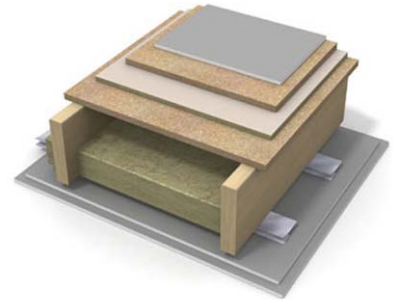


# Intermediate Floors Insulation

## Design and Handling Guideline



### General instructions for insulating work

#### Cutting

When cutting insulation sheets, a Paroc knife and a straight edge or a normal saw.

#### Filling

The insulating function will be affected by how well the space to be insulated has been filled. The most important thing is for the insulation to lie well against the warm side of the structure. Continuous gaps on the warm side of the insulation should therefore be avoided and above all the insulating function will be significantly reduced if these gaps make contact with the cold side.

#### Handling and storing

Insulation is a very important product for buildings and should therefore be handled with great care so as not to jeopardize its functioning. Storing on site until the time it is to be fitted should therefore be carefully planned. The totally sealed plastic packaging protects the product against temporary weather stresses. The insulation should always be covered when stored outside for longer periods. Never fit wet insulation. If the insulation becomes wet after fitting, it must not be secured until it has dried if it is not to make contact with a ventilated air gap.

### Paroc SSB, step sound board

Paroc Step Sound Board has high compression strength. The sheet is dimensioned together with the upper concrete with its material values for compression strength and rigidity. The foundation is calculated as having infinite rigidity.

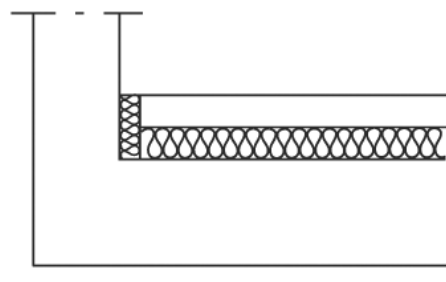
Sound insulation of intermediate floors with floating floors with concrete coating is the principal usage.

#### Assembly

The concrete coating is to be in a homogenous layer with a thickness of at least 50 mm. The concrete coating is to be separated from the adjacent building elements so that it may move freely.

This can be achieved using strips of stone wool against the walls, pillar foundations, etc.

When laying the concrete all transportation over the insulation material is to be done on gangways.



## Sound

An efficient floating floor must have the highest density slab and softest foundation possible. Good efficiency can be achieved if the sheet consists of concrete and the elastic layer of stone wool. It is vitally important that the concrete sheet does not make contact with the floor structure since the elastic layer must separate the concrete sheet from the surrounding walls.

## Fire

Paroc Stone wool is non-combustible in accordance with EN 13501-1 class A1. The stone wool withstands at least 1000°C without melting and thereby contributes to significantly extending the burn-through time of the structure.

## Moisture

Paroc stone wool is capillary breaking and therefore absorbs water only when it is pressed or forced into the material. The stone wool dries quickly in these circumstances and therefore resumes its original insulating qualities in all respects.

## Dimensions

Thickness,mm	Width,mm	Length,mm
30	600	1200
50	600	1200

## Design solutions

### Dimensioning

Paroc stone wool is a heterogeneous material. This means that the dynamic elasticity characteristics cannot be determined from measurements taken over static pressing together, but must be measured separately.

When stone wool is used as the “spring”, the dynamic rigidity,  $s_d$ , is composed of two components:  $s_d =$  material rigidity and  $s_a =$  the elasticity of the confined air.

The value of  $s_a$  can be calculated and assumes the following values for different thicknesses:

t, mm	$s_a$ MN/m <sup>3</sup>
5	22
10	11
20	6
30	4
50	2
100	1

The value of  $s_d$  is measured separately for respectively thickness and density of the product.

For floating floor constructions the elastic layer is to be as soft as possible. In accordance with testing standards, the dynamic rigidity of stone wool must be stated for a loading of 200 kg/m<sup>2</sup> when it is to be used

in floating floor under concrete overflow. The material is tested in accordance with EN 29052-1:

Load, 200 kg/m <sup>2</sup>				
Thickness	17	25	30	50
PAROC SSB1			12	10
PAROC SSB2†	20	15		

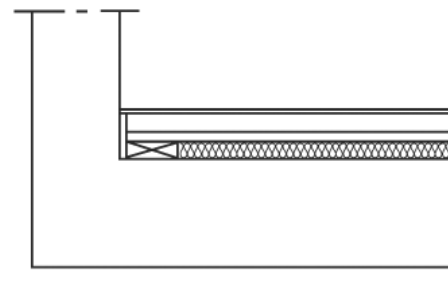
## Paroc SSB 2†, step sound board

Paroc Step Sound Board has a high resistance to compression. The upper side of the board is covered with fibreglass tissue that creates an even surface and prevents the insulation from being ripped during the laying of the pressure distributing sheet material.

Sound insulation of intermediate floors with floating floor is the principal usage. However, the product can also be used as comfort insulation in bathrooms and on basement floors.

## Assembly

The Step Sound Boards are laid with the cloth covered side facing up. The tongues and grooves of the floor sheets are glued and are then laid crossways. A 50-100 mm wide stud is laid against the adjacent walls, by the doors and under heavy fixed fittings in order to prevent sinking. The stud must be 2 mm thinner than the Step Sound Boards. The joints along the walls are sealed using elastic joint sealer.



## Sound

Using Step Sound Boards can halve the sound level detected through an intermediate floor. Constructions using Step Sound Boards absorb footstep noises especially well.

## Fire

Paroc Stone wool is non-combustible in accordance with EN 13501-1 class A1. The Step Sound Board with a fibreglass surface is also covered by this. The stone wool withstands at least 1000°C without melting and thereby contributes to significantly extending the burn-through time of the structure.

## Moisture

Paroc stone wool is capillary breaking and therefore absorbs water only when it is pressed or forced into the material. The stone wool dries quickly in these circumstances and therefore resumes its original insulating qualities in all respects.

## Dimensions

Thickness,mm	Width,mm	Length,mm
17	1200	1800
25	1200	600

## Design solutions

Floating floor and countersunk under roof can be used either individually or in combination. The solutions below have sufficient strength and rigidity to be used in residential premises and offices.

### Floating floor using sheets

These are constructed using an elastic layer of Paroc Step Sound Board SSB 2t under pressure distributing layers of floor sheet.

**Solution 1:** 14 mm Parquet  
22 mm Floor fibre-board with tongue and groove  
25 mm Paroc Step Sound Board SSB 2t

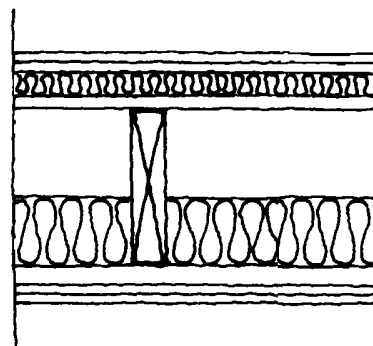
**Solution 2:** Floor covering  
13 mm Floor gypsum  
19 mm Floor fibre-board with tongue and groove  
25 mm Paroc Step Sound Board SSB 2t

Step Sound Board SSB 2t is also available with a thickness of 17 mm.

Construction is carried out similarly and the results are as follows:

### Paroc SSB 2t, 17 mm

Sound classes	
Sound reduction	Footstep noises
$R'_w$	$L'_{n,w}$
60	54
$R'_w + C_{50}$	$L'_{n,w} + C_{50}$
52	58



### Components

In order to prevent footstep noises from people walking and from the partition walls, the floor should be finished according to the figure below.



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