

# Technical catalogue

Designer's handbook – filigree floor slabs



# FILIGREE FLOOR SLABS

## STORAGE, TRANSPORT AND INSTALLATION

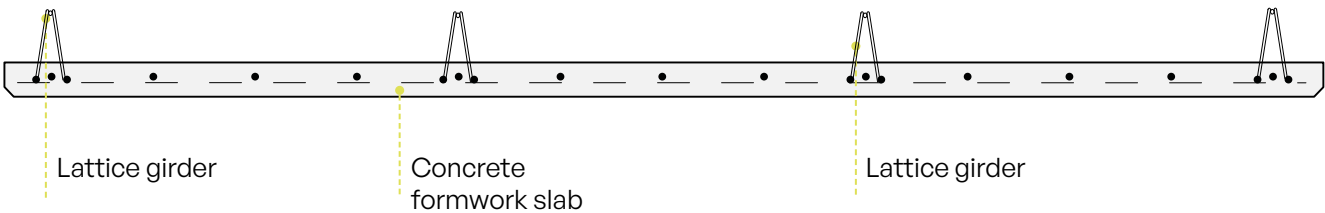
Every floor is drawn individually and calculated in our design office in accordance with the project specification and the structural requirements. Ceiling services such as light points, loudspeakers, ventilation outlets, cable outlets and the like can be integrated into the slab at the factory together with the appropriate void ducts, or prepared for installation. All inserts and building service components are recorded in the technical design in drawing form and, where necessary, allowed for structurally. Clash detection identifies conflicts between trades at an early stage and resolves them before production – not only on the construction site. Computer-controlled placing of the service components in the formwork ensures accurate positioning.



### Technical data:

|                      |                                                         |
|----------------------|---------------------------------------------------------|
| Element width        | ≤ 2,50 m                                                |
| Element thickness    | >5 cm                                                   |
| Element weight       | at t = 5 cm approx. 125 kg/m <sup>2</sup>               |
| Total slab thickness | 14-40 cm                                                |
| Slab length          | < 12 m                                                  |
| Concrete class       | do C35/45                                               |
| Surface              | Soffit smooth, ready for thin-coat plaster or wallpaper |

### Technical drawing



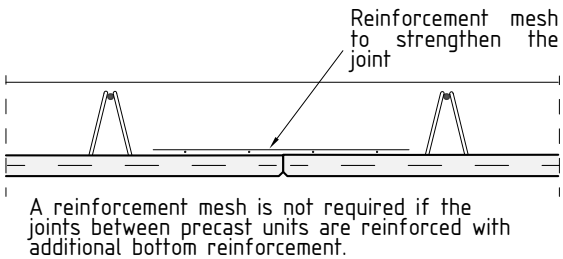
### Other provisions:

- All edges are chamfered 1 cm
- The soffit is prepared for thin-coat filling or wallpapering
- Faster construction, as all services are cast in during production

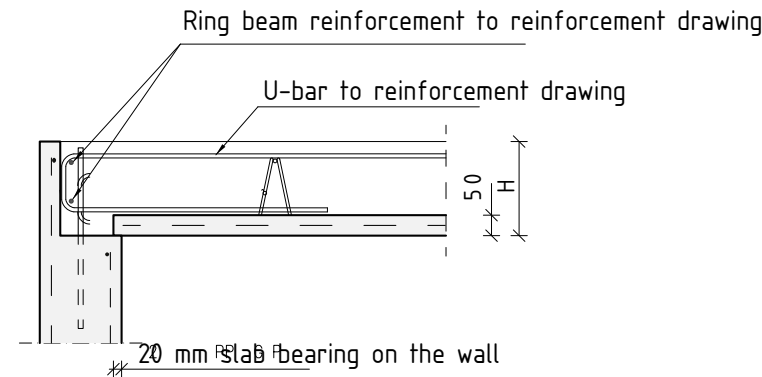
### Design schemes

Below are examples of technical solutions for typical details used in the design and installation of filigree floors in precast concrete systems. The details cover both the ways of supporting floor slabs on various types of wall and beam and special solutions relating to balconies, stairs and intermediate elements. Various installation methods are covered – from standard bearing on precast walls and beams, through supplementary reinforcement arrangements, to solutions with Isokorb-type thermal break connectors. The set of installation details includes the most common design situations and guidance on the required reinforcement, tolerance classes and ways of compensating for installation deviations.

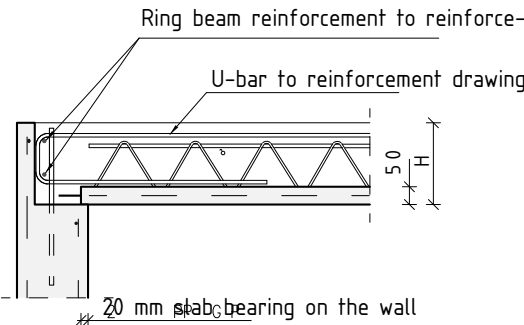
#### Longitudinal joint



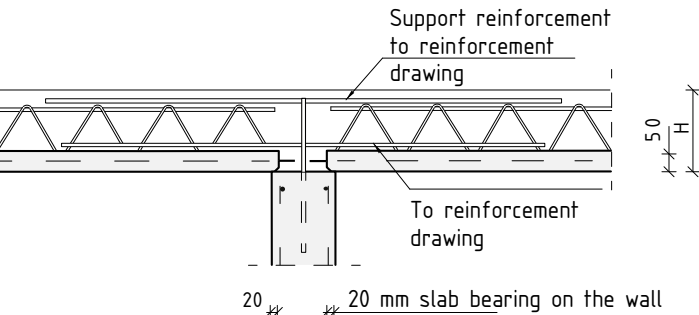
#### Longitudinal bearing on a precast wall



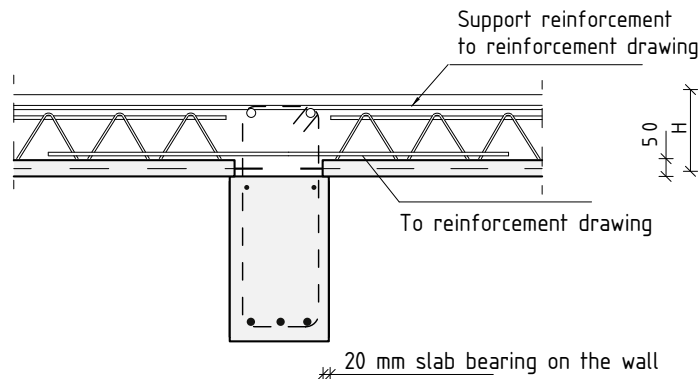
#### Longitudinal bearing on a precast wall



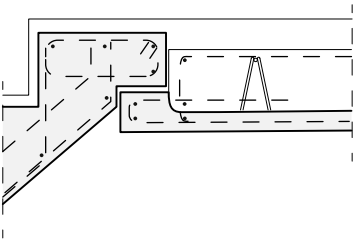
#### Intermediate support on a wall



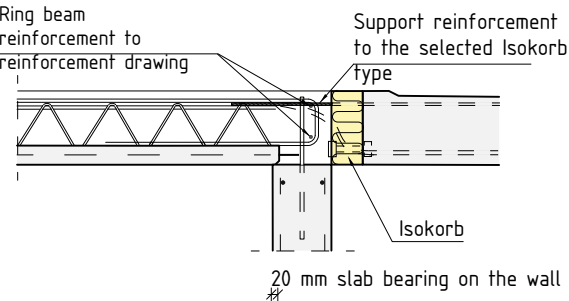
#### Longitudinal bearing on a precast beam



Stair bearing on a corbel in the floor slab



Balcony fixing with a thermal break connector



Estimated quantities of reinforcement for filigree floors

The table below gives indicative values for the total quantity of reinforcement in filigree floors as a function of the slab span and the imposed load. These data allow an initial estimate of the reinforcing steel required both in the full slab section and in the precast filigree element itself. In the table:

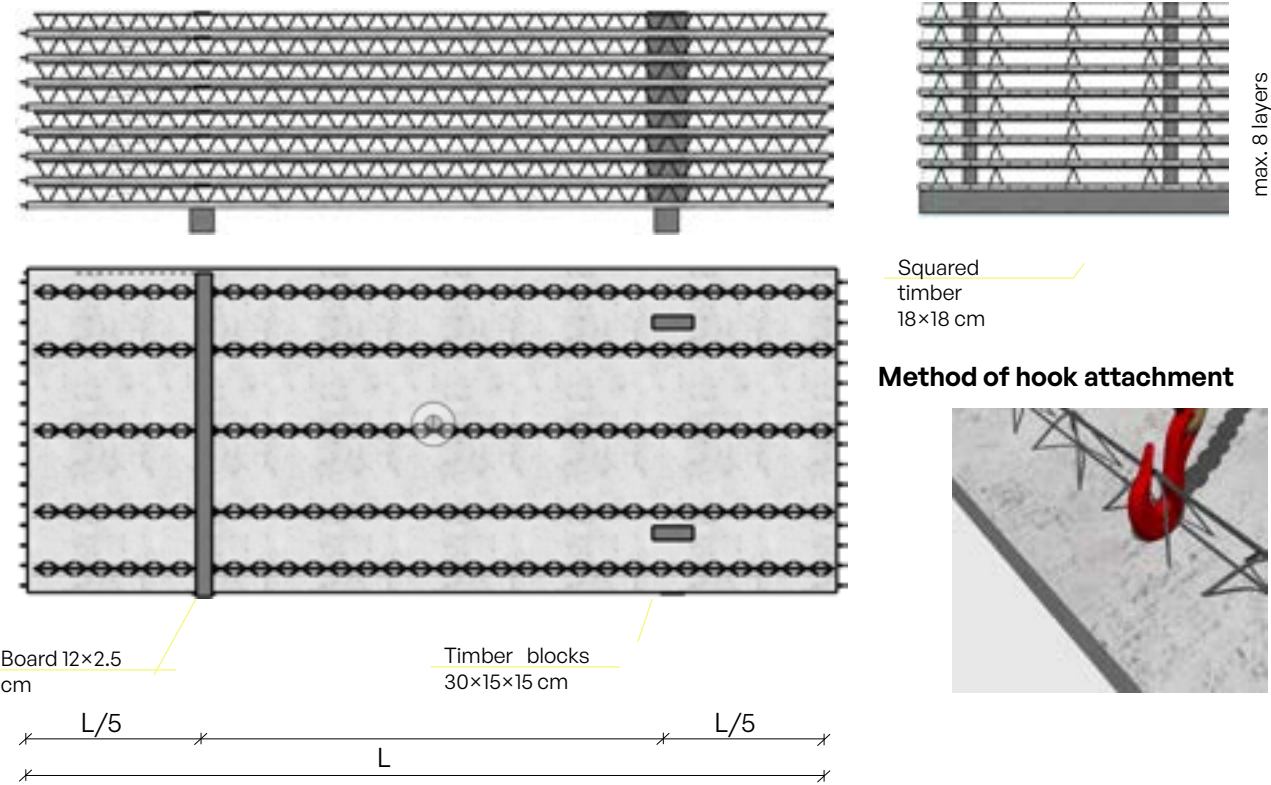
- the columns correspond to floor slab spans in metres,
- the rows correspond to imposed loads in kN/m<sup>2</sup>,
- in each cell the upper value is the total estimated mass of reinforcement [kg],
- the lower value is the estimated quantity of reinforcement in the precast filigree slab [kg].

The values are indicative and serve for an initial estimate of the quantity of material – detailed reinforcement design should be carried out on the basis of full structural calculations and in accordance with the applicable design standards.

|                      |   | Floor slab span [m]                                                                                          |    |     |    |     |    |     |    |     |    |     |   |
|----------------------|---|--------------------------------------------------------------------------------------------------------------|----|-----|----|-----|----|-----|----|-----|----|-----|---|
|                      |   | Total estimated quantity of reinforcement [kg] Estimated quantity of reinforcement in the filigree slab [kg] |    |     |    |     |    |     |    |     |    |     |   |
|                      |   |                                                                                                              | 2  | 2,5 | 3  | 4,5 | 5  | 5,5 | 6  | 6,5 | 7  | 7,5 | 8 |
| Imposed load [kN/m2] | 1 | 14                                                                                                           | 14 | 14  | 18 | 18  | 20 | 20  | 20 | 24  | 26 | 26  |   |
|                      |   | 5                                                                                                            | 5  | 5   | 5  | 5   | 6  | 6   | 6  | 7   | 7  | 7   |   |
|                      | 2 | 14                                                                                                           | 14 | 14  | 18 | 18  | 20 | 20  | 20 | 24  | 26 | 26  |   |
|                      |   | 5                                                                                                            | 5  | 6   | 6  | 6   | 6  | 7   | 7  | 7   | 7  | 7   |   |
|                      | 3 | 14                                                                                                           | 14 | 14  | 18 | 18  | 22 | 22  | 22 | 24  | 26 | 26  |   |
|                      |   | 5                                                                                                            | 5  | 6   | 6  | 7   | 6  | 7   | 7  | 7   | 7  | 7   |   |
|                      | 4 | 14                                                                                                           | 14 | 14  | 18 | 20  | 22 | 22  | 22 | 26  | 26 | 26  |   |
|                      |   | 5                                                                                                            | 5  | 6   | 6  | 6   | 6  | 7   | 7  | 7   | 7  | 7   |   |
|                      | 5 | 14                                                                                                           | 14 | 14  | 20 | 20  | 24 | 24  | 24 | 26  | 28 | 28  |   |
|                      |   | 5                                                                                                            | 5  | 6   | 6  | 7   | 7  | 7   | 7  | 7   | 7  | 7   |   |
|                      | 6 | 14                                                                                                           | 14 | 14  | 20 | 20  | 24 | 24  | 24 | 26  | 28 | 28  |   |
|                      |   | 6                                                                                                            | 6  | 6   | 6  | 7   | 6  | 7   | 7  | 7   | 7  | 7   |   |
|                      | 7 | 14                                                                                                           | 14 | 14  | 20 | 22  | 24 | 26  | 26 | 28  | 28 | 28  |   |
|                      |   | 6                                                                                                            | 6  | 6   | 6  | 6   | 7  | 7   | 7  | 7   | 7  | 7   |   |
|                      | 8 | 14                                                                                                           | 14 | 16  | 22 | 22  | 24 | 26  | 26 | 28  | 30 | 30  |   |
|                      |   | 6                                                                                                            | 6  | 6   | 6  | 7   | 7  | 7   | 7  | 7   | 7  | 7   |   |
|                      | 9 | 14                                                                                                           | 14 | 16  | 22 | 22  | 26 | 26  | 26 | 30  | 30 | 30  |   |
|                      |   | 6                                                                                                            | 6  | 6   | 6  | 7   | 7  | 7   | 7  | 7   | 7  | 7   |   |

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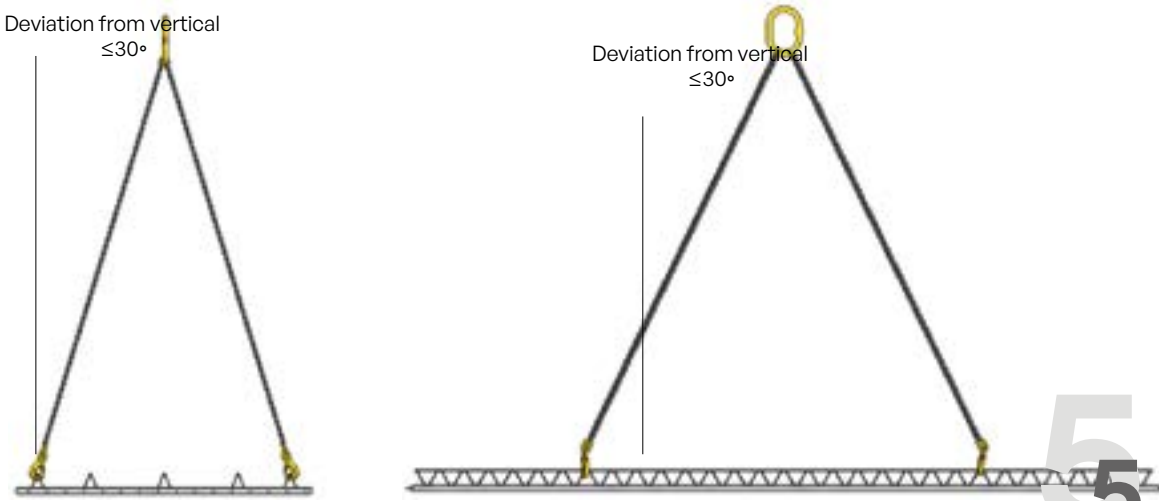
Storage scheme for filigree slabs



It is advisable to keep temporary storage of components on site to a minimum and to install the elements directly from the transport trailer. Where storage is unavoidable, a sufficiently flat and stable storage area must be prepared.

Precast elements must be stored only in a horizontal position and arranged in the planned order of installation, so that they do not have to be moved again. The components should be stacked with attention to similar dimensions. Larger slabs must not be placed on smaller ones. The maximum permissible stack height is 8 layers of slabs, although this may depend on the particular site conditions, such as proximity to embankments or ground stability.

Permissible chain sling angles





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