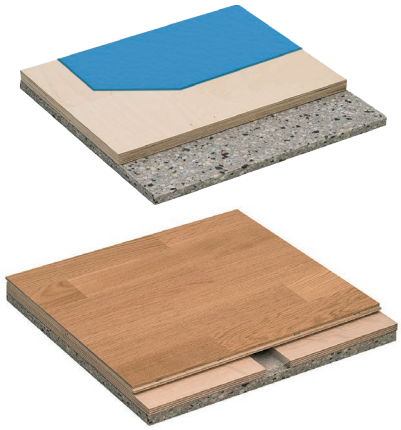
Information Sheet
Sports Floor Loadings
Dynamik Athen & Helsinki Floor Systems

Introduction

Sports floors are now often required to take loadings in excess of those imposed by athletes or portable sports equipment. Typically these include sports equipment including trampolines, portable basketball goals, bleacher seating and mobile access equipment.



Construction of Our Helsinki and Athen Sports Floors

Our Helsinki and Athen Area Elastic Sports Floor systems are built using a continuous elastic layer which means the sports floor system is fully supported at all points. This enables the systems to take higher loadings than a typical beam system.

If maximum loadings are required both systems can be installed with a 10mm elastic layer as opposed to the usual 15mm and with an all plywood construction. An all plywood construction gives much greater elasticity to the floor and thus enhances its durability.

Accordingly, these systems should be the preferred choice where high loadings will be imposed.

Bleacher Seating

Bleacher seating units impose high loadings on a sports floor and accordingly work best with our Athen and Helsinki systems. Our preference would always be the Helsinki 10-10 system for the highest weight loadings.

The system only needs to be strengthened in the area where the units are parked to avoid compression of the elastic layer otherwise the systems become more difficult to move. The seating can then be moved over the floor if required with suitable hover trucks if totally moveable or pulled out over the floor if it is fixed to a wall.

Although the floor will compress when pulled out under the weight of the seating units it will return to its normal position once the load is removed. In some cases we may strengthen the area under the wheel runs if the bleacher seating units are particularly heavy.

Careful choice of seating units is essential to ensure that a good number of high quality wheels are used to distribute the point loading in order to avoid damage to the surface of the floor system. We can assist you in making an informed choice and can review loading calculations supplied by your chosen seating manufacturer.

Heavy Sports Equipment

Heavy sports equipment such as portable basketball goals give rise to high loadings. They are not common but when they are required you need to ensure you have the right sports floor system.

Since they are typically used on a FIBA level 1 floor which must be wood we would recommend that they only been used with our Helsinki 10/10 system which is an all plywood system with a 10mm elastic layer.

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Mobile Access Equipment

Mobile access equipment is often used in order to carry out high level repairs, be this painting, roof repairs or simply the replacement of light bulbs. These are very heavy and in order to accommodate these it is essential that 12mm plywood is laid over the floor to distribute the load.

For the avoidance of doubt the 12mm plywood must be laid down over a clean floor and the mobile access equipment moved into its operating position by being manoeuvred over the plywood – it should never be manoeuvred straight over an unprotected surface.

Often damage is caused to the surface by the floor not being clean and dirt being pressed into the floor surface by the forces imposed by turning wheels.

If asked we would recommend the following equipment; Nifty 90, Nifty 120, Nifty 120T and Nifty 150T.

Maximum Distributed Loadings

The table opposite illustrates the maximum distributed loadings, we would recommend for the respective systems (with regard to the Athen system these only apply when a solid surface has been applied) with and without the use of 12mm plywood to aid the load distribution. 12mm plywood must be laid over a clean floor when mobile access equipment is being used to accommodate the rolling load and to avoid damage to the surface finish.

	Without 12mm plywood protection	With 12mm plywood protection
Helsinki 10-10	1,500kg /m^2	2,000kg /m^2
Helsinki 15 & Athen	750kg /m^2	1,250kg /m^2

Example Distributed Load Calculation

Below is an example for the use of mobile access equipment (Nifty 90, left) on a sports floor.

1	Weight of machine (inc. 120kg operative and working load)	815kg
2	Distance between wheels on the same axle	1.4m
3	Distance between wheels front to back	3m
4	Area of distribution (2 x 3)	4.2m^2
Distributed Load (1 ÷ 4)		**194kg/m^2**

Maximum Point Loadings

For small areas (typically up to 1,500mm^2 - approximately 40x40mm) the point load must be considered. The point load should never exceed **250g /mm^2**. This is relevant for example when tables and chairs and used on a sports floor.

Maximum Point Loadings Calculation

Below is a point loadings example calculation using a person seated on a chair. The example only uses 2 feet of the chair to allow for any rocking or leaning and presumes that each foot has a protective cap.

1	Weight of chair (including person)	100kg
2	Surface area of chair's foot - 20mm x 20mm (x2 feet)	800mm^2
Point Load (1 ÷ 2)		**125g/mm^2**

Conclusion

The above highlights a number of points to be considered with regard to loadings on a sports floor. If you should have any further questions or require further clarification then please contact us.