

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. Safety pads.
 - 4. Scoreboards.
- B. Related Sections include the following:
 - 1. Division 03 Section "Cast-in-Place Concrete" for oversized recessed voids to be cast in concrete slabs and footings.
 - 2. Division 11 Section "Gymnasium Dividers."
 - 3. Division 26 Sections for electrical service for motor operators, controls, and other powered devices for motorized gymnasium equipment.

1.3 DEFINITIONS

- A. NCAA: The National Collegiate Athletic Association.
- B. 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 square, with specified treatments applied. Mark face of material.

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.
- C. 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.
- D. Product Certificates: For each type of gymnasium equipment, signed by product manufacturer.
- E. 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.

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.

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: Manufacturer's standard form in which manufacturer agrees to repair or replace components of gymnasium equipment that fail in materials or workmanship within specified warranty period.
 - 1. Failures include, but are not limited to, the following:
 - a. Basketball backboard failures including glass breakage.
 - b. Faulty operation of electric operators.
 - 2. Warranty Period: 10 years from date of 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.
 - 2. Cast Aluminum: ASTM B 179.
 - 3. Flat Sheet: ASTM B 209.
- 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. 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 steel connectors and hangars.
- E. Castings and Hangers: Malleable iron, ASTM A 47/A 47M, grade required for structural loading.
- F. Softwood Plywood: DOC PS 1, exterior.
- G. Particleboard: ANSI A208.1.
- H. Equipment Wall-Mounting Board: Wood, transparent finish, size, and quantity as required to mount gymnasium equipment according to manufacturer's written instructions.

- I. Anchors, Fasteners, Fittings and Hardware: Manufacturer's standard corrosion-resistant or noncorrodible units; concealed; tamperproof, vandal- and theft-resistant design.
- J. Grout: Nonshrink, nonmetallic, premixed, factory-packaged, nonstaining, noncorrosive, nongaseous 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, 900 Series or a comparable product by one of the following:
 - 1. AALCO Manufacturing.
 - 2. Basketball Products International; a division of American Athletic, Inc.
 - 3. Jaypro Sports, LLC.
 - 4. Porter Athletic Equipment Company.
- 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:
 - 1. Folding Type 1: Provide manufacturer's standard assembly for forward-folding, rear-braced backboard, with hardware and fittings to permit folding.
 - 2. Folding Type 2: Provide manufacturer's standard assembly for side-folding backboard, with hardware and fittings to permit folding.
 - 3. 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.
 - 4. Goal Height Adjuster: Adjustable from 8 to 10 feet with gear-drive mechanism, locking in any position within adjustment range, with visible height scale attached to side of framing.
 - a. All basketball goals to be provided with goal height adjuster except for the 2 main court goals.
 - b. Operation: Electric with integral gear-drive motor, with limit switches preset to goal heights, and one detachable electric control device(s).
- E. 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 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.
- F. Backboard Electric Operator: Provide operating machine of size and capacity recommended by manufacturer for equipment specified, with electric motor and factory-rewired 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: Manufacturer's standard.
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: NEMA standard voltage selected to operate on nominal circuit voltage to which motor is connected.
5. Horsepower: 3/4 hp.
6. Enclosure: Manufacturer's standard.
7. Duty: Continuous duty at ambient temperature of 105 deg F and at altitude of 3300 feet above sea level.
8. Service Factor: 1.15 for open dripproof motors; 1.0 for totally enclosed motors.
9. Phase: One.
10. Remote-Control Station(s): NEMA ICS 6, Type 1 enclosure for recessed or flush mounting, momentary-contact, three-position switch-operated control with up, down, and off functions.
 - a. Group Key Switch Control Stations: One switch per two backboards.
 - b. Keys: Provide two keys per station.
 - c. Switches, Ganged: Single faceplate with multiple switch cut-outs for 5 switches operating 10 backboards.
11. Limit Switches: Adjustable switches, interlocked with motor controls and set to automatically stop basketball equipment at fully retracted and fully lowered positions.

G. Basketball Backboard:

1. Shape and Size:
 - a. Rectangular, 72 by 42 inches width by height, with rounded corners.
2. Backboard Material: With predrilled holes or preset inserts for mounting goals, and as follows:
 - a. Glass: Not less than 1/2-inch- thick, transparent tempered glass. Provide glass with impact-absorbing resilient rubber or PVC gasket around perimeter in a fully welded, brushed-natural-finish, extruded-aluminum frame, with steel subframe, 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: Permanently etched in white color, marked in pattern and stripe width according to referenced rules.

H. 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.
- I. 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.
 2. Type: Movable, breakaway design with manufacturer's standard breakaway mechanism and rebound characteristics identical to those of fixed, nonmovable ring.
 3. Mount: Front.
 4. Net Attachment: No-tie loops for attaching net to rim without tying.
 5. Finish: Powder-coat finish.
- J. Basketball Nets: 12-loop-mesh net, between 15 and 18 inches long, sized to fit rim diameter, and as follows:
1. Competition Cord: Antiwhip, made from white nylon cord not less than 120- or more than 144-gm thread.
- K. 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 .
1. Attachment: Manufacturer's standard.
 2. Color: As selected by Architect from manufacturer's full range.
- 2.3 VOLLEYBALL EQUIPMENT (floor-mounted at main court)
- A. Basis-of-Design Product: Subject to compliance with requirements, provide Porter; Powr-Rib II, or a comparable product by one of the following:
1. AALCO Manufacturing.
 2. American Athletic, Inc.
 3. Jaypro Sports, LLC.
 4. Porter Athletic Equipment Company.
- B. General: Provide equipment complying with requirements in NFHS's "NFHS Volleyball Rule Book."
- C. 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 long to securely anchor pipe sleeve below finished floor in concrete footing; with anchors designed for securing floor insert to floor substrate indicated; one per post standard.
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.

- D. Post Standards: Removable, paired volleyball post standards as indicated. Adjustable, telescoping height. Designed for easy removal from permanently placed floor insert supports. Fabricated from manufacturer's standard metal pipe or tubing, with nonmarking 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: 3-1/2-inch OD at base.
 2. Telescopic and Net Height Adjuster System: Provide Manufacturer's standard telescoping system with locking device, telescopic post, and fittings for holding net at selected height; designed for height adjustment of post standard to position net at heights indicated.
 - a. Net Heights: Between tennis net height and boys'/men's volleyball net height, 42 and 95-5/8 inches or more.
 3. Height Markers: Clearly marked at regulation play heights for girls/women, boys/men, and tennis.
- E. Net: 32 feet long and as follows; 1 per pair of paired post standards:
1. Width and Mesh: Competition volleyball net, 39 inches with 4-inch- square knotless mesh made of black nylon string.
 - a. Hem Band Edges: White, not less than 2-inch- wide top, bottom, and side bindings; not less than 1-inch- wide tension straps 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- diameter, galvanized or coated steel cable.
 - 2) Bottom Line: Not less than 1/8-inch- diameter, galvanized or coated steel cable.
 2. Dowels: Not less than 1/2-inch- diameter fiberglass or 1-inch- diameter wood. Provide two dowels per net threaded through each side hem sleeve for straightening net side edges.
 3. Net Antennas: 3/8-inch- diameter, high-tensile-strength, extruded fiberglass or plastic rods, 72 inches long, extending above top hem band of net, with alternating white and red bands according to competition rules. Provide two antennas per net.
 4. Boundary Tape Markers: 2-inch- 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.
- F. 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 manufacturer's standard 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.
- G. 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.

- H. Judges' Stands: Provide manufacturer's standard adjustable-height units designed to be attached to and supported by post standard. Fabricate units of welded steel tubing with finish and color to match post standards.
- I. Safety Pads: Comply with NCAA and NFHS requirements. Provide pads consisting of not less than 1-1/4-inch- thick, multiple-impact-resistant polyurethane foam filler covered by puncture- and tear-resistant, manufacturer's standard fabric cover; with fire-test-response characteristics indicated, and lined with fire-retardant liner. 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; 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.
- J. Storage Cart: Manufacturer's standard wheeled unit designed for transporting and storing volleyball equipment and passing through 36-inch- 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.

2.4 SAFETY PADS

- A. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
1. AALCO Manufacturing.
 2. American Athletic, Inc.
 3. Jaypro Sports, LLC.
 4. Porter Athletic Equipment Company.
- B. Safety Pad Surface-Burning Characteristics: ASTM E 84 by UL or another testing and inspecting agency acceptable to authorities having jurisdiction:
1. Flame-Spread Index: 25 or less.
 2. Smoke-Developed Index: 450 or less.
- C. Pad Coverings: Provide safety pad fabric covering fabricated from puncture- and tear-resistant, not less than 14-oz./sq. yd PVC-coated polyester or nylon-reinforced PVC fabric treated with fungicide for mildew resistance; with surface-burning characteristics indicated, and lined with fire-retardant liner.
- D. 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- thick plywood, mat formed, or composite panel.
 2. Fire-Resistive Fill: Multiple-impact-resistant foam not less than 2-inch- thick

- fire-resistive neoprene, 6.0-lb/cu. ft. density.
3. Size: Each panel section, 24 inches wide by not less than 72 inches long.
 4. Number of Panel Sections: As indicated modular panel sections.
 5. Installation Method: 1-inch top and bottom fabric attachment flange with exposed fasteners.
 6. Fabric Covering Color(s): As selected by Architect from manufacturer's full range for number of color(s) indicated.
 7. Graphics: Custom graphics as indicated. Logos to be provided by the Architect.

2.5 SCOREBOARDS

- A. Basis-of-Design Product: Subject to compliance with requirements, provide Fair-Play; BB-1620-4 and BB-1626-4, or a comparable product by one of the following:
 1. Daktronics.
 2. Fair-Play Scoreboards.
 3. Nevco Scoreboard Co.
- B. Number Required: Two. BB-1620-4 located on the North Wall of Gymnasium 100. BB-1626-4 located on the South Wall of Gymnasium 100.
- C. Control Systems: Provide one with each scoreboard, with cable extensions as required to reach from junction boxes located in walls and face of bleachers to scorer's table, on each side of courts. Each controller shall be capable of controlling one scoreboard at a time or pairs of scoreboards simultaneously, from either side of court. Provide wiring diagrams and wiring as required to achieve intended performance.

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 subgrades, 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 and footings. 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 above finished floor or directly above the wood flooring vented wall base.
- 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 Architect and 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 01 Section "Demonstration and Training."

END OF SECTION 116623

SECTION 116653 - GYMNASIUM DIVIDERS (BY ALTERNATE)

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 gymnasium divider curtains.
- B. Related Sections include the following:
 - 1. Division 26 Sections for electrical service for motor operators, controls, and other powered devices for motorized gymnasium dividers.

1.3 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: Include plans, elevations, sections, details, and attachments to other work.
- C. Samples for Initial Selection: For each type of gymnasium divider curtain fabric indicated.
- D. Samples for Verification: For divider curtain fabric, not less than 12 inches square of open mesh , and of opaque fabric.

1.4 INFORMATIONAL SUBMITTALS

- A. Qualification Data: For Installer.
- B. 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 dividers to structure.
- C. Product Certificates: For each type of gymnasium divider, signed by product manufacturer.
- D. Warranty: Special warranty specified in this Section.

1.5 CLOSEOUT SUBMITTALS

- A. Operation and Maintenance Data: For gymnasium dividers to include in emergency, operation,

and maintenance manuals.

1.6 QUALITY ASSURANCE

- A. Installer Qualifications: An employer of workers trained and approved by manufacturer.
- B. Source Limitations: Obtain each type of gymnasium divider 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.

1.7 PROJECT CONDITIONS

- A. Environmental Limitations: Do not install gymnasium dividers 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 for gymnasium dividers.

1.8 COORDINATION

- A. Coordinate installation of overhead-supported gymnasium dividers and suspension system components with other construction including light fixtures, HVAC equipment, fire-suppression-system components, and partition assemblies.

1.9 WARRANTY

- A. Special Warranty: Manufacturer's standard form in which manufacturer agrees to repair or replace components of gymnasium dividers that fail in materials or workmanship within specified warranty period.
 - 1. Failures include, but are not limited to, faulty operation of gymnasium dividers.
 - 2. Warranty Period: 10 years from date of 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.
 - 2. Cast Aluminum: ASTM B 179.
 - 3. Flat Sheet: ASTM B 209.
- 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. 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 steel connectors and hangars.
- E. Castings and Hangers: Malleable iron, ASTM A 47/A 47M, grade required for structural loading.
- F. Anchors, Fasteners, Fittings and Hardware: Manufacturer's standard corrosion-resistant or noncorrodible units; concealed; tamperproof, vandal- and theft-resistant design.

2.2 DIVIDER CURTAINS

- A. Basis-of-Design Product: Subject to compliance with requirements, provide Porter; 675 Series, or a comparable product by one of the following:
1. AALCO Manufacturing.
 2. American Athletic, Inc.
 3. Basketball Products International; a division of American Athletic, Inc.
 4. Jaypro Sports, LLC.
 5. Porter Athletic, Inc.
 6. Moderco
- B. Divider Curtains: Electrically operated, roll up, and as follows:
1. Upper Curtain, Mesh: Woven fabric of 100 percent polyester yarn coated with PVC weighing not less than 6.5 oz./sq. yd.
 - a. Mesh Color: As selected by Architect from manufacturer's full range.
 2. Lower Curtain, Solid: Woven polyester coated with PVC, 18 oz./sq. yd, embossed, 8-foot height above floor.
 - a. Fabric Color(s): As selected by Architect from manufacturer's full range for one color(s).
 3. Divider Curtain Flame-Resistance Ratings: Passes NFPA 701, inherently and permanently flame resistant.
 - a. Permanently attach label to each fabric of curtain assembly indicating whether fabric is inherently and permanently flame resistant or treated with flame-retardant chemicals, and whether it will require retreatment after designated time period or cleaning.
- C. Curtain Fabrication: Fused seams and the following:
1. Top Hem: Reinforce with double thickness mesh for continuous pipe batten.
 2. Bottom Hem for Roll-up Curtains: Floor-length curtains with hems 2 inches above

finished floor and with manufacturer's standard 3-1/2- to 4-inch- roll-up tube and lifting tape.

D. Accessories:

1. Grommets: Manufacturer's standard size and spacing, for snaps or S-hooks.
2. Curtain Battens: Fabricate battens from steel pipe with a minimum number of joints. As necessary for required lengths, connect pipe with drive-fit pipe sleeve not less than 18 inches long, and secure with 4 flush rivets, plug welds, threaded couplings, or another equally secure method. Shop-paint completed pipe battens with black paint.
 - a. Steel Pipe: ASTM A 53/ A 53M, Grade A, standard weight (Schedule 40), black, 1-1/2-inch nominal diameter, unless otherwise indicated.

E. Divider Curtain Operator: Roll-up drive tube.

F. Divider Curtain 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: Electric motor, worm-gear running-in-oil drive, with chain and sprocket secondary drive.
2. 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:
3. Voltage: NEMA standard voltage selected to operate on nominal circuit voltage to which motor is connected..
4. Horsepower: 3/4 hp.
5. Enclosure: Manufacturer's standard.
6. Duty: Continuous duty at ambient temperature of 105 deg F and at altitude of 3300 feet above sea level.
7. Service Factor: 1.15 for open dripproof motors; 1.0 for totally enclosed motors.
8. Phase: One.
9. Remote-Control Station(s): NEMA ICS 6, Type 1 enclosure for recessed or flush mounting, momentary-contact, three-position switch-operated control.
 - a. Keys: Provide two key(s) per station.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for 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.
 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. Complete field assembly, where required.
- B. Unless otherwise indicated, install gymnasium dividers after other finishing operations, including painting, have been completed.
- C. Gymnasium Dividers 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. Verify clearances for movable components of gymnasium dividers throughout entire range of operation and for access to operating components.
- D. Anchoring to In-Place Construction: Use anchors and fasteners where necessary for securing gymnasium dividers to structural support and for properly transferring load to in-place construction.
- E. Connections: Connect automatic operators to building electrical system.

3.3 ADJUSTING

- A. Adjust movable components of gymnasium dividers 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 divider installation, inspect components. Remove spots, dirt, and debris and touch up damaged shop-applied finishes according to manufacturer's written instructions.
- B. Replace gymnasium divider components 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 dividers. Refer to Division 01 Section "Demonstration and Training."

END OF SECTION 116653