



Using the Brick Brace safety system upon openings up to 3150mm (14 brick lengths); mark onto the wall the exact position, length and height of your required opening. Allow for any existing feature work at this stage. Calculate the correct number of Brick Brace safety tools and insertion points required by assessing the brickwork over the proposed opening. Ensure the course above is full and the triangle of masonry directly above the opening is retained by using the Brick brace single tools as described in the single tool instructions. For best results use a hammer drill with a 10mm masonry bit to remove the mortar from the required joints within the course directly above the proposed opening. Insertion points are a maximum 3 bricks apart in a cement mortar mix, a maximum of 2.5 bricks apart within a lime or a weak mortar mix and within every joint upon block work. Remove only the top 70mm of the perpendicular joint within block work as the safety tool should be inserted at the top of the joint where possible.

A scaffold tube with the Brick Brace safety system is required on all openings when using more than one safety tool, the scaffold tube is fitted on the second course above a proposed opening at a minimum bearing of one half brick (110mm) past the ends of the required opening. Drill pilot holes for either end with an 8mm masonry drill bit at a slight downward angle at approx 10mm above the centre of the perp/joint, when the proposed opening length is greater than 2.25 metres then repeat this process in the most central brick joint also. Using a 15mm spanner fit the supplied half couplers to the wall using the anchor bolts and washers supplied. Fit the correct length of scaffold tube at least 100mm past both the end couplers and tighten with a 21mm socket/scaffold spanner.

Anchor-bolt fixing instructions; drill pilot holes using an 8mm masonry drill bit at a minimum of 80mm deep, a minimum over drill of 15mm to allow for dust and debris collection. Clean the hole either by brushing or blowing carefully. Place washer onto the re-usable anchor bolt and pass through the coupler and into the pilot hole, use a 15mm socket wrench applying downward pressure to the anchor bolt, this helps to start the self tapping action. If resistance is felt, unscrew the bolt one turn then continue to tighten. Anchor-bolts do not require a preload torque to ensure a fix, but fix securely. If an impact driver is to be used it must be torque controlled, max 40Nm.

Fit the Brick Brace safety tools by working from left to right. Fit the hook over and onto the tube. Place the Brick Brace safety tool into the pre-drilled perpendicular joint, remove both nuts from the tool and join the hook and tool together by marrying up the hook holes to the tools rear set screws. Fit the hook and hand tighten the nuts back onto the tools rear set screws to secure the hook. Do not hammer tools into a joint when joints maybe tight, use an 11mm masonry drill bit or a file. Use a 19mm spanner/ torque wrench to tighten the central set screw (approx 40Nm) to expand the plates within the joint. Repeat the process on each tool in sequence until all tools are fitted and tightened.



Cutting out to fit a permanent support; remove the masonry within a cement mortar mix by using a disc-cutter and a light set hammer drill with the correct chisel fitting. No club hammers as this only weakens a structure. Use a masonry saw or a traditional hand saw in a lime or weak mortar mix and cut out the minimum depth of the opening to fit the permanent support at this stage.

Lintels; once the correct lintel is fitted, including cavity trays and soldier courses where required, carefully remove the rest of the opening in full. When fitting within existing face brickwork ensure the lintel has a minimum bearing of 225mm; this extra bearing will help support the lintel over the eventually toothed out brickwork when removing the rest of the opening in full and when bonding the new reveals into the existing face brickwork and ensure to fit new vertical wall ties within both reveals every 225mm.

Steel beams; before inserting steels, remove the bearing brickwork to accommodate the pad-stones. Once steels have been correctly fitted and packed and the mortar cured, remove the rest of the opening to the full depth. After the mortar is cured the Brick Brace can be released by reversing the fitting method, re- point the drilled joints or fit plastic weep holes when required. Clean the Brick Brace safety tools with a dry cloth and store ready for further use.

Load Bearing Walls; Acrow props must always be used in the usual manner when working on load bearing walls due to different live and static loads. Ensure rooms above are vacated and closed, do not attempt any alterations in severe wet and windy conditions due to further dynamic loads. Always check the condition of timber joists and beams before propping, where in an unsatisfactory condition replace/repair before continuing. Always work within Health and Safety guidelines and respect your legal responsibilities and respect the welfare of others around you. Every task is different, properly plan and ensure that the work is carried out safely. For correct lintel, beam/steel sizes and task variations Brick Brace Ltd always recommends the guidance of a qualified structural engineer when in any doubt, for further info please read our propping guide via our website

Tool parts; do not exceed torque of 50Nm when tightening the Brick Brace Safety tool; bending may occur however the plates can be reversed on the following occasions of use. The Brick Brace is supplied with Hi-tensile set screws, if lost or damaged, they must be replaced with a minimum of 8.8 Hi-tensile. If in doubt please purchase the correct set screws from our website or by contacting us.

Additional tools required for superior results; 9-12" disc cutter, masonry saw, hammer drill, 8mm and 10mm masonry drill bits, 15/19/21mm sockets, ratchet or torque wrench.

For openings from 3200mm to 5400mm at any height without props within the fitting side the scaffold tube is replaced by an aluminium scaffold beam, full instructions and guidance is available to read and print from our instruction/download page via our website. **Important;** when the Brick Brace system is sold, hired or borrowed copies of the instructions must always be provided, it is the owner's duty to share the information including updates which are available to print via our website. The Brick Brace Safety Tool, weight charts, instructions and proven strategies address all the issues of the main causes of minor and major collapse during masonry alterations.

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BRICK BRACE WEIGHT CHART

Opening Width In mm Approx	Opening Width In Brick Length	Stretcher Bond Brick 4" Amount	Stretcher Bond Brick 4" in Kg	Flemish Bond Brick 9" Amount	Flemish Bond Brick 9" in Kg	Cavity Brick/Block L/Weight 7Kn In Kg	Storey Height Brick 9" In Kg
900	4	10	50	20	100	80	1296
1125	5	15	75	22	110	120	1620
1350	6	21	105	34	170	165	1944
1575	7	28	140	49	245	220	2268
1800	8	36	180	51	255	280	2592
2025	9	45	225	67	335	350	2916
2250	10	55	275	90	450	425	3240
2475	11	66	330	92	460	510	3564
2700	12	78	390	116	580	600	3888
2925	13	91	455	143	715	700	4212
3150	14	105	525	145	725	805	4536
3375	15	120	600	172	860	920	4860
3600	16	136	680	202	1010	1040	5184
3825	17	153	765	204	1020	1165	5508
4050	18	171	855	240	1200	1305	5832
4275	19	190	950	279	1395	1450	6156
4500	20	210	1050	281	1405	1600	6480
4725	21	231	1155	323	1615	1755	6804
4950	22	253	1265	368	1840	1925	7128
5175	23	276	1380	370	1850	2120	7452
5400	24	300	1500	418	2090	2280	7776
5625	25	325	1625	469	2345	2470	8100
5850	26	351	1755	471	2355	2665	8424
6075	27	378	1890	525	2625	2870	8748
6300	28	406	2030	582	2910	3080	9072
6525	29	435	2175	584	2920	3300	9396
6750	30	465	2325	644	3220	3525	9720
6975	31	496	2480	707	3535	3760	10044
7200	32	528	2640	709	3545	4000	10368
7425	33	561	2805	775	3875	4250	10692
7650	34	595	2975	844	4220	4505	11016
7875	35	630	3150	846	4230	4770	11340
8100	36	666	3330	918	4590	5040	11664

1st Column: Width of opening in mm. **2nd:** Width of opening in brick lengths. **3rd:** Number of bricks in a full triangle of masonry above an opening of 102mm brickwork Stretcher bond when a load-point is intact. **4th:** Total weight in Kg of brickwork above an opening in a full triangle of masonry within 102mm brickwork Stretcher bond. **5th:** Number of bricks in a full triangle of masonry above an opening of 215mm Flemish bond when a load-point is intact. **6th:** Total weight of a full triangle of masonry above an opening within 215mm Flemish bond. **7th:** Total weight of a full triangle above an opening within a cavity wall, Brickwork and lightweight block work. **8th:** Total weight of 215mm brickwork above an opening in a typical 2.4m Storey height in any brickwork bond, half the weight for 102mm brickwork; add 50% for 13" brickwork.

The Brick Brace weight chart is for masonry weight awareness to show the importance of a load-point. No roof loads are included, factors of safety of 215mm for the different possible positions of a new opening within existing brickwork and we allow 5Kg per brick for the different variety of bricks and the variations of mortar and moisture content. When a load point does not exist every task is different and a task should be calculated on its own merit. If the size and weight of windows are known the weight of the windows can be added and the volume of brickwork that the windows take up can be removed from the calculation.



Width of Opening	Weight of a storey height in 102mm	Number of props	Spacing of props in mm	Weight of triangle	Number of props	Spacing of props in mm	Props saved
2700	1944kg	6	386	390kg	2	900	4
3600	2592kg	8	400	680kg	3	900	5
4500	3240kg	10	410	1050kg	4	900	6
5400	3888kg	12	415	1500kg	5	900	7

The main cause of collapse during masonry alterations is overloading due to the lack of awareness of equipment capacity, underestimating loads and over extending equipment from the wall to gain more fitting space.

When propping there must be a sufficient number of correctly used prop attachments to safely support the weight of the masonry referred to, this can be easily underestimated on large openings and in the frequent case when arching doesn't take place. For awareness of masonry loads including a factor of safety of 5Kg per brick to allow for the different variety of brick and various mortar and moisture content the above chart shows the number of correctly used props and attachments required when supporting a typical 2.4m storey height of 102mm Stretcher bond masonry when the brickwork doesn't arch (GREY) and the difference of the number of props required when supporting only the smaller triangle of masonry above an opening when brickwork arches when a load-point intact or when reinstated with the Brick Brace safety tool, (ORANGE). Please refer to the Brick Brace weight chart for 9" brickwork.

Re-instate a load-point to reduce loads by fitting the Brick Brace safety tool/s into pre-drilled perpendicular joints at a comfortable working height through the width of the broken triangle below the impending window. Safety tools are fitted at a maximum of three bricks apart in a cement mortar mix and a maximum of two and a half bricks apart in a weak or lime mortar mix.

Single Brick Brace safety tools increase the variable safe working load of a prop attachment and are also used to help create openings up to seven brick lengths upon 4" brickwork in a cement mortar mix, supporting all 21 bricks within the triangle of masonry at any height with nothing to obstruct the fitting area. A five brick length opening is achievable within a weak or lime mortar mix and a maximum 900mm opening in 4" block work. When an opening is required within both sides of a cavity or nine inch wall both sides must be braced or propped, recommended to brace externally and prop internally leaving the face side clear to fit a permanent support and to complete many other different tasks without being impeded by props fitted with low safe working load attachments. For best results use a hammer drill with a 10mm masonry bit to remove the mortar from the most central perpendicular joint within the course above the proposed opening. Whether left or right handed insert the Brick Brace safety tool into the drilled out joint with the centre set screw being on your favoured side and engage fully to the angled plate. Ensure the rear nuts allow both plates to run parallel with each other when the tool is expanding within the joint. Tighten the centre set screw with a 19mm socket spanner; the masonry is now reinforced and ready for safer alterations and superior results, guaranteed.