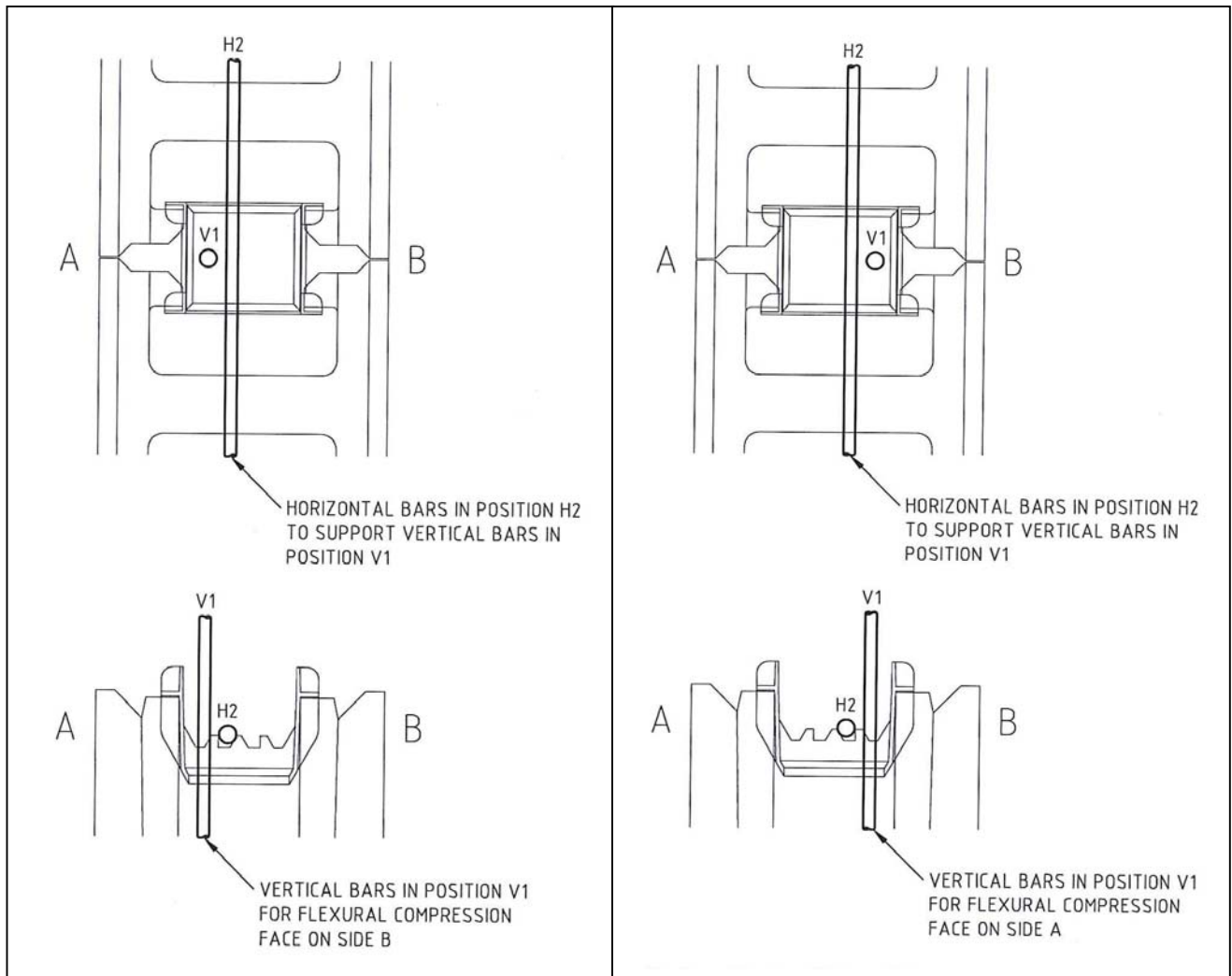


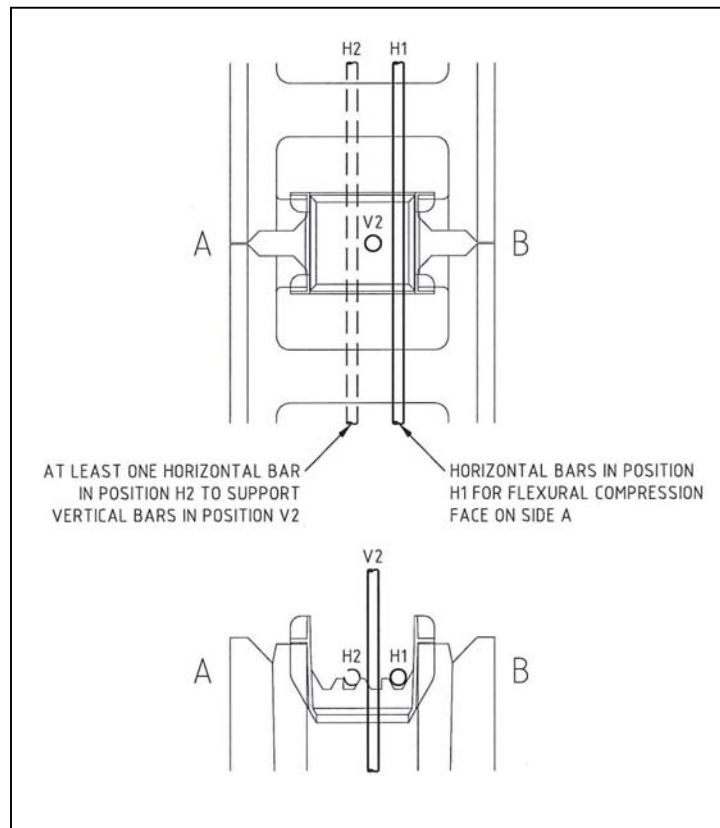
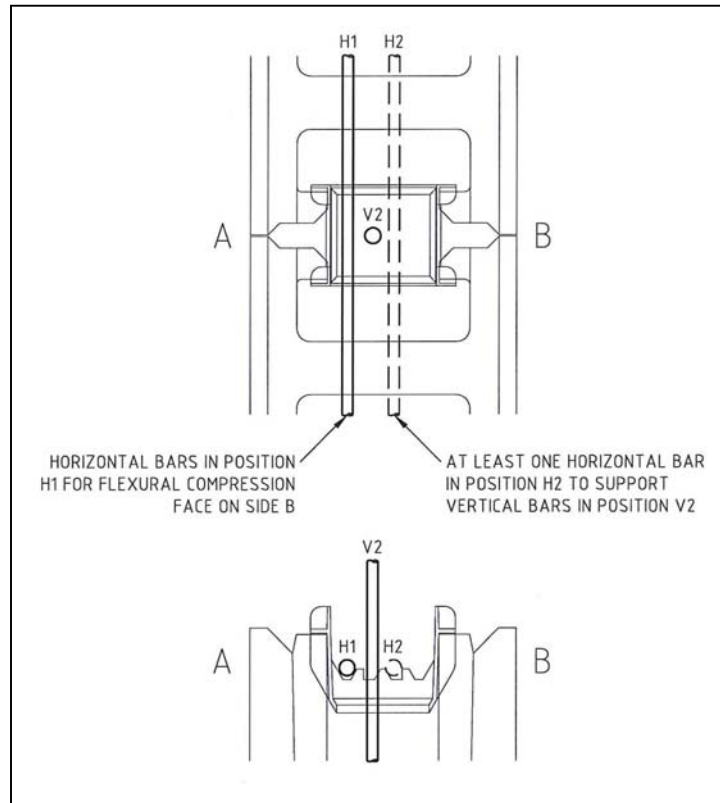
SECTION 3. DESIGN OF WALLS FOR BENDING

Reinforcing bar positions

The location of all reinforcement in **mortarless** walls is controlled by the notches in the connectors that support the horizontal bars. The 200 mortarless connectors have four notches, and the bar positions are described as V1, V2, H1 and H2 as shown in the following sketches. Positions V1 and H1 are located furthest from the neutral axis, while positions V2 and H2 are located closest to the neutral axis. These positions are referred to in the moment capacity tables below.



Reinforcing bar positions V1 and H2 for 200 unchamfered **mortarless**



Reinforcing bar positions H1 and V2 for 200 unchamfered *mortarless*

Table 3.1: Bending moment capacity of walls

200 mortarless walls - unchamfered blocks									
Block Grade & Reinforcement ($f_{sy} = 500\text{Mpa}$)	A_s mm ² /m	BENDING MOMENT CAPACITY (kNm/m)							
		vertical bending				horizontal bending			
		A_{sd} mm ² /m	bars in position V1 $d = 112$	A_{sd} mm ² /m	bars in position V2 $d = 93$	A_{sd} mm ² /m	bars in position H1 $d = 114$	A_{sd} mm ² /m	bars in position H2 $d = 96$
Grade 15 blocks									
N12-200	550	550	19.9	550	15.9	550	20.3	550	16.6
N12-400	275	275	10.7	275	8.8	275	10.9	275	9.1
N12-600	183	183	7.3	183	6.0	183	7.5	183	6.2
N12-800	138	138	5.6	138	4.6	138	5.7	138	4.8
N12-1000	110	110	4.5	110	3.7	110	4.6	110	3.8
N12-1200	92	92	3.8	92	3.1	92	3.8	92	3.2
N16-200	1000	684	23.7	568	16.4				
N16-400	500	500	18.3	500	14.8				
N16-600	333	333	12.8	333	10.4				
N16-800	250	250	9.8	250	8.1				
N20-400	775	684	23.7	568	16.4				
N20-600	517	517	18.9	517	15.2				
Grade 20 blocks									
N12-200	550	550	20.3	550	16.4	550	20.7	550	17.0
N12-400	275	275	10.8	275	8.9	275	11.1	275	9.2
N12-600	183	183	7.4	183	6.1	183	7.5	183	6.3
N12-800	138	138	5.6	138	4.6	138	5.7	138	4.8
N12-1000	110	110	4.5	110	3.7	110	4.6	110	3.8
N12-1200	92	92	3.8	92	3.1	92	3.9	92	3.2
N16-200	1000	785	27.2	659	18.8				
N16-400	500	500	18.7	500	15.1				
N16-600	333	333	13.0	333	10.6				
N16-800	250	250	9.9	250	8.1				
N20-400	775	775	27.0	659	18.9				
N20-600	517	517	19.2	517	15.5				

Table 3.2: Bending moment capacity of beams

200 mortarless beams - unchamfered blocks					
	<i>D</i> (mm)	<i>d</i> (mm)	Reinf't	BM Capacity (kNm)	
				Grade 15 blocks	Grade 20 Blocks
2 course beam	400	230	1N12	9.4	9.4 *
	400	230	1N16	16.8	16.9
	400	230	1N20	20.4 **	23.5
3 course beam	600	430	1N12	17.6 *	17.6 *
	600	430	1N16	31.8	31.9
	600	430	1N20	49.0	49.1
	600	430	1N24	70.4	70.7
4 course beam	800	630	1N12	25.9 *	25.9 *
	800	630	1N16	46.8	46.9
	800	630	1N20	72.2	72.3
	800	630	1N24	104.1	104.4
5 course beam	1000	830	1N12	34.1 *	34.1 *
	1000	830	1N16	61.8	61.9
	1000	830	1N20	95.5	95.6
	1000	830	1N24	137.9	138.2
6 course beam	1200	1030	1N12	42.4 *	42.4 *
	1200	1030	1N16	76.8 *	76.9 *
	1200	1030	1N20	118.7	118.8
	1200	1030	1N24	171.6	171.9

Notes

- * indicates that A_s provided is less than $A_s(\text{min})$ required by AS 3600-2009 Clause 8.1.6.1. **CAUTION** is recommended in these cases.
- ** indicates that BM capacity has been calculated using $A_s(\text{max})$ which is less than A_s