SECTION 116653 - GYMNASIUM DIVIDERS

Revise this Section by deleting and inserting text to meet Project-specific requirements.

Verify that Section titles referenced in this Section are correct for this Project's Specifications; Section titles may have changed.

1. GENERAL
	* + 1. SUMMARY
				1. Section Includes:

Walk-draw divider systems.

Fold-up divider systems.

Radius-fold divider systems.

Peak-fold divider systems.

Roll-up divider systems.

Top-roll divider systems.

Center-drive divider systems.

Electric operators.

Divider curtains.

Divider system accessories.

* + - 1. PREINSTALLATION MEETINGS

Retain "Preinstallation Conference" Paragraph below if Work of this Section is extensive or complex enough to justify a conference.

* + - * 1. Preinstallation Conference: Conduct conference at Project site.
			1. If needed, insert list of conference participants. SUBMITTALS
				1. Submittals for this section are subject to the re-evaluation fee identified in Article 4 of the General Conditions.
				2. Submittals Package: Provide all submittals, except samples, coordination drawings, and closeout submittals, as a single submittal package.
				3. Product Data: For each type of product.

Retain "Motors" Subparagraph below for electric operation.

Motors: Show nameplate data, ratings, characteristics, and mounting arrangements.

* + - * 1. Shop Drawings: For gymnasium dividers.

Include plans showing alignment of curtains in relation to sport-court layout and overhead structural supports.

Include elevations, sections, details, and attachments to other work.

Include system clearances, stacking requirements, and limits for fitting into adjacent construction.

Include point loads and locations for attachment of gymnasium dividers to structure.

Include diagrams for power, signal, and control wiring.

Retain "Samples" Paragraph below for single-stage Samples, with a subordinate list if applicable. Retain "Samples for Initial Selection" and "Samples for Verification" paragraphs below for two-stage Samples.

* + - * 1. Samples for Initial Selection: For each type of gymnasium divider curtain fabric.
				2. Samples for Verification: For divider curtain fabrics, not less than 12 inches square of mesh  and of solid fabric.

Retain "Coordination Drawings" Paragraph below for situations where limited space necessitates maximum utilization for efficient installation of different components or if coordination is required for installation of products and materials by separate installers. Coordinate paragraph with other Sections specifying products listed below. Preparation of coordination drawings requires the participation of each trade involved in installations within the limited space.

* + - * 1. Coordination Drawings: Reflected ceiling plans with divider-curtain layouts, drawn to scale, on which the following items are shown and coordinated with each other, based on input from installers of the items involved:

Structural members to which divider-curtain systems will be attached.

Suspended ceiling components, if any.

Items supported from building structure, including the following:

Lighting fixtures.

Air outlets and inlets.

Speakers.

Sprinklers.

Smoke detectors.

Acoustical treatments or panels.

Access panels.

Retain "Product Certificates" Paragraph below to require submittal of product certificates from manufacturers.

* + - * 1. Product Certificates: For each type of gymnasium divider.
				2. Sample Warranty: For special warranty.
			1. CLOSEOUT SUBMITTALS
				1. Operation and Maintenance Data: For gymnasium dividers to include in operation and maintenance manuals.
			2. QUALITY ASSURANCE

Consider retaining "Installer Qualifications" Paragraph below for extensive, complex installations; for custom-engineered equipment; and for automatic operation of equipment. If retaining either option below, verify availability with manufacturers.

* + - * 1. Installer Qualifications: An entity that employs installers and supervisors who are trained and approved by manufacturer.
			1. WARRANTY
				1. Special Warranty: Manufacturer agrees to repair or replace components of gymnasium dividers that fail in materials or workmanship within specified warranty period.

Failures include, but are not limited to, the following:

Faulty operation of gymnasium dividers.

Tearing or deterioration of fabric, seams, or other materials beyond normal use.

Verify available warranties and warranty periods for units and components. A five-year warranty is generally available only for roll-up, top-roll, and center-drive divider systems. Warranties usually include supporting systems but may or may not include motors. Manufacturers generally offer no warranty over one year for curtain fabric.

Warranty Period: Five years from date of Substantial Completion.

1. PRODUCTS

Manufacturers and products listed in SpecAgent and MasterWorks Paragraph Builder are neither recommended nor endorsed by the AIA or Deltek. Before inserting names, verify that manufacturers and products listed there comply with requirements retained or revised in descriptions and are both available and suitable for the intended applications.

* + - 1. WALK-DRAW DIVIDER SYSTEMS
				1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to the following:

AALCO Manufacturing.

Jaypro Sports, LLC.

Porter Athletic Equipment Company.

Approved equivalent.

* + - * 1. Source Limitations: Obtain from single source from single manufacturer.

Third option in "Divider-Curtain System" paragraph below is available with some channel-track (option two) systems; verify availability with manufacturers.

* + - * 1. Divider-Curtain System: Manually operated, **[cable-suspended] [channel track]** system,**[ curved as indicated on Drawings,]** and as follows:

Second option in "Stacking" subparagraph below is available with channel-track systems.

Stacking: **[Stacks to one side] [Bi-parting with 36-inch overlap at opening]** as indicated on Drawings.

Top Hem: Double-thickness mesh or solid vinyl for grommets.

Outer Edge Hems: **[Double turned and] [Triple turned and double]** welded.

Bottom Pocket: Double thickness with proof coil chain in pocket.

Retain "Support Cable" subparagraph below for cable-suspended systems.

Support Cable: 1/4-inch- diameter galvanized-stranded-steel wire rope with a breaking strength of 7000 lb. Provide fittings according to the wire rope manufacturer's written instructions for size, type, number, and installation method.

Retain "Channel Track" subparagraph below for channel-track systems.

Channel Track: Galvanized steel or formed aluminum.

Grommets: Manufacturer's standard material, size, and spacing; for snaps or S-hooks.

* + - 1. FOLD-UP DIVIDER SYSTEMS
				1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to the following:

AALCO Manufacturing.

Jaypro Sports, LLC.

Porter Athletic Equipment Company.

Approved equivalent.

* + - * 1. Source Limitations: Obtain from single source from single manufacturer.
				2. Divider-Curtain System: Electrically operated, upward folding, cable suspended, and as follows:

Top Hem: Double-thickness mesh or solid vinyl for continuous pipe batten.

Outer Edge Hems: Triple turned and welded.

Bottom Curtain Pocket: 6 inches with manufacturer's standard pipe batten with padding.

Grommets: Manufacturer's standard material, size, and spacing; for lift cables to pass through curtain fabric.

Support Cables: 1/8-inch- diameter galvanized-stranded-steel wire rope with a breaking strength of 2000 lb. Provide fittings according to cable manufacturer's written instructions for size, type, number, and installation method.

Support Chain and Fittings: Hardened alloy-steel chain rated for lifting loads indicated, with commercial-quality, corrosion-resistant steel connectors and hangers.

Curtain Battens and Drive Pipe: Fabricate from steel pipe or tubing with a minimum number of joints, as necessary for required lengths. Provide galvanized battens and drive pipe, or shop prime and shop finish with black paint.

Drive Pipe: 2-3/8-inch- nominal diameter steel pipe.

Top and Bottom Battens: 1-1/2-inch- nominal diameter steel pipe.

* + - 1. RADIUS-FOLD DIVIDER SYSTEMS
				1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to the following:

AALCO Manufacturing.

Jaypro Sports, LLC.

Porter Athletic Equipment Company.

Approved equivalent.

* + - * 1. Source Limitations: Obtain from single source from single manufacturer.
				2. Divider-Curtain System: Electrically operated, upward folding, cable suspended, curved as indicated on Drawings, and as follows:

Top Hem: Double-thickness mesh or solid vinyl for pipe battens.

Outer Edge Hems: Triple turned and welded.

Bottom Curtain Pocket: 6 inches with manufacturer's standard pipe batten with padding.

Grommets: Manufacturer's standard material, size, and spacing; for lift cables to pass through curtain fabric.

Support Cable: 1/8-inch- diameter galvanized-stranded-steel wire rope with a breaking strength of 2000 lb. Provide fittings according to cable manufacturer's written instructions for size, type, number, and installation method.

Support Chain and Fittings: Hardened alloy-steel chain rated for lifting loads indicated, with commercial-quality, corrosion-resistant steel connectors and hangers.

Curtain Battens and Drive Pipe: Fabricate from steel pipe or tubing with a minimum number of joints, as necessary for required lengths. Provide galvanized battens and drive pipe or shop prime and shop finish with black paint.

Drive Pipe: 2-3/8-inch- nominal diameter steel pipe.

Top and Bottom Battens: 1-1/2-inch- nominal diameter steel pipe.

Provide segmented or universal-joint-coupled pipe and hoist system design, allowing divider to follow radius indicated.

* + - 1. PEAK-FOLD DIVIDER SYSTEMS
				1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to the following:

AALCO Manufacturing.

Jaypro Sports, LLC.

Porter Athletic Equipment Company.

Approved equivalent.

* + - * 1. Source Limitations: Obtain from single source from single manufacturer.
				2. Divider-Curtain System: Electrically operated, upward folding, cable suspended, and as follows:

Top Hem: Double-thickness mesh or solid vinyl for pipe battens.

Outer Edge Hems: Triple turned and welded.

Bottom Curtain Pocket: 6 inches with manufacturer's standard pipe batten with padding.

Grommets: Manufacturer's standard material, size, and spacing; for lift cables to pass through curtain fabric.

Support Cable: 1/8-inch- diameter galvanized-stranded-steel wire rope with a breaking strength of 2000 lb. Provide fittings according to cable manufacturer's written instructions for size, type, number, and installation method.

Support Chain and Fittings: Hardened alloy-steel chain rated for lifting loads indicated, with commercial-quality, corrosion-resistant steel connectors and hangers.

Curtain Battens: Fabricate from steel pipe or tubing with a minimum number of joints, as necessary for required lengths. Provide galvanized battens or shop prime and shop finish with black paint.

Top and Bottom Battens: 1-1/2-inch- nominal diameter steel pipe.

Provide drums of varying diameters to evenly retract curtains to sloped ceiling**[, and hinged piping to fit to changes in ceiling slope]**. Provide sheave assemblies or idler pulleys to guide cables, and other system components required to follow ceiling contour.

* + - 1. ROLL-UP DIVIDER SYSTEMS
				1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to the following:

Draper Inc.

Jaypro Sports, LLC.

Porter Athletic Equipment Company.

Approved equivalent.

* + - * 1. Source Limitations: Obtain from single source from single manufacturer.
				2. Divider-Curtain System: Electrically operated with roll-up drive pipe, and as follows:

Top Hem: Double-thickness mesh or solid vinyl for continuous pipe batten.

Outer Edge Hems: Double turned and welded.

Belts: Manufacturer's standard width polyester or polyurethane webbing or fabric belts, attached to top batten, passing under bottom batten and terminating at drive pipe, with friction surface on one side of belt or other means of drawing up curtain by rolling at bottom batten.

Support Chain and Fittings: Hardened alloy-steel chain rated for lifting loads indicated, with commercial-quality, corrosion-resistant steel connectors and hangers.

Curtain Battens and Drive Pipe: Fabricate from steel pipe or tubing with a minimum number of joints, as necessary for required lengths. Provide galvanized battens, or shop prime and shop finish with black paint.

Drive Pipe: 2-3/8-inch- nominal diameter steel pipe.

Top Batten: 1-1/2-inch- nominal diameter steel pipe.

Bottom Batten: 3-1/2-inch- nominal diameter steel pipe.

* + - 1. TOP-ROLL DIVIDER SYSTEMS
				1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to the following:

AALCO Manufacturing.

Draper Inc.

Jaypro Sports, LLC.

Approved equivalent.

* + - * 1. Source Limitations: Obtain from single source from single manufacturer.
				2. Divider-Curtain System: Electrically operated, top-roll drive pipe, and as follows:

Outer Edge Hems: Double turned and welded.

Supports and Fittings: Corrosion-resistant steel clamps and hangers.

Drive Pipe: 3-1/8-inch nominal diameter, fabricated from steel, aluminum, or PVC pipe or tubing, with a minimum number of joints as necessary for required lengths. Steel shall be galvanized or shop primed and shop finished with black paint.

Curtain Battens: 1-1/2-inch nominal diameter, fabricated from steel pipe or tubing, with a minimum number of joints as necessary for required lengths. Provide galvanized steel, or shop prime and shop finish with black paint.

* + - 1. CENTER-DRIVE DIVIDER SYSTEMS
				1. Manufacturers: Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to the following:

ADP Lemco.

Performance Sports Systems.

Porter Athletic Equipment Company.

Approved equivalent.

* + - * 1. Source Limitations: Obtain from single source from single manufacturer.
				2. Divider-Curtain System: Electrically operated, with center-drive tube rolling the upper and lower sections of the curtain simultaneously; and as follows:

Adjustable pipe hanger assembly.

Roll Tube: Anodized, extruded-aluminum tubing.

* + - 1. ELECTRIC OPERATORS

Retain this article if electric operation is required.

* + - * 1. Provide factory-assembled electric operation system of size and capacity recommended in writing and provided by gymnasium divider manufacturer for gymnasium dividers specified, with electric motors and factory-prewired motor controls, control devices, and accessories required for proper operation.

Include wiring from control stations to motors and between synchronizer and dual motors for long curtains. Coordinate operator wiring requirements and electrical characteristics with building electrical system.

* + - * 1. Electrical Components, Devices, and Accessories: Listed and labeled according to NFPA 70, by a qualified testing agency, and marked for intended location and application.
				2. Motor Electrical Characteristics:

Manufacturers' motor requirements vary due to system weight and size; consult manufacturers for recommendations.

Horsepower: **[3/4] [1]** hp.

Voltage: 115 V ac, single phase, 60 hertz.

* + - * 1. Limit Switches: Adjustable switches at each divider curtain, interlocked with motor controls and set to automatically stop divider curtain at fully extended and fully retracted positions.
				2. Control System:

Retain one or more of five subparagraphs below. Verify availability with manufacturers.

Key-Switch Operation: NEMA ICS 6, Type 1 enclosure, momentary-contact, three-position switch-operated control with up, down, and off functions.

Group Key-Switch Control: One switch per each curtain.

Switches, Ganged: Single faceplate with multiple switch cutouts **[for two switches] [for three switches] [as indicated on Drawings]**.

Keys: Provide two key(s) per station.

Insert additional requirements in four subparagraphs below to suit Project.

Radio control system.

Keypad control system.

Wireless control system.

Touch-screen programmable operating system.

If using multiple divider-curtain configurations for different divider systems, copy "Divider Curtains" Article below and revise for each divider-curtain type.

* + - 1. DIVIDER CURTAINS

Retain "Curtain Mesh" paragraph below for a divider curtain made of a single fabric type that extends to the floor.

* + - * 1. Curtain, Mesh: Woven mesh of polyester yarn coated with vinyl, weighing not less than **[7 oz./sq. yd.] [9 oz./sq. yd.] [13 oz./sq. yd.] <Insert value>**.

Mesh Color: **[Gray] [Black] [White] [Blue] [Red] [Match Director’s Representative's sample] [As selected by Director’s Representative from full range of industry colors and color densities] <Insert color>**.

Retain "Upper Curtain, Mesh" and "Lower Curtain, Solid" paragraphs below for a divider curtain made of an upper and a lower fabric component.

* + - * 1. Upper Curtain, Mesh: Woven mesh of polyester yarn coated with vinyl, weighing not less than **[7 oz./sq. yd.] [9 oz./sq. yd.] [13 oz./sq. yd.] <Insert value>**.

Mesh Color: **[Gray] [Black] [White] [Blue] [Red] [Match Director’s Representative's sample] [As selected by Director’s Representative from full range of industry colors and color densities] <Insert color>**.

"Lower Curtain, Solid" paragraph below describes a solid (opaque) lower curtain; revise to suit Project.

* + - * 1. Lower Curtain, Solid: Woven polyester fabric coated with vinyl, **[18 oz./sq. yd.] [22 oz./sq. yd.] <Insert value>, [8-foot] [10-foot] <Insert dimension>** height above floor.

Fabric Color(s): **[One] [Two] <Insert number>** color(s), **[matching school colors] [as indicated by manufacturer's designations] [match Director’s Representative's sample] [as selected by Director’s Representative from full range of industry colors and color densities] <Insert color(s)>**.

* + - * 1. Hems: Folded and electronically welded.
				2. Seams: Electronically welded.
				3. Overall Curtain Height: **[Floor to ceiling, within installation clearances required] [As indicated on Drawings]**.
				4. Bottom of Curtain: Approximately 2 inches above finished floor.

Retain "Divider-Curtain Flame-Resistance Rating" paragraph below if authorities having jurisdiction require fire tests for the Project's divider curtains; revise to suit Project. See the Evaluations for explanation of tests according to NFPA 701.

* + - * 1. Divider-Curtain Flame-Resistance Rating: **[Passes NFPA 701 Test 2] <Insert requirement for fire-test-response characteristic>**.
			1. DIVIDER SYSTEM ACCESSORIES

"Safety Lock" paragraph below is recommended by most manufacturers for electrically operated dividers, except for peak-fold systems that do not have a drive pipe. Verify availability with manufacturers.

* + - * 1. Safety Lock: Locks drive system when speed exceeds **[1-1/2 fps] [manufacturer's recommended speed] <Insert requirement>**.

"Audible Motion Alarm" paragraph below is recommended by most manufacturers for electrically operated dividers. Verify availability with manufacturers.

* + - * 1. Audible Motion Alarm: Provide alarm with intermittent warning tone when curtain is raised or lowered.
			1. SUPPORT MATERIALS AND FASTENERS

Retain paragraphs in this article to suit Project.

* + - * 1. Support Chain and Fittings: For chains used for overhead lifting, provide Grade 80, heat-treated alloy-steel chains, according to ASTM A391, with commercial-quality, **[hot-dip galvanized] [or] [zinc-plated]** steel connectors and hangers.
				2. General-Purpose Chain: For chains not used for overhead lifting, provide carbon steel chain, according to ASTM A413, Grade 30 proof coil chain or higher grade recommended by gymnasium divider manufacturer. Provide coating type, chain size, number, and installation method according to manufacturer's written instructions.
				3. Anchors, Fasteners, Fittings, and Hardware: Manufacturer's standard corrosion-resistant or noncorrodible units; concealed**[; tamperproof, vandal-resistant design]**.
1. EXECUTION
	* + 1. EXAMINATION
				1. Examine substrates, areas, and conditions, with Installer present, for compliance with requirements for alignment of mounting substrates, installation tolerances, operational clearances,**[ locations of connections to building electrical system,]** and other conditions affecting performance of the Work.

Verify critical dimensions.

Examine supporting structure.

Retain subparagraph below if wall reinforcement is needed to secure the cables of cable-suspended walk-draw divider curtains.

Examine wall assemblies, where reinforced to receive anchors and fasteners, to verify that locations of concealed reinforcements are clearly marked. Locate reinforcements and mark locations.

* + - * 1. Proceed with installation only after unsatisfactory conditions have been corrected.
			1. INSTALLATION, GENERAL
				1. Comply with manufacturer's written installation instructions.
				2. Install gymnasium dividers after other finishing operations, including painting, have been completed unless otherwise indicated.
				3. Install gymnasium dividers level, plumb, square, and true; anchored securely to supporting structure; positioned at locations and elevations indicated; in proper relation to adjacent construction; and aligned with sport-court layout.

Verify clearances for movable components of gymnasium dividers throughout entire range of operation and for access to operating components.

Retain "Electric Operators Installation" paragraph below for electrically operated gymnasium dividers.

* + - * 1. Electric Operators Installation: Connect electric operators to building electrical system.
			1. ADJUSTING
				1. Adjust movable components of gymnasium dividers to operate safely, smoothly, easily, and quietly, free from binding, warp, distortion, uneven tension, nonalignment, misplacement, disruption, or malfunction, throughout entire operational range; and lubricate as recommended in writing by manufacturer.

Retain "Limit Switch Adjustment" paragraph below for electrically operated dividers.

* + - * 1. Limit Switch Adjustment: Set and adjust upper and lower limit controls.
			1. DEMONSTRATION
				1. **[Engage a Company Field Advisor to train] [Train]** facility maintenance personnel to adjust, operate, and maintain gymnasium dividers.

END OF SECTION 116653