

Concepts

Products

Service

# Installation guideline

## MR\_SB\_02\_DOPPELBODEN

Lindner AG  
Raised floor NORTEC, LIGNA

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## 2 Explanations to this guideline

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### Dear customer

We are pleased that you have decided a product of the Lindner AG.

This guideline has been created with pictures and texts for the necessary work steps.

Please read and pay attention to this guideline in order to ensure a smooth installation. Important notices and information for the installation of the raised floor system are included.

Please also pay attention to all safety and warning notices.

Not all detail information to all steps of the installation can be described resp. shown for reasons of clarity.


Texts and drawings published in this document are exemplary. Any warranty for the completeness is shut out and any complaints are excluded. However, please contact us if you have further questions or if you need help.

The installation by trained and professional installation staff is mandatory.

Please keep this guideline thoroughly!










The information in this guideline corresponds to the current state of our knowledge and shall inform about the installation of our products. They are therefore not intended to guarantee certain properties of the products or their suitability for a specific application. Buyers and users have therefore to evaluate autonomously the suitability of our products for the demands presented under the respectively prevailing conditions. If you have questions to the possibilities of application and use of our floor we are pleased to assist you.

## 2.1 Used warning notices

|   |   |
|---|---|
|  <b>WARNING</b>  | Marks a danger which can immediately lead to an <b>injury</b> . |
| <p><i>Type of danger and its sources</i></p> <p><i>Consequences</i></p> <ul style="list-style-type: none"> <li>⇒ <i>Measures for avoidance.</i></li> <li>⇒ <i>....</i></li> </ul> |   |

|   |  |
|---|--|
| <b>ATTENTION</b>  | Marks a danger which can cause a <b>damaging or destruction of the product</b> . |
| <p><i>Type of danger and its sources</i></p> <p><i>Consequences</i></p> <ul style="list-style-type: none"> <li>⇒ <i>Measures for avoidance.</i></li> <li>⇒ <i>....</i></li> </ul> |  |

## 2.2 Symbols

|  |   |
|--|---|
|  Notice for the avoidance of material damage        |  Admissible action                                       |
|  Non-admissible action                              |  See text  |
|  See pictures                                       |  See separate installation guideline acc. to indication  |
|  Optional building parts, can be ordered on request |  Remove packaging or building part and dispose properly. |
|  Test / measure                                     |   |

### 3 General indications / installation conditions

#### Indications

Please read the following instructions thoroughly before installation!

The installation of raised floors requires special experience and should only be done by “instructed professionals”.

The floor areas have to be sectioned resp. arranged sensibly before the start of the installation. An installation plan has to be issued.

Respective expansion joints acc. to the raised floor type and covering have to be planned and strictly kept.

- The delivered material has to be checked on quantity, identity, quality and completeness. Complaints in installed condition cannot be accepted. Damage has to be announced immediately in order to maintain claims.
- The materials have to be stored in dry, air-conditioned rooms ( $20 \pm 5 \text{ }^\circ\text{C}$ , 40 to 65 % relative air humidity). Do not store outside and protect it from humidity.
- In order to avoid a deformation of the panels they have to be stored on a level surface.
- The material should be acclimated at least 48 h before the installation in the rooms of the installation.
- With de-piling it has to be paid attention that the raised floor panels are always laid top side on top side and bottom side on bottom side in order to avoid a rubbing off of the batch labelling on the bottom side of the raised floor panels to the covering.

#### ATTENTION

- The admissible climate during installation is  $20 \pm 5 \text{ }^\circ\text{C}$  and the admissible relative air humidity is 40 to 65 %.

- The installation may only be started if the admissible climate for the installation is reached and the facade is closed.
- The subfloor has to be dry, even, solid as well as free of cracks, craters and chemical substances (grease, oil). The overall drying has to be insofar as that no considerable shrinking has to be expected anymore.
- We generally recommend providing the subfloor with a dust-binding paint in order to guarantee a proper gluing of the pedestals. The subfloor has to be broom-cleaned or otherwise vacuumed.
- A 2C sealing has to be used with air-conducting floors. All rising building elements have to be sealed up to the upper edge of the floor (raised floor). Openings in the ceiling have to be closed permanently elastic and air-tight.
- The subfloor has to be sufficiently resistant to abrasion. Any floated up layers of fine mortar or loosely adherent parts must be removed before installation.
- The subfloors have to be sufficiently load-bearing and to be able to take up all occurring loads. The subfloor has to be within the levelness tolerances acc. to the DIN 18 202, table 3, line 2 (latest edition) or the properties are regulated by additional agreements.
- A tear-off test acc. to AGI a20 with glued pedestals has to be executed with uncertain adhesion properties of the subfloor (e.g. PVC covering, primer or screed) in order to determine the strength of the substrate. A minimum strength of 110 N is necessary. This is determined by pulling the glued raised floor pedestal off the subfloor.
- The room has to be checked on rectangularity in order to avoid small cut panels.
- The floor areas have to be sectioned resp. arranged sensibly before the start of the installation. We recommend issuing a laying plan. We can do this plan for you if requested.
- Cut resp. cut-out panels are generally to be supported sufficiently with pedestals and/or profiles.
- The fixed heights in the different levels have to be checked before the installation (e.g. height level, elevators and staircase).
- Details for the execution of electrical outlets, bridging etc. have to be planned project-specific.

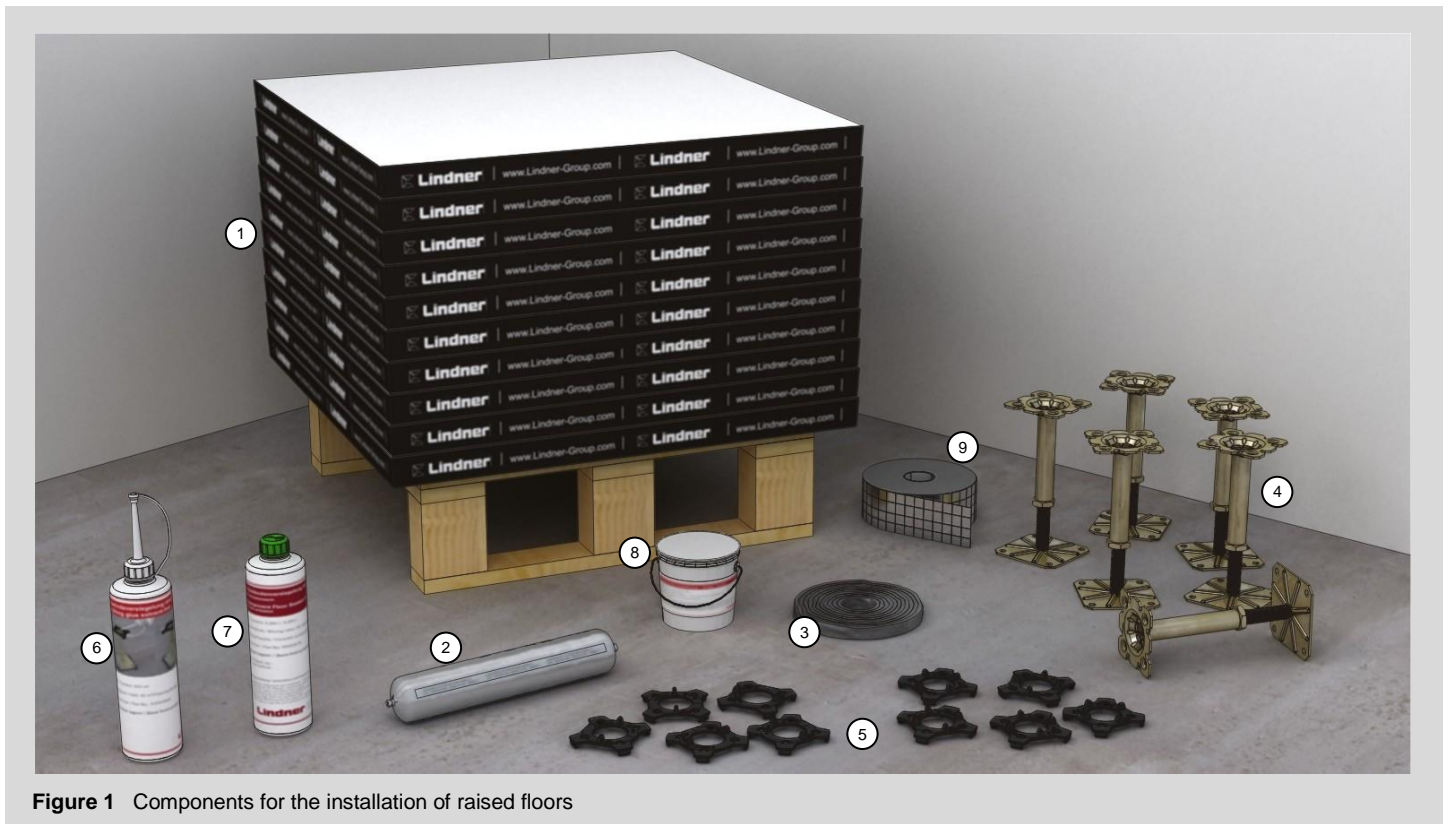
- The installer has the responsibility to safeguard his workplace in order to exclude accidents and damages.
- A sealing tape (wall connection tape) has to be provided at all rising building elements.
- A protection covering (e.g. wood fibre panel) has to be placed on the raised floor after its installation in order to avoid a damaging by succeeding trades.

 **WARNING**

Missing or changed parts impair the function of the raised floor and can cause material resp. personal damage.

- ➔ Do not change or remove any attached parts.
- ➔ Mount all parts shown in this guideline resp. which are necessary.

## 4 Floor components



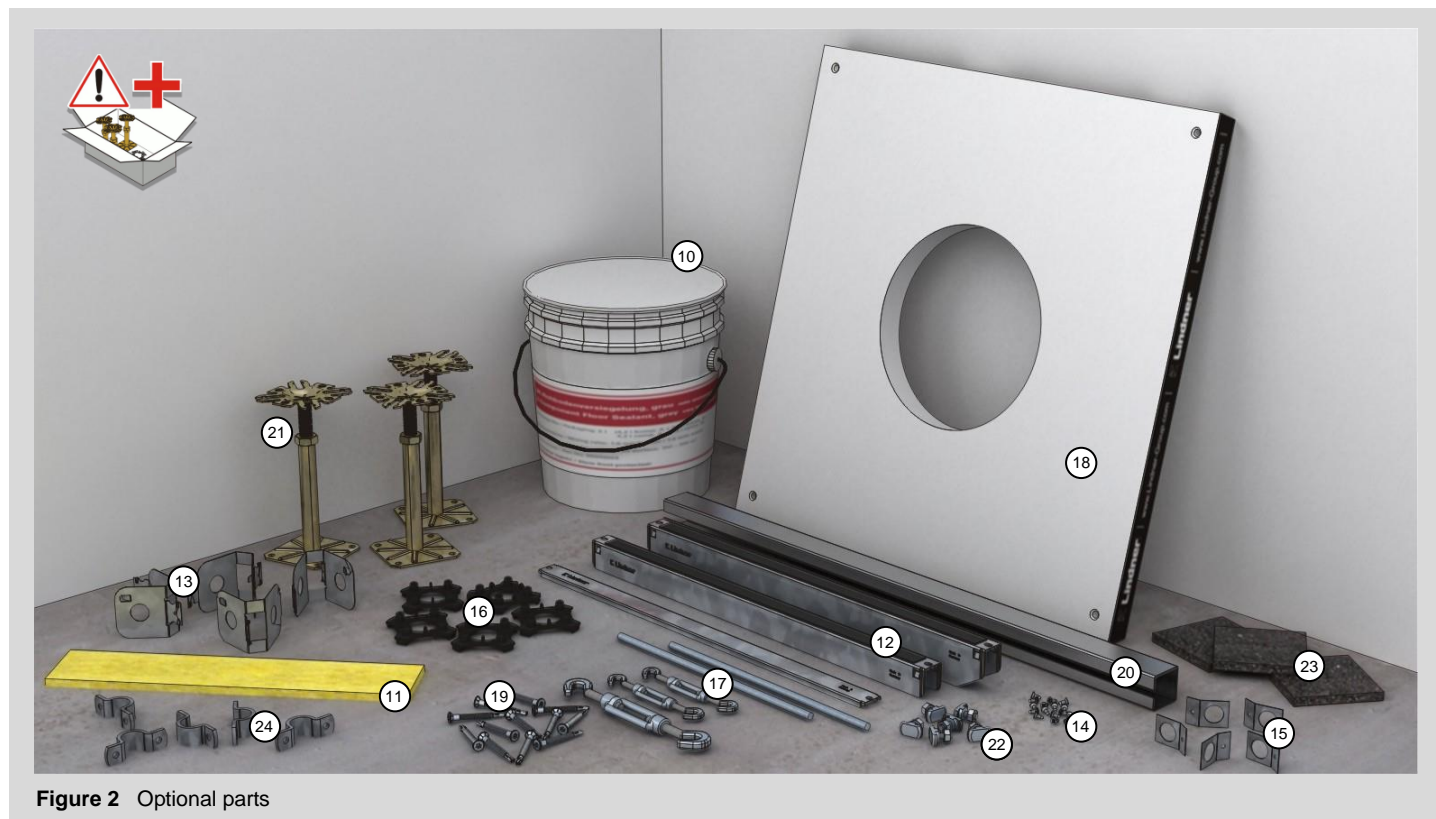
**Figure 1** Components for the installation of raised floors

- ① Raised floor panels stacked on a wood pallet
- ② Lindner Pedestal glue
- ③ Wall connection tape
- ④ Raised floor pedestal
- ⑤ Gaskets with 4 or 2 knobs, conductive or non-conductive
- ⑥ Lindner Locking glue solvent-free
- ⑦ Lindner Subfloor sealant 1C
- ⑧ Lindner Edge sealant solvent-free
- ⑨ Aluminium compensation pads 0.2 mm, 0.5 mm



## 4.1 Optional parts

These parts can be ordered optionally.



- |                                     |                                       |
|-------------------------------------|---------------------------------------|
| ⑩ Lindner Subfloor sealant 2C       | ⑰ Bracing M6 – M12 with threaded bolt |
| ⑪ Wall connection from mineral wool | ⑱ Panel screwing                      |
| ⑫ Stringers RO, RL, RM              | ⑳ Bridging profiles CL, CS, CM, CH    |
| ⑬ Cable tray clamps                 | ㉑ SW 90 pedestals                     |
| ⑭ Drilling screws for stringers     | ㉒ Hammer head screws                  |
| ⑮ Bracing eyes                      | ㉓ Sound dampening pads                |
| ⑯ Gaskets Corner Lock               | ㉔ Earthing clamps                     |

## 5 Necessary tools

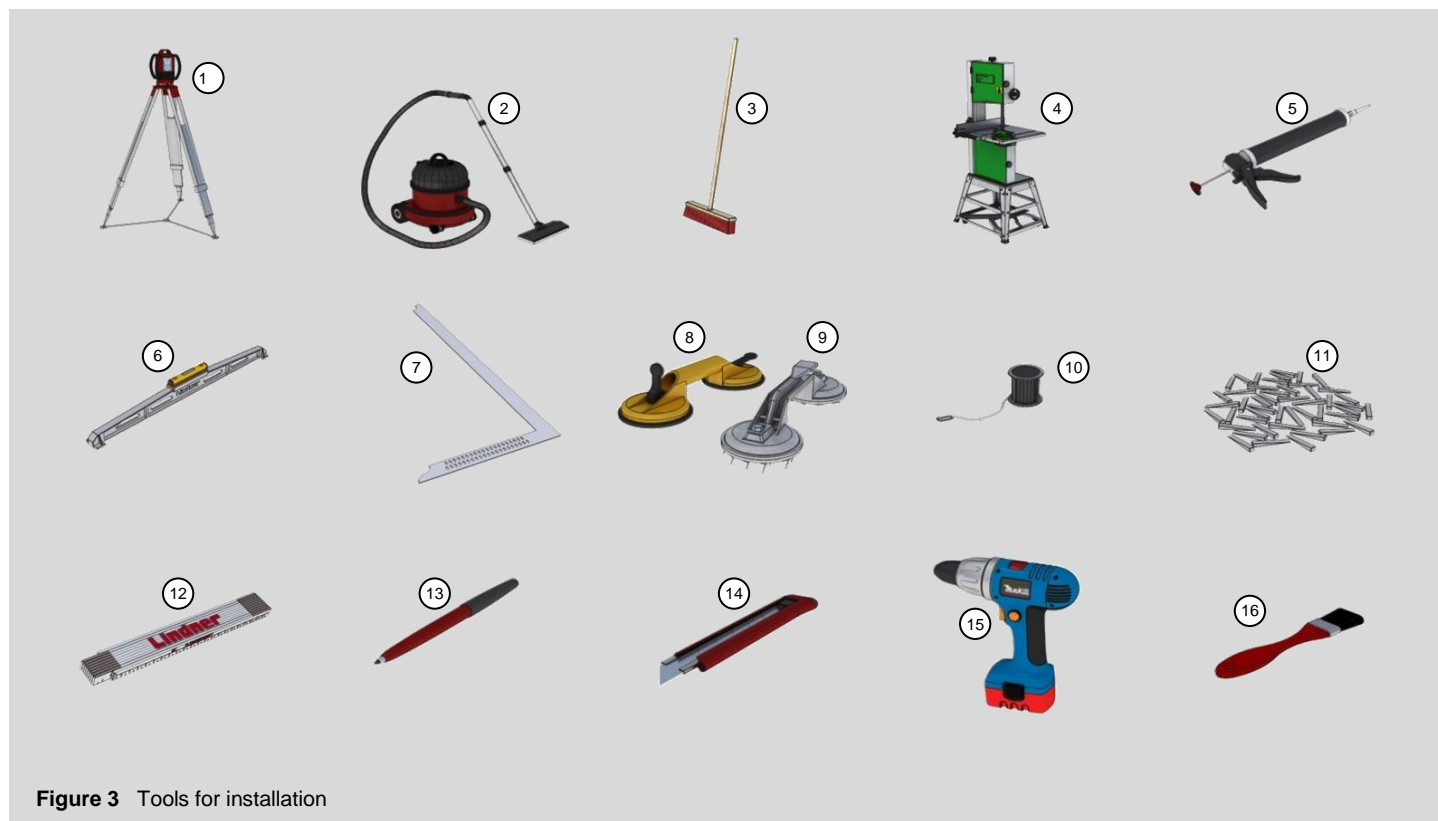


Figure 3 Tools for installation

- |   |   |
|---|---|
| <p>Rotating laser</p> <p>① optionally levelling device or hose levelling instrument (without illustration)</p> <p>② Vacuum cleaner</p> <p>③ Broom for cleaning and/or application of the subfloor sealant</p> <p>④ Band saw</p> <p>⑤ Caulking gun for 600 ml tube bags</p> <p>⑥ Raised floor water level</p> <p>⑦ Square</p> <p>⑧ Vacuum suction lifter</p> <p>⑨ Spike lifter with applied carpet coverings</p> | <p>⑩ Line</p> <p>⑪ Wedges from plastic or wood</p> <p>⑫ Folding metre stick</p> <p>⑬ Pen for marking</p> <p>⑭ Cutter</p> <p>⑮ Cordless screwdriver</p> <p>⑯ Brush</p> |
|---|---|

## 6 Floor installation

### 6.1 Cleaning and sealing of subfloor



Figure 4 Cleaning of the subfloor

Figure 5 Application of the subfloor sealant

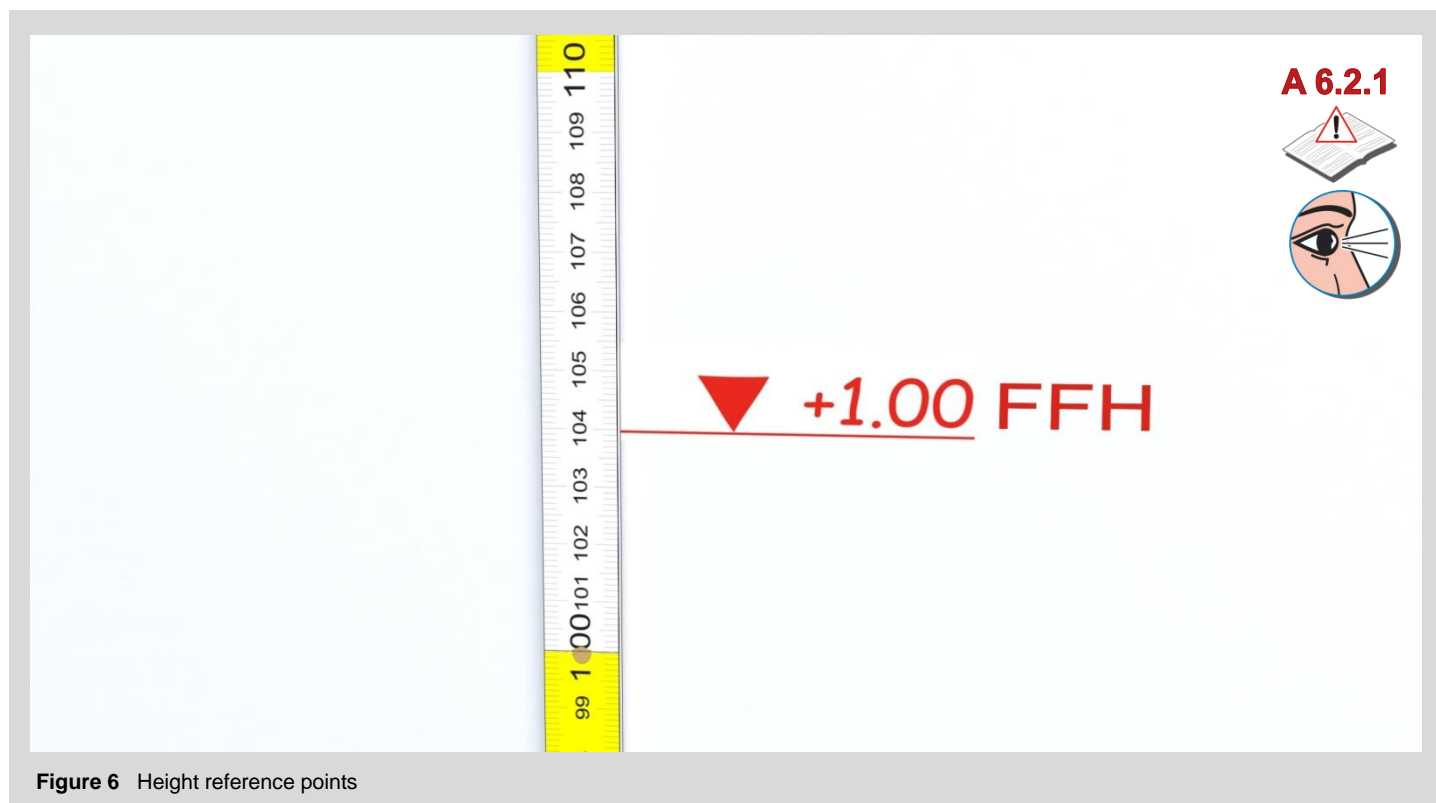
#### Work steps:

- A 6.1.1** The subfloor has to be cleaned by sweeping and vacuuming before the installation.
- A 6.1.2** Apply the subfloor sealing if necessary (processing acc. to information of the respective manufacturer of the sealant). See also indications below.

#### Indications

- The subfloor has to be dry, level, solid as well as free of cracks, craters or chemical substances (grease, oil). The overall drying has to be insofar as that no considerable shrinking has to be expected anymore.
- The subfloor has to be sufficiently resistant to abrasion. Any floated up layers of fine mortar or loosely adherent parts must be removed before installation.
- We recommend sealing the subfloor with a 2-component sealing or a similar material with air-conducting floor systems. Please see the respective documents of the manufacturer for information on the processing.

## 6.2 Fixing and checking of height reference points



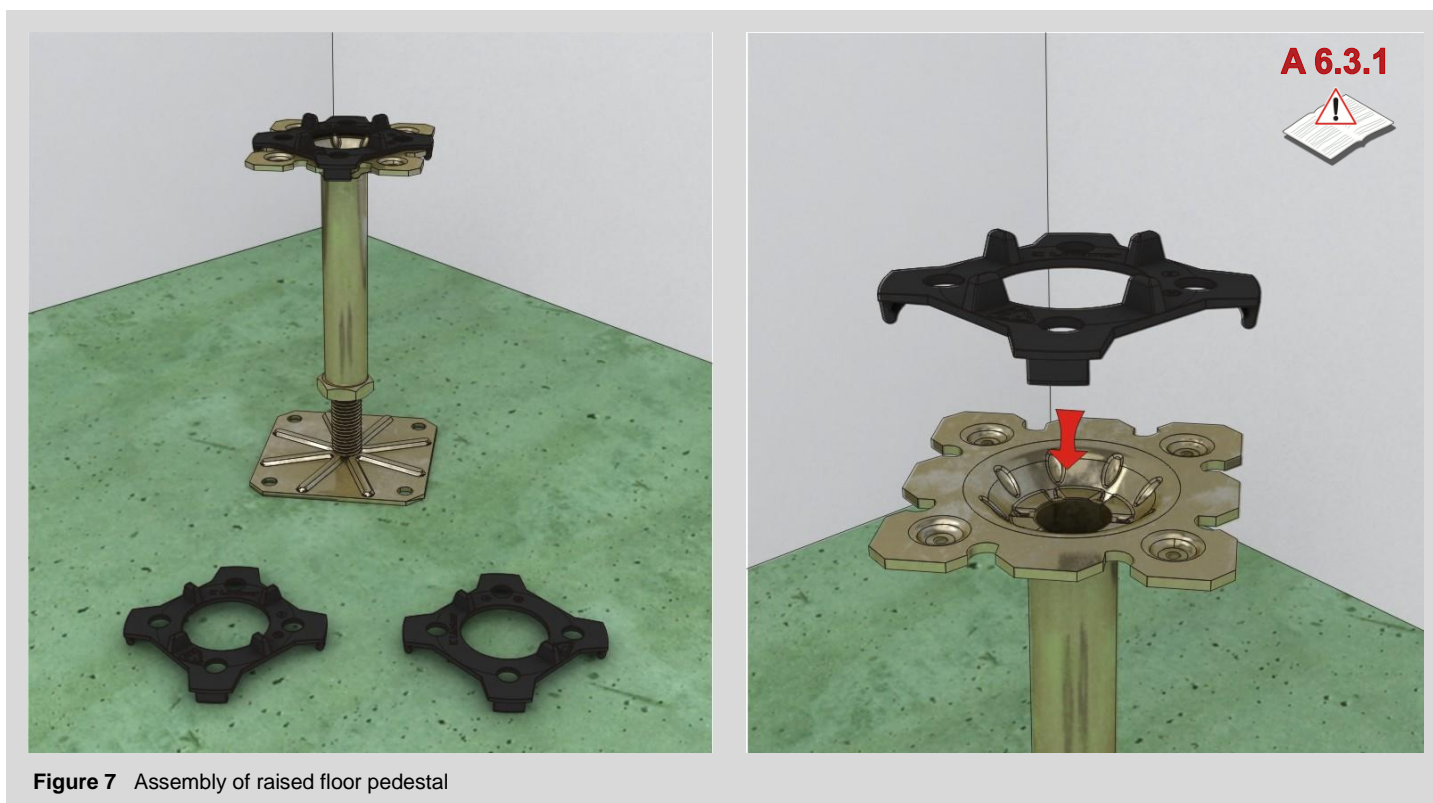
### Work step:

**A 6.2.1** Fix height reference points (e.g. height level, elevators or staircase).

#### Indication

- Height reference point means 1 m above the upper edge of the finished floor (FFH) incl. covering. The starting pedestal has therefore to be lower by the thickness of the covering and the panel (as shown exemplary in the figure).

## 6.3 Preparation of pedestals for installation



### Work step:

- A 6.3.1** Clip in gaskets without knobs in the corner, with 2 knobs in the peripheral area and with 4 knobs in the main area.

## 6.3.1 Preparation of gaskets without knobs


**Work step:**

**A 6.3.1.1** Remove the respective knobs with a cutter if gaskets with 2 or no knobs are needed.

 **WARNING**

Inappropriate use of a cutter can cause incised wounds resp. severe injury.

➡ Always cut away from the body.

## 6.4 Adjustment of the first pedestal

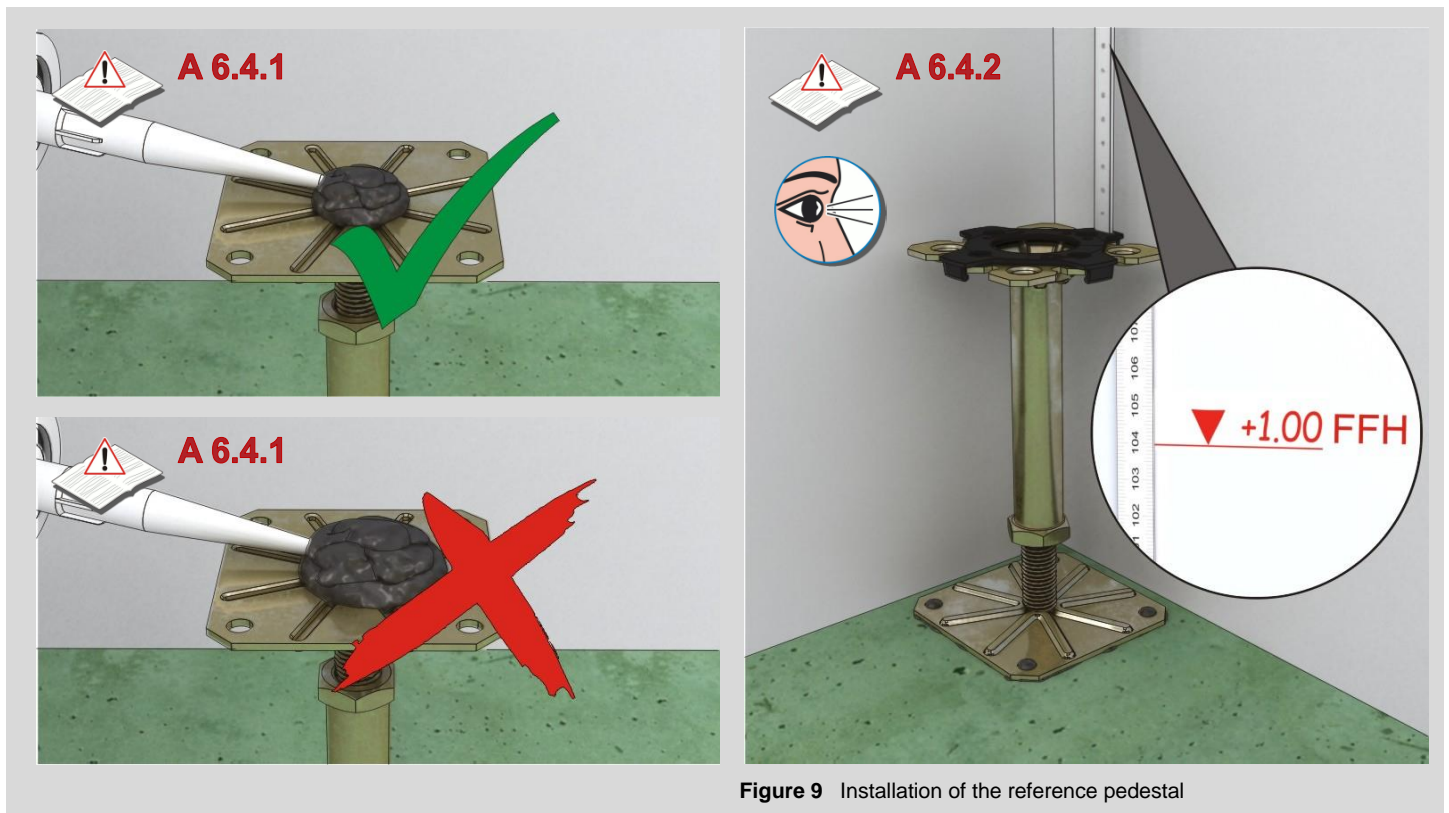



Figure 9 Installation of the reference pedestal

### Work steps:

- A 6.4.1** Apply pedestal glue to the lower side of the raised floor pedestal (approx. size of a walnut). Please see the documentation of the respective manufacturer for information on the processing of the pedestal glue. 
- A 6.4.2** Turn around the pedestal and place it at reference point. Level pedestal to the required height with a levelling instrument (hose levelling instrument, levelling device, laser or similar).  
Attention: Consider the thickness of the panel!
- A 6.4.3** Let pedestal dry acc. to the information of the manufacturer of the pedestal glue.

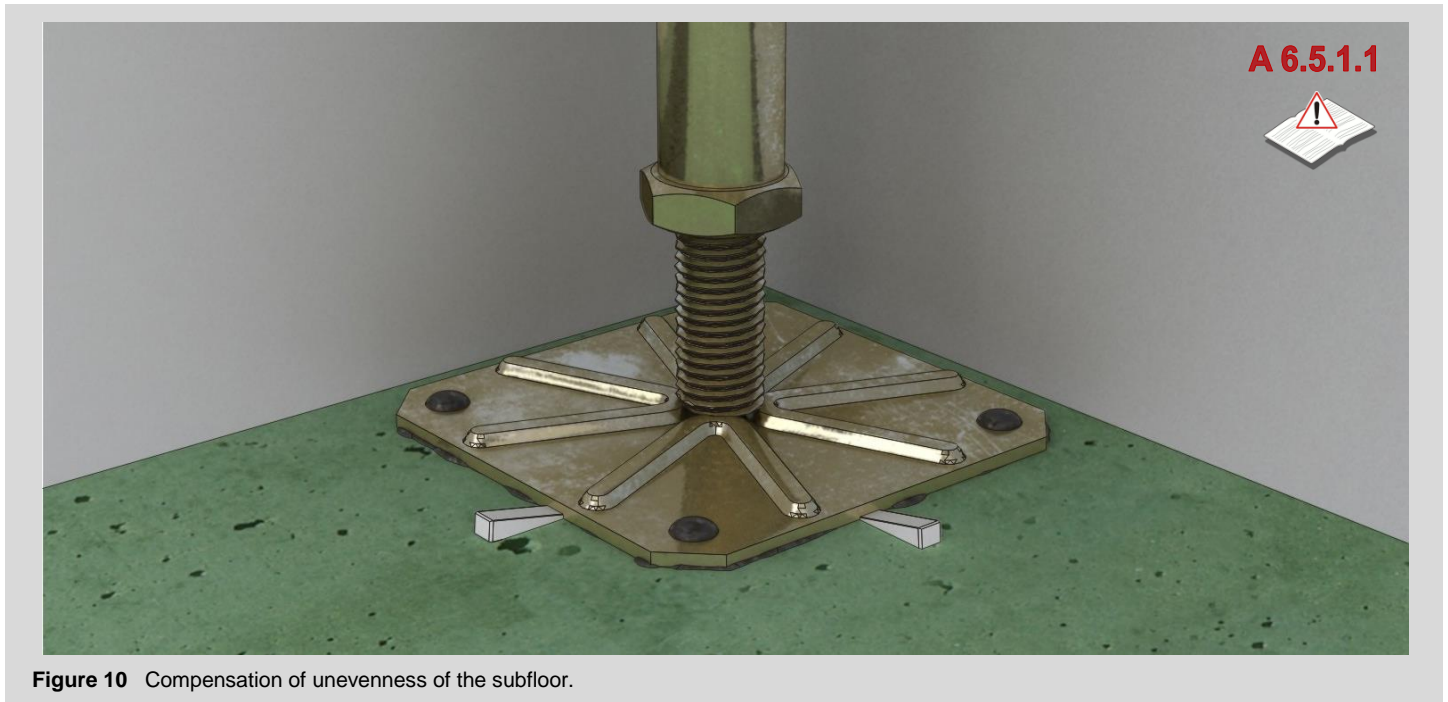
### Indications

- The installation of the substructure has to be done corresponding to the valid installation plan.
- The installation of the floor system should only be executed by instructed professional staff.
- In terms of the admissible loads, it has to be paid attention that the grid dimension of the pedestals (different acc. to system) is not exceeded!

## 6.5 Special cases / measures


The work steps presented in this chapter have to be applied acc. to the situation on the building site resp. static requirements. They are not part of the general installation.

### 6.5.1 Compensation of unevenness of the subfloor



**Figure 10** Compensation of unevenness of the subfloor.

#### Work step:

**A 6.5.1.1** Compensate large unevenness by means of wedges. 



## 6.5.2 Doweling of the pedestals with the subfloor

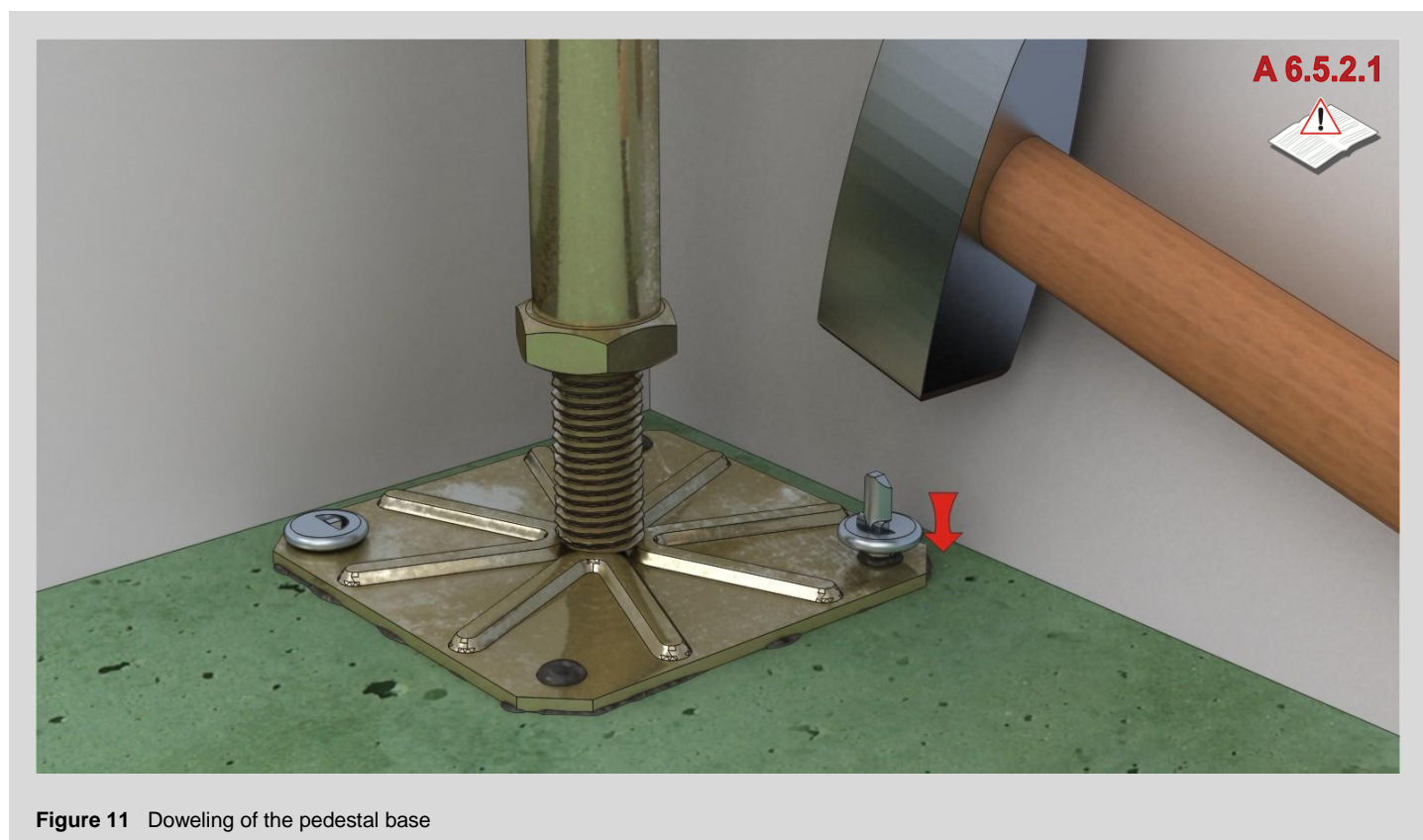


Figure 11 Doweling of the pedestal base

**Work step:**

**A 6.5.2.1** Additional doweling of the pedestal with the subfloor by means of respective connection technology acc. to the static requirement (seismic safety, bracings).


**Indications**


- The doweling has to be made in diagonal holes (see figure 11).
- The directly next pedestal is to be doweled in the by 90° shifted holes.
- The doweling is done after the complete curing of the pedestal glue.

## 6.5.3 Footfall sound improvement



Figure 12 Installation of the sound dampening pad

**Work step:**

- A 6.5.3.1** Sound dampening pads can be used with increased requirements to the footfall sound improvement. These are glued in between the base plate and the subfloor. 

 **Indications**



- It is recommended to glue the sound dampening pads with pedestal glue to the base plates before the start of the installation of the raised floor in order to prevent a slipping of the pedestal with the installation of the raised floor.
- The maximum nominal load with the use of sound dampening pads is 3 kN.

## 6.6 Adjustment of the raised floor pedestals for the first raised floor panel



**Figure 13** Installation of the further pedestals for the first raised floor panel

### Work step:



- A 6.6.1** Install the further two raised floor pedestals with the required grid dimension and level the pedestals on height by turning the adjustment nut as described in the installation step 6.3 and 6.5.  

## 6.7 Apply wall connection tape to raised floor panel



Figure 14 Gluing of wall connection tape

### Work steps:

- A 6.7.1** Unroll wall connection tape and glue it with the adhesive side flush to the upper edge of the raised floor panel (on two sides with corner panels). 
- A 6.7.2** Cut the wall connection tape acc. to the edge length of the panel. 

### Indications

- A wall connection tape has to be glued to panel edges with a connection to a wall.
- A mineral wool stripe can be used instead of the wall connection tape (e.g. for fire protection reasons).

### WARNING

Inappropriate use of a cutter can cause incised wounds resp. severe injury.

- ➡ Always cut away from the body.

## 6.8 Installation of the first raised floor panel



### Work step:

**A 6.8.1** Place reference raised floor panel on the installed raised floor pedestals.


| Indication   |
|--|
| <ul style="list-style-type: none"> <li>Consider the direction of the covering with factory-applied coverings.</li> </ul> |

## 6.9 Installation of the first raised floor panel



Figure 16

### Work steps:

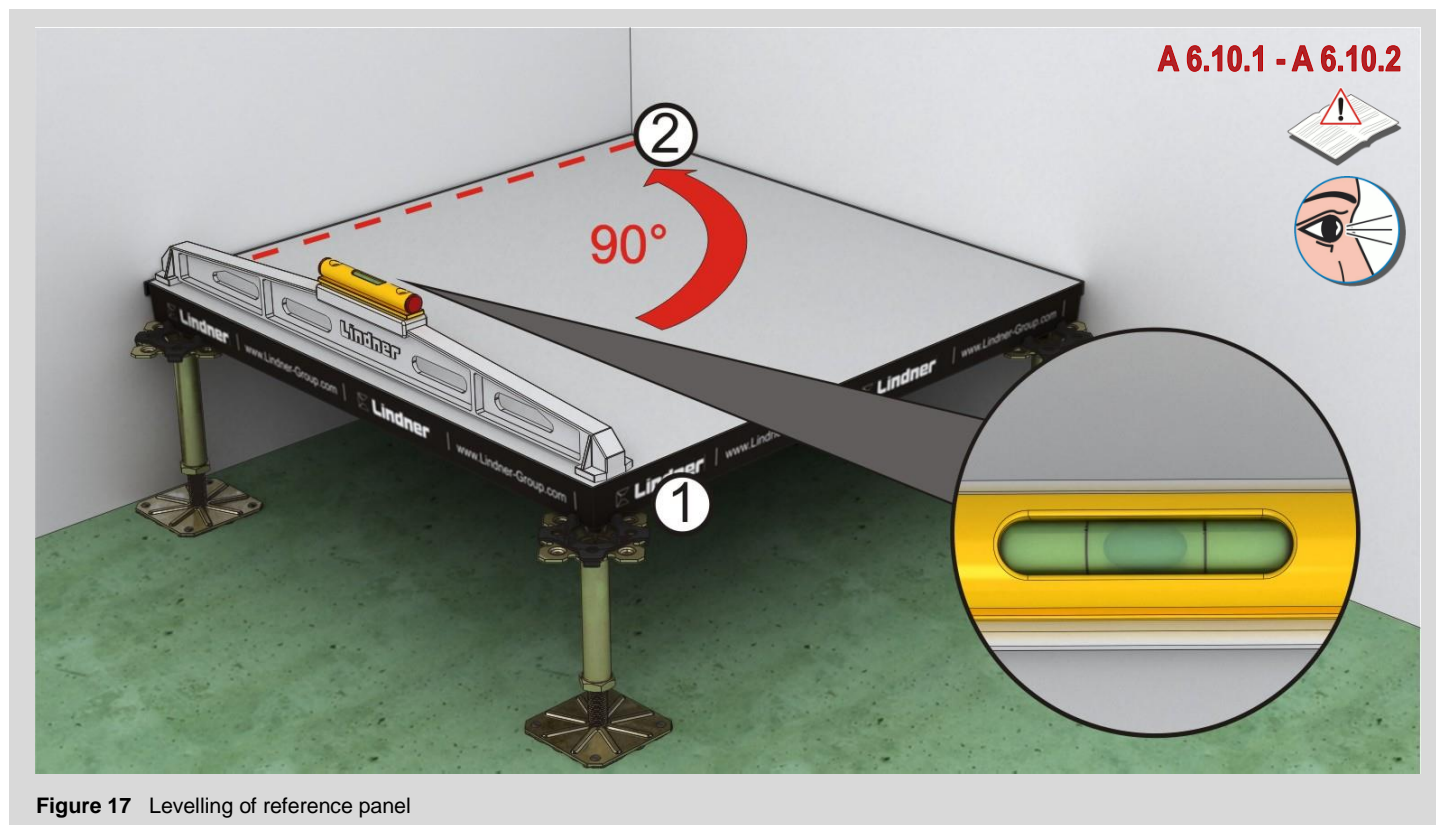
**A 6.9.1** Install pedestal at the yet unsupported corner  as described in the installation steps 6.3 to 6.5.

**A 6.9.2** Adjust pedestal on height with adjustment nut.


### Indication

- With uneven walls it is recommended to start with the second panel row approx. the width of a half panel (300 mm) away from the wall. The wall panels of the first row are then cut panels.

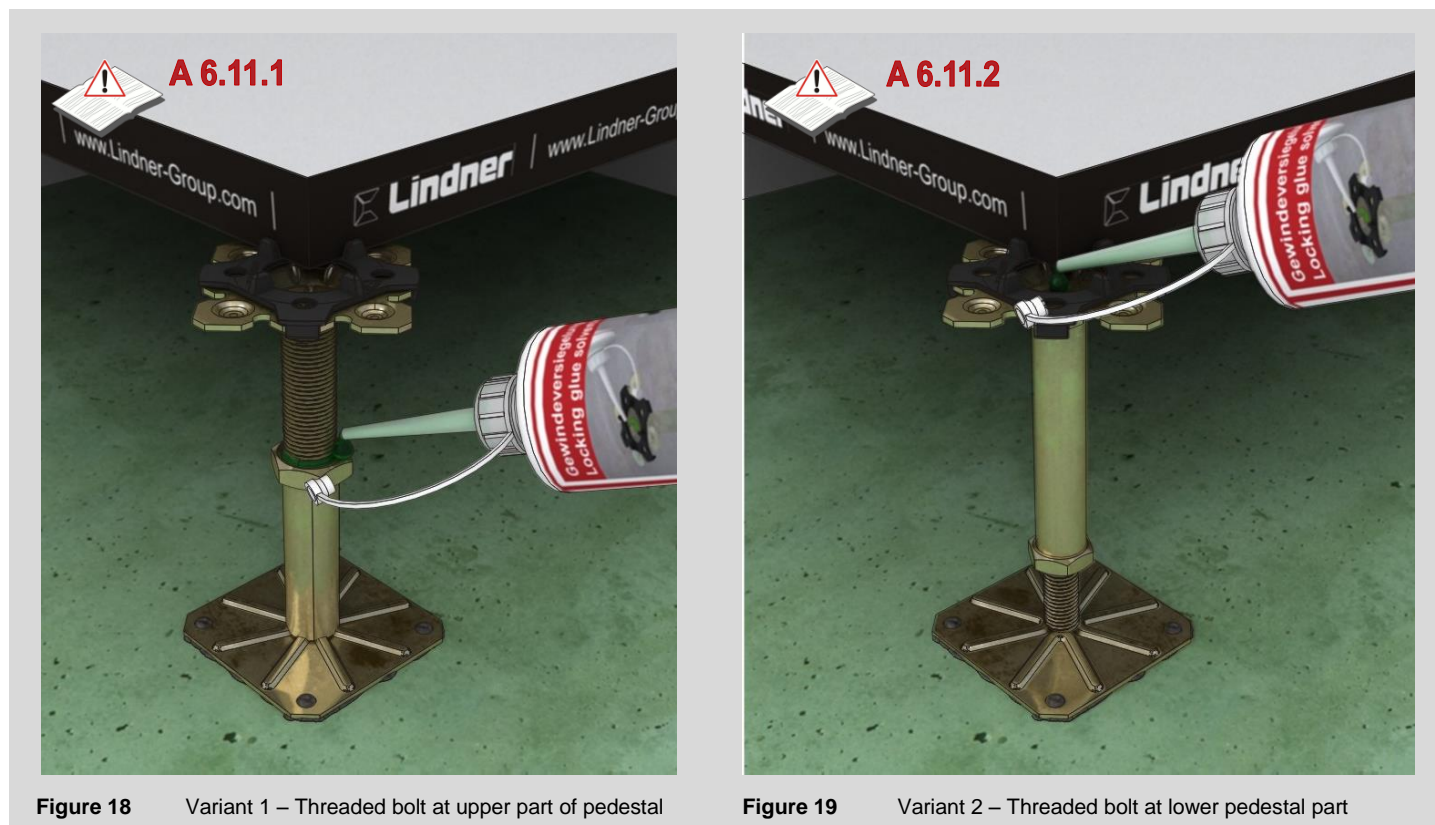
## 6.10 Levelling of first raised floor panel



### Work steps:


- A 6.10.1** Check and eventually adjust reference panel in both directions with the raised floor water level. 
- A 6.10.2** Check again the levelling on height to the reference point and readjust at the pedestal if necessary.


## 6.11 Secure raised floor pedestals against height displacement



### Work steps:

All pedestals of the reference panel resp. also pedestals in the further installation steps have to be secured against height displacement after the exact adjustment.

**A 6.11.1** Variant 1 Threaded bolt at upper part of pedestal.  
Apply locking glue on the thread.  
See figure 18. 

**A 6.11.2** Variant 2 Threaded bolt at pedestal lower part.  
Pour locking glue into the pedestal head from above.  
See figure 19. 

See the current data and safety data sheet for the information on the processing of the Lindner Locking glue.



6.12 Setting up reference points for the installation of a row of panels

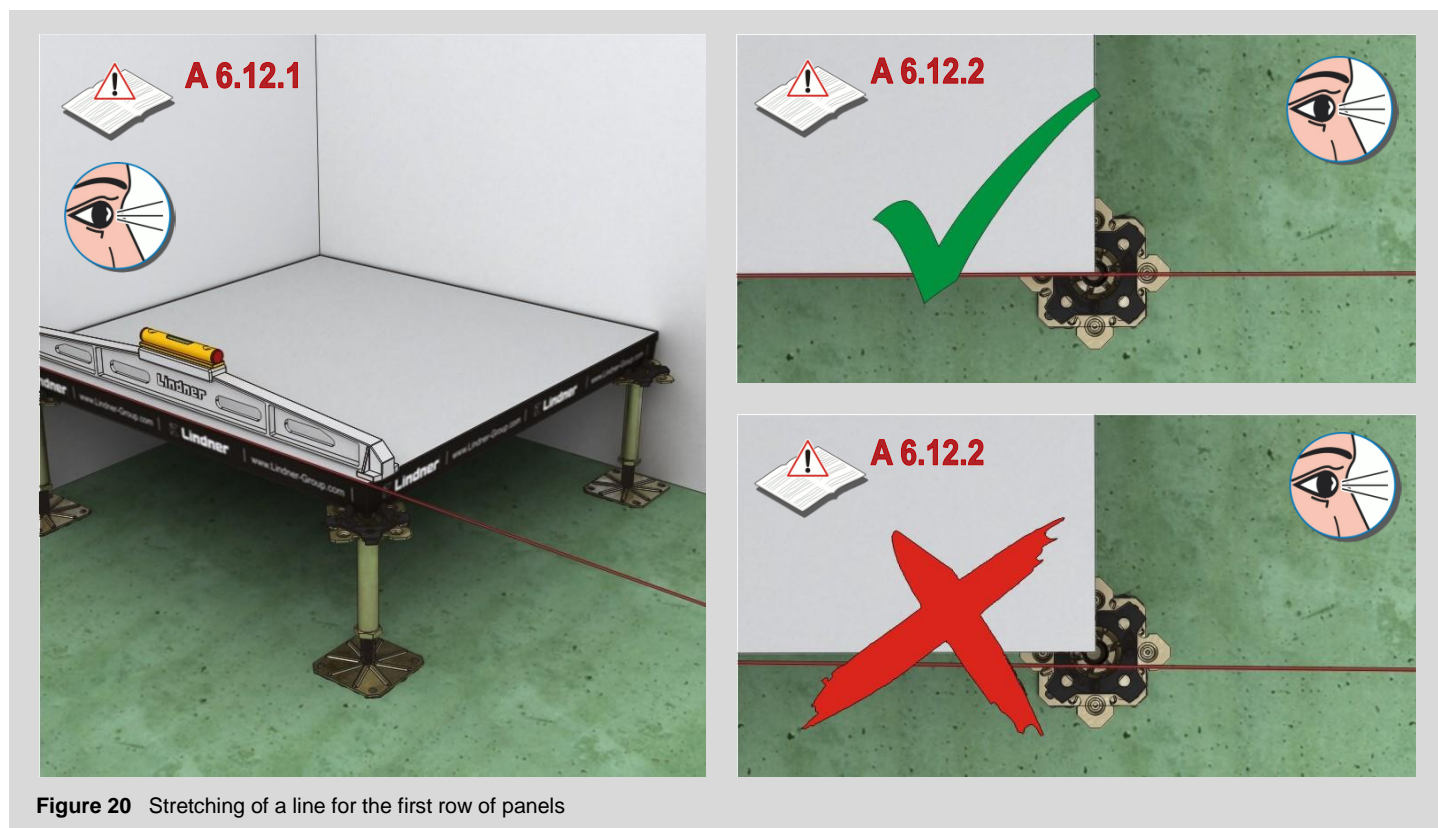




Figure 20 Stretching of a line for the first row of panels

**Work steps:**


- A 6.12.1** Setting up a line for the installation of the first row of panels parallel to the wall resp. to the first panel. 
- A 6.12.2** Checking of the alignment of the line. 

|  |
|--|
| <b>ATTENTION</b>   |
| <p>Do not use coloured lines!<br/>This causes contaminations of applied coverings.</p> |

## 6.13 Installation of first row of panels



### Work steps:

- A 6.13.1** Install further raised floor pedestals and panels of the first row as described in the installation steps 6.3 to 6.12. 
- A 6.13.2** Check and eventually adjust the installed panel with a raised floor water level in both directions.

### Indication

- Align panel edges along the set-up line.

## 6.14 Check row of panels

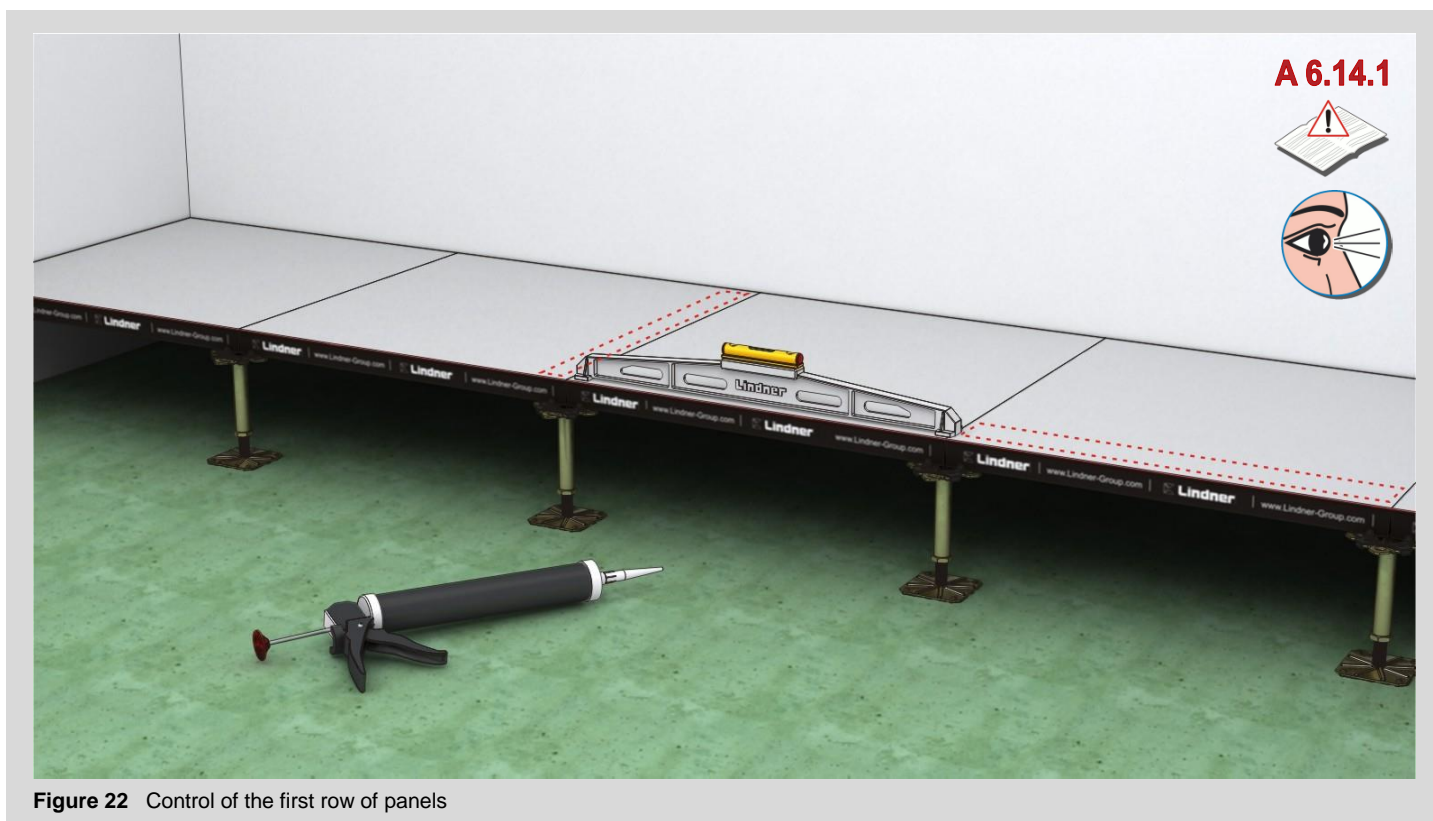



Figure 22 Control of the first row of panels

### Work step:

**A 6.14.1** Check permanently as described in installation step 6.10 and 6.16. 



### Indication



- **Important:** Pay attention to that the first row of panels is adjusted exactly as the further installation of the floor is based on it!

## 6.15 Installation of further rows of panels



### Work steps:

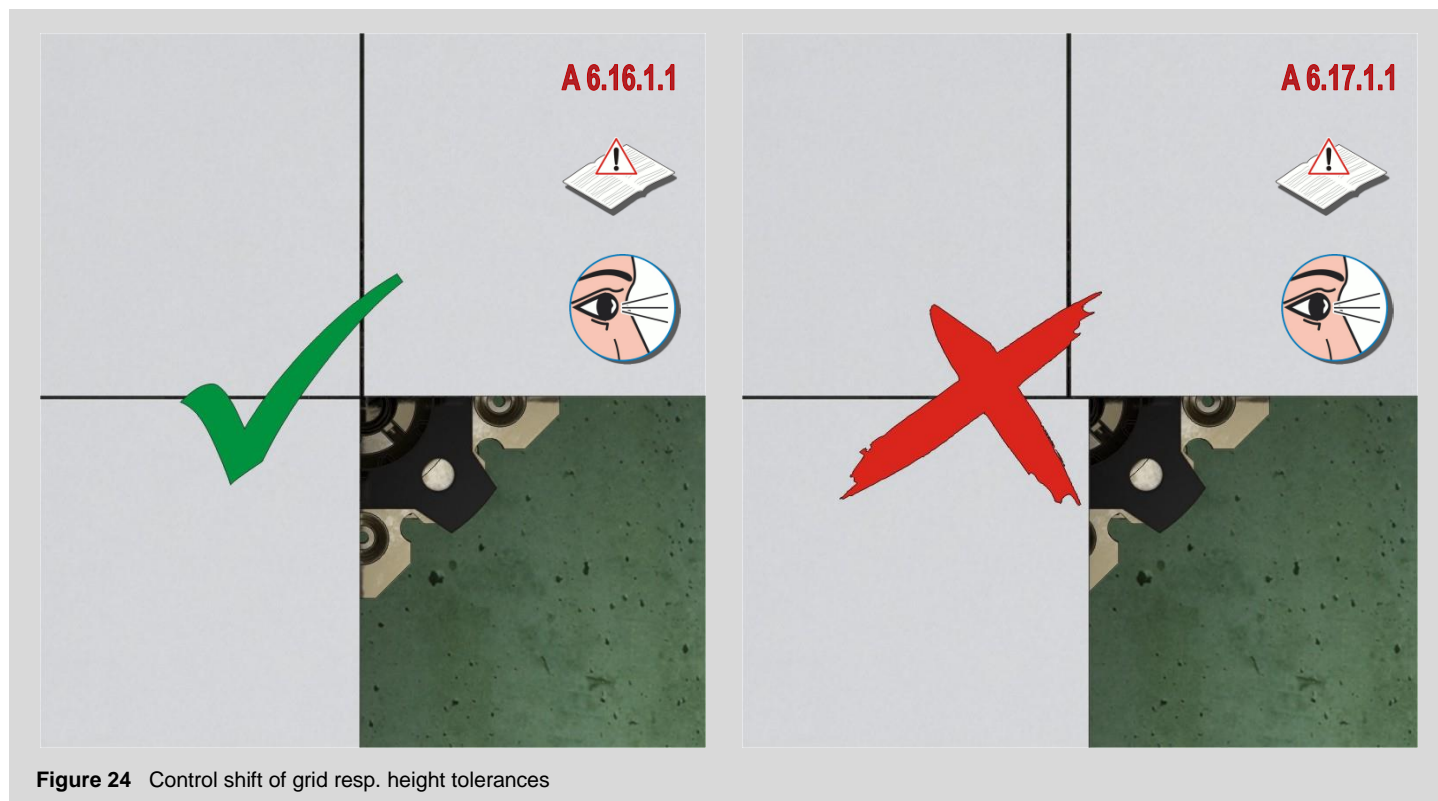
**A 6.15.1** Install and control second row of panels as described in the installation steps 6.3 to 6.12.  

**A 6.15.2** Install and eventually readjust if necessary the first panel of the second row of panels as described in installation step 6.10.  


## 6.16 Check shift of grid and height tolerances

The work steps described in this chapter have to be executed during the entire installation.

### 6.16.1 Shift of grid



#### Work step:

**A 6.16.1.1** Check and eventually adjust the shift of grid in order to eliminate any shift of grid. 

## 6.16.2 Height compensation

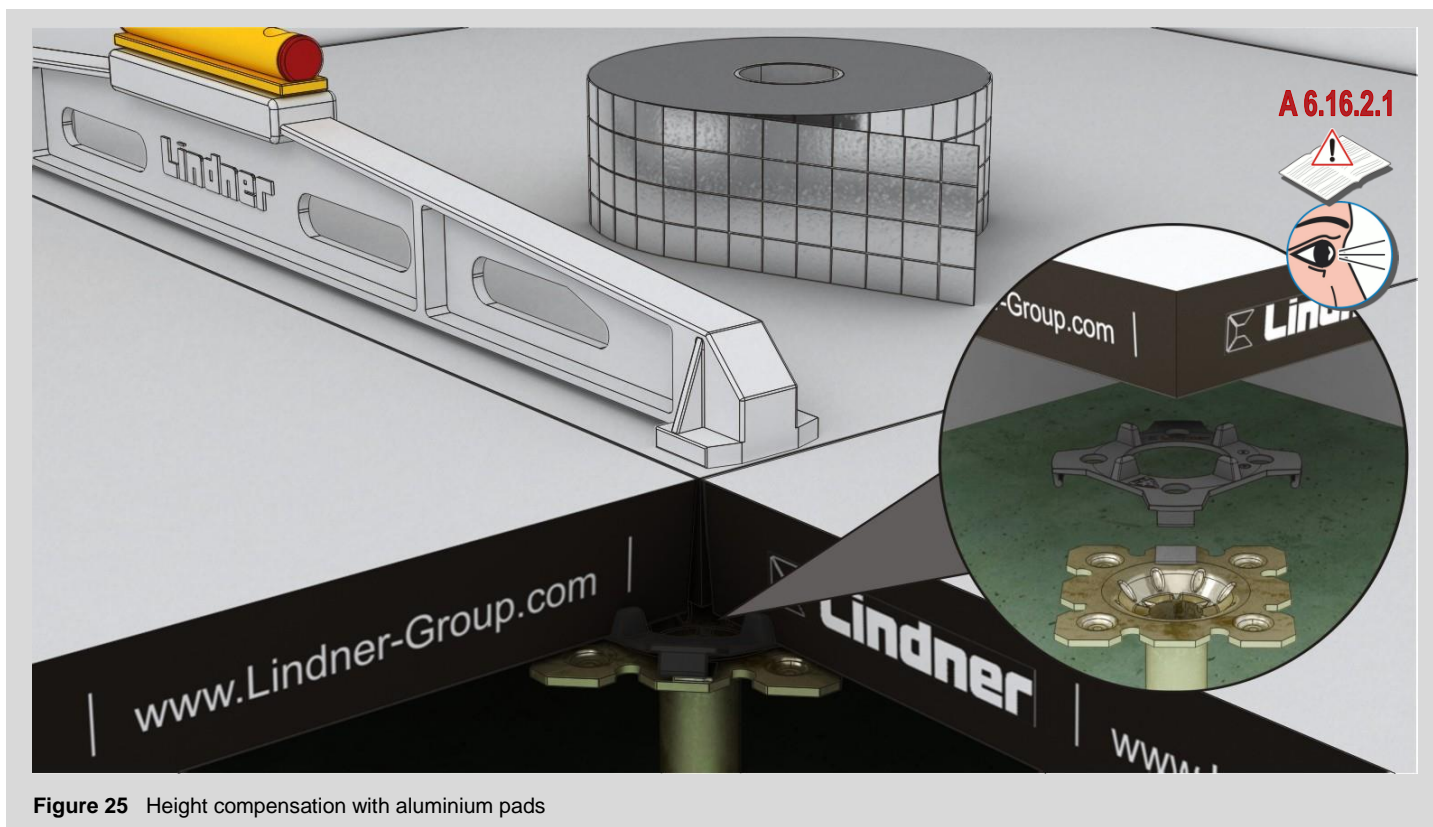


Figure 25 Height compensation with aluminium pads

**Work step:**
**A 6.16.2.1**

Compensate possible panel tolerances with aluminium pads.


**Indication**

- The aluminium pad has always to be installed below the gasket in order to avoid a moving of the panel.

6.17 Measuring of cut panels



Figure 26 Determine cut panels

**Work steps:**

- A 6.17.1** Measure the size of the cut panels in order to determine the respectively required panel format.

## 6.18 Preparation of cut panels

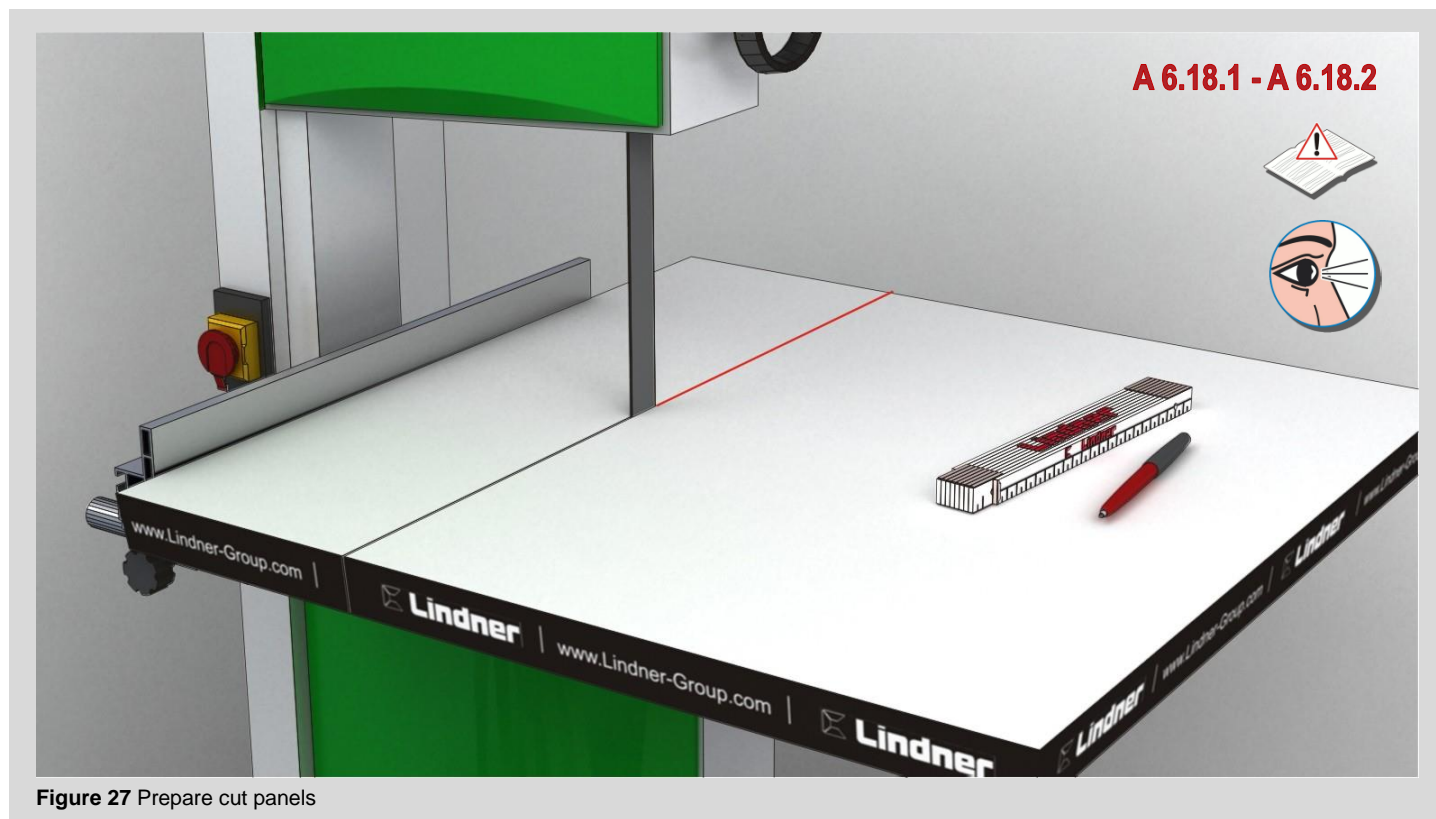


Figure 27 Prepare cut panels

### Work steps:

- A 6.18.1** Mark the required dimension of the cut panel on the raised floor panel and the required cutting line.
- A 6.18.2** Cut the panel along the cutting line with a band saw.

### **WARNING**

Inappropriate use of the band saw can cause incised wounds resp. severe injury.

- ➡ The accident prevention regulations have to be kept with the use of band saws.



## 6.19 Application of wall connection tape



### Work steps:



- A 6.19.1** Apply edge sealant with a brush to the cut edge for dust binding. The adhesion of the wall connection tape is guaranteed by this.
- A 6.19.2** Apply wall connection tape along the cut edge and cut to length with cutter.

## 6.20 Installation of peripheral pedestals



### Work steps:

**A 6.20.1** Install the peripheral pedestals acc. to installation steps 6.3 to 6.5.  


**A 6.20.2** Adjustment of the pedestal acc. to installation step 6.4.  

## 6.21 Putting in cut / peripheral panel



Figure 30 Putting in cut panel

**Work steps:**

- A 6.21.1** Putting in the cut panel carefully and with slight pressure into the raised floor grid.
- A 6.21.2** Check panel on proper seating, shifts in height, height tolerances and eventually adjust.
- A 6.21.3** Secure pedestals against height displacement as described in installation step 6.11. 

| Indication  |  |
|---|--|
| <ul style="list-style-type: none"> <li>• <b>Important:</b></li> </ul> | The panel may only touch the wall with the wall connection tape. |

## 6.22 Horizontal stiffening



Figure 31 Stringers

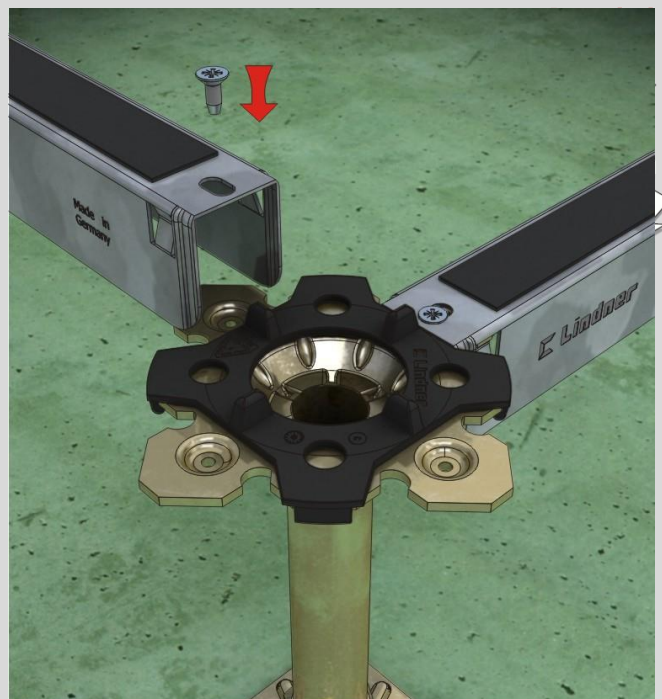




Figure 32 Optional screwing

### Work step:

**A 7.1.1** Insert stringer at pedestal head.  

### Indications

- Stringers type RL and RM can also be used for the increase of the loadability (depending on the floor system).
- The stringers can be optionally screwed to the pedestal head.

## 6.23 Installations

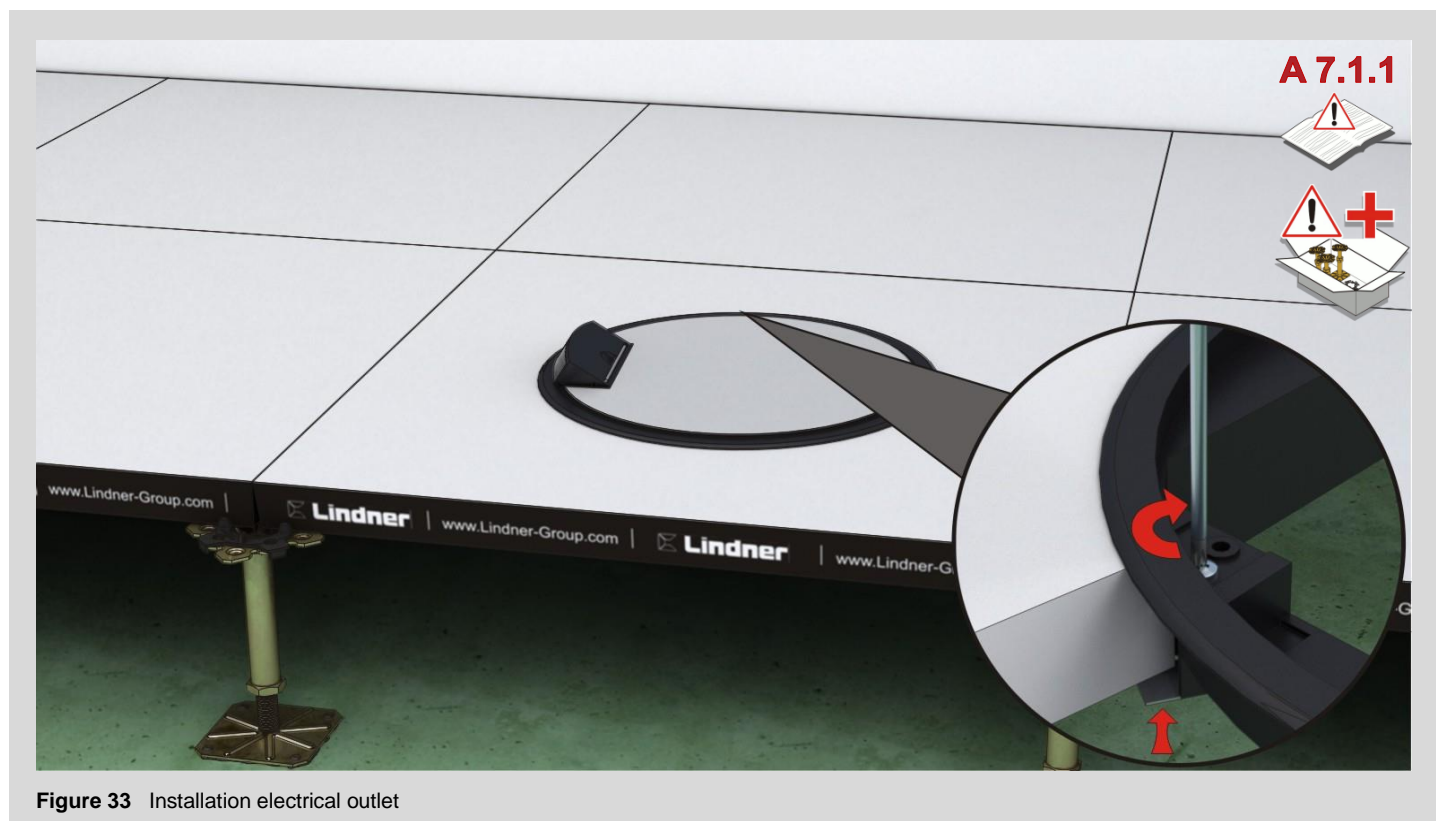




Figure 33 Installation electrical outlet

**Work step:**

- A 7.2.1** Insert and fix electrical outlet for the accommodation of data and electrical connections acc. to information of the manufacturer in opening which has been cut in the factory or on site.  

## 6.24 Ventilation outlets



Figure 34 Installation ventilation outlet

**Work step:**

- A 7.2.1** Insert and fix ventilation outlets acc. to information of the manufacturer in factory-milled opening.  

## 6.25 Bracings and further accessories

### Indication

- There are no installation steps for the bracing of the FLOOR and more® area included in the installation guideline. These are necessary in order to take up the horizontal loads which are affecting the floor system. Those have to be planned and installed specifically for each project.
- Furthermore there are no work steps for further accessories included.
- Please do not hesitate to contact us if you have further questions or if you need help.

## 6.26 Disposal



Please take care of an environmentally compliant disposal acc. to local regulations of the packaging, adhesives, sealants and accrued waste with installation!

Please search for possibilities of recycling or appropriate disposal.

## We can do it all for you.

### Lindner Concepts:

- Insulation Engineering and Industrial Service
- Clean Rooms and Laboratories
- Airports and Airlines
- Railways and Tunnels
- Studios and Concert Halls
- Interior Fit-out and Furnishings
- Cruise Liner and Ship Fit-out
- Hotels and Resorts
- General Contracting

### Lindner Products:

- Facades
- Ceiling Systems
- Lights and Lighting Systems
- Partition Systems
- Doors
- Floor Systems
- Heating and Cooling Technologies
- Dry Lining Systems

### Lindner Service:

- Green Building
- Deconstruction and Gutting
- Clearance of Harmful Substances
- Research and Development
- Delivery
- General Planning
- Installation
- Maintenance
- Public-Private Partnership (PPP)

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