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Maple Flooring Manufacturers Association, Inc.

Guide Specifications for Maple Flooring Systems



MFMA Guide Specification for Resilient Pre-Engineered Fixed Panel System

Purpose

This Guide Specification is designed to assist in the production of actual architectural specifications for maple athletic flooring installations. It is hoped that this Guide will be of particular value to those who do not have a detailed knowledge of the construction of athletic floors and that it will aid in maintaining high construction standards. The information contained herein is based on best industry practices, however the Maple Flooring Manufacturers Association, Inc. (MFMA), its members and employees, do not warrant the information contained herein as proper under all conditions. The MFMA reserves the right to revise these guide specifications as necessary.

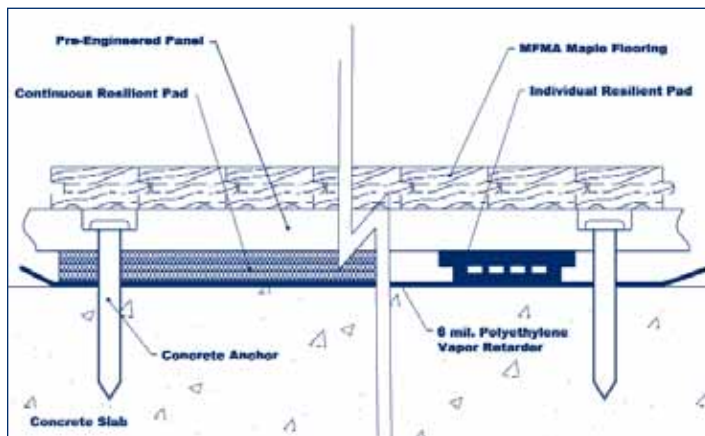
Questions concerning information contained in this Guide should be directed to MFMA, attention Technical Director. Always refer to MFMA's current list of position statements when writing any specification. Position statements can be found on our web site at www.maplefloor.org.

Part 1-General

1.1 Description

- A. This document specifies a wood strip gymnasium floor system consisting, in general, of maple flooring, wood subflooring, vapor retarder, sanding, sealers, finishes, game lines and wall base.
- B. The general contractor shall provide a concrete slab, troweled smooth and level to a tolerance of +/- 1/8" in a 10' radius, subject to the approval of the MFMA Mill Accredited Installation Company*.

Resilient Pre-Engineered Fixed Panel



F-Numbers are not applicable for gymnasium slab applications. Labor and materials necessary to put the concrete slab in acceptable condition (high areas ground down and low areas filled with appropriate leveling compounds) shall be the responsibility of the general contractor. Installation shall not proceed until the concrete slab is in acceptable condition.

- 1. The general contractor shall provide slab depressions as per manufacturer's specifications.
 - 2. Concrete subfloors shall have an adequate moisture barrier beneath and at the perimeter of the slab. Subject to local conditions.
 - 3. Sand-Poly-Sand slab construction is not acceptable.
 - 4. Concrete shall be free of washed river gravel, pea gravel, flint or hardener additives.
- C. The MFMA Mill Accredited Installation Company* shall provide all tools and services to install a complete wood floor system from the concrete's surface polyethylene vapor retarder, when required, upward through the sanding and finishing, plus the installation of perimeter moldings.

1.2 Quality Assurance

- A. The wood flooring shall be MFMA-RL, MFMA-FJ or MFMA-PQ maple.
- B. The flooring contractor shall be an MFMA Mill Accredited Installation Company* with MFMA Accredited Installer(s)* on-site for the duration of the wood floor installation.
- C. Flooring shall be delivered to the premises and acclimated, if necessary.
- D. All skids of flooring bundles should be opened and spread out to acclimate the flooring to environmental conditions in the building, when applicable.

1.3 Working Conditions

- A. The floor system shall not be delivered or installed until all masonry, plastering/drywalling, tile work and overhead mechanical trades are complete. The building must be enclosed and weathertight.
- B. Permanent heat, light and ventilation shall be installed and operating before, during and after installation, controlling a temperature range of 55 degrees to 75 degrees and a relative humidity range compatible with expected environmental conditions when the facility is occupied. (Maintaining a maximum 15 percent difference between high and low humidity levels). Expected minimum/maximum indoor relative humidity will depend upon building design, geographic location, HVAC systems and operating schedules. Consult your local MFMA Sport Floor contractor for specific information.

1.4 Warranty

- A. The MFMA Mill Accredited Installation Company* shall warrant the floor installation, and shall furnish a flooring materials warranty from the flooring manufacturer.
- B. Refer to individual flooring manufacturers warranty for specific provisions and exclusions.

MFMA Guide Specification for Resilient Pre-Engineered Fixed Panel System

Part 2-Products

2.1 Materials

- A. Flooring shall be MFMA-RL Northern Hard Maple, MFMA-FJ Northern Hard Maple; 25/32" or 1/2" thick x 3-1/4", 2-1/2", 2-1/4" or 1-1/2" wide; First, Second and Better, Third and Better, Third Grade or Utility Grade; T & G and EM; grade marked and stamped as produced by an MFMA member manufacturer or MFMA-PQ Northern Hard Maple; 5/16" to 7/16" thick panels; Second and Better or Third Grade; grade marked and stamped as produced by an MFMA member manufacturer.
- B. Concrete slab surface vapor retarder shall be minimum 6 mil. Polyethylene.
- C. The wooden subfloor shall be pre-engineered panels manufactured by and supplied by an MFMA flooring manufacturer.
- D. Cushioning pad(s) shall be supplied and installed per manufacturer's instructions.
- E. Flooring fasteners shall be 2" barbed cleats or 15 gauge coated staples, unless otherwise specified by MFMA flooring manufacturer.
- F. Subfloor anchoring system shall be per MFMA flooring manufacturer design.
- G. Wall base shall be 4" x 3" x 4' heavy duty molded, vented, rubber or vinyl cove base with premolded outside corners as supplied by flooring manufacturer.
- H. Finish materials shall be selected from the most recent listing of MFMA tested and certified products, approved by MFMA flooring manufacturer and shall be applied according to finish manufacturer's instructions.

Part 3-Execution

3.1 Inspection

- A. Inspect concrete slab for proper tolerance and dryness, and report any discrepancies in writing to the general contractor for correction.
- B. The concrete slab shall be cleaned of all debris by general contractor so the accredited installation company will have adequate access to work surface.

3.2 Installation

- A. Cover entire concrete slab with surface vapor retarder, lapping joints a minimum of 6" or as specified by the flooring system manufacturer.
- B. Install pre-engineered subfloor panels per MFMA manufacturer's instructions, perpendicular or diagonal to the finished flooring in a brick pattern. Space subfloor panels according to MFMA flooring manufacturer's recommendation. If required by the flooring system manufacturer, install solid blocking under bleachers in the stacked position and where portable backstops or other areas subjected to high loads as shown on architectural drawings. If required by the flooring system manufacturer, install recommended blocking below bleachers in the extended position. Install subfloor system using concrete anchors per MFMA flooring manufacturer's instructions. Provide 2" expansion voids at the perimeter and at all vertical obstructions.

- C. Install maple flooring parallel to main playing court by nailing or stapling per manufacturer's instructions.
 - 1. Space joints between flooring strips to allow for intermediate expansion in accordance with local humidity conditions.
 - 2. Provide 2" expansion voids at the perimeter and at all vertical obstructions.

3.3 Floor Sanding

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

3.4 Finishing

- A. Inspect entire area of floor to insure that surface is acceptable for finishing, completely free from sanding dust.
- B. Apply seal and finish per finish manufacturers instructions.
- C. Paint game lines as shown on drawings, between seal and first coat of finish. Game line paint shall be compatible with finish.

3.5 Base Installation

- A. Install vented cove base by anchoring to walls with base cement, screws or anchors.
- B. Miter inside corners, and use premolded outside corners.

3.6 Maintenance

- A. Upon completion of floor installation, the owners, attendants or individuals in charge are responsible for the upkeep of the building and are to see that the care and maintenance instructions of the MFMA and the flooring manufacturer are followed.

MFMA Guide Specifications for Resilient Fixed Plywood Sleeper with Continuous Subfloor System

Purpose

This Guide Specification is designed to assist in the production of actual architectural specifications for maple athletic flooring installations. It is hoped that this Guide will be of particular value to those who do not have a detailed knowledge of the construction of athletic floors and that it will aid in maintaining high construction standards. The information contained herein is based on best industry practices however the Maple Flooring Manufacturers Association, Inc. (MFMA), its members and employees, do not warrant the information contained herein as proper under all conditions. The MFMA reserves the right to revise these guide specifications as necessary.

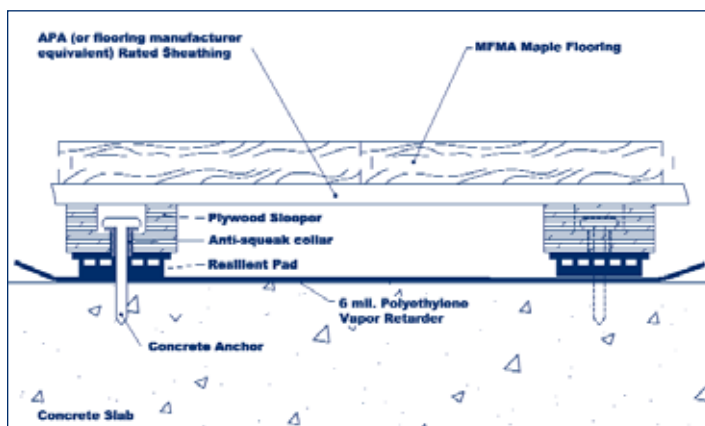
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Part 1-General

1.1 Description

- A. This document specifies a wood strip gymnasium floor system consisting, in general, of maple flooring, wood subflooring, vapor retarder, sanding, sealers, finishes, game lines and wall base.
- B. The general contractor shall provide a concrete slab, troweled smooth and level to a tolerance of $\pm 1/8"$ in a 10' radius, subject to the approval of the MFMA Mill Accredited Installation Company.*

Plywood Sleeper with Continuous Subfloor



F-Numbers are not applicable for gymnasium slab applications. Labor and materials necessary to put the concrete slab in acceptable condition (high areas ground down and low areas filled with appropriate leveling compounds) shall be the responsibility of the general contractor. Installation shall not proceed until the concrete slab is in acceptable condition.

1. The general contractor shall provide slab depressions as per manufacturer's specifications.
 2. Concrete subfloors shall have an adequate moisture barrier beneath and at the perimeter of the slab. Subject to local conditions.
 3. Sand-Poly-Sand slab construction is not acceptable.
 4. Concrete shall be free of washed river gravel, pea gravel, flint or hardener additives.
- C. The MFMA Mill Accredited Installation Company* shall provide all tools and services to install a complete wood floor system from the concrete's surface vapor polyethylene retarder, when required, upward through the sanding and finishing, plus the installation of perimeter moldings.

1.2 Quality Assurance

- A. The wood flooring shall be MFMA-RL or MFMA-FJ.
- B. The flooring contractor shall be an MFMA Mill Accredited Installation Company* with MFMA Accredited Installer(s)* on-site for the duration of the wood floor installation.
- C. Flooring shall be delivered to the premises and acclimated, if necessary.
- D. All skids of flooring bundles should be opened and spread out to acclimate the flooring to environmental conditions in the building, when applicable.

1.3 Working Conditions

- A. The floor system shall not be delivered or installed until all masonry, plastering/drywalling, tile work and overhead mechanical trades are complete. The building must be enclosed and weathertight.
- B. Permanent heat, light and ventilation shall be installed and operating before, during and after installation, controlling a temperature range of 55 degrees to 75 degrees and a relative humidity range compatible with expected environmental conditions when the facility is occupied. (Maintaining a maximum 15 percent difference between high and low humidity levels). Expected minimum/maximum indoor relative humidity will depend upon building design, geographic location, HVAC systems and operating schedules. Consult your local MFMA Sport Floor contractor for specific information.

1.4 Warranty

- A. The MFMA Mill Accredited Installation Company* shall warrant the floor installation, and shall furnish a flooring materials warranty from the flooring manufacturer.
- B. Refer to individual flooring manufacturers warranty for specific provisions and exclusions.

Part 2-Products

2.1 Materials

- A. Flooring shall be MFMA-RL Northern Hard Maple, MFMA-FJ Northern Hard Maple; 25/32" or 1/2" thick x 3-1/4", 2-1/2", 2-1/4" or 1-1/2" wide; First, Second and Better, Third and Better, Third Grade or Utility Grade; T & G and EM; grade marked and stamped as produced by an MFMA member manufacturer.
- B. Concrete slab surface vapor retarder shall be minimum 6 mil. Polyethylene.
- C. Subfloor sleepers shall be factory-drilled engineered sleepers with resilient pads spaced per MFMA flooring manufacturers design.

MFMA Guide Specifications for Resilient Fixed Plywood Sleeper with Continuous Subfloor System

- D. Subfloor sleeper anchoring system shall be per MFMA manufacturer design.
 - E. Subfloor panels shall be 15/32" x 4' x 8' APA (or flooring manufacturer approved equivalent) Rated Sheathing, Exposure 1, minimum 4 ply or per MFMA flooring manufacturer design.
 - F. Cushioning pad(s) shall be supplied and attached per flooring manufacturer's instructions.
 - G. Flooring fasteners shall be 2" barbed cleats or 15 gauge coated staples, unless otherwise specified by flooring manufacturer.
 - H. Wall base shall be 4" x 3" x 4' heavy duty molded, vented, rubber or vinyl cove base with premolded outside corners as supplied by flooring manufacturer.
 - I. Finish materials shall be selected from the most recent listing of MFMA tested and certified products, approved by MFMA flooring manufacturer and shall be applied according to finish manufacturer's instructions.
- C. Install maple flooring parallel to main playing court by nailing or stapling per manufacturer's instructions.
 - 1. Space joints between flooring strips to allow for intermediate expansion in accordance with local humidity conditions.
 - 2. Provide 2" expansion voids at the perimeter and at all vertical obstructions.

3.3 Floor Sanding

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

3.4 Finishing

- A. Inspect entire area of floor to insure that surface is acceptable for finishing, completely free from sanding dust.
- B. Apply seal and finish per finish manufacturers instructions.
- C. Paint game lines as shown on drawings, between seal and first coat of finish. Game line paint shall be compatible with finish.

3.5 Base Installation

- A. Install vented cove base by anchoring to walls with base cement, screws or anchors.
- B. Miter inside corners, and use premolded outside corners.

3.6 Maintenance

- A. Upon completion of floor installation, the owners, attendants or individuals in charge are responsible for the upkeep of the building and are to see that the care and maintenance instructions of the MFMA and the flooring manufacturer are followed.

Part 3-Execution

3.1 Inspection

- A. Inspect concrete slab for proper tolerance and dryness, and report any discrepancies in writing to the general contractor for correction.
- B. The concrete slab shall be cleaned of all debris by general contractor so the accredited installation company will have adequate access to work surface.

3.2 Installation

- A. Cover entire concrete slab with surface vapor retarder, lapping joints a minimum of 6" or as specified by the vapor retarder manufacturer.
- B. Install subfloor sleepers perpendicular to the finished flooring staggering joints, spacing subfloor panels according to manufacturer's recommendation. Sleepers shall be spaced per MFMA floor manufacturers design. Install subfloor system using concrete anchors per maple flooring manufacturer's instructions. If required by the flooring system manufacturer, install solid blocking under bleachers in the stacked position and where portable backstops or other areas subjected to high loads as shown on architectural drawings. If required by the flooring system manufacturer, install recommended blocking below bleachers in the extended position. Attached subfloor panels to the sleepers using 1-1/4" nails or staples 12" o.c., spacing plywood 1/4" on all sides and edges, end joints staggered 4' and breaking on the sleepers. Provide 2" expansion voids at the perimeter and at all vertical obstructions.

MFMA Guide Specification for Double Plywood Floor System

Purpose

This Guide Specification is designed to assist in the production of actual architectural specifications for maple athletic flooring installations. It is hoped that this Guide will be of particular value to those who do not have a detailed knowledge of the construction of athletic floors and that it will aid in maintaining high construction standards. The information contained herein is based on best industry practices however the Maple Flooring Manufacturers Association, Inc. (MFMA), its members and employees, do not warrant the information contained herein as proper under all conditions. The MFMA reserves the right to revise these guide specifications as necessary.

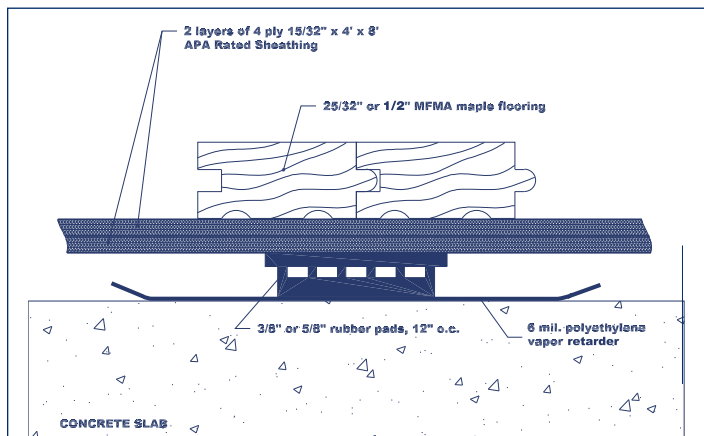
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Part 1-General

1.1 Description

- A. This document specifies a wood strip or parquet gymnasium floor system consisting, in general, of maple flooring, wood subflooring, vapor retarder, sanding, sealers, finishes, game lines and wall base.
- B. The general contractor shall provide a concrete slab, troweled smooth and level to a tolerance of +/- 1/8" in a 10' radius, subject to the approval of the MFMA Mill Accredited Installation Company*.

Double Plywood System



F-Numbers are not applicable for gymnasium slab applications. Labor and materials necessary to put the concrete slab in acceptable condition (high areas ground down and low areas filled with appropriate leveling compounds) shall be the responsibility of the general contractor. Installation shall not proceed until the concrete slab is in acceptable condition.

- 1. The general contractor shall provide slab depressions as per manufacturer's specifications.
 - 2. Concrete subfloors shall have an adequate moisture barrier beneath and at the perimeter of the slab. Subject to local conditions.
 - 3. Sand-Poly-Sand slab construction is not acceptable.
 - 4. Concrete shall be free of washed river gravel, pea gravel, flint or hardener additives.
- C. The MFMA Mill Accredited Installation Company* shall provide all tools and services to install a complete wood floor system from the concrete's surface vapor polyethylene retarder, when required, upward through the sanding and finishing, plus the installation of perimeter moldings.

1.2 Quality Assurance

- A. The wood flooring shall be MFMA-RL, MFMA-FJ or MFMA-PQ maple.
- B. The flooring contractor shall be an MFMA Mill Accredited Installation Company* with MFMA Accredited Installer(s)* on-site for the duration of the wood floor installation.
- C. Flooring shall be delivered to the premises and acclimated, if necessary.
- D. All skids of flooring bundles should be opened and spread out to acclimate the flooring to environmental conditions in the building, when applicable.

1.3 Working Conditions

- A. The floor system shall not be delivered or installed until all masonry, plastering/drywalling, tile work and overhead mechanical trades are complete. The building must be enclosed and weathertight.
- B. Permanent heat, light and ventilation shall be installed and operating before, during and after installation, controlling a temperature range of 55 degrees to 75 degrees and a relative humidity range compatible with expected environmental conditions when the facility is occupied. (Maintaining a maximum 15 percent difference between high and low humidity levels). Expected minimum/maximum indoor relative humidity will depend upon building design, geographic location, HVAC systems and operating schedules. Consult your local MFMA Sport Floor contractor for specific information.

1.4 Warranty

- A. The MFMA Mill Accredited Installation Company* shall warrant the floor installation, and shall furnish a flooring materials warranty from the flooring manufacturer.
- B. Refer to individual flooring manufacturers warranty for specific provisions and exclusions.

MFMA Guide Specification for Double Plywood Floor System

Part 2-Products

2.1 Materials

- A. Flooring shall be MFMA-RL Northern Hard Maple or MFMA-FJ Northern Hard Maple; 25/32" or 1/2" thick x 3-1/4", 2-1/2", 2-1/4" or 1-1/2" wide; First Grade, Second and Better, Third and Better, Third Grade or Utility Grade; T & G and EM; grade marked and stamped as produced by an MFMA member manufacturer or MFMA-PQ Northern Hard Maple; 5/16" to 7/16" thick panels; Second and Better or Third Grade; grade marked and stamped as produced by an MFMA member manufacturer.
- B. Concrete slab surface vapor retarder shall be minimum 6 mil. Polyethylene.
- C. Subfloor shall be 15/32" x 4' x 8', minimum 4 ply, APA (or flooring manufacturers approved rated equivalent) Rated Sheathing, Exposure 1, or per MFMA flooring manufacturer design.
- D. Cushioning pad(s) as supplied by flooring manufacturer.
- E. Flooring fasteners shall be 2" barbed cleats or 15 gauge coated staples, unless otherwise specified by flooring manufacturer.
- F. Wall base shall be 4" x 3" x 4' heavy duty molded, vented, rubber or vinyl cove base with premolded outside corners as supplied by flooring manufacturer.
- G. Finish materials shall be selected from the most recent listing of MFMA tested and certified products, approved by MFMA flooring manufacturer and shall be applied according to finish manufacturer's instructions.

Part 3-Execution

3.1 Inspection

- A. Inspect concrete slab for proper tolerance and dryness, and report any discrepancies in writing to the general contractor for correction.
- B. The concrete slab shall be cleaned of all debris by general contractor so the accredited installation company will have adequate access to work surface.

3.2 Installation

- A. Cover entire concrete slab with surface vapor retarder, lapping joints a minimum of 6" or as specified by the vapor retarder manufacturer.
- B. Install first layer of subfloor plywood opposite the direction of the maple flooring, 1/4" spacing all edges and breaking joints 4' - Provide 2" expansion voids at perimeter and all vertical obstructions. If required by the flooring system manufacturer, install solid blocking under bleachers in the stacked position and where portable backstops or other areas subjected to high loads as shown on architectural drawings. If required by the flooring system manufacturer, install recommended blocking below bleachers in the extended position. The underside of the first layer shall have 32 cushion pads per sheet attached 12" o.c. and 6" from edges of subfloor material on all sides. Provide 2" expansion voids at the perimeter and at all vertical obstructions.

- C. The second layer of subfloor material shall be laid diagonally (45 degrees) (option: Install both layers of plywood at 45 degree angles to finished flooring.) over the first layer 1/4" spacing all edges and breaking joints 4'. Attach second layer of subfloor material with nails or staples 12" o.c. (When using Parquet, construction adhesive should also be used between the layers of plywood as recommended by the flooring system manufacturer). Provide 2" expansion voids at the perimeter and at all vertical obstructions.
- D. Install maple flooring parallel with main playing court by nailing or stapling approximately 12" o.c. or as specified by the flooring manufacturer.
 - 1. Space joints between flooring strips to allow for intermediate expansion in accordance with local humidity conditions.
 - 2. Provide 2" expansion voids at the perimeter and at all vertical obstructions.

3.3 Floor Sanding

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

3.4 Finishing

- A. Inspect entire area of floor to insure that surface is acceptable for finishing, completely free from sanding dust.
- B. Apply seal and finish per finish manufacturers instructions.
- C. Paint game lines as shown on drawings, between seal and first coat of finish. Game line paint shall be compatible with finish.

3.5 Base Installation

- A. Install vented cove base by anchoring to walls with base cement, screws or anchors.
- B. Miter inside corners, and use premolded outside corners.

3.6 Maintenance

- A. Upon completion of floor installation, the owners, attendants or individuals in charge are responsible for the upkeep of the building and are to see that the care and maintenance instructions of the MFMA and the flooring manufacturer are followed.

MFMA Guide Specification for Sleeper and Sleeper with Plywood Floor Systems

Purpose

This Guide Specification is designed to assist in the production of actual architectural specifications for maple athletic flooring installations. It is hoped that this Guide will be of particular value to those who do not have a detailed knowledge of the construction of athletic floors and that it will aid in maintaining high construction standards. The information contained herein is based on best industry practices however the Maple Flooring Manufacturers Association, Inc. (MFMA), its members and employees, do not warrant the information contained herein as proper under all conditions. The MFMA reserves the right to revise these guide specifications as necessary.

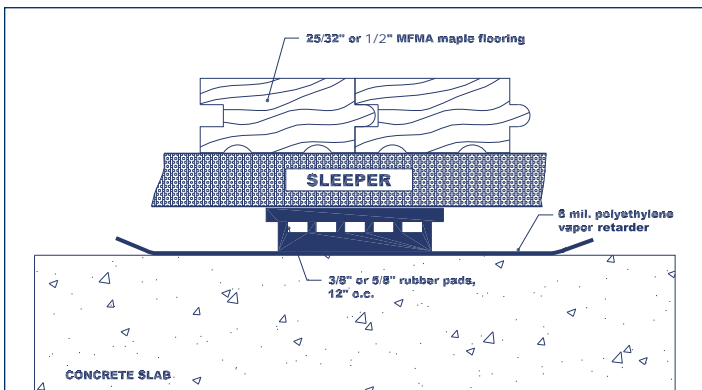
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Part 1- General

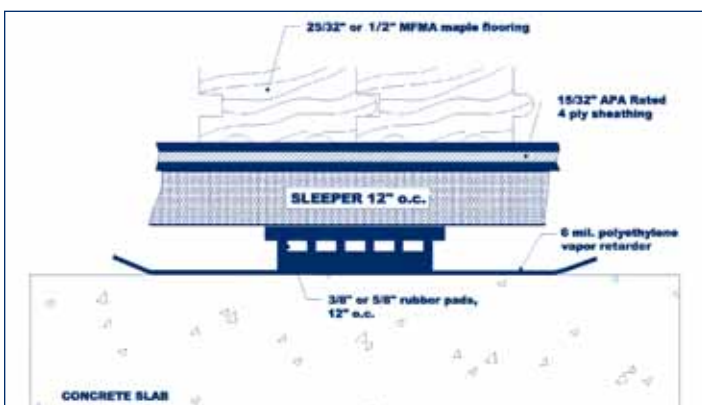
1.1 Description

- A. This document specifies a wood strip gymnasium floor system consisting, in general, of maple flooring, wood subflooring, vapor retarder, sanding, sealers, finishes, game lines and wall base.
- B. The general contractor shall provide a concrete slab, troweled smooth and level to a tolerance of +/- 1/8" in a 10' radius, subject to the approval of the MFMA Mill Accredited Installation Company.*

Sleeper System



Sleeper with Plywood System



F-Numbers are not applicable for gymnasium slab applications. Labor and materials necessary to put the concrete slab in acceptable condition (high areas ground down and low areas filled with appropriate leveling compounds) shall be the responsibility of the general contractor. Installation shall not proceed until the concrete slab is in acceptable condition.

1. The general contractor shall provide slab depressions as per manufacturer's specifications.
 2. Concrete subfloors shall have an adequate moisture barrier beneath and at the perimeter of the slab. Subject to local conditions.
 3. Sand-Poly-Sand slab construction is not acceptable.
 4. Concrete shall be free of washed river gravel, pea gravel, flint or hardener additives.
- C. The MFMA Mill Accredited Installation Company* shall provide all tools and services to install a complete wood floor system from the concrete's surface vapor polyethylene retarder, when required, upward through the sanding and finishing, plus the installation of perimeter moldings.
- D. All skids of flooring bundles should be opened and spread out to acclimate the flooring to environmental conditions in the building, when applicable.

1.2 Quality Assurance

- A. The wood flooring shall be MFMA-RL or MFMA-FJ maple.
- B. The flooring contractor shall be an MFMA Mill Accredited Installation Company* with MFMA Accredited Installer(s)* on-site for the duration of the wood floor installation.
- C. Flooring shall be delivered to the premises and acclimated, if necessary.
- D. All skids of flooring bundles should be opened and spread out to acclimate the flooring to environmental conditions in the building, when applicable.

1.3 Working Conditions

- A. The floor system shall not be delivered or installed until all masonry, plastering/drywalling, tile work and overhead mechanical trades are complete. The building must be enclosed and weathertight.
- B. Permanent heat, light and ventilation shall be installed and operating before, during and after installation, controlling a temperature range of 55 degrees to 75 degrees and a relative humidity range compatible with expected environmental conditions when the facility is occupied. (Maintaining a maximum 15 percent difference between high and low humidity levels). Expected minimum/maximum indoor relative humidity will depend upon building design, geographic location, HVAC systems and operating schedules. Consult your local MFMA Sport Floor contractor for specific information.

* Effective November 1, 2007

MFMA Guide Specification for Sleeper and Sleeper with Plywood Floor Systems

1.4 Warranty

- A. The MFMA Mill Accredited Installation Company* shall warrant the floor installation, and shall furnish a flooring materials warranty from the flooring manufacturer.
- B. Refer to individual flooring manufacturers warranty for specific provisions and exclusions.

Part 2-Products

2.1 Materials

- A. Flooring shall be MFMA-RL Northern Hard Maple, MFMA-FJ Northern Hard Maple; 25/32" or 1/2" (requires plywood subfloor) thick x 3-1/4", 2-1/2", 2-1/4" or 1-1/2" wide; First, Second and Better, Third and Better, Third Grade or Utility Grade; T & G and EM; grade marked and stamped as produced by an MFMA member manufacturer.
- B. Concrete slab surface vapor retarder shall be minimum 6 mil. Polyethylene.
- C. Cushioned Sleepers shall be 2" x 3" x 4' nominal KD Hemlock, Spruce, Pine or Fir with pads as supplied by flooring manufacturer.
- D. Optional plywood subfloor shall be 15/32" x 4' x 8' APA (or flooring manufacturer approved equivalent) Rated Sheathing, Exposure 1, minimum 4 ply or per MFMA flooring manufacturer design.
- E. Flooring fasteners shall be 2" barbed cleats or 15 gauge coated staples, unless otherwise specified by flooring manufacturer.
- F. Wall base shall be 3"x 4" x 4' heavy duty molded, vented, rubber or vinyl cove base with premolded outside corners as supplied by flooring manufacturer.
- G. Finish materials shall be selected from the most recent listing of MFMA tested and certified products, approved by MFMA flooring manufacturer and shall be applied according to finish manufacturer's instructions.

Part 3-Execution

3.1 Inspection

- A. Inspect concrete subfloors for proper tolerance and dryness, and report any discrepancies in writing to the general contractor for correction.
- B. The concrete slab shall be cleaned of all debris by general contractor so the accredited installation company will have adequate access to work surface.

3.2 Installation

- A. Cover entire concrete slab with surface vapor retarder, lapping joints a minimum of 6" or as specified by the vapor retarder manufacturer.
- B. Sleeper System:
 - 1. Install sleepers end to end at right angles to the direction of the finished flooring with end joints staggered a minimum of 24". The sleepers shall be spaced 9" o.c. When Third and Better or Third Grade flooring is specified, sleepers should be spaced 8" o.c. If required by the flooring system manufacturer, install solid blocking under bleachers in the stacked position and where portable backstops or other areas subjected to high loads as shown on architectural drawings. If required by the flooring system manufacturer, install recommended blocking below bleachers in the extended position. Maintain a 2" expansion void at the walls and at all vertical obstructions.

C. Sleeper with Plywood System

- 1. Install sleepers end to end at right angles to the direction of the finished flooring with end joints staggered a minimum of 24". The sleepers shall be spaced 12" o.c. If required by the flooring system manufacturer, install solid blocking under bleachers in the stacked position and where portable backstops or other areas subjected to high loads as shown on architectural drawings. If required by manufacturer, install recommended blocking below bleachers in the extended position. Maintain a 2" expansion void at the walls and at all vertical obstructions.
 - 2. Install plywood over sleepers at 90 degree angle to direction of finished flooring, 1/4" spacing all edges and breaking joints 4'. Attach with nails or staples 12" o.c.
- D. Install maple flooring parallel with the main playing court by nailing or stapling approximately 12" o.c. or as specified by the flooring manufacturer.
 - 1. Space joints between flooring strips to allow for intermediate expansion, in accordance with local humidity conditions.
 - 2. Provide 2" expansion voids at the perimeter and at all vertical obstructions.

3.3 Flooring Sanding

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

3.4 Finishing

- A. Inspect entire area of floor to insure that surface is acceptable for finishing, completely free from sanding dust.
- B. Apply seal and finish per finish manufacturers instructions.
- C. Paint game lines as shown on drawings, between seal and first coat of finish. Game line paint shall be compatible with finish.

3.5 Base Installation

- A. Install vented cove base by anchoring to walls with base cement, screws or anchors.
- B. Miter inside corners, and use premolded outside corners.

3.6 Maintenance

- A. Upon completion of floor installation, the owners, attendants or individuals in charge are responsible for the upkeep of the building and are to see that the care and maintenance instruction of the MFMA and the flooring manufacturer are followed.

MFMA Guide Specification for Basket Weave Floor Systems

Purpose

This Guide Specification is designed to assist in the production of actual architectural specifications for maple athletic flooring installations. It is hoped that this Guide will be of particular value to those who do not have a detailed knowledge of the construction of athletic floors and that it will aid in maintaining high construction standards. The information contained herein is based on best industry practices however the Maple Flooring Manufacturers Association, Inc. (MFMA), its members and employees, do not warrant the information contained herein as proper under all conditions. The MFMA reserves the right to revise these guide specifications as necessary.

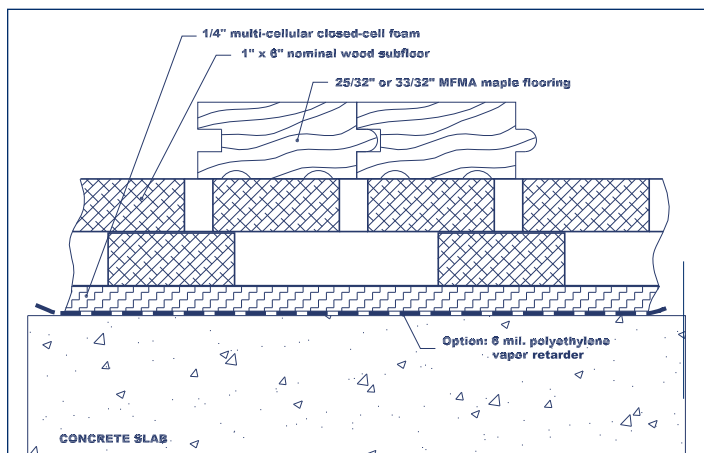
Questions concerning information contained in this Guide should be directed to MFMA, attention Technical Director. Always refer to MFMA's current list of position statements when writing any specification. Position statements can be found on our web site at www.maplefloor.org.

Part 1- General

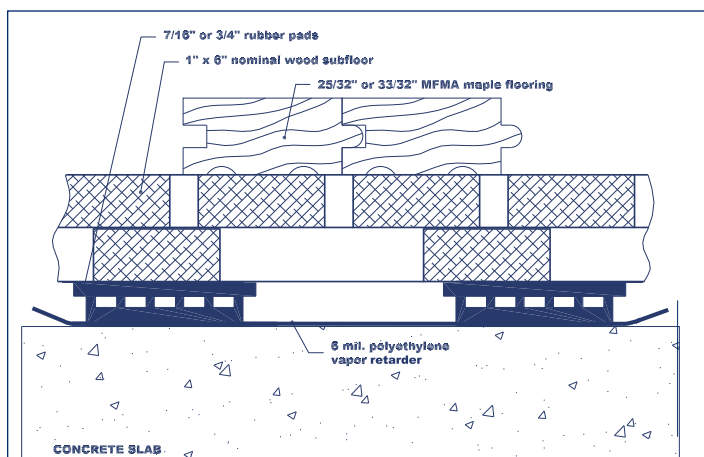
1.1 Description

- A. This document specifies a wood strip gymnasium floor system consisting, in general, of maple flooring, wood subflooring, vapor retarder, sanding, sealers, finishes, game lines and wall base.
- B. The general contractor shall provide a concrete slab, troweled smooth and level to a tolerance of +/- 1/8" in a 10' radius, subject to the approval of the MFMA Mill Accredited Installation Company.*

Basket Weave System



Basket Weave with Pads System



F-Numbers are not applicable for gymnasium slab applications. Labor and materials necessary to put the concrete slab in acceptable condition (high areas ground down and low areas filled with appropriate leveling compounds) shall be the responsibility of the general contractor. Installation shall not proceed until the concrete slab is in acceptable condition.

1. The general contractor shall provide slab depressions as per manufacturer's specifications.
 2. Concrete subfloors shall have an adequate moisture barrier beneath and at the perimeter of the slab. Subject to local conditions.
 3. Sand-Poly-Sand slab construction is not acceptable.
- C. The MFMA Mill Accredited Installation Company* shall provide all tools and services to install a complete wood floor system from the concrete's surface vapor polyethylene retarder, when required, upward through the sanding and finishing, plus the installation of perimeter moldings.

1.2 Quality Assurance

- A. The wood flooring shall be MFMA-RL or MFMA-FJ maple.
- B. The flooring contractor shall be an MFMA Mill Accredited Installation Company* with MFMA Accredited Installer(s)* on-site for the duration of the wood floor installation.
- C. Flooring shall be delivered to the premises and acclimated, if necessary.
- D. All skids of flooring bundles should be opened and spread out to acclimate the flooring to environmental conditions in the building, when applicable.

1.3 Working Conditions

- A. The floor system shall not be delivered or installed until all masonry, plastering/drywalling, tile work and overhead mechanical trades are complete. The building must be enclosed and weathertight.
- B. Permanent heat, light and ventilation shall be installed and operating before, during and after installation, controlling a temperature range of 55 degrees to 75 degrees and a relative humidity range compatible with expected environmental conditions when the facility is occupied. (Maintaining a maximum 15 percent difference between high and low humidity levels). Expected minimum/maximum indoor relative humidity will depend upon building design, geographic location, HVAC systems and operating schedules. Consult your local MFMA Sport Floor contractor for specific information.

1.4 Warranty

- A. The MFMA Mill Accredited Installation Company* shall warrant the floor installation, and shall furnish a flooring materials warranty from the flooring manufacturer.
- B. Refer to individual flooring manufacturers warranty for specific provisions and exclusions.

* Effective November 1, 2007

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Part 2-Products

2.1 Materials

- A. Flooring shall be MFMA-RL Northern Hard Maple or MFMA-FJ Northern Hard Maple; 25/32" thick x 3-1/4", 2-1/2", 2-1/4" or 1-1/2" wide; First, Second and Better, Third and Better, Third Grade or Utility Grade: T & G and EM; grade marked and stamped as produced by an MFMA member manufacturer.
- B. Vapor retarder shall be 6 mil. Polyethylene. (Specifier's option: For extra vapor protection or when installing padded system, cover entire concrete slab with 6 mil polyethylene, sealing joints a minimum of 6".)
- C. Subfloor
 - 1. Basket Weave: Wooden subfloor shall be 1" x 6" nominal KD Gym Grade Hemlock, Spruce, Pine or Fir, S2S or S4S as supplied by flooring manufacturer.
 - 2. Basket Weave with Pads: Wooden subfloor shall be 1" x 6" nominal KD Gym Grade Hemlock, Spruce, Pine or Fir, S2S or S4S as supplied by flooring manufacturer.
- D. Flooring fasteners shall be 2" barbed cleats or 15 gauge coated staples, unless otherwise specified by flooring manufacturer.
- E. Wall base shall be 3" x 4" x 4" heavy duty molded, vented, rubber or vinyl cove base with premolded outside corners as supplied by flooring manufacturer.
- F. Finish materials shall be selected from the most recent listing of MFMA tested and certified products, approved by MFMA flooring manufacturer and shall be applied according to finish manufacturer's instructions.

Part 3-Execution

3.1 Inspection

- A. Inspect concrete subfloors for proper tolerance and dryness, and report any discrepancies in writing to the general contractor for correction.
- B. The concrete slab shall be cleaned of all debris by general contractor so the accredited installation company will have adequate access to work surface.

3.2 Installation

- A. Vapor Retarder
 - 1. Cover entire concrete slab with 1/4" multi-cellular closed-cell foam with a density of 1.7-2.3 PCF sealing joints with 2" duct tape, as supplied by flooring manufacturer.
 - 2. Option: for extra vapor protection cover entire concrete slab with 6 mil. polyethylene, lapping joints a minimum of 4" or as specified by the vapor retarder manufacturer.
- B. Basket Weave System:
 - 1. Install 1" x 6" subfloor diagonally to the long dimension of the room at a 25 degree angle or 45 degree angle. The ends of the 1" x 6" shall be butted or spaced per the flooring system manufacturer's instructions and side spacing 2" or 6" between adjoining 1" x 6". Maintain a 2" expansion void at the walls and at all vertical obstructions.

- 2. The top layer of 1" x 6" subfloor shall be laid in the opposite direction to the first layer, at a 25 degree or 45 degree angle to the long dimension of the room so that no end joints fall over any end joints of the first layer. The ends of the second layer of 1" x 6" shall be butted or spaced per the flooring system manufacturer's instructions and side spacing 2" between adjoining 1" x 6". Secure the two layers at each intersection using nails or staples. Maintain a 2" expansion void at the walls and at all vertical obstructions.

C. Basket Weave with Pads System

- 1. Install 1" x 6" subfloor diagonally to the long dimension of the room at a 25 degree angle or 45 degree angle. The ends of the 1" x 6" shall be butted or spaced per the flooring system manufacturer's instructions and side spacing 2" or 6" between adjoining 1" x 6" with pads stapled and spaced per the flooring system manufacturer's instructions. Maintain a 2" expansion void at the walls and at all vertical obstructions.
 - 2. The top layer of 1" x 6" subfloor shall be laid in the opposite direction to the first layer, at a 25 degree or 45 degree angle to the long dimension of the room so that no end joints fall over any end joints of the first layer. The ends of the second layer of 1" x 6" shall be butted or spaced per the flooring system manufacturer's instructions and side spacing 2" between adjoining 1" x 6". Secure the two layers at each intersection using nails or staples. Maintain a 2" expansion void at the walls and at all vertical obstructions.
- D. Install maple flooring parallel with the main playing court by nailing or stapling approximately 12" o.c.
 - 1. Space joints between flooring strips to allow for intermediate expansion, in accordance with local humidity conditions.
 - 2. Provide 2" expansion voids at the perimeter and at all vertical obstructions.

3.3 Flooring Sanding

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

3.4 Finishing

- A. Inspect entire area of floor to insure that surface is acceptable for finishing, completely free from sanding dust.
- B. Apply seal and finish per finish manufacturers instructions.
- C. Paint game lines as shown on drawings, between seal and first coat of finish. Game line paint shall be compatible with finish.

3.5 Base Installation

- A. Install vented cove base by anchoring to walls with base cement, screws or anchors.
- B. Miter inside corners, and use premolded outside corners.

3.6 Maintenance

- A. Upon completion of floor installation, the owners, attendants or individuals in charge are responsible for the upkeep of the building and are to see that the care and maintenance instruction of the MFMA and the flooring manufacturer are followed.

About MFMA

Founded in 1897, The MFMA is the only authoritative source of technical information about hard maple flooring. The Association publishes grade Standards, guide specification for floor care, and a certified list of flooring sealers and finishes. Copies of all publications are available from MFMA Headquarters and on the MFMA web site.

MFMA and its members consult with architects, contractors, school officials, and maintenance personnel to answer questions about guide specifications and the use and care of MFMA Maple Flooring. When you need assistance or information, contact the MFMA Sport Floor Contractor Member nearest you, or contact the Maple Flooring Manufacturers Association headquarters office at the address below.



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