

# Information Sheet

## Sports Floor Loadings

Dynamik Academy & London 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 Academy Sports Floor

Our Academy area elastic sports floor system is built using elastic beams typically at 366mm or 440mm centres over which is laid a 22mm engineered board comprising of a plywood carrier with a hardwood wear layer.

### Construction of Our London Sports Floor

Our London area elastic sports floor system is constructed using elastic beams at 416mm centres over which is laid a 12mm plywood counter floor which in turn is overlaid with a 12mm plywood board ready to receive a synthetic finish.



### Bleacher Seating

Bleacher seating units impose high loadings on a sports floor, both distributed and rolling loads, and accordingly the systems need to be strengthened in the area where the units are parked and under the wheel runs – this is known as bleacher blocking. If the seating is totally mobile it is likely that the whole floor will need to incorporate additional beams to take the additional loading. The seating can then be moved over the whole floor if required with suitable hover trucks. It should be appreciated that the performance of the floor will be altered where bleacher blocking is incorporated.

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 would recommend our Helsinki 10-10 system where bleacher seating is to be incorporated into a sports hall since the playing area of the sports floor is then not compromised.

### 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.

We are unlikely to recommend their use with the Academy or London systems – preferring to point you in the direction of our Helsinki or Athen systems.



Sports Flooring Track & Gym Acoustic Walling Maintenance & Protection

0117 3015120 • info@dynamiksport.co.uk • www.dynamiksportsfloors.co.uk

## 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 London 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
Academy	750 kg /m <sup>2</sup>	1,250 kg /m <sup>2</sup>
London		



### 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 <sup>2</sup>
<b>Distributed Load (1 ÷ 4)</b>		<b>194kg/m<sup>2</sup></b>

## Maximum Point Loadings

For small areas (typically up to 1,500mm<sup>2</sup> - approximately 40x40mm) the point load must be considered. The point load should never exceed **150g /mm<sup>2</sup>**. This is relevant for example when tables and chairs are 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 <sup>2</sup>
<b>Point Load (1 ÷ 2)</b>		<b>125g/mm<sup>2</sup></b>



## 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.