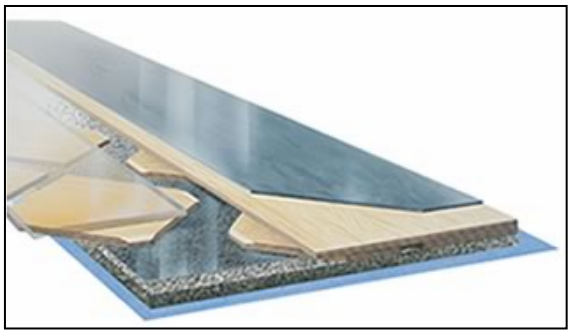
1. Model Montreal 21

When quick installation and high-performance is required, model Montreal makes the choice. This model features the HARO module technology – this means the most time consuming assembly part has already been done in the HARO factory. Model Montreal consists of two components - the HARO elastic layer and the HARO load distribution modules made of top quality plywood. Load distribution modules made of plywood are the premium solution for highest quality demands, providing highest loading capacities for multi-purpose usage and a unique performance.



The elastic layer is laid out loosely in the entire hall, the 2.50m x 1.25m (8' 2'' x 4' 1'') load distribution modules are installed on top and screwed together. A High-speed installation.

Model Montreal must be installed on an even sub-floor. The slab should be level according to DIN 18032, part II and DIN 18202:1997-04, figure 3 (compare with "PART 1 – GENERAL" 1.1 Tolerances).

The construction height of Montreal 21 is just 39mm and therefor a perfect choice for renovations. Montreal 21 fully meets the requirements of German DIN standard 18032-2 and is officially approved by the International Basketball Association (FIBA) for second level competitions.

Picture: High school Bisingen, Germany

2. Installations

England	Battersea Park, London	Battersea Park Athletics Track
England	Chelmsford, Essex	Dovedale Sports Centre
England	Essex	Williams de Ferrers Centre
England	Hunstanton Norfolk	Smithdow High school
England	Leiston Suffolk	Leiston High School Leisure Centre
England	London	Leaman Brothers
England	Monthey	Collège de l'Europe
England	New Port	New Port Velodrome
Germany	Bisingen	High school Bisingen
Italy	Salvaterra	Reggio Emilia province
Russia	Moscow	"Dynamo" Sports Hall
Russia	Moscow	"Lokomotive" Stadium
Switzerland	Mels	Turnhalle Mels
Switzerland	Monthey	Salle de gymnastique du Viéux Collège

3. Specifications for HARO Sports floor Montreal 21

PART 1 - GENERAL

1.01 DESCRIPTION

A. Related work specified under other sections.

B. CONCRETE SUBFLOORS

a) Depression: Slab depression is minimum 42mm

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

a) 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.
b) Manufacturer must meet qualifications of ISO 9001 and 14001.
c) Manufacturer shall submit a list of projects where the specified flooring has been installed.
d) Offered sports floors must be FIBA approved.
e) Sportsfloor should be under permanent supervision of RAL and be marked with the RAL certificate RAL-GZ 942

B. <u>Performance Qualifications of Flooring System</u>

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

1.03 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.

1.04 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.

1.05 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“.

1.06 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 paragraph 1.01 B „CONCRETE SUBFLOORS“ are met.

1.07 Guarantee

Hamberger Industries GmbH, of Rosenheim, Germany, warrants the materials to be free from manufacturing defects for a period of 2 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

2.01 MATERIALS

A. Moisture barrier

a) 6-mil polyethylene or
b) PVC-Foil, 0,5 mm or
c) Bituminous coating V60S4, 4mm thick

B. HARO Sports Floor Model Montreal 21

HARO Resilient underlayment,
HARO Load Distribution modules

Assembly and construction

1.1 ELASTIC CONSTRUCTION

- **Spacing/Support strips**

100 mm x 15 mm (19/32" x 3 15/16") Spacing strips placed along the perimeter of the floor with a distance of 30mm to the wall.
Dimensions: 15 x 100 mm

- **Resilient layer**

15 mm foam underlayment, density 80kg/m³. Installed staggered over the entire floor.

- **Polyethylene foil**

To be placed on top of the load distribution panels
Thickness: 0,03mm

- **Load distribution modules**

consisting of:

- Upper panel: 2.50m x 1.25m x .12m (8' 2'' x 4'1' x ½'') special plywood panel, BFU 100 according DIN 68705, part 3

- Scan pattern made of
  - special plywood 228/ 121 x 228 x 12 mm (9''/ 5'' x 9'' x ½'') and
  - special OSB-boards 228/ 121 x 228 x 12 mm (9''/ 5'' x 9'' x ½'')

with integrated air ducts.

Total thickness: 24mm

Total Construction height: 39 mm

1.2 RIGID CONSTRUCTION

Rigid construction in equipment and
adjoining rooms. Bituminated soft-fibre sheets, 15 mm,
will be used instead of elastic layer,
otherwise (see above)

Construction height: 39 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 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. The lid should have an all-round sealing and is locked with suction lifter. The lid is mounted flush with the sport floor.

_____ Clear opening 110 mm
_____ Clear opening 160 mm
_____ Clear opening 200 mm
_____ Clear opening 285 mm
_____ Clear opening 335 mm

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 carefully.

B. Install moisture barrier over concrete slab per manufacturers instructions.

C. Install elastic layer over entire floor. Solid block at walls and protrusions, and at bleachers/seatings in their stacked positions.

D. Install pre-fabricated load distribution modules over the entire floor and screw them together leaving a gap of 15mm to the wall.

E. Fill all holes and joints with filling compound

F. Glue synthetic flooring on load distribution modules

G. Paint game lines as per architects' plans

H. Install perimeter base as per manufacturers requirements.

I. Clean up jobsite and put all waste in general contractor's dumpster.

3.03.1 Maintenance

1. BASIC CLEANING

Treat the coating with our special Wax Remover diluted in water. Pick up the loosened dirt before it starts to dry and then wipe the floor with a damp cloth well wrung out in clear water. Should foam develop, add some of our de-foamer to this solution.

2. GENERAL CARE

For initial treatment after installation and after every basic cleaning, apply our special Sports Floor Care evenly with cleaning machine, mop or cloth. Proportion in the mixture: 1 litre Special Floor Care to 10-15 litres of Water. The sports floor can be walked on again after about 20 min.
Attention: Only use our Sports Floor Care in mixture with water!

3. ROUTINE CLEANING

Wipe the floor with our special sports floor care, using a damp mop or cleaning machine. This thoroughly cleans and at the same time cares for the coating.

4. 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 Sports Floor should **NOT** be flooded with water, since this may cause the load distribution boards to swell 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.