

1. Specifications for HARO Sports floor Berlin 2

PART 1 - GENERAL

1.01 DESCRIPTION

A. Related work specified under other sections.

B. CONCRETE SUBFLOORS

a) Depression: Slab depression is minimum 82mm.

b) Tolerances: The general contractor shall furnish and install the concrete subfloor depressing the slab sufficiently to accommodate the floor system. The slab should be level within following tolerances according to DIN 18032, part II and DIN 18202:1997-04, figure 3.:

- 3mm (1/8'') in a radius of 1 meter (3' 3'')
- 9mm (3/8'') in a radius of 4 meter (13' 1'')
- 12mm (1/2'') in a radius of 10 meter (39' 4'')
- 15mm (5/8'') in a radius of 15 meter (49' 2'')

For USA: Concrete tolerance 1/8" in radius of 10'

Differing spots shall be ground level, and low spots filled in with approved levelling compound by the general contractor.

c) Waterproof: On or below grade concrete sub-floors are generally acceptable if an effective moisture barrier is installed. Concrete subfloors on or below grade shall be adequately waterproofed beneath the slab and at the perimeter walls and on earth side of below grade walls by general contractor using suitable type membrane.

d) Moisture content of sub-floor: Concrete subfloors must not contain more than 2.5% moisture content (appropriate test method). Moisture content of wooden subfloors should be between 6-10%.

e) The subfloor must be clean.

1.02 QUALITY ASSURANCE

A. Floor System Manufacturer Qualifications

1. Manufacturer shall be an established firm experienced in field and have been in business under the same corporate name for a minimum of ten (10) years.
2. Manufacturer must meet qualifications of ISO 9001 and 14001.
3. Manufacturer shall submit a list of projects where the specified flooring has been installed.
4. Offered sports floors must be FIBA approved.

B. Performance Qualifications of Flooring System

1. Floor system must exceed the requirements of DIN V 18032-2 Part II, as set out below:
 - a. Shock Absorption: shall be minimum of 53%

- b. Ball Return: shall be a minimum of 90%
- c. Deflection: shall be minimum of 2.3mm
- d. Area of Deflection: shall be maximum of 15%
- e. Friction: Range 0.4 - 0.6 per DIN Test Method
- f. Rolling Load: 1500 Newton Load without damage

1.0.3 BIDDER MUST PROVIDE EVIDENCE OF ANY DEVIATION from these specifications including detailed drawings and statements itemising, where products deviate from or exceed these specifications. This data shall be provided with bid.

1.0.4 SUBMITTALS

- a) The Bidder must include the attached Supplemental Pricing Sheet containing detailed costs in an itemised format. Final Purchase Price shall include all freight to Site, Taxes and Duty. It is intended that a final price be submitted.
- b) The Bidder must describe any potential problems, which may impact the delivery date.
- c) Manufacturer shall provide written evidence of previous installations of this floor currently in use. Installation shall have taken place within the past ten (10) years. This information shall be submitted with this bid. The Bidder must include a minimum of five (5) references for comparable systems and installation efforts successfully performed by the Bidder within the last 18 months.
- d) Each Bidder is required to provide the following information in the amounts requested. Bidders who fail to provide any of the submittals requested will not be given consideration.

Submit three (3) copies of the Bid Form/Quotation Sheet.

Submit three (3) copies of manufacturer's descriptive literature and manufacturer's fabrication specifications.

Submit three (3) copies of manufacturer's warranty if different from the Vendor's Warranty as required in the Terms and Conditions.

1.0.5 DELIVERY, STORAGE AND HANDLING

A. Delivery of Materials

Materials shall not be delivered, stored or installed until all painting and plastering work has been completed, and all overhead mechanical work like lighting, backstops, scoreboards are installed. A room temperature of 18-22 degrees Celsius (64 to 72 degrees Fahrenheit) and a relative humidity of 45-55 % are to be maintained.

- B. Materials shall not be stored at the installation location if the moisture content of the concrete slab differs from paragraph 1.0.1.d. „Moisture content of sub-floor“.

1.0.6 Job Site Conditions

Before installing a floor, inspect the job site thoroughly. Carefully inspect the outside surroundings for improper drainage and predictable or obvious sources of moisture. Be sure that, as a minimum, any concrete subfloor is at least 50-60 days old before installing a wood floor over it and the requirements of 1.01 B „CONCRETE SUBFLOORS“ are met.

1.0.7 GUARANTEE

Hamberger Industries GmbH, of Rosenheim, Germany, warrants the model Berlin materials to be free from manufacturing defects for a period of 5 years.

The Warranty does not cover problems caused in whole or in part by accident, circumstances beyond control, neglect, negligence, ordinary wear and tear, abuse, use for which the material is not designed, faulty construction of the building, settlement of the building walls, failure of other contractors to adhere to specifications, separation of the concrete slab, mechanical failure, excessive dryness, or excessive moisture from humidity, spillage, migration through the slab or walls, or any other source (the excluded conditions).

This warranty is in lieu of all other warranties whether oral, written, expressed, implied or statutory, including but not limiting any warranty of merchantability or fitness for a particular purpose, and of any other obligation on the part of Hamberger Industries GmbH.

Any and all representations, promises, warranties, or statement by the installer or by any other party that differ in any manner from the terms of this written warranty shall be at no force or effect.

Part 2 Products

2.0.1 MATERIALS

A. Moisture barrier

- 1.) 6-mil polyethylene or
- 2.) PVC-Foil, 0,5 mm or
- 3.) Bituminous coating V60S4, 4mm thick

B. HARO Sports Floor Model Berlin 2

HARO Double swing beam,
HARO Counterfloor module and
HARO Hardwood floor
- surface elastic
- ventilated

Assembly and construction

1.1 ELASTIC CONSTRUCTION

- Module-unit HARO double swing beam consisting of:
 - HARO sprung element consisting of Regupol pads made of EPDM granules and PUR binder; thickness: 10 mm/unit weight: 700 kg/m³
 - lower beam 4000 x 96 x 17 mm
 - intermediate web made of plywood 4000 x 96 x 4 mm
 - upper beam 4000 x 96 x 17 mm

- HARO Counterfloor-Module
Measurements: 4000 x 96 x 17 mm
The counter-floor-module is staggered in the jointing area and nailed crosswise onto the module unit double swing beam.

- Polyethylene foil 0,03 mm thick

- HARO SPORTS hardwood floor
Fabrication shall consist of a construction with 12 mm plywood BFU 100, acc. to DIN 68705, part 3 and 5.6 mm wear layer, kiln dried, tongue and groove made of plywood. The plywood should be a 9 ply northern birch plywood, using exterior grade (water resistant) glue. All knots and voids will be filled and sanded. The finished flooring should be installed with no expansion spaces between the panels, giving a clean smooth appearance. There should not be either joints or expansion spaces between the lamellas. The floor should be factory finished with a UV cured multi layer high-grade mineral varnish (polyurethane).
The panels are nailed onto the counterfloor. The expansion gap between the hardwood floor and the wall should not be more than 15mm.

Type of wood: _____
Construction height: 82.6 mm

- 1.2 RIGID CONSTRUCTION in equipment and adjoining rooms. Floor sleepers will be installed instead of double swing beam, otherwise (see Pos. 1.1)
Type of wood: _____
Construction height: 82.6 mm

2. ADDITIONAL MATERIAL

2.1 BASE BOARDS

Base boards with ventilation slits at the front should be placed along the perimeter and cover the 15mm expansion gap between the hardwood floor and the wall. The base boards have an integrated rubber lip on the bottom as protection against cleaning water entering the sub-construction.

Wood-type: _____

2.2 FLOOR PLATES

Floor plates with lid, consisting of round metal frame and lid with solid-wood-edition. The lid features an all-round sealing and is locked with suction lifter. The lid is mounted flush with the hardwood flooring.

_____	Clear opening 120 mm
_____	Clear opening 170 mm
_____	Clear opening 220 mm
_____	Clear opening 285 mm
_____	Clear opening 335 mm

3. SANDING AND FINISHING

The flooring shall be factory sanded and finished with HARO Permadur finish ensuring consistent application and eliminating the jobsite dust and contaminates. Field sanding and finishing will not be required.

Minimum of 8 coat of finish construction:

- a. 1 coat of sealer
- b. 2 coats of leveller
- c. 5 coats of polyurethane
- d. All urethane coats to be individually cured with ultraviolet (U.V.) light for maximum durability and to eliminate the need for annual screening and recoating.
- e. The last coat of finish shall receive antibacterial agents to avoid the transmission of germs

Game lines will be painted on top of the finished flooring with two-component urethane paint which requires no finish over the top. Paint must be HARO game line paint.

Part 3-Execution

3.01 Inspection

- A. Inspect concrete subfloors for proper tolerances and dryness, and report any discrepancies to the general contractor in writing.
- B. All work required to put the concrete subfloors in acceptable condition shall be the responsibility of the general contractor.
- C. Subfloor shall be swept clean by the general contractor prior to flooring installers arriving at the jobsite.

3.02 Installation

- A. Follow all manufacturers installation instructions.
- B. Install moisture barrier over concrete slab per manufacturers instructions.
- C. Install double swing beams lengthways in the facility leaving a 40 mm gap at the width and a 60mm gap at the length of the hall.
- D. Nail counterfloor onto the double swing beams with 2.2 x 32 mm T-Nails.
- E. Lay 3 mil poly film over counterfloor.
- F. Nail hardwood flooring to counterfloor with 2,2 x 38 mm T-Nails leaving an expansion gap of 15 mm to the wall.
- G. Paint game lines as per architect's plans.
- H. Install perimeter base as per manufacturers requirements.
- I. Clean up jobsite and put all waste in general contractor's dumpster.

1.0.3 Maintenance

1. CLEAN UP JOBSITE

Pour **Bona Sportive Cleaner** in a ratio of 50 ml : 10 l in the cleaning water and mop the floor. Depending on the degree of dirt ratio could go up to 100 ml : 10 l. Mop the floor again with clear water.

2. BASIC CLEANING

Pour **Bona Remover** in a ratio of **1 : 5** in the cleaning water, apply it on the floor, let it react for max 5 minutes, remove all residues and mop the floor again with clear water.

3. BASIC CARE

Apply a thin coat of undiluted **Bona Freshen up** on the clean hardwood floor surface with the BONA application mop. Let it dry for 2 hours.

4. ROUTINE CLEANING

Pour **Bona Sportive Cleaner** in a ratio of 50 ml : 10 l in the cleaning water and mop the floor. Depending on the degree of dirt ratio could go up to 100 ml : 10 l. Remove all residues.

5. INTENSIVE CLEANING

Pour **Bona Sportive Cleaner Plus** in a ratio of **1 : 5** in the cleaning water, apply with mop or cloth, let it react for minutes, clean floor with a buffing machine and a red pad, remove all residues. Mop the floor again with clear water.

6. HARO BASE BOARDS WITH VENTILATION SLITS

Ventilation slits must be open permanently to provide proper ventilation of the sub-floor. Chewing gum, cigarette ends, paper etc. should be removed from time to time, and dust and dirt should be vacuumed away.

PLEASE NOTE!!:

Wood is a natural product. HARO Hardwood Sports Floor must **NOT** be flooded with water, since this may cause a swelling of the floor and thus damage the floor. It is therefore essential to be careful when cleaning and maintaining the floor and to economise with water and water-based products.