

Junckers New Era UnoBAT Sports Floor System

D 1.0 General Information

D 1.2 Batten system Information

D 10.2 Specifier's Information

D 10.2.1 Laying Instructions

Fig. 1

Components

1 - Boards

- Junckers 22 mm boards for sports floors.
- Wood species/grades: Beech, SylvaKet, Maple and Ash / Champion, Premium and Club Surfaces, → B 2.0.
- Thickness x width x Length: 22 x 129 x 3700 mm

2 - Nails

- 2.2 x 45 mm machine J-nails or 50mm Portanails

3 - New Era Unobat Batten

- Battens 36 or 48mm x 45mm x 1800mm.
- Batten distance: c/c 411.1 mm

4 - Cradles

polypropylene in various sizes incorporating 10mm thick Evazote polyethylene foam pad.

- Timber packing pieces 2, 3, 6, 12 and 18mm.

or

Polypropylene packing pieces 1.5, 3mm, 6mm and 12mm.

5 - Moisture barrier

- Min. 0.20 mm PE membrane.

6 - Distance to wall

- 1.5 mm per running metre across width and 1 mm per running metre along length of the floor, but both min. 30 mm. Is also required at fixed points, e.g. columns.

Fig. 2

General description of floor system

The Junckers New Era Unobat Sports Floor System is based on 22mm solid boards nailed to a resilient sub-floor of kiln dried softwood battens placed in adjustable polypropylene cradles incorporating a foam base. The floor system is an area elastic type of sports floor with high shock absorbency combined with a high ball bounce, which makes it suitable for fast ball games as well as in multipurpose sports hall.

The minimum construction height is 74mm up to 439mm. Refer to page 3/3 showing all system heights including breakdown of components.

The New Era Unobat System fully conforms to EN 14904 Class A4.

Please note that full documentation of a floor system comprises the data in D 1.0, D 1.2 D 10.2 and D 10.2.1. → Fig. 1

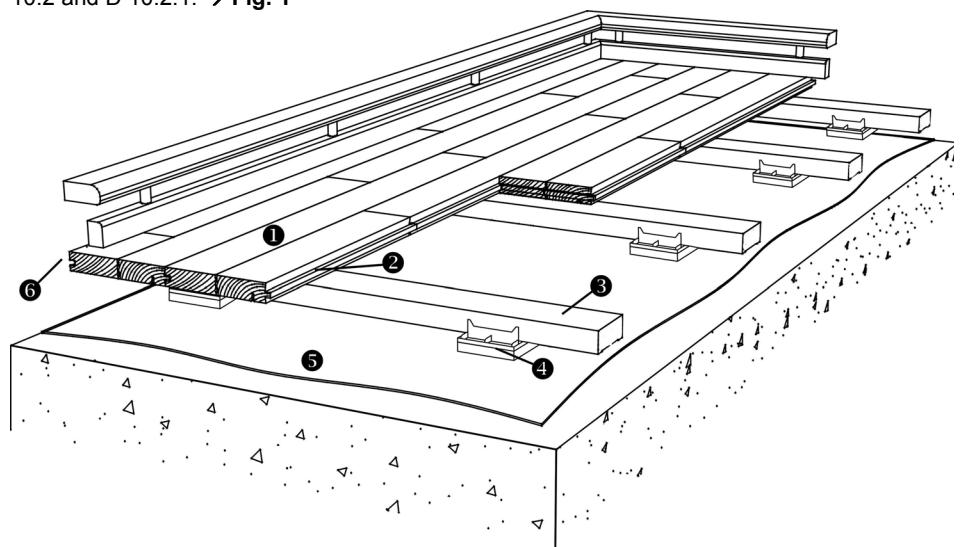


Fig. 3

System specifications

22mm solid boards nailed to a substructure of plain softwood battens and polypropylene cradles. Battens are either 36x45mm x 1800mm or 48x45mm x 1800mm long. Timber or polypropylene packing pieces are placed into the top of the cradle beneath the batten to level out undulations in the sub-floor. The New Era Unobat Floor System is installed on a dry, load bearing sub-floor of concrete, lightweight concrete, wooden materials or an existing or synthetic sub-floor. The floor system does not require a sub-floor produced to a tight flatness tolerance and can eliminate the need for a screed. The cradles are available in a wide range of heights to cater for most level deviations. A maximum of 20mm packing can be placed into each cradle before the next size cradle elevation is required. Batten distance of 411mm centres. Cradles are spaced at 450mm centres when using the 36x45mm batten and at 600mm centres when using the 48x45mm batten.

Batten centres and cradle centres can be reduced to strengthen the undercarriage in conjunction with retractable seating units etc. Please contact Junckers Technical Dept for more information.

This floor system can also accommodate under floor heating which is suspended between batten rows.

Boards

The boards are nailed to the battens according to a fixed **10-board rule**. The boards are laid in a continuous pattern with well-defined distribution of board header joints from row to row of 2 x the batten distance, i.e. 822.2 mm with c/c 411.1 mm. In that way all board header joints are supported.

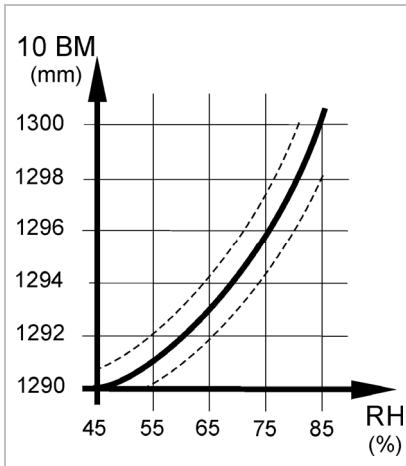


Fig. 4

Point load-bearing strength

The New Era Unobat Sports Floor System is tested and approved for below mentioned maximum point loads, in relation to load area and batten distance → **Rigidity and load-bearing strength**):

- c/c 411 mm:
- Diameter, 25 mm: 2,5 kN (= 250 kg)
- 100x100 mm: 3,5 kN (= 350 kg)

Fig. 5

10-board rule

The 10-board rule indicates the measurement across 10 boards when laid and is primarily based on the expected max. relative humidity of the building when in use.
→ **D 1.2 - 10-board rule**

Fig. 4 illustrates the 10-board measurement in relation to the relative air humidity. E.g. will an expected relative humidity of max. 65% RH normally give a 10-board measurement of approx. 1294 mm. The limit of the 10-board measurement, which also depends upon the floor size, is in fig. 4 shown as dotted lines.

The measurement is achieved by inserting temporary spacers between the boards during the installation process.

In case of doubt please contact Junckers Technical Service.

Rigidity and load-bearing strength

The New Era Unobat Sports Floor System is designed to ensure good technical properties in relation to the expected loads in connection with sports activities.

Figure 5 shows the maximum point load-bearing strength at certain load areas and batten distance. In a heavy load situation, e.g. back stop units, stages, retractable seating or tribunes, it may be necessary to decrease batten centres.

Table 1 shows the floor system in relation to the load classes in ENV 1991-2-1:1995, where the load-bearing strength requirements are complied with and the floor has an acceptable rigidity. The floor system's rigidity in relation to wheel loads is also shown. For further definition of load classes and types,

→ **D 1.0 - Stiffness and load bearing strength of floors.**

Table of loadings	ENV :1995		Other loads		Explanation of symbols
	Area load	Point load	Wheel load (solid)	Wheel load (air)	
Loading types					<ul style="list-style-type: none"> ● Loadings conforming to the requirements of ENV 1991-2-1:1995 and deflection criterion ◆ Deflection on wheel load is complied with D 1.0 - table 2
Loading category					
C4 Areas with possible physical activities		● ¹			Remarks 1) Point load area min. 200 x 200 mm
C5 Areas susceptible to overcrowding		●	◆		

Table 1

Moisture and heat insulation

A moisture barrier is always installed on all concrete subfloors, min. 0.20 mm PE membrane, directly on the concrete. Before the floor is laid the residual moisture in the concrete must not exceed 90 % RH (UK 75 % acc. To BS 8201).

For heat insulation → **D 1.2 - Heat insulation**

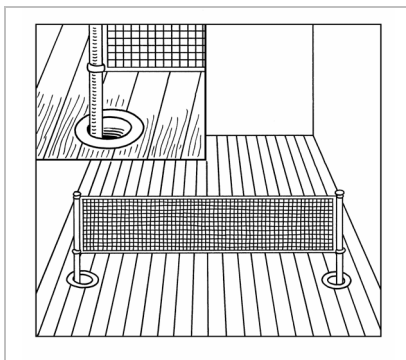


Fig. 6

Bushings

Bushings must be mounted so that both vertical and horizontal movement of the floor is unimpeded. The internal diameter of the flange must exceed that of the pipe, i.e. the external diameter of the net pole, by minimum 40 mm. At the outermost zones of the floor all flanges are mounted eccentrically towards the centre of the floor in relation to the bush fittings in the concrete, so that the floor can expand freely. → **Fig. 6.**

Place extra support battens at net poles, pipes, etc.

Consumption of materials

Net consumption for 1000 m² New Era Unobat batten system

Batten distance 411 mm:

Boards:	1000 m ² + approx. 2 %
Machine J-nails, 2.2 x 45 mm:	20000 pcs.
36x45mm or 48 x 45mm softwood battens:	2700 rmm.
New Era Cradles with 36x45mm battens	6600 pcs
New Era Cradles with 48x45mm battens	5000 pcs
(Packing pieces will be dependant on sub-floor survey)	
Loose tongues:	67 pcs.
Moisture barrier:	
min. 0.20 mm PE membrane:	1100 m ² incl. overlaps
Junckers Sylvafix	15 bottles (15 x 0.75 litre)
(to glue wooden pieces and loose tongues)	

NEW ERA Systems	22mm Floor 36mm Batten	22mm Floor 48mm Batten	Flooring Components Required
	Construction Height & Packing Range (Incl. Board)	Construction Height & Packing Range (Incl. Board)	
Cradle centres	450 mm	600 mm	
Cradles required per m ²	6.6no	5.0no	
Single Unit			
System S1	74 – 94mm	86 – 106mm	1x16mm cradle
System S2	88 – 108mm	100 – 120mm	1x30mm cradle
System S3	103 – 123mm	115 – 135mm	1x45mm cradle
System S4	118 – 138mm	130 – 150mm	1x60mm cradle
Double Unit			
System S5	133 – 153mm	145 – 165mm	1x55mm base, 1x20mm top
System S6	138 – 158mm	150 – 170mm	1x74mm base, 1x 6mm top
System S7	152 – 172mm	164 – 184mm	1x74mm base, 1x20mm top
System S8	167 – 187mm	179 – 199mm	1x74mm base, 1x35mm top
System S9	182 – 202mm	194 – 214mm	1x74mm base, 1x50mm top
Multi-3 Unit			
System S10	197 – 217mm	209 – 229mm	1x74mm base, 1x45mm spacer, 1x20mm top
System S11	212 – 232mm	224 – 244mm	1x74mm base, 1x45mm spacer, 1x35mm top
System S12	227 – 247mm	239 – 259mm	1x74mm base, 1x45mm spacer, 1x50mm top
Multi-4 Unit			
System S13	242 – 262mm	254 – 274mm	1x74mm base, 2x45mm spacer, 1x20mm top
System S14	257 – 277mm	269 – 289mm	1x74mm base, 2x45mm spacer, 1x35mm top
System S15	272 – 292mm	284 – 304mm	1x74mm base, 2x45mm spacer, 1x50mm top
Multi-5 Unit			
System S16	289 – 307mm	299 – 319mm	1x74mm base, 3x45mm spacer, 1x20mm top
System S17	302 – 322mm	314 – 334mm	1x74mm base, 3x45mm spacer, 1x35mm top
System S18	317 – 337mm	329 – 349mm	1x74mm base, 3x45mm spacer, 1x50mm top
Multi-6 Unit			
System S19	332 – 352mm	344 – 364mm	1x74mm base, 4x45mm spacer, 1x20mm top
System S20	347 – 367mm	359 – 379mm	1x74mm base, 4x45mm spacer, 1x35mm top
System S21	362 – 382mm	374 – 394mm	1x74mm base, 4x45mm spacer, 1x50mm top
Multi-7 Unit			
System S22	377 – 397mm	389 – 409mm	1x74mm base, 5x45mm spacer, 1x20mm top
System S23	392 – 412mm	404 – 424mm	1x74mm base, 5x45mm spacer, 1x35mm top
System S24	407 – 427mm	419 – 439mm	1x74mm base, 5x45mm spacer, 1x50mm top

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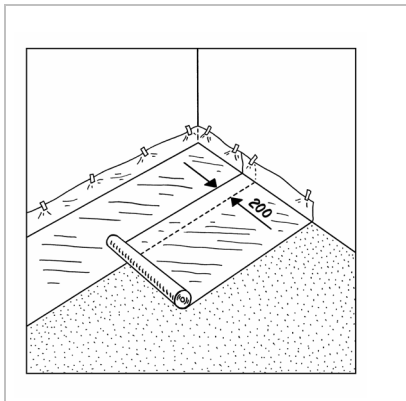
Before laying the floor

The building must be weather tight. The heating system must be installed and tested, and during the heating season there should be a constant heat supply. Cast concrete elements, including casting of sockets for fixtures and fittings, screeding and other wet trades which can contribute moisture to the building, e.g. priming of paintwork, must also be completed.

The relative humidity in the building must be between 35 - 65% RH (UK) and the temperature approx. 16-20°C. The residual moisture contained in the concrete or screed must not exceed 90% RH. (UK 75% acc. To BS 8201). In wooden based subfloors the moisture content should not exceed 12%.

Solid boards should always be laid immediately after arrival at the building. The packing on the bundles must not be removed until just prior to laying the floor, i.e. no acclimatising of the boards on site must take place.

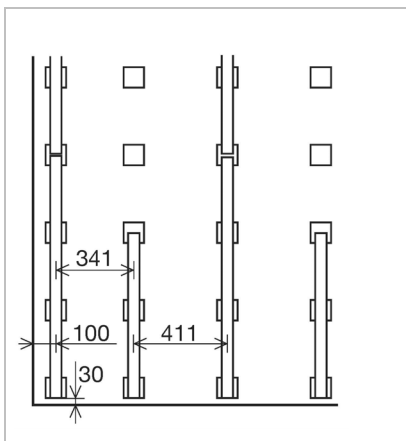
NB: Read these instructions carefully before laying begins. In case of doubt please contact your Junckers distributor before installing the floor.



1. Moisture barrier

A moisture barrier of min. 0.20 mm PE membrane is laid on all concrete sub-floors. The moisture barrier is laid with an overlap of 200 mm at all joints, continuing up walls, etc.

The membrane must be taped with waterproof tape at all joints.

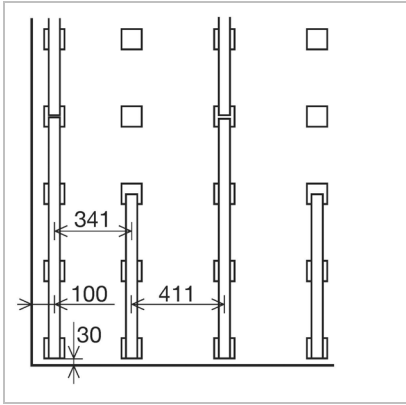


2. Laying of substructure – Batten distance 411 mm

The battens and cradles are laid parallel to the shortest side of the room to ensure that the boards are laid parallel to the longest side of the room. The first row of cradles is placed at 100 mm from the wall to the centre of the cradle. The second row is centred at 341 mm to the first row. All other rows are spaced at 411 mm apart from the last row which is again spaced at 100 mm centre from the wall. At the end of each batten row the end of the cradle should be placed 30 mm from the wall.

Batten ends within the floor must finish in the centre of a cradle. The exception is the first and last cradle of every row where the batten end finishes at the end.

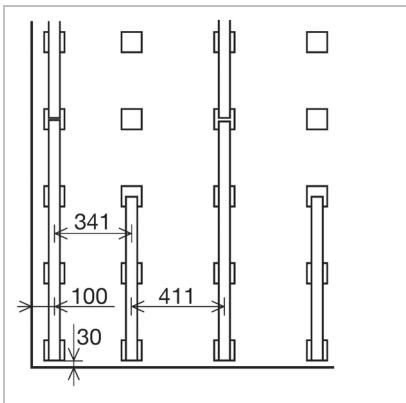
The second row of battens spaced at 341 mm centres is based on an expansion gap of 30 mm being left at the perimeter, which is the requirement for a 33 x 18 m sports hall. For smaller or larger floors please consult Junckers Ltd. for advice.



3. Batten end joints should not be in line but must be staggered as much as possible.

When using the 36 x 45mm batten the cradles are spaced at 450 mm along the batten. When using the 48 x 45mm batten the cradles are spaced at 600 mm centres.

The entire substructure must be placed with an expansion gap of minimum 30 mm from all walls, net posts, pipes, etc.

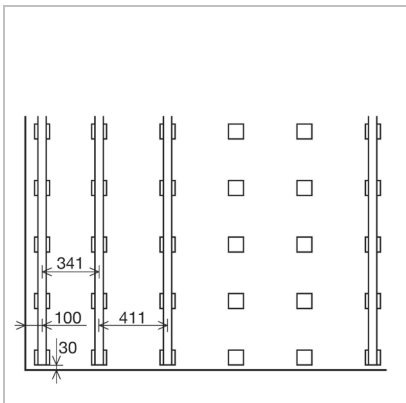


4. Start rows

The first 3 rows of cradles should be set out at the correct spacing and then laser levelled into place using packing pieces which are placed into the top of the cradles. Battens can then be placed in cradles.

The maximum permitted amount of packing per cradle is 20 mm before the next size cradle is required.

Please note that the wooden packing pieces must be glued to the cradle, to one another and then glued to the underside of the batten. The polypropylene packing pieces do not require gluing as they lock into place.

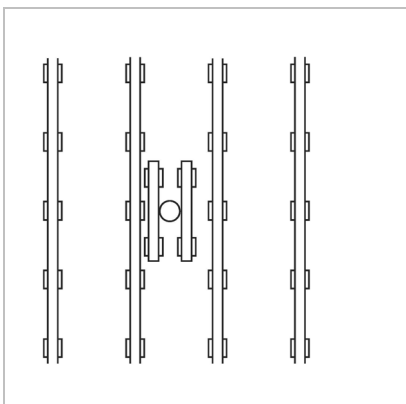


5. Remaining batten rows across the floor are spaced at 411 mm. Regular levelled Datum rows should now be set out accommodating the 411 mm batten centres. The distance of the datum rows will be dependant on the length of the straight edge used to span.

With the datum rows now in place the floor areas are effectively divided into bays and the floor is ready for the positioning and levelling of the balance of the cradle to fill the bays.

NB. The last row of cradles are spaced 100mm from the wall to the centre of the cradle

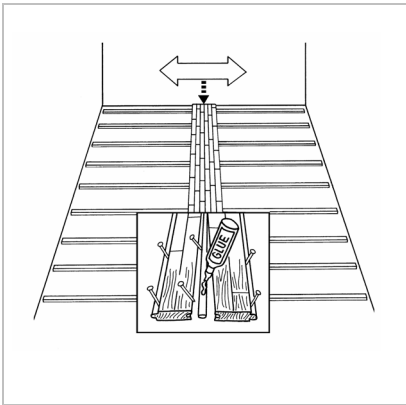
It is recommended that the foam pads are removed from cradles positioned in doorways and beneath fixed stationary objects to avoid deflection in these areas. This recommendation will also apply where floor heating grills have to be accommodated.



6. Place extra support battens (New Era Uno Bat) at net poles, pipes etc.

The distance to walls net posts and pipes should be a minimum 30 mm.

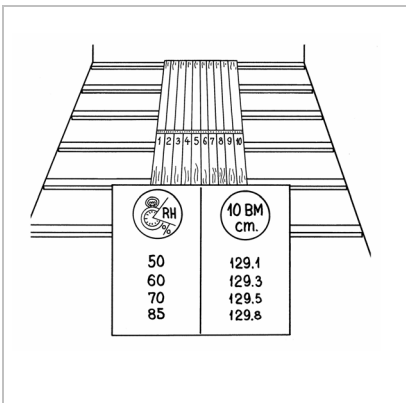
NB: If the floor is used as a squash court, permanent spacing blocks at 500 mm centres must be levelled into cradles and fixed to the first batten row and the wall where the playing is performed.



7. Laying of boards

If the floor is more than 12 m wide laying must begin in the middle of the sports hall. The two centre boards are joined with a loose tongue which is glued to both boards the full length of the boards.

The boards are secret nailed → **part 10.**

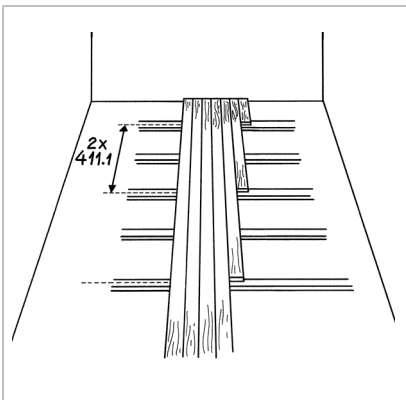


8. To avoid as far as possible stress or moisture formation in the floor, due to fluctuations in the climatic conditions in the building, the boards must be laid according to the 10-board rule which indicates the width of 10 boards when laid. Compliance must be checked continuously.

The 10-board rule is chosen on the basis of the maximum expected relative humidity of the building over the year. E.G an expected relative humidity of max 65% RH normally gives a 10-board measurement of approx 1294 mm.

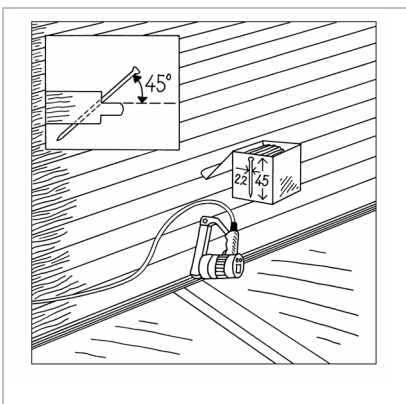
The 10-board measurement is achieved by placing plastic spacers between every board row or intermittently.

If in doubt please contact Junckers Technical Department.



9. All board header joints must be fully supported and all boards must be laid in the pattern shown in the drawing.

NB: with a batten distance 411.1 mm, the distance between board header joints in two consecutive rows must be 2 x 411.1 mm = 822.2 mm, as shown in the drawing.

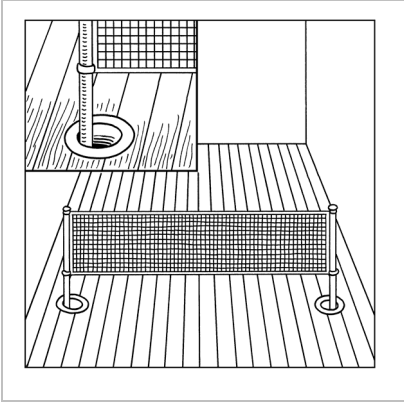


10. To avoid creaking, the boards are pressed down on the battens while they are nailed.

Use Junckers machine J-nails, 2.2 x 45 mm or 50 mm Porta nails. The boards are secret nailed at an angle of 45°.

Do not nail closer than 50 mm to stave joints and never in the board end joints.

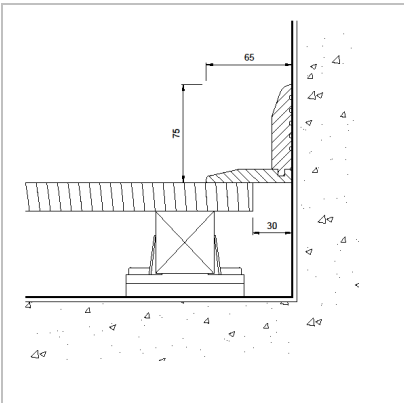
NB: The first and last rows of boards installed must be face nailed or screwed and then covered with matching filler.



- 11.** The distance between the floorboards and walls/vertical fixed installations is calculated as 1.5 mm per running metre of floor width on each side, and at end walls 1 mm per running metre of floor length, with an overall distance of minimum 30 mm.

Bushings must be mounted so that both vertical and horizontal movement of the floor is unimpeded. The initial diameter of the flange must exceed that of the pipe, i.e. the external diameter of the net pole, by minimum 40mm. At the outermost zones of the floor all flanges are mounted eccentrically towards the centre of the floor in relation to the bush fittings in the concrete, so that the floor can expand freely.

Place extra support battens (New Era Uno Bat) at net poles, pipes etc.



12. Junckers Sports Hall Skirting

The skirting foot must lie flat and be in contact with the floor. The sections can be either butt jointed together or 45° mitre the joints between sections to enhance the visual effect of the joint.

The skirting can be either glue fixed to the walls or screw fixed with cups and screws.

Do not fix the skirting to the Junckers floor and ensure that the skirting is not exerting any downward pressure on the floor.