Maple Flooring Manufacturers Association presents:
HOW TO PROPERLY SPECIFY
MAPLE ATHLETIC FLOORS

From specification of the maple surface material and the subfloor system to the completion of the concrete slab beneath it all, the MFMA is a respected resource for technical information and guidance in today's competitive market for hardwood sports floors. Armed with the following insights, architects can streamline the process of successfully specifying a northern hard maple athletic floor.

WHY NORTHERN HARD MAPLE IS THE PRACTICAL CHOICE FOR SPORTS FLOORING

Northern hard maple flooring is the predominant surface material for indoor athletic facilities worldwide. Why?

- Physical Characteristics: Northern hard maple (Acer saccharum) is dense, strong, supremely durable and remarkably hard. Perhaps surprising to readers, maple is 12% harder than red oak, and 7% harder than white oak. Due to the shorter growing seasons north of the 36th parallel, northern hard maple is close-grained, hard-fibered, resistant to slicing and splintering, and polishes well under friction. Northern hard maple has an unusual ability to resist pointed pressure without abrasion. It is easily covered with attractive finishes.

- Aesthetics: Northern hard maple flooring has a natural beauty. The natural light color is more visually pleasing to athletes, compared to darker hardwoods such as red or white oak. Northern hard maple is densely grained with rich, consistent color and fewer imperfections than other hardwood species. The natural light color also provides an excellent contrast to paint used to stripe floors for activities such as basketball and volleyball.

- Resiliency & Performance: Northern hard maple is an organic product consisting of patterns of fibers and air pockets which give it a natural shock-absorbing quality. These characteristics, combined with specially designed and engineered subfloor systems, deliver performance and safety for a variety of sporting and activity applications. Northern hard maple flooring is suited for a variety of uses, from residential to institutional.

- Environmental Responsibility: Contrary to what you may have heard, we are not running out of hardwoods. U.S. government forest statistics show that there were 70% more hardwoods in 1997 than in 1952. Each year, nearly twice as many cubic feet of timber is added to the U.S. hardwood forest inventory than is harvested. Further, wood is the only natural resource on Earth that is at once renewable, recyclable, biodegradable and re-useable. The energy required to grow our timber supply is free - it comes from the sun. And, although wood accounts for almost half of the total annual industrial raw material tonnage consumed in the U.S., timber and wood product manufacturing processes account for only about 4% of energy consumed by U.S. industrial raw material manufacturers.

- Quality Assurance: Maple Flooring Manufacturers Association member mills are subject to periodic unannounced third party inspections to assure strict adherence to MFMA rules governing continuity of species, millage and grading of MFMA maple flooring products. For 104 years, architects have relied on MFMA's quality assurance when determining what surfaces to specify for their athletic flooring installations. The MFMA grading stamp is every architect's assurance of consistent quality.

For these and a variety of other reasons, it is not surprising that northern hard maple has been architects' preferred choice for indoor athletic surfaces for the last century.

SELECTION CONSIDERATIONS FOR YOUR PROJECT

When selecting which flooring system is best suited for your installation, it is important to consider different attributes of each system. Always consider the following characteristics: Cost, Appearance, Elevation Requirements, End Uses for the Facility, and Performance Characteristics of the Floor. Here are some quick pointers for each:

COST

Cost should be viewed in two ways: installed cost and life cycle cost. If compared solely by installed cost, wood athletic flooring can be more expensive than synthetic materials. Wood athletic flooring systems are less expensive to maintain and last considerably longer than their synthetic counterparts.

The installed cost of maple floors varies from manufacturer to manufacturer depending on the subfloor system selected for the project, and the quality and type of surface maple specified for the installation. Most subfloor designs can be matched with a variety of maple surface materials to meet your project's budget.
APPEARANCE (AESTHETICS)

Appearance is a subjective specifying consideration. All maple floors will have different aesthetics based on the type of flooring specified (strip, finger jointed strip, parquet), the MFMA grade of flooring specified (First, Second and Better, Third and Better, Third, or Utility Grade); the selection of graining points and color schemes, and the type of finish you specify. Your client may desire a basketball court that looks like the Boston Celtics’ patterned floor, or may want the look of a strip floor.

When specifying maple sports flooring, be sure to ask the client what he expects the flooring to look like when installed. This will help you to recommend the appropriate maple surfacing materials as well as properly choose paints and finishes to give your project the desired finished appearance. Remember, grading of maple flooring products affects aesthetics — not performance.

SLAB DEPRESSION/FLOOR ELEVATION REQUIREMENTS

This is an extremely important specifying consideration on a retrofit project. Some subfloor designs are low-profile, while others are higher-profile. Be advised: sports flooring system profiles are not necessarily an indication of surface performance characteristics. Manufacturers can provide you with slab depression requirements for all of their subfloor systems.

When specifying sports flooring in a new installation, consult with manufacturers to obtain the proper slab depression measurements for the system(s) you are considering for the project.

END USES FOR THE FACILITY/PERFORMANCE CHARACTERISTICS

Performance characteristics are important considerations when choosing the subfloor system and maple surface materials. Make sure you consider the appropriate performance characteristics for the activities that the installation will regularly experience.

CONSIDER THE FOLLOWING PERFORMANCE CHARACTERISTICS WHEN CHOOSING A FLOOR SYSTEM:

**Shock Absorption** — As an athlete impacts a sports surface, the impacting force is translated into two resultant forces — one absorbed by the floor and the other returned to the athlete. While hard surfaces such as concrete and asphalt provide little or no force reduction for the athlete upon impact due to running, jumping or falling, maple sports floor systems absorb these impact forces (shocks) and are rated by the percentage of force reduction they provide as compared to hard surfaces. For example, a sports floor with a force reduction value of 60% will absorb 60% of the impact force and return 40% of that force to the athlete. Since different sports make different demands on athletes, various force reduction characteristics may be prescribed for various sports.

**Rolling Load** — Due to the potential damage to a wood floor system caused by some maintenance machines and game equipment, the rolling load characteristic is very important to all sports floors. This characteristic is applicable to rolling loads caused by rolling equipment and furniture. Additional provisions to protect the floor should be considered for items such as high lifts, portable backstops, bleachers, etc.

**Compression Strength** — (a.k.a. maximum crushing strength) — Though this is not a performance characteristic per se, the compression strength (or maximum crushing strength) of hardwood flooring is another important criterion to consider when specifying a sports floor. While Northern Hard Maple has one of the strongest compression values of all hardwood species, it is important to evaluate the point loading effects of using portable backstops, bleachers, equipment carts and gym equipment on the floor. It is recommended that the owner consult with the equipment manufacturer when specifying the proper wheel for use in the facility. When designing your athletic facility, know the weights and stresses to which your flooring will be subjected.

Please note: Performance criteria are interdependent. A higher or lower value for any of the performance characteristics addressed in this section may influence other characteristics in the flooring system. Varieties are also inherent in performance test data on a single floor. Floors tested in accordance with DIN 18032 Part 2 will exhibit a range of values for each performance characteristic.

The following matrix is a general guideline to assist in determining which performance characteristics to consider when selecting an MFMA maple sports flooring system. It should not be used as a specification for a specific system.

---

**General Performance Characteristics**

<table>
<thead>
<tr>
<th>Performance Characteristics</th>
<th>Basketball</th>
<th>Volleyball</th>
<th>Track &amp; Field</th>
<th>Running Sports</th>
<th>Floor Sharpening</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shock Absorption (mm)</td>
<td>80%</td>
<td>60%</td>
<td>40%</td>
<td>20%</td>
<td>10%</td>
</tr>
<tr>
<td>Vertical Deflection (mm)</td>
<td>2.5</td>
<td>2.0</td>
<td>1.5</td>
<td>1.0</td>
<td>0.5</td>
</tr>
<tr>
<td>Area of Deflection (mm)</td>
<td>5.0</td>
<td>4.0</td>
<td>3.0</td>
<td>2.0</td>
<td>1.0</td>
</tr>
<tr>
<td>Ball Bounce (mm)</td>
<td>3.0</td>
<td>2.5</td>
<td>2.0</td>
<td>1.5</td>
<td>1.0</td>
</tr>
</tbody>
</table>

Please note: A higher or lower percentage of any of the performance characteristics addressed in this matrix may influence other characteristics in the flooring system. The matrix is simply a general recommended schedule to refer to when considering an MFMA maple sports flooring system. It should not be used as a specification for specific systems. Consult with any of the MFMA rolling company manufacturer members for performance characteristics’ data on their sports flooring systems.

--

Advertising supplement provided by The Maple Flooring Manufacturing Association
APPEARANCE (AESTHETICS)
Appearance is a subjective specifying consideration. All maple floors will have different aesthetics based on the type of flooring specified (strip, finger jointed strip, parquet), the MFMA grade of flooring specified (First, Second and Better, Third and Better, Third, or Utility Grade), the selection of gameline paints and color schemes, and the type of finish you specify. Your client may desire a basketball court that looks like the Boston Celtics’ patterned floor, or may want the look of a strip floor. When specifying maple sports flooring, be sure to ask the client what he expects the flooring to look like when installed. This will help you to recommend the appropriate maple surfacing materials as well as properly choose paints and finishes to give your project the desired finished appearance. Remember, grading of maple flooring products affects aesthetics — not performance.

SLAB DEPRESSION/FLOOR ELEVATION REQUIREMENTS
This is an extremely important specifying consideration on a retrofit project. Some subfloor designs are low-profile, while others are high-profile. Be advised: sports flooring system profiles are not necessarily an indication of surface performance characteristics. Manufacturers can provide you with slab depression requirements for all of their subfloor systems.

When specifying sports flooring in a new installation, consult with manufacturers to obtain the proper slab depression measurements for the system(s) you are considering for the project.

END USES FOR THE FACILITY/PERFORMANCE CHARACTERISTICS
Performance characteristics are important considerations when choosing the subfloor system and maple surface materials. Make sure you consider the appropriate performance characteristics for the activities that the installation will regularly experience.

CONSIDER THE FOLLOWING PERFORMANCE CHARACTERISTICS WHEN CHOOSING A FLOOR SYSTEM:
Shock Absorption — As an athlete impacts a sports surface, the impacting force is translated into two resultant forces — one absorbed by the floor and the other returned to the athlete. While hard surfaces such as concrete and asphalt provide little or no force reduction for the athlete upon impact due to running, jumping or falling, maple sports floor systems absorb these impact forces (shock) and are rated by the percentage of force reduction they provide as compared to hard surfaces. For example, a sports floor with a force reduction value of 60% will absorb 60% of the impact force and return 40% of that force to the athlete. Since different sports make different demands on athletes, various force reduction characteristics may be prescribed for various sports.

Shock absorption should be considered for any sports floor installation.

Vertical Deflection and Area of Deflection — The measurements of both area and vertical deflection are interdependent. However, in the total scheme of performance characteristics, the two together form a criterion for deformation control. Vertical deflection deals with vertical displacement of the flooring surface during impact, for athletes performing in close proximity to each other. For example, an averaged-sized person jumping on a concrete floor would transmit zero vertical deflection, while that same person jumping on a trampoline may create a vertical deflection of several inches. The area of deflection is a measurement of the horizontal area over which the deflection occurs. Deflection characteristics should be considered for items such as high lifts, portable backstops, bleachers, etc.

Compression Strength — (aka maximum crushing strength) — Though this is not a performance characteristic per se, the compression strength (or maximum crushing strength) of hardwood flooring is another important criterion to consider when specifying a sports floor. While Northern Hard Maple has one of the strongest compression values of all hardwood species, it is important to evaluate the point loading effects of using portable backstops, bleachers, equipment carts and gym equipment on the floor. It is recommended that the owner consult with the equipment manufacturer when specifying the proper wheel for use in the facility. When designing your athletic facility, know the weights and stresses to which your flooring will be subjected.

Please note: Performance criteria are interdependent. A higher or lower value for any of the performance characteristics addressed in this section may influence other characteristics in the flooring system. Variances are also inherent in performance testing data on a single floor. Floors tested in accordance with DIN 18032 Part 2 will exhibit a range of values for each performance characteristic.

The following matrix is a general guideline to assist in determining which performance characteristics to consider when selecting an MFMA maple sports flooring system. It should not be used as a specification for a specific system.

Please note: A higher or lower percentage of any of the performance characteristics addressed in this matrix may influence other characteristics in the flooring system. The matrix is simply a general recommended schedule to refer to when considering an MFMA maple sports flooring system. It should not be used as a specification for specific systems. Consult with any of the MFMA milling company manufacturer members for performance characteristics data on their sports flooring systems.

Advertising supplement provided by The Maple Flooring Manufacturing Association
Maple Flooring Manufacturers Association presents:

HOW TO PROPERLY SPECIFY
MAPLE ATHLETIC FLOORS

From specification of the maple surface material and the subfloor system to the condition of the concrete slab beneath it all, the MFMA is a respected resource for technical information and guidance in today's competitive market for hardwood sports floors. Armed with the following insights, architects can streamline the process of successfully specifying a northern hard maple athletic floor.

WHY NORTHERN HARD MAPLE IS THE PRACTICAL CHOICE FOR SPORTS FLOORING

Northern hard maple flooring is the predominant surface material for indoor athletic facilities worldwide. Why?

* Physical Characteristics: Northern hard maple (Acer saccharum) is dense, strong, supremely durable and remarkably hard. Perhaps surprising to readers, maple is 12% harder than red oak, and 7% harder than white oak. Due to the shorter growing seasons north of the 35th parallel, northern hard maple is close-grained, hard-fibered, resistant to splitting and splintering, and polishes well under friction. Northern hard maple has an unusual ability to resist pointed pressure without abrasion. It is easily covered with attractive finishes.

* Aesthetics: Northern hard maple flooring has a natural beauty. The natural light color is more visually pleasing to athletes, compared to darker hardwoods such as red or white oak. Northern hard maple is densely grained with rich, consistent color and fewer imperfections than other hardwood species. The natural light color also provides an excellent contrast to paint used to stripe floors for activities such as basketball and volleyball.

* Resiliency and Performance: Northern hard maple is an organic product consisting of patterns of fibers and air pockets which give it a natural shock-absorbing quality. These characteristics, combined with specially designed and engineered subfloor systems, deliver performance and safety for a variety of sporting and activity applications. Northern hard maple flooring is suited for a variety of uses, from residential to institutional.

* Environmental Responsibility: Contrary to what you may have heard, we are not running out of hardwoods. U.S. government forest statistics show that there were 70% more hardwoods in 1997 than in 1962. Each year, nearly twice as many cubic feet of timber is added to the U.S. hardwood forest inventory than is harvested. Further, wood is the only natural resource on Earth that is at once renewable, recyclable, biodegradable and re-useable. The energy required to grow our timber supply is free - it comes from the sun. And, although wood accounts for almost half of the total annual industrial raw material tonnage consumed in the U.S., timber and wood product manufacturing processes account for only about 4% of energy consumed by U.S. industrial raw material manufacturers.

* Quality Assurance: Maple Flooring Manufacturers Association member mills are subject to periodic unannounced third party inspections to assure strict adherence to MFMA rules governing continuity of species, millage and grading of MFMA maple flooring products. For 104 years, architects have relied on MFMA's quality assurance when determining what surfaces to specify for their athletic flooring installations. The MFMA grading stamp is every architect's assurance of consistent quality.

For these and a variety of other reasons, it is not surprising that northern hard maple has been architects' preferred choice for indoor athletic surfaces for the last century.

SELECTION CONSIDERATIONS FOR YOUR PROJECT

When considering which flooring system is best suited for your installation, it is important to consider different attributes of each system. Always consider the following characteristics: Cost, Appearance, Elevation Requirements, End Uses for the Facility, and Performance Characteristics of the Floor. Here are some quick pointers for each:

COST

Cost should be viewed in two ways: installed cost and life cycle cost. If compared solely by installed cost, wood athletic flooring can be more expensive than synthetic materials. Wood athletic flooring systems are less expensive to maintain and last considerably longer than their synthetic competitors.

The installed cost of maple floors varies from manufacturer to manufacturer depending on the subfloor system selected for the project, and the quality and type of surface maple specified for the installation. Most subfloor designs can be matched with a variety of maple surface materials to meet your project's budget.

Advertising supplement provided by The Maple Flooring Manufacturing Association
SPECIFYING A MAPLE SPORTS FLOORING SUBFLOOR SYSTEM

Now comes the hard part: deciding what subfloor system to specify for your project. MPMA manufacturers have spent years testing and developing a host of subfloor systems to meet the needs of athletes and other users.

There are three basic subfloor designs: floating systems, fixed systems, and anchored resilient systems.

Floating systems are exactly what they sound like—they "float" over the concrete substrate and are not mechanically fastened to the concrete slab in any way. Fixed systems are mechanically fastened by some method (anchor pins, screws, adhesive, etc.) directly to the concrete substrate. Anchored resilient systems are mechanically fastened to the concrete substrate, but have a combination of components that allow varying degrees of additional resiliency within the subfloor system.

There are benefits and drawbacks to each basic design category depending on the unique parameters of your project.

Start your specification decision by asking questions:
- Who will be using this floor?
- What activities will be performed on the surface?
- How often will the facility be used in an average year?
- Is the facility going to be subjected to long idle periods?
- What is the climate in the area of the installation?
- What types of HVAC systems can I specify for the space?
- Is the installation below-grade, on-grade, or above-grade?

Answers to these and other questions will help you to eliminate subfloor designs that are inappropriate for your project.

PROPRIETARY ANCHORED RESILIENT SUBFLOOR SYSTEM DESIGNS

Multiple combinations of steel, wood, composite metal, plastic, neoprene, and rubber are signatures of most anchored resilient subfloor systems. Manufacturers have created proprietary menus of combinations from which to choose. Anchored resilient subfloor systems combine features of both floating and fixed systems.

PROPRIETARY FIXED AND FLOATING SUBFLOOR SYSTEM DESIGNS

MPMA Manufacturers offer a variety of proprietary fixed and floating systems that they have developed in some cases for specific applications. Each has unique features and benefits. Keep in mind that some of these subfloor systems have been designed for particular site conditions or expected uses (i.e. below-grade installation, installation in an area of widely-varying humidity, use in an acoustics facility, use for modern dance stage).

"GENERAL" FIXED AND FLOATING SUBFLOOR SYSTEM DESIGNS

Most proprietary anchored resilient, fixed, and floating subfloor system designs have evolved over the years from the designs of a number of "generic" subfloor systems. Each of these systems has been on the market for many years, and has been successfully installed in hundreds of facilities worldwide. We refer to them as "generic" because the basic designs are not patented by one manufacturer, and each system is generally available from all manufacturers.

The following is a short description of each of the "generic" MPMA subfloor designs:

Cushioned Sleeper System — The cushioned sleeper floating-floor system consists of 2" x 3" x 4" (nominal) kiln-dried hemlock, spruce, pine or fir sleepers installed over 1/8" x 2 1/4" x 3" or 1/4" x 2 1/4" x 3" rubber or neoprene pads. The pads are mechanically fastened to the bottom of the sleepers and are generally spaced at 1-ft. intervals on the sleepers. The sleepers with pads are installed end-to-end at right angles to the direction of the finished maple surface with end joints staggered 24" in adjacent rows. Sleepers are spaced between 8" and 16" o.c. depending on the thickness and grade of the maple flooring surface and the resiliency required for the project. The surface maple, sleepers and pads are installed over a seam-sealed 6 mil. polyethylene vapor barrier.

Cushioned Sleeper with One Layer of Plywood System — The cushioned sleeper with plywood floating-floor system consists of 2" x 3" x 4" (nominal) kiln-dried hemlock, spruce, pine or fir sleepers installed over 1/8" x 2 1/4" x 3" or 1/4" x 2 1/4" x 3" rubber or neoprene pads. The pads are mechanically fastened to the bottom of the sleepers and are generally spaced at 1-ft. intervals on the sleepers. The sleepers with pads are installed end-to-end at right angles to the direction of the finished maple surface with end joints staggered 24" in adjacent rows. Sleepers are spaced 12" o.c., and a layer of 1/2" x 4" x 8' APA-rated, 4-ply CDX plywood is installed over the sleepers at either a 45 or 90 degree angle to the direction of the finished maple surface. The surface maple, plywood, sleepers and pads are installed over a seam-sealed 6 mil. polyethylene vapor barrier.

Nail-in-Channel System — This fixed system consists of maple flooring installed over steel channels with a PVC, plywood or hardboard core nailing channel. Each nailing channel is set into 1/16" grooves spaced 12" o.c. in 1/4" or 5/8" thick fiberboard or closed-cell foam underlayment, and the steel channels are fastened through the underlayment and into the concrete slab using 5/16" head diameter steel channel anchors. The maple flooring is anchored to the subfloor materials using 2" barbed cleats or 15 gauge coated staples, which are clinched as they are driven into the core of each steel channel. The entire system is installed over a seam-sealed 6 mil. polyethylene vapor barrier.

Channel and Clip System — This fixed system consists of maple flooring installed over 16 gauge steel channels using 16 or 20 gauge steel clips to fasten the flooring to the subfloor components. Three different clip designs are available, and are usually specified with a particular thickness of maple flooring (clip-over-tongue design with 1/8" or 5/32" thick maple, clip-under-tongue design with 5/32" thick maple, or back-to-back clip design with 1/8" thick maple). Each fastening channel is set into 1/16" grooves spaced 12" o.c. in 1/4" or 5/8" thick fiberboard or closed-cell foam underlayment, and the steel channels are fastened through the underlayment and into the concrete slab using 5/16" head diameter steel channel anchors. The entire system is installed over a seam-sealed 6 mil. polyethylene vapor barrier.

QUESTIONS YOU SHOULD ASK WHEN SPECIFYING A SUBFLOOR SYSTEM DESIGN

Ask questions of the manufacturer(s) of the systems you are considering, such as: Why did your firm develop this subfloor design? Are there particular site conditions or end uses for which this subfloor design is particularly well suited? Are there particular site conditions or end uses for which this subfloor design is ill suited?
The Strength of Association:

Renowned Product Preference for Over a Century

Longevity. It's the hallmark of classic architecture, and the heritage of sports floors produced by members of the Maple Flooring Manufacturer's Association since 1897. It's also one reason why architects and owners have preferred MFMA maple over other sports flooring types. The strength of this association of manufacturers and installers produces floors of such lasting quality that they can outlive the buildings in which they are installed, at a life cycle cost that's 40% lower than synthetic substitutes.* Put your sports flooring projects in the hands of MFMA manufacturers and installers who offer you the wisdom of experience and the strength of association.

Specify MFMA Maple Sports Flooring.

*Life Cycle Cost Study, 1995 Ducker Research Company
© Copyright 2001, Maple Flooring Manufacturers Association, Inc. All rights reserved
SPECIFYING A MAPLE SPORTS FLOORING SURFACE

There are several types of maple surfacing products from which to choose. Maple flooring comes in three basic configurations: random-length strip (the most popular and most common), finger-jointed strip, and parquet. Each of these surfacing materials can be installed in a single direction, or can be laid in patterns such as a chevron, brick, etc. Here are basic descriptions of each type of flooring:

Random-Length Strip — Individual pieces of flooring, typically 1 3/4” or 2 1/4” wide, with lengths between 9’ and 12’. The most common thickness specified is 3/4”, but 5/8” thick random-length strip flooring is also available. This surface material is installed like a horizontal brick wall, with each piece being overlapped with adjacent pieces and fastened into the subfloor with cleats, staples or steel clips, depending on the subfloor chosen for the project.

Finger-Jointed Strip — A number of random-length strip segments joined together at the manufacturing plant to form a consistent length board. The most common thickness specified is 5/8”, but 3/4” thick finger-jointed strip flooring is also available. This surface material is also installed like a horizontal brick wall, with each consistent-length board being overlapped with adjacent boards and fastened into the subfloor with cleats, staples or steel clips, depending on the subfloor chosen for the project.

Parquet — Hard maple parquet flooring is manufactured in square and rectangular panels in a variety of dimensions. Individual panel sizes range from 2’ x 2’ to 10’ x 10’, and panel sizes range from 5 1/4” to 12”. Minimum thickness of MFMA parquet flooring is 5/8”. Individual panels, assembled into panels, can be either joined together, mesh, or tape on the back of the panel, or paperface on front surface of the panel. Parquet flooring is typically installed directly to the concrete substrate using adhesive/mastic, or over subfloor systems that contain continuous subfloor (plywood or similar).

SAMPLE SPECIFICATIONS FOR MAPLE FLOORING

Random Length Strip flooring is the surface material most frequently specified for sports flooring applications. When writing the specification for Random Length strip flooring, specify as “MFMA-RL (Random Length) strip flooring,” and list the required species, grade, and thickness. A typical specification should appear as follows:

2.1 Materials
A. Flooring shall be MFMA-RL (Random Length) Northern Hard Maple, 5/8” x 2 1/4” wide, Second and Better Grade; T & G and EM; grade marked and stamped as produced by an MFMA member manufacturer.

Finger Jointed strip flooring is specified in a similar manner as Random Length strip flooring. For example, when ordering Finger Jointed strip flooring, specify as “MFMA-FJ (Finger Jointed) strip flooring,” and list the required species, grade, and thickness. A typical specification should appear as follows:

2.1 Materials
B. Flooring shall be MFMA-FJ (Finger Jointed) Northern Hard Maple, 5/8” thick x 2 1/4” wide, Second and Better Grade; T & G and EM; grade marked and stamped as produced by an MFMA member manufacturer.

Parquet flooring is specified in a similar manner as Random Length Strip flooring. For example, when ordering MFMA Parquet flooring, specify as “MFMA-PQ (Parquet) flooring,” and list the required species, grade, thickness and panel size. A typical specification should appear as follows:

2.1 Materials
A. Flooring shall be MFMA-PQ (Parquet) Northern Hard Maple, 5/8” thick, Second and Better Grade; fastened together in panels using mesh, tape or wire backer or paper facing; grade marked and stamped as produced by an MFMA member manufacturer.

ABOUT THE MAPLE FLOORING MANUFACTURERS ASSOCIATION (MFMA)

The Maple Flooring Manufacturers Association (MFMA) is the authoritative source of technical and general information about maple flooring and related sports flooring systems. MFMA’s membership consists of manufacturers, installation contractors, distributors and allied product manufacturers who subscribe to established quality guidelines. Through cooperative member programs, MFMA establishes product quality, performance and installation guidelines; educates and users about safety, performance and maintenance issues; and promotes the use of northern hard maple (Acer saccharum), yellow birch (Betula alleghaniensis) and beech (Fagus grandifolia) flooring products worldwide. To contact the association: MFMA, 60 Revere Dr., Suite 500, Northbrook, IL, 60062. U.S.A. Phone 847-480-9138. Fax 847-480-9282. Website www.maplefloor.org. Email mfma@maplefloor.org.

Advertising supplement provided by The Maple Flooring Manufacturing Association.
LEARNING OBJECTIVES:
After reading this section and answering the self-test questions at the end, architects will be able to:
- Describe the various categories of wood sports flooring system subfloor configurations
- Describe the various types of wood sports flooring surface materials
- Cite the most critical specification considerations when designing athletic facility floors

Refer to the learning objectives above. Complete the questions below. Then turn the page upside down and check your answers. Fill out the self-report form on page 382 and submit it or use the Continuing Education self-report form on Record's Web site, www.architecturalrecord.com, to receive one AIA/CES Learning Unit including one hour of health safety welfare credit.

QUESTIONS:
1. What makes northern hard maple a better choice than synthetic material for sports flooring?

2. What are the surface configurations available in maple flooring?

3. When writing a specification, what information should be included?

4. What are the differences between the three basic subflooring systems?

5. What performance characteristics are important considerations in selecting a floor system?

ANSWERS:

PLEASE CALL 847-480-9138, OR WRITE:
MFMA, 60 REVERE DRIVE, SUITE 500
NORTHBROOK, IL 60062 U.S.A.
E-MAIL: mfma@maplefloor.org
www.maplefloor.org

Reprinted from Architectural Record, May 2001

Advertising supplement provided by The Maple Flooring Manufacturing Association
LEARNING OBJECTIVES:
After reading this section and answering the self-test questions at the end, architects will be able to:
• Describe the various categories of wood sports flooring system subfloor configurations
• Describe the various types of wood sports flooring surface materials
• Cite the most critical specification considerations when designing athletic facility floors

Refer to the learning objectives above. Complete the questions below. Then turn the page upside down and check your answers. Fill out the self-report form on page 88 and submit it or use the Continuing Education self-report form on Record's Web site, www.architecturalrecord.com, to receive one AIA/CES Learning Unit including one hour of health safety welfare credit.

QUESTIONS:
1. What makes northern hard maple a better choice than synthetic material for sports flooring?

2. What are the surface configurations available in maple flooring?

3. When writing a specification, what information should be included?

4. What are the differences between the three basic subflooring systems?

5. What performance characteristics are important considerations in selecting a floor system?

ANSWERS:

Reprinted from Architectural Record, May 2001

Advertising supplement provided by The Maple Flooring Manufacturing Association
SPECIFYING A MAPLE SPORTS FLOORING SURFACE

There are several types of maple surfacing products from which to choose. Maple flooring comes in three basic configurations: random-length strip (the most popular and most common), finger-jointed strip, and parquet. Each of these surface materials can be installed in a single direction, or can be laid in patterns such as a checkerboard, chevron, etc. Here are basic descriptions of each type of flooring:

Random-Length Strip — Individual pieces of flooring, typically 1 1/2" or 2 1/2" wide, with lengths between 9' and 16'. The most common thickness specified is 3/4", but 3/8" thick random-length strip flooring is also available. This surface material is installed like a horizontal brick wall, with each piece being overlapped with adjacent pieces and fastened into the subfloor with cleats, staples or steel clips, depending on the subfloor chosen for the project.

Finger-Jointed Strip — A number of random-length strip segments joined together at the manufacturing plant to form a consistent length board. The most common thickness specified is 3/8", but 5/8" thick finger-jointed strip flooring is also available. This surface material is also installed like a horizontal brick wall, with each consistent-length board being overlapped with adjacent boards and fastened into the subfloor with cleats, staples or steel clips, depending on the subfloor chosen for the project.

Parquet — Hard maple parquet flooring is manufactured in square and rectangular panels in a variety of dimensions. Individual picket widths range from 1/8" to 1/4", and picket lengths range from 5 1/2" to 12". Minimum thickness of MFMA parquet flooring is 3/4". Individual pickets, assembled into panels, are either joined together by wire, mesh, or tape on the back of the panel, or paper faced on the front (or surface) of the panel. Parquet flooring is typically installed directly to the concrete substrate using adhesive/mastic, or over subfloor systems that contain continuous subfloors (plywood or similar).

SAMPLE SPECIFICATIONS FOR MAPLE FLOORING

Random Length Strip flooring is the surface material most frequently specified for sports flooring applications. When writing the specification for Random Length strip flooring, specify as “MFMA-RL (Random Length) strip flooring,” and list the required species, grade, and thickness. A typical specification should appear as follows:

1. Materials

A. Flooring shall be MFMA-RL (Random Length) Northern Hard Maple, 5/8" thick x 2 1/4" wide, Second and Better Grade; T & G and EM; grade marked and stamped as produced by an MFMA member manufacturer.

Finger-Jointed strip flooring is specified in a similar manner as Random Length strip flooring. For example, when ordering Finger Jointed strip flooring, specify as “MFMA-FJ (Finger Jointed) strip flooring,” and list the required species, grade, and thickness. A typical specification should appear as follows:

2.1 Materials

B. Flooring shall be MFMA-FJ (Finger Jointed) Northern Hard Maple, 3/4" thick x 2 1/4" wide, Second and Better Grade; T & G and EM; grade marked and stamped as produced by an MFMA member manufacturer.

Parquet flooring is specified in a similar manner as Random Length Strip flooring. For example, when ordering MFMA Parquet flooring, specify as “MFMA-PQ (Parquet) flooring,” and list the required species, grade, thickness and picket size. A typical specification should appear as follows:

2.1 Materials

A. Flooring shall be MFMA-PQ (Parquet) Northern Hard Maple, 3/4" thick, Second and Better Grade; fastened together in panels using mesh, tape or wire backing or paper facing; grade marked and stamped as produced by an MFMA member manufacturer.

ABOUT THE MAPLE FLOORING MANUFACTURERS ASSOCIATION (MFMA)

The Maple Flooring Manufacturers Association (MFMA) is the authoritative source of technical and general information about maple flooring and related sports flooring systems. MFMA's membership consists of manufacturers, installation contractors, distributors and allied product manufacturers who subscribe to established quality guidelines. Through cooperative member programs, MFMA establishes product quality, performance and installation guidelines; educates end users about safety, performance and maintenance issues; and promotes the use of northern hard maple (Acer saccharum), yellow birch (Betula alleghaniensis) and beech (Fagus grandifolia) flooring products worldwide. To contact the association: MFMA, 60 Revere Dr., Suite 500, Northbrook, IL, 60062, U.S.A. Phone 847-480-9138. Fax 847-480-9282. Website www.maplefloor.org. Email mtma@maplefloor.org.