



High-density concrete block



WORK INSTRUCTIONS

26/03/2020

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1. General, Lakka high-density concrete block

Lakka high-density concrete blocks are manufactured using zero-slump concrete (density > 3,800 kg/m³). High-density concrete blocks are used in base floor, intermediate floor, and roof structures preventing radiation, in both new and renovation construction. The blocks can also be used to locally improve, widen or thicken specific structural parts that require better radiation shielding.

Lakka high-density concrete blocks are 150 mm in width and height, and 200 mm in length. The blocks are joined using thin layer mortar. The thickness of the mortar should be approximately 1–2 mm. The blocks have interlocking grooves and tongues on all sides and the mortar will not be visible. The nominal height of a block is 150 mm.

These instructions are intended for use as work instructions when laying high-density concrete blocks manufactured by Lakan Betoni Oy. Lakka high-density concrete blocks have been granted a CE marking in accordance with Standard EN 771-3:2011 + A1:2015.

2. Selection of products

Dimensions	150 x 200 x 150 mm
Weight	17.5 kg
Pallet	72 blocks, 1,280 kg
Blocks per m ²	33.3 blocks/m ²
Dry density	3,800 kg/m ³
Dry mix mor-	0.1 kg/block

Table 1. Lakka high-density concrete block product information



High-density concrete block



Footing shims

For levelling the first layer of concrete blocks.



Thin layer mortar

For joining high-density concrete blocks.

Bag sizes 25 kg

Water quantity 5.5–6 l/25 kg

Prepared mixture 15 l/25 kg



Lakka K-40 Grout

For installation and anchoring of concrete structures.

Bag sizes 25, 500, 1,000 kg

Water quantity 3–3.5 l/25 kg

Prepared mixture 13 l/25 kg



Wedge shims

For levelling concrete blocks.

3. Installation of high-density concrete blocks

Start laying concrete blocks on a footing shim or floor. Lay the first layer of blocks using footing shims and anchor the blocks onto the footing using grout (Lakka K-40 Grout). The first layer of blocks can be recessed into the floor to improve radiation shielding.

Blocks are installed by applying thin layer mortar on the horizontal grooves and middle tongue of the blocks (see Image 1). After applying the mortar, use the interlocking grooves to guide the installation of the next block on top of the block below. The tongues at the bottom of the block to be installed help ensure that the mortar holds properly. For vertical joints, mortar is typically only applied on cut surfaces and when connecting the end of a block to the side of another block.

High-density concrete blocks are laid with a 1/2 block overlap. The nominal height of a block is 150 mm. It is recommended that the vertical and horizontal joints of adjacent walls are overlapped by at least 20 mm. Overlap improves radiation shielding.

The images below show more detailed installation instructions.



Image 1 Application of mortar (Note! It is not necessary to use mortar on vertical grooves)

Illustration 1. How to begin masonry of a high-density concrete block wall. Always follow the instructions provided by the designer of the building or structure!

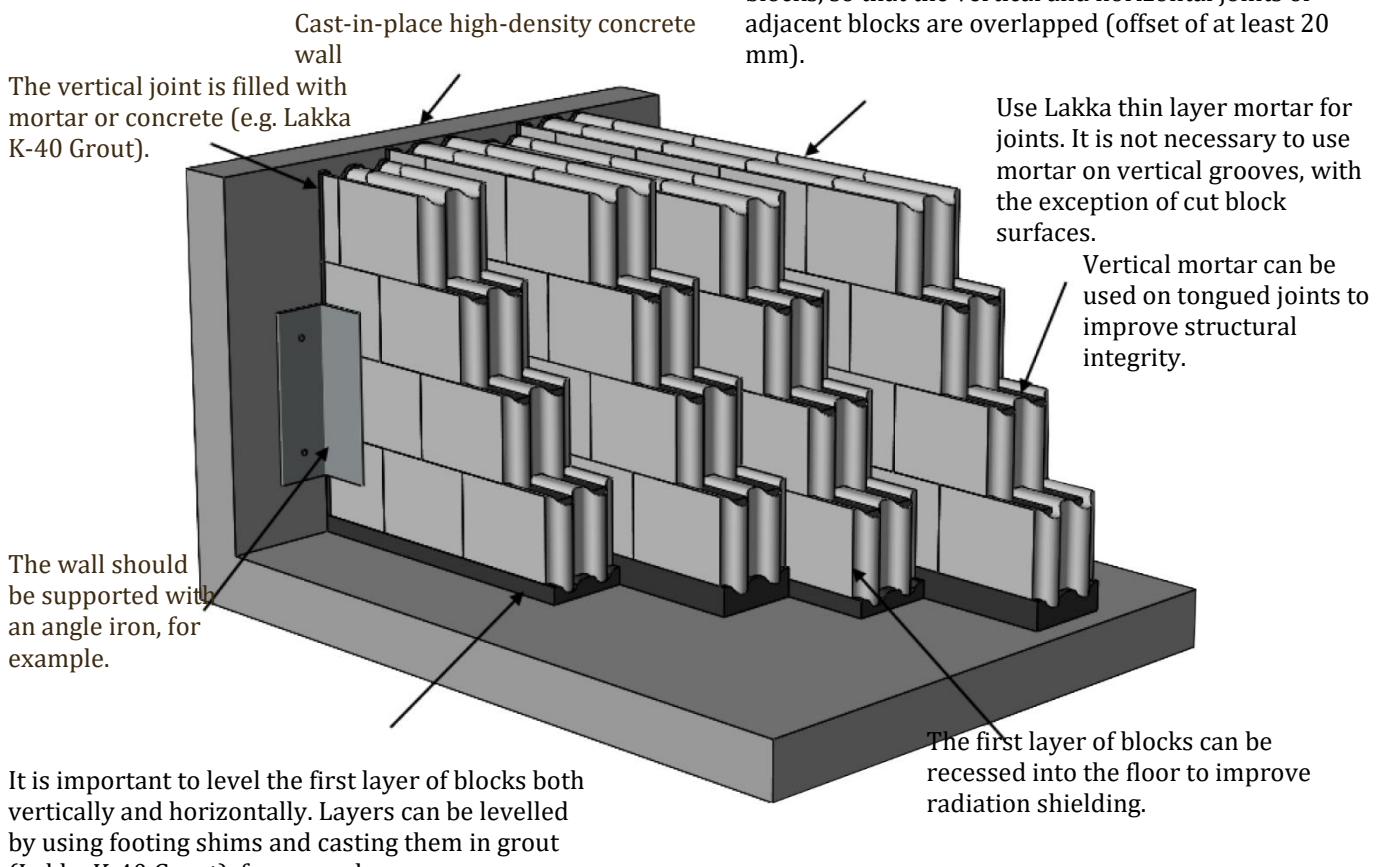
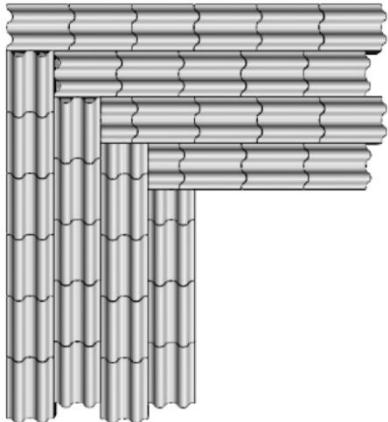
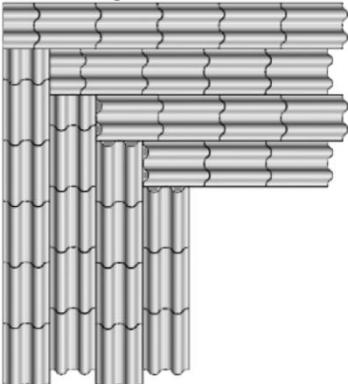


Illustration 2. Offset of joints at the corner of a high-density concrete block wall. Always follow the instructions provided by the designer of the building or structure!

1. running bond



2. running bond



Use a running bond when laying high-density concrete blocks, so that the vertical and horizontal joints of adjacent blocks are overlapped (offset of at least 20 mm).

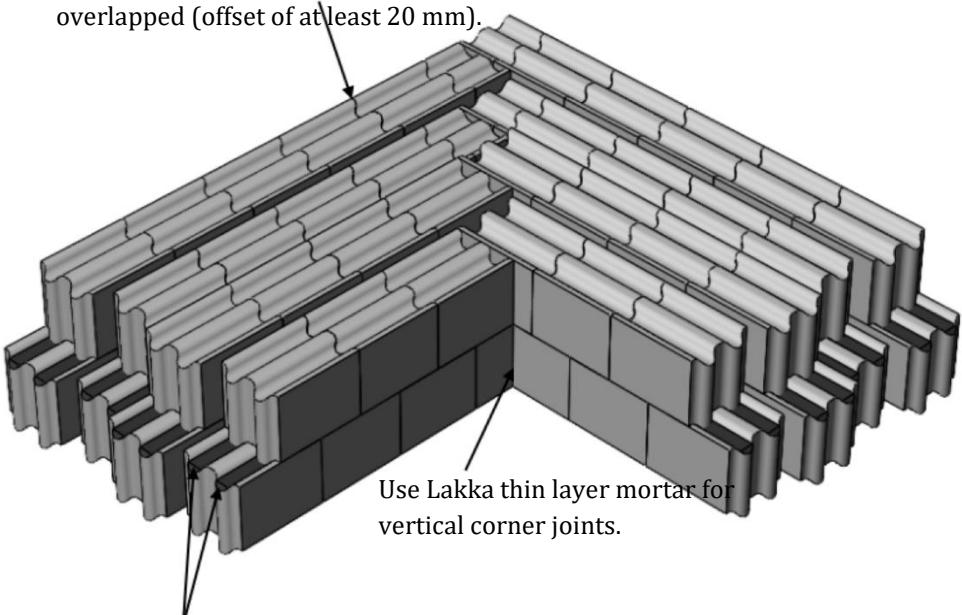


Illustration 3. Top joint of a high-density concrete block wall. Always follow the instructions provided by the designer of the building or structure!

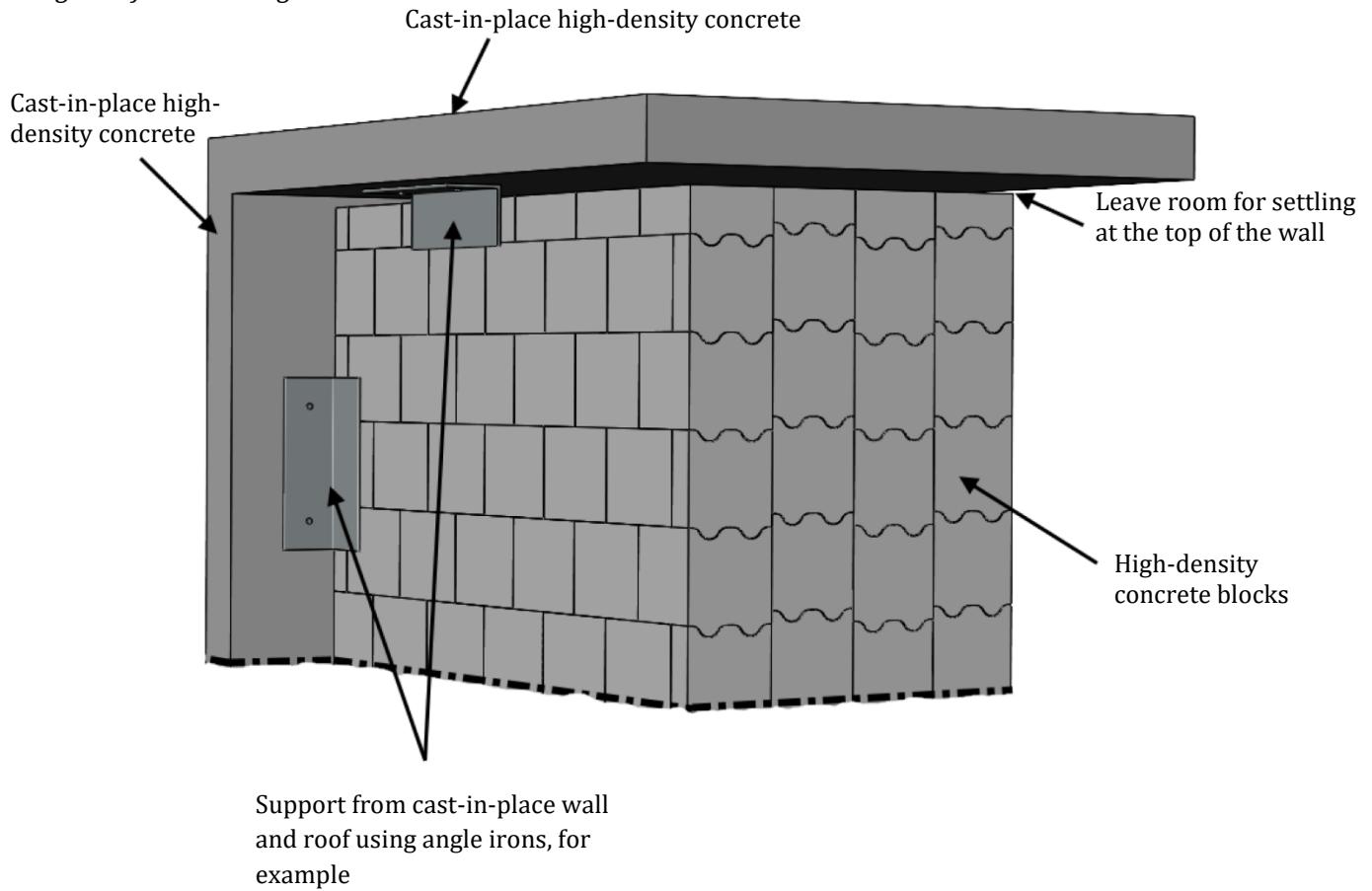
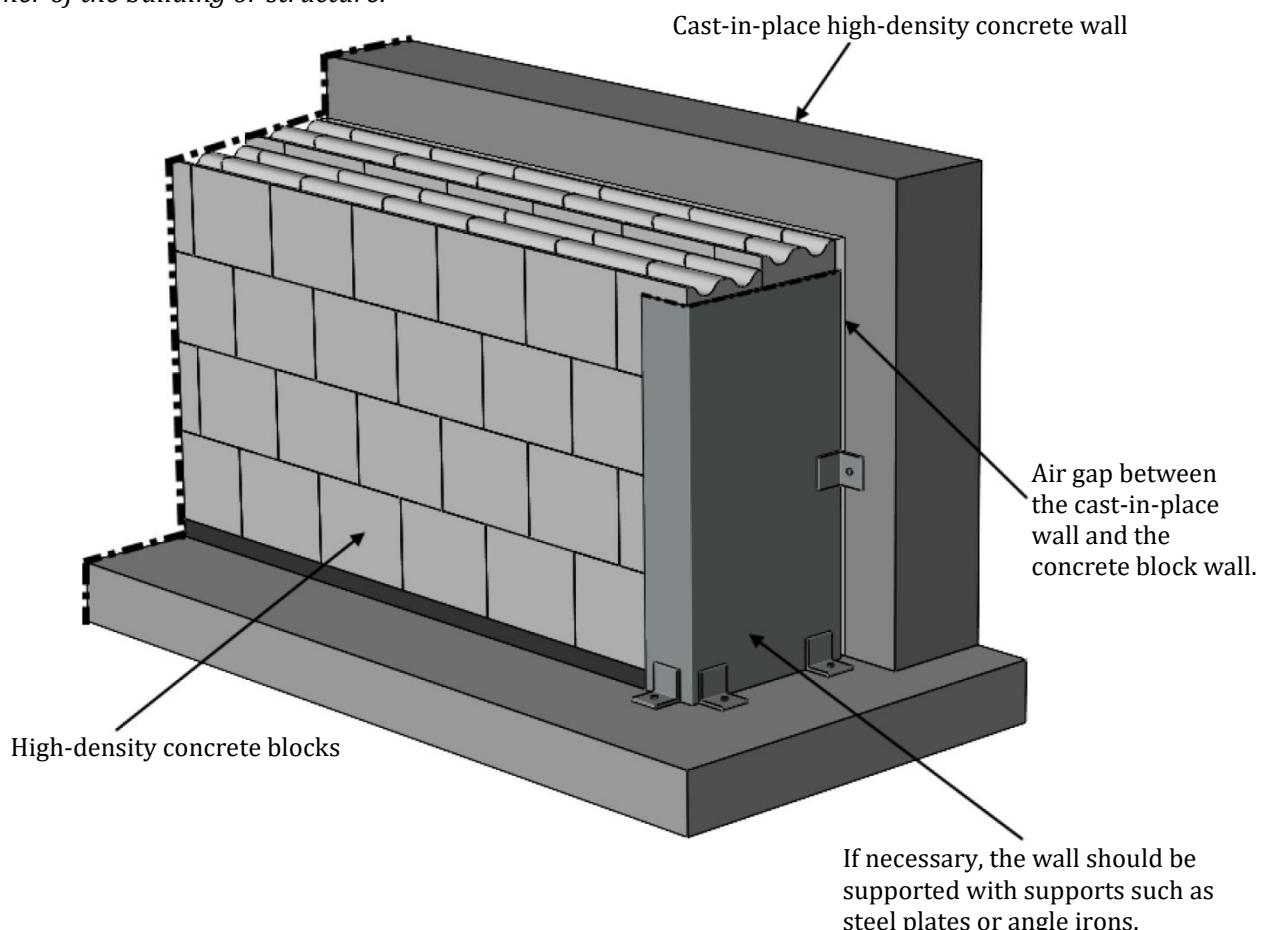


Illustration 4. Additional protective wall made of high-density concrete blocks. Always follow the instructions provided by the designer of the building or structure!



7. Further information

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