Granab subfloor systems
installation instructions

System 3000 System 7000 System 9000

GRANAB manufactures subfloor systems for homes, offices, schools and public buildings, with over 4,500,000 m² of subfloor system installed.

The patented steel subfloor system has damping elements for effective impact sound reduction and airborne sound insulation.

The system meets the requirements of EKS, the European construction standards, and type-approved by the SP Technical Research Institute of Sweden and technically approved by SINTEF in Norway with respect to sound-dampening properties, dynamic loads and strength.

This brochure provides information on the range of solutions and how to install them.

A versatile system suited to any large or small project. Welcome to GRANAB!

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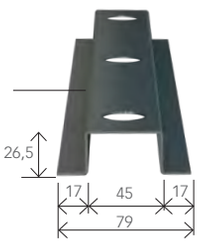
Granab subfloor system 3000N

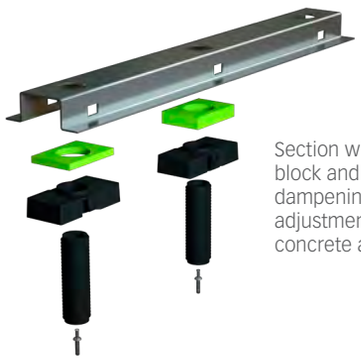
For adjustable heights from 30 to 140 mm, excluding floor covering.



Construction heights:
Flexible construction heights from 30 to 140 mm, excluding floor covering.

N6

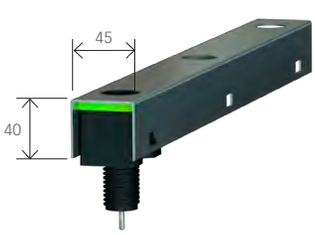
N12



Section with support block and 6 or 12 mm dampening element, level adjustment screw and concrete anchor.

Granab subfloor system 7000N

For adjustable heights from 50 to 420 mm, excluding floor covering.



N6

N12

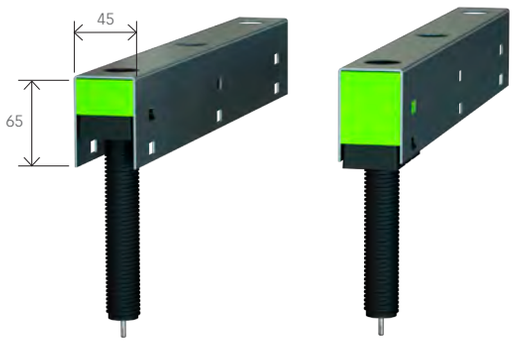
N25

Construction heights: Flexible construction heights from 50 to 420 mm, excluding floor covering. excluding floor covering.

Section with support block and 6, 12 or 25 mm dampening element, level adjustment screw and concrete anchor.

Granab subfloor system 9000N

For adjustable heights from 70 to 420 mm, excluding floor covering.

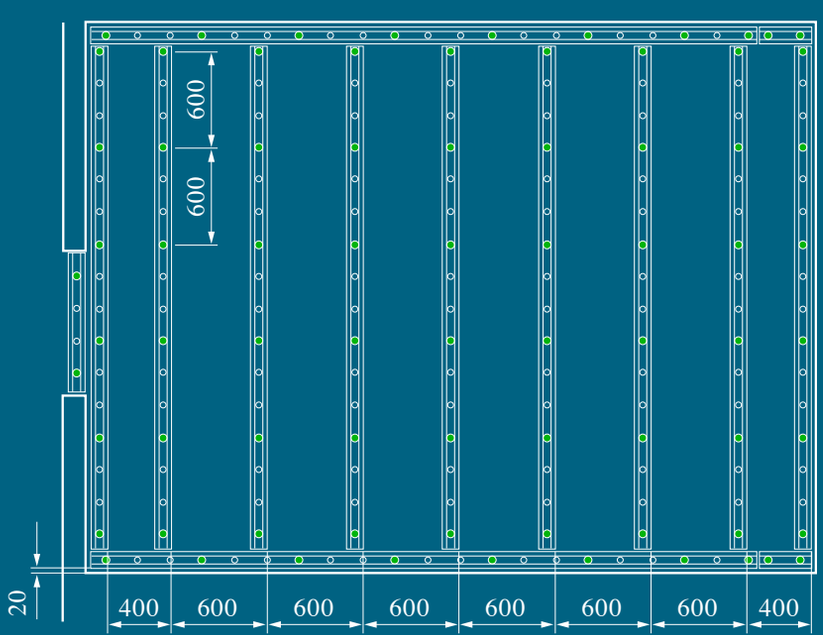


N25 **N50**

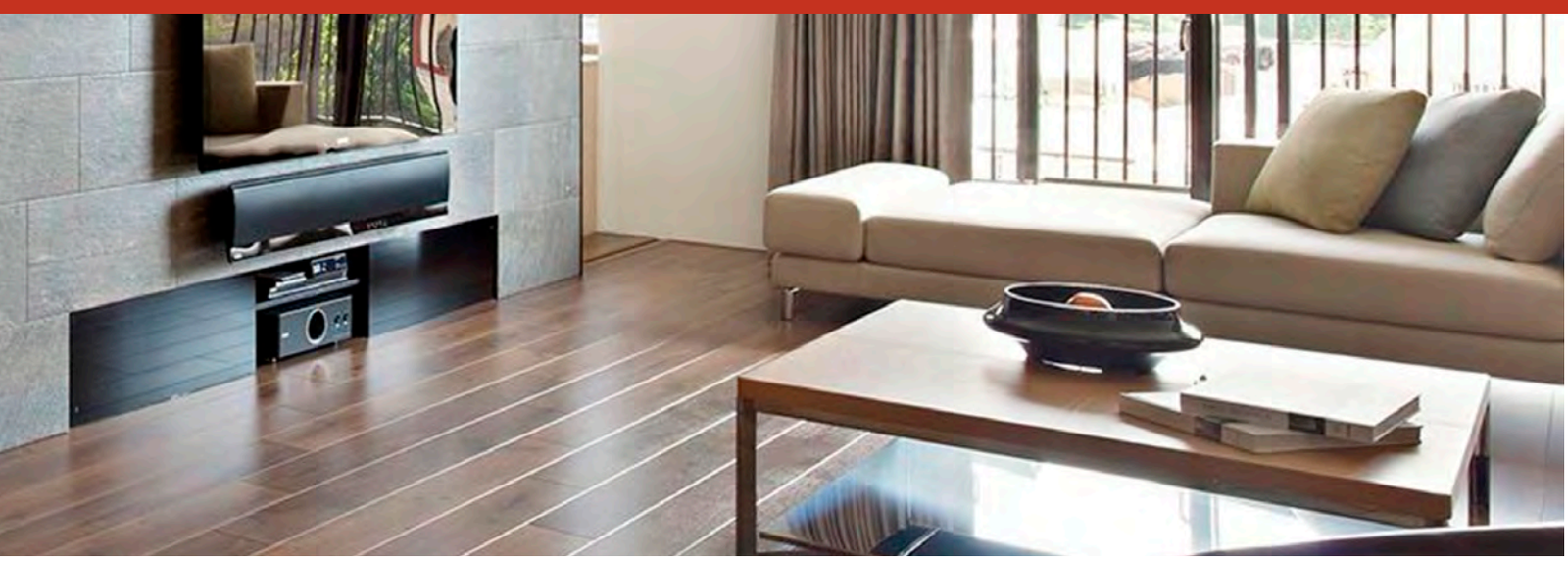
Construction heights: Flexible construction heights from 70 to 420 mm, excluding floor covering.

Section with support block and 25 or 50 mm dampening element, level adjustment screw and concrete anchor.

General installation drawing, subfloor system 3000N, 7000N, 9000N in residential spaces



Planning instructions for various load conditions, Granab subfloor systems



The unique design of the Granab systems with components made from inorganic materials, galvanised steel girders, dampening elements and adjustment screws of various lengths. The system permits installation in many project types and entails considerable benefits. Homes, offices, schools, hotels and public buildings are frequent projects. The dampening elements provide progressive resilience, making the systems an excellent choice for floors in sports centres and other multi-purpose areas.

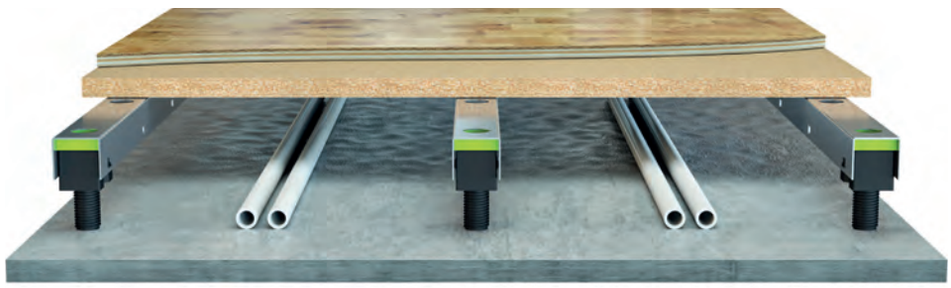
Recommended c/c (centres) distance between floor girders (sections) and support blocks

1. Rooms in dwellings, hotels, hospital rooms and staff rooms, c/c distance girders, 600 mm.
2. Assembly rooms such as classrooms, rooms in childcare centres, lecture halls, office rooms, premises for restaurants, cafes and dining halls, c/c distance girders, 400 mm.
3. Open areas in libraries, spaces with fixed seating such as in churches, theatres and cinemas, c/c distance girders, 400 mm.
4. Spaces without fixed seating in churches, concert halls, theatres, cinemas, museums, exhibition halls, retail areas in department stores and shops, gyms, sports centres, dance halls, corridors in schools, etc., c/c distance girders, 300 mm.

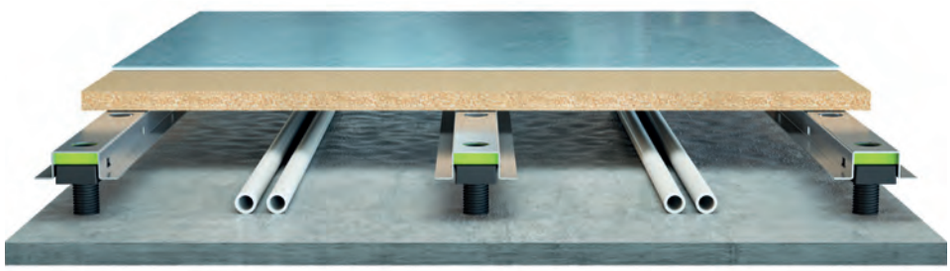
Examples of floor coverings

Follow the instructions for installation and laying
from the respective chipboard and parquet manufacturers.

22 mm chipboard & 15 mm parquet

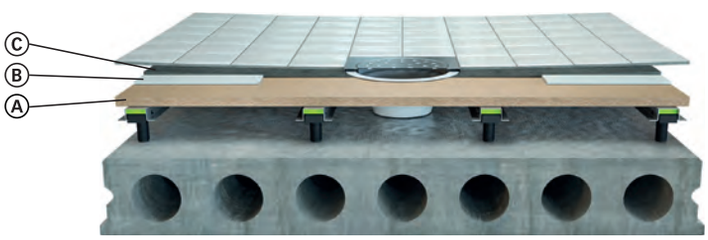


22 mm chipboard & carpet



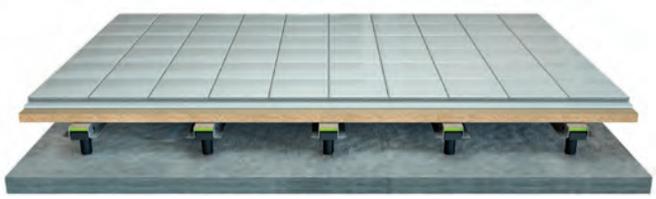
38 mm chipboard & carpet

Principle in wet rooms with tiles on Granab



A: Chipboard flooring, 22 mm.
B: Sheet of inorganic material.
C: Floor levelling compound.

Tiles on Granab



Example design: Granab subfloor system, c/c 300 mm, with 22 mm chipboard, sheet of inorganic material, moisture barrier and tiles.

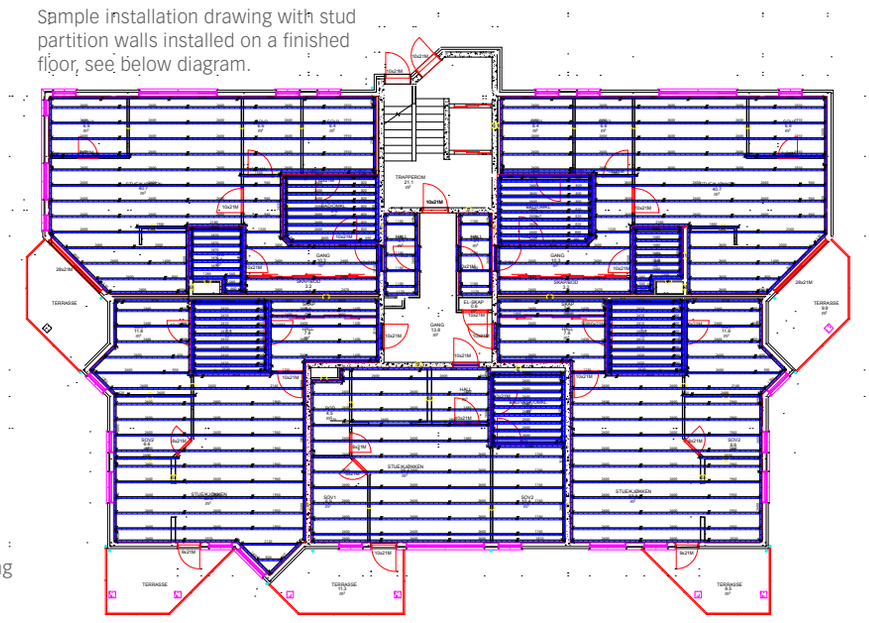
Planning & effective logistics

Delivery optimisation

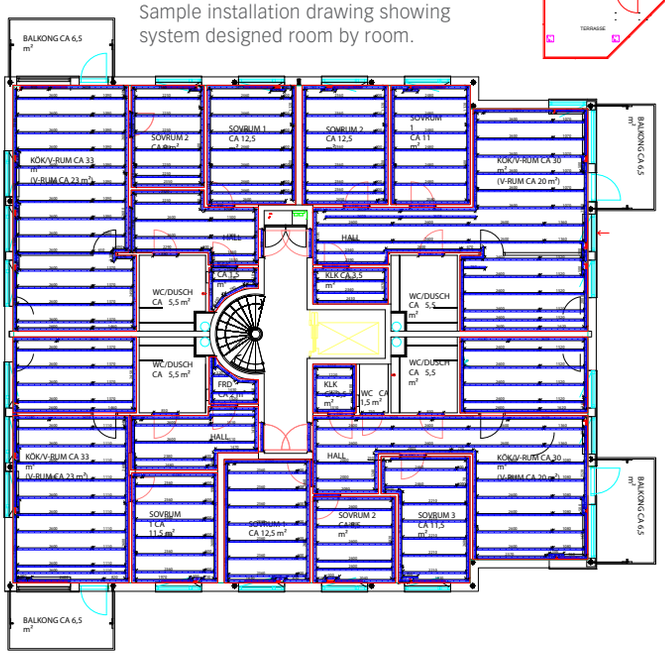
Granab systems are packed and delivered with pre-cut and dimension adapted floor girders and factory fitted support blocks and dampening elements. Each girder is labelled with a room name and length that matches the information on the installation drawing for each unit or other agreed-upon space subdivision.

Granab systems are packaged in bundles on EUR pallets with a maximum length of either 2600 mm or 3800 mm.

Sample installation drawing with stud partition walls installed on a finished floor, see below diagram.



Sample installation drawing showing system designed room by room.



Logistics in conjunction with framework construction.

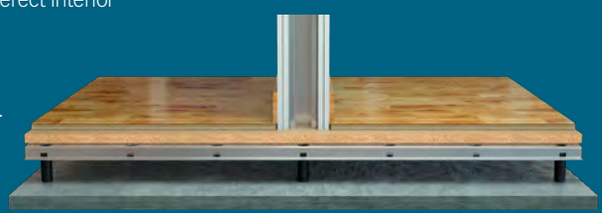
Because Granab systems consist of inorganic materials and are not affected by moisture or temperature variations, they can be delivered while the framework is still paragraph space can be produced with a maximum length of 2600 mm – the same length as for a bundle of plasterboard. The plasterboard for the walls can be moved in along with the wall girders, which are placed on stands above the Granab girder packages.

By lifting the materials into place during framework construction and erecting the interior walls above the Granab system, production is more efficient and costs for logistics are minimised.

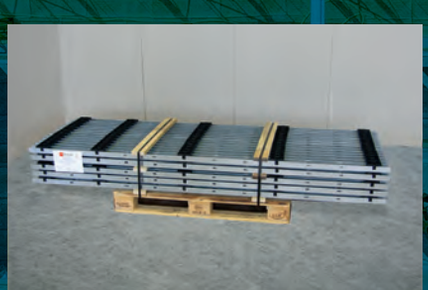
INTERIOR WALLS FOR FINISHED GRANAB SUBFLOORS

Walls for flats or other subdivisions are first erected from floor to ceiling. It is advisable to erect interior walls within a flat or subdivision on finished Granab subflooring,including the chipboard.

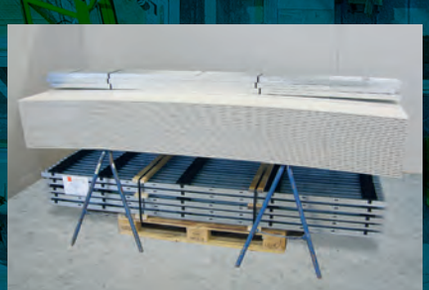
Erection of interior walls in this manner permits the chipboard to be installed more quickly and entails less waste as a result of working with larger, continuous floor surfaces. Material consumption for the interior walls is lower and installation of both the Granab floor and interior walls goes significantly faster.



Packaged and labelled for each unit.



Girders are pre-cut to the correct lengths for each room unit.



Installation tools Granab subfloor systems

Concrete drill bit for concrete anchors

Cat. no.: 8710. 6 x 100 mm

Cat. no.: 8720. 250 mm short

Cat. no.: 8740. 460 mm long

Cat. no.: 8840/8841. (Drill bit extension with 100 mm drill bit)

Cutter for recessing adjustment screws in girders

Cat. no.: 8600.

Screwing tool for adjusting floor girder heights (for screwdrivers)

Cat. no.: 8100. Short model

Cat. no.: 8200. Long model

Accessories Girder spacers

Cat. no.: 9300 **Tool:** Girder spacing 300 mm.

Cat. no.: 9400 **Tool:** Girder spacing 400 mm.

Cat. no.: 9500 **Tool:** Girder spacing 500 mm.

Cat. no.: 9600 **Tool:** Girder spacing 600 mm.

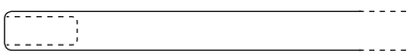
Mandrel for installation of concrete anchors (one of each included in an installation kit)

Mandrel for recessing in predrilled holes. Cat. no.: 850 C. Length: 1000 mm

Mandrel for final fixation. Cat. no.: 850 C. Length: 1000 mm

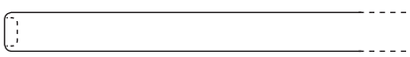
Mandrel for recessing in predrilled holes. Cat. no.: 850 B. Length: 450 mm

Mandrel for final fixation Cat. no.: 850 B. Length: 450 mm



Mandrel for recessing in predrilled holes.

Mandrel for recessing in predrilled holes. Cat. no.: 850 A. Length: 250 mm



Mandrel for final fixation

Mandrel for final fixation Cat. no.: 850 A. Length: 250 mm

Insulation bracket

Cat. no.: 0440 (for 40 mm insulation plate)

Cat. no.: 0480 (for 80 mm insulation plate)

T-wrench for manually adjusting floor girder heights

Cat. no.: 8300.

Installation Instruction Granab Sub Floor System

General conditions and recommendations.

Level adjustment using laser levelling.

Cutting girders.

Ergonomics during installation process.

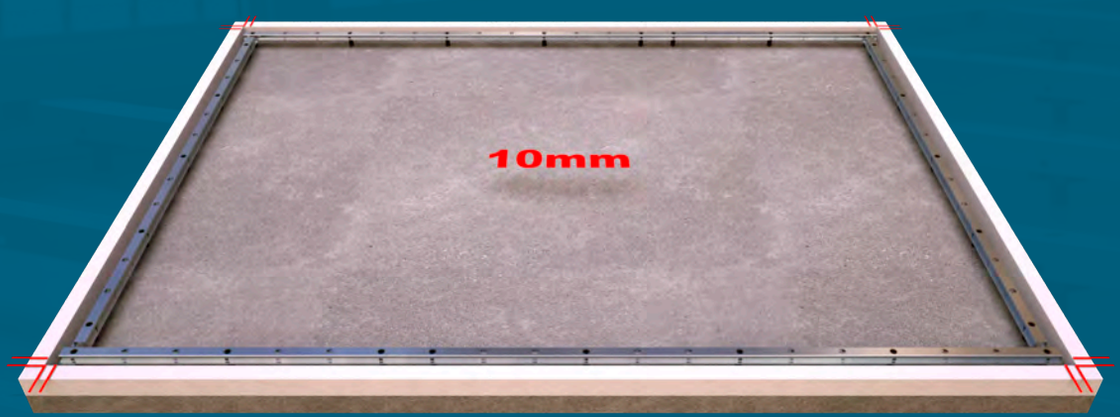
Screwing tool.

Mandrel.

Installation pipe for concrete anchor.

All installation tasks can be carried out in comfortable working positions using the long screwing tool model, long mandrel model and installation pipe for concrete anchors. (Contact Granab.)

Laying out girder



Start installation by laying out perimeter and keep a distance of at least 10mm from the wall.

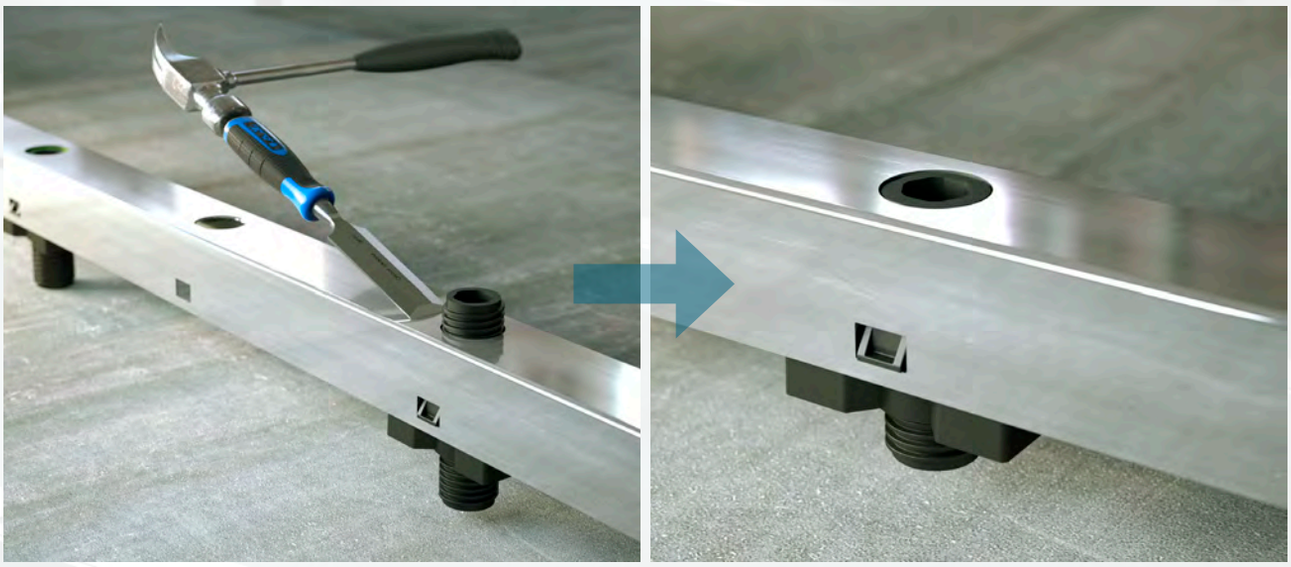
The girders are laid out according to the general drawing on page 5, residential.
For offices, schools and assembly rooms, see c/c distance, girders, on page 6.
When using installation instructions prepared by Granab for specific projects, follow the specifications for girder locations on the layout drawing.

To facilitate installation and obtain the correct c/c spacing between the girders, use a Granab girder spacer. Girder spacers are available in the following lengths: 300, 400, 500 and 600 mm. See page 10.

Installaton instruction adjusment screw

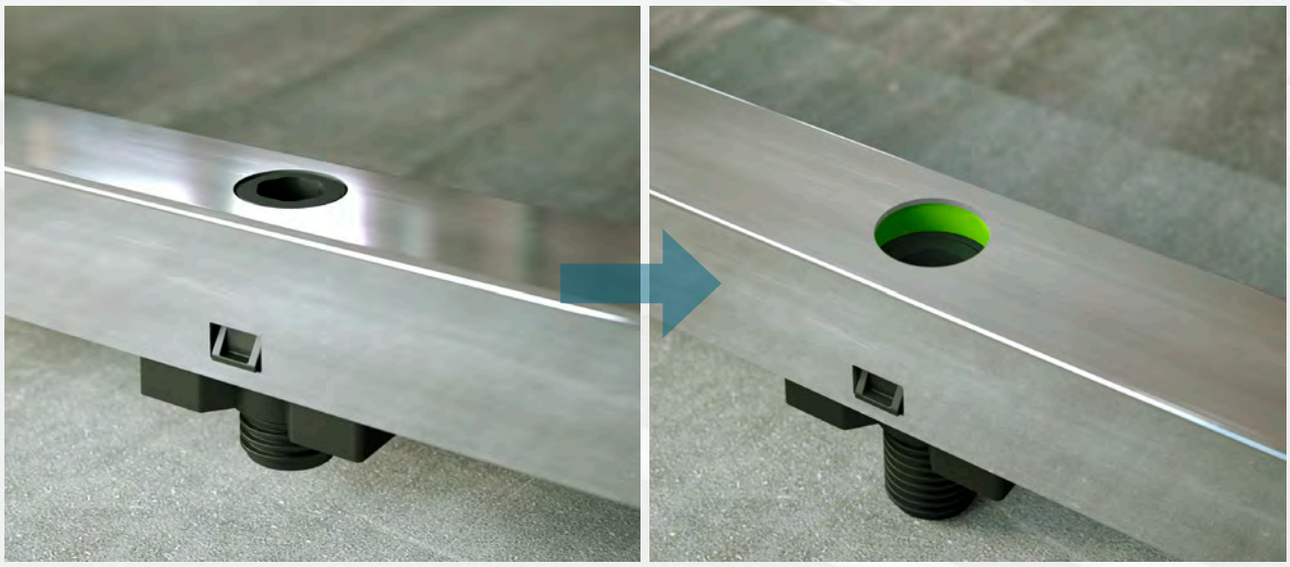
This item is very important and must be followed for all adjusment screws.

Cutting and adjustment of adjustment screws.



Once all girders have been adjusted to 10 mm under the final height with three points of attachment in each girder, the girder screws must be trimmed flat with the tops of the girders. Trim the screws using a chisel.

Counter sinking of adjustment screws.

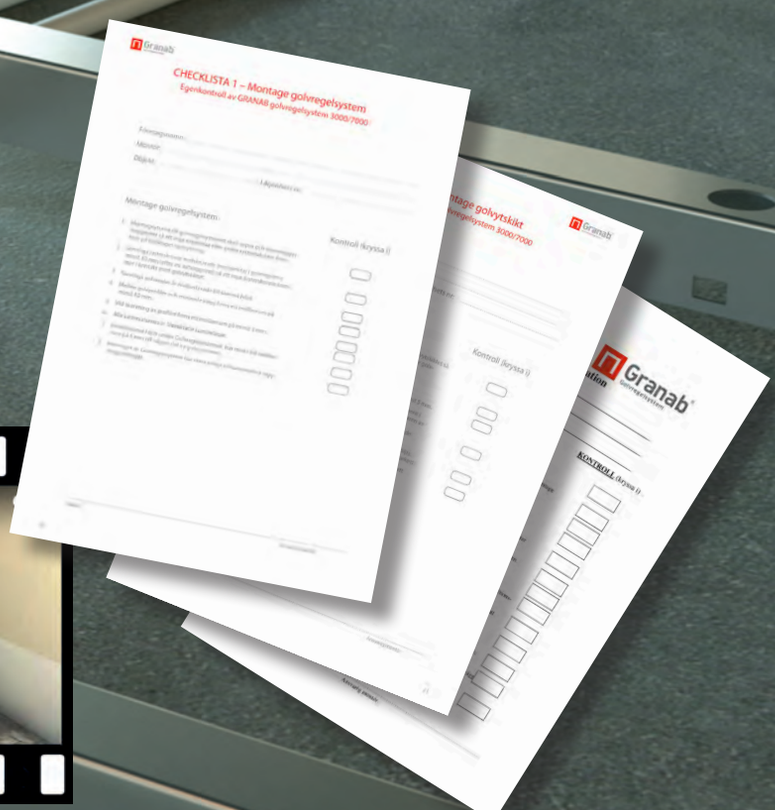


Once the screws at the three points of attachment in each girder have been trimmed, all girders are adjusted 10 mm upward to their final height.

NB: Girders are adjusted upward only after trimming to prevent the upper edges of the adjustment screws coming into contact with the overlying floor covering installed later.

This procedure ensures they are recessed into the sections to avoid “Bridging” in the sound insulation with the floor covering.

Visit www.granab.se
See our films about the installation. Download check-lists and print.



Installation example

Installation at high heights.

For construction heights over 250 mm, the floor covering can be attached at the room corners for lateral stabilisation.

Installation at extra high height.

As standard, the height level of the Granab Subfloor System 7000 can be adjusted up to 420 mm. If heights are preferred up to approximately 1000 mm, the required height of masonite beams are fitted tot he Granab girders.

Masonite beams are secured to Granab girders with Bostik Multifog no. 2640 or equivalent and self-tapping screws. NB: Mounting screws must not come in contact with adjustment screws/blocks.

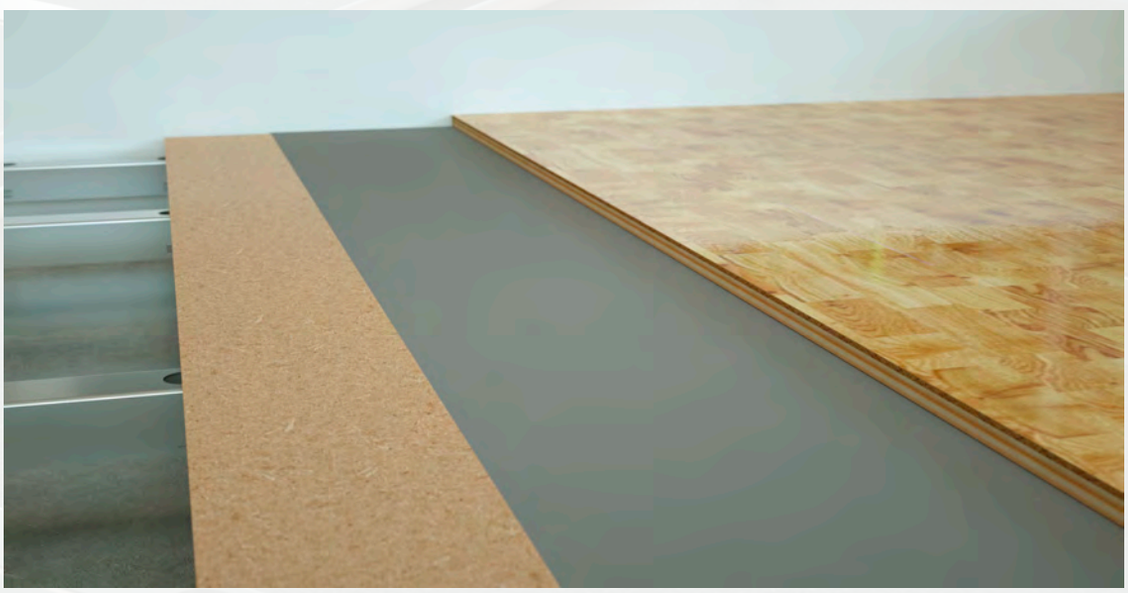
Installation example

Flooring paper and glue.

Gluing

When gluing chipboard against the girder use Bostik Multifog 2640 or equivalent.

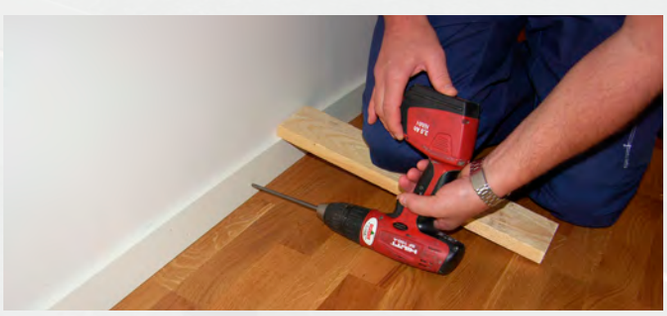
Floor paper



Floor paper is used between the chipboard and parquet to remove slapping between layers.

Installation of skirting

When attaching the skirting, it must be pressed hard down against the floor covering.

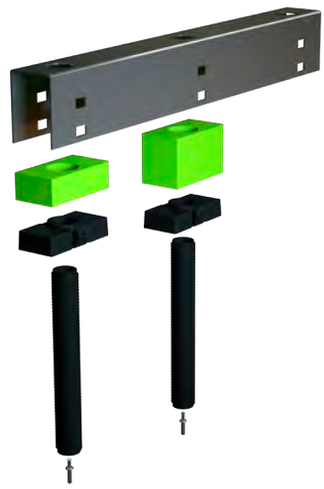


Installation step by step

System 3000

System 7000

System 9000



Sections with support blocks and dampening elements, level adjustment screws and concrete anchors.

Important general points

NB: Always ensure that the flooring manufacturer's requirements are fulfilled regarding expansion joints, gaps against walls, etc.

All adjustment screws must be carefully secured in the subfloor with concrete anchors.

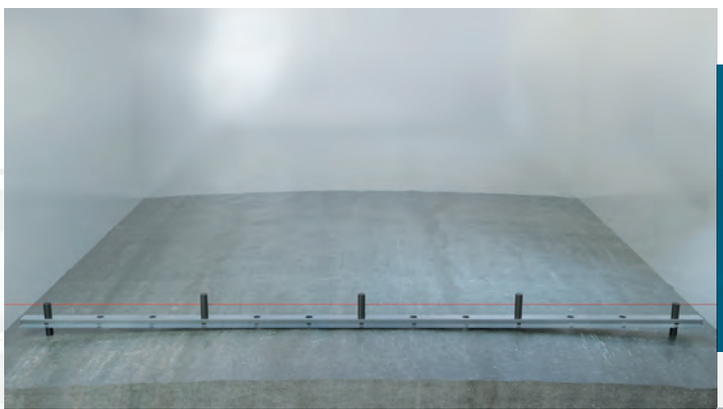
If all adjustment screws are not properly secured, there is risk for creaking and unevenness in the floor covering after installation.

Adjustment screws must always be recessed into the floor girders so that the upper edges of the adjuster screws do not come in contact with the floor covering, which would cause "bridging" in the sound insulation. When installing chipboard or chipboard/parquet on the girders, it is very important that the chipboard or parquet is not in contact with walls. There must always be a gap of about 5 mm between the walls and chipboard/parquet so that the floor is able to move freely. This is necessary to ensure that the planned sound insulation is attained.

Furthermore, relative humidity in the room is very important to take into consideration when using wood-based flooring, both during and after laying. The manufacturer's instructions must be carefully followed.

Carefully follow the points on the installer's checklist!

Installation of Granab Sub Floor System

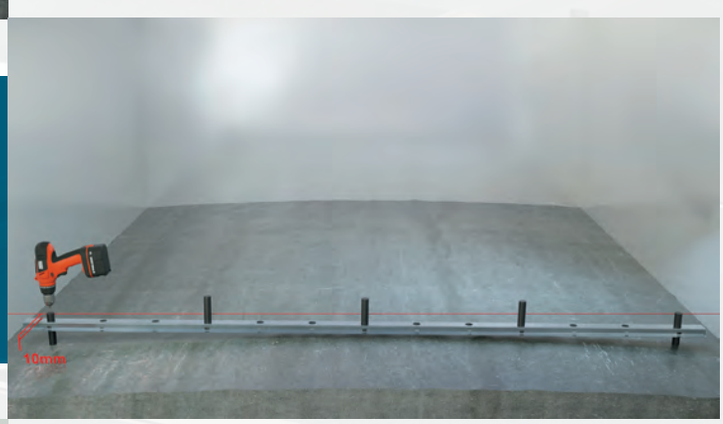


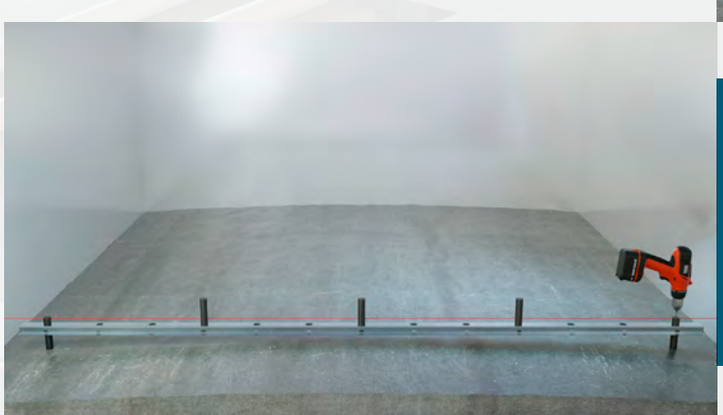
Girder with adjustment screws.
Red line shows the finished height.

1.

Start by adjusting one end of the girder to 10 mm below the final height.

2.



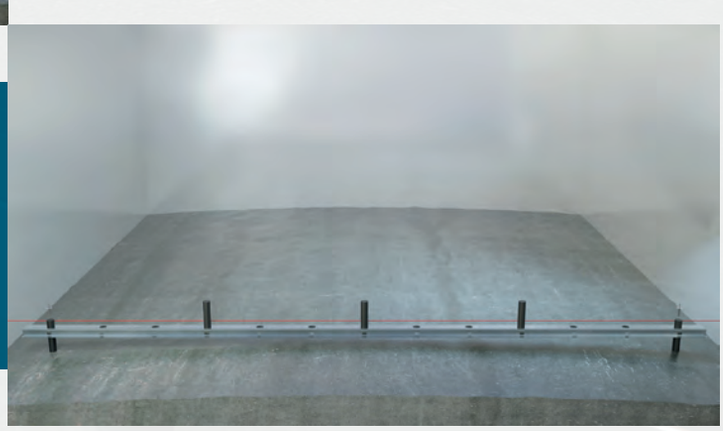


Drill approximately 30 mm into the structural surface through the guide hole in the adjustment screw at the girder ends.

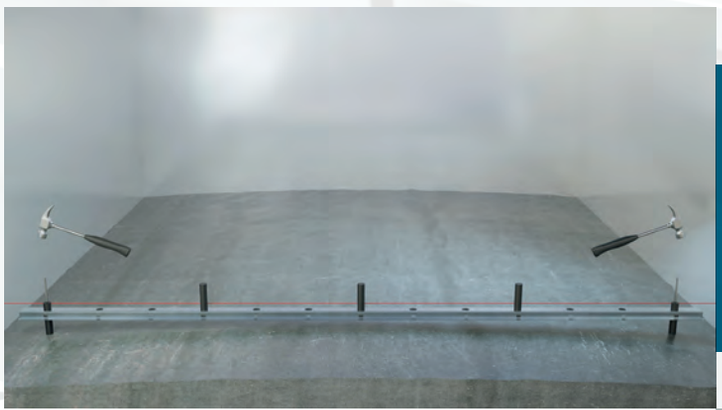
3.

Drop the concrete anchors into both adjustment screws.

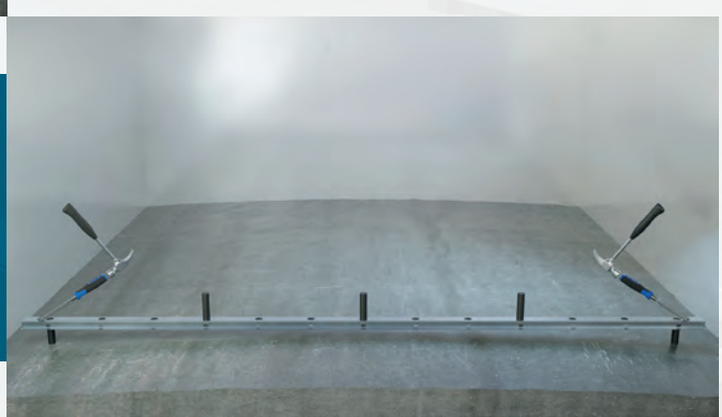
4.



Installation of Granab Sub Floor System



5. Using installation mandrel No. 1 hammer the concrete anchor into position. The adjustment screw needs enough movement to allow for final adjustment.

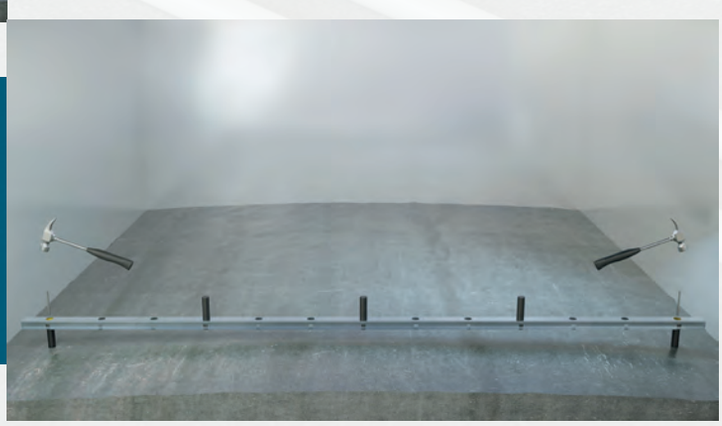


Trim the adjustment screw flat with the top of the girder.

6.

Adjust the girder to final height.

7.



Secure the concrete anchor using installation mandrel No. 2.

8.

Installation of Granab Sub Floor System

Adjust the center screw to 10 mm above the floor structure.

9.

Trim the adjustment screw flat with the top of the girder.

10.

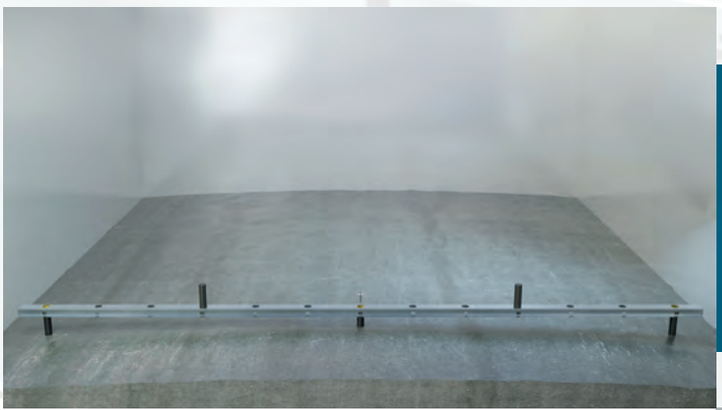
Adjust the center screw down to the floor structure.

11.

Drill approximately 30mm into the structural surface through the guide hole in the adjustment screw at the girder ends.

12.

Installation of Granab Sub Floor System



Drop the concrete anchors into the adjustment screw.

13.

Secure the concrete anchor using installation mandrel No. 1.

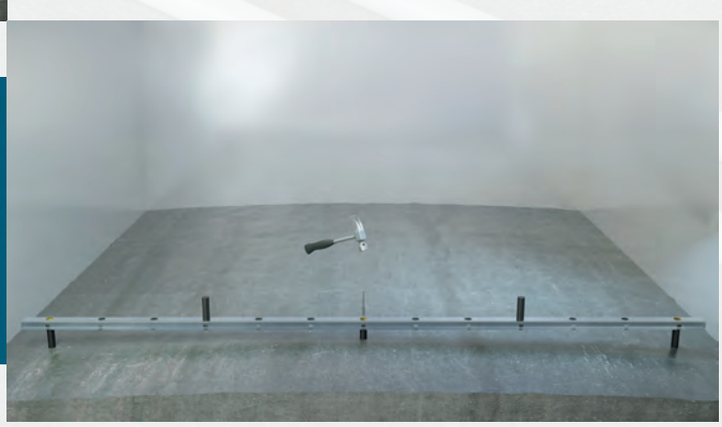
14.

Adjust the girder to final height.

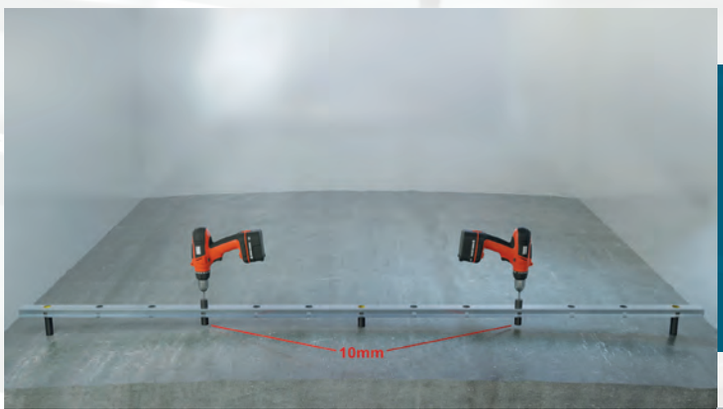
15.

Secure the concrete anchor using installation mandrel No. 2.

16.



Installation of Granab Sub Floor System



17. Screw down the remaining adjustment screws to 10 mm above the floor structure and continuethen the assembly under steps 10-16.

18. The girder is installd.

Installation high height System 7000N

The level of the Granab subfloor system 7000 can be adjusted up to 420 mm as standard. If more height up to 1000 mm is required, a Masonite beam or steel Z-section is installed above the Granab system.

7000N high with Masonite beam.

7000N high with steel Z section.

Tiled surfaces

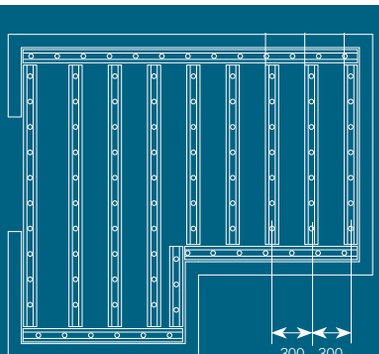
Granab systems can be installed as subfloor systems for tiled areas in halls and wet rooms in various construction projects.

System 3000N c/c 300mm

Granab systems – which consist entirely of non-organic materials – are not sensitive to moisture and at the same time, provide effective impact and airborne sound insulation. Example, remodelling: Granab subfloor system, c/c 300 mm, with 22-mm chipboard, sheet of non-organic material, moisture barrier, tiles.

Bathrooms

A: Chipboard flooring, 22 mm. B: Sheet of non-organic material. C: Floor levelling compound.



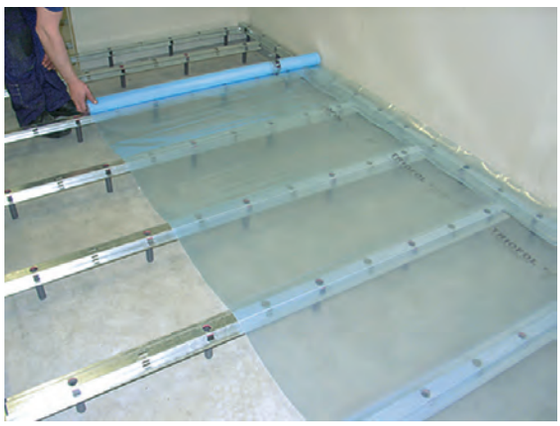
General drawing for tiled area.
The system is installed with a c/c 300 mm.

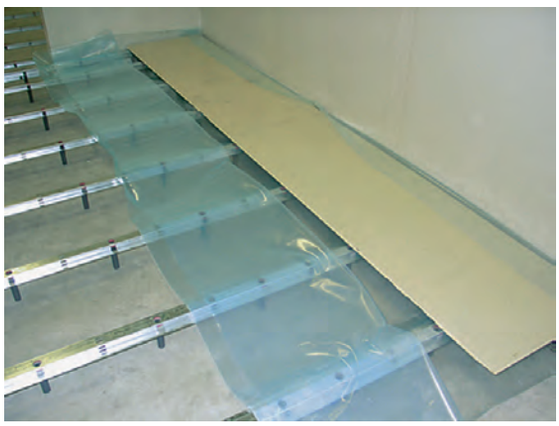
Granab subfloor systems with tiling have been tested by the SP Technical Research Institute of Sweden with respect to deflection and strength properties.

Installation of plastic film on Granab girders in moist environments

NB: The plastic film is installed above the girders – not directly on the concrete subfloor.

Plastic film





Granab systems, including girders, are entirely non-organic and not affected by moist environments. By placing the plastic film over the girders, effective, long-lasting moisture protection is obtained with the floor layer above.

Ventilated subfloors when moisture, mould or radon is present

Granab subfloor systems provides:

1. Free airflow between floor girders and structural floor.
2. Suitable airtightness for use with mechanical ventilation ensures good airflow between the structural floor and finished floor.
3. To protect the floor covering against moisture, plastic film is laid above the galvanised steel girders, which in combination with mechanical ventilation ensures an environment free from moisture.
4. Granab subfloor systems are also used in radon removal.

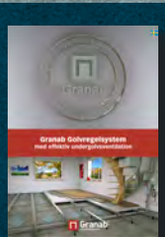
System 3000N with plastic film on top of girders.

System 3000N with plastic film on top of girders.

System 7000N with insulation bracket.

Granab ventilated subfloor principle

A mechanical ventilation room unit connects to under the floor using an exhaust fan drawing air out through perforated standard spiral air ducting. Inlet air is obtained via a filter equipped air terminal within a room. Additional inlet air can be obtained through an external air valve.



Order Granab's ventilation brochure

Granab can provide ventilation planning that also includes function, operation and maintenance instructions. Installation of ventilation is conducted by a local HVAC installer or building contractor. Contact us for more information.

Installation of Granab ventilated subfloors

The old flooring is removed.

1.

The concrete slab is cleaned of all organic material.

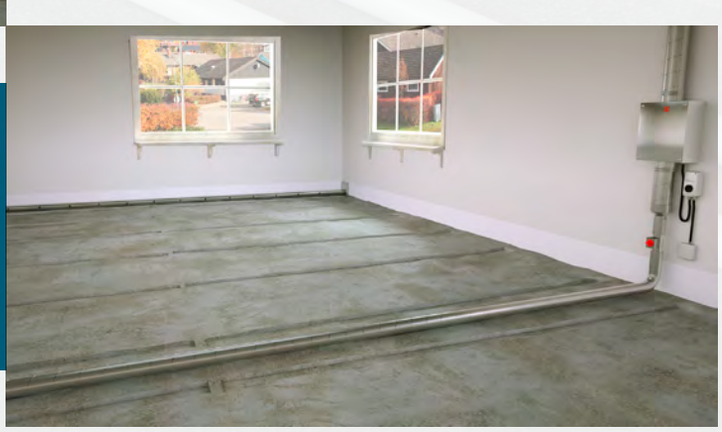
2.

Sealing between wall and concrete floor.

3.

Installation of the ventilation system.

4.



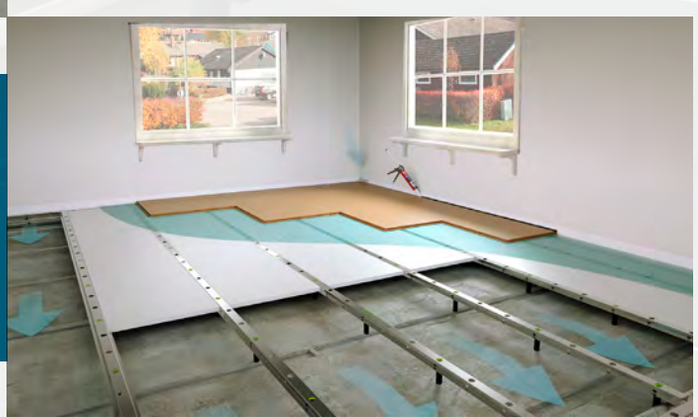
Installation of Granab ventilated subfloors

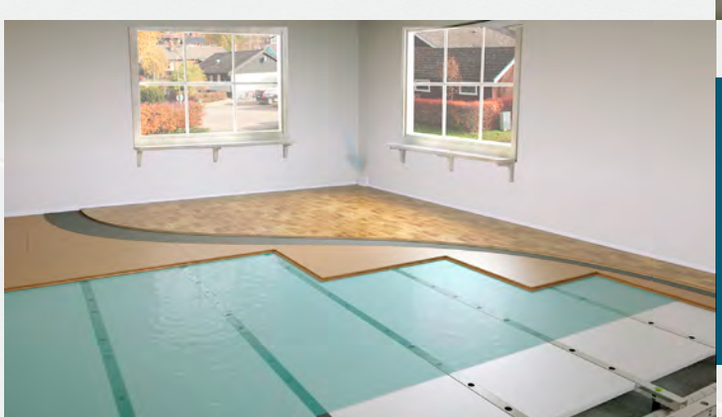
Installation of Granab sub floor system.

5.

Installation of Insulation, plastic film, chipboard, seal between chipboard and wall.

6.





Installation of parquet or othertype of finishes.

7.

The new floor is laid. Done!

8.

Granab ventilated subfloors

Avoid moisture, mould and stale indoor air with a Granab system and underfloor ventilation.

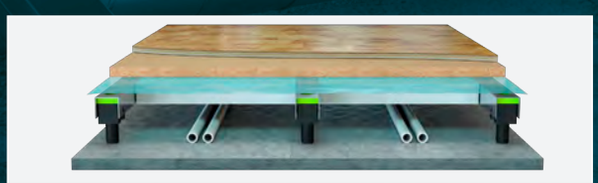
A large number of single-family dwellings and other buildings are subjected to moisture damage each year in the basement, or elevated moisture content in basement slabs. To make sure buildings are fresh, it is important that moisture from concrete floors in basements or bottom slabs is removed through ventilation and not built into the floor construction.

In addition to performing checks and taking possible measures involving new drainage and filling materials around the foundations, it is important wooden joists, plastic floor covering installed directly on the foundation floor must be removed, and the concrete floor thoroughly dried.

The Granab systems with galvanised steel floor girders are made entirely from inorganic materials and adjusted up from the structural floor to the desired height. The air in the space between the subfloor and surface flooring is then continuously ventilated, leaving a dry, pleasant and healthy environment.

If there is uncertainty and risk concerning humidity content or emissions from the bottom slab or subfloor construction, air gaps under the finished floor should be ventilated using mechanical ventilation in combination with a moisture barrier above the girders and under the chipboard. The Granab system is adjustable from 30-420mm and provides an open airflow under the girders. The space under the floor constitutes a separate "room unit" (sealed box), which is ventilated independently or in special cases combined with other ventilation systems.

System 3000N with moisture barrier above the girders.



System 7000N with moisture barrier above the girders.

Granab®
Golvregelsystem

Bygg och Miljöteknik Granab AB

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ZEBRA REKLAMBYRÅ, TROLLHÄTTAN | PRINTED BY: PRINFO RYDINS TRYCKERI, VÅRGÅRDA | 2017