

Fig. 0

BAB - bloc à bancher

INTRODUCTION

The Bloc à Bancher is a construction method that has been in use in France since the late 1970s. Closer to our shores, it has also been in use in Reunion Island for three decades. It was incorporated into the French unified codes of practice (DTU 20.1) in July 2020.

The Bloc à Bancher is a versatile shuttering block that can be dry stacked or layed with mortar and filled with ready-mix concrete. It allows for the construction of load-bearing or non load-bearing walls, above or below ground, with or without reinforcement, suitable for various types of structures, including agricultural and industrial buildings, retaining walls, house foundations, drains, swimming pools and more.

The structural performance of these blocks relies on their concrete infills. They are not intended to be used without being filled with concrete.

ADVANTAGES

	Cost benefit	Environmental benefit	Improved ease of use	Gain in efficiency	Reduction in construction time
Elimination of formwork	✓	✓		✓	✓
Up to 15% less cement usage than a concrete wall	✓	✓			
25% lighter than a standard 8 inch block			✓	✓	
Laying of mortar	✓			✓	✓
Block texture more adequate for rendering				✓	

LAYING OF CONCRETE BLOCKS

The blocks are laid dry or with mortar. The first layer is always laid on a bed of mortar for even levelling and to ensure that the stacking of subsequent layers is done under good conditions. Corners and openings (windows, doors, etc.) are always placed first.

The shape of the block and the arrangement of its interior walls with notches allow for easy and quick placement of the concrete blocks as well as the vertical and horizontal reinforcements. (Fig. 1)

Corners are formed using special blocks, delivered in addition to the standard Bloc à Bancher. (Fig. 1).

The blocks are stacked to a height not exceeding 1.5 metres per day.

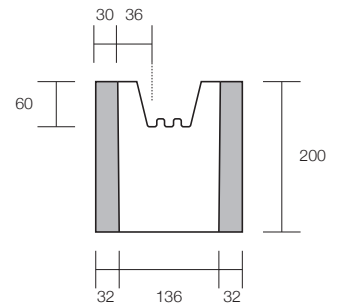
Blocks are staggered by half a block from one row to the next, ensuring a proper cross-joint at the corners (Fig. 0).

LAYING OF STEEL REINFORCEMENTS

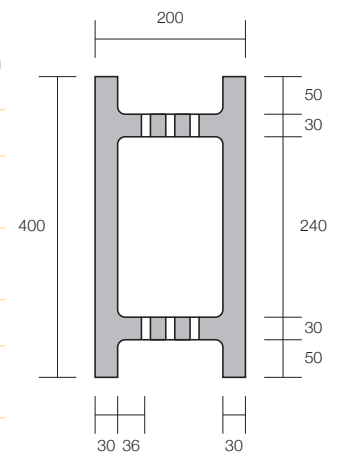
When laying the foundation, it is important to position starter bars to ensure that they align with the block cavities during the installation of the Bloc a Bancher.

Please refer to Figure 5 for the recommended distances between the starter bars. The steel bars are to be placed vertically and horizontally. The design engineer will determine the diameters, spacing and whether the bars should be installed in a single or double layer, based on the type of structure being constructed (retaining walls, foundations, drains or even swimming pools).

Horizontal steel bars are installed as the blocks are stacked in each row. It is crucial for horizontal and vertical steel bars to have a minimum lap length of 50 diameters at the joints, particularly at the corners (Fig. 2).



STANDARD UNIT



CORNER UNIT

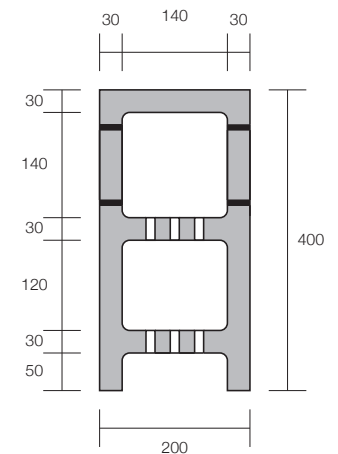
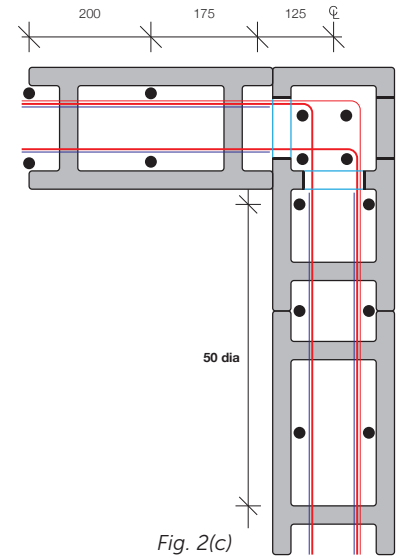
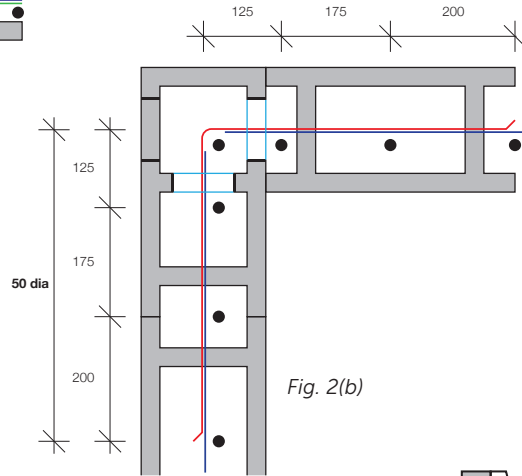
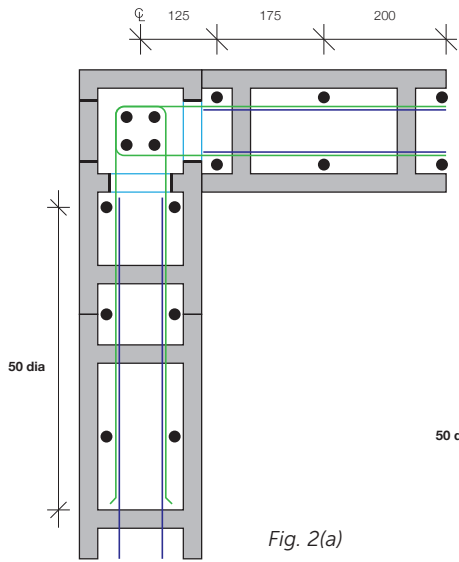


Fig. 1

DIFFERENT REINFORCEMENT CONFIGURATIONS

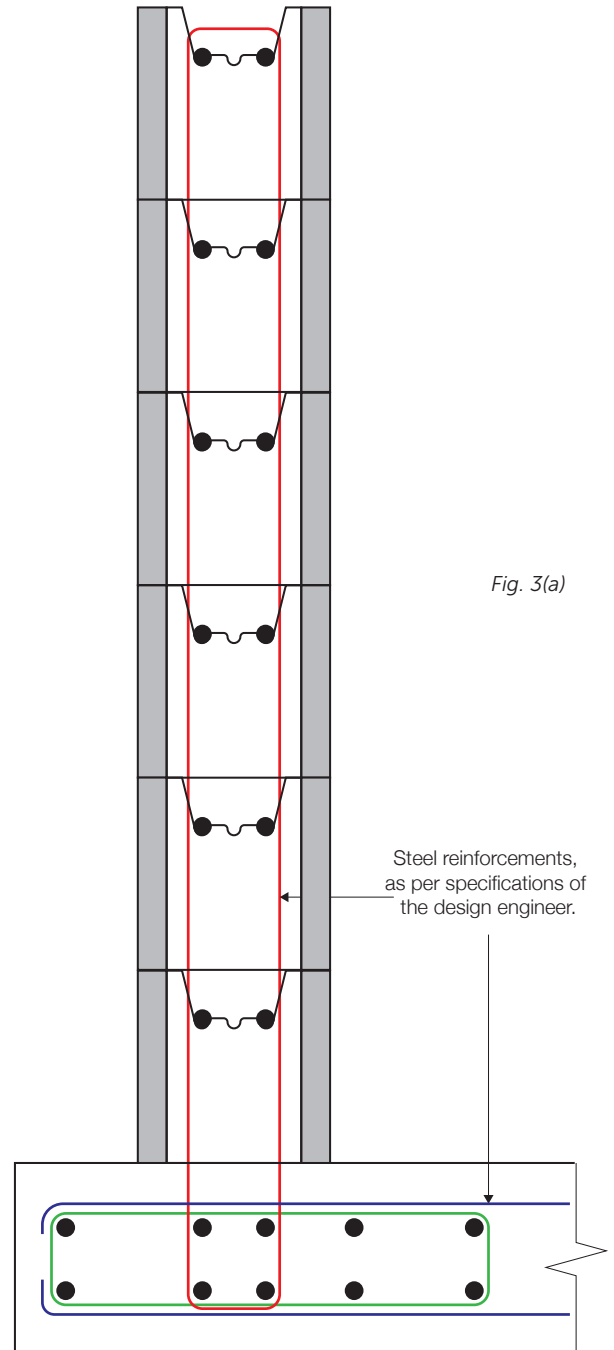


REINFORCEMENT COVER

The specifications for steel reinforcements covers depend on the intended use of the wall. Waterproofing is also recommended. The design engineer will guide you on the adequate method to be adopted and the reinforcement plan.

Here are different ways to build using the Bloc à Bancher:

- Two layers of vertical and horizontal reinforcement (Fig. 2(a) and 3(a)).
- One layer of vertical and horizontal reinforcement (Fig. 2(b) and 3(b)).
- One layer of vertical reinforcement and two layers of horizontal reinforcement (Fig. 3(c)).



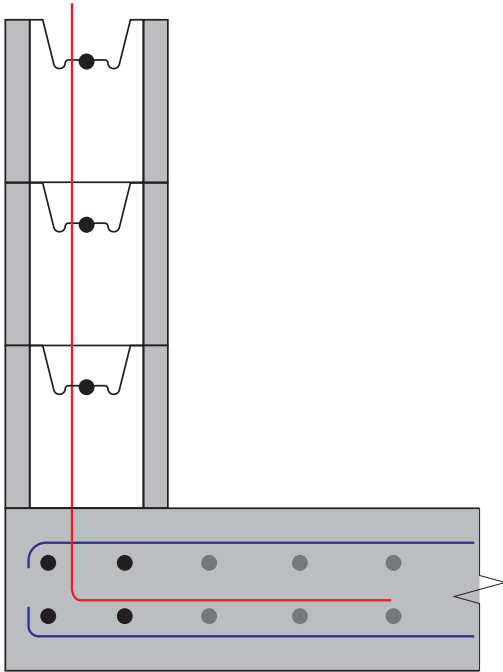


Fig. 3(b)

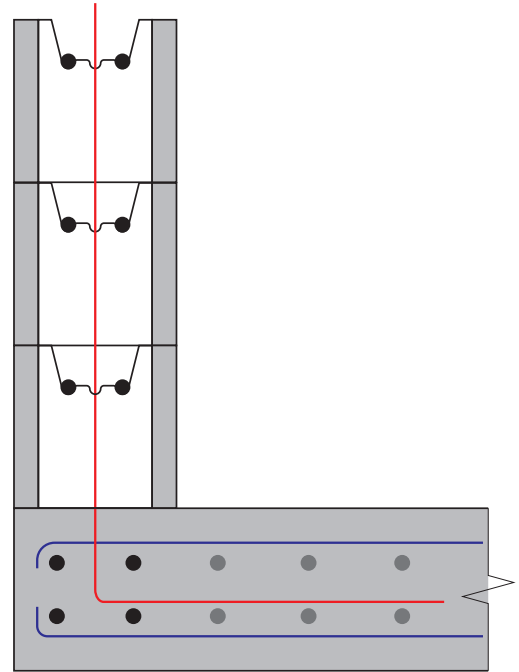


Fig. 3(c)

POURING OF CONCRETE

The blocks have to be moistened before pouring the concrete. To facilitate concrete placement and to ensure proper cover to reinforcement, it is recommended to use a **minimum grade of C25/30 concrete with a consistency of S4 (slump between 160-210mm)**, and aggregates up to ½ inch maximum (½ inch macadam: 10-14mm).

Mechanical vibration of the concrete is not recommended.

When pouring a wall exceeding 1.5 metres in height, the first pour should not exceed 1.5 metres per day and must stop at the halfway point of the last block so as to facilitate the next pour (Fig. 4).

The surfaces of the last row of blocks should be cleaned or brushed immediately to facilitate the placement of the next row.

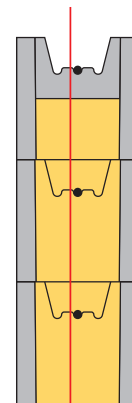


Fig. 4

PERMISSIBLE LOADS

When considering permissible loads in load-bearing walls under the influence of vertical loads, only the poured concrete core should be taken into account while doing the calculations. However, in the case of calculating the flexural strength of the section, the thickness of the entire wall (block + concrete) must be taken into consideration.

Design engineers are responsible for outlining the following specifications:

- Dimensions of the structural elements.
- Concrete grade.
- Reinforcement plan.
- Reinforcement steel cover.
- The curing time of concrete.

VERTICAL ALIGNMENT OF REINFORCEMENTS

(Here without vertical joints between blocks)

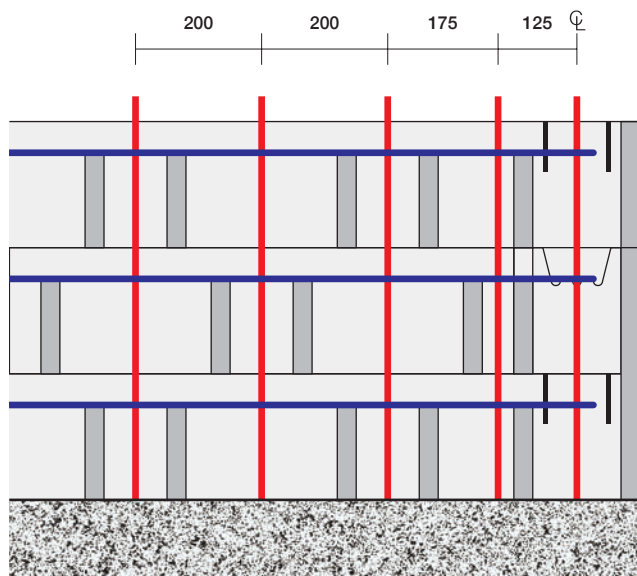


Fig. 5

DISTRIBUTION OF CONCRETE

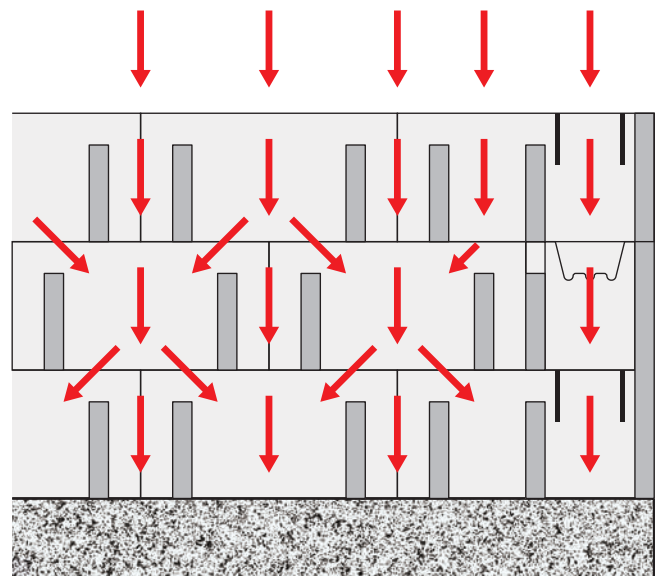


Fig. 6

For any advice, please consult your design engineer and authorised vendors of waterproofing and tiling products.

Our various subsidiaries can provide you with complementary solutions: concrete experts, mortar experts as well as landscaping experts. Contact the customer care centre to know more about the availability of complementary products supplied by other companies within the group.

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