

Co-ordinating Dimensions

Assuming full blocks laid in stretcher bond.
 Co-ordinating Dimension 'M' = actual blocks size + 10mm mortar joints.

Example: 440mm long block plus 10mm joint, M = 450mm
 Or 215mm height blocks plus 10mm joint, M = 225mm.

Movement joint recommended at 6m centres and horizontal dimension should accordingly be adjusted to suit movement joint detail.

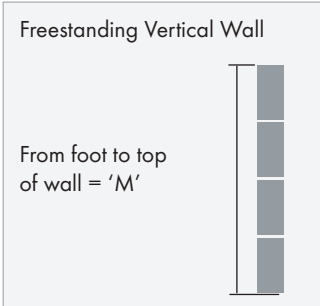
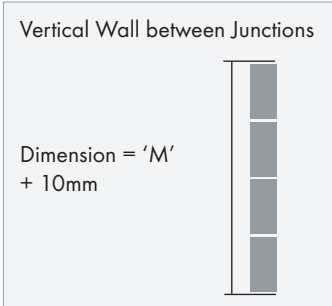
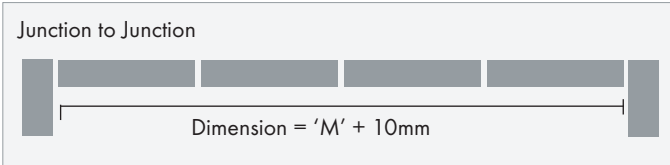
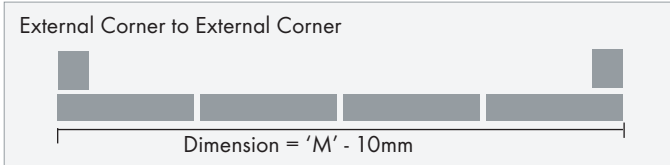
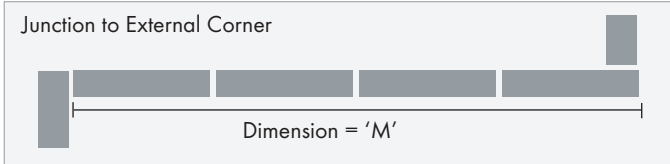
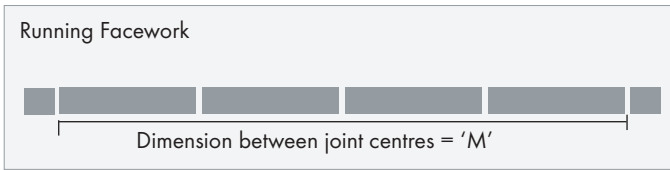


Fig 2.1 - Setting Out

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Fig 2.1 - Setting Out

Design Considerations - An introduction

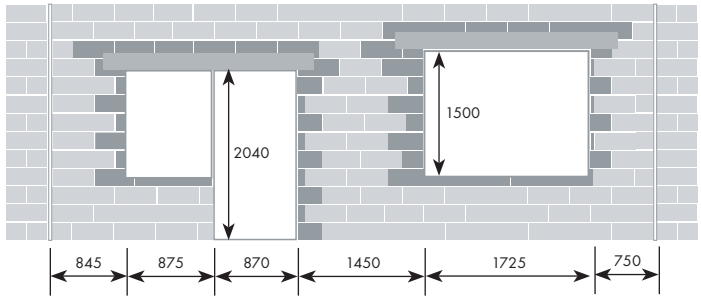
The size of a block sets the scale and pattern of coursing on a wall which is bold and dominant - but which will show up any mismatches between coursing and openings. A window or door opening which does not relate to blockwork dimensions looks very unsightly, wastes time and money on site, and may even be impossible to build.

Setting Out and Co-ordination

Where possible, the blockwork should be set out to co-ordinate with the size of the block module - that is the unit size plus mortar joint. Not only is this aesthetically pleasing, particularly if specifying fair face blockwork, it can also help minimise the need for cut blocks saving time and money. Fig 2.1, highlights the effects of an unco-ordinated and co-ordinated approach, based on 440 x 215mm face size blocks.

Setting out in the walls in a co-ordinated manner will also apply to the position and size of openings within the wall. The following tables and diagrams provide advice on the setting out of Lignacite walls including data on the formation of curved walls. Their use will be invaluable in the planning of horizontal and vertical dimensions, overall or between openings.

Unplanned approach



Planned approach

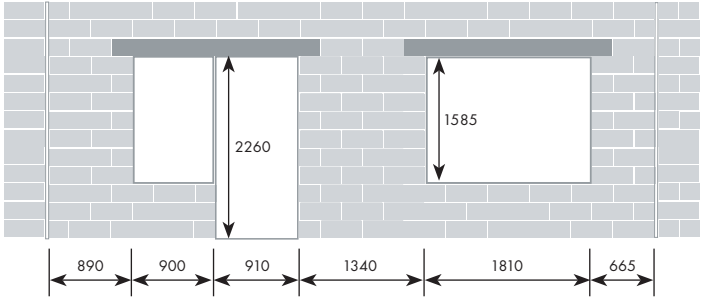


Fig 2.1 - Setting Out

Dimensional Co-ordination, Setting Out and Curved Walls

Table 2.1 - Horizontal blockwork co-ordinating dimensions

Co-ordinating dimension 'M'

Horizontal number of blocks	440mm length blocks	390mm length blocks
1/2	225	200
1	450	400
1 1/2	675	600
2	900	800
2 1/2	1125	1000
3	1350	1200
3 1/2	1575	1400
4	1800	1600
4 1/2	2025	1800
5	2250	2000
5 1/2	2475	2200
6	2700	2400
6 1/2	2925	2600
7	3150	2800
7 1/2	3375	3000
8	3600	3200
8 1/2	3825	3400
9	4050	3600
9 1/2	4275	3800
10	4500	4000
10 1/2	4725	4200
11	4950	4400
11 1/2	5175	4600
12	5400	4800
12 1/2	5625	5000
13	5850	5200
13 1/2	6075	5400
14	6300	5600
14 1/2	6525	5800
15	6750	6000
15 1/2	6975	6200
16	7200	6400
16 1/2	7425	6600
17	7650	6800
17 1/2	7875	7000
18	8100	7200
18 1/2	8325	7400
19	8550	7600
19 1/2	8775	7800
20	9000	8000
20 1/2	9225	8200
21	9450	8400
21 1/2	9675	8600
22	9900	8800
22 1/2	10125	9000
23	10350	9200
23 1/2	10575	9400
24	10800	9600
24 1/2	11025	9800

Note: The co-ordinating dimensions referred to are based on one 10mm joint between blocks.

Table 2.2 - Vertical blockwork co-ordinating dimensions

Co-ordinating dimension 'M'

Vertical number of courses	215mm high blocks	190mm high blocks
1	225	200
2	450	400
3	675	600
4	900	800
5	1125	1000
6	1350	1200
7	1575	1400
8	1800	1600
9	2025	1800
10	2250	2000
11	2475	2200
12	2700	2400
13	2925	2600
14	3150	2800
15	3375	3000
16	3600	3200
17	3825	3400
18	4050	3600
19	4275	3800
20	4500	4000

Note: The co-ordinating dimensions referred to are based on one 10mm joint between blocks.

The Block Module

Horizontal runs of blockwork

Where using only whole block modules is difficult, cut blocks are used to adjust dimensions to suit particular requirements. Their position needs to be carefully planned, kept to a minimum and positioned so as to be visually acceptable.

It is best to avoid closing the bond using small infill pieces. Instead cut blocks of a reasonable length should be inserted so that small bond overlaps do not occur. (See Fig 2.2).

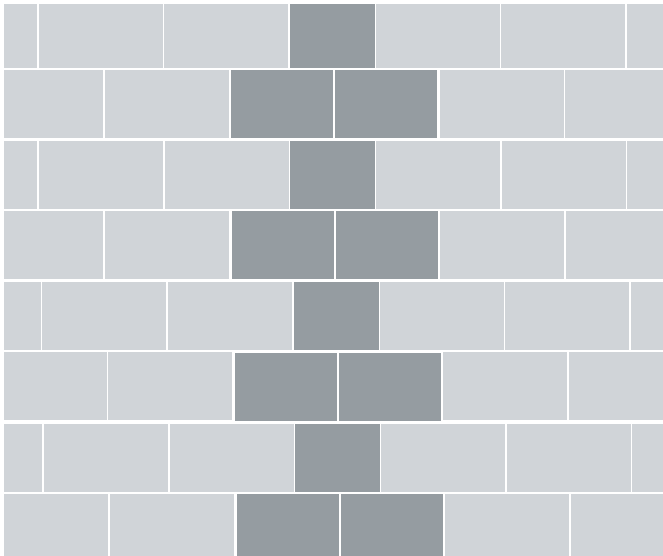


Fig 2.2 - Half bond joint using cut blocks

Keep cutting to a minimum and ensure cut units are fully dry before incorporating into the work. Cut blocks can effloresce due to the addition of water in the cutting process.

Cutting blocks may also change their appearance. We strongly recommend that blocks are factory cut, to minimise any adverse effects.

Wall Heights

Overall wall heights can be adjusted by using blocks with alternate course heights e.g. 65mm, 140mm. These can be used at plinth, head, string or at leaves level.



Corners

Unplanned bonding at corners will detract from the overall appearance of facing blockwork. Quoin (L-shaped) blocks are recommended to maintain the bond pattern around corners.

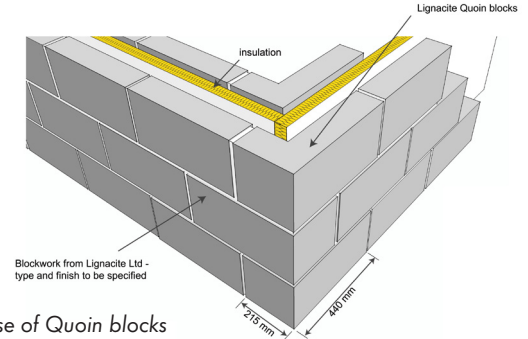
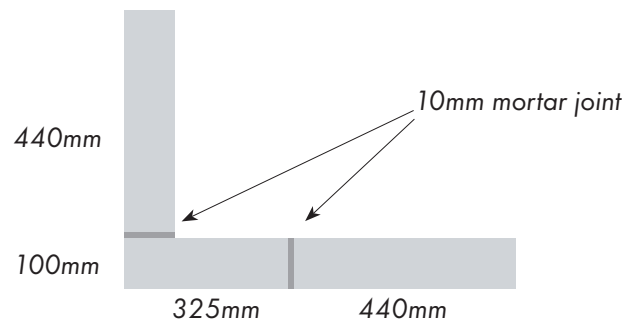


Fig 2.3 Use of Quoin blocks

If cut blocks have to be used to form corners, quarter length cut blocks, often inserted into the wall as an unplanned and 'cheap' solution, should be avoided. A more acceptable solution, using cut blocks, is shown in Fig. 2.4. In this example 325mm cut blocks are used in conjunction with a 100mm return end.

First Course



Second Course

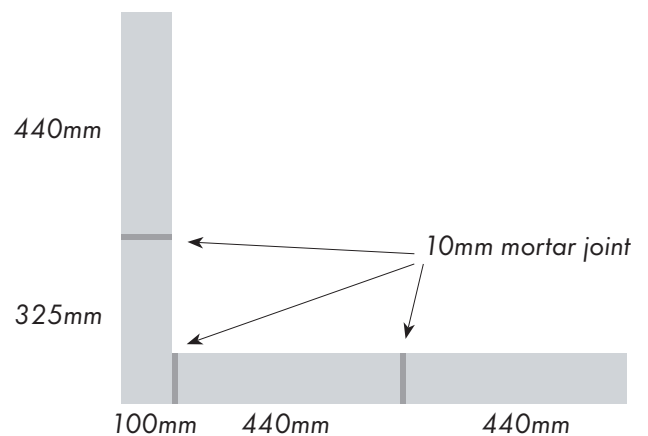


Fig 2.4 - Corner using cut blocks

Standard reveal blocks are also available to close the cavity at jambs and at cavity wall ends. The relationship between both leaves, the cavity and the reveal should be pre-planned to avoid unnecessary cutting.

Dimensional Co-ordination, Setting Out and Curved Walls

Curved Walls

To create curved blockwork with Lignacite standard format blocks, the mortar joints need to be tapered. This results in a degree of faceting, depending on the curvature required. Areas of over hanging blockwork will also cast shadow on the courses below. The acceptability of appearance hinges on how pronounced the overhang looks with the desired radius. The block texture will also affect visual acceptability. Blocks with a textured finish eg. weathered, are more likely to soften the effect compared to straight arrisred smooth finishes. See Fig 2.5.

The effect of the overhang and perpend width can be reduced significantly by using half length blocks, eg. 215 x 215mm work face. For fair face walls, such units should be machine cut and we can offer a cutting service to avoid this operation on the building site.

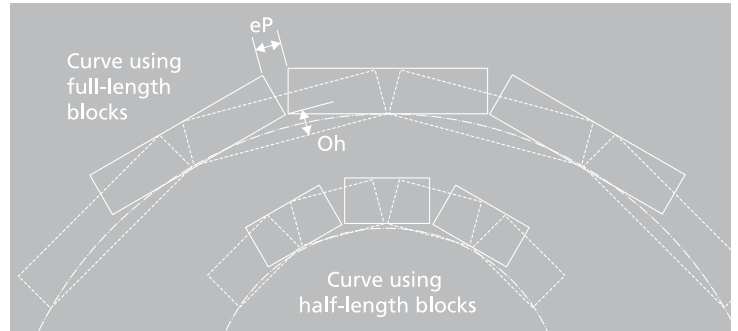


Fig 2.5 - Radius Walls

Table 2.3 indicates the size of overhang and the perpend joint width, dependent upon the wall radius and the block thickness.

For fairfaced work, overhangs of 2mm and below are acceptable, except for polished masonry, where ideally no overhang should be present.

Where walls are to be plastered/rendered or drylined, a minimum of 6mm overhang is suggested.

For true radius plan walls, cast curved blocks are recommended.

Table 2.3 - Overhang and Perpend Joint Widths in mm for Radius Walls

Thick-ness	Work Size: 440 x 215mm				Work Size: 215 x 215mm				Work Size: 390 x 190mm				Work Size: 190 x 190mm			
	100		140		100		140		100		140		100		140	
Wall Radius	Oh Over hang	eP Perpend Joint	Oh Over hang	eP Perpend Joint	Oh Over hang	eP Perpend Joint	Oh Over hang	eP Perpend Joint	Oh Over hang	eP Perpend Joint	Oh Over hang	eP Perpend Joint	Oh Over hang	eP Perpend Joint	Oh Over hang	eP Perpend Joint
600	44	86	46	120	10	50	11	68	35	78	36	109	8	46	8	62
800	32	68	33	93	8	40	8	53	25	62	26	84	6	36	6	48
1000	25	56	26	76	6	34	6	44	20	51	20	69	5	31	5	40
1200	21	48	21	65	5	29	5	29	17	44	17	59	4	27	4	35
1400	18	43	18	57	4	27	4	34	14	39	14	52	3	25	3	31
1600	16	39	16	51	4	24	4	31	12	36	12	46	3	23	3	28
1800	14	36	14	46	3	23	3	28	11	33	11	42	3	21	3	26
2000	12	33	13	42	3	22	3	26	10	30	10	39	2	20	2	24
2500	10	28	10	36	2	19	2	23	8	26	8	33	2	18	2	22
3000	8	25	8	31	2	18	2	21	6	24	6	29	2	17	2	20
3500	7	23	7	28	2	17	2	19	6	22	6	26	1	16	1	18
4000	6	21	6	26	1	16	1	18	5	20	5	24	1	15	1	17
4500	5	20	5	24	1	15	1	17	4	19	4	23	1	14	1	16
5000	5	19	5	23	1	15	1	16	4	18	4	21	1	14	1	16
5500	4	18	4	22	1	14	1	16	3	17	3	20	1	14	1	15
6000	4	18	4	21	1	14	1	15	3	17	3	19	1	13	1	15
7000	4	17	4	19	0.8	13.3	0.8	14.6								
8000	3	15	3	18	0.7	12.8	0.7	14								
9000	3	15	3	17	0.6	12.5	0.7	13.6								
10000	2	15	2	16	0.6	12.3	0.6	13.2								
11000	2	14	2	16	0.5	12.1	0.5	12.9								
12000	2	14	2	15	0.5	11.9	0.5	12.7								