BESTEEL
REACTION FORCES

Estimation standard reaction forces of structure.

REACTION FORCES

The structural department at BeSteel made a synthesis of realised projects to obtain the standard reaction forces of different construction scenarios. These reaction forces can enable the client to have an approximative view required for the preparation of the foundation calculation the structure. The exact reaction forces of the beSteel structure of every specific project are given with the engineering report established by beSteel.

CONSTRUCTION SCENARIOS

LIGHT BUILDING

In this situation, the cladding composition of the different parts of the building is considered light. For instance, the composition of the floor may consist of one layer of structural hardboard.

Similarly, the wall composition may feature wooden cladding.

HEAVY BUILDING

In this situation, the cladding composition of the different parts of the building is considered heavy. For instance, the composition of the external walls may consist of one layer of bricks.

Similarly, a composition of a floor with a concrete screed.

In table 1 you can find the deadload you should take into account for the possible compositions.

The detailed composition of the two described scenarios is presented in Table 2. These compositions should serve as an example of the possible options to build a Light or Heavy building.

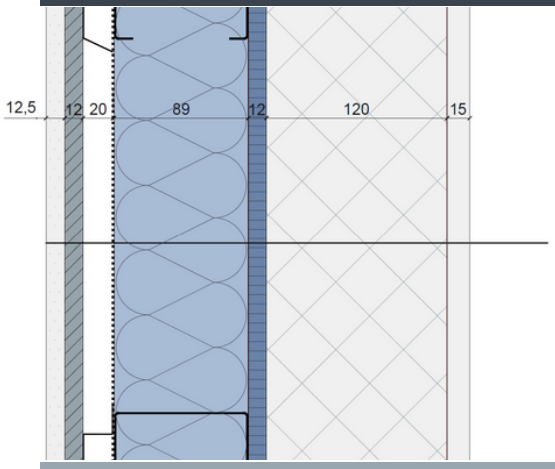
The reaction forces for a Light and Heavy building are presented in Table 1. Each one of the building levels represents an individual load, so that a building composed by a ground floor, two intermediate floors and a roof has a reaction force of 95.3 kN/m for a light building.

Table 1. Reaction forces according to the composition of the building

REACTION FORCES		
Building levels	Light Building	Heavy Building
Ground floor	26 kN/m	60 kN/m
Floor + 1	26 kN/m	60 kN/m
Floor + 2	26 kN/m	60 kN/m
Roof	17.3 kN/m	45 kN/m

Table 2. Different compositions in Light Structure and Heavy Structure

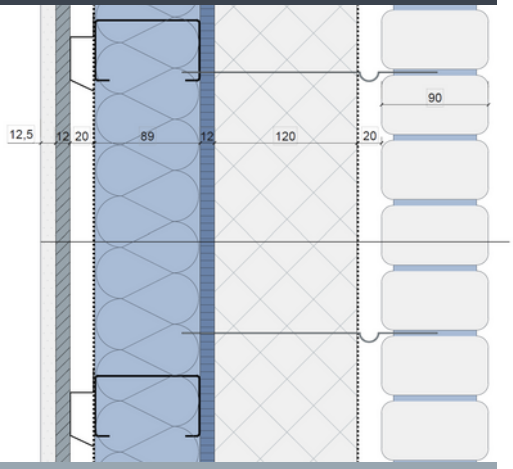
Light Structure



External Wall

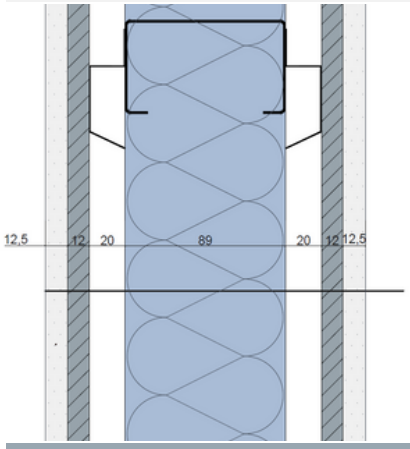
- Plasterboard - 12.5mm
- OSB or Durelis - 12mm
- Metal profile (optional) - 20mm
- Vapour barrier
- beSteel steelframe - 89mm
- Soft insulation - 90mm
- Structural plate OSB or Durelis - 12mm
- Rigid insulation - 120mm
- Plasterpaint - 15mm

Heavy Structure



External Wall

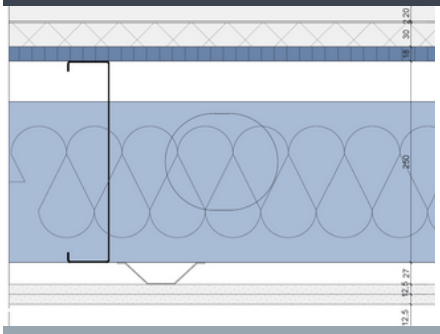
- Plasterboard - 12.5mm
- OSB or Durelis - 12mm
- Metal profile (optional) - 20mm
- Vapour barrier
- beSteel steelframe - 89mm
- Soft insulation - 90mm
- Structural plate OSB or Durelis - 18mm
- Rigid insulation - 120mm
- Waterproof membrane
- Ventilated space - 20mm
- Facade bricks - 90mm



Internal Wall

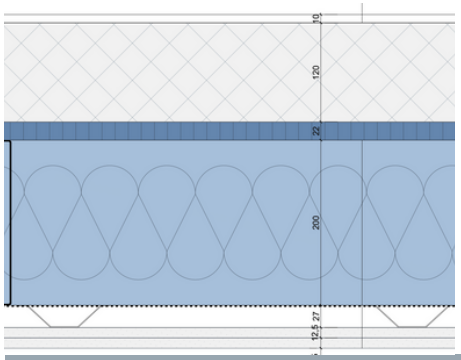
- Plasterboard - 12.5mm
- Structural plate OSB or Durelis - 12mm
- Metal acoustic profiles (optional)
- beSteel steelframe - 89mm
- Soft insulation - 90mm
- (Option : Structural plate OSB or Durelis - 12mm)
- Metal acoustic profiles (optional)
- Plasterboard - 12.5mm

Light Structure



Floor

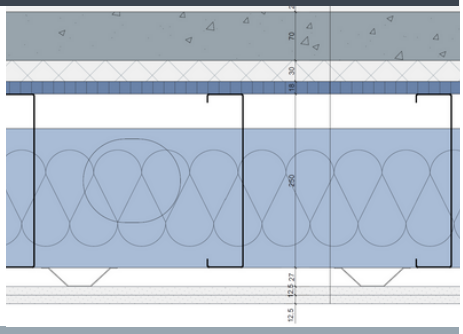
- Floor finish - 20mm
- Acoustic underlay - 2mm
- Semi-rigid floor isolation - 30mm
- Durelis - 18mm
- BeSteel steelframe - 250mm
- Soft insulation - 200mm
- Metal profile (optional) - 27mm
- Plasterboard - 12.5mm
- Plasterboard (second layer) - optional



Flat roof

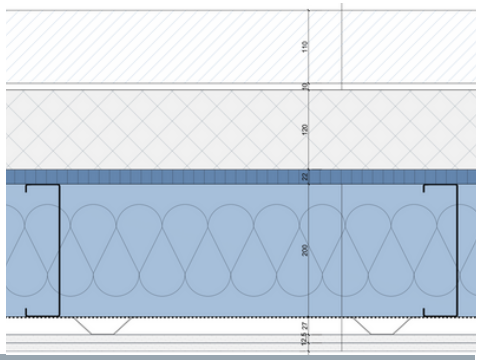
- EPDM - 10mm
- Isolation - 120mm
- Durelis - 18mm
- BeSteel steelframe - 200mm
- Soft insulation - 200mm
- Vapour barrier
- Metal profile (optional) - 27mm
- Plasterboard - 12.5mm
- Plasterboard (second layer) - optional

Heavy Structure



Floor

- Floorfinish - 20mm
- Concrete screed - 70mm
- Semi-rigid floor isolation - 30mm
- Durelis - 18mm
- BeSteel steelframe - 250mm
- Soft insulation - 200mm
- Metal profile (optional) - 27mm
- Plasterboard - 12.5mm
- Plasterboard (second layer) - optional



Flat roof

- Green roof
- EPDM - 10mm
- Isolation - 120mm
- Durelis - 18mm
- BeSteel steelframe - 200mm
- Soft insulation - 200mm
- Vapour barrier
- Metal profile (optional) - 27mm
- Plasterboard - 12.5mm
- Plasterboard (second layer) - optional