



HIRAM FLOORS

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Hiram Floors Plank Floors – Screwed on Beams/Plywood

1. General Information
2. Movement in the wood
3. Impact of humidity on the plank floors
4. Preparation of the rooms
5. The installation
6. Preparation Overview
 - a. Distances of wood beams in substructure
 - b. Distances of screws on fixed substructure
7. Hiram Planks screwed on top of substructure | OSB/
Plywood/wood slats

1. General Information

A plank floor by Hiram Floors can, if installed correctly, bring is a sustainable and impressive floor for many decades. The following guide will explain the preparation and the installation on top of concrete substructures and shall give a general overview of the most important aspects of the installation.

Since every building project is different, the installation of our plank floors has to be done carefully. This is why we usually recommend an on- site consultation by a professional floor layer, no matter if the installation is done by the costumers themselves or by the floorlayers.

2. Movement in the Wood

Wood is a hygroscopic or breathing material, which means that it will shrink with very low room humidity and swell with high humidity. In our production our plank floors are Kiln dried to 8- 10 % wood moisture, which corresponds with a relative room humidity of 40 – 60 %. This is why the humidity should never be below 35 % or above 65 % room humidity, as the wood can otherwise be damaged significantly. Please find further information on the different impacts of humidity in below table.

The room climate is usually dependant on the season, which is why changes in climate are not completely controllable. Even with correct installation the wood is prone to move and form small gaps in between the boards, especially in winter season, where the air is usually drier. These gaps can close again with increasing humidity. It is therefore most important to provide a relatively stable and not extremely varying room climate.

3. Impact of Humidity on the Plank Floors

Under 20 % strong cupping and fissures. Leads to permanent damage on the planks

20 – 40 % Probable forming of small gaps and light cupping

40 – 50 % ideal stage of humidity. No cupping, no gaps

50 – 70 % weak to light cupping of the wood possible.

4. Preparation of the Rooms

Before installation, we recommend placing the planks in rooms with stable humidity and temperature, so that the boards acclimatise for a minimum of 1- 2 days before installation. This prevents strong movements of the planks and therefore cupping or fissures after installation.

The wood of the planks moves all year round and adapts to the room humidity constantly, which is why the gap between the planks and the wall should be between 10 and 15 mm wide. On the gap, we recommend placing skirting boards.

The floors and walls of the building, particularly in a new built, should be completely dry and prepared for the installation. All works in the building have to be finished beforehand, the concrete or wooden substructure completely dry, equilibrated and clean.

Our planks are supplied with 8 – 10 % wood moisture, which corresponds to about 50 % relative room moisture. That is why the room's humidity should stay between 35 – 65 % and room temperature between 18 ° C – 25 ° C. If you are uncertain about the climate changes in your room, we recommend buying a hygrometer to measure and control the room climate.

Especially in new built, it is important to check for rest moisture of the substructure (Wood, screed, concrete etc.). Sometimes controls of the rest moisture in the substructure are not conducted in a correct manner, which is often the reason for delay of further works in the building or worse, damages on the plank floor. We recommend consultation and measurement of the substructure by a professional floorlayer before installation.

5. The Installation

The dimensions of each room have to be measured precisely, especially when room-long planks are to be installed. This can easily be done with special laser measurement devices.

The planks have to be pushed together with a hammer and a piece of wood or „cushion“ in between. Avoid direct contact with the hammer, since this can damage the planks. The planks have to be tightly placed together. If higher room humidity is expected, place them with a distance of 1- 2 mm alongside the width between one another.

The substructure has to be leveled perfectly, which can be achieved with putty, sanding or a wooden substructure. The height variance should be maximum 1 mm on a length of 1 m. We recommend the measurement to be done by a floor laying expert.

6. Preparation Overview

I. Protocolled measurement of room humidity & room temperature

- a. Room Moisture between 35 – 65 %, in Winter approx. 50 %.
Recommendation: Hygrometer for controlling humidity
- b. Room temperature between 18° - 25° C

II. Protocolled measurement of humidity of substructure on several spots in the rooms

- a. Screed 2,0 CM
- b. Screed with subfloorheating 1,8 CM
- c. Anhydrite Screed 0,5 CM
- d. Anhydrite Screed with subfloorheating max. 0,3 CM
- e. Wooden substructure: 8- 12 %
- f. Planks: 8- 10 %

III. Measurement of room dimensions

- IV. Substructure has to be leveled, clean, dry and without cracks or fissures.
- V. For acclimatisation, the planks have to be placed in a dry and clean room for minimum 1- 2 days before installation begins.
- VI. Leave 10 – 15 mm gap between planks and wall, depending on width of the floorboards. With more than 6 m long planks, leave 15 mm gap alongside the planks and the wall.

Distances of wood beams in substructure

	Houses, Appartments	Small Shops	Assembly rooms, Lobbies
28 mm	86 cm	70 cm	60 cm
35 mm	120 cm	100 cm	80 cm

Wall distance: Distance first row of wood slats to wall 50 – 100 mm. Distance first row to second row ca. 50 cm

Screwed vertically

	Wooden beamse, section	cross Concrete/Screed	Plywood/ OSB
28 mm	5 x 60 mm	5 x 50 mm	5 x 40 mm
35 mm	5 x 60 mm	5 x 60 mm	5 x 45 mm

5

Screwed in tongue (45°)

	Wooden beams, cross section	Concrete/Screed	Plywood/ OSB
28 mm	4,2 x 65 mm	5 x 50 mm	4,2 x 45 mm
35 mm	4,2 x 65 mm	5 x 60 mm	4,2 x 45 mm

Distances of screws on fixed substructure

	Concrete/Screed	Plywood/ OSB
28 mm	60 x 80 cm	60 - 80 cm
35 mm	-	40- 50 cm

1. Hiram Planks screwed on top of beams

a. Important Conditions

The concrete sub- floor has to be leveled out (Max deviation 2 mm across a 2 meter straightedge) and with a residual moisture content (max. 85 % RH)

Lay out sound absorbing vapour barrier (0.20 mm PE foil. Example: Platon Stop) with 20 cm taped overlay and knobs facing down. Continue up behind the skirting boards, tape it in place with tape to cover up the joists (Platon Tape).

First row of boards has to be installed 10 - 15 mm from the wall, with temporary spacing blocks in between. Use a string to check that the first row is completely straight.

Drill a 10 mm deep hole 4 - 5 cm from each edge with a 15 mm plug drill. The holes have to be straight and do not fray. Next, use a 6 mm concrete drill to drill a minimum 50 mm deep hole in the concrete floor. Vacuum every hole after drilling.

Fasten the floorboards with screws (**28 mm** -> 5 x 50 mm, **35 mm** -> 5 x 60 mm) and a rawlplug (6 x 30 mm). Screw spacing should be around 60 – 80 mm. Vacuum every hole and regularly check that the screws are in deep enough. The screw have to have a sufficient grip in the substructure.

Install the next floorboard the same way. The floorboards have to be knocked together tightly (above 300 mm floorboard width: leave a 2 mm gap between the floorboards). Leave 10 – 15 mm space between last row of floorboards and the wall. The holes have to be vacuumed again after installation of the floorboards. To cover the screws use wooden plugs and glue the plugs carefully with moisture resistant wood glue.

6

2. Hiram Planks screwed on top of substructure | OSB/ Plywood/ Beams

For information on the distances of screws or the screw sizes, please see the table on page 6.

Screws in tongue in 45° angle

Install outside planks first with screws placed from above. When the screws are installed in a 45° angle into the tongues of the planks, we speak of a “hidden” installment, since you cannot see the screws anymore after placing the next floorboard on top of the tongue. The distance of the screws is 60– 90 cm, depending on the frequent use of the floor. Only the planks alongside the wall are to be installed with screws placed vertically. Distance from planks to wall always 10 – 15 mm.

Screws installed vertically from above

Install outside planks first; The floorboards have to be knocked together tightly (above 300 mm floorboard width: leave a 2 mm gap between the floorboards). Leave 10 – 15 mm space between last row of floorboards and the wall. The holes have to be vacuumed

again after installation of the floorboards. To cover the screws use wooden plugs and glue the plugs carefully with moisture resistant wood glue.

Other information:

- Distance from planks to wall always 10 – 15 mm
- Don't glue the planks together
- Always saw the planks from the backside
- Avoid direct contact with the hammer, since this can damage the planks.

This brochure will serve as a general guide for the above installation methods. Since every building project varies in its requirements, we recommend installation and/or consultation by a professional floorlayer.