

## SPECIFICATIONS

<b>THICKNESS</b>	1.031 in (26.2 mm)	
<b>GRADES</b>	Select & Better, Pacific and Instinct	
<b>WIDTHS</b>	1 3/4 in (44.45 mm)	2 1/4 in (57.15 mm)
<b>TOLERANCE</b> on width (+/-)	0.010 in (0.254 mm)	
<b>LENGTHS</b> minimum and maximum	<i>Select &amp; Better grade</i> 12 in to 81 in (305 mm à 2057mm)	<i>Pacific and Instinct grades</i> 10 in to 81 in (254 mm à 2057 mm)
<b>MOISTURE CONTENT</b>	6 % to 8 %	
<b>RELATIVE HUMIDITY</b> <b>REQUIRED</b>	37 % to 45 %	

## SPECIES

	<b>JANKA TEST*</b> (lbs/in)	<b>FSC®</b> <b>Availability</b>	<b>WEIGHT</b> (lbs/ft²)	<b>WEIGHT</b> (sq/m²)
<b>MAPLE</b>	1450	yes	3.98	19.49
Ref. : A.Alden, H., Hardwoods of North America, USDA, General Technical Report, FPL-GTR-83				

\*The higher the number, the harder the wood. The Janka hardness test measures the force required to embed 0.444 steel ball into wood.

## PADS

<b>Square pad</b>		3/8 in thick (9.53 mm) 3 in (76.2 mm) long x 2 1/4 in (57.15 mm) wide
<b>Round pad</b>		7/16 in thick (11 11 mm) 2 in (50.8 mm) diameter
<b>Conical, round</b>		3/4 in thick (19.05 mm) diameter (1 1/2 in thick (38.1 mm) diameter

## WARRANTY

Lifetime structural warranty

## INSTALLATION

Nailed or stapled down (flooring nails or staples must be of 1 1/2 in (38 mm) long)

## SANDING



Up to 10 times

## PACKAGING

	<b>Quantity per Bundle</b>	<b>Bundle Size</b> <b>(length x width x height)</b>	<b>Quantity per Skid</b>	<b>Skid Size</b> <b>(length x width x height*)</b>
<b>1 3/4 in</b> <b>(44.45 mm)</b>	14.48 ft² (1.35 m²)	85 1/2 in x 9 3/4 in x 3 1/4 in (217 cm x 24.9 cm x 8.1 cm)	752.96 ft² (70.20 m²)	85 1/2 in x 39 in x 45 1/8 in (217 cm x 99.6 cm x 114.62 cm)
<b>2 1/4 in</b> <b>(57.15 mm)</b>	15.06 ft² (1.39 m²)	85 1/2 in x 9 3/4 in x 3 1/4 in (217 cm x 24.9 cm x 8.1 cm)	783.12 ft² (72.80 m²)	85 1/2 in x 39 in x 45 1/8 in (217 cm x 99.6 cm x 114.62 cm)

\*Height with block

## CHARACTERISTICS AND ADVANTAGES

PG Hardwood Flooring Inc. manufactures unfinished hardwood flooring boards for factory finishing or finishing on the premises once installed. Backed by more than 38 years of experience, PG chooses only the very best hardwood suppliers and applies the highest industry standards to grading in order to deliver exceptional quality flooring. PG, an industry reference, uses only the finest hardwood species.

### Consistency

Thanks to cutting-edge equipment, PG is an industry leader in the precision of board thickness. In other words, PG® flooring boards are the industry's Smoothest, most equal boards when compared to each other. In addition, very strict classification standards are applied at PG in compliance with the most stringent tolerance standards in the industry. The result is a truly deficiency-free consistent grade.

### Raw Material Optimization

PG has embraced greening, seeking to do more with less. Optimization systems based on computer vision allow us to obtain the best yield ever achieved by a North American manufacturer. More boards using fewer trees: now that is a refreshing goal!

### Flexibility

To deliver high-quality products, our equipment combines infinite flexibility in the definition of lists of possible cuts and restriction of defects with efficient, consistent production of all product types.

Each purchase of one of our flooring products will offer you peace of mind.

# GYMNASIUM FLOORING

## EFFICIENTS - FONCTIONALS - RESILIENTS

### At PG Hardwood Flooring we live up to our name.

PG Hardwood Flooring has been manufacturing hardwood flooring boards since 1979. When it comes to quality, we are very demanding, as we know that you are as well, and your satisfaction is extremely important to us. Using state-of-the-art equipment and cutting-edge technology, our mills produce only the highest quality hardwood flooring. PG Hardwood Flooring Inc. easily meets the grading standards of both the U.S. and Canadian flooring industry. Our hardwood boards are the perfect choice for either residential flooring or sports applications such as gymnasiums, racquetball courts and fitness centres, dance floors and stages. These installation guidelines provide minimal requirements. Please ensure compliance with legislation in effect in the country where the products are installed.

### DESCRIPTION

The contractor shall provide all labour, materials, tools and services to furnish, deliver and install a complete wood floor system, from the surface vapour proofing of the slab, when required, through the sanding and finishing, plus the installation of perimeter base mouldings and thresholds.

The general contractor shall provide a level, steel trowelled slab to a tolerance of plus or minus 1/8 in (0.3 cm) a 10 ft (3 m) radius and subject to the approval of the floor contractor. Moisture barriers must be adequate for the conditions. The concrete slab is to be depressed 2 1/8 in (5.4 cm) from the finish elevation.

### QUALITY ASSURANCE

#### Supplier Qualification

1. The supplier shall be PG Hardwood Flooring Inc.

#### Installer Qualifications

1. The flooring contractor shall be experienced in installing maple flooring systems.
2. Flooring materials must be allowed to acclimatize to building conditions on the job site in a dry, well ventilated area, not in contact with masonry. In areas where refrigerated air conditioning is used for temperature and humidity control, the wood is to be stored in air-conditioned space. The flooring shall be installed at moisture content not exceeding 8%, except in areas of constant high humidity where the moisture content of the flooring shall not exceed 10%.

### INSPECTION

- Inspect concrete subfloors for proper tolerance and dryness, and report discrepancies to the general contractor, in writing.
- All work required to put concrete subfloors in acceptable condition shall be the responsibility of the general contractor.
- Subfloors shall be broom cleaned by the general contractor.

### DELIVERY, STORAGE AND HANDLING

#### Delivery of material

1. Materials shall not be delivered or installed until all masonry, plastering, tile, marble and terrazzo work is completed. In addition, all overhead work, which includes installation of mechanical work, lighting, backstops, scoreboards, etc., shall be installed prior to delivery of materials. The building must be enclosed and weathertight, and the permanent heating and air conditioning installed and operating.
2. The subfloor shall be dry, free of foreign materials and turned over to the wood flooring contractor broom cleaned. Moderate room temperature of 72°F (21 °C) in the summer months and 65° (18 °C) in the winter months shall be maintained for a week preceding and throughout the duration of the floor installation. Humidity conditions in the building shall approximate the humidity conditions that will prevail when the building is occupied. Care should be taken to maintain the humidity level within the range of 37 to 45%.
3. The floor shall not be used before the finish has cured completely.

### FLOOR SANDING

- Machine sand with coarse, medium and fine paper to a smooth even, uniform surface.
- Remove sanding dust from entire surface by tack or vacuum.

### BASE INSTALLATION

- Install vent cove base anchored to walls with base cement.
- Use remoulded outside corners and mitered inside corners.

### MAINTENANCE

- Upon completion of floor installation, the owner, attendant, or individuals in charge and responsible for the upkeep of the building are to see to the care and maintenance instructions of PG Hardwood Flooring Inc.

#### Select & Better

Variations in tone from light brown to white. Sound knots 1/8 in (3 mm) and less. Sound mineral streaks less than 1/8 in (3 mm) by 1 1/2 in (38.10 mm). Bird's eye maple in light shades.

#### Instinct

All natural tones of this wood are allowed, from dark brown to light shades, including mineral streaks. Sound knots accepted. Bird's eye maple in dark shades.

#### Pacific

Mixture of Select & Better, and Instinct grades. All natural tones of this wood are allowed, from dark brown to light shades. Sound knots and bird's eye accepted.

#### Widths of 33/32 in (26.2 mm) maple boards:

1 3/4 in	x 33/32 in	(44.45 mm x 26.2 mm)
2 in	x 33/32 in	(50.80 mm x 26.2 mm)
2 1/4 in	x 33/32 in	(57.15 mm x 26.2 mm)

#### Widths of 25/32 in (19.8 mm) maple boards:

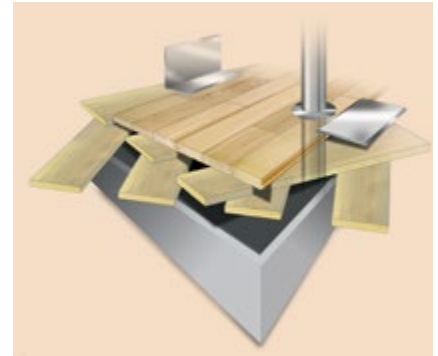
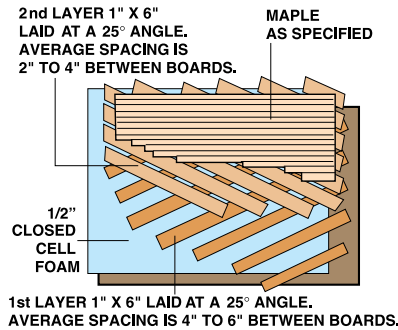
1 3/4 in	x 25/32 in	(44.45 mm x 19.8 mm)
2 in	x 25/32 in	(50.80 mm x 19.8 mm)
2 1/4 in	x 25/32 in	(57.15 mm x 19.8 mm)

#### Metric conversion:

1/16 in	1.6 mm	1/2 in	12.7 mm
1/8 in	3.18 mm	25/32 in	19.8 mm
1/4 in	6.35 mm	1 in	25.4 mm

## THE CROSS-AIRE FLOW FLOOR SYSTEM

The PG Cross-Aire Flow Floor System is a high quality floating floor system, and the only type of flooring that we manufacture featuring a special subfloor allowing criss-cross airflow. The solid subfloor installed over the entire surface, reducing dead spots and ensuring that flooring is even. The Cross-Aire Flow System provides maximum ventilation, and is an ideal replacement for worn-out padded sleepers, owing to its similar thickness. It is also an excellent substitute for existing synthetic floors. This innovative system ensures excellent resilience. Its closed cell foam underlayments serves as a vapour barrier that prevents water infiltration from concrete slabs.



## PRODUCTS / MATERIALS

### Moisture Protection

Vapour proofing: 1/2 in (1.3 cm) multi cellular, linear linked, closed cell polyethylene foam, nominal density of 2.0 PCF.

### Subfloor

Subfloor: 1 x 6 in (2.5 x 15 cm) or 1 x 4 in (2.5 x 10 cm) spruce, fir or pine, S2S nominal by random length, subfloor grade.

### Flooring

Tongue-and-groove fit hardwood boards, mixed grain, TGEM kiln dried northern hard maple, 25/32 in (19.8 mm) or 33/32 in (26.2 mm) thickness and 1 3/4 in (44.45 mm), 2 in (50.80 mm) or 2 1/4 in (57.15 mm) widths.

Select & Better, Instinct or Pacific grades.

### Fasteners

2 in (5 cm) epoxy coated staples or 2 in (5 cm) barbed cleats.

### Expansion Joints

Wall base: 4 in x 3 in (10 x 8 cm) heavy duty moulded, vented, rubber base with pre-moulded outside corners.

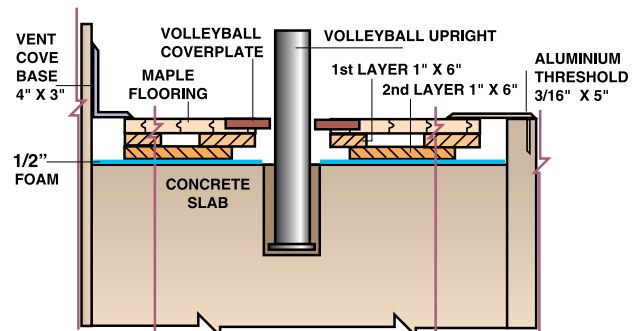
Mill finish aluminium threshold, 3/16 in x 5 in (0.5 x 12.7 cm) bevelled on both sides.

### Finish

Water-based or solvent based polyurethane sealant and finish.

## INSTALLATION

- Cover concrete slab with vapour proofing material, lapping joints 6 in (15 cm) and sealing with duct tape (optional).
  - Cover the entire slab with Cross-Aire foam.
  - Install first layer of 1 x 6 in (2.5 cm x 15 cm) subfloor diagonally along the length of the room at a 25° angle. The ends of the 1 x 6 in (2.5 cm x 15 cm) should be abutted and sides spaced an average 6 to 8 in (15 cm to 20 cm) between adjoining 1 x 6 in (2.5 cm x 15 cm). Provide 2 in (5 cm) expansion joints along the room perimeter and around all vertical obstructions.
  - The second layer of 1 in x 6 in (2.5 cm x 15 cm) boards should be laid in the opposite direction of the first, but also at a 25° angle along the length of the room so that no end joints coincide with any end joints of the first layer. The ends of the second layer should be abutted; the sides spaced 2 in to 4 in (5 cm to 10 cm) in between the adjoining 1 in x 6 in (2.5 cm x 15 cm) and secured to the first layer with nails or staples at each intersection. Provide 2 in (5 cm) expansion joints along all walls and around permanent obstructions.
- OPTION:** A single 1 in x 6 in (2.5 x 15 cm) border strip may be installed as part of the second layer of subflooring at right angles to the finished flooring along the floor perimeter.
- Install finished flooring parallel to the main playing court using a stapler or power nailer. Joints between flooring strips should allow expansion and contraction of boards, depending on ambient humidity.



## CROSS-AIRE FLOW TEST REPORT

**USSL Reference:** Job # 474-5A

**Subject:** Gym floor - Test according to DIN 18032, Part 2

**Name of surface:** Cross-Aire Flow, (Test Sample #5A)

**Location of test:** Warehouse, Columbus, OH

**Date of test:** August 16, 1994



Dipl. Ing Hans J. Koltitzus  
Director of Testing

### 1. Design of Surface

#### Finish flooring:

Hard maple board flooring  
25/32 in (19.8 mm) x 2 1/4 in (57.15 mm),  
random lengths

#### Load distribution:

2 layers of 1 in x 6 in (2.5 cm x 15 cm) nominal  
boards

#### Slab:

Sub flooring Grade #2

#### Pads:

1 layer 1/2 in (1.3 cm) polyethylene foam,  
density rating of 2 lb per ft<sup>3</sup>

The maple board flooring is attached to the top layer of boards with 2 in (5 cm) staples. The top layer of boards is gapped 2 in (5 cm) along the lengths, is fixed to the bottom layer of boards with 1 in (2.54 cm) staples and lies at a 25° angle to the board flooring. The bottom layer of boards is gapped 6 in (15 cm) apart, resting on the foam padding of 1/2 in (1.3 cm) at a 25° angle to the board flooring. The seams of the foam padding are joined with duct tape.

### 2. Performance of Tests

Tests were performed according to DIN 18032, Part 2. They were conducted in a warehouse used by PG Hardwood Flooring Inc. in Columbus, OH. Temperatures during testing ranged from 23 to 26 degrees Celsius.

### 3. Test Results

The first table summarizes test results and compares them to requirements of Part 2 of the DIN 18032 standard.

### INDIVIDUAL TEST RESULTS

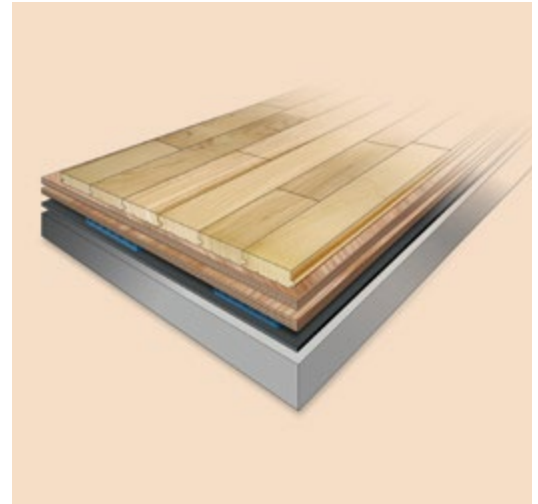
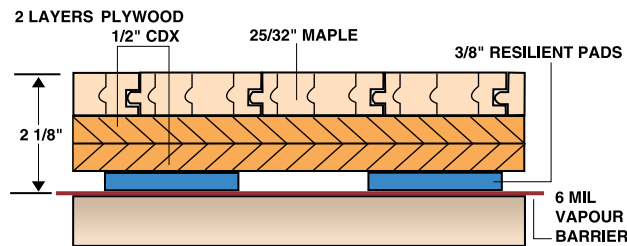
TEST		Localisation and numbers of test boards					Mean Value
		1 and 6	2 and 7	3 and 8	4 and 9	5 and 10	
<b>Force Reduction (44.4)</b>	<b>KA 55 %</b>	55.7 54.2	56.1	53.2	59.1	56.8	55.9
<b>Standard Deformation (StVv)</b>	<b>mm</b>	2.43 2.25	2.21	2.58	2.54	2.23	2.37
<b>Deformation Through (Axis 1)</b>	<b>%</b>	20.3 22.5	16.1	16.3	21.6	22.3	19.9
<b>W 500 (Axis 2)</b>	<b>%</b>	5.2 4.7	5.5	4.6	5.0	5.1	5.0
<b>Rolling Load Without Damage</b>	<b>N</b>			1500			1500
<b>Ball Rebound (RB)</b>	<b>%</b>	91.7 97.6	94.5	97.2	32.2	94.4	94.7

### TESTS RESULTS AND REQUIREMENT OF DIN 18032, PART 2

TEST		Test Results (Mean Values)	Requirement for Area-Elastic Sports Hall Floors
<b>Force Reduction</b>	<b>%</b>	KA 55 = 55.9	Min. 53.0
<b>Standard Deformation</b>	<b>mm</b>	StVv = 2.4	Min. 2.3
<b>Deformation Through</b>	<b>%</b>	W 500 = 12.5	Max. 15
<b>Rolling Load Without Damage</b>	<b>N</b>	R1 = 1500	Min. 1500
<b>Ball Rebound</b>	<b>%</b>	BR = 94.7	Min. 90

## PG AIRE - I FLOOR SYSTEM

The versatile PG Aire-I Floor System consists of two layers of 1/2 in (1.3 cm) CDX plywood with 3/8 in (1 cm) resilient pads affixed to the bottom, and finish flooring attached to top. The double layer of 1/2 in (1.3 cm) CDX plywood provides dimensional stability, virtually eliminating dead spots and creating strength and good ball bounce. The resilient pads give the system excellent shock absorbercy. Since PG Aire-I is free floating, the pads lift the structure up, creating airflow beneath the system. This combination of components makes this system suitable for a multitude of situations, from heavy-duty applications such as gymnasiums and multi-purpose rooms, to classrooms, dance floors, racquetball courts and commercial applications.



## PRODUCTS / MATERIALS

### General

The information contained in this specification details a low profile cushioned floor system comprised of two layers of 1/2 in (1.3 cm) CDX plywood attached at 45° angle to each other with PG Aire-I pads attached to the bottom layer and northern hard maple board flooring nailed onto the top layer.

### Flooring

Tongue-and-groove fit hardwood boards, mixed grain, TSEM kiln dried northern hard maple, 25/32 in (19.8 mm) or 33/32 in (26.2 mm) thickness and 1 3/4 in (44.45 mm), 2 in (50.80 mm) or 2 1/4 in (57.15 mm) widths.

Select & Better, Instinct or Pacific grade.

### Moisture Protection

Vapour barrier: 6 mil polyethylene.

### Pads

Resilient pads approximately 3/8 in (1 cm) thick by 2 1/4 in (57.15 mm) wide by 3 in (8 cm) long.

### Subfloor

Panels should be 1/2 in (1.3 cm) CDX plywood or 7/16 in (1.1 cm) OSB.

### Fastener

Tack nails should be 1 in (2.5 cm) cleats or 1 in (2.5 cm) 13-gauge staples. Flooring nails should be 2 in (5 cm) cleats or 2 in (5 cm) staples, barbed and epoxy coated.

### Expansion Joints

Wall base: 4 in x 3 in (10 cm x 8 cm) heavy duty moulded vented cove base with remoulded outside corners.

Aluminium thresholds shall be 3/16 x 5 in (0.5 cm x 12.7 cm), bevelled both sides, mill finish.

### Finish

Water-based or solvent based polyurethane sealant and finish.

## INSTALLATION

- Cover concrete slab with polyethylene, lapping and sealing joints a minimum of 6 in (15 cm).
- PG Aire-I pads should be attached to the underside of the first layer of 1/2 in (1.3 cm) CDX plywood 12 in (30 cm) centre-to-centre, 32 pads per 4 ft x 8 ft (1.2 m x 2.4 m) sheet. Place the first layer of 1/2 in (1.3 cm) CDX plywood with its long dimension parallel to the length of the room.
- Tack the second layer of 1/2 in (1.3 cm) CDX plywood, without pads, at a 45° angle or at right angles to the first layer. No joint in the second layer should coincide with a joint in the first layer. Allow 3/4 in (0.6 cm) between panels at sides and ends and a 2 in (5 cm) expansion joint at walls and vertical obstructions. For racquetball court installations, expansion should be 3/4 in (1.9 cm) at sides and ends.
- Machine nail strip flooring at right angles to the 1/2 in (1.3 cm) CDX plywood. Provide adequate expansion at regular intervals across floor during installation, dictated by the average humidity conditions of the area and according to manufacturer recommendations. Provide 2 in (5 cm) expansions joints at wall perimeters (3/4 in (1.9 cm) for racquetball court installation) and metal thresholds at the doorways.

## PG AIRE-I TEST REPORT

**USSL Reference:** Job # 474-4B

**Subject:** Gym floor - Test according to DIN 18032, Part 2

**Name of surface:** PG Aire-I Floor System (Sample #4B)

**Location of test:** Warehouse, Columbus, OH

**Date of test:** August 17, 1994



Dipl. Ing Hans J. Koltizus  
Director of Testing

### 1. Design of Surface

#### Finish flooring:

Hard maple board flooring  
Grade - Select & Better  
25/32 in (19.8 mm) x 2 1/4 in (57.15 mm)  
Random lengths

#### Subfloor:

2 layers CDX plywood sheets  
4 ft x 8 ft x 1/2 in (1.2 m x 2.4 m x 1.3 cm) nominal

#### Pads:

3/8 in (1 cm) PG Aire Resilient

The maple board flooring is attached to the top layer of plywood with staples. All plywood sheets are perimeter gapped 1/2 in (1.3 cm). The top plywood layer runs at 45° angle to the bottom layer and is attached with staples 12 in (30 cm) centre-to-centre. The resilient pads are stapled to the bottom layer of plywood at 12 in (30 cm) centre-to-centre at a rate of 32 pads per full plywood sheet.

### 2. Performance of Tests

Tests were performed according to DIN 18032, Part 2. They were conducted in a warehouse used by PG in Columbus, OH. Temperatures during testing ranged from 23 to 26 degrees Celsius.

### 3. Test Results

The first table summarizes test results and compares them to requirements of Part 2 of the DIN 18032 standard.

### INDIVIDUAL TEST RESULTS

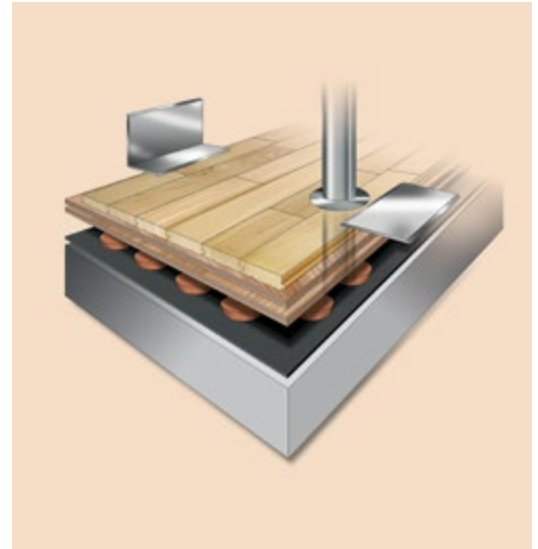
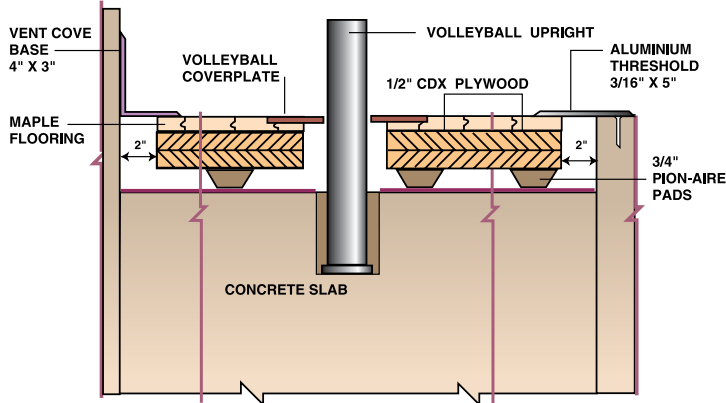
TEST		Localisation and numbers of test boards					Mean Value
		1 and 6	2 and 7	3 and 8	4 and 9	5 and 10	
<b>Force Reduction (44.4)</b>	<b>KA 55 %</b>	46.8	45.9	47.7	48.5	41.0	45.69
<b>Standard Deformation (StVv)</b>	<b>mm</b>	1.63 1.31	1.42	1.60	1.93	1.29	1.53
<b>Deformation Through (Axis 1)</b>	<b>%</b>	21.8 38.3	28.2	18.8	25.2	36.6	28.13
<b>W 500 (Axis 2)</b>	<b>%</b>	8.6 11.5	18.0	21.9	10.9	16.3	14.53
<b>Rolling Load Without Damage</b>	<b>N</b>			1500			1500
<b>Ball Rebound (RB)</b>	<b>%</b>	97.4 95.9	96.8	96.5	95.4	95.8	96.3

### TESTS RESULTS AND REQUIREMENT OF DIN 18032, PART 2

TEST		Test Results (Mean Values)	Requirement for Area-Elastic Sports Hall Floors
<b>Force Reduction</b>	<b>%</b>	KA 55 = 45.7	Min. 53.0
<b>Standard Deformation</b>	<b>mm</b>	StVv = 1.5	Min. 2.3
<b>Deformation Through</b>	<b>%</b>	W 500 = 21.3	Max. 15
<b>Rolling Load Without Damage</b>	<b>N</b>	R1 = 1500	Min. 1500
<b>Ball Rebound</b>	<b>%</b>	BR = 96.3	Min. 90

## PG AIRE-II FLOOR SYSTEM

The PG Aire-II is based on advanced technology that makes our system totally unique. The system boasts 60% shock absorption for gymnasiums and 70% for aerobic floors. Concentric rings reduce stress on legs and the back, in addition to offering an energy return. This is an excellent system that includes a medium durometer pad in the playing area and a harder durometer pad under the bleachers. In the aerobic areas, we recommend using our softest pads for maximum shock absorption.



## PRODUCTS / MATERIALS

### Moisture Protection

Vapour proofing: 6 mil polyethylene.

### Subfloor

Subfloor: 1/2 in (1.3 cm) CDX plywood or 7/16 in (1.1 cm) Oriented Strand Board (OSB).

### PG Aire-II Pads

Pads: 3/4 in (1.9 cm) conical shaped rubber.

### Flooring

Tongue-and-groove fit hardwood boards, mixed grain, TGEM kiln dried northern hard maple, 25/32 in (19.8 mm) or 33/32 in (26.2 mm) thickness and 1 3/4 in (44.45 mm), 2 in (50.80 mm) or 2 1/4 in (57.15 mm) widths.

Select & Better, Instinct or Pacific grade.

### Fasteners

1 in (2.5 cm) spiral nails or size 13, 1 in (2.5 cm) staples 2 in (5 cm) barbed cleats or 2 in (5 cm) epoxy coated staples.

### Expansion Joints

Wall base: 4 in x 3 in (10 cm x 8 cm) heavy duty moulded, vent cove base, with pre-moulded outside corners.

Mill finish aluminium threshold, 3/16 in x 5 in (0.5 cm x 12.7 cm) bevelled on both sides.

### Finish

Water-based or solvent based polyurethane sealant and finish.

## INSTALLATION

- Cover concrete slab with polyethylene, lapping joints 6 in (15 cm).
- Install first layer of plywood subflooring parallel to the length of the room, with 1/2 in (1.3 cm) spacing on all edges and 4 ft (1.2 m) breaking joints. Provide 2 in (5 cm) expansion joints along the room perimeter and around all vertical obstructions. The underside of the first layer of plywood should have 32 PG Aire-II pads per sheet of plywood attached 12 in (30 cm) centre-to-centre and 6 in (15 cm) from the edges of each sheet.
- The second layer of plywood should be laid diagonally at a 45° angle to the first layer, with 1/2 in (1.3 cm) spacing between sheets and 4 ft (1.2 m) breaking joints. Attach a second layer of plywood with nails or staples 12 in (30 cm) centre-to-centre and 6 in (15 cm) from edges of plywood.
- Install finish flooring parallel to the main playing court by power nailing or stapling approximately every 6 in to 8 in (15 cm to 20 cm). During installation, provide sufficient expansion joints at regular intervals in flooring surface. Allow a 2 in (5 cm) expansion joint along walls and around permanent obstructions.

## PG AIRE-II TEST REPORT

**USSL Reference:** Job # 474-4A

**Subject:** Gym floor - Test according to DIN 18032, Part 2

**Name of surface:** PG Aire-II, 50/70 Durometer (Sample #4A)

**Location of test:** Warehouse, Columbus, OH

**Date of test:** August 16, 1994



Dipl. Ing Hans J. Koltz  
Director of Testing

## 1. Design of Surface

### Finish flooring:

Hard maple board flooring  
Grade - Select & Better  
25/32 in (19.8 mm) x 2 1/4 in (57.15 mm)  
Random lengths

### Subfloor:

2 layers CDX plywood sheets  
4 ft x 8 ft x 1/2 in (1.2 m x 2.4 m x 1.3 cm) nominal

### Pads:

3/4 in (1.9 cm) Conical shaped,  
50 Durometer and 70 Durometer

The maple board flooring is attached to the top layer of plywood with staples. All plywood sheets are perimeter gapped 1/2 in (1.3 cm). The top plywood layer runs at 45° angle from the bottom layer and is attached with staples 12 in (30 cm) centre-to-centre. The rubber conical pads are stapled to the bottom layer of plywood in alternating durometer rows across the width at 12 in (30 cm) centre-to-centre with the 70 durometer inset 6 in centre-to-centre from the outermost 50-durometer pad.

## 2. Performance of Tests

Tests were performed according to DIN 18032, Part 2. They were conducted in a warehouse used by PG in Columbus, OH. Temperatures during testing ranged from 23 to 26 degrees Celsius.

## 3. Test Results

The first table summarizes test results and compares them to requirements of Part 2 of the DIN 18032 standard.

## INDIVIDUAL TEST RESULTS

TEST		Localisation and numbers of test boards					
		1 and 6	2 and 7	3 and 8	4 and 9	5 and 10	Mean Value
<b>Force Reduction (44.4)</b>	<b>KA 55 %</b>	64.0 50.9	64.8	54.6	61.5	55.4	58.6
<b>Standard Deformation (StVv)</b>	<b>mm</b>	2.64 1.58	2.80	1.78	2.58	2.02	2.23
<b>Deformation Through (Axis 1)</b>	<b>%</b>	31.7 32.1	23.8	19.7	30.4	46.2	30.63
<b>W 500 (Axis 2)</b>	<b>%</b>	11.6 14.6	12.5	23.1	16.5	13.9	15.36
<b>Rolling Load Without Damage</b>	<b>N</b>			1500			1500
<b>Ball Rebound (RB)</b>	<b>%</b>	90.7 96.3	89.6	94.6	92.4	96.2	93.3

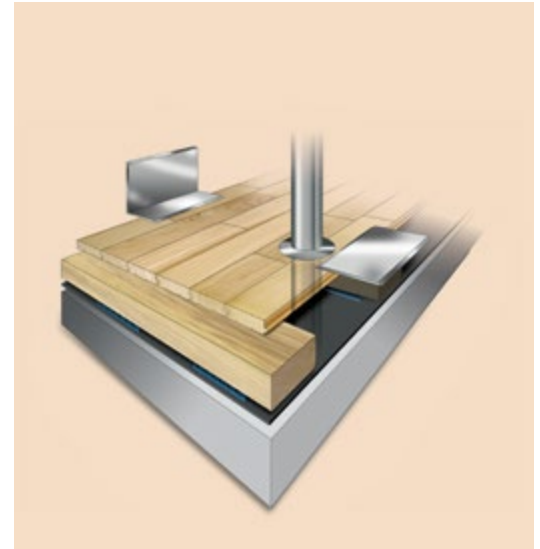
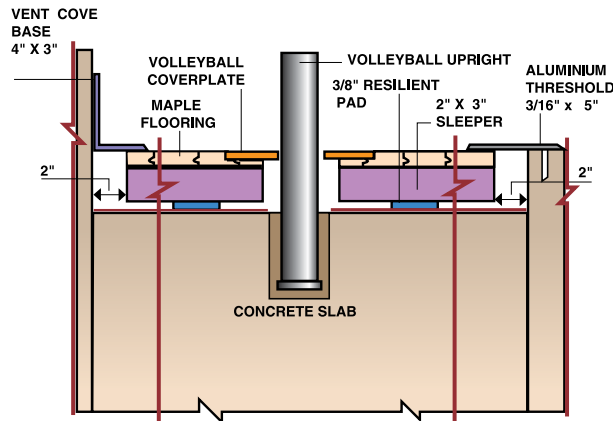
## TESTS RESULTS AND REQUIREMENT OF DIN 18032, PART 2

TEST		Test Results (Mean Values)	Requirement for Area-Elastic Sports Hall Floors
<b>Force Reduction</b>	<b>%</b>	KA 55 = 58.6	Min. 53.0
<b>Standard Deformation</b>	<b>mm</b>	StVv = 2.2	Min. 2.3
<b>Deformation Through</b>	<b>%</b>	W 500 = 23.0	Max. 15
<b>Rolling Load Without Damage</b>	<b>N</b>	R1 = 1500	Min. 1500
<b>Ball Rebound</b>	<b>%</b>	BR = 93.3	Min. 90



## PG CUSH-I FLOOR SYSTEM

The PG Cush-I Floor System is ideal for sport floor surfaces because it rests on a padded sleeper system. Padded sleepers increase flooring resilience and load bearing capability, adding to flooring flexibility. This system is especially recommended for racquetball courts and gymnasiums, dance floors and stages.



## PRODUCTS / MATERIALS

### Moisture Protection

Vapour proofing: 6 mil polyethylene.

### Subfloor

Use sleepers 2 in x 3 in x 4 ft (5 cm x 8 cm x 1.2 m), kiln dried spruce, pine or fir fitted with pads approximately 3/8 in x 2 1/4 in (1 cm x 5.7 cm) wide x 3 in (8 cm) long with 6 fully enclosed air channels.

### Flooring

Tongue and groove fit hardwood boards, mixed grain, TGEM kiln dried northern hard maple, 25/32 in (19.8 mm) or 33/32 in (26.2 mm) thickness and 1 3/4 in (44.45 mm), 2 in (50.80 mm) or 2 1/4 in (57.15 mm) widths.

Select & Better, Instinct or Pacific grade.

### Fasteners

Fasteners: 2 in (5 cm) epoxy coated staples or 2 in (5 cm) barbed cleats.

### Expansion Joints

Wall base: 4 in x 3 in (10 cm x 8 cm) heavy duty moulded, vent cove base, with pre-moulded outside corners.

Mill finish aluminium threshold, 3/16 in x 5 in (0.5 cm x 12.7 cm) bevelled on both sides.

### Finish

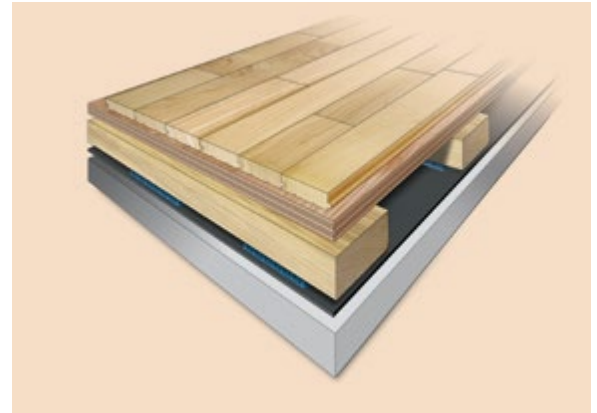
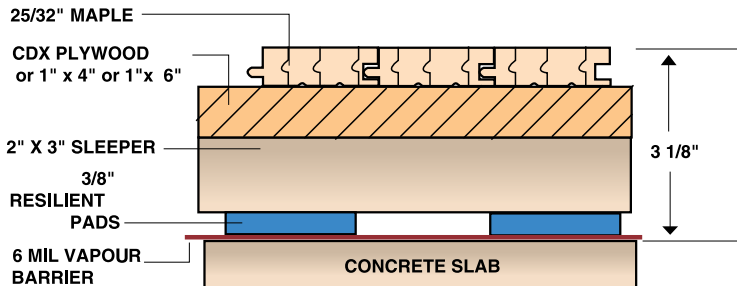
Water-based or solvent based polyurethane sealant and finish.

## INSTALLATION

- Cover concrete slab with polyethylene, lapping joints 6 in (15 cm).
- PG Cush-I sleepers should be placed 9 in (23 cm) centre-to-centre parallel to the width of the room with the ends abutted and joints staggered. Additional sleepers should be placed where shown on plans.
- Note: When 33/32 in (26.2 mm) flooring is used, the sleepers should be spaced 12 in (30 cm) centre-to-centre.
- Nail flooring at right angles to sleepers, using 2 in (5 cm) barbed cleats or epoxy coated staples.
- Allow a 2 in (5 cm) expansion joint along walls and around permanent obstructions. During installation, provide enough expansion joints at regular intervals in flooring to allow expansion and contraction of boards, depending on ambient humidity.

## PG CUSH - II FLOOR SYSTEM

The PG Cush II Floor System is ideal for sport floor surfaces because it rests on a padded sleeper system. The plywood subflooring system adds more stability, making the flooring ideal for a variety of uses. Padded sleepers increase flooring resilience and load bearing capability, adding to flooring flexibility.



## PRODUCTS / MATERIALS

### General

The general contractor shall provide a concrete slab, towelled Smooth and level to a tolerance of 1/8 in (0.3 cm) on a 10 ft (3 m) straight edge, depressed approximately 3 1/8 in (8 cm) if 25/32 (19.8 mm) flooring is used, and 3 3/8 in (8.5 cm) when 33/32 in (26.2 mm) flooring is specified. The slab should have been cured for at least 60 days.

### Moisture Protection

Vapour proofing: 6 mil polyethylene.

### Sleepers

Use sleepers 2 in x 3 in x 4 ft (5 cm x 8 cm x 1.2 m), kiln dried spruce, pine or fir. Pads measuring approximately 3/8 in x 2 1/4 in x 3 in (1 cm x 6 cm x 8 cm) should be anchored to the sleepers, 12 in (30 cm) centre-to-centre.

### Subfloor

Thick 4 ft x 8 ft (1.2 m x 2.4 m) CDX exterior grade southern pine 3/4 in (1.9 cm) thick, or 1 in x 4 in (2.5 cm x 10 cm) or 1 in x 6 in (2.5 cm x 15 cm) spruce, pine or fir, S2S and kiln dried to 10% moisture content.

### Flooring

Tongue-and-groove fit hardwood boards, mixed grain, TGEM kiln dried northern hard maple, 25/32 in (19.8 mm) or 33/32 in (26.2 mm) thickness and 1 3/4 in (44.45 mm), 2 in (50.80 mm) or 2 1/4 in (57.15 mm) widths.

Select & Better, Instinct or Pacific grade.

### Fasteners

Fasteners: 2 in (5 cm) epoxy coated staples or 2 in (5 cm) barbed cleats.

### Expansion Joints

Wall base: 4 in x 3 in (10 x 8 cm) heavy-duty moulded vent cove base with remoulded outside corners.

Mill finish aluminium threshold, 3/16 in x 5 in (0.5 cm x 13 cm) bevelled on both sides.

### Finish

Water-based or solventbased polyurethane sealant and finish.

## INSTALLATION

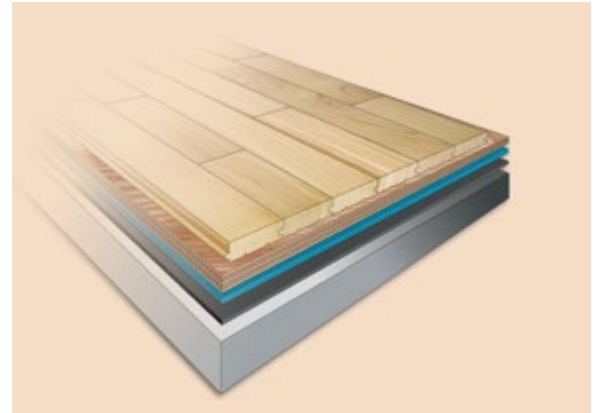
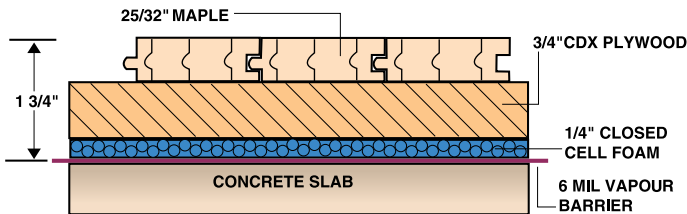
- Cover concrete slab with polyethylene, lapping joints 6 in (15 cm).
- Place PG Cush II sleepers 12 in (30 cm) centre-to-centre parallel to the width of the room with ends abutted and joints staggered. Additional sleepers should be placed below wheel carriage traverse of folding bleachers where shown on plans.
- Install 3/4 in (1.9 cm) plywood, 1 in x 4 in (2.5 cm x 10 cm) or 1 in x 6 in (2.5 cm x 15 cm) SPF kiln dried S2S board at a 45° angle to the sleepers, allowing a 1/2 in (1.3 cm) spacing for plywood, plus 2 in (5 cm) spacing for 1 in x 4 in (2.5 x 10 cm) or 1 in x 6 in (2.5 cm x 15 cm) between sides and nail at each sleeper crossing.

OPTION: The 3/4 in (1.9 cm) plywood can be installed so the longer dimension of the plywood is at right angles to the sleeper, allowing 1/2 in (1.3 cm) spacing between sides and ends of each sheet. Nail at each sleeper 6 in (15 cm) centre-to-centre when sleepers are spaced 16 in (41 cm) centre-to-centre, and 6 in (15 cm) centre-to-centre when sleepers are spaced 12 in (30 cm) centre-to-centre using 1 in (2.5 cm) coated nails or 2 in (5 cm) coated staples. Allow 2 in (5 cm) expansion joints at walls and around permanent obstructions.

- At right angles to the sleepers, nail maple flooring to each sleeper with 2 in (5 cm) barbed cleats or epoxy coated staples.
- Allow 2 in (5 cm) expansion joints at walls and around permanent obstructions. Provide sufficient expansion spacers at regular intervals in surface of flooring during installation to provide for expansion in accordance with humidity conditions in the area.
- Install the maple flooring perpendicular to the sleepers and parallel to the main sport court.

## PG FOAM FLOOR SYSTEM

The PG Foam Flooring System is a floating floor system manufactured by PG Hardwood Flooring Inc. The use of a closed cell, linear-linked polyethylene foam makes this system a good choice to cover minor slab imperfections, thereby eliminating most dead spots. The PG Foam Flooring System is quickly installed and its low profile is ideally suited to floating floor systems. This is a good system for a retrofit project because of its low profile and cost.



## PRODUCTS / MATERIALS

### Moisture Protection

Vapour proofing: 6 mil polyethylene and 1/4 in (0.6 cm) closed cell foam.

OPTION: 1/4 in (0.6 cm) closed cell foam may be replaced by 1/2 in (1.3 cm) cellotex.

### Subfloor

Subfloor: 3/4 in x 4 ft x 8 ft (1.9 cm x 1.2 m x 2.4 m) CDX exterior grade plywood.

OPTION: 2 layers 1/2 in (1.3 cm) CDX or 7/16 in (1 cm) OSB.

### Flooring

Tongue and groove fit hardwood boards, mixed grain, TGEM kiln dried northern hard maple, 25/32 in (19.8 mm) or 33/32 in (26.2 mm) thickness and 1 3/4 in (44.45 mm), 2 in (50.80 mm) or 2 1/4 in (57.15 mm) widths.

Select & Better, Instinct or Pacific grade.

### Fasteners

1 1/2 in (4 cm) epoxy coated staples or 1 1/2 in (4 cm) barbed cleats.

### Expansion Joints

Wall base: 4 in x 3 in (10 cm x 8 cm) heavy duty moulded, vent cove base, with pre-moulded outside corners.

Mill finish aluminium threshold, 3/16 in x 5 in (0.5 cm x 13 cm) bevelled on both sides.

### Finish

Water-based or solventbased polyurethane sealant and finish.

## INSTALLATION

- Cover concrete slab with polyethylene, lapping joints 6 in (15 cm).
- Lay 1/4 in (0.6 cm) closed-cell foam parallel to the length of the room and seal all seams and joints with 2 in (5 cm) duct tape.

OPTION: 1/2 in (1.3 cm) cellotex laid parallel to the length of the room. No sealing of seams or joints is required.

- Install plywood at a 45° angle along the length of the room, 1/4 in (0.6 cm) spacing on all edges with 2 in (5 cm) expansion joints along the room perimeter and around all vertical obstructions.

- Allow a 2 in (5 cm) expansion joint along walls and around permanent obstructions. Provide sufficient expansion spacers at regular intervals on the surface of flooring during installation. Install finished flooring parallel to main playing court by power nailing or stapling approximately 6 to 8 in (15 to 20 cm) centre-to-centre.