

SECTION 03 30 00
CAST-IN-PLACE UNDERLAYMENT & CONCRETE BLOCK WORK

PART 1 - CONCRETE WORK - GENERAL

1.1 Summary

- A. This work shall consist of furnishing and constructing all cast-in-place concrete underlayment as shown on the Drawings, specified here in, and as required to complete the work. This work includes all reinforcement, form work, sleeves, vapor barriers, and any additives or accessories necessary to complete the work.
- B. Concrete Underlayment Work to commence after Building Contractor has removed finish wood flooring and any required existing volleyball, badminton, and any other post sleeves and concrete slab areas found to be above base level for new flooring system elevation such as at door sills/ thresholds on doors to receive new door sills.
- C. New Concrete Underlayment Work shall be completed by Robbins authorized and certified Dealer (American Sports Floor) who is also an ARDEX Certified Contractor.

1.2 References

- A. All work shall comply with the applicable provisions of the following codes:
 - 1. American Concrete Institute ACI-318-83 "Building Code Requirements for Reinforced Concrete".
 - 2. American Concrete Institute ACI-301-89 "Specifications for Structural Concrete for Buildings."
 - 3. The IBC (International Building Code- 2003).
 - 4. NFPA 101 Life Safety Code- 2009
 - 5. 2010 ADA Standards for Accessible Design

1.3 Submittals

- A. Contractor shall furnish proposed mix design along with copies of previous test results. Indicate strength of Underlayment mix.
- B. The Contractor shall provide the Architect with shop drawings for all reinforcing and other accessories to be cast-in-place. Shop drawings shall be submitted at least 10 days in advance of underlayment placement and shall be reviewed by the Architect prior to placement.

PART 2 - PRODUCTS

2.1 Concrete

- A. Floor Underlayment shall be ARDEX K 15 Self-Leveling.
- B. See ARDEX specifications.

2.2 Finishing

- A. The finish shall be smooth, uniform and hard. Surface tolerance shall be not more than 1/8 inch under a 10 foot straight edge.
- B. Floor Underlayment to be installed by MANUFACTURER'S LICENSED INSTALLER ONLY.
- C. After a minimum curing time for new Concrete Floor Underlayment has passed, prepare both new and existing concrete floor in entire room to receive new floor finish.
- D. All slab penetrations by pipe inserts for volleyball and badminton posts shall be core drilled and sealed with non-shrink grout around entire penetration to provide a tight finish.
- E. Net post floor sleeves by Porter Athletic Equipment Company and distributed by Robert Lord Co. See Specification Section 11 66 23 for details of pipe sleeve installation.
- F. New finish flooring shall be installed by MANUFACTURER'S LICENSED INSTALLER ONLY after required maximum moisture content of ARDEX Self-Leveling Underlayment is reached. See Section 09 62 40 Polyurethane Floor System.

PART 2 - CONCRETE BLOCK WORK - GENERAL

1.2 Summary

- A. This work shall consist of removal and replacement of existing block as needed for pump hose access for floor underlayment installation and block work as needed at electrical panel PG. Block removal for panel PG shall be in the Training Room as shown on the New Gym Floor Plan and for the purpose of installing new conduit stub-outs from the panel into the Training Room.
- G. Upon completion of all horizontal conduit stub-outs, concrete block shall be used to fill in missing block of the same wall block face size, texture, pattern, grout lines and placement as the original wall finish.
- F. After block installation has dried, complete conduit stub-outs to terminate and cap above ceiling.
- G. Remove block as needed and at locations as shown on the New Floor Plan and Electrical Plan . Coordination removal and repair of block with Electrical Contractor and Floor Underlayment Installer. Install new block around panel as needed to complete wall finish. Fill in any missing block with the same wall block face size, texture, pattern, grout lines and placement as the original wall finish.

END OF SECTION



ARDEX K 15[®]

Premium Self-Leveling Underlayment

Use to level and smooth interior concrete, terrazzo, ceramic and quarry tile, epoxy coating systems, wood, metal and non-watersoluble adhesive residue on concrete

Portland cement-based

Installs up to 1 1/2" (4 cm) neat, 5" (12.7 cm) with aggregate

Can be featheredged to meet existing elevations

Walkable in 2 to 3 hours

Install moisture-insensitive tile and stone after 6 hours,
all other floor coverings after 16 hours

Designed specifically for fast-track installations

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ARDEX K 15®

Premium Self-Leveling Underlayment

Description and Usage

ARDEX K 15® is a Portland cement-based, self-leveling underlayment formulated with a special blend of polymers used to level and smooth interior concrete, terrazzo, ceramic and quarry tile, epoxy coating systems, metal, wooden substrates and non-watersoluble adhesive residue on concrete prior to the installation of finished flooring – on, above or below grade. It can also be installed over concrete treated with certain curing compounds (see below). Designed specifically for the fast leveling of floors, ARDEX K 15 provides a durable, flat, smooth floor surface with minimum labor and installation time. It is pourable or pumpable when mixed with water and seeks its own level to produce a smooth, flat, hard surface. ARDEX K 15 is also recommended and specified by many quality flooring manufacturers, architects and contractors.

Substrate Preparation

Concrete: All concrete substrates must be solid, thoroughly clean and free of oil, wax, grease, asphalt, latex and gypsum compounds, curing compounds*, sealers and any contaminant that might act as a bond breaker. If necessary, mechanically clean the floor down to sound, solid concrete by shot blasting, scarifying or similar. Over-watered, frozen or otherwise weak concrete surfaces must also be cleaned down to sound, solid concrete by mechanical methods. Acid etching, adhesive removers, solvents and sweeping compounds are not acceptable means for cleaning the substrate. Sanding equipment is not an effective method to remove curing and sealing compounds. Substrate and ambient temperatures must be a minimum of 50°F (10°C) for the installation of ARDEX products.

***Notes on curing compounds:** Test areas of ARDEX K 15 can be installed and evaluated over concrete slabs that have been treated with either silicate or acrylic resin curing compounds. These compounds must be installed in strict accordance with the compound manufacturer's written recommendations. If a silicate type has been used, all residual salts must be removed. For instructions on priming concrete with acceptable curing compounds, please refer to the Priming section of this brochure.

Please be advised, however, that there are a number of curing compounds sold today that are wax- or petroleum-based emulsions. These are permanent bond breakers that must be completely removed prior to patching or leveling. Dissipating compounds must also be completely removed by mechanical means prior to installing any ARDEX material.

It is imperative to be able to determine the type of curing compound that was used before proceeding. Any curing compound that cannot be identified should be completely, mechanically removed.

Adhesive Residues on Concrete: ARDEX K 15 can also be installed over non-watersoluble adhesive residue on concrete only. The adhesive must first be tested to make certain it is not watersoluble. Any watersoluble adhesives must be mechanically removed down to clean concrete. Non-watersoluble adhesives should be prepared to a thin, well-bonded residue using the wet-scraping technique as recommended by the Resilient Floor Covering Institute (www.rfci.com) to remove thick areas and adhesive buildup, as well as any areas that are weak or not well bonded to the concrete. Any existing patches below the adhesive must be completely removed.

Other Non-Porous Substrates: ARDEX K 15 can also be applied over other non-porous substrates, including terrazzo, burnished concrete, epoxy coating systems, and ceramic

and quarry tile. The substrate must be clean including the complete removal of existing waxes and sealers, dust, dirt, debris and any other contaminant that may act as a bond breaker. Substrate preparation must be by mechanical means such as shot blasting. Do not use acid etching, sweeping compounds, solvents or adhesive removers.

For instructions on installing over wood and metal, please refer to the sections detailed later in this brochure for substrate preparation, mixing and installation instructions.

For more detailed information on substrate preparation, please refer to the ARDEX Substrate Preparation Brochure.

Recommended Tools

ARDEX T-1 Mixing Paddle, ARDEX T-10 Mixing Drum, ARDEX T-4 Spreader, ARDEX T-5 Smoother, ARDEX MB-7.0 Measuring Bucket [7 quarts (6.6 L) per 55 lb. (25 kg) bag], and a 1/2" heavy-duty drill (12 mm, min. 650 rpm), and baseball or soccer shoes with non-metallic cleats

Priming

Standard absorbent concrete must be primed with ARDEX P 51™ PRIMER diluted 1:1 with water. Apply evenly with a soft bristled push broom. Do not use paint rollers, mops or spray equipment. Do not leave any bare spots. Brush off puddles and excess primer. Allow primer to dry to a clear, thin film (min. 3 hours, max. 24 hours).

Extremely absorbent concrete may require two applications of ARDEX P 51 to avoid the formation of bubbles and pinholes in the ARDEX K 15. Make an initial application of ARDEX P 51 diluted with 3 parts water by volume. Let dry thoroughly (1 to 3 hours) and install a second application of ARDEX P 51 mixed 1:1 with water as stated above.

Non-porous substrates, such as burnished concrete, terrazzo, ceramic and quarry tile, epoxy coating systems, non-watersoluble adhesive residue on concrete and concrete treated with silicate compounds must be primed with ARDEX P 82™ ULTRA PRIME. Follow mixing instructions on the container and apply with a short-nap or sponge paint roller leaving a thin coat of primer. Do not leave any bare spots. Brush off puddles and excess primer. ARDEX P 82 should be applied within 1 hour of mixing. Allow primer to dry to a thin, slightly tacky film (min. 3 hours, max. 24 hours).

Note: If an approved acrylic curing compound is used, test the surface for porosity. If the concrete is porous, prime with ARDEX P 51. If it is non-porous, prime with ARDEX P 82.

ARDEX primers may require longer drying time with low surface temperatures and/or high ambient humidity. Do not install ARDEX K 15 before the primer has dried thoroughly.

Joints and Cracks

Under no circumstances should ARDEX K 15 be installed over any moving joints or cracks. All existing expansion joints, isolation joints and construction joints, as well as any moving cracks, must be honed up through the underlayment and flooring. As needed, dormant cracks and joints can be filled with ARDEX FEATHER FINISH® or ARDEX ARDIFIX™ following the instructions in each product's technical brochure. Please note that if ARDEX ARDIFIX is used, it must be sand-broadcast to refusal.

Mixing and Application – Manually

ARDEX K 15 is mixed two bags at a time. Mix each 55 lb. (25 kg) bag with 7 quarts (6.6 L) of water. Pour the water in the mixing

drum first and then add each bag of ARDEX K 15 while mixing with an ARDEX T-1 Paddle and a 1/2" heavy-duty drill (12 mm, min. 650 rpm). Mix thoroughly for approximately 2 to 3 minutes to obtain a lump-free mix. **Do not overwater!** Yellowish foam while mixing, or settling of the sand aggregate while placing, indicates overwatering.

ARDEX K 15 has a flow time of 10 minutes at 70°F (21°C). Pour the mix onto the floor and spread with the ARDEX T-4 Spreader. Immediately smooth the material with the ARDEX T-5 Smoother. Wear baseball or soccer shoes with non-metallic cleats to avoid leaving marks in the liquid ARDEX K 15.

Mixing and Application – Pumping

ARDEX K 15 can be pumped using the ARDEX Levelcraft™ Automatic Mixing Pump. The Levelcraft Pump provides high productivity and a smooth, consistent installation. The pump may be rented from an authorized ARDEX Distributor, and is supported by the ARDEX Technical Department.

Start the pump at a water setting of 210 gallons (795 L) per hour, and then adjust to the minimum water reading that allows self-leveling properties. **Do not overwater!** Check the consistency of the product on the floor to ensure a uniform distribution of the sand aggregate at both the top surface and bottom of the pour. Conditions during installation such as variations in water, powder, substrate and ambient temperatures may require that the water setting be adjusted during installation to avoid overwatering.

ARDEX K 15 has a flow time of 10 minutes at 70°F (21°C). Pump the mix onto the floor and spread with the ARDEX T-4 Spreader. Immediately smooth the material with the ARDEX T-5 Smoother. Wear baseball or soccer shoes with non-metallic cleats to avoid leaving marks in the liquid ARDEX K 15. Contact the ARDEX Technical Service Department for complete pump installation instructions.

Thickness of Application

ARDEX K 15 must be installed at a minimum thickness of 1/8" (3 mm) over the highest point in the floor, which typically results in an average thickness of 1/4" (6 mm) over the entire floor. ARDEX K 15 can be installed up to 1 1/2" (4 cm) over large areas neat and up to 5" (12.7 cm) with the addition of proper aggregate. ARDEX K 15 can also be featheredged to match existing elevations.

For areas with a thickness greater than 1 1/2" (4 cm), mix ARDEX K 15 with washed and well-graded 1/8" to 3/8" (3 to 9.5 mm) pea gravel. Please note that the aggregate size must not exceed 1/3 the depth of the pour. Mix the ARDEX K 15 with water first, then add 1 part aggregate by volume, mixing until the aggregate is completely coated. Do not use sand. If the aggregate is wet, reduce the amount of water to avoid overwatering.

The addition of aggregate will diminish the workability of the product and may make it necessary to install a neat coat to obtain a smooth surface. Allow the initial application to dry for 12 to 16 hours, then prime this layer with ARDEX P 51 mixed 1:1 with water. Allow the primer to dry (min. 3 hours, max. 24 hours) before installing the neat coat of ARDEX K 15.

Wear Surface

ARDEX K 15 is not to be used as a permanent wear surface even if coated or sealed. ARDEX K 15 must be covered by a suitable floor covering material such as carpet, vinyl flooring, ceramic tile, etc. For resurfacing and leveling indoor concrete floors in warehouses, storage areas, hallways or other areas where a wear surface is required, use ARDEX SD-T®, ARDEX K 500™ or ARDEX K 301™.

Installation of Flooring

ARDEX K 15 can be walked on 2 to 3 hours after installation. Moisture-insensitive tiles such as ceramic, quarry and porcelain, can be installed after just 6 hours. All other floor coverings can be installed after 16 hours at 70°F (21°C). Low substrate temperatures and/or high ambient humidity will extend the drying time.

Wooden Subfloors: The Mesh-Reinforced ARDEX K 15 and ARDEX E 25 Underlayment System

Substrate Preparation

Wood subfloors must either be solid hardwood flooring, a minimum of 3/4" (19 mm) tongue-and-groove, APA-rated, Type 1, exterior exposure plywood, or an OSB equivalent. The wood subfloor must be constructed according to prevailing building codes and must be solid and securely fixed to provide a rigid base free of undue flex. Any boards exhibiting movement must be re-nailed. The surface of the wood must be clean and free of oil, grease, wax, dirt, varnish, shellac, coatings and any contaminant that might act as a bond breaker. If necessary, sand down to bare wood. A commercial drum sander can be used to sand large areas. Do not use solvents, strippers or cleaners. Vacuum all dust and debris. Open joints should be filled with ARDEX FEATHER FINISH®. It is the responsibility of the installation contractor to ensure that the subfloor is thoroughly clean and sound prior to the installation of any ARDEX material.

Priming

Wood subfloors require priming with ARDEX P 82 ULTRA PRIME. Follow the mixing instructions on the container and apply with a short-nap or sponge paint roller leaving a thin coat of primer. Do not leave any bare spots. Brush off puddles and excess primer. A thick coat will result in cracking of the ARDEX K 15. ARDEX P 82 should be applied within 1 hour of mixing. Allow primer to dry to a thin, slightly tacky film (min. 3 hours, max. 24 hours). ARDEX primers may require longer drying time with low surface temperatures and/or high ambient humidity. Do not install ARDEX K 15 before the primer has dried thoroughly.

Once the primer is applied, install 3.4 galvanized, expanded diamond metal lath mesh ("plaster lath"), stapling approximately every 6 inches (15.2 cm). This procedure can be done while the primer is drying by placing the lath mesh onto a primed area and standing on the mesh while stapling. Do not walk on wet primer. Overlap adjacent pieces of lath mesh approximately 1" (2.54 cm). After the lath mesh is placed, allow the ARDEX P 82 to dry thoroughly as stated above.

Mixing and Application with ARDEX E 25

ARDEX K 15 is mixed 2 bags at a time. For each bag, pour 2 quarts (1.9 L) of ARDEX E 25 and 6 quarts (5.7 L) of water into the ARDEX T-10 Mixing Drum, then add each bag of ARDEX K 15 powder while mixing with an ARDEX T-1 Paddle and a 1/2" heavy-duty drill (12 mm, min. 650 rpm). Mix thoroughly for approximately 2 to 3 minutes to obtain a lump-free mix. Install at no less than 3/8" (9.5 mm) thickness over the highest point in the floor, following the installation instructions previously described.

Metal Substrates or Decking: The ARDEX K 15 and ARDEX E 25 Underlayment System

Substrate Preparation and Installation

Metal substrates must be rigid, well supported, properly anchored, and free of undue flex and vibration. They must also be clean, including the complete mechanical removal of rust, corrosion, oil, grease and any contaminant that may act as a bond breaker. It is the responsibility of the installation contractor to ensure that this is so. If necessary, mechanically clean the surface by sand blasting, wire-brushing or other mechanical means. Vacuum all dirt and debris.

To prevent rust from recurring, steel surfaces must be painted with an anticorrosive epoxy coating and allowed to dry thoroughly. The coating must be installed in strict accordance with coating manufacturer's written recommendations and allowed to cure fully. Lead, copper and aluminum do not need to be painted with anticorrosive paint.

Prime the prepared subfloor with ARDEX P 82 ULTRA PRIME. Follow the mixing instructions on the container and apply with a short-nap or sponge paint roller leaving a thin coat of primer. Do not leave any bare spots. Brush off puddles and excess primer. ARDEX P 82 should be applied within 1 hour of mixing. Allow primer to dry to a thin, slightly tacky film (min. 3 hours, max. 24 hours). ARDEX primers may require longer drying time with low surface temperatures and/or high ambient humidity. Do not install ARDEX K 15 before the primer has dried thoroughly.

Mixing and Application with ARDEX E 25

ARDEX K 15 is mixed 2 bags at a time. For each bag, pour 2 quarts (1.9 liters) of ARDEX E 25 and 6 quarts (5.7 liters) of water into the ARDEX T-10 Mixing Drum, then add each bag of ARDEX K 15 powder while mixing at full speed with an ARDEX T-1 Mixing Paddle and a 1/2" heavy-duty drill (12 mm, min. 650 rpm). Mix thoroughly for approximately 2 to 3 minutes to obtain a lump-free mix. **Do not overwater!** Yellowish foam while mixing, or settling of the sand aggregate while placing, indicates overwatering. Install at no less than 1/8" (3 mm) thickness over the highest point in the floor, following installation instructions previously described.

When installing material with the ARDEX Levelcraft Automatic Mixing Pump, contact the ARDEX Technical Service Department for instructions.

Notes

This product is intended for interior use over dry substrates only. Do not use in areas of constant water exposure or in areas exposed to permanent or intermittent substrate moisture as this may jeopardize the performance of the underlayment and the floor covering. This product is not a vapor barrier and will allow free passage of moisture. **Follow the directives of the floor covering manufacturer regarding the maximum allowable substrate moisture content and test the substrate prior to installing ARDEX K 15.** Where substrate moisture exceeds the maximum allowed, ARDEX recommends the use of ARDEX Moisture Control Systems. For further information, please refer to the ARDEX technical brochures.

Always install an adequate number of properly located test areas, including the finish flooring, to determine the suitability of the products for the intended use. As floor coverings vary, always contact and rely upon the floor covering manufacturer for specific directives such as maximum allowable moisture content, adhesive selection and intended end use of the product.

ARDEX primers may require longer drying time with low surface temperatures and/or high ambient humidity. Do not install ARDEX K 15 before the primer has dried thoroughly.

Never mix with cement or additives other than ARDEX approved products. Observe the basic rules of concrete work. Do not install below 50°F (10°C) surface and air temperatures. Install quickly if the substrate is warm, and follow warm weather instructions available from the ARDEX Technical Service Department.

Technical Data According To ARDEX Quality Standards

All data based on a mixing ratio of 3.5 parts powder to 1 part water by volume at 70°F (21°C). Physical properties are typical values and not specifications.

Mixing Ratio:	7 quarts (6.6 L) of water per 55 lb. (25 kg) bag	
Coverage:	30 sq. ft. per bag at 1/4" (2.8 m ² at 6 mm) 15 sq. ft. per bag at 1/2" (1.4 m ² at 12 mm)	
Flow Time:	10 minutes	
Initial Set (ASTM C191):	Approx. 30 minutes	
Final Set (ASTM C191):	Approx. 90 minutes	
Compressive Strength (ASTM C109/mod - Air cure only):	4100 psi (288 kg/cm ²) at 28 days	
Flexural Strength (ASTM C348):	1000 psi (70 kg/cm ²) at 28 days	
Flammability (ASTM E84):	Flame Spread	-0-
	Fuel Contribution	-0-
	Smoke Development	-0-
Walkable:	2 to 3 hours	
Install Flooring:	Moisture-insensitive tile and stone: 6 hours Other floor coverings: 16 hours	
VOC:	0 g/L, calculated SCAQMD 1168	
Packaging:	55 lb. (25 kg) net weight bags	
Storage:	Store in a cool dry area. Do not leave bags exposed to sun.	
Shelf Life:	1 year if unopened.	
Warranty:	ARDEX Engineered Cements Standard Limited Warranty applies. Also eligible for the ARDEX/HENRY SystemOne™ Warranty when used in conjunction with select HENRY Flooring Adhesives.	

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TECHNICAL STATEMENT

CHECKING CONCRETE SLABS and RECOMENDATIONS FOR INSTALLING ROBBINS FLOOR SYSTEMS

PART 1-GENERAL DESCRIPTION

1. Concrete Slab Depression: determine total system thickness, including pad, sleeper, plywood, maple: include any materials that are incorporated in specified system
2. Concrete and Slab Construction- refer to ACI Code 302.1R-04
3. Concrete Levelness Tolerance: $\pm 1/8"$ (3mm) in radius of 10' (3m) Surface steel troweled
4. Waterproofing, Damp-proofing and Curing Additives
 - a. Spray or roller applied sealers may be used on concrete on which a floating floor or mechanically anchored sleeper floors are to be installed.
 - b. Curing agents may be used in concrete on which a floating floor or anchored sleeper floor is to be installed.
 - c. **No sealers or curing agents** are to be used when a direct **glue-down** Robbins system is to be installed.
5. Game Standard Inserts.
 - a. All inserts should be installed at the correct height and location before Robbins floor is installed.
 - b. Material used to set inserts should be fully cured before Robbins floor is installed

PART 2 – GENERAL CONDITIONS

1. Do not install floor system until concrete has been cured at least 60 days and meet all recommendations in Part 2.
2. Permanent heat, light and ventilation shall be installed and operating during and after installation.
3. **Maintain temperature and relative humidity before, during and after installation.**
 - a. Wood systems- range of 55 to 80 degrees Fahrenheit and a relative humidity range of 35 to 50%
 - b. Synthetic systems- range of 65 to 85 degrees Fahrenheit and a relative humidity range of 35 to 75%
4. All outside doors and windows must be permanently installed
5. Floor should be broom cleaned and free of any obstacles in order to check slab for levelness.
6. All trades should vacate the area in which the Robbins floor is to be installed.

PART3- CONCRETE CONDITIONS

1. Moisture

Submit anhydrous calcium chloride testing according to ASTM F 1869 (latest revision) and/or RH Probe Test according to ASTM F 2170 (latest revision). Tests shall be performed by a 3rd party testing firm and results provided to the Architect, Owner, General Contractor, Flooring Contractor. These costs are not the responsibility of the flooring contractor.

- a. In Slab Relative Humidity: RH Probe test ASTM F 2170: The wood industry recommends maximum of 75% for direct glue down systems and 85% for anchored or floating systems. Synthetic systems require a maximum of 80% or less.
- b. Anhydrous Calcium Chloride: test ASTM F 1869: Industry recommends maximum vapor transmission no greater than 4.5 pounds per 1000 square feet for all anchored or floating systems and 4 lbs for all direct glue down systems.
- c. Electronic Meter: Concrete slab moisture content should not exceed 4.5%, (to be used as an indicator only, not to replace the above test methods.)
- d. Accelerated Poly-test: Any moisture gathering in form of a very heavy mist or droplets, indicates excessive moisture, (to be used as an indicator only, not to replace the above test methods.)

NOTE: 1. There is no direct correlation between various test methods.

2. If any sealers or curing compounds are present, areas in which the moisture tests are performed must be ground to bare concrete.

3. This does not apply to specially design permanent systems for the reduction of moisture vapor transmission. These types of products are warranted by the manufacturer and must be approved by the manufacturer to be used with the Robbins floor system. If this type of product is installed, additional moisture testing is not necessary.

2. Adhesion for glue-down systems

- a. Glue small piece of material to numerous areas of the floor with recommended adhesive, let adhesive cure and check bond
- b. To assure that no sealers or curing agents are present, place drops of water on slab, the water should immediately be absorbed into the slab. When using muriatic acid, place a few drops on the concrete, the acid should foam up immediately.
- c. If contaminates are found, shot blast all areas to a Concrete Surface Profile (CSP) #3 or #4 and clean surfaces with an industrial vacuum cleaner and remove all residues from the substrate. Grinding is allowed only in areas not accessible by shot blasting.

See NOTE in PART 3, Section 1

3. Levelness +/- 1/8" (3mm) in a 10' (3m) radius

- a. It is the responsibility of the General Contractor or owner to provide a slab to meet recommended levelness requirements.
- b. To assure requirements are met:
 1. 10' (3m) straight edge: slide straight edge from end to end. Move sideways in 5' (1.5m) increments until total area is done. Using a wax crayon or spray paint, mark any low or high areas on the floor.
 2. Transit level: set up level in center of room, mark floor with spray paint in a 5' (1.5m) grid along both sides. Make a drawing of the area, duplicate the grid layout on a drawing.

Check elevation of entire floor and record on drawing. Evaluate drawing and mark any low or high areas on floor with paint or wax crayon. Straight edge should also be used to check construction joints and saw cuts.

c. Concrete levelers.....Section 03500

NOTE: 1. Concrete-leveling materials shall be Portland cement based and at least 4000 psi compressive strength after 7 days. **NOTE:** When leveling compounds are used, see Part 3, Section 1 to check for appropriate moisture tolerances.

2. In cases where a permanent system for the reduction of moisture vapor transmission is used, all leveling must be performed after the moisture reduction system is installed and fully cured.

d. After leveling requirements are met and approved, the floor should be swept or vacuumed of all foreign materials and dust.

Part 4- ENVIRONMENTAL/SITE CONDITIONS

1. Slab, Humidity, Temperature & Wood Moisture Content Records

- a. Place record of slab condition, before and after any repair work performed in job file.
- b. Start recording temperature, relative humidity and wood moisture content level in all wooden components (if applicable) daily and maintain a log as soon as Robbins materials are delivered.
- c. Check temperature, relative humidity and wood moisture content level in all wooden components (if applicable) daily and maintain a log until job is completed. Place log in job file.
- d. Maintain a photographic journal starting the first time the room is viewed and ending once the floor system is finished and the scope of work is completed.
- e. If installing a wood system, wood moisture content readings should correspond with local requirements; place a record of any artificial expansion spacing in job file.

2. After the Robbins floor system is finished, area should be kept locked by general contractor/owner to allow recommended curing time. If, after required curing time, the general contractor or owner requires use of gym before the entire project is completed and accepted, they shall protect the floor by covering. Acceptable materials are non-fibered kraft paper or red rosin paper with taped joints for wood floors and kraft paper or at least 4mil poly for urethane floors, until acceptance by owner (or owner's agent) upon completion of the project

3. If heavy rolling loads are anticipated, adequate protection must be provided by the owner of the equipment. The type of floor system and weight of the load will determine the type and amount of protection needed.

4. If you have any addition questions, please contact Robbins Technical Service Department



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SECTION 07 92 00 SEALANTS AND CAULKING

PART 1 - GENERAL

1.1 Summary

- A. Provide all labor, materials and equipment to complete sealing and caulking as shown on the drawings and as specified herein.

1.2 Scope of Work

- A. Sealing and caulking shall be performed on all exterior joints including but not limited to:
 - 1. Joints around wall penetrations such as electrical boxes, pipes, etc.
 - 2. Joints between dissimilar building materials such as concrete block and metal, etc.
- B. Sealing of concrete joints is covered in Section 03 30 00.

1.3 References

- A. All sealants and caulking shall comply with ASTM C920, Standard Specification for elastomeric joint sealants.

PART 2 - PRODUCTS

2.2 Interior Caulking

- A. Interior caulking for bedding electrical boxes, outlets, pipes or other wall penetrations shall be a non-hardening sealant; "Tremco Acoustical Sealant", Bostik "Chem-Caulk 600", or approved equivalents.
- B. Interior caulking for penetrations through **fire walls** or smoke barriers such as conduits, pipes and ducts shall be a one component fire resistant caulk or putty; 3M Fire Barrier Caulk "CP25" or Putty "303", or approved equivalents.

2.3 Joint Filler

- A. Joint filler for backing caulking shall be non-absorbent pre-compressed foam sealant; "Will-Seal 150", by Will-Seal Construction Foams, "York-Seal 100" by York Manufacturing, Inc., or approved equivalents.

PART 3 - EXECUTION

3.1 Preparation

- A. All joints and spaces to be caulked shall be dry, clean and free from dust and loose materials.
- B. If necessary mask or otherwise protect adjacent surfaces.

3.2 Installation

- A. All sealants and caulking shall be installed according to the manufacturer's recommendations.
- B. Caulking shall be applied with suitable equipment such as with a caulking gun.
- C. Use foam backing for joints deeper than 1/2-inch. Pack into joint allowing at least 1/4-inch for caulking.
- D. Caulking shall be applied so that surfaces are slightly concave, tight and smooth. Joints shall be air and water tight.
- E. Caulk or putty around fire and smoke wall penetrations shall be applied so as to provide a complete fire barrier sealing system.
- F. Remove excess caulking and clean adjacent surfaces with approved cleaners.

END OF SECTION

SECTION 08 14 00 WOOD DOORS

PART 1 - GENERAL

1.1 Summary

- A. This work shall include all labor, materials and equipment necessary to complete the work as shown on the drawings and as specified herein. Door schedule is shown on the Drawings.

1.2 Submittals

- A. Contractor shall submit three (3) copies of shop drawings to the Architect at least 15 days prior to installation. Shop drawings to have factory finish options for Owner selection of finish. Only doors for which there are reviewed shop drawings shall be incorporated into the work.

1.3 Quality Assurance

- A. Only experienced skilled workmen shall be engaged in this work.

1.4 Delivery Storage and Handling

- A. Deliver doors and all necessary equipment in manufacturer's unopened containers.
- B. Store materials in a protected area to prevent damage.
- C. Protect doors and equipment during and after installation from damage including splashing or the accumulation of paint, joint compound, or other foreign material.

PART 2 - PRODUCTS

2.1 Acceptable Manufacturers

- A. Mohawk 90 minute with 5/16" Firelite Glass sized and located as shown on door schedule, machined to fit existing HM frames and machined to fit existing hardware.
- B. Approved equivalents

2.2 Wood Doors and Frames

- A. Wood doors shall be prefinished select white birch veneer 90 min. doors, 1-3/4" thick, of the sizes and type as shown on the drawings and as specified herein.
- B. Existing frames to remain in place and receive new doors.
- C. Existing thresholds to be removed and reinstalled upon completion of new flooring.
- A. All doors to be supplied by Hardware Consultants, no substitution. Contact is John Wallace.
- B. See Door Schedule on the Drawings.

2.3 Door Hardware

- A. Existing hardware on existing doors to be removed and installed on new doors.
- B. Existing doors having wood base trim returns to door jambs to receive new handicapped sill/thresholds to match existing aluminum sill quality. New sills to extend to concrete block walls at sides of openings. See Existing Door Detail "3" for required sill extension and New Gym Floor Plan for locations of doors to receive new sills/ thresholds.

PART 3 - EXECUTION

3.1 Doors and Hardware

- A. Install units in compliance with the manufacturer's specifications and as approved by Architect.
- B. Take care not to damage prefinished units. Defects in surface finish such as hammer marks, scratches, chips, etc., shall be repaired to the satisfaction of the Architect and Owner.
- D. Insure that doors are not put under strain which may cause breakage of glass or binding.
- D. Install existing hardware on all doors as listed on plans in Door Hardware Schedule and as specified herein.

3.4

Cleanup and Protection

- A. Clean all doors completely.
- B. Protect all door units, replacing any damaged or defective parts until accepted by Owner.

END OF SECTION

SECTION 09 62 40
POLYURETHANE FLOOR SYSTEM

Part 1-GENERAL

1.01 DESCRIPTION

A. Scope

1. The complete installation of Robbins **PULASTIC Classic 110 Eco** polyurethane surfacing over high-performance resilient base mat, by Robbins, Inc. of Cincinnati, Ohio, including adhesives, resilient base mat, polyurethane sealer, polyurethane structure layer, surface topcoat, and court markings.

B. Related work specified under other sections

1. Concrete and Concrete Finishing Section 03 30 00
 - a. Concrete Slab Depression: a total of 11mm, equal to system thickness, (0.433 inches).
 - b. Surface Finish: steel troweled and finished smooth.
 - c. Concrete Tolerance: 1/8" (3mm) in radius of 10' (3m)
 - d. **NO CURING AGENTS OR SEALERS ARE TO BE APPLIED TO THE CONCRETE SLAB.**
2. Membrane Waterproofing and Dampproofing Section 03 30 00
 - a. Concrete subfloors on or below grade shall be adequately waterproofed beneath the slab and at the perimeter walls and on the earth side of below grade walls by general contractor using suitable type membrane.
 - b. Sand-Poly-Sand slab construction **is not** an acceptable construction.
3. Thresholds Section 08 14 00 & 08 25 00
4. Game Standard Inserts Section 11 66 23

1.02 QUALITY ASSURANCE

A. Floor System Supplier Qualifications

1. Supplier shall be an established firm experienced in field and have been in business for a minimum of ten (10) years; Robbins, Inc. or an approved equal.
2. Formulator shall be ISO-9001 certified for quality control, and ISO-14001 certified for environmental care, and provide copy of Certification document upon request.

B. Floor Contractor/Installer Qualifications and Certifications

1. Floor Contracting Company and field personnel shall be trained by supplier on proper installation and finishing process.

C. System Industry Approvals

1. Floor system shall be approved according to the EN 14904 Standard, in Category P1, and provide copy of Approval upon request.
2. Floor system shall be approved by F.I.B.A. (International Basketball Federation), and provide copy of Approval upon request.

D. System Technical Data:

Technical Data			
Character	Point-elastic		
Classification	P1		EN 14904
Nominal thickness	11 mm	(0.4331 inches)	
Shock Absorption	28%		EN 14808
Shock Absorption (DIN)	(35%)		(DIN 18032-91)
Vertical Deformation	1.4 mm		EN 14809
Linear Friction (dry)	98		EN 13036-4
Linear Friction (damp)	0.3		Leroux
Ball Bounce	98 %		EN 12235
Gloss	3%		EN 2813
Resistance to rolling load	≥1500 N		EN 1569
Resistance to impact	≥800 gr @ 10°C		EN 1517
	≥1200 gr @ 17°C		EN 1517
Resistance to indentation	0.35 mm @ 5 min		EN 1516
	0.15 mm @ 24 hrs		EN 1516
Resistance to wear	150 mg		EN ISO 2813
Flammability	Bfl-S1		EN 13501-1
V.O.C. content - Adhesive	Solvent free		
V.O.C. content - Topcoat	0.01 gr/lit (EU)		2004/42/EG
	45 gr/lit (US)		ASTM D 3960
Adhesive composition	Free of solvents and heavy metals		
Resin composition	Free of solvents and heavy metals		
Elongation at break - Structure	200%		DIN 53455
Tensile Strength - Structure	10 N/mm ²	(1,450 psi)	DIN 53455
Tear Strength - Structure	25 N/mm	(142 pli)	DIN 53455
Colour fastness	8 (excellent)		DIN 54004

1.03 SUBMITTALS

A. Manufacturer's Product Data

1. Submit three (3) Robbins **Pulastic Classic 110 Eco** Floor System specification sheets.

B. Concrete Guidelines

1. Submit three (3) copies of Recommendations for correct preparation, finishing and testing of concrete subfloor surfaces to receive to receive granulated base mat and polyurethane floor system.

C. Samples

1. Submit one (1) sample of **Pulastic Classic 110 Eco**
2. Submit one (1) Pulastic Topcoat Standard Color Chart
3. Submit one (1) Pulastic Linepaint Color Chart

D. Maintenance Literature

1. Submit copy of **Pulastic** Maintenance Instructions.

E. References

1. Submit Letter attesting that Floor Contractor and Field Personnel have been properly trained to perform work per specifications and contract.
2. Reference list of three individual for whom installer has worked on projects of similar size and magnitude.

1.04 DELIVERY, STORAGE AND HANDLING

A. Delivery of Materials

1. Material shall not be delivered or installed until all masonry, painting, plastering, tile work, marble and terrazzo work are completed and all overhead mechanical work, lighting, backstops, scoreboards are installed. Room temperature shall be at least 55 degrees Fahrenheit, and ambient relative humidity shall be 75% or less. In-slab relative humidity shall be 85% or less.
2. Area where materials are to be stored should be maintained at least 55 degrees Fahrenheit and under 75% relative humidity by the General Contractor.

**please refer to Robbins Technical Services "Concrete Guide Specification" for further information regarding conditions and requirements of concrete prior to installation.*

1.05 JOB CONDITIONS-SEQUENCY

- A. Do not install floor system until concrete has been cured 60 days and the requirements in paragraph 1.01 and 1.04 are obtained.
- B. General Contractor is responsible to ensure slab is clean and free of all dirt and debris prior to floor installation beginning.
- C. Permanent heat, light and ventilation shall be installed and operating during and after installation. Environmental temperatures must average a minimum of 65 degrees Fahrenheit for one full week proceeding, throughout, and 72 hours following application.
- D. After floors are finished, area to be kept locked by general contractor to allow curing time for the paint and finish system(s). No other trades are to be allowed on floor until it is accepted in writing by owner or owner's authorized agent.

1.06 GUARANTEE

- A. Guarantee shall not cover damage caused in whole or in part by casualty, ordinary wear and tear, abuse, use for which material is not designed, faulty construction of the building, settlement of the building walls, failure of the other contractors to adhere to specifications, separation of the concrete slab and excessive dryness or excessive moisture from humidity, spillage, migration through the slab or wall, or any other source.
- B. Robbins, Inc. hereby warrants the **Pulastic Classic 110 Eco** material to be free from manufacturing defects for a period of 25 years. This warranty is in lieu of all other warranties, expressed or implied including but not limited to any warranty of merchantability or fitness for a particular purpose, and of any other obligations on the part of Robbins. In the event of breach of any warranty, the liability of Robbins shall be limited to repairing or replacing **Pulastic Classic 110 Eco** material and system components supplied by Robbins and proven to be defective in manufacture, and shall not include any other damages, either direct or consequential.

Part 2-PRODUCTS

2.01 MATERIALS

NOTE: USE OF ANY NON-APPROVED COMPONENT SUBSTITUTIONS SHALL VOID WARRANTY.

- A. Robbins PULASTIC
 - 1. Adhesive
 - a. Pulastic Tacly Adhesive: a two-component polyurethane adhesive
 - 2. Shock Pad
 - a. Shock Pad, a granulated rubber/polyurethane mat 9mm thick.
 - 3. Pad Sealer
 - a. Pulastic EG Sealer: a two-component polyurethane sealer
 - 4. Polyurethane Resin
 - a. Pulastic GM2000 Compound: a pigmented two-component polyurethane resin
 - 5. Coating
 - a. Pulastic Coating 221W: a pigmented, two-component, water-dispersed polyurethane surface coating.
 - 1) Color Options: **Specify Topcoat color from following standard colors:**
 - a) 401 Lime Green
 - b) 417 May Green
 - c) 400 Green Oxide
 - d) 407 Turquoise Mint
 - e) 205 Sand Beige
 - f) 800 Yellow Ochre
 - g) 106 Autumn Brown
 - h) 100 Red Oxide
 - i) 307 Pastel Blue
 - j) 308 Pigeon Blue
 - k) 306 Steel Blue
 - l) 305 Sky Blue
 - m) 309 Capri Blue
 - n) 504 Stone Grey

- o) 506 Dusty Grey
- p) 507 Iron Grey
- 6. Game line Paint
 - a. Pulastic Linepaint: a pigmented, two-component polyurethane paint.
 - 1) Color Options: (Owner to Specify Court Marking colors from following standard colors)
 - a) Black
 - b) Light Grey (504)
 - c) White
 - d) Light Blue
 - e) Signal Blue
 - f) Dark Blue
 - g) Lilac
 - h) Ruby Red
 - i) Red Orange
 - j) Pastel Orange
 - k) Yellow
 - l) Light Green (401)
 - m) Dark Green (400)
 - n) Dark Brown (106)
 - o) Light Brown
 - b. **Option:** Pulastic Linepaint-W: a pigmented, two-component, water-dispersed polyurethane paint.
 - c. Paint areas include one (1) Basketball Court with NMCC Center Court Logo and two (2) Practice Basketball Courts (Basketball Courts to be aligned with existing basketball hoops); two (2) Volleyball Courts, four (4) Badminton/ Pickleball Courts, and one (1) Walking Track.

Part 3-EXECUTION

3.01 INSPECTION

- A. Inspect concrete slab for proper levelness tolerance, dryness, and possible contamination, (see Part 1 –Sec 1.01 and Sec. 1.04) and report any discrepancies to the general contractor and architect in writing.
- B. All work required to put the concrete subfloors in acceptable condition shall be the responsibility of the general contractor.
- C. Subfloor shall be broom cleaned by general contractor.
- D. General Contractor will notify the flooring installation company to proceed with the installation after concrete slab specifications are met.
- E. Installer shall perform tests for moisture and adhesion prior to application and report adverse conditions to the general contractor in writing.
- F. Installer shall document all working conditions provided in General Specifications prior to commencement of installation.

3.02 INSTALLATION

- A. Robbins Pulastic
 - 1. Shock Pad
 - a. Mix two-component Tacly Adhesive according to supplier's instructions and spread adhesive using ROBBINS PULASTIC notched trowel.
 - b. Unroll polyurethane/rubber granulated base mat into freshly applied adhesive. Seams shall be in virtual contact with absence of compression fit. Roll surface of base mat with a medium-size roller.
 - 2. Sealer
 - a. Mix two-component EG Sealer according to supplier's instructions and spread sealer over base mat using a straight trowel. Allow to cure minimum 12 hours before proceeding.
 - 3. Structure Layer
 - a. Mix two-component ROBBINS PULASTIC GM2000 pigmented polyurethane resin and spread over EG Sealer according to supplier's instructions. Allow to cure minimum 12 hours before proceeding.
 - b. Mix two-component ROBBINS PULASTIC GM2000 pigmented polyurethane resin and apply at proper thickness according to supplier's instructions. Allow to cure minimum 12 hours before proceeding.

- c. Mesh reinforcement to be placed at bleacher roller locations and at all door entrances shown on New Floor Plan and install according to requirements of manufacturer.
- 4. TopCoat
 - a. Mix two-component ROBBINS PULASTIC Coating 221W and apply using ROBBINS PULASTIC lambswool roller(s) according to supplier's instructions. Allow 24 to 48 hours curing time before proceeding.
- 5. Gamelines
 - a. Mix two-component ROBBINS PULASTIC PU-Linepaint according to supplier's instructions.
 - b. Line painting should be in accordance with supplier's directions.
 - c. Color of court markings shall be chosen from ROBBINS PULASTIC PU-Linepaint standard colors.
 - d. Consult architectural drawings for game line locations and chosen colors.
- B. Perimeter Molding:
 - 1. Install a rubber base, anchored to the walls with standard base cement, except none behind wall mounted bleachers.

3.03 CLEANING

- 1. Clean up all unused materials and debris and remove from the premises. Dispose of empty containers in accordance with federal and local regulations.

3.04 PROTECTION

- 1. Cure Time
 - a. No traffic or other trades shall be allowed on the surface for a period of one week following completion to allow for complete and proper cure of the finish.
- 2. Other Trades
 - a. It shall be the responsibility of the general contractor to protect the surface from damage by other trades before acceptance by the owner or the owner's authorized agent.
- 3. Safety
 - a. No smoking, open flames or sparks from electrical equipment or any other source shall be permitted during the installation process, or in areas where materials are stored

END OF SECTION

SECTION 09 65 00 RESILIENT BASE TRIM

PART 1 - GENERAL

1.1 Summary

- A. Work included: Provide resilient base where shown on the drawings, as specified herein, and as needed for a complete and proper installation. Base trim not required behind new bleachers.
- B. Related Work:
 - 1. Documents affecting work of this Section include, but are not necessarily limited to, General Conditions and Sections in Division 1 of these Specifications.

1.2 Quality Assurance

- A. Use only skilled workers who are thoroughly trained and experienced in the necessary crafts and who are completely familiar with the specified requirements and the methods needed for proper performance of the work of this Section upon completion of painting, new flooring, and door sill/threshold installation.

1.3 Submittals

- A. Product Data: At least three (3) weeks prior to scheduled installation, Contractor to submit three (3) copies of the following information to Architect for review:
 - 1. Materials list of items proposed to be provided under this Section.
 - 2. Manufacturer's specifications and other data needed to prove compliance with the specified requirements.
 - 3. Samples of color available in the specified grades from the proposed manufacturer for Owners selection.
 - 4. Manufacturer's recommended installation procedures which, when approved by the Architect, will become the basis for accepting or rejecting actual installation procedures used on the work.

PART 2 - PRODUCTS

2.1 Materials, General

- A. Vinyl Base:
 - 1. Dimension - 1/8" thick x 4" high.
 - 2. Acceptable Products:
 - 1. Johnsonite Vinyl Wall Base.
 - 2. Approved equivalents.
- B. Adhesives:
 - 1. Provide waterproof and stabilized type adhesive as recommended by the manufacturer of the material being installed with low VOC.
 - 2. Asphalt emulsions and other non-waterproof adhesives will not be acceptable.
- C. Concrete block primer: Provide non-staining type as required and as recommended by the manufacturer of the material being installed.

2.2 Resilient Materials

- A. Provide other materials, including adhesives, transition strips, and joint covers not specifically described but required for a complete and proper installation, subject to the approval of the Architect.

PART 3 - EXECUTION

3.1 Surface Condition

- A. Examine the areas and conditions under which work of this Section will be performed. Correct conditions detrimental to timely and proper completion of the work. Do not proceed until unsatisfactory conditions are corrected.

3.2 Preparation

- A. Walls to receive base trim:
 - 1. Verify that substrate is smooth and adequate enough to receive base trim.
 - 2. Prior to laying materials, clean surfaces to be covered.
- B. Priming:
 - 1. Apply concrete block primer if so recommended by the resilient flooring manufacturer.
 - 2. Apply in accordance with the manufacturer's recommendations as approved by the Architect.

3.3 Installation

- A. General:
 - 1. Install materials only after finishing operations, including painting, flooring, and new door sill/ threshold installations have been completed .
- B. Installing Base:
 - 1. Install vinyl base around entire Gymnasium, including into door recesses, but not behind new bleachers.
 - 2. Use factory - preformed exterior corners and factory- preformed or job-mitered interior corners.

3.4 Cleaning and Protecting

- A. Remove excess adhesive and other blemishes from exposed surfaces, using neutral cleaner recommended by the manufacturer of the resilient materials.

END OF SECTION

SECTION 09 91 00 PAINTING

PART 1 - GENERAL

1.1 Summary

- A. Work includes all labor, materials and equipment necessary to complete painting as shown on the Drawings and as specified herein including required cleaning and prep of exposed ductwork and roof joist.
- B. In general exposed metal roof/ceiling panels, open web steel joist, exposed ductwork, all existing concrete block gypsum wallboard walls, all existing steel doors and frames on both sides of doorways, and new door frames in the area labeled "Gymnasium" on the plans are to be painted.
- C. Also included is touching up of pre-finished surfaces as required and/or as approved by the Architect.
- D. Do not paint pre-finished surfaces such as pre-finished bleachers, shelving, cabinets, or ceiling fixtures.
- E. Owner's preference is to have required cleaning and prep done for walls and ceiling painting prior to installation of new flooring and after completion of all required demolition.
- F. See Flooring Section of Specifications for floor finishing requirements.

1.2 Submittals

- A. Contractor shall submit color sample selection charts, and manufacturer's paint specifications to the Architect for review and color selection ten (10) days prior to incorporation into the work. Provide three (3) copies of product information including full range of standard colors and standard flake chart (for floor finish).

PART 2 - PRODUCTS

2.1 Paint

- A. All materials shall be top quality products of the type and texture as shown on the Drawings and/or as specified in Part 4 of these specifications. All paint to have low (VOC).
- B. Acceptable manufacturers include: Glidden, Olympic, California, Benjamin Moore, Sherwin Williams, and other approved equivalents.

2.2 Painting Accessories

- A. Putty shall be as recommended by paint manufacturers and as approved by the Architect.

2.3 Primer and Base Coats

- A. Type as recommended by paint manufacturer for finish paint selected.
- B. Re-coat primed surfaces if and where there is evidence of unsealed areas in first coat.
- C. Clean and patch existing concrete block walls as needed before start of base coat.

PART 3 - EXECUTION

3.1 Preparation

- A. Prior to painting confirm that electrical rough-ins for powered basketball backboard controls and powered bleachers has been completed.
- B. Prior to painting insure that all surfaces are clean, finished, and ready for application.
 - 1. Concrete Block Wall Surfaces:
 - a. Patch holes, cracks and other irregularities with approved masonry filler such as non-shrink grout.
 - b. Apply prime coat as/ if recommended by manufacturer.
 - c. Apply two finish coats to existing concrete block walls as recommended by manufacturer.

3.2 All Surfaces

- A. Apply paint only to clean, dry surfaces. Do not paint in cold or in very humid conditions.
- B. Use masking tape, drop cloths and other means of protection to adequately protect adjacent surfaces including new motors and other prefinished items not to be painted from drips, spatters and overruns.

3.3 Application

- A. Apply paint as recommended by the manufacturer on properly prepared surfaces according to the paint schedule in Part 4 of these Specifications.
- B. Thoroughly brush or roll all coats to achieve a uniformly smooth coverage.
- C. Allow each coat to dry 48 hours or longer if recommended by manufacturer before applying subsequent coats.
- D. Do not apply paint when air temperatures are below 45F unless provision for heating is made.
- E. All finishes shall be smooth, free from runs and sags, streaks, brush fibers and other defects. All edges shall be straight and sharp.
- F. Refinish and paint to match any existing adjacent areas which were disturbed as a result of the work. Remove all paint runs or sags made on finished walls or surfaces.
- G. Gymnasium ceiling area (not including open web steel joist or duct work)= approximately 10,080 square feet.

3.4 Cleanup and Protection

- A. Clean all areas of drippings, spatters and debris. Remove all masking tape and clean adjacent unpainted areas as required.
- B. Touch up all defective areas to the satisfaction of the Architect.
- C. Protect all surfaces until acceptance by the Owner.

3.5 Touch-Up Materials

- A. Provide Owner with at least one (1) unopened gallon can of all types and colors. Partially used cans shall not be left with the Owner.

PART 4 - SUPPLEMENTAL SPECIFICATIONS

4.1 Paint Schedule

SURFACE	PRIMER	FINISH
Gypsum board walls	1 coat acrylic latex as needed	2 coats acrylic latex-semi gloss
Concrete block walls	As recommended for concrete block by finish paint manufacturer	2 coats semi gloss epoxy paint recommended for concrete block
Existing wood doors- both sides and edges		2 coats semi gloss polyurethane
New and existing metal doors trim-entire frame	Factory primed	2 coats acrylic latex-semi gloss all surface enamel by Sherwin Williams or equal
Exposed new and existing piping and pipe anchors, electrical conduit, steel open web steel joist and duct work,	As recommended by finish paint manufacturer for pipe material being painted	2 coats acrylic latex- semi gloss all surface enamel by Sherwin Williams or equal
New wood door	Factory primed	Pre-finished
Corrugated metal roof decking	1 coat acrylic latex	2 coats acrylic latex-semi gloss all surface enamel by Sherwin Williams or equal

END OF SECTION

SECTION 11 66 23 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. Divider curtain.
2. Volleyball and Badminton Equipment with floor inserts.
3. Wall Safety Pads.
4. Motorized Basketball Backboard Lifts.

B. Related Sections include the following:

1. Division 05 Sections "Structural Steel Framing" and "Metal Fabrications" for structural supports not provided by gymnasium equipment manufacturer for supporting gymnasium equipment to building structure.
2. Division 26 Sections for electrical service and connections for motor operators, controls, limit switches, and other powered devices and for system disconnect switches for motorized gymnasium equipment.

1.4 PERFORMANCE REQUIREMENTS

A. Seismic Performance: Provide Divider Curtain supports and motor mounting capable of withstanding the effects of earthquake motions determined according to the building code in effect for this Project or ASCE 7, "Minimum Design Loads for Buildings and Other Structures": Section 9, "Earthquake Loads," whichever is more stringent.

1.5 SUBMITTALS

A. General: Submit in accordance with Division 01 Section "Submittal Procedures."

B. Product Data: For each type of product indicated. Include construction details, material descriptions, dimensions of individual components and profiles, features, and finishes. Include details of anchors, hardware, and fastenings.

1. Gymnasium Equipment Operators: Include operating instructions.
2. Motors: Show nameplate data, ratings, characteristics, and mounting arrangements.

C. Shop Drawings: Show location and extent of fully assembled gymnasium equipment. Include elevations, sections, and details not shown in Product Data. Show method of field assembly, connections, installation details, mountings, attachments to other Work, operational clearances, and relationship to adjoining work.

1. Blocking and Reinforcement: Show locations of blocking and reinforcement required for support of gymnasium equipment.
2. Design Calculations: Signed and sealed by a qualified professional engineer. Calculate requirements for supporting gymnasium equipment and for seismic restraint. Verify capacity of members and connections to support loads and verify loads, point reactions, and locations for attachment of gymnasium equipment to structure with those indicated

on Drawings.

3. Gymnasium Equipment Operators: Show locations and details for installing operator components, switches, and controls. Indicate motor size, electrical characteristics, drive arrangement, mounting, and grounding provisions.

4. Wiring Diagrams: Power, signal, and control wiring.

D. Samples: Submit color samples showing full range of options for the following products:

1. Divider curtains; for both open mesh and opaque fabric.

E. Maintenance Data: For gymnasium equipment and gymnasium equipment operator to include in maintenance manuals.

F. Warranty: Special warranty specified in this Section.

1.6 QUALITY ASSURANCE

A. Source Limitations: Obtain gymnasium equipment through one source from a single manufacturer.

B. 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 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. Verify dimensions by field measurements.

1.8 COORDINATION

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

1.9 WARRANTY

A. General Warranty: Special warranty specified in this Article shall not deprive Owner of other rights Owner may have under other provisions of the Contract Documents and shall be in addition to, and run concurrent with, other warranties made by Contractor under requirements of the Contract Documents.

B. 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. Faulty operation of divider curtain.

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

2. Warranty:

a. Divider Curtain: Five years from date of Substantial Completion.

PART 2 – PRODUCTS

2.1 MANUFACTURERS

A. Manufacturers: Porter Athletic Equipment Company; distributed by Robert Lord Co.; contact: Mike Ward; phone: (603) 341-6967 or equal by Draper Gymnasium Equipment meeting all specified requirements.

1. The product identification numbers are for products manufactured by Porter Athletic Equipment Company.

2.1 DIVIDER CURTAINS

A. Divider Curtain Between Cross Courts: 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, 45 to 50 percent open.

- a. Mesh Color: As selected by Owner from manufacturer's full range.

2. Lower Curtain, Solid: Solid polyester coated with PVC, 20 oz./sq. yd, 8-foot height above floor. Fabric Color(s): As selected by Owner from manufacturer's full range for two 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 with low VOC, and whether it will require retreatment after designated time period or cleaning.

4. Product: Roll-Up Gymnasium Divider Curtain No. 90675.

B. Curtain Fabrication: Fused seams and the following:

1. Top Hem: Reinforce with double thickness mesh for continuous pipe batten.
2. Bottom Hems 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.

C. Accessories:

1. 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, 3-1/2-inch nominal diameter, unless otherwise indicated.

D. Divider Curtain Electric Operator: Provide operating machine of size and capacity 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, enclosed gear-head-reduction 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, with thermal-overload protection and the following:
3. Voltage: 120 V.

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. Key Pad Control Station: Wire divider curtain operator to keypad operator specified with basketball backstop operators.

2.2 VOLLEYBALL AND BADMINTON EQUIPMENT WITH FLOOR INSERTS

A. Floor Insert: Brass-plated, aluminum 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. Provide four sleeves.

1. Floor Plate: Self-locking, Brass-plated, heavy die-cast aluminum, hinged access cover, designed to be flush with adjacent flooring with positive, spring-loaded ball latch type mechanism to lock in place when floor sleeve is not in use; hinge mechanism shall be designed to prevent unauthorized removal or theft. Provide tool[s] for unlocking access covers.

- a. Product: Floor Sleeve for Synthetic Type Floors, No. 00870-200.

- b. Coordinate installation locations and elevations with Flooring Installers.

B. Volleyball Systems: Model No. 01971000 Powr-Rib II volleyball system.

1. Standards: 3-1/2-inch O.D., high-strength, lightweight, aluminum Alloy 6063-T6, with 2 internal reinforcing ribs for maximum rigidity and minimum deflection. Include height marking labels.

2. Volleyball Upright: Equipped with sliding-collar devices with spring-loaded pin to guide height setting collar up and down standard without rotating. Height settings secured with pressure-locking T-handle assembly.

3. Collar: Allow volleyball standard to be height adjustable for net height setting for volleyball, badminton, and tennis. Lock in place with pressure-locking T-handle.

4. Each System: 1 winch post and 1 end post.

5. Winch Post: Equipped with heavy-duty Powr-Winch®.

6. End Post: Collar assembly for net tie-off.

7. Power-Winch®: Heavy-duty, self-locking ratchet with disc-brake release mechanism for safest tensioning system. 1-3/4-inch wide, high-tensile, nylon strap and durable snap hook. Removable handle to prevent unauthorized use.

8. Cap: Molded cap on top and bottom to protect against gymnasium floor damage.

9. Finish of Post: Clear anodized.

C. Volleyball Nets: Model No. 02295640 volleyball net.

1. Nets: 32 feet by 39 inches with 42'-6", 1/4 inch diameter nylon braided cord with a Kevlarcore. Use with Model No. 01991 competition standards.

2. End Hems: 4-inch width with 1/2-inch diameter fiberglass dowel to provide rigidity and tailored square hanging net.

3. Each End Hem: Equipped with three 1-inch wide polypropylene web-tension straps and quick-adjust tension clips.

4. Netting: 4-inch square, heavy-duty, #24 black nylon mesh with 2-inch wide, vinyl-coated, polyester hem double-stitched across top of net.

D. Net Antenna: Model No. 02296100 Powr-Line net antenna with clamp.

1. Antenna Clamps: Included with net antenna. As 1 complete unit, clamps shall snap easily and securely into place.

2. Antenna Size: 3/8-inch diameter by 6-foot long fiberglass dowels. Check no spec measurements
 3. Antenna Markings: Alternately marked red and white.
- E. Boundary Markers: Model No. 02297 boundary markers.
1. 2-inch wide, durable, white, polyester-reinforced vinyl material with white Velcro attachment strips sewn in place for securing to competition volleyball net.
- F. Safety Pads: Comply with NCAA and NFHS requirements. Provide pads consisting of not less than 1 1/2" thick, multiple-impact-resistant closed-cell polyethylene foam filler covered by puncture- and tear-resistant, manufacturer's standard fabric cover. 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 Owner from manufacturer's full range.
 6. Graphics: No manufacturers logos.
- G. Wall Storage Rack: Manufacturer's standard unit designed for mounting on walls and for storing post standards in vertical position with retaining arms, fittings for padlock, and mounting hardware; number of units as required to provide storage for specified equipment.
- H. 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.

2.3 WALL-MOUNTED SAFETY PADS

- A. Safety Pad Surface-Burning Characteristics: Provide safety pads with flame-spread index of 25 or less and smoke-developed index of 450 or less, as determined by testing identical products per ASTM E 84 by UL or another testing and inspecting agency acceptable to authorities having jurisdiction.
- B. Pad Covers: Provide safety pad fabric covers fabricated from puncture- and tear-resistant, not less than 14-oz. PVC-coated polyester or nylon-reinforced PVC fabric treated with fungicide for mildew resistance, with the fire-test-response characteristics indicated, lined with fire-retardant liner.
1. Flame-Resistance Ratings: Passes NFPA 701.
- C. Wall Safety Pads WSP-1: 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 cover, free from sag and wrinkles and firmly attached to back of backer board. No visible manufacturer logos.
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-lb density.
 3. Size: Each panel section, 24 inches wide by not less than 72 inches long.
 4. Number of Panel Sections: As indicated on Drawings.
 5. Installation Method: Concealed mounting Z-clips.
 6. Fabric Cover Colors: As selected by Owner from manufacturer's full range for one color.
 7. Product: Wall Pad No. 00570-281XX in size shown on Drawings.

2.4 MOTORIZED BASKETBALL BACKBOARD LIFTS

- A. Gymnasium Equipment Manufacturer to provide new power motor, winch, pigtail, receptacle, cable, pulleys, hard wired controls to be located in a lockable panel to be provided by Electrical Contractor, and other hardware as required to complete power lift function of existing basketball backboards in six (6) locations as indicated on New Gym Floor Plan.
- B. Receptacles and controls to be installed by Electrical Contractor.

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 below finished floor for subfloors.
- B. Examine wall assemblies, where reinforced to receive anchors and fasteners, to verify that locations of concealed reinforcements have been clearly marked for installers. Locate reinforcements and mark locations if not already done.
- C. 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.
 - 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: Grout steel floor sleeves for post standards in oversized, recessed voids in concrete slabs and footings. Clean holes of debris. Position sleeve and fill void around between sleeves with grout, mixed and placed to comply with grout manufacturer's written instructions. Protect portion of insert sleeve above subfloor from splatter. Verify that insert 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. Gymnasium Dividers and Components: Install 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 court layout.
 - 1. Verify clearances for movable components of gymnasium dividers throughout entire range of operation and for access to operating components.
 - 2. Connect automatic operators to keypad operator specified with basketball backstops.

- F. Wall Safety Pads: Mount with bottom edge at 4 3/8" above finished floor.
- G. 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.
- H. Connections: Connect automatic operators to building electrical system.
- I. Portable 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 portable gymnasium equipment after assembled configuration has been approved by Architect, 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.
- B. 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. Concrete subfloor is located below finished floor.
- C. Proceed with installation only after unsatisfactory conditions have been corrected.

3.4 CLEANING AND PROTECTION

- 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. Provide final protection and maintain conditions acceptable to manufacturer and Installer that ensure gymnasium equipment is without damage or deterioration at time of Substantial Completion.
- C. Replace gymnasium equipment and finishes that cannot be cleaned and repaired, in a manner approved by Architect, before time of Substantial Completion.

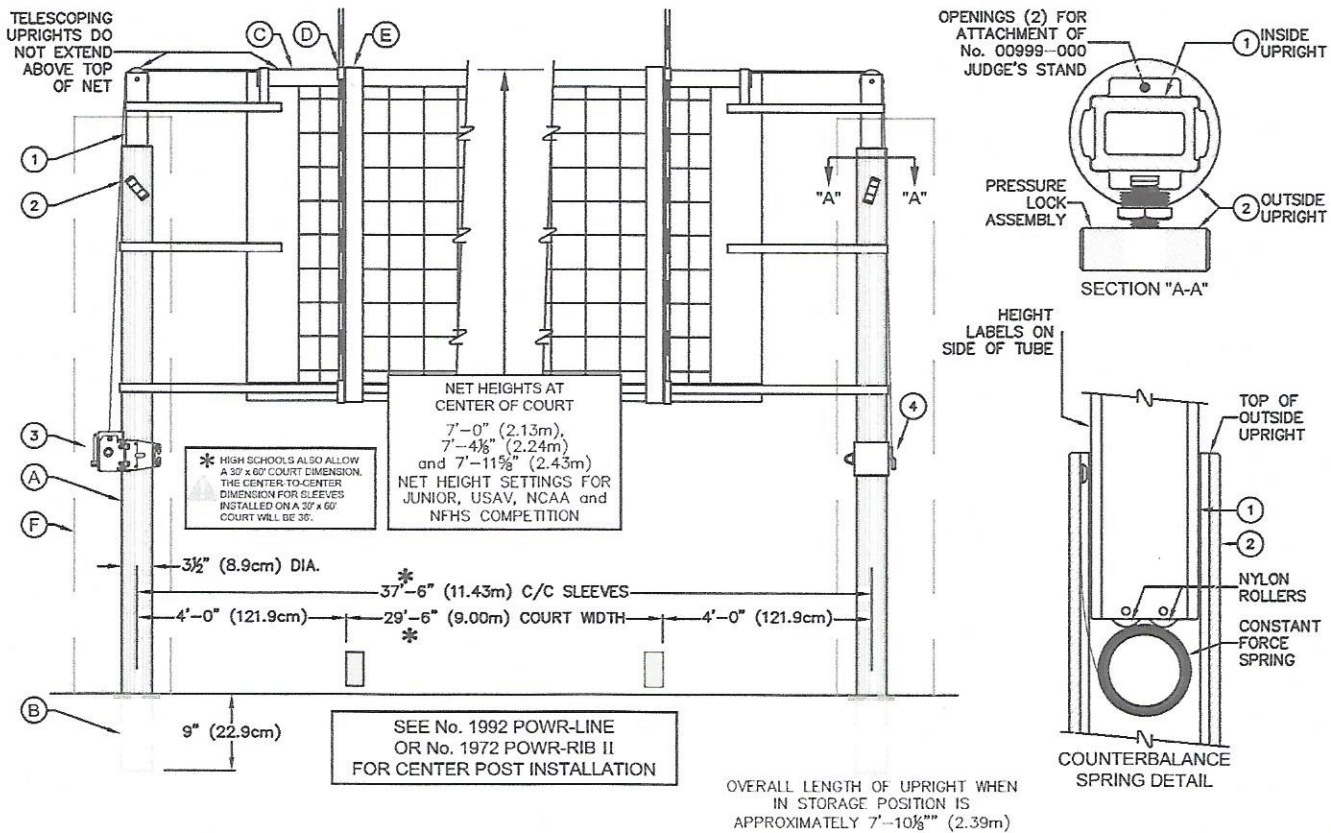
3.5 DEMONSTRATION

- 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

1991 POWR-LINE VOLLEYBALL SYSTEM

SLEEVE-TYPE 3 1/2" ALUMINUM VOLLEYBALL END STANDARDS



PARTS LIST - No. 1991

No.	QTY.	DESCRIPTION
1	2	UPRT 00213 200 INSIDE UPRIGHT ASSEMBLY
2	2	UPRT 00212 000 OUTSIDE UPRIGHT ASSEMBLY
3	1	WINH 00099 TENSION WINCH
4	1	SLVE 00038 001 NET TIE-OFF
5	2	LABL 00167 000 HEIGHT LABEL - 7'-11 1/8"
6	2	LABL 00168 000 HEIGHT LABEL - 7'-4 1/8"
7	2	LABL 00169 001 HEIGHT LABEL - 7'-0"

- 1991 POWR-LINE VOLLEYBALL STANDARDS (PAIR)
- 1991-9XX POWR-LINE VOLLEYBALL STANDARDS WITH PADS (PAIR)
- 1991-9XXSP POWR-LINE VOLLEYBALL STANDARDS WITH GRAPHIC PADS (PAIR)

QTY	PART No.	DESCRIPTION	No.	PAGE No.
VARIOUS		3 1/2" DIA FLOOR SLEEVE - EACH	B	VARIOUS
2295		UNIVERSAL VOLLEYBALL NET	C	V-2295
2296		NET ANTENNA (PAIR)	D	V-2296-1
02297-000		BOUNDARY MARKERS (PAIR)	E	V-2296-1
8390XX		UPRIGHT PROTECTIVE PADS	F	V-839
00999-000		JUDGE'S STAND (NOT SHOWN)		V-999
9931XX		PADS FOR JUDGE'S STAND (NOT SHOWN)		V-993-1

Porter

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VOLLEYBALL SPECIFICATION SHEET

V-1991

06/17/2016

1991 POWR-LINE VOLLEYBALL SYSTEM

SLEEVE-TYPE 3 1/2" ALUMINUM VOLLEYBALL END STANDARDS

SPECIFICATIONS

PORTER No. 1991 POWR-LINE VOLLEYBALL STANDARDS (PAIR)

Posts shall be telescoping type with infinite height adjustment settings to meet all USAV, NCAA and NFHS requirements for competition. Posts shall be furnished with height marking labels for BOYS'/MEN'S height setting of 7' 11-5/8" (2.43m), GIRLS'/WOMEN'S height setting of 7' 4-1/8" (2.24m), and 12 YEAR AND UNDER height setting of 7'-0" (2.13m). Posts that do not telescope (that extend above the top of the net) will not be approved as equal.

Bottom upright shall be extruded of 6063T6 high strength, lightweight aluminum alloy with a special internal reinforcing rib pattern. (Non-telescoping or steel uprights will not be approved as equal.) Upright shall be 3-1/2" (8.9cm) O.D. to fit standard floor sleeves for new construction or existing floors. Specify No. 870, 872, 873 or 875 type floor sleeve. Bottom of upright shall be provided with a special molded, composite foot to protect finished floors when moving standards.

Upper telescoping (adjustable) upright shall be extruded from the same aluminum alloy as the bottom upright with a special rectangular configuration to eliminate rotation. Upper end of telescoping upright shall be equipped with an integral 3" (7.62cm) diameter pulley to reduce cable drag and undue tension on entire system.

Upper telescoping upright shall be infinitely adjustable in height by means of a special pressure locking T-handle mechanism located on the bottom upright approximately 5'-4" (1.63m) above floor level. Telescoping upright shall be counterbalanced in a static position when adjustment lock is disengaged by means of a special, constant tension spring mechanism located inside the lower upright assembly to eliminate the possibility of accidentally falling while making height adjustments. Bottom end of telescoping upright shall be equipped with special, internally mounted nylon rollers to minimize friction and wear of constant tension spring mechanism.

Bottom upright and telescoping upright shall be finished in a durable clear anodized finish.

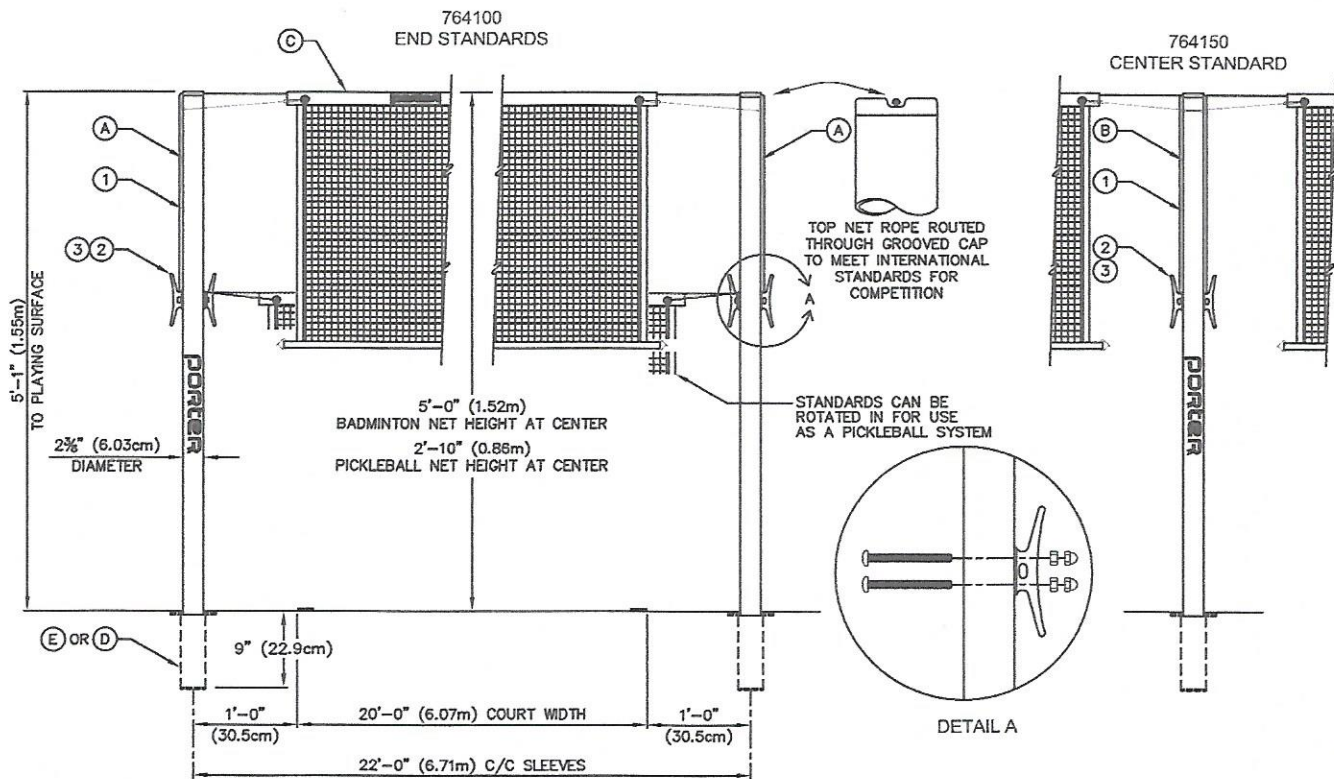
Tensioning reel shall be a vertical lift, worm gear winch with steel frame. Frame construction shall be of interlocking steel for high rigidity and precise alignment, semi enclosed for safety, and powder coated for corrosion resistance. Self-locking worm drive will prevent snap back or loss of tension. Net shall attach directly to the winch eliminating the need for straps.

Standards shall consist of one reel post and one end post. (For multiple court usage, specify additional No. 1992 Powr-Line or 1972-1 Powr-Rib II center standards as required).

Weight of each post shall not exceed 41 pounds for the reel post and 37 pounds for the end post.

764100 - BADMINTON POSTS

764100 AND 764150 2 $\frac{3}{8}$ " DIA. INDOOR/OUTDOOR
SLEEVE-TYPE BADMINTON POSTS



PARTS LIST

No.	00764 100	00764 150	DESCRIPTION
1	2	1	UPRT 00274 108 UPRIGHT ASSEMBLY
2	2	2	ROPE 00008 0G0 ROPE CLEAT
3	4	0	HDWE 06222 1/4" x 4" Lg. MACHINE SCREW
4	0	2	HDWE 06213 1/4" x 4 1/2" Lg. MACHINE SCREW
5	4	2	HDWE 03004 0E0 HEX NUT- 1/4-20
6	4	0	HDWE 03039 0E0 ACORN NUT- 1/4-20

(A) — 764100 2 $\frac{3}{8}$ " DIA. INDOOR / OUTDOOR
SLEEVE-TYPE
BADMINTON POST (PAIR)

(B) — 764150 2 $\frac{3}{8}$ " DIA. INDOOR / OUTDOOR
SLEEVE-TYPE
CENTER STANDARD (EACH)

(C) — 2236110 BADMINTON NET (EACH)
See V-2236-11 20' x 30" (6.10m x 76.2cm)

(D) — 2 $\frac{3}{8}$ " DIA. INDOOR FLOOR
SLEEVE WITH COVER (EACH)

(E) — 00402-000 2 $\frac{3}{8}$ " DIA. OUTDOOR-GROUND
SLEEVE (EACH)
See R-402

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BADMINTON SPECIFICATION SHEET

V-764-1

5/2/2017

00770-X00 - INDOOR FLOOR SLEEVE

00770-100 AND 00770-200 FLOOR SLEEVES FOR 2-3/8" DIA. POST
WITH 5" DIA. COVER

SPECIFICATIONS

PORTER No. 00770-100 GYMNASIUM FLOOR SLEEVE WITH CHROME COVER FOR 2-3/8 (6.0cm) O.D. COMBINATION GAME STANDARDS

Sleeve shall be cast in concrete footing before concrete slab is poured. (For installation in existing floors, specify the use of No. 00772-100 or 00772-200 sleeve.) Top of sleeve to be installed 1/2 (1.3cm) below finished floor elevation.

Chrome plated cover plate assembly shall be provided for use in either synthetic or wood floors. Cover plate shall consist of molded plastic recessed mounting flange, cork gasket and a 5(12.7cm) diameter chrome plated cover.

Cover shall be equipped with a swivel type retainer pin to prevent theft. Special key shall be provided for cover removal.

Sleeve assembly shall be 2-7/8(7.3cm) O.D. heavy wall steel tubing extending 9 (22.9cm) into concrete footing. Bottom of sleeve shall be capped with a 3 (7.6cm) square steel plate to provide proper anchorage in footing. Sleeve assembly to be finished in a rust resistant enamel finish.

PORTER No. 00770-200 GYMNASIUM FLOOR SLEEVE WITH BRASS COVER FOR 2-3/8 (6.0cm) O.D. COMBINATION GAME STANDARDS

Same specification as No. 00770-100 above, except that cover plate is brass plated.

00770-X00 - INDOOR FLOOR SLEEVE

00770-100 AND 00770-200 FLOOR SLEEVES FOR 2-3/8" DIA. POST WITH 5" DIA. COVER

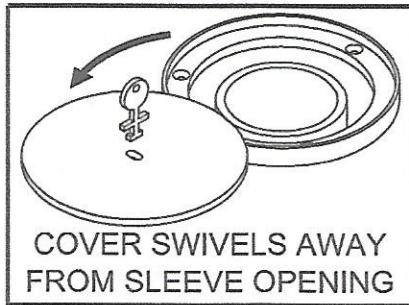
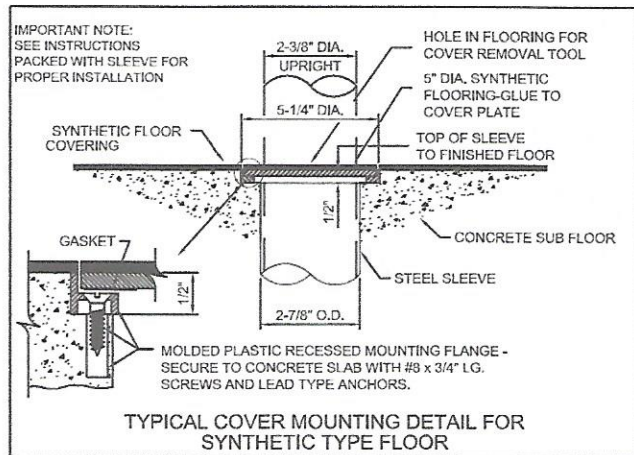
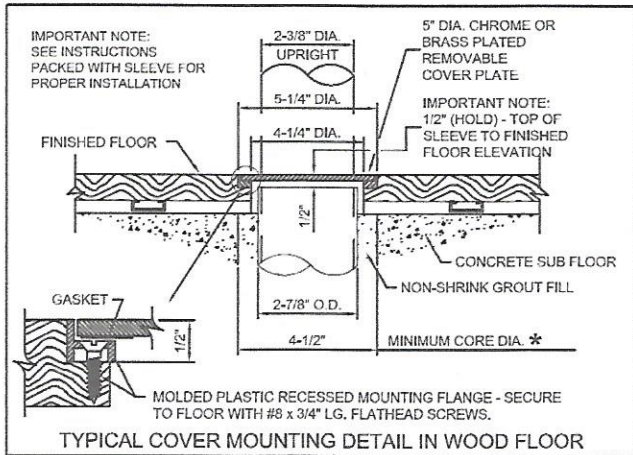
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BADMINTON SPECIFICATION SHEET

G-770

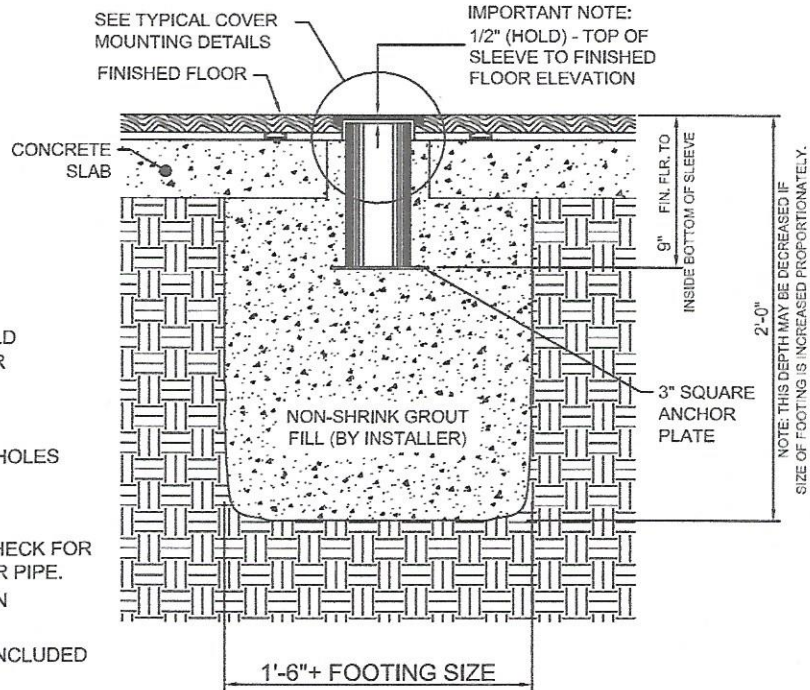
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INSTALLATION OPTIONS (NOTE - SLEEVE SHOULD BE INSTALLED IN SLAB BEFORE FINISHED FLOOR IS IN PLACE. IF FINISHED FLOOR IS IN PLACE, USE FLOOR SLEEVE WITH 8" COVER - SEE PAGE G-772 OR G-872).

- * 1. LOCATE AND CORE 4-1/2" MINIMUM DIA. HOLES IN SLAB AND GROUT SLEEVES IN PLACE PER DETAIL ABOVE. CAUTION - BEFORE CORING HOLES IN EXISTING CONCRETE SLAB, CHECK FOR LOCATIONS OF ELECTRICAL CONDUIT OR PIPE.
2. LOCATE SLEEVES AND POUR IN PLACE IN CONCRETE SLAB.

COMPLETE INSTALLATION INSTRUCTIONS ARE INCLUDED WITH FLOOR SLEEVE.



TYPICAL INSTALLATION DETAIL

INDICATE QUANTITY OF FLOOR SLEEVES REQ'D

SELECT COVER:

- ☐ 00770-100 FLOOR SLEEVE WITH CHROME COVER PLATE
☐ 00770-200 FLOOR SLEEVE WITH BRASS COVER PLATE

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PROJECT NUMBER

PROJECT NAME

SECTION 126613
TELESCOPIC BLEACHERS

PART 1 – GENERAL

1.01 SUMMARY

- A. Section Includes: Telescoping Gym Seating includes electrically operated systems of multiple-tiered seating rows comprising of seat, deck components, understructure that permits closing without requiring dismantling, into a nested configuration for storing or for moving purposes.
1. Typical applications include the following:
 - a. Wall Attached Telescoping Gym Seats.
 2. Special applications include the following:
 - a. Note: Telescoping seating to ride over new synthetic sports flooring system to be installed.
 - b. Spacing from front or first row to second row to be adjusted to allow for future seat backs.
- B. Related Sections:
1. Division 9 finishes sections for adequate floor & wall construction for operation of Telescoping Gym Seats. Flooring shall be level and rear wall plumb within 1/8" [3mm] in 8'-0 [2438mm]. Maximum bleacher force on the floor, of a 25'-6" [7772] section, shall be a static point load of less than 300 psi [2.068 N/mm²].
 2. Division 16 Electrical sections for electrical wiring and connections for electrically operated Telescoping Gym Seats.
- C. Alternates: This section specifies alternates for Telescoping Gym Seat products. Refer to Part 2 products for alternate products, and to Division 1 Alternates Section 00 41 13.2 Contractor Bid Form, for alternate requirements.
- D. Qualifications and Capabilities:
1. **BIDDER QUALIFICATIONS:**

Bidders are required to be an authorized dealer or manufacturer for equipment proposed which on a day-to-day basis regularly provide the equipment offered. Bidders are further advised that only standard production models or standard options will be acceptable for award. Equipment offered shall be currently manufactured on an active assembly line. The State is only interested in proven equipment; provided, installed, and serviced by Authorized Dealers capable of providing references.
 2. **INSTALLER QUALIFICATIONS:**

Bleacher installer shall be Factory Certified by the Manufacturer. Proof of Factory Certified Installation Certificate shall be provided along with the Invitation to Bid. Failure to provide this information shall result in rejection of bid. (No Exceptions Taken)
 3. **SERVICE CAPABILITY:** The Bleacher Contractor must be able to show proof of full time service capability by factory certified technicians directly employed by the Bleacher Contractor. Sub-Contractors of the Bleacher Contractor or Factory Technicians located outside of the State do not qualify under this service response requirement. Adequate and satisfactory availability of repair parts and supplies, and ability to meet warranty and service requirements are a requirement of this Invitation to Bid. The State reserves the right to satisfy itself by inquiry or otherwise as to bidder's capabilities in this regard. A four (4) to eight (8) hour maximum on-site repair response is required during normal working hours, 8 a.m. to 5 p.m. weekdays (excluding holidays). All Full Time Service Personnel shall be Factory Authorized and Trained. Proof of Service Capability along with a listing of service parts regularly maintained in inventory shall be provided along with the Invitation for Bid. Failure to provide this information shall result in rejection of bid.

1.02 REFERENCE

- A. International Building Code (IBC)
- B. ICC 300 – Standard for Bleachers, Folding and Telescopic Seating and Grandstands
- C. NFPA 101, Life Safety Code, latest applicable edition
- D. American Welding Society (AWS)
 - 1. AWS D1.1 Structural Welding Code – Steel
 - 2. WS D1.3 Structural Welding Code - Sheet Steel
- E. American Institute of Steel Construction (AISC):
 - 1. AISC - Design of Hot Rolled Steel Structural Members.
- F. American National Standards Institute (ANSI).
- G. American Iron & Steel Institute (AISI):
 - 1. AISI - Design Cold Formed Steel Structural Members.
- H. Aluminum Association (AA):
 - 1. AA - Aluminum Structures, Construction Manual Series.
- I. American Society for Testing Materials (ASTM):
 - 1. ASTM - Standard Specification for Properties of Materials.
- J. National Forest Products Association (NFoPA):
 - 1. NFoPA - National Design Specification for Wood Construction.
- K. Southern Pine Inspection Bureau (SPIB):
 - 1. SPIB - Standard Grading Rules for Southern Pine.
- L. National Bureau of Standards/Products Standard (NBS/PS):
 - 1. PS1 - Construction and Industrial Plywood.
- M. Americans with Disability Act (ADA)
 - 1. 2010 ADA Standards for Accessible Design.

1.03 MANUFACTURER'S SYSTEM ENGINEERING DESCRIPTION

- A. Structural Performance: Engineer, fabricate and install telescopic gym seating systems to the following structural loads without exceeding allowable design working stresses of materials involved, including anchors and connections. Apply each load to produce maximum stress in each respective component of each gym seat unit.
1. Design Loads: Comply with ICC 300 – 2012 Edition
- B. Manufacturer's System Design Criteria:
1. Gymnasium seat assembly; Design to support and resist, in addition to its own weight, the following forces:
 - a. Live load of 120 lbs. per linear foot [162.69 N/m] on seats and decking
 - b. Uniformly distributed live load of not less than 100 lbs. per sq. ft. [135.58N/m] of gross horizontal projection.
 - c. Parallel sway load of 24 lbs. [32.53 N/m] per linear foot of row combined with (b.) above
 - d. Perpendicular sway load of 10 lbs. [13.56 N-m] per linear foot of row combined with (b.) above
 2. Hand Railings, Posts and Supports: Engineered to withstand the following forces applied separately:
 - a. Concentrated load of 200 lbs. [90.72 kg] applied at any point and in any direction.
 - b. Uniform load of 50 lbs. per foot [.344 N/mm²] applied in any direction.
 3. Guard Railings, Post and Supports: Engineered to withstand the following forces applied separately:
 - a. Concentrated load of 200 lbs. [90.72 kg] applied at any point and in any direction along top rail.
 - b. Uniform load of 50 lbs. per foot [.344 N/mm²] applied horizontally at top rail and a simultaneous uniform load of 100 lbs. per foot [.689 N/mm²] applied vertically downward.
 4. Member Sizes and Connections: Design criteria (current edition) of the following shall be the basis for calculation of member sizes and connections:
 - a. AISC: Manual of Steel Construction
 - b. AISI: Specification for Design of Cold Formed Steel Structural Members
 - c. AA: Specification for Aluminum Structures
 - d. NFOPA: National Design Guide For Wood Construction.

1.04 SUBMITTALS

- A. Section Cross-Reference: Required submittals in accordance with "Conditions of the Contract" and Division 1 General Requirements sections of this "Project Manual."
- B. Project Data: Manufacturer's product data for each system. Include the following:
1. Project list: Ten (10) seating projects of similar size, complexity and in service for at least five (5) years.
 2. Deviations: List of deviations from these project specifications, if any.

- C. Shop Drawings: Indicate Telescoping Gym Seat assembly layout. Show seat heights, row spacing and rise, aisle widths and locations, assembly dimensions, anchorage to supporting structure, material types and finishes.
 - 1. Wiring Diagrams: Indicate electrical wiring and connections.
 - 2. Graphics Layout Drawings: Indicate pattern of contrasting or matching seat colors
- D. Samples: Seat materials and color finish as selected by Owner from manufacturers standard offered color finishes.
- E. Environmental Data Package: Provide project specific environmental data work sheet with project header and LEED calculations completed based on actual project weight and project price. Environmental Data Package required to be submitted with formal submittal package prior to project award.
 - 1. Regional Manufacturing
 - a. Provide manufacturing location and distance to project site by product material type as required. [straight-line travel as a bird flies as per USGBC]
 - 2. Recycled Content:
 - a. Provide Packaging Material Listing & Recycled Content by Material Type; [Total % Recycled Content, Total % Pre Consumer and % Post Consumer]
 - b. Provide Product Material Listing & Recycled Content by Material Type; [Total % Recycled Content, Total % Pre Consumer and % Post Consumer]
 - 3. Indoor Environmental Quality
 - a. Provide documentation that the specified product passes ANSI/BIFMA X7.1-2007 Standard for Formaldehyde and TVOC Emissions of Low-emitting Office Furniture Systems and Seating
 - b. Provide documentation that the specified product solid core ply-form or engineered fiber panels are manufactured with resins which are free of added urea-formaldehyde.
 - 4. Product Life Cycle – Deconstruction & Reclaiming Opportunity
 - a. Provide listing of product materials which can be recycled at the end of the product life cycle and re-enter the recycled or reuse material stream.
- F. Manufacturer Qualifications: Certification of insurance coverage and manufacturing experience of manufacturer, and copy of a telescopic load test to all loads described in 1.03 above, observed by a qualified independent testing laboratory, and certified by a registered professional structural engineer verifying the integrity of the manufacturer's geometry design and base structural assumptions.
- G. Installer Qualifications: Installer qualifications indicating capability, experience, and official Certification Card issued by manufacturer of telescopic seating.
- H. Engineer Qualifications: Certification by a professional engineer registered in the state of manufacturer that the equipment to be supplied meets or exceeds the design criteria of this specification.
- I. Operating/Maintenance Manuals: Provide to Owner maintenance manuals. Demonstrate operating procedures, recommended maintenance and inspection program.
- J. Warranty: Manufacturers standard warranty documents.

1.05 QUALITY ASSURANCE

- A. Seating Layout: Comply with ICCC 300 -2012 Standard for Bleachers, Folding Telescopic Seating and Grandstands, except where additional requirements are indicated or imposed by authorities having jurisdiction.
- B. Welding Standards & Qualification: Comply with AWS D1.1 Structural Welding Code - Steel and AWS D1.3 Structural Welding Code - Sheet Steel.
- C. Insurance Qualifications: Mandatory that each bidder submit with his bid an insurance certificate from the manufacturer evidencing the following insurance coverage:
 - 1. Workers Compensation - including Employers Liability with the following limits:
 - a. \$500,000.00 (US) Each Accident
 - b. \$500,000.00 (US) Disease - Policy Limit
 - c. \$500,000.00 (US) Disease - Each Employee
 - 2. Commercial General Liability - including premises/ operations, independent contractors and products completed operations liability. Limits of liability shall not be less than \$2,000,000.00 (US).
- D. Manufacturer Qualifications: Manufacturer who has a minimum of 40 years of experience manufacturing telescoping gym seats and can demonstrate continual design enhancement and 25-year minimum product life-cycle support of telescopic seating.
- E. Installer Qualifications: Engage experienced Installer who has specialized in installation of telescoping gym seat types similar to types required for this project and who carries an official Certification Card issued by telescoping gym seat manufacturer.
- F. Engineer Qualifications: Engage licensed professional engineer experienced in providing engineering services of the kind indicated that have resulted in the successful installation of telescoping bleachers similar in material, design, fabrication, and extent to those types indicated for this project.

1.06 DELIVERY, STORAGE AND HANDLING

- A. Deliver telescopic gym seats in manufacturers packaging clearly labeled with manufacturer name and content.
- B. Handle seating equipment in a manner to prevent damage.
- C. Deliver the seating at a scheduled time for installation that will not interfere with other trades operating in the building or the continued functioning of the Community College and after completion of the new gymnasium floor installation.

1.07 PROJECT CONDITIONS

- A. Field Measurements: Coordinate actual dimensions of construction affecting telescoping bleachers installation by accurate field measurements before fabrication. Show recorded measurements on final shop drawings. Coordinate field measurements and fabrication schedule with construction progress to avoid delay of Work.

1.08 WARRANTY

- A. Manufacturer's Product Warranty: Submit manufacturer's standard warranty form for telescoping bleachers. This warranty is in addition to, and not a limitation of other rights Owner may have under Contract Documents.
 - 1. Warranty Period: Five years from Date of Acceptance.
 - 2. Beneficiary: Issue warranty in legal name of project Owner.
 - 3. Warranty Acceptance: Owner is sole authority who will determine acceptance of warranty documents.

1.09 MAINTENANCE AND OPERATION

- A. Instructions: Both operation and maintenance shall be transmitted to the Owner by the manufacturer of the seating or his representative.
- B. Service: Maintenance and operation of the seating system shall be the responsibility of the Owner or his duly authorized representative, and shall include the following:
 - 1. Operation of the Seating System shall be supervised by responsible personnel who will assure that the operation is in accordance with the manufacturer's instructions.
 - 2. Only attachments specifically approved by the manufacturer for the specific installation shall be attached to the seating.
 - 3. An annual inspection and required maintenance of each seating system shall be performed to assure safe conditions. At least biannually the inspection shall be performed by a professional engineer or factory qualified service personnel.

PART 2 – PRODUCTS

2.01 MANUFACTURERS

- A. Manufacturer: Hussey Seating Company, U.S.A.
 - 1. Address: North Berwick, Maine, 03906
 - 2. Telephone: (207) 676-2271; Fax: (207) 676-9690
- B. "Alternate Products and Accessories", 2.02 Alternates

2.01A - MANUFACTURED PRODUCTS

- A. Seating System:
 - 1. Product: MAXAM Telescopic Gym Seat System by Hussey Seating Company
 - a. Model: MAXAM26 Series Telescopic Gym Seats, adjustable row spacing 24 inches.
 - b. MAXAM26 Series Telescopic Gym Seats, Row Rise Spacing: 9 5/8.
 - c. Aisle Type: Foot level aisles with intermediate aisle steps.
 - d. Seat Type: 10" Courtside Modules.
 - (1) Seat color finish: Owner to select from manufacturers 15 standard for Courtside Collection
 - e. Rail Type: Self-storing end rail, store-in-place aisle hand rails.
 - (1) Rail color finish: Selected by Owner- Standard black or 15 standard colors to match Courtside Collection seat. (See Personalization and Creativity under Accessories section).
 - f. Operation: Electric

- (1) Electrical Power System: Integral power with two (2) keyed switch Controls (one located at each end of bleachers- one for each bleacher section), motion monitor, limit switches. See Specification Division 26 Electrical and Electrical Plans.

g. MAXAM Dolly System: Integral Dolly

2. Product Description/Criteria

- a. Bank Length: 41'-0"
- b. Aisle Widths: 4'-6"
- c. Number of Tiers: 8
- d. Row Spacing(s): 24"
- e. Open Dimension:
- f. Closed Dimension:
- g. Overall Unit Height:
- h. Net Capacity; per seat (18" [457]): 332
- i. Maximum Net Capacity; (w/Flex Row Fully Recovered): 332

3. Miscellaneous Product Accessories: operating handles, front panels, end panels, ventilating grills, top seat.

4. Special Applications: tapered sections, truncated units, programming supports.

C. Flex-Row: Provide first row modular recoverable seating units to be utilized by persons in wheelchairs and able-bodied persons. Each Flex-Row unit shall have an unlock handle for easy deployment if wheelchair or team seating access is needed. Unlock handle shall lock the bleacher seats into position when fully opened.

1. Provide a black full-surround steel skirting with no more than ¾" floor clearance for safety and improved aesthetics.
2. Provide a black injection molded end cap for the nose beam for safety and improved aesthetics..
3. Provide a mechanical positive lock when the Flex-Row system is in the open and used position.
4. Flex-Row modular units are designed to achieve multi-use front row seating to accommodate team seating, ADA requirements and facility specific requirements. Flex-Row units are available in modular units from 2 to 7 seats wide as well as full section widths.

D. Other Acceptable Manufacturers: Will be considered if in compliance with these specifications. Deviations must be submitted with bid in order that a fair and proper evaluation be made. Those bidders not submitting a list of deviations will be presumed to have bid as specified.

2.02 ALTERNATES

A. Base Bid:

1. Base Bid Product: None listed.
2. Base Bid Product Accessories: None listed.

2.03 MATERIALS

- A. Lumber: ANSI/Voluntary Product 20, B & B Southern Pine
- B. Plywood: ANSI/Voluntary Product PS1, APA A-C Exterior Grade.
- C. Structural Steel Shapes, Plates and Bars: ASTM A 36.
- D. Uncoated Steel Strip (Non-Structural Components): ASTM A569, Commercial Quality, Hot-Rolled Strip.

- E. Uncoated Steel Strip (Structural Components): ASTM A570 Grade 33, 40, 45, or 50, Structural Quality, Hot-Rolled Strip.
- F. Uncoated Steel Strip (Structural Components): ASTM A607 Grade 45 or 50, High-Strength, Low Alloy, Hot-Rolled Strip.
- G. Galvanized Steel Strip: ASTM A653 Grade 40, zinc coated by the hot-dip process, structural quality.
- H. Structural Tubing: ASTM A500 Grade B, cold-formed.
- I. Polyethylene Polymer: ASTM D 1248, Type III, Class B; molded, color-pigmented, textured, impact-resistant, structural formulation; in color indicated or, if not otherwise indicated, as selected by Architect from manufacturer's standard colors.
- J. Fasteners: Vibration-proof, of size and material standard with manufacturer.

2.04 UNDERSTRUCTURE FABRICATION

A. Frame System:

1. Wheels: Not less than 5" [127] diameter by 1 1/4" [32] with non-marring soft rubber face to protect wood and synthetic floor surfaces, with molded-in sintered iron oil-impregnated bushings to fit 3/8" [10] diameter axles secured with E-type snap rings.
2. Lower Track: Continuous Positive Interglide System interlocks each adjacent CPI unit using an integral, continuous, anti-drift feature and through-bolted guide at front to prevent separation and misalignment. CPI units at end sections of powered banks and manual sections shall contain a Low Profile Posi-Lock LX to lock each row in open position and allow unlocking automatically. Provide adjustable stops to allow field adjustment of row spacings.
3. Slant Columns: High tensile steel, tubular shape.
4. Sway Bracing: High tensile steel members through-bolted to columns.
5. Deck Stabilizer: High tensile steel member through-bolted to nose and riser at three locations per section. Interlocks with adjacent stabilizer on upper tier using low-friction nylon roller to prevent separation and misalignment. Incorporates multiple stops to allow field adjustment of row spacings.
6. Deck Support: Securely captures front and rear edge of decking at rear edge of nose beam and lower edge of riser beam for entire length of section.

B. Deck System:

1. Section Lengths: Each bank shall contain sections not to exceed 25'-6" [7772] in length with a minimum of two supporting frames per row, each section.
2. Nose beam and Rear Riser beam: Nose beam shall be continuously roll-formed closed tubular shape of ASTM A653 grade 40, Riser beam shall be continuously roll-formed of ASTM A653 grade 40. Nose and Riser beam shall be designed with no steel edges exposed to spectator after product assembly.
3. Attachment: Through-Bolted fore/aft to deck stabilizers, and frame cantilevers.
4. Decking: 5/8" [16], AC grade clear-top-coated tongue and groove Southern Yellow Pine; or BC grade polyethylene-top-coated tongue and groove Douglas Fir plywood; both of interior type with exterior glue, 5-ply, all plies with plugged cross-bands, produced in accordance with National Bureau of Standards PS-1-97. Plywood shall be cut and installed with top, center and bottom ply grain-oriented from front of deck to rear of deck (nose beam to riser beam). Adjacent pieces shall be locked together with tongue and groove joint from front to rear of deck. Longest unsupported span: MAXAM 26, 21 1/2" [546].
5. Deck End Overhang: Not to exceed frame support by more than 5'-11" [1804].

2.05 SEAT FABRICATION

A. Polymer Seat System – Courtside Collection XC10 (10"):

Hussey Courtside Collection Series embodies the latest leading edge innovations in linear telescopic seating modules. Courtside seats utilize a harmonious blend of advanced ergonomic principals, architecturally appealing design, safety, value and performance.

Seat Modules: 18" [457] long assembled, gas assisted injection-molded, high density, 100% recyclable HDPE (high density polyethylene) modules in monochromatic colors providing, dual textured scuff resistant 10" [254] wide seat surface with ½" [13] minimum interlock on seat and face. Unit structural tested to 600 lbs. occupant load.

1. CourtSide XC10 Seat Module

a. XC10 – 10" [254] Comfort Profile

- (1) 10" [254] depth continuous comfort curve style bench seat module
- (2) Ergonomically contoured forward "waterfall" edge for enhanced spectator comfort and minimization of sensitive pressure point area, regardless of leg positioning.
- (3) Fore & Aft contoured seat surface for uniform support and minimize high pressure points under the buttocks.
- (4) Seat height ranges from deck to t/o seat range from 16-1/8" [410] to 18-1/8" [460]
- (5) 21-1/8" [537] clear foot space area, regardless of leg positioning.

b. Integrally molded end caps at aisle end locations for clean finished appearance.

c. Integrally molded recess pockets to accept seat number and row letters.

d. Integrally molded rear closure panel at back of seat to allow for "continuous clean sweep" of debris at deck level and minimized visibility of structural ribbing.

2.06 SHOP FINISHES

A. Understructure: For rust resistance, steel understructure shall be finished on all surfaces with black "Dura-Coat" enamel. Understructure finish shall contain a silicone additive to improve scratch resistance of finish.

B. Wear Surfaces: Surface subject to normal wear by spectators shall have a finish that does not wear to show different color underneath:

1. Steel nosing and rear risers shall be pre-galvanized with a minimum spangle of G-60 zinc plating.
2. Decking shall have use-surfaces to receive both a sealer coat and wear-resistant high gloss clear urethane finish. Optional decking to have 0.030" laminated polyethylene wear surface.

3. Injection Molded Courtside seats shall be per manufacturer standard 15 colors.

C. Railings: Steel railings shall be finished with powder-coated semi - gloss black or optional 15 standard colors to match polymer seat color.

2.07 FASTENINGS

A. Welds: Performed by welders certified by AWS standards for the process employed.

B. Structural Connections: Secured by structural bolts with prevailing torque lock nuts, free-spinning nuts in combination with lock washers, or Riv-nuts in combination with lock washers.

2.08 TRANSPORT SYSTEMS

A. Portable Hydraulic Dollies: Provide one pair of portable hydraulic dollies suitable for transport of movable telescopic sections. Each dolly shall be fitted with sufficient quantity of 360 degree swiveling ball race caster to insure ease of movement. Wheel treads shall be molded polyurethane bonded to cast steel with roller bearing hubs. Dollies shall be inserted manually beneath the front of first telescoping row with seating completely closed. Dollies shall be designed to engage front lift plates and rear structural steel lift

beams.

2.09 ACCESSORIES | STANDARD TELESCOPIC GYMSEAT ACCESSORIES

- A. Access Panels (Hatchway): Provide access to unit at 4th or 5th tier.
- B. Operating Handles: Provide and install manual operating handles constructed of ¾" [19] OD steel tubing. Handles to engage pull-bar installed at the first tier.
- C. Permanent Handicap Cut-Outs: Provide first tier permanent handicap cutouts per requirements of Americans with Disability Act (ADA) located as indicated. Provide a full width front closure panel at handicap cutout, extending from underside of second tier to within 1 1/2" [38] of finished floor.
- D. Front Aisle Steps: Provide at each vertical aisle location front aisle step. Front steps shall engage with front row to prevent accidental separation or movement. Steps shall be fitted with four non-skid rubber feet each 1/2" [13] in diameter. Blow molded end caps shall have full radius on all four edges. Quantity and location as indicated.
- E. Non-Slip Tread: Provide at front edge of each aisle location an adhesive-backed abrasive non-slip tread surface.
- F. Foot Level Aisles: Provide deck level full width vertical aisles located as indicated.
- G. Intermediate Aisle Steps: Intermediate aisle steps shall be of boxed fully enclosed type construction. Blow molded end caps shall have full radius on all four edges. Step shall have adhesive-backed abrasive non-slip tread surface. Quantity and location as indicated.
- H. Intermediate Automatic Rotating Aisle Handrails: Provide single pedestal mount handrails 34" [864] high with terminating mid rail. Permanently attached handrail shall rotate in a permanently mounted socket for rail storage. Rail shall automatically rotate, lock in the use position, unlock and rotate back to the stowed position as the gym seats open and close. Ends of the handrail shall return to the post, and not extend away from it. Rails having openings to avoid interference with closed decks are not acceptable.
- I. Front Panel: Provide front closure panels for truncated sections, permanent end cutouts or elevated front aisles. Panels shall extend vertically from underside of front row to within 1 1/2" [38] or floor. Paneling to be 5/8" [16] Southern Pine Plywood or grey Polydeck attached to a steel framework.
- J. End Panel: Provide closure end panels for closed stack position at each exposed bank end. End panels shall be constructed of 5/8" [16] Southern pine plywood or grey Polydeck.
- K. Rear Panel: Provide required seating units with full width rear closure panels. Panels shall extend vertically full height or up to 8'-0" [2438] high to within 1 1/2" [38] of floor. Paneling to be 5/8" [16] Southern Pine Plywood or grey Polydeck attached to a steel framework. Rear panels cannot extend above 8'-0" [2438] on portable sections.
- L. Front Rail: Provide not less than 30" [762] high above deck, steel rails with tubular supports and intermediate members designed with 4" [102] sphere passage requirements. Rails to be located at each required seating location.
- M. Self-Storing End Rails: Provide steel self-storing 42" [1066] high above seat, end rail with tubular supports and intermediate members designed with 4" [102] sphere passage requirements.

- N. Top Seat Flush Filler: Provide at top seat level a flush filler board mounted between top seat and rear wall. Flush filler board shall be constructed of 4/4" nominal thickness Southern pine Grade "B & B" clear urethane finished.
- O. Poly Deck: Decking panel to be a 0.030" [1] thick high-density polyethylene overlay panel fabricated with a skid-resistant textured top surface permanently bonded to a Western Fir plywood substrate meeting the requirements of NBS PS-1-97. Panel thickness shall be 5/8" [16] with tongue and grooved edge joints and top polyethylene surface of textured gray color.
- P. Full Section Permanent Truncation: Provide Full Section Permanent Truncation as indicated. Provide rigid 38" [965] high above truncated deck front rails with tubular supports attached to the front of the permanent truncation. Provide full height front closure panel from underside of truncated row to within 1 1/2" [38] from finished floor.
- Q. Safety Accessories: Provide the following safety features:
 - 1. Coin Round or Roll all edges of exposed metal on top and underneath Bleacher to eliminate sharp edges. Provide safety ease edges, coined edges, or rounded edges for the bleacher understructure components as follows. Diagonal or X braces and deck support or deck stabilizers. Systems provided with sharp edges or corners, to be rounded off in the field and field painted.
 - 2. Provide polymer end cap on nose metal at Bank ends to close off edges to prevent spectator injury.
 - 3. Provide polymer end cap on back of deck supports on 1st 7 Rows to prevent spectator injury.
 - 4. On 1st Row, provide front and side skirt boards anywhere there is an exposed end to prevent players/balls from sliding underneath the 1st Row.
 - 5. Provide metal cover over motor chains and wheels to protect chains from debris and provide a safety switch that if cover is taken off the power system will not work.
 - 6. Provide metal end deck cover on each row to cover exposed edge of plywood at the ends of the bleachers.
 - 7. Powered frames systems without a metal protective housing, covering drive chain and drive wheels are not permitted under this specification.
- R. Full Section Recoverable Truncation: Provide a combination programming support and front rail as required to support full section recoverable truncation with remaining lower rows stored beneath. Support/front rail to extend 38" [965] above deck and be designed to sustain live load of first seating row being programmed.
- S. Transitional Top Steps: Provide at each vertical aisle location top transition steps (last row of telescopic gym seats to level above). Steps shall be of boxed fully enclosed type with construction materials and finish coordinated with that of intermediate aisle steps.
- T. Cross Aisles: Provide continuous top cross aisle or elevated front cross aisle per plan of seating. Construction material and finish to match telescopic seating.

2.10 ACCESSORIES | PERSONALIZATION and CREATIVITY ACCESSORIES and SOLUTIONS

- A. Colored Safety Rail Systems
 - 1. Choose from 15 Standard colors.
 - 2. Durable powder coated finish.
 - 3. Add color on to Center Aisle Handrails, Self-Storing or Removable End Rails, Front Rails.

PART 3 – EXECUTION

3.01 EXAMINATION

- A.** Verification of Conditions: Verify area to receive telescoping gym seats are free of impediments interfering with installation and condition of installation substrates are acceptable to receive telescoping gym seats in accordance with telescoping gym seats manufacturer's recommendations. Do not commence installation until conditions are satisfactory.

3.02 INSTALLATION

- A.** Manufacturer's Recommendations: Comply with telescoping gym seats manufacturer's recommendations for product installation requirements.
- B.** General: Manufacturer's Certified Installers to install telescoping gym seats in accordance with manufacturer's installation instructions and final shop drawings. Provide accessories, anchors, fasteners, inserts and other items for installation of telescoping gym seats and for permanent attachment to adjoining construction.

3.03 ADJUSTMENT AND CLEANING

- A.** Adjustment: After installation completion, test and adjust each telescoping gym seats assembly to operate in compliance with manufacturer's operations manual.
- B.** Cleaning: Clean installed telescoping gym seats on both exposed and semi-exposed surfaces. Touch-up finishes restoring damage or soiled surfaces.

3.04 PROTECTION

- A.** General: Provide final protection and maintain conditions, in a manner acceptable to manufacturer and installer to ensure telescoping gym seats are without damage or deterioration at time of substantial completion.

END OF SECTION