attaching net to rim without tying.
 5. Finish: Manufacturer's standard finish.
- L. Basketball Nets: 12-loop-mesh net, between 15 and 18 inches (400 to 450 mm) long, sized to fit rim diameter, and as follows:
1. Competition Cord: Anti-whip, made from white nylon cord not less than 120- or more than 144-gm thread.
- M. Backboard Safety Pads: Designed for backboard thickness indicated and extending continuously along bottom and up sides of backboard and over goal mounting and backboard supports as required by referenced rules and per manufacturer's standard design.

1. Attachment: Bolt-on.
2. Color: As selected by Architect from Manufacturer's full range of standard colors.

2.3 VOLLEYBALL EQUIPMENT

- A. Basis-of-Design Product: Subject to compliance with requirements, provide Porter Athletic Equipment Company, or a comparable product by one of the following:
1. Draper Inc.
 2. Jaypro Sports, LLC.
 3. American Athletic, Inc.
 4. Performance Sports Systems (PSS)
- B. General: Provide equipment complying with requirements in NFHS's "NFHS Volleyball Rule Book."
- C. Provide two (2) sets of volleyball equipment, to include, post standards, net, transporter, safety pads and judges stand. Provide three (3) sets of floor inserts; one main court and two side courts.
- D. Floor Insert: Solid-brass floor plate; and steel pipe sleeve, concealed by floor plate, with capped bottom end, sized with ID to fit post standards, not less than 9 inches (230 mm) long to securely anchor pipe sleeve below finished floor in concrete footing; with anchors designed for securing floor insert to floor substrate indicated; quantity as indicated.
1. Floor Plate: Lockable swivel access cover, designed for use with floating wood floors and to be flush with adjacent flooring. Provide two tool(s) for unlocking access covers.
- E. Post Standards: Removable, paired volleyball post standards as indicated. Fixed height. Designed for easy removal from permanently placed floor insert supports. Fabricated from extruded-aluminum pipe or tubing, with non-marking plastic or rubber end cap or floor bumper to protect permanent flooring. Finished with manufacturer's standard factory-applied, baked powder-coating finish complying with finish manufacturer's written instructions for surface preparation including pretreatment, application, baking, and minimum dry film thickness or plated metal finish.
1. Nominal Pipe or Tubing Diameter: 4-inch (102-mm) OD at base.
 2. Net Height Adjuster: Manufacturer's standard mechanism for height adjustment, complete with fittings; designed for positioning net at heights indicated, from 36" and 95-5/8" or more.
 3. Height Markers: Clearly marked at regulation play heights for elementary school, girls / women, boy's / men, sitting volleyball, tennis and badminton.
 4. Provide 2 pair of post standards.
- F. Net: 32 feet (9.75 m) long and as follows; 1 per pair of paired post standards:
1. Width and Mesh: Competition volleyball net, 39 inches (910 mm) with 4-inch- (102-mm-) square mesh made of black nylon string.

- a. Hem Band Edges: White, not less than 2-inch- (50-mm-) wide top, bottom, and side bindings; tie offs at top, bottom and midpoint of each side end of net; end sleeves for dowels; and lines with linkage fittings threaded through top and bottom hems of binding. Provide lengths of lines and linkage fittings as required to properly connect to and set up net for post standard spacing indicated on Drawings.
 - 1) Top Line: Not less than 1/8-inch- (3-mm-) diameter, galvanized or coated steel cable.
 - 2) Bottom Line: Not less than 1/4-inch- (6-mm-) diameter rope.
2. Dowels: Not less than 1/2-inch- (13-mm-) diameter fiberglass or 1-inch- (25-mm-) diameter wood. Provide two dowels per net threaded through each side hem sleeve for straightening net side edges.
3. Net Antennas: 3/8-inch- (9.5-mm-) diameter, high-tensile-strength, extruded fiberglass or plastic rods, 72 inches (1800 mm) long, extending above top hem band of net, with alternating white and red bands according to competition rules. Provide two antennas per net.
 - a. Clamps: Designed to secure antenna to top and bottom of net.
4. Boundary Tape Markers: 2-inch- (50-mm-) wide white strip with sleeve for securing net antenna, secured to net top and bottom with hook-and-loop attachment. Provide two tape markers per net for marking court boundaries.
- G. Net Tensioning System: Designed to adjust and hold tension of net. Fully enclosed, nonslip manufacturer's standard-type winch with cable length and fittings for connecting to net lines, positive-release mechanism, and permanently fixed handle. Mount net tensioner on post standard at side away from court. Provide end post with post top pulley. Provide opposing post with welded steel loops, hooks, pins, or other devices for net attachment and post top grooved line guide.
- H. Bottom Net Lock Tightener: Provide manufacturer's standard quick-release-type tension strap, spring-loaded self-locking tensioner, turnbuckle, pulley, or other device and linkage fittings designed to quickly and easily tighten bottom line or net.
- I. Judges' Stands: Provide manufacturer's standard adjustable-height units designed to be freestanding, folding for storage with wheels for transporting. Fabricate units of welded steel tubing with finish and color to match post standards.
- J. Safety Pads: Comply with NCAA and NFS requirements. Provide pads consisting of not less than 1-1/4-inch- (32-mm-) thick, multiple-impact-resistant manufacturer's standard foam filler covered by puncture- and tear-resistant , not less than 14-oz./sq. yd. (475-g/sq. m) nylon-reinforced PVC fabric cover; with fire-test-response characteristics indicated. Provide pads with hook-and-loop closure or attachments for the following components:
 1. Post Standards: Wraparound style, designed to totally enclose each standard to a height of not less than 72 inches (1830 mm); 1 per post.
 2. Net Lines: Four per net.
 3. Judges' Stands: Designed to totally enclose each unit.
 4. Fabric Cover Flame-Resistance Ratings: Passes NFPA 701.
 5. Fabric Color: As selected by Architect from manufacturer's full range.

- K. Storage Cart: Manufacturer's standard wheeled unit designed for transporting and storing volleyball equipment and passing through 36-inch- (910-mm-) wide or wider door openings. Fabricate units of welded steel tubing with heavy-duty casters, including not less than two swivel casters. Fabricate wheels from materials that will not damage or mark floors; number of units as required to provide transport and storage for specified equipment. Storage cart shall be provided by the same manufacturer of the volleyball standards, and shall be designed to store and transport their own system.
- L. Badminton Net: competition badminton net, 20 feet (6.1m) long and as follows: one (1) per pair of paired post standards:
 - 1. Width and mesh: 30 inches (760 mm) with 3/4" (19 mm) square mesh made of purple, dark brown, or black nylon string.
 - a. Hem Band Edges: White, 3 inch (75 mm) wide top banding; purple, dark brown, or black 3/4" (19 mm) wide bottom and side bindings; tie offs at top, bottom, and midpoints and with steel sleeve with dowel eliminating gap at each side end of net; and not less than 1/8" (3 mm) diameter rope, at least 42 feet (12.8 m) long, threaded through top hem of binding. Provide lengths of lines and linkage fittings as required to properly connect to and set up net for post standard spacing indicated on drawings.

2.4 EXERCISE EQUIPMENT

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - 1. Draper Inc.
 - 2. American Athletic, Inc.
 - 3. Jaypro Sports, LLC.
 - 4. Performance Sports Systems.
 - 5. Porter Athletic Equipment Company
 - 6. General Gym
 - 7. Sports Online
 - 8. United Canvas & Sling
- B. Pull Up Bar: Provide one per gym, wall mounted; adjustable height in 6" increments within a range of 30 inches, bar length not less than 40 inches, bar not less than 1-1/16" in diameter that is a round plated solid steel bar, support frame steel angle end brackets attached to wood stringers or steel channels or bars, bar installation height and wall clearance as indicated and not less than 12" from wall, metal finish to be manufacturers' standard factory applied baked powder coat finish.
- C. Pegged Board Vertical Climber: Provide two per gym, one at each end of divided gym, wall mounted kiln dried maple board, 14" wide x 60" high with two peg hand holds per board, board must have a minimum of thirteen (13) machine drilled holes.
- D. Tumbling Mats & Tumbling Mat Flat Truck: Provide ten (10) tumbling mats and one (1) flat truck capable of transporting ten (10) tumbling mats. Material to be a minimum of 2 inches thick with Velcro on (4) sides and 6 pound density bonded foam filler, size to be 4' x 8', color selection to be (2) color choices per mat as selected by Architect from the manufacturers' full

range of colors with a minimum of 14. Tumbling mat flat truck frame to be constructed of an all welded rectangular tube with 5" diameter non-marking swivel casters, with front corners padded with heavy duty molded rubber protectors, and shall come equipped with a removable handle.

2.5 SAFETY PADS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
1. Draper Inc.
 2. American Athletic, Inc.
 3. Jaypro Sports, LLC.
 4. Porter Athletic Equipment Company
 5. Performance Sports Systems (PSS)
- B. Cover material shall be designated as flame resistant in accordance with NFPA 701, and have a flame spread index of 25 or less, and a smoke developed index of 450 or less.
- C. Fire-retardant wall padding panels shall be certified to pass the National Fire protection Association No. 286 and Class A rating as tested to No. 255. Certification shall be attached to the backside of each panel.
- D. Pad Coverings: Provide safety pad fabric covering fabricated from puncture- and tear-resistant, not less than 14-oz./sq. yd (475-g/sq. m) PVC-coated polyester or nylon-reinforced PVC fabric treated with fungicide for mildew resistance; with surface-burning characteristics indicated.
- E. Wall Safety Pads: Padded wall wainscot panels designed to be attached in a continuous row; each panel section consisting of fill laminated to backer board with visible surfaces fully covered by seamless fabric covering, free of sag and wrinkles and firmly attached to back of backer board.
1. Backer Board: Not less than 3/8-inch- (9.5-mm-) thick plywood, mat formed, or composite panel.
 2. Fill: Multiple-impact-resistant foam not less than 2-inch- (50-mm-) thick bonded polyurethane, 6.0-lb/cu. ft. (96-lb/cu. ft. (96-kg/cu. m) density.
 3. Size: Each panel section, 24 inches (600 mm) wide by not less than 72 inches (1800 mm) long.
 4. Number of Panel Sections: As indicated modular panel sections.
 5. Installation Method: Concealed mounting Z-clips.
 6. Fabric Covering Color(s): As selected by Architect from manufacturer's full range for two color(s).

2.6 GYMNASIUM FLOOR COVER

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
1. M. Putterman & Company; FloorGard / Mobile Storage Rack

2. Porter Athletic Equipment Company; Gym Floor Cover / Transport Cart
 3. Tomark Sports; Gymguard 22 / Mobile Storage Rack
- B. Gymnasium Floor Cover (sized to cover entire gym floor – see drawings)
1. Material: Heavy Duty Vinyl Coated Gym Floor Cover of 20.5 oz. / square yard, polyester reinforced fabric with 60 / 40 vinyl coated smooth topside wear surface and a grid underside for stability on finished floors. Fabric shall meet NFPA 701 flame resistance requirements. Cover material shall have a seven year warranty against defects in materials or workmanship. Floor cover material shall come in 10 foot widths.
 - a. Size: Refer to Drawings
 - b. Color Selection: As selected by Architect from manufacturers' full range of standard colors, minimum of 4.
- C. Floor Cover Transport Cart (sized to transport gymnasium floor cover as specified)
1. Provide floor cover transport / storage cart with manual hand crank and lockable non-marring casters.
 - a. Rollers: Cart shall be able of storing from four to twelve rollers, each of which will store 10 foot wide by maximum 120 foot long cover sections. Batten tube assemblies shall be of 2-1/2 inch diameter heavy-wall plated steel tubing with internal pin arrangement, to accept dual hand cranks to facilitate ease of rolling of cover material. Batten tube assemblies shall operate in roller bearing-type support assemblies. Support assembly at one end of each batten tube shall be furnished with a ratchet-type lock system to prevent material from inadvertently unrolling in transport or storage locations. Batten tube assemblies shall be furnished with continuous-type Velcro for ease of securing cover sections.
 - b. Frame: Transport frame shall consist of two equal A-frame type assemblies fabricated from 2-1/4 inch square heavy-wall structural tubing. Lower frame spreader shall be furnished with heavy mounting plates for attaching four heavy-duty 6 inch diameter swivel casters with 2 inch tread with non-marking polyurethane wheels. Two casters shall be equipped with a foot operated locking mechanism to hold cart in place while rolling cover sections onto batten tube assemblies. End frame supports shall be secured in position by means of heavy horizontal spreaders and diagonal, X-type bracing to provide maximum stability. Entire frame assembly shall be finished with a durable enamel.

2.7 BALL CARTS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
1. BSN Sports
 2. Champion Sports
 3. Jaypro Sports, LLC.
 4. KBA Coach / Korney Board Aids, Inc.
 5. Kelpro Sports
 6. Performance Sports Systems (PSS)
- B. K-8 Ball Cart: Provide four.
1. Construction: Wide Body, Holds 16 Balls, constructed of heavy duty chromed steel tubing with non-marring hard rubber casters on a no-topple base.

2. Size: 42" x 18" x 54" height

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for play court layout, alignment of mounting substrates, installation tolerances, operational clearances, accurate locations of connections to building electrical system, and other conditions affecting performance.
 1. Verify critical dimensions.
 2. Examine supporting structure and subfloors and footings below finished floor.
 3. Examine wall assemblies, where reinforced to receive anchors and fasteners, to verify that locations of concealed reinforcements have been clearly marked. Locate reinforcements and mark locations.
 4. Proceed with installation only after unsatisfactory conditions have been corrected.

3.2 INSTALLATION, GENERAL

- A. General: Comply with manufacturer's written installation instructions and competition rules indicated for each type of gymnasium equipment. Complete equipment field assembly, where required.
- B. Unless otherwise indicated, install gymnasium equipment after other finishing operations, including painting, have been completed.
- C. Permanently Placed Gymnasium Equipment and Components: Rigid, level, plumb, square, and true; anchored securely to supporting structure; positioned at locations and elevations indicated on Shop Drawings; in proper relation to adjacent construction; and aligned with court layout.
 1. Floor Insert Location: Coordinate location with application of game lines and markers, and core drill floor for inserts after game lines have been applied.
 2. Floor Insert Elevation: Coordinate installed heights of floor insert with installation and field finishing of finish flooring and type of floor plate.
 3. Operating Gymnasium Equipment: Verify clearances for movable components of gymnasium equipment throughout entire range of operation and for access to operating components.
- D. Floor Insert Setting: Position sleeve in oversized, recessed voids in concrete slabs. Clean voids of debris. Fill void around sleeves with grout, mixed and placed to comply with grout manufacturer's written instructions. Protect portion of sleeve above subfloor from splatter. Verify that sleeves are set plumb, aligned, and at correct height and spacing; hold in position during placement and finishing operations until grout is sufficiently cured. Set insert so top surface of completed unit is flush with finished flooring surface.
- E. Wall Safety Pads: Mount with bottom edge at 4 inches (102 mm) above finished floor.

- F. Anchoring to In-Place Construction: Use anchors and fasteners where necessary for securing built-in and permanently placed gymnasium equipment to structural support and for properly transferring load to in-place construction.
- G. Connections: Connect automatic operators to building electrical system.
- H. Removable Gymnasium Equipment and Components: Assemble in place to verify that equipment and components are complete and in proper working order. Instruct Owner's designated personnel in properly handling, assembling, adjusting, disassembling, transporting, storing, and maintaining units. Disassemble removable gymnasium equipment after assembled configuration has been approved by Owner, and store units in location indicated on Drawings.

3.3 ADJUSTING

- A. Adjust movable components of gymnasium equipment to operate safely, smoothly, easily, and quietly, free from binding, warp, distortion, nonalignment, misplacement, disruption, or malfunction, throughout entire operational range. Lubricate hardware and moving parts.

3.4 CLEANING

- A. After completing gymnasium equipment installation, inspect components. Remove spots, dirt, and debris and touch up damaged shop-applied finishes according to manufacturer's written instructions.
- B. Replace gymnasium equipment and finishes that cannot be cleaned and repaired, in a manner approved by Architect, before time of Substantial Completion.

3.5 DEMONSTRATION

- A. Engage a factory-authorized service representative to train Owner's maintenance personnel to adjust, operate, and maintain gymnasium equipment. Refer to Division 00 and Division 01 Section "Demonstration and Training."

END OF SECTION 116623