

MEMORANDUM

<i>To:</i>	Dave Corliss	<i>Date:</i>	29 August, 2012
<i>From:</i>	John Wilkins	<i>Project Name:</i>	Lawrence Sports Village – Recreation Center
<i>Cc:</i>	Paul Werner, Thomas Fritzel, Ernie Shaw	<i>Project No.:</i>	0112-0020
<i>Subject:</i>	Basis of Design		

Recreation Center – Budget

The budget numbers that were used in 2010/2011 when GouldEvans was working with the city for a new recreation center on the site adjacent to Free State were as follows:

Project Cost: \$160/sf (included 23% for soft costs: A/E Fees, Furniture, Equipment, Communications/Technology, Testing/Printing, and Owner's contingency)

Construction Cost including sitework: \$130/sf

\$15,500,000 project cost = approx.. **97,000** square feet

In comparison to Fieldhouse USA in Frisco, TX, they built their 144,000 sf facility several years ago for \$125/sf construction cost including sitework. With inflation, you might anticipate those costs to be \$130 - \$135/sf in 2012.

Additionally, we have completed an internal itemized estimate as well as a separate independent estimate provided by a general contractor (Crossland Construction). Both estimates included contingencies to cover the basis of design below. In our opinion, if the City were to competitively bid this project we would estimate the bids to come in at \$22,500,000 - \$25,000,000 (\$125/sf - \$137/sf).

Recreation Center – Recommended Basis of Design

An approximately 181,000 gross square foot regional recreation/wellness center located on 50 acres (with an option to increase this to 60 acres) at the NW corner of Highway 40 and K-10 (refer to attached site plan). Accommodations for parking of 800 concrete paved spaces (350 adjacent to front door with overflow parking of an additional 450). Incorporation of public bus and parent drop off at front door to facility.

The recreation center will sit adjacent to a state of the art track/soccer complex for the University of Kansas.

The facility will incorporate a main public entry for day to day community access as well as a secondary entry for tournament use. Tournament entry to consider adequate space to accommodate queuing of athletes and patrons for security.

The Multi-level facility is situated at the high point (NW) of the site and works with existing grades (20' cross slope from West property line to East) building edge to allow for an on-grade access at both levels. The use of the earth allows us to break down the scale of a 35'-38' tall building to the neighbors on the West and the North. In those areas, the height of the walls are anticipated to be 16'-18' above grade. Appropriate surface drainage away from building and waterproofing at basement walls on West end of building would be designed to prevent water infiltration.

The facility will be designed such that it could be LEED certifiable with an emphasis on reducing energy and operating costs.

Space Program

Fieldhouse

92,880 nsf

- Court Layouts (Striping)
 - o Total of 48 basketball backstops and 16 volleyball nets to be provided as detailed below.
 - The cost estimate for installation of 48 basketball backstops is \$190,000 from Athco (\$3,958 per backstop).
 - o Eight (8) full size basketball courts (50'x84')
 - Ceiling suspended backswing basketball backstops – Porter Model No. 90923000 with rectangular glass backboard model no. 00208-000 or equal.
 - o goals fixed 10' to rim
 - o backstops lowered and raised electronically and controlled with Powr-touch II Control Panel System (Singular control panel; refer to cut sheet)
 - o Sixteen (16) half basketball courts (50'x74')
 - Ceiling suspended backswing basketball backstops – Porter Model No. 90952000 with rectangular glass backboard model no. 00208-000 or equal.

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- o Total 16 provided to accommodate 8 half courts. Additional 8 half courts to be designed and structured to allow for an additional 16 backstops to be provided by City now or in the future.
 - o goals adjustable from 8' to 10' to rim
 - o backstops and rims lowered and raised electronically same as above.
 - o Sixteen (16) volleyball courts
 - Overhead supported Fold-up volleyball system with judges stand
 - o Lowered and raised electronically same as above
 - o Cost Estimate: \$145,000
 - Finishes
 - o Wood Floor – Floating System by Connor or equal. Product: Neoshok (See attached cut sheet)
 - Slab Depressed 2-1/2" for 25/32" flooring x 2-1/4" second & better grade northern hard maple flooring over (2) layers of 15/32" APA rated plywood.
 - o Performance System. Polyurethane Performance Pads 3/4" hemispherical.
 - o Polished Concrete Floors with an applied stain to provide color or (re: attached floor plan of fieldhouse) create pathways that subdivide fieldhouse into four (4) wood floor areas for traffic flow and easier phasing of refinishing floors in future.
 - o Unfinished concrete walls with glass and translucent glazing
 - (14) Gym Divider curtains (divisible into 8 courts) – Porter #675-000 roll-up gym divider curtains;
 - o Lowered and raised with electric winches and Powr-touch 2.5 control system
 - o E/W Curtains: Solid at 8' aff; Open Mesh above
 - o N/S Curtains: Solid at 8' aff; Open above
 - o Estimated cost: \$120,000
 - Scoreboards (16) full court basketball.
 - o Fair-Play BB-1600-4 basketball / volleyball scoreboards with wireless control systems.
 - Estimated cost: \$60,000
 - Wall Padding (16' wide each) on east wall for (8) cross court basketball courts where clearance to wall is less than 10'.
 - o Estimated cost: \$6,500

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- Infrastructure/Provisions for Video Monitors.
 - Seating capacity – 1,920 (16 sets of tip and roll bleachers (capacity 120 each to be provided by City)

Wellness Center 7,000 nsf

- Shelled space; fit out per Lawrence Memorial Hospital’s needs

Turf Area 21,600 nsf

- 90’ x 240’ clear area suitable for the following configurations (striping to be determined by City)
 - (3) 60 x 80 soccer fields (circulation and spectator seating at floor level)
 - (1) 75 x 175 to 200 indoor soccer field with portable walls by City
 - Indoor batting cages suspended from ceiling (full system (nets, motors; provided by City); Size: 17’-6” wide x 89’ deep; (Std. sizes are 12’x70’; all other sizes are custom) Quantity to be determined.
 - Cost: \$12,000 Each
- Flooring: Tarkett FieldTurf Synthetic Turf or equal.
 - FieldTurf Classic: split film fiber
 - 5lbs sand/rubber fill

Gymnastics 4,800 nsf

- Accommodate all the gymnastics apparatus (provided by City)
 - Floor Exercise Mat
 - Vault
 - Balance Beam
 - Uneven Bars
 - Parallel Bars
 - Pommel Horse
 - Horizontal Bar
 - Ceiling supported rings

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- Viewing platform from above
 - Flooring: Sealed concrete
 - 20' Min. Ceiling

Walking/Running Track

8 Laps to a mile

- 1/8th of a mile track
- 4 lanes; (1) 6' wide walking plus (2) 3' wide walk/jog lanes
- Rubber synthetic surface: Product: Beynon BSS 200 (see attached)
 - o Typical installations: High School track facilities
- Windows at corners of track

Aerobics/Dance

2,000 nsf

- Classes: Pilates, Slimnastics, Yoga, Zumba, Yogilates, Karate, Self Defense, Tae Kwon Do, Tai Chi
- Capacity Classes: 50 people
- Flooring: 12MM rubber synthetic flooring. Product: Mondo Advance or equal
- Minimal visibility
- Storage
- Infrastructure for a City provided Sound and Security Systems.

Fitness/Cardio

2,500-3,000 nsf

- Area for Lockers/Cubicles provided by City and to be located in public areas around fitness, and cardio area
 - o Flooring: Polished Concrete with applied colored stain at cardio equipment; 10MM rubber synthetic flooring at weight machines and free weights. Product: Mondo Sport Impact or equal. City to determine area for weight equipment.
 - o Electrical: Appropriate electrical outlets and circuits in floor or walls for equipment.
- Individual/Family changing rooms
 - o Quantity: 3
 - o Shower included in each room

Administration Suite/Offices	1,000-1,500 nsf
<ul style="list-style-type: none"> • Staff area for 6 (2 adult sports, 2 youth sports, 1 tournament staff, 1 support staff) <ul style="list-style-type: none"> o 3 individual offices o 3 cubicles (8x8 system furniture by City) • Work/copy room • Flooring: Carpet Tile 	
Front Desk/Control Area	600 nsf
<ul style="list-style-type: none"> • Accommodate 3-4 staff at given times with minimum of 2 computer hook-ups • Access to storage of game equipment, balls, paddles, etc.. • Maximize visibility to entries/exits; supplemented by City provided security cameras (infrastructure by contractor) <ul style="list-style-type: none"> o Security cameras by City (facility and parking) o Automated Lighting controls located at desk. 	
Birthday Party/Multipurpose Rooms	1,000 – 1,500 nsf
<ul style="list-style-type: none"> • 2 rooms with small cabinet and sink <ul style="list-style-type: none"> o Outlets provided for City provided refrigerator and microwave. • Accessible to gymnastics and turf area • Flooring: Carpet tile with rubber backing. Product: Neofloor by Lees or equal. 	
Official's Locker Room	500 sf
<ul style="list-style-type: none"> • Men's and Women's • Plastic lockers - 12" wide x 36" tall, 2 tier lockers. Total of 20 lockers each room. • Lockers rooms to be multi-used by community as locker rooms when not in use for tournaments. <ul style="list-style-type: none"> o Includes a shower, water closet and lavatory. 	
Concessions	1,000 – 1,500 nsf

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- Consideration for multiple stands distribution on both levels.
 - Consideration for ability to cook, including mechanical systems
 - Concessions equipment to be provided by vendor or City.

Restrooms

- 4" CMU toilet partitions
- Polished Concrete or Granitex floors
- "Excel" electric hand dryers in all restrooms

Maintenance/Custodial/Storage

4,000 nsf

- Distributed throughout facility
 - An additional custodial/storage room to be added to upper level
- Space for operations and facilities staff

Building Systems

Site

- Concrete paving: Drives, parking lots, walks
 - Parking Areas: 5" concrete
 - Driveways: 7" concrete
- Curb and Gutters
 - Provided at islands
 - Driveways to have lay-back curbs to define driveways and edge of parking areas
- Surface runoff to be directed to swales to help with storm water management
- Irrigation
 - Entrances to facilities and perimeter areas adjacent to all public spaces to be irrigated
 - Parking lot islands, and open spaces for overflow parking not to be irrigated
- Landscaping

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- Quantity per city requirements
 - Locations may be varied per an alternative compliance request during site plan stage
 - Berm adjacent to neighbors to the North per attached site plan. Landscaped with evergreens
 - Parking Lot Lighting
 - LED full-cutoff pole lighting (refer to attached memo from Henderson Engineers, dated 8/27/12.
 - Infrastructure for City provided exterior security cameras
 - Site Maintenance Facility
 - Intent is to share space under soccer/track stadium

Structure and Envelope

- Tilt-up load-bearing concrete exterior walls, insulated (R13) with a textured surface treatment to be determined.
- Concrete foundation walls
- Interior steel columns, painted
- Roof structure: Steel girders and Long span steel joists, painted
- Structural concrete floors and slab on grade floors
- Aluminum storefront with both low-e glazing and polygal translucent glazing
- 8' wide car showroom doors to allow vehicular access to fieldhouse from the east.

Roof

- A single ply membrane to be determined (TPO or Spray Foam)
- Metal roof deck, painted

Interior Partitions/Doors

- Concrete or Concrete Masonry Units (CMU)
- Painted walls and doors
- Hollow metal door frames
- Solid core wood doors and hollow metal doors appropriate for use of space.

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- Medico locks

Interior Finishes

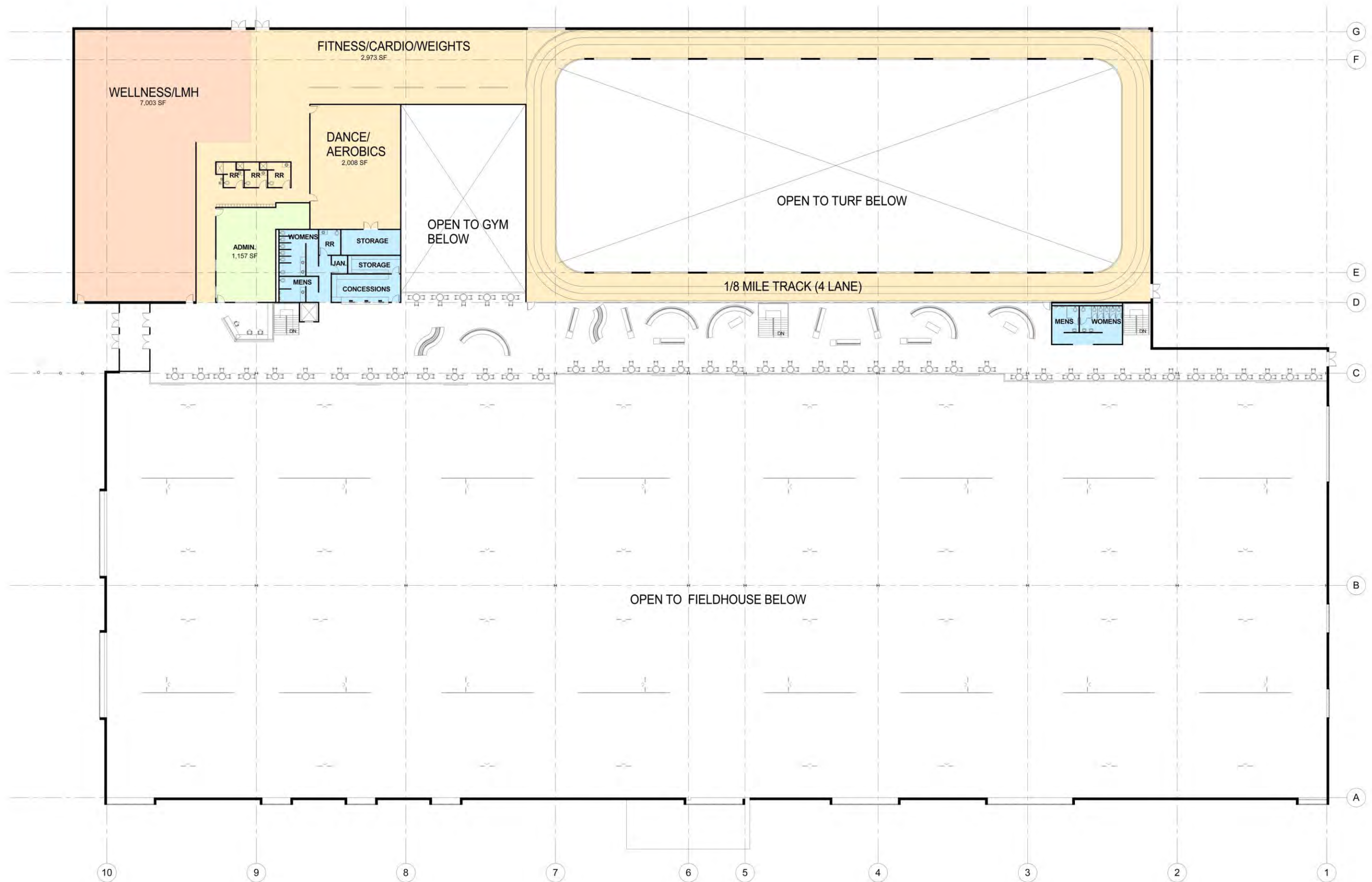
- Flooring: Polished Concrete or Granitx Coated Concrete Floors except as noted above in Space Program
- Walls: Painted CMU and Natural Finish Tilt-up Concrete Walls
- Ceilings: Painted Exposed structure except in administrative rooms, dance/aerobics, party rooms, restrooms/changing rooms, and official locker rooms. Rooms identified above would have acoustical lay-in ceilings.

Mechanical/Electrical/Plumbing

- Trane or Lennox, constant volume packaged roof top units with energy recovery and humidity control. Estimated 300 sf/ton
 - o Refer to Memo from Henderson Engineers, dated August 27, 2012
 - o Recommendation:
 - Constant Volume Packaged rooftop units with energy recovery and humidity control (option 1 – mechanical system types)
 - ❖ Consideration of Variable Air Volume Packaged rooftop units for smaller spaces such as birthday rooms.
 - Distributed ducted supply (ductsock) with high return at the unit in gymnasium (option 2 – mechanical ductwork distribution types)
 - Distributed ducted supply (sheetmetal ductwork) with low return at all other spaces (option 1 for ductwork distribution types)
 - VAV for smaller rooms; Constant volume everywhere else
- Anticipated operating costs: \$1.25 - \$1.50/sf.
- Systems to meet City of Lawrence energy codes.
- Building Management system comparable to other City Parks & Recreation facilities by Integrated Controls Systems.
- Consideration to zone spaces to accommodate times when spaces are not in use and reduce operating costs.

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- Sprinkler System
 - o Intent is to provide building sprinkler system for all spaces except the gymnasium per approval from authority having jurisdiction. Preliminary conversations suggest this will be acceptable.
 - Electrical
 - o Refer to Memo from Henderson Engineers, dated August 27, 2012
 - Lighting: 4-lamp fluorescent high bay fixture with specular alzak reflector with wire guard (2) 2-lamp electronic ballast (this allows half the lamps to be switched off on each light. Incorporate daylighting strategies to minimize dependence on artificial lighting.
 - o Lighting controls: Centralized relay based system with integral timeswitch and daylight harvesting functions.







- LMH
- ADMINISTRATION
- REC CENTER
- GYMNASTICS
- FIELD HOUSE PROGRAM

paulwerner
ARCHITECTS

gouldevans

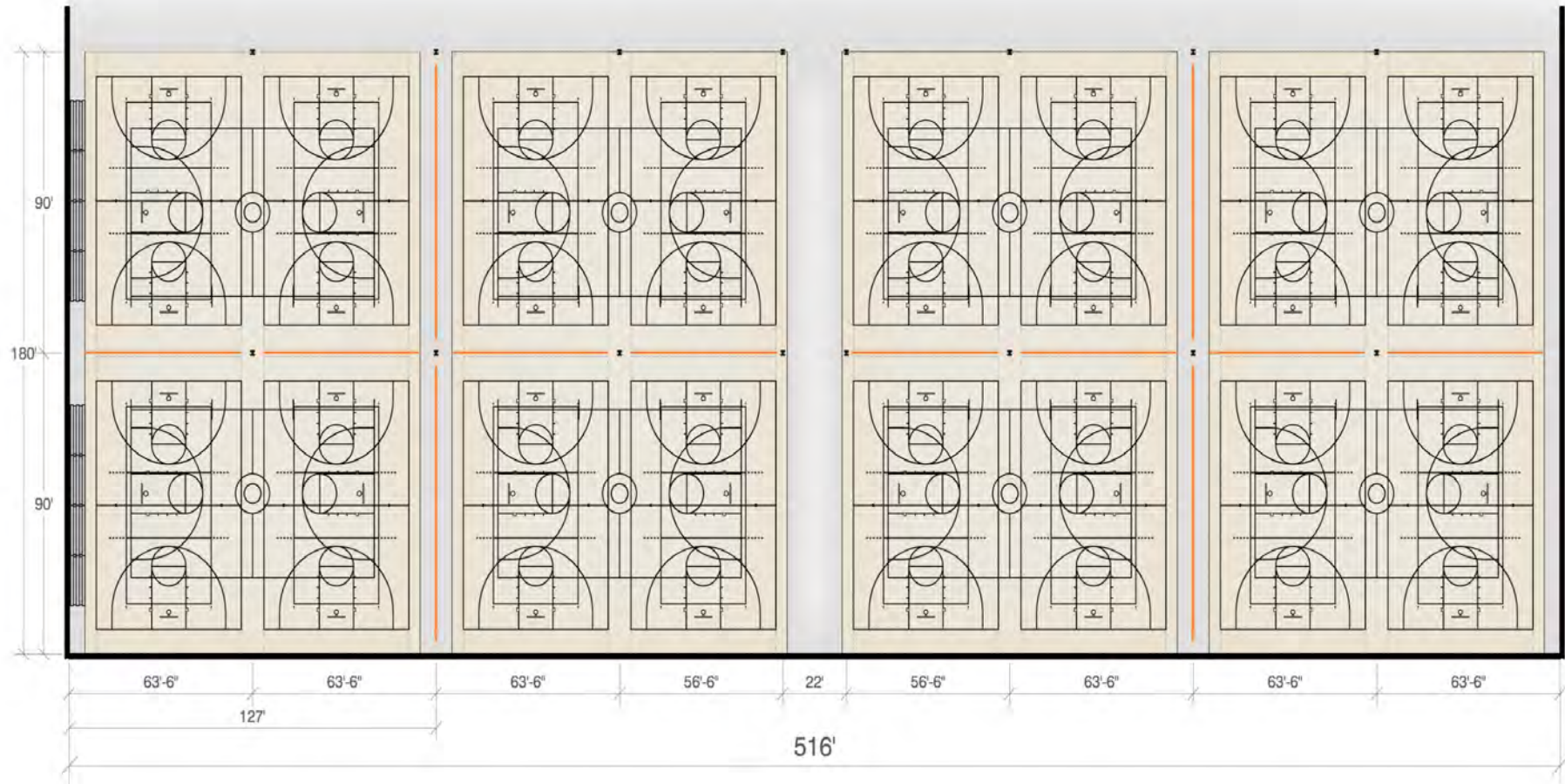
ENTRY LEVEL = 40,810 SF
FIELDHOUSE LEVEL = 139,179 SF
TOTAL = 179,989 SF



S P O R T S V I L L A G E
LOWER LEVEL
2012 AUGUST 01

16' 32' 64' 128'

FIELDHOUSE COURT LAYOUTS



Lawrence Sports Village Recreation Center - Cost Estimate

Crossland Detailed Estimate

Schematic Design

8/14/12

1.0 Construction Cost

recreation center	181,000	\$93	\$16,861,671
sitework			\$4,594,242
mass excavation	\$647,000		
structural excavation	\$155,000		
parking lot	\$1,901,381	800 spaces	
concrete paving/sidewalks	\$315,861		
interior drives	\$875,000		
landscape, irrigation, berms	\$700,000		
design/estimate contingency	4.7%		\$1,000,000
Total Construction Costs	180,000	\$125	\$ 22,455,913

2.0 Development Costs

furnishings, fixtures, equipment, security, av			600,000
a/e fees lump sum			800,000
Testing, permits, special inspections, misc			100,000
Total Development Costs			\$ 1,500,000

3.0 Project Cost

project contingency	1.0%	\$	250,000
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PROJECT COSTS

\$ 24,205,913

Lawrence Sports Village Recreation Center - Cost Estimate

GouldEvans Detailed Estimate

Schematic Design

8/14/12

1.0 Construction Cost

recreation center	181,000	\$97	\$17,578,000
sitework			\$6,377,000
mass excavation	\$647,000		
structural excavation	\$155,000		
parking lot	\$4,000,000	800 spaces	
concrete paving/sidewalks	incl above		
interior drives	\$875,000		
landscape, irrigation, berms	\$700,000		
design/estimate contingency	4.2%		\$1,000,000
Total Construction Costs	182,000	\$137	\$ 24,955,000

2.0 Development Costs

furnishings, fixtures, equipment, security, av			600,000
a/e fees	lump sum		800,000
Testing, permits, special inspections, misc			100,000
Total Development Costs		\$	1,500,000

3.0 Project Cost

project contingency	0.9%	\$	250,000
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PROJECT COSTS

\$ 26,705,000



kansas city phoenix houston new york metro
tampa las vegas dallas bentonville

August 27, 2012

John Wilkins
Gould Evans

RE: Lawrence Recreation Center

Dear John:

Pursuant to your request, HEI has reviewed preliminary plans and conceptual narrative by GE. The following are mechanical and electrical design options and considerations for the Lawrence Recreation Center:

MECHANICAL SYSTEM TYPES

The following are options for system types along with options for ductwork distribution. The system types and distribution types can be mixed and matched to create multiple options with various pros and cons.

Option 1 – Packaged rooftop units with energy recovery and humidity control

These units will contain an air cooled condensing unit section and evaporator section. The condensing unit section shall contain a condenser fan, condenser coil, and compressors. The evaporator section shall consist of outside air economizer dampers, outside air filters, direct expansion cooling coil, natural gas or electric heat exchanger (depending on utilities available), and evaporator fan.

These units will also be equipped with an energy recovery wheel and hot gas reheat coil. The energy recovery wheel will preheat outside air in the winter months and precool outside air in the summer months. The hot gas reheat coil shall operate to maintain space humidity under part load cooling conditions. Winter humidification will not be provided by these units.

Pros and cons

- Lowest unit energy consumption.

- Excellent humidity control during cooling season.

- Highest first cost system.

- Aaon is the only manufacturer that provides units with integral energy recovery wheels. Other manufacturers will have to provide a separate energy recovery ventilator unit with their standard unit.

Option 2 – Packaged rooftop units with energy recovery

These units will contain all the components listed in option 1 except for the hot gas reheat coil.

Pros and cons

- Lowest unit energy consumption (Same energy consumption as option 1.)

- No humidity control during the cooling season when part load conditions exist.

- Lower first cost than system option 1.

- Aaon is the only manufacturer that provides units with integral energy recovery wheels. Other manufacturers will have to provide a separate energy recovery ventilator unit with their standard unit.

Option 3 – Packaged rooftop units with humidity control

These units will contain all the components listed in option 1 except for the energy recovery wheel.

Pros and cons

- Higher energy consumption than options 1 and 2.
- Excellent humidity control during cooling season.
- Lower first cost than system option 1. First cost may be on par with option 2 depending on manufacturers used.
- Multiple manufacturer's provide hot gas reheat coils as standard options.

Option 4 – Standard packaged rooftop units

These units will contain all the components listed in option 1 except for the energy recovery wheel and hot gas reheat coil.

Pros and cons

- Higher energy consumption than options 1 and 2.
- No humidity control during the cooling season when part load conditions exist.
- Lowest first cost system option.
- All manufacturers can meet this option's requirements.

MECHANICAL DUCTWORK DISTRIBUTION TYPES

Option 1 – Distributed ducted supply with low return

This distribution option shall provide overhead ductwork routed throughout the spaces with duct mounted supply air diffusers to evenly distribute the supply air to the building. Low return air shall be provided for each unit serving a high bay area.

Pros and cons

- Highest first cost installation.
- Best supply air distribution to the spaces.
- Low return helps to pull smells/contaminated air from the building at the level they are generated.
- Low return air ductwork will take up building area and reduce available area for programming spaces.

Option 2 – Distributed ducted supply with high return at the unit

This distribution option shall provide overhead ductwork routed throughout the spaces with duct mounted supply air diffusers to evenly distribute the supply air to the building. High return air located at the unit shall be provided for each unit serving a high bay area.

Pros and cons

- Lower first cost compared to option 1.
- Good supply air distribution to the spaces.
- High return air can cause supply air to short circuit near the location of the return opening.
- High return will pull less smells/contaminated air from the building since it is not located at the level they are being generated.

Option 3 – Non-ducted supply with low return

This distribution option shall provide supply diffusers located at the unit only. Low return air shall be provided for each unit serving a high bay area.

Pros and cons

- Lower first cost compared to option 1. First cost will likely be on par with first cost for option 2.
- Non ducted supply air will reduce supply air distribution effectiveness. Locating the low return away from the supply location will help improve the distribution.
- Low return helps to pull smells/contaminated air from the building at the level they are generated.
- Low return air ductwork will take up building area and reduce available area for programming spaces.

Option 4 – Non-ducted supply with high return at the unit

This distribution option shall provide supply diffusers located at the unit only. High return air located at the unit shall be provided for each unit serving a high bay area.

Pros and cons

Lowest first cost installation

Worst supply air distribution of all options. High return air located next to the supply air will maximize the amount short circuited air that will not be distributed to the space.

MECHANICAL CONTROL OPTION

We recommend exploring the possibility of zoning the HVAC systems in the court areas by individual small courts or individual large courts. If the units and lighting are zoned together there could be manual control for the court that would turn the lights on in the court and put the unit in occupied mode when the court was being used. When the courts are not being used the lights can be controlled off the unit put into unoccupied mode. The unoccupied mode would shut down the outside air damper and put the unit into a 100% return air scenario and help save energy.

ELECTRICAL

Power Systems Description

The facility would likely utilize (2) 480Y/277V, 3-phase, 4-wire electrical services fed from pad mounted utility transformers on the exterior of the building. Main switchboards will be located in the main electrical room located adjacent to an exterior wall. Power shall be distributed from the main switchboards throughout the building to various electrical closets; and major mechanical and kitchen equipment. Switchboard and panel boards shall be located in dedicated electrical rooms for code and safety reasons.

Surge Protective Devices (SPD) shall be provided for switchboards. Distribution panel boards that serve significant electronic equipment and/or circuits for equipment located exterior to the building shall be equipped with secondary level SPD protection. Branch protection shall be provided for panel boards serving IT loads and Computer Equipment loads.

As an option, a generator for life safety and stand-by power is recommended to be located on the exterior of the building adjacent to the incoming service – potentially in a service yard. If provisions for a generator are not to be provided as part of the facility it is recommended that provisions be made for a portable generator connection on the exterior of the building for standby loads.

On-site Power Concept: Provisions could be made for the future implantation of renewable energy elements.

Photovoltaic System (PV): Provisions could be made for dedicated space in the building for future accommodation of photovoltaic electrical equipment including inverters, AC/DC disconnect switches, and metering for a roof mounted array size based on Owner renewable energy goals.

Power for motorized curtains/court dividers in fieldhouse shall be provided. Flush floor boxes compatible with floor finish shall be utilized for scoreboard controllers. Dedicated power circuits for fitness equipment will be provided.

Lighting Systems Description

Lighting Control:

Centralized relay based system is recommended with integral timeswitch and daylight harvesting functions. It is recommended that fieldhouse, turf areas, gymnastics, fitness, and other applicable public areas utilize zoned switching to allow for 50% stepped control of fixtures via daylight sensing (based on amount of natural lighting in space) with automatic time sweep off. Manual keyed controls are recommended in each space for local override of the centralized control system. A common centralized point of control can also be provided for space control from the front desk/control area. Occupancy sensing can be integrated into the above described control based on intermittent use of spaces to reduce operating costs.

Admin Suite/Offices are recommended to utilize ceiling or wall mounted occupancy sensors with local manual control. Back of house and restroom spaces will utilize occupancy based controls.

Site lighting shall be controlled via photocell and time function in relay based system.

Site Lighting:

LED full-cutoff pole lighting (24'-30' mounting height) is recommended for parking lot illumination. Building mounted exterior lighting could also utilize LED for illumination of pedestrian paths and entries. LED provides the efficiency and performance with superior contrast ratios and will provide a sustainable first impression of the facility during evening use. Pulse start metal halide (320W) option for pole lighting is recommended if LED is not possible.

Fieldhouse/Turf Area/Gymnastics:

4-6 lamp T5HO high bay fluorescent light fixtures with wire guard are recommended for efficiency and performance. Fixtures provide flexibility in switching and instant on capabilities. Incorporate with two ballasts for dual level switching in conjunction with daylighting controls.

Admin Suite/Offices:

Recessed high efficiency troffer type lighting recommended for optimum efficiency and performance. Cost is very competitive.

We look forward to further discussion. Please contact John Pummill or myself with questions or concerns.

Sincerely,
HENDERSON ENGINEERS, INC.

A handwritten signature in black ink, appearing to read 'Juliette A. Pierce', with a stylized, flowing script.

Juliette A. Pierce, PE, LEED BD+C
Vice President

Roofing System Analysis

2012.08.27

This roofing system analysis summarizes our opinion and the opinion of our building science consultants.

Roofing System Cost and Quality

Roofing systems are listed below in approximate ascending order of cost, quality and longevity.

- Spray Foam
- TPO
- EPDM – ballasted (14 psf)
- PVC - has good chemical resistance for some food and manufacturing applications
- Built Up Roof - 4-ply with modified bitumen flashings
- Modified Built Up Roof - 2-ply (or more) fiberglass felts with modified bitumen cap sheet and two plies of modified bitumen flashings

Spray Foam

- We have no experience with this product. Following are the opinions of our building science consultants. Historically this system has been used in the southwest in areas of low rain fall, where small imperfections (leaks) are of less consequence. Subject to damage from birds, hail, etc. Installation quality sensitive to wind and humidity conditions. Not recommended for our climate.
- 5 year roof system before restoration needed.

Single Ply Systems: TPO, PVC, EPDM

- The advantage of single ply systems is cost. The disadvantage is lack of redundancy (just one layer), relatively thin system thickness, and longevity. They are more easily damaged than built up roofs. They should be fully adhered because leaks in a mechanically fastened or ballasted system are extremely difficult to track, and the membrane tends to 'pump' with changing wind conditions.
- They are widely used in retail and other commercial applications, and are appropriate for our climate. They perform best when roof traffic is minimal and they are isolated from blowing debris (e.g., flying tree branches). Prone to hail damage.
- 8-15 year roof systems

Built Up Roof (BUR) Systems

- BUR's are the traditional asphalt-based, multi-layer roofing system.
- They provide redundancy by virtue of the multiple layers (more chances to get the seams right) and their thickness provides damage resistance.

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- They have a long history of excellent performance, and newer systems that incorporate a Modified Bitumen cap (top) sheet and flashings are particularly robust.
 - They can, and should, include white rock ballast or white mineral coating to protect the membrane from ultraviolet and to provide cool-roof benefits.
 - These are the system of choice for institutional clients (schools, universities, governments) who expect high performance and long life.
 - 20 year roof systems; 30 years plus with modified bitumen cap sheet

Roofing Contractors, Manufacturers, and Installation

- The quality of the roofing installation is highly dependent on the quality of the roofing contractor and the roofing manufacturer's standards and inspection during installation.
- Some roofing manufacturers have higher standards for approving contractors and also provide more on-site inspection. These measures increase the overall cost of the roofing, but we believe these measures provide good value, since general contractors typically provide little if any oversight of the actual roof installation. Some manufacturers also provide annual or other periodic no-cost inspections of the completed roof that are of great value in identifying potential problems before they occur.

Roofing Warranties, Maintenance and Longevity

- Roofing warranties are a very problematic way of comparing roofing systems. Following is an excerpt from an industry source (MasterSpec) that summarizes some of the issues. NRCA is the National Roofing Contractors Association, which is the most respected trade organization in the industry.

In a consumer advisory bulletin discussing roofing warranties, NRCA has adopted the position that standard long-term warranties offer the Owner less than might be expected. It urges that the length of a roofing warranty not be a primary consideration during the selection of a roofing system. It states that the purchase of a manufacturer's warranty may be unnecessary with a well-designed, -manufactured, and -installed roofing system. To support this position, NRCA advises that standard roofing warranties are not "all-inclusive insurance policies designed to cover virtually any roofing problem, regardless of the cause or circumstance. Roofing warranties typically do not warrant that the roofing system will not leak or is suitable for the project where it is installed. Even the most comprehensive manufacturer warranties that cover materials and workmanship generally provide only that the manufacturer will repair leaks that result from specific causes enumerated in the warranty."

NRCA also notes that the Owner's remedies may be significantly limited by restrictive provisions in the warranty and that the warrantor's liability is also limited.

- We feel that warranty claims should not be the basis for selecting a roofing type. The terms of the warranty should be developed after a specific roofing type has been selected.
- Roofing longevity depends on the quality of the material and installation, but just as importantly on maintenance. Maintenance budgets are always tight, and, since they're out of sight, roofs tend to be ignored until they cause visible problems. Repair of a roof leak is much more expensive than repair of a potential leak condition. The best preventive action is a roof maintenance program. If the building owner does not have qualified and available staff, such programs can be purchased from some roofing contractors or consultants, or may be provided by a roofing manufacturer as part of the initial cost of the roof.

MEMORANDUM

To: John Wilkins
From: Doug Doering
Cc:
Subject: Concrete Floor options

Date: Aug. 28, 2012
Project Name: Sports Village – Recreation Center
Project No.: 0112-0020

Concrete Floor options:

CRITERIA: The concrete floor finish should be constructed of materials that are appropriate for a 50+ year building and include the following criteria:

- a. Cost of Materials – Initial costs, life cycle costs and energy costs shall all be considered.
- b. Longevity/Durable – The materials shall last a long time without significant deterioration while conserving resources, reducing waste and the environmental impacts of repair and replacement.
- c. Ease of maintenance – Floor finish shall address the maintenance requirements for each option.

OPTIONS: The interior concrete finish's that meet the above criteria include the following:

- a. Type 1: Polished concrete - Heavy-duty polishing machines equipped with progressively finer grits of diamond-impregnated segments or disks (akin to sandpaper) are used to gradually grind down surfaces to the desired degree of shine and smoothness. A color dye is applied to give the floor a color.
- b. Type 2: Stained concrete – Acid stains permeate and chemically react with the concrete to infuse it with permanent color that won't flake off or peel away. A sealer is applied after the staining for protection.

-
- c. **Type 3: Granitex** - A composition of multi-coloured vinyl chips that are embedded in a pigmented base coat and sealed with a coat of epoxy. The surface is top coated with polyurethane to provide additional strength, durability and chemical resistance from abrasion, spills and UV light. The finished result is a seamless membrane over the entire surface area.
- d. **Type 4: Ceramic Tile** – Ceramic tile is bonded to the concrete substrate with thin set mortar and grouted.

FLOOR FINISH COST:

Initial cost	Average life/cycle costs	Durability	Maintenance
--------------	--------------------------	------------	-------------

Type 1	\$4-8/sf	Extremely low	Will last a lifetime with no replacement	Dust mop daily; frequent wet mop with automatic floor scrubber for spills, etc..
Type 2	\$3-15/sf	Moderate	Color could fade overtime and require re-staining	Broom sweep daily; apply a new coat of sealer every year or two, or as necessary
Type 3	\$7-10/sf	Low	May need resealing and repairs in heavy traffic areas after 15-20 years	For general cleaning, use low-pressure water or scrub the surface with a mild detergent.
Type 4	\$8-15	Low	Grout will need replacing after years of high use	Dust mop daily and wet mop as required using grout/tile cleaner

RECOMMENDATION: We recommend that the Type 1 - polished concrete floor finish (with a color dye) be used for the public areas based on its ease of maintenance, durability and cost. Of the four options reviewed, the polished floor scores highest on each of the criteria for the Recreation Center.



NEOSHOK™

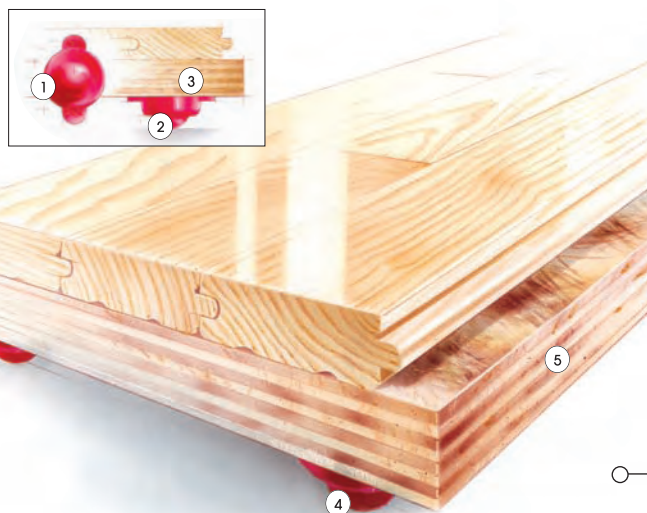
F L O A T I N G S Y S T E M

FLOATING SYSTEM

NEOSHOK

SYSTEM FEATURES AND BENEFITS

A floating sports floor system with high resiliency and uniformity, consisting in general of a vapor barrier, NeoShok resilient pads, wood subflooring, maple flooring, sanding, sealers, finishes, game lines and wall base.



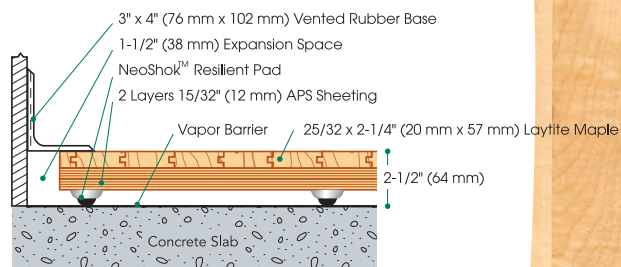
- ① Two-Stage NeoShok Pad
- ② First stage responsive to light loads
- ③ Second stage responsive to aggressive loads
- ④ Quick response contact point and excellent resilient load performance
- ⑤ Two layers of 15/32" (12 mm) APA rated plywood subfloor

SPECIFICATIONS

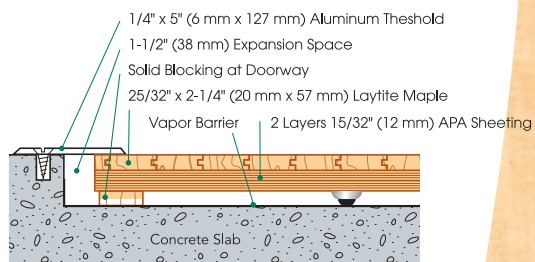
MANUFACTURING	ISO9001:2008 CERTIFIED
U.S. PATENT #	4,879,857
SYSTEM TYPE	Floating System
ANCHORAGE	No concrete attachment
SUBFLOOR CONSTRUCTION	Plywood Panel
RESILIENCE	Polyurethane NeoShok Pads
SLAB DEPRESSION	25/32" (20 mm) flooring - 2 1/2" (64 mm) 33/32" (26 mm) flooring - 2 3/4" (70 mm)
TESTING LABORATORY	United States Sports Surfacing Laboratory
CERTIFIED TESTING	ISS Scientific Body Member Laboratory Testing
GREEN STATUS	Managed forests, certification available



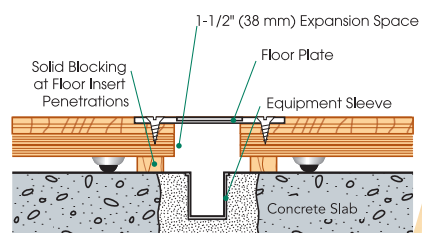
WALL BASE DETAIL



THRESHOLD DETAIL (optional accessory)



EQUIPMENT DETAIL (optional accessory)



connorfloor.com
1.800.283.9522

BSS 200

PAVED-IN-PLACE SYNTHETIC TRACK SYSTEM

Achieve optimal performance while maximizing your value with the BSS 200 - a premier micro-encapsulated track system built for every budget and virtually every level of competition.

The BSS 200 starts with a paved-in-place base layer of high performance polyurethane and SBR rubber granules. It's then coated with our **two-component polyurethane sealer**, making the surface **impermeable**. Pigmented EPDM granules and single component polyurethane structural spray combine to form the spray-applied top layer. The environmentally friendly **BEYPUR 160 water-based structural spray** is another option that can be applied to the top layer that only Beynon Sports Surfaces offers.

Perfect for **training or competition**, the BSS 200 is guaranteed by a comprehensive five-year warranty.

- Low-maintenance
- Water can't penetrate the surface and cause damage
- Environmentally friendly BEYPUR
- 160 water-based structural spray
- Optimal performance while maximizing your value

Information

Beynon Sports Surfaces

16 Alt Road Hunt Valley, Maryland 21030
(410) 771-9473 | www.beynonsports.com

A two-component seal coat is applied for an impermeable surface.

A spray-applied top layer of EPDM granules and single component polyurethane creates an all-weather surface, free of granule migration.

The bottom layer combines polyurethane and SBR granules to achieve optimal comfort and shock absorption

AN IMPERMEABLE TRACK SYSTEM THAT DELIVERS ALL-WEATHER PERFORMANCE

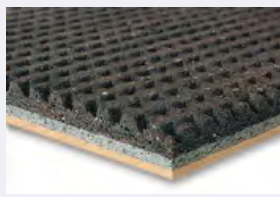


[SPORT TURF](#)
[TRACK & FIELD](#)
[INDOOR SPORT](#)
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Advance

[Download e Dettagli tecnici](#)


ADVANCE - Performance Layer



ADVANCE - Comfort Layer

[Description](#)
[Applications](#)
[References](#)
[Colors and Dimensions](#)

PERFECT BLEND OF DURABILITY AND PERFORMANCE

Advance has been established as the most durable and highest performing gymnasium/multipurpose synthetic surface in the industry. Advance can meet all the demands of multipurpose use, as well as exceed the leading biomechanical standards set for competitive athletic events.

PERFORMANCE

Performance Layer

- Solid 2mm rubber wear layer requiring no finishes or coatings
- Engineered to exceed coefficient of friction standards for athletic performance

Load disbursement layer

- Provides reinforcement against bleachers, tables and chairs
- Generates proper force reduction giving the athlete proper foot support and stability

Comfort Layer

- Deforming geometries improves product deflection, resulting in optimum shock absorption and energy return
- Vulcanized rubber will not compress or break down over time

COMFORT AND SAFETY

- Class 1 fire code rating
- Antibacterial and antimicrobial throughout
- Slip resistant - ADA compliant
- Outstanding sound absorption properties

DURABILITY AND LIFE CYCLE COST

- Non porous surface
- Outstanding static and rolling load characteristics
- 20+ year life expectancy
- 100% recyclable
- Lowest total cost of ownership



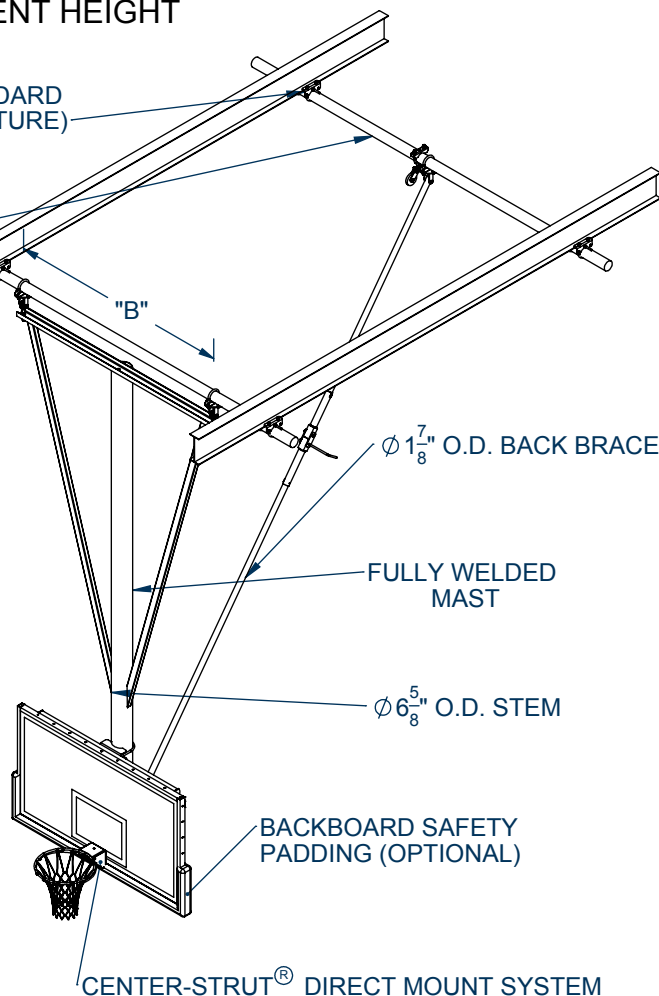
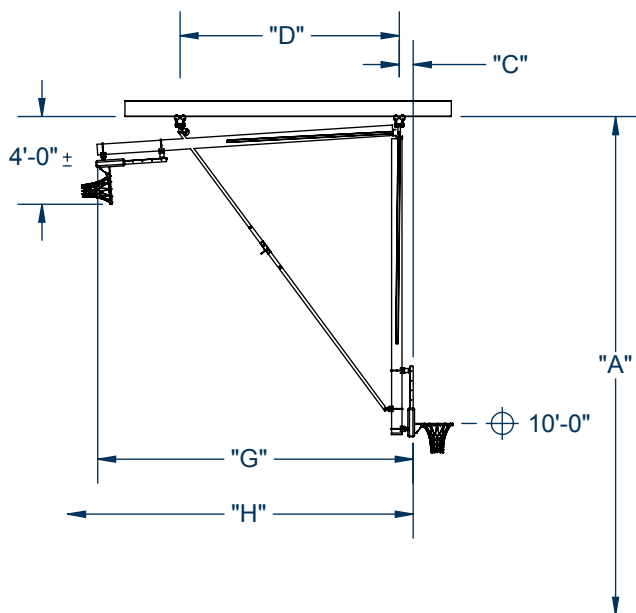
90923000 - BACKWARD FOLD BACKSTOP

CEILING SUSPENDED, BACKWARD FOLD, REAR BRACED UNIT
16' TO 28' ATTACHMENT HEIGHT

PRECISION DIE-FORMED SUPPORT FITTING STANDARD
(MAY VARY BASED ON GYMNASIUM SUPERSTRUCTURE)

Ø 3 1/2" O.D. PIPE STANDARD
(SUPERSTRUCTURE ENGINEERED
PER BUILDING REQUIREMENTS)

GYMNASIUM SUPERSTRUCTURE
(NOT PROVIDED BY PORTER)



"A" BOTTOM OF STRUCTURE ABOVE FINISHED FLOOR	"B" MAST CENTERS	"C" FACE OF BACKBOARD TO CL MAST HANGER	"D" BACK BRACE DIMENSION	"G" HORIZONTAL FOLD DIMENSION	"H" MINIMUM FACE OF BACKBOARD TO WALL
16'-0" to 17'-0"	4'-0"		4'-6"	7'-11"	6'-5"
17' 0-1/8" to 18'-0"	4'-0"	SEE	5'-6"	8'-11"	7'-5"
18' 0-1/8" to 19'-0"	5'-0"		6'-6"	9'-11"	8'-5"
19' 0-1/8" to 20'-0"	5'-0"		7'-6"	10'-11"	9'-5"
20' 0-1/8" to 21'-0"	5'-6"	"C" DIMENSION	8'-6"	11'-11"	10'-5"
21' 0-1/8" to 22'-0"	5'-6"		9'-6"	12'-11"	11'-5"
22' 0-1/8" to 23'-0"	6'-0"		10'-6"	13'-11"	12'-5"
23' 0-1/8" to 24'-0"	6'-0"	CHART	11'-6"	14'-11"	13'-5"
24' 0-1/8" to 25'-0"	6'-6"		12'-6"	15'-11"	14'-5"
25' 0-1/8" to 26'-0"	6'-6"		13'-6"	16'-11"	15'-5"
26' 0-1/8" to 27'-0"	7'-0"		14'-6"	17'-11"	16'-5"
27' 0-1/8" to 28'-0"	7'-0"		15'-6"	18'-11"	17'-5"

"C" DIMENSION CHART- FACE OF BACKBOARD TO CENTERLINE OF MAST HANGER			
BACKBOARD MODEL NUMBER	DESCRIPTION	WITHOUT HEIGHT ADJUSTER	WITH HEIGHT ADJUSTER
00208000	RECTANGULAR GLASS	8-5/8"	11-3/16"
00216000	RECTANGULAR FIBERGLASS	8-3/8"	10-15/16"
00228300	RECTANGULAR WOOD	7-13/16"	10-3/8"
00234300	FAN ALUMINUM	7-13/16"	10-3/8"
00267698	FAN FIBERGLASS	7-3/4"	10-5/16"

*UNITS UNDER 20' BOTTOM OF STRUCTURE REQUIRE 3 1/2" ADDITIONAL OFFSET

PORTER

WWW.PORTERATHLETIC.COM/FACILITY

BASKETBALL SPECIFICATION SHEET

B-923-28

90923000 CEILING SUSPENDED, BACKWARD FOLD, REAR BRACED UNIT

- BACKBOARD SELECTION
- GOAL SELECTION
- PADDING SELECTION

PORTER

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PROJECT NUMBER

PROJECT NAME

5/29/2012

90923000 - BACKWARD FOLD BACKSTOP

CEILING SUSPENDED, BACKWARD FOLD, REAR BRACED UNIT
16' TO 28' ATTACHMENT HEIGHT

SPECIFICATIONS

Basketball backstop shall consist of a main center mast of 6-5/8" O.D. heavy-wall structural steel tube with diagonal side sway braces of 2-1/2" x 1-1/2" rectangular steel tubing. Ends of diagonal brace tubes shall be fully welded to main mast. Top horizontal mast member to be of a heavy 4" structural channel to support adjustable suspension hangers. Mast shall be fully welded and suspended by adjustable hangers (2) to provide for precise plumbing of frame during installation. Support hangers shall be offset a minimum of 1-1/2" behind centerline of welded mast to properly weight lock unit in playing position.

Goal shall mount directly through backboard and into a heavy structural steel Center-Strut® weldment which shall be clamped to the vertical 6-5/8" O.D. center support to eliminate any strain on backboard should a player hang on the front mounted goal (conforms to the NCAA latest rules). All fittings shall be attached to the 6-5/8" O.D. vertical drop tube by heavy 1/4" thick precision saddle die-cut formed steel fittings secured in place by 5/8" diameter 'U'-Bolt type hardware.

Backstop to operate with a 1-7/8" O.D. back brace assembly with a folding knee joint. Knee joint to incorporate an internal torsion spring design to lock brace assembly firmly in playing position. Hoist cable shall automatically disengage brace knee joint during the hoist cycle.

Backstop shall be supported from pipe anchored to roof framing members by precision die formed support fittings or custom attachments as required. All cap screws shall be rated a minimum SAE Grade 5. Grade 2 cap screws will not be approved as equal. Bridged pipes may be required when spans exceed 14'.

All metal parts shall be powder coated. See swatch card SMPL00048024 for standard color options. (contact Porter for custom color requests)

Backstop provided with specified backboard and goal (see B-200 for options).

See winch specifications for more information on included Porter winch system and control options. (manual- see B-700, electric- see B-701)

WARRANTY

- No. 900 Center-Strut® series backstop structure comes with a 25 year limited warranty.
- Limited Lifetime warranty on all Porter backboards when used in conjunction with the No. 900 Center-Strut® series backstop.
- Other components may be covered by their own warranty (see corresponding specifications for more details).

OPTIONAL ITEMS (SEE SPECIFICATION SHEETS FOR DETAIL)

- Backboard safety padding (see B-200)
- Height Adjuster (8' to 10' adjustable goal height) (see chart below)
- Saf-Strap (No. 10797100)

CENTER-STRUT® HEIGHT ADJUSTER

- | | |
|---|---|
| • For Manual Operation, See Page No.: | B-900-506 (Rectangular Boards) B-900-211 (Fan Boards) |
| • For Key Switch Operation, See Page No.: | B-901-506 (Rectangular Boards) B-901-211 (Fan Boards) |
| • For Powr-Stick Operation, See Page No.: | B-902-506 (Rectangular Boards) B-902-211 (Fan Boards) |
| • For Sportsonic® II Operation, See Page No.: | B-903-506 (Rectangular Boards) B-903-211 (Fan Boards) |
| • For Powr-Touch Operation, See Page No.: | B-904-506 (Rectangular Boards) B-904-211 (Fan Boards) |

LEED® SUBMITTAL INFORMATION

Credit	Measure
MRc4-Recycled Content	Post Consumer Average 25.0% Post Industrial 0%
MRc5-Regional Materials	Raw materials originate from multiple sources so origin point cannot be determined. Final Manufacturing/Assembly in Champaign, IL 61822

90952000 - BACKWARD FOLD BACKSTOP

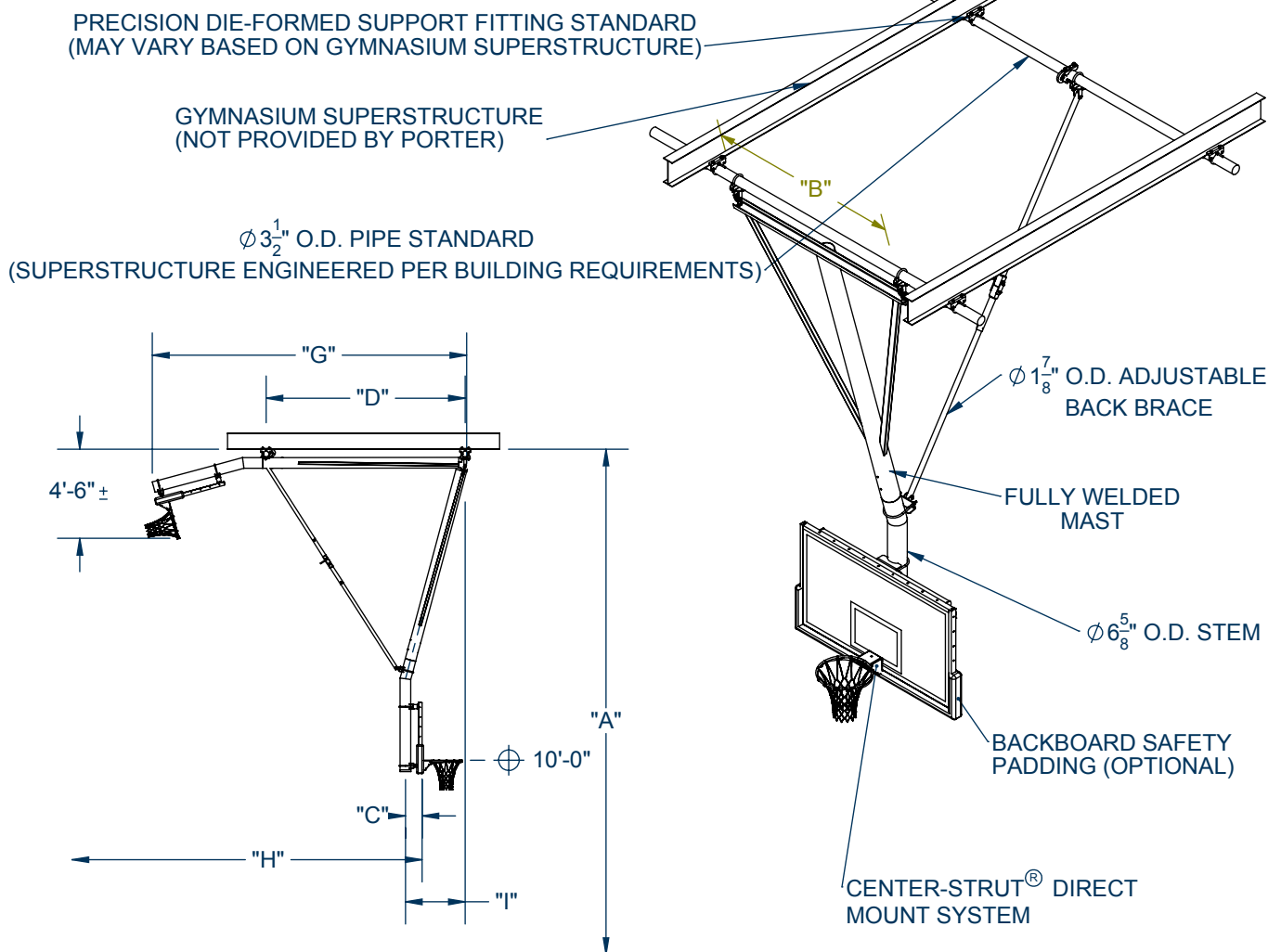
CEILING SUSPENDED, BACKWARD FOLD, REAR BRACED UNIT
20' TO 28' ATTACHMENT HEIGHT

Porter

WWW.PORTERATHLETIC.COM/FACILITY

BASKETBALL SPECIFICATION SHEET

B-952-28



"A" BOTTOM OF STRUCTURE ABOVE FINISHED FLOOR	"B" MAST CENTERS	"C" FACE OF BACKBOARD TO Ø MAST	"D" BACK BRACE DIMENSION (WITHIN 6" ±)	"G" HORIZONTAL FOLD DIMENSION	"H" MINIMUM FACE OF BACKSTOP TO WALL	"I" Ø OF MAST TO MAST HANGER
20'-0" to 21'-0"	5'-6"	SEE	5'-3"	11'-6"	10'-9"	1'-9"
21' 0-1/8" to 22'-0"	5'-6"		6'-3"	12'-6"	11'-6"	2'-0"
22' 0-1/8" to 23'-0"	6'-0"	"C"	7'-3"	13'-6"	12'-3"	2'-3"
23' 0-1/8" to 24'-0"	6'-0"	DIMENSION	8'-3"	14'-6"	13'-0"	2'-6"
24' 0-1/8" to 25'-0"	6'-6"		9'-3"	15'-6"	13'-9"	2'-9"
25' 0-1/8" to 26'-0"	6'-6"	CHART	10'-4"	16'-6"	14'-6"	3'-0"
26' 0-1/8" to 27'-0"	7'-0"		11'-4"	17'-6"	15'-3"	3'-3"
27' 0-1/8" to 28'-0"	7'-0"		12'-4"	18'-6"	16'-0"	3'-6"

"C" DIMENSION CHART- FACE OF BACKBOARD TO CENTERLINE OF MAST			
BACKBOARD MODEL NUMBER	DESCRIPTION	WITHOUT HEIGHT ADJUSTER	WITH HEIGHT ADJUSTER
00208000	RECTANGULAR GLASS	10-1/8"	12-11/16"
00216000	RECTANGULAR FIBERGLASS	9-7/8"	12-7/16"
00228300	RECTANGULAR WOOD	9-5/16"	11-7/8"
00234300	FAN ALUMINUM	9-5/16"	11-7/8"
00267698	FAN FIBERGLASS	9-1/4"	11-13/16"

- _____ - 90952000 CEILING SUSPENDED, BACKWARD FOLD, REAR BRACED UNIT
- _____ - BACKBOARD SELECTION
- _____ - GOAL SELECTION
- _____ - PADDING SELECTION

90952000 - BACKWARD FOLD BACKSTOP

CEILING SUSPENDED, BACKWARD FOLD, REAR BRACED UNIT
20' TO 28' ATTACHMENT HEIGHT

SPECIFICATIONS

Basketball backstop shall consist of a main center mast of 6-5/8" O.D. heavy-wall structural steel tube with diagonal side sway braces of 2-1/2" x 1-1/2" rectangular steel tubing. Ends of diagonal brace tubes shall be fully welded to main mast. The 6-5/8" O.D. main stem of the drop frame shall be suspended diagonally from the superstructure with a 15° angle and a 4'-6" long vertical member for attachment of a backboard. Top horizontal mast member to be of a heavy 4" structural channel to support adjustable suspension hangers. Mast shall be fully welded and suspended by adjustable hangers (2) to provide for precise plumbing of frame during installation. The 15° camber of the main drop frame will properly weight lock unit in the playing position.

Goal shall mount directly through backboard and into a heavy structural steel Center-Strut® weldment which shall be clamped to the vertical 6-5/8" O.D. center support to eliminate any strain on backboard should a player hang on the front mounted goal (conforms to the NCAA latest rules). All fittings shall be attached to the 6-5/8" O.D. vertical drop tube by heavy 1/4" thick precision saddle die-cut formed steel fittings secured in place by 5/8" diameter 'U'-Bolt type hardware.

Backstop to operate with a 1-7/8" O.D. rear brace assembly with a folding knee joint. Knee joint to incorporate an internal torsion spring design to lock brace assembly firmly in playing position. Hoist cable shall automatically disengage brace knee joint during the hoist cycle through a three-pulley system.

Backstop shall be supported from pipe anchored to roof framing members by precision die formed support fittings or custom attachments as required. All cap screws shall be rated a minimum SAE Grade 5. Grade 2 cap screws will not be approved as equal. Bridged pipes may be required when spans exceed 12'.

All metal parts shall be powder coated. See swatch card SMPL00048024 for standard color options. (contact Porter for custom color requests)

Backstop provided with specified backboard and goal (see B-200 for options).

See winch specifications for more information on included Porter winch system and control options. (manual- see B-700, electric- see B-701)

WARRANTY

- No. 900 Center-Strut® series backstop structure comes with a 25 year limited warranty.
- Limited Lifetime warranty on all Porter backboards when used in conjunction with the No. 900 Center-Strut® series backstop.
- Other components may be covered by their own warranty (see corresponding specifications for more details).

OPTIONAL ITEMS (SEE SPECIFICATION SHEETS FOR DETAIL)

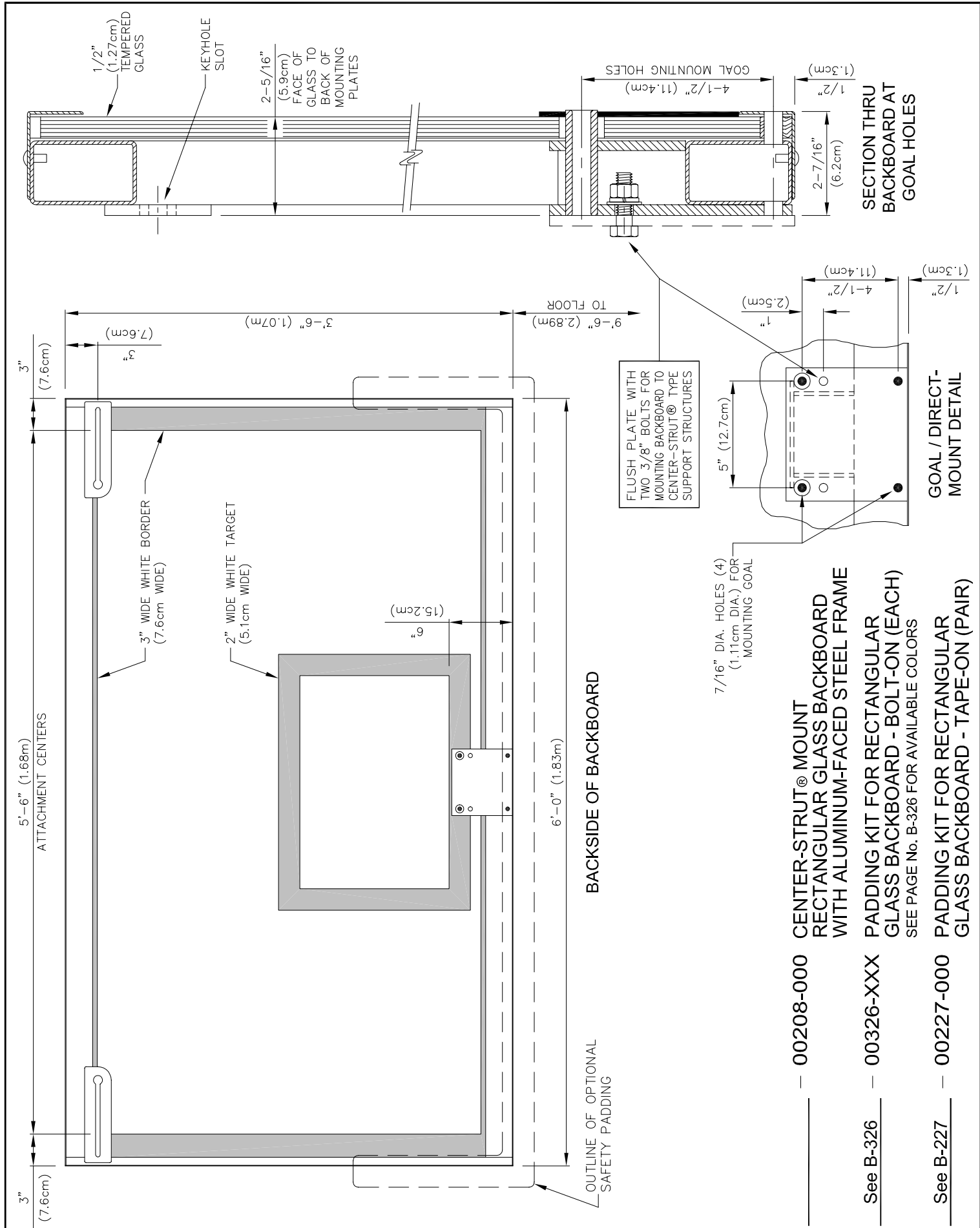
- Backboard safety padding (see B-200)
- Height Adjuster (8' to 10' adjustable goal height) (see chart below)
- Saf-Strap (No. 10797100)


CENTER-STRUT® HEIGHT ADJUSTER

- | | | |
|---|--------------------------------|------------------------|
| • For Manual Operation, See Page No.: | B-900-506 (Rectangular Boards) | B-900-211 (Fan Boards) |
| • For Key Switch Operation, See Page No.: | B-901-506 (Rectangular Boards) | B-901-211 (Fan Boards) |
| • For Powr-Stick Operation, See Page No.: | B-902-506 (Rectangular Boards) | B-902-211 (Fan Boards) |
| • For Sportsonic® II Operation, See Page No.: | B-903-506 (Rectangular Boards) | B-903-211 (Fan Boards) |
| • For Powr-Touch Operation, See Page No.: | B-904-506 (Rectangular Boards) | B-904-211 (Fan Boards) |

LEED® SUBMITTAL INFORMATION

Credit	Measure
MRc4-Recycled Content	Post Consumer Average 25.0% Post Industrial 0%
MRc5-Regional Materials	Raw materials originate from multiple sources so origin point cannot be determined. Final Manufacturing/Assembly in Champaign, IL 61822



REVISION	DATE	PORTER® No.	00208-000	 <p>WORLD LEADER IN QUALITY SPORTS EQUIPMENT</p> <p>2500 S. 25th AVENUE BROADVIEW, ILLINOIS 60155 www.porter-ath.com</p>	DRAWING BY RJM
		CUSTOMER No.	3'-6" x 6'-0" CENTER-STRUT® MOUNT RECTANGULAR GLASS BACKBOARD WITH ALUMINUM-FACED STEEL FRAME		CHECKED BY EAS
© COPYRIGHT 1997 PORTER ATHLETIC EQUIPMENT CO. ALL RIGHTS RESERVED	DATE 6-1-1997		THIS PRINT IS THE PROPERTY OF PORTER ATHLETIC EQUIPMENT COMPANY AND MAY NOT BE REPRODUCED WITHOUT WRITTEN PERMISSION		PAGE No. B-208

— 00208-000 CENTER-STRUT® MOUNT
RECTANGULAR GLASS BACKBOARD
WITH ALUMINUM-FACED STEEL FRAME

— 00326-XXX PADDING KIT FOR RECTANGULAR
GLASS BACKBOARD - BOLT-ON (EACH)
SEE PAGE No. B-326 FOR AVAILABLE COLORS

— 00227-000 PADDING KIT FOR RECTANGULAR
GLASS BACKBOARD - TAPE-ON (PAIR)

See B-326

See B-227

SPECIFICATIONS

PORTER No. 00208-000 CENTER-STRUT® MOUNT **3'-6" x 6' RECTANGULAR GLASS BACKBOARD** **WITH UNITIZED STEEL FRAME**

Backboard shall be 3'-6" x 6'-0" to meet all NCAA, NFHS and professional requirements.

Backboard frame shall be of a welded, unitized construction fabricated from heavy wall rectangular steel tubing, aluminum-faced for professional appearance. Unitized frame shall be designed for use only on direct goal mounting (Center-Strut®) type support structures.

Unitized frame shall be designed to allow the bottom two goal mount holes to pass beneath the glass section to further alleviate stress on the glass. Backside of goal mount structure is provided with two mounting holes and hardware to independently secure backboard to a direct mount goal feature which relieves all stress and shock on the backboard frame conforming to the latest NCAA Rules. Backboard frame shall be furnished with heavy steel gusset plates in the top two corners incorporating keyhole slots for mounting the backboard to direct-mount type support structures. Rear backboard frame shall be finished in a durable neutral gray powder coated finish.

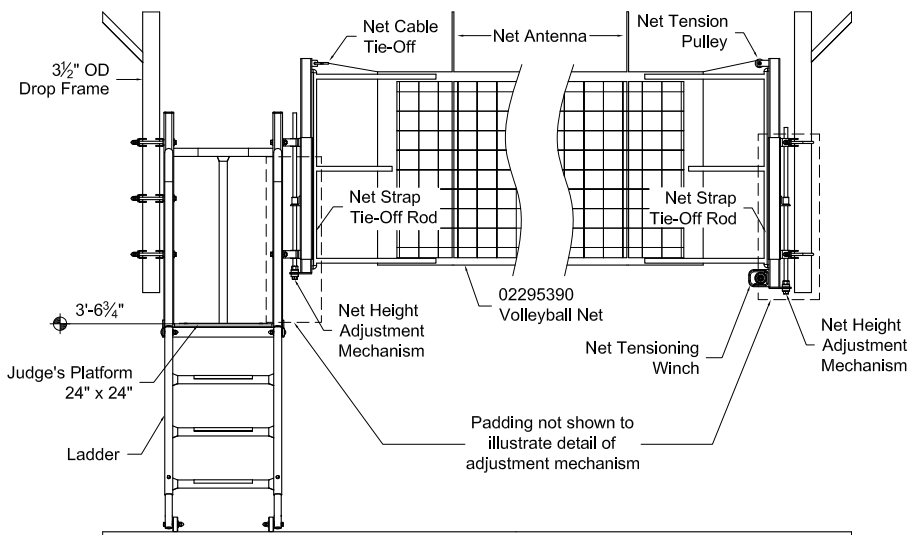
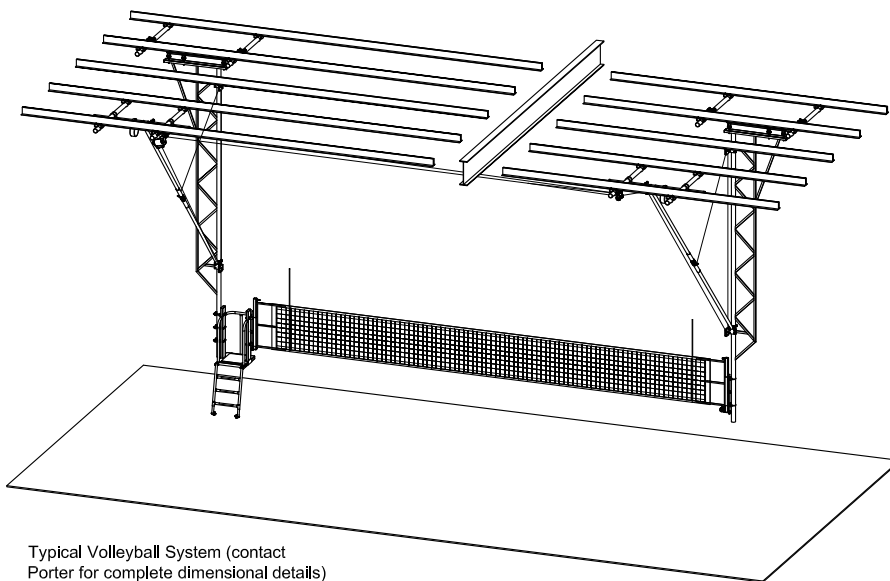
Glass shall be provided in 1/2" thick, fully tempered (heat-treated) glass section with uniform load and impact strength. Official white border and target area is "fired in" permanently on front side of glass section so that it cannot wear away. Glass section shall be secured to unitized rear frame by means of an attractive, L-shaped brushed aluminum extrusion for optimum durability. Front perimeter frame shall be secured to unitized rear frame with structural truss head rivets. Glass section shall be fitted with shock absorbing neoprene material to cushion and protect the glass section. Goal mounting holes (4) to be on standard 5" (horizontal) x 4-1/2" (vertical) mounting centers (for use with Porter Model No. 00221-H00, 00223-000, 00225-000 or 00245-500 goals).

Backboard protected by a limited lifetime warranty when installed on Porter Center-Strut® support systems.

OPTIONAL ITEMS TO SPECIFY

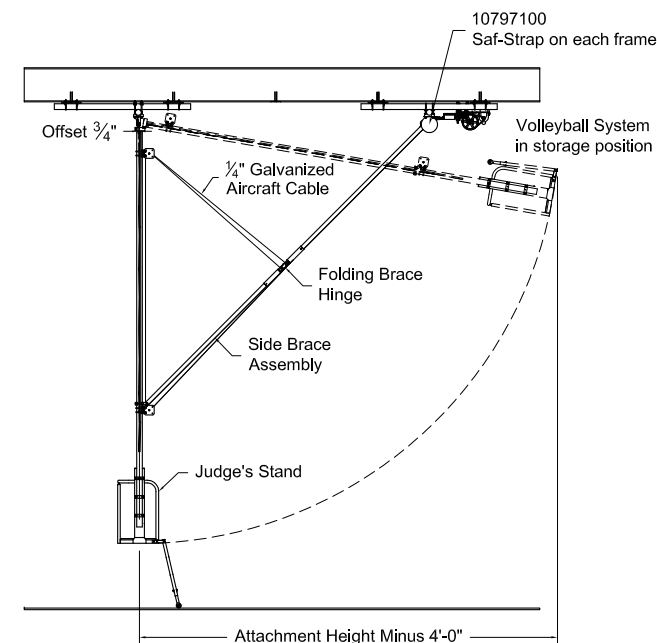
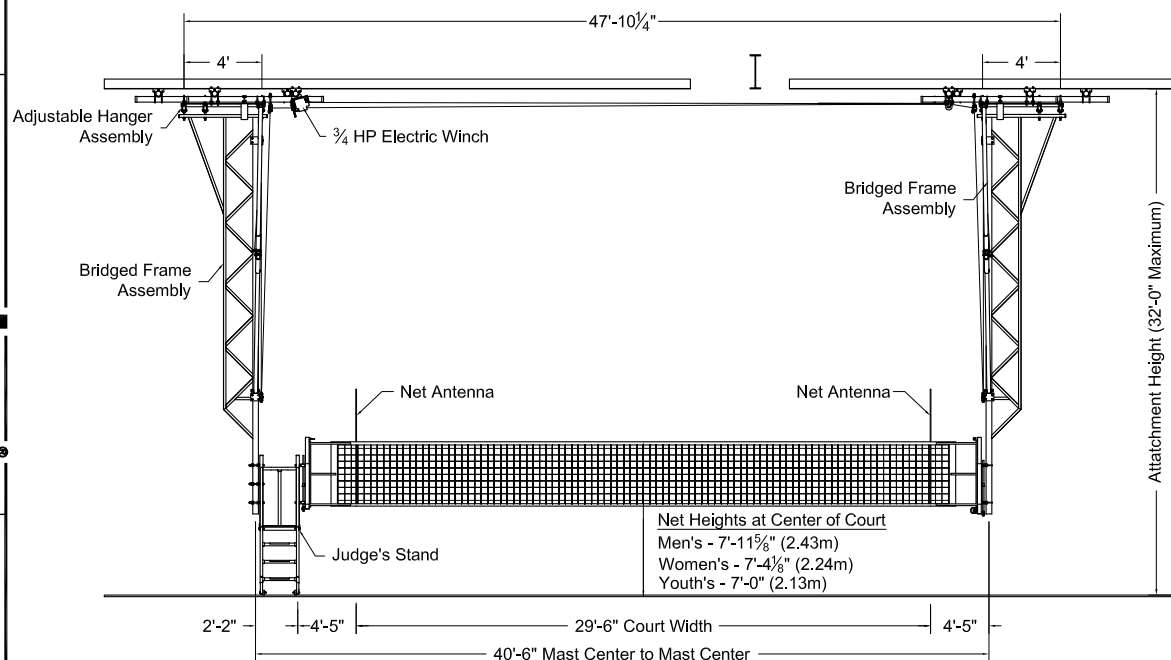
- See Page No. B-326 for specifications on Porter No. 00326-XXX Backboard Padding Kits.
- See Page No. B-227 for specifications on Porter No. 00227-000 Backboard Padding Kit.

91920-100
POWR-NET® COMPETITION-TYPE OVERHEAD
SUPPORTED FOLD-UP VOLLEYBALL SYSTEM



- 91920-100 POWR-NET® COMPETITION-TYPE OVERHEAD
SUPPORTED FOLD-UP VOLLEYBALL SYSTEM

- SELECT COLOR OF PADDING FROM THE FOLLOWING:
Light Blue, Royal Blue, Red, White, Orange, Yellow Gold, Tan,
Gray, Maroon, Purple, Black, Navy Blue, Kelly Green, Dark Green



SPECIFICATIONS

PORTER No. 91920-100 POWR-NET® OVERHEAD SUPPORTED FOLD-UP TYPE VOLLEYBALL SYSTEM WITH JUDGE'S STAND **(PATENT No's. 6,511,391; 6,776,733)**

System shall be designed for facilities where floor sleeves or anchors are undesirable and frequent volleyball court set-up is a requirement. (Systems with any type of mechanical floor attachments will not be approved as equal.)

System shall consist of two (2) vertical drop-frame units with folding side brace assemblies to automatically fold entire unit (including judge's stand, net, antennas, padding, etc.) to the ceiling with a single electrically operated winch. As the system folds into the storage position, it shall release the tension on the net automatically.

Vertical frames shall be fabricated into a unitized unit with a 3-1/2" O.D. heavy-wall drop-tube bridged with truss-type webbing of 3/4" x 1-1/2" rectangular tubing to provide superior stability. Top of frames shall be supported by special adjustable hangers (three each frame) to provide for precise plumbing of frame during installation. Support hangers shall be offset 3/4" from centerline of vertical frames to properly weight lock entire system in playing position.

Vertical drop frame assemblies shall be fitted with a net-tensioning winch (Powr-Winch®), incorporating a heavy-duty, self-locking ratchet mechanism with a compression, disc-brake type release mechanism to eliminate sudden release of the cable tension when removing the net. Both frames shall also be furnished with a 3/4" dia. Acme screw-type height adjustment mechanism to easily adjust the net to men's 7' 11-5/8" (2.43m), women's 7' 4-1/8" (2.24m) and youth's 7' 0" (2.13m) official net heights for competition without loosening the net tension. Height setting indicators shall be visible from the side of each frame.

Each vertical frame shall be laterally braced and locked in playing position with a special diagonal brace (minimum 1-7/8" (4.8cm) O.D.) assembly, incorporating a folding knee-joint type mechanism. Knee joint to incorporate precision investment castings with a special internal torsion spring design to lock brace assembly firmly in playing position. Knee joint assembly shall be designed with an in-line pivot design to maximize system stability during aggressive play. Knee joint is easily disengaged by upward force of the hoist cables. All metal parts shall be painted one (1) coat of flat black enamel. (If special painting or colors are required, specify final painting by painting contractor.)

System shall be folded to the overhead storage position by means of a 3/4 H.P. electric winch (see Page No. B-706-1 for complete specifications) with integral up-and-down limit switches. Hoist cable system shall be 1/4" dia. galvanized aircraft cable with a 7,000-lb. ultimate breaking strength operating through 4" dia. swivel pulley assemblies rated at a minimum 9,000-lb. load rating. Winch shall be controlled by a special dual-keyed, flush wall mounted momentary key switch, which cannot be instantly reversed, providing a safety provision and preventing damage to the winch or support system. System may also be operated with an optional wireless (Sportsonic® II) control system. (Specify and add specifications on page No. B-2002.)

Wiring of all electrical components shall be in accordance with local area codes, and in accordance with manufacturer's instructions. All conduit, wiring, junction boxes, and components not specified herein shall be furnished and installed by the electrical contractor.

Each folding support frame shall be furnished with an inertia-sensitive type safety lock (No. 10797-100 Saf-Strap) to automatically lock system in position at any time in storage or during the raising or lowering cycle, should there be a possible malfunction of the hoisting system. (See Page No. B-10797 for complete details and specifications.)

System shall include a judge's stand platform for official volleyball competitions. Judge's stand shall be secured to one of the vertical drop-frame supports and shall fold in place to the overhead storage area with the entire system. Net adjustment mechanism shall attach to the courtside of the judge's stand frame to provide maximum visibility of the net and game action. Judge's stand shall provide an approximate 24" (60.9cm) square platform located 3'-6" (1.07m) above the playing surface with 1-5/8" (4.2cm) diameter, tubular handrails located on three sides of the platform at a height of 3'-0" (91.4cm). Access ladder shall be provided as part of the unitized frame for ease of access to and from the platform position. Judge's stand shall be a completely welded, unitized design, finished in a durable, black powder-coat finish.

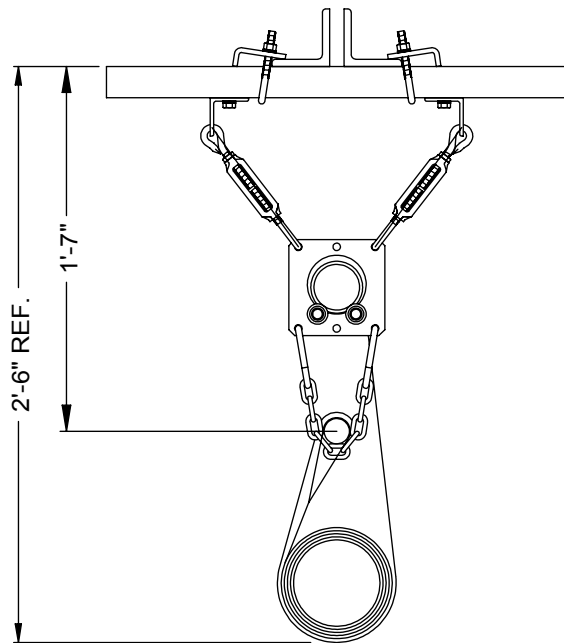
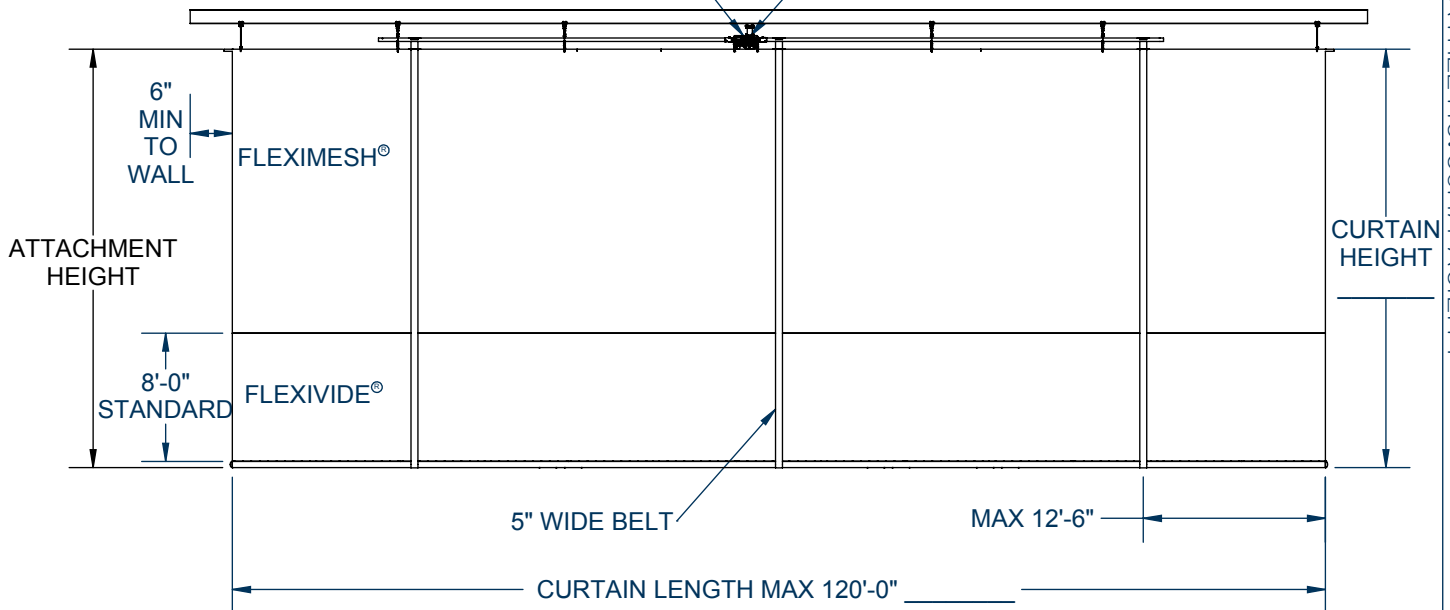
Lower ends of folding support frames, including the judge's stand, net tension and height adjustment mechanisms shall be fully padded to a height of 6'-0" (1.83m) above the playing floor to comply with all competition requirements. (Padding colors are available in light blue, royal blue, white, orange, yellow gold, tan, gray, maroon, purple, black, navy blue, kelly green or dark green – specify.) System shall be furnished complete with No. 02295-390 Powr-Line® volleyball net and No. 02296-100 net antennas. (See Page No's. V-2295-19 and V-2296-1 for complete specifications.)

90675000 - ROLL-UP GYMNASIUM DIVIDER CURTAIN

MAXIMUM SIZE 120'-0" LONG AND 3000 SQ. FT.

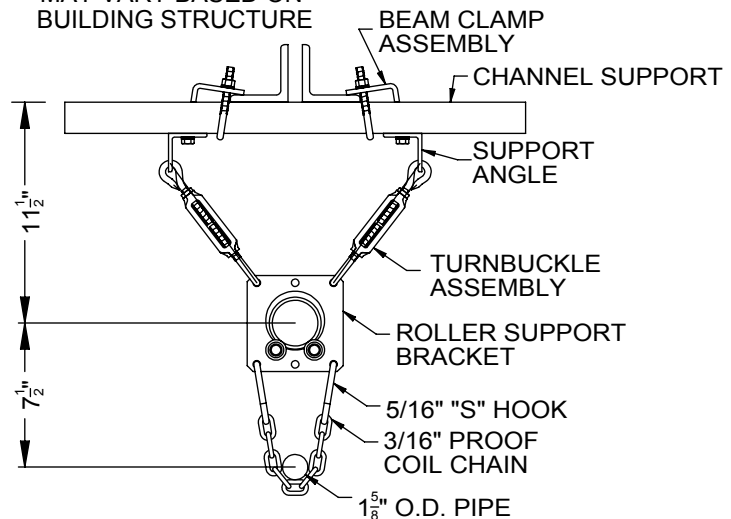
ELECTRICIAN NOTE:
MOUNT 4" SQ. JUNCTION BOX
WITHIN 3'-0" OF ELECTRIC WINCH

WINCH AT CENTER STANDARD,
AVAILABLE AT END FOR CURTAINS
LESS THAN 100' LONG



**CURTAIN IN
STORED POSITION**

STANDARD ATTACHMENT,
MAY VARY BASED ON
BUILDING STRUCTURE



**SECTION AA
ROLLER SUPPORTS**

- 90675000 ROLL-UP DIVIDER CURTAIN

- CURTAIN HEIGHT
- CURTAIN LENGTH
- FLEXIMESH® SELECTION (SEE SMPL00048022)
- FLEXIVIDE® SELECTION (SEE SMPL00048021)

90675000 - ROLL-UP GYMNASIUM DIVIDER CURTAIN

MAXIMUM SIZE 125'-0" LONG AND 3000 SQ. FT.

SPECIFICATIONS

The 675 Curtain is available in the following configurations:

- Solid & Mesh (as specified below)
- All Solid
- All Mesh

Gym divider curtain shall be bottom roll-up type wide by high and shall be in one continuous section as manufactured by Porter Athletic. Lower section of curtain shall be 8'-0" high Flexivide® solid vinyl, polyester reinforced 18 oz. vinyl coated fabric (per square yard, containing antibacterial, fungi-resistant and flame-retardant chemicals to meet requirements of ASTM E-84 Class A Rating (25 Flame Spread, 450 Smoke Development), and NFPA-701 large scale, ULC S-109 large and small scale, and State of California test requirements). Upper section of curtain shall be of Fleximesh®, designed for air breathing areas in gym dividers, tennis screens or other custom air transfer applications. Fleximesh® material shall be an open polyester type interlocking grid weave coated with polyvinyl chloride with an approximate 45 to 50% open area. Weight of material – 7 oz. per square yard. Flame resistant (meets California Health and Safety Code Section 13115 Large and Small Scale Test, Fed. Std. 191A, CPAI-84, NFPA 701, BIFMA F-1-78, MSHA-155). Fleximesh® begins at a standard height of 8'-0" above the floor (custom heights available). Curtain may also be furnished in all-solid (Flexivide®) or all-mesh (Fleximesh®) if required – specify.

Top of curtain shall be fabricated with a pocket to conceal a continuous 1-5/8" O.D. steel tube extending the full length of the fabric to ensure proper support. Tube shall be supported from roller support assemblies on adjustable chains not exceeding 14'-0" centers.

Divider curtain shall be neatly and compactly rolled on a 4-1/2" diameter batten tube concealed in the bottom section of the vinyl fabric. Rolling action shall be accomplished by means of multiple hoist belts not to exceed 25'- 0" on center. Belts shall be of a heavy, industrial grade polyester fabric 5" in width. One side of hoist belts shall be provided with a special friction surface, to provide rolling friction against the vinyl fabric in order to facilitate the rolling action of the bottom batten to roll the fabric compactly and to eliminate wrinkles. Opposite side of hoist belts shall be provided with a smooth surface, to allow for easy cleaning.

Hoist belts shall terminate on continuous zinc-plated 2-3/8" O.D. tube line shaft arrangement. Line shaft shall turn in special roller support assemblies equipped with four steel ball bearing wheel rollers. Each roller support assembly shall be positioned adjacent to a hoist belt termination. Support assemblies shall be secured to structural roof framing supports by means of turnbuckles and support chains to provide structural integrity and accommodate all slopes or building camber.

See winch specifications for more information on included Porter winch system and control options. (see C-701)

All metal parts not zinc-plated shall be powder coated. See swatch card SMPL00048024 for standard color options. (contact Porter for custom requests)

Divider curtain vinyl and mesh to be low emitting and certified to meet all the requirements of the GREENGUARD Children & Schools and GREENGUARD certification program. Manufacturer to provide certificate and/or test results upon request.

OPTIONAL SPECIFICATIONS

- Line Shaft Safety Lock (No. 10796000): Curtain shall incorporate internal centrifugal force type lock mechanism into the line shaft to automatically lock equipment if lowering speed surpasses expected and safe velocity. two shall be required for curtains with line shafts exiting both sides of winch.

WARRANTY

- 675 curtains come with a 1 year limited warranty.
- Other components may be covered by their own extended warranty.

ACCESSORIES

- Floor Hockey Curtain Pad (No. 00357012)
- Audible Motion Alarm (No. 12005100)

COLOR OPTIONS

FLEXIVIDE®

- See SMPL00048021

FLEXIMESH®

- See SMPL0048022

LEED® SUBMITTAL INFORMATION

Credit	Measure
MRc4-Recycled Content	Post Consumer Average 10.0% Post Industrial 0%
MRc5-Regional Materials	Raw materials originate from multiple sources so origin point cannot be determined. Final Manufacturing/Assembly in Champaign, IL 61822

Scoreboard Controllers » MP-72



MP-72

Multiple sport wireless controller, which features improved reliability and substantially better operating range than the competition's standard of 1,000 feet. MP-72 has been tested at a range of 1,500 feet for outdoor use and 500 feet indoors. All sports control radios feature a 900 MHz operating speed and 16-channel selection. The MP-72 utilizes Fair-Play's revolutionary frequency hopping method, which enhances immunity to radio interference.

This control stores up to six (6) sport/scoreboard configurations for ease of operation and flexibility. Jumping clock feature allows 1/10th of a second to be displayed on scoreboards in the last minute of a game.. In the last minute of the game the seconds "jump" to the left and 1/10th seconds display on the right. Easy-to-read, two-line LCD information display on the control showing time and other data by instant recall. Control has a memory circuit retaining game information in case of loss of power.

Power	120v
Battery Powered	Yes (optional)
Wireless	Yes
FCC Approved	Yes
Protective Case	Yes (optional)