

Technical catalogue

Designer's handbook – solid walls



SOLID WALLS

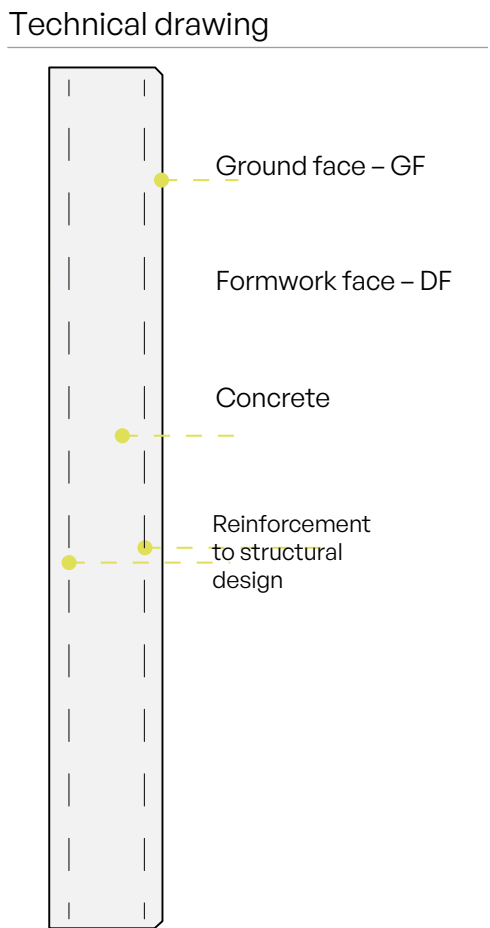
SINGLE-LEAF PRECAST UNITS

A solid wall can be used as a party wall, in lift shafts or as an external wall, completed on site with insulation and plaster. The wall can be made in various thicknesses, heights and lengths. It can be supplied with cast-in electrical boxes and conduits and with openings for doors and windows. A solid wall can also be designed to carry earth pressure and used as a retaining wall, for example in garages.



Technical data	
Maximum element dimensions	3,85 x 9,00 m
Element thickness in cm	10, 12, 15, 18, 20, 24
Concrete class	LC12/13 D1.4 or higher C20/25 or higher
Surface	Smooth surface on the formwork face (DF), the other face mechanically ground (GF) orange-peel effect.

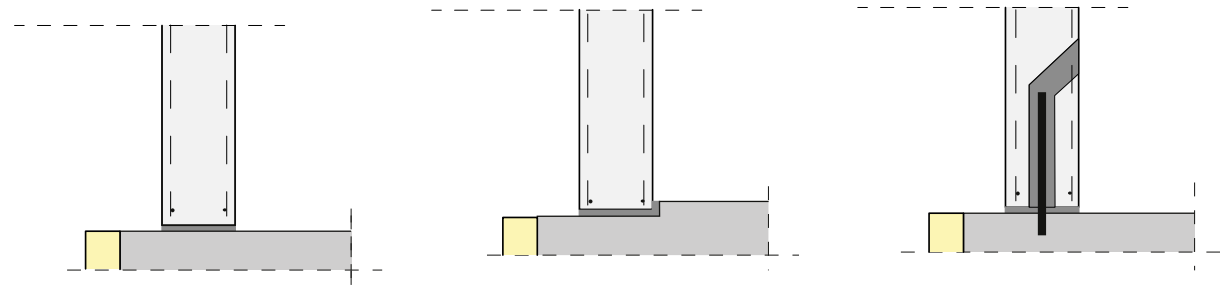
- Other provisions:**
- All edges may be chamfered 1×1 cm,
 - Larger dimensions only to special order,
 - Corbels only on the ground face (GF),
 - Solid concrete wall panels are also used internally (load-bearing, stiffening) as facade, fire-resistant and sound-insulating panels. The panels are joined and fixed to supports or similar elements with special connectors. The visible face of the panel is not interrupted by the fixing; the other face is smooth,
 - For an optimal design, joints, formwork patterns and coloured concrete may be used; window, door and other recesses can be made to requirement.



Below are examples of technical solutions for typical connections used in precast concrete systems. The details cover both the ways of seating precast walls on the foundation slab and the options for connecting walls to one another in three dimensions. Various installation methods are covered – from standard bearing on grout, through solutions with a step, to dowelled systems that increase the load-bearing capacity and stiffness of the structure. The set of wall connections includes the most common corner configurations and T-junctions – including variants with additional fixing components that improve tightness and ease installation.

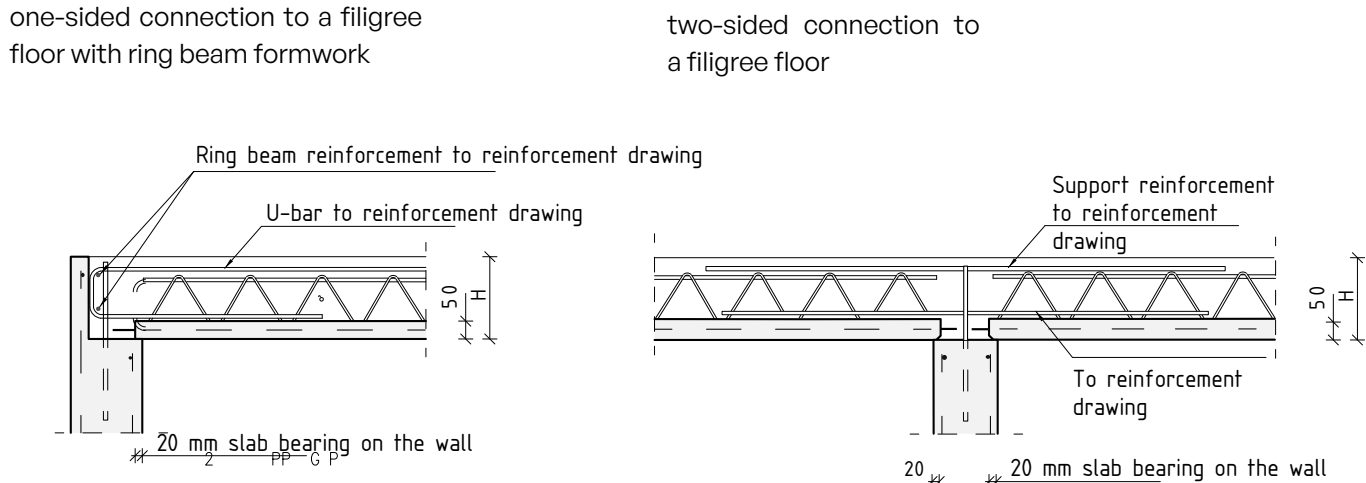
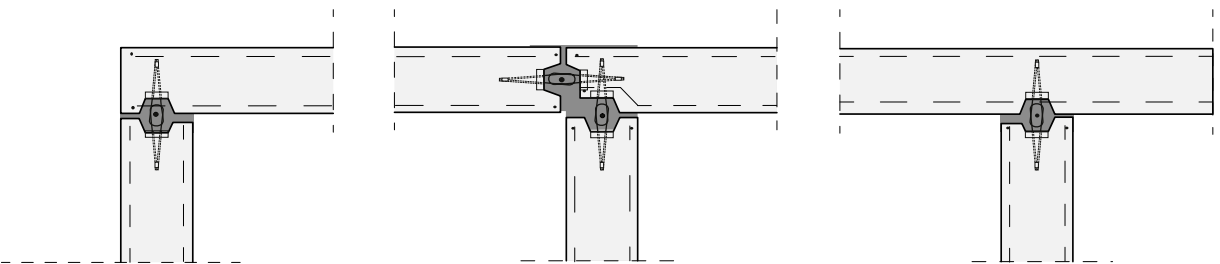
Connections of precast units to the foundation slab

on grout with grout and a step on the slab dowelled



Connections of precast wall units

corner type T – junction of three walls type T – with a batten



Sound insulation

The summary below gives the sound reduction indices of precast elements in lightweight and normal concrete, derived from laboratory tests and design calculations. It covers various concrete classes, element thicknesses and the corresponding surface masses.

R_w – single-number weighted sound reduction index.
RA1 – sound reduction index for domestic noise.
RA2 – sound reduction index for low-frequency noise.
RA1R – RA1 corrected for flanking sound transmission.
RA2R – RA2 corrected for flanking sound transmission.
R’A1 – approximate weighted sound reduction index for airborne sound insulation of elements within the building.
R’A2 – approximate weighted sound reduction index for traffic noise for external elements.

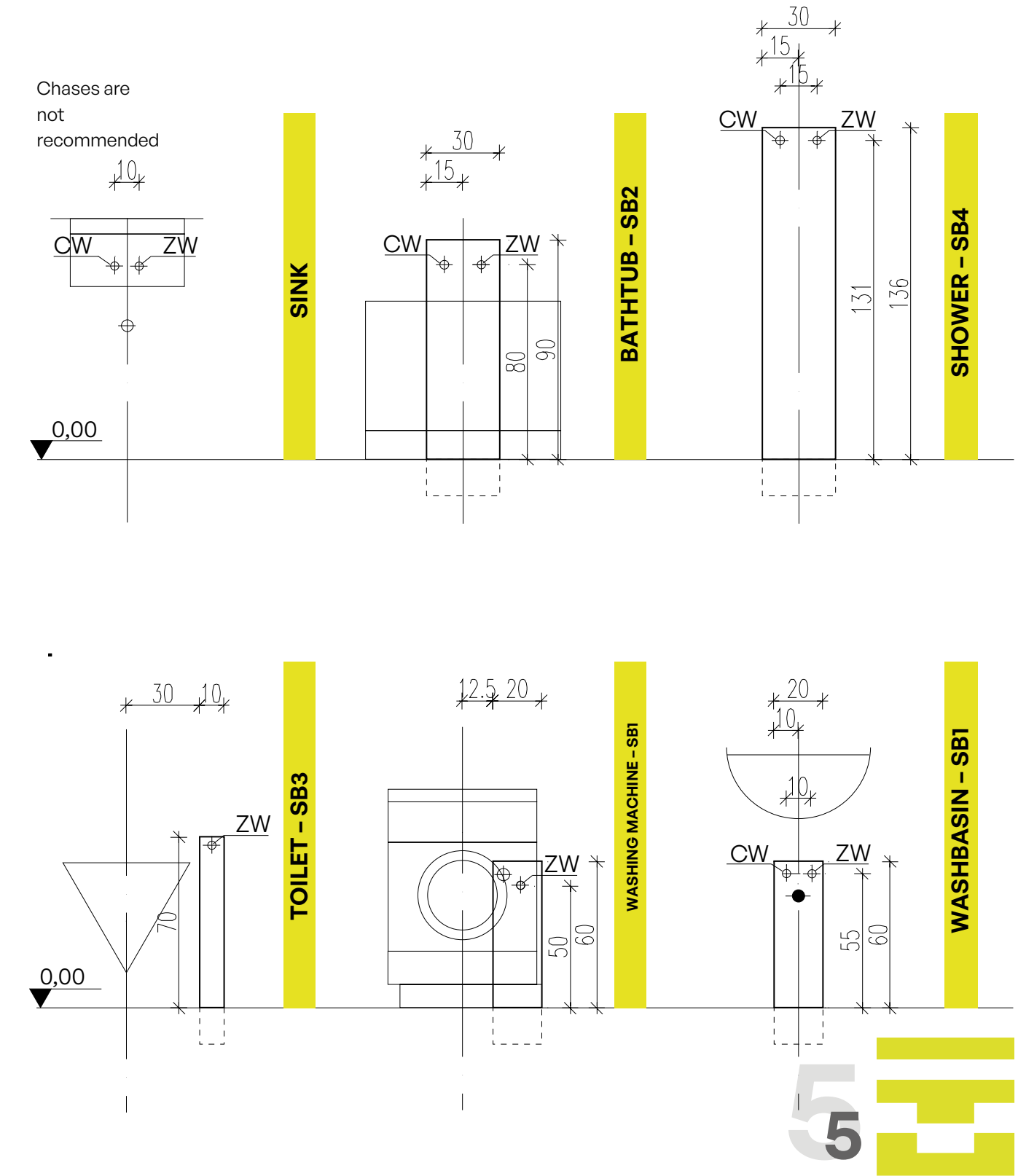
Concrete type	Thickness [mm]	Mass per m ² [kg/m ²]	R _w [dB]	R _{A1R} [dB]	R’ _{A1} [dB]	R _{A2R} [dB]	R’ _{A2} [dB]
LC12/13	100	140	39,3	37,3	34,3	37,3	37,3
	120	168	42,3	40,3	37,3	40,3	40,3
	150	210	46	44	41	44	44
	180	252	49	47	44	47	47
	200	280	50,7	48,7	45,7	48,7	48,7
LC16/18	100	160	41,5	39,5	36,5	39,5	39,5
	120	192	44,5	42,5	39,5	42,5	42,5
	150	240	48,2	46,2	43,2	46,2	46,2
	180	288	51,2	49,2	46,2	49,2	49,2
	200	320	52,9	50,9	47,9	50,9	50,9
LC20/22	100	180	43,5	41,5	38,5	41,5	41,5
	120	216	46,5	44,5	41,5	44,5	44,5
	150	270	50,1	48,1	45,1	48,1	48,1
	180	324	53,1	51,1	48,1	51,1	51,1
	200	360	54,9	52,9	49,9	52,9	52,9
C20/25	100	235	47,9	45,9	42,9	45,9	45,9
	120	282	50,9	48,9	45,9	48,9	48,9
	150	352,5	54,5	52,5	49,5	52,5	52,5
	180	423	57,5	55,5	52,5	55,5	55,5
	200	470	59,3	57,3	54,3	57,3	57,3

These data form the basis for designing elements that meet acoustic comfort requirements – for both internal and external walls, taking airborne sound into account. The table allows the parameters of different concrete classes (LC12/13, LC16/18, LC20/22, C20/25) to be compared and the element thickness to be optimised against the design requirements.

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STANDARD CHASES FOR PLUMBING AND DRAINAGE

Standard sizes of sanitary chases in cm: for walls ≥120 mm depth 80 mm
for walls <120 mm depth 110 mm



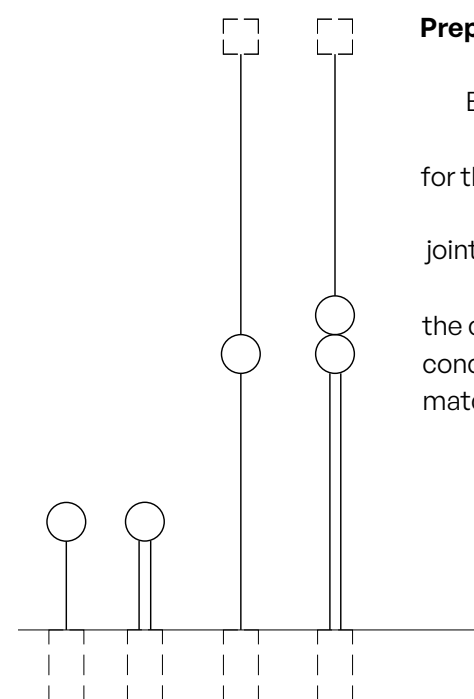
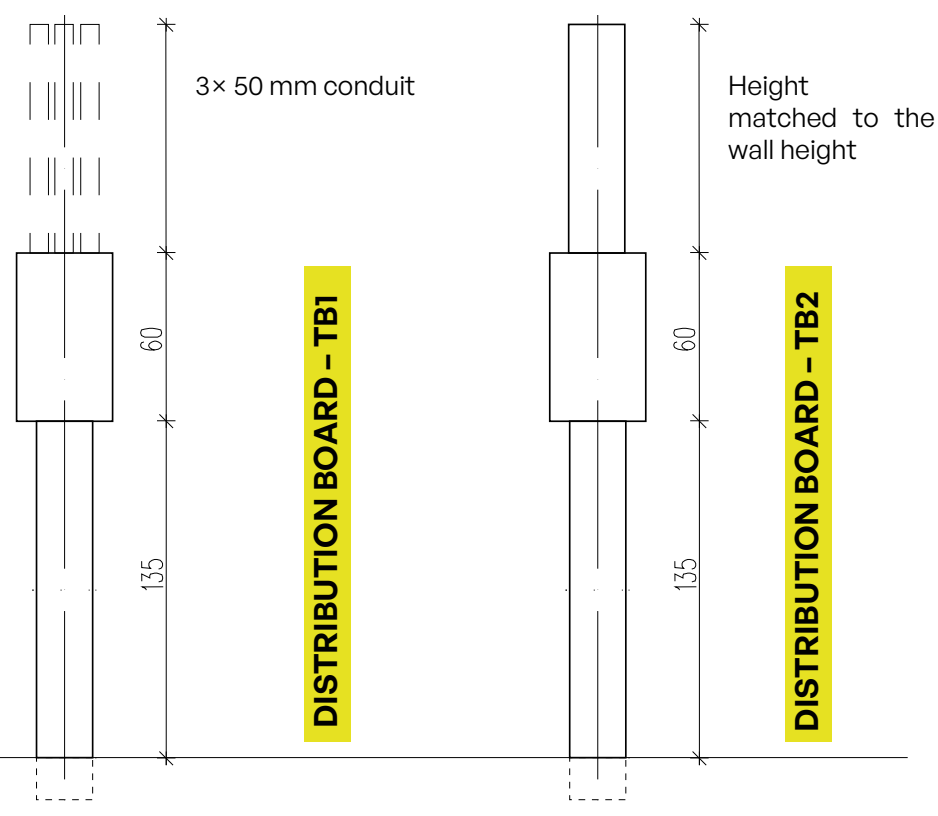


Chases for electrical services

Standard sizes of electrical chases in cm: for walls ≥ 120 mm

depth 80 mm

for walls < 120 mm depth 110 mm



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