

UK AND GULF · BS 8666:2020

Bar schedule: cantilever wing wall, 8.0 m long, falling from 6.0 m to 2.0 m

SITE REF	BAR SCHEDULE REF	DATE PREPARED	PREPARED BY	CHECKED BY	REVISION	STATUS	STANDARD						
WW1 · Sample wing wall	WW101	10 Oct 2026	Arched	Engineer (name withheld in sample)	– (first issue)	P, preliminary: issued with points to confirm	This schedule conforms to BS 8666:2020						
MEMBER	BAR MARK	TYPE AND SIZE	NO. OF MBRS	NO. OF BARS IN EACH	TOTAL NO.	LENGTH OF EACH BAR (MM)	SHAPE CODE	A	B	C	D	E/R	REV
Stem, ch 0–1,000 earth face, verticals (a1)	01a	H20	1	1	1	6,475	11	6,220	300				-
	01b	H20	1	1	1	6,325	11	6,060	300				-
	01c	H20	1	1	1	6,150	11	5,900	300				-
Stem, ch 1,000–3,000 earth face, verticals (a1)	02a	H16	1	1	1	6,175	21	185	5,740	300			-
	02b	H16	1	1	1	6,025	21	185	5,595	300			-
	02c	H16	1	1	1	5,875	21	185	5,450	300			-
	02d	H16	1	1	1	5,750	21	185	5,305	300			-
	02e	H16	1	1	1	5,600	21	185	5,160	300			-
	02f	H16	1	1	1	5,450	21	185	5,015	300			-
	02g	H16	1	1	1	5,300	21	185	4,875	300			-
Stem, ch 3,000–5,000 earth face, verticals (a1)	03a	H16	1	1	1	5,150	21	185	4,725	300			-
	03b	H16	1	1	1	5,000	21	185	4,575	300			-
	03c	H16	1	1	1	4,850	21	185	4,425	300			-
	03d	H16	1	1	1	4,700	21	185	4,275	300			-
	03e	H16	1	1	1	4,550	21	185	4,125	300			-
	03f	H16	1	1	1	4,400	21	185	3,975	300			-
	03g	H16	1	1	1	4,250	21	185	3,825	300			-
Stem, ch 5,000–7,000 earth face, verticals (a1)	04a	H12	1	1	1	4,125	21	185	3,675	300			-
	04b	H12	1	1	1	3,950	21	185	3,495	300			-
	04c	H12	1	1	1	3,775	21	185	3,315	300			-
	04d	H12	1	1	1	3,575	21	185	3,135	300			-
	04e	H12	1	1	1	3,400	21	185	2,955	300			-
	04f	H12	1	1	1	3,225	21	185	2,775	300			-
Stem, ch 7,000–8,000 earth face, verticals (a1)	05a	H12	1	1	1	3,050	21	185	2,595	300			-

Bar schedule, continued

MEMBER	BAR MARK	TYPE AND SIZE	NO. OF MBRS	NO. OF BARS IN EACH	TOTAL NO.	LENGTH OF EACH BAR (MM)	SHAPE CODE	A	B	C	D	E/R	REV
Stem, ch 7,000–8,000 earth face, verticals (a1)	05b	H12	1	1	1	2,850	21	185	2,395	300			-
Stem, ch 0–1,000 earth face, verticals (a2)	06a	H20	1	1	1	6,400	11	6,140	300				-
	06b	H20	1	1	1	6,225	11	5,980	300				-
	06c	H20	1	1	1	6,075	11	5,820	300				-
Stem, ch 1,000–3,000 earth face, verticals (a2)	07a	H16	1	1	1	6,100	21	185	5,660	300			-
	07b	H16	1	1	1	5,950	21	185	5,515	300			-
	07c	H16	1	1	1	5,800	21	185	5,370	300			-
	07d	H16	1	1	1	5,650	21	185	5,225	300			-
	07e	H16	1	1	1	5,525	21	185	5,080	300			-
	07f	H16	1	1	1	5,375	21	185	4,940	300			-
	07g	H16	1	1	1	5,225	21	185	4,795	300			-
Stem, ch 3,000–5,000 earth face, verticals (a2)	08a	H12	1	1	1	5,100	21	185	4,645	300			-
	08b	H12	1	1	1	4,950	21	185	4,495	300			-
	08c	H12	1	1	1	4,800	21	185	4,345	300			-
	08d	H12	1	1	1	4,650	21	185	4,195	300			-
	08e	H12	1	1	1	4,500	21	185	4,045	300			-
	08f	H12	1	1	1	4,350	21	185	3,895	300			-
Stem, ch 5,000–7,000 earth face, verticals (a2)	09a	H12	1	1	1	4,200	21	185	3,745	300			-
	09b	H12	1	1	1	4,025	21	185	3,565	300			-
	09c	H12	1	1	1	3,825	21	185	3,385	300			-
	09d	H12	1	1	1	3,650	21	185	3,205	300			-
	09e	H12	1	1	1	3,475	21	185	3,025	300			-
	09f	H12	1	1	1	3,300	21	185	2,845	300			-
Stem, ch 7,000–8,000 earth face, verticals (a2)	10a	H12	1	1	1	3,125	21	185	2,665	300			-

Bar schedule, continued

MEMBER	BAR MARK	TYPE AND SIZE	NO. OF MBRS	NO. OF BARS IN EACH	TOTAL NO.	LENGTH OF EACH BAR (MM)	SHAPE CODE	A	B	C	D	E/R	REV
Stem, ch 7,000–8,000 earth face, verticals (a2)	10b	H12	1	1	1	2,925	21	185	2,465	300			-
Stem, ch 0–1,000 front face, verticals (a3)	11a	H12	1	1	1	6,625	21	185	6,170	300			-
	11b	H12	1	1	1	6,550	21	185	6,090	300			-
	11c	H12	1	1	1	6,450	21	185	6,010	300			-
	11d	H12	1	1	1	6,375	21	185	5,930	300			-
	11e	H12	1	1	1	6,300	21	185	5,850	300			-
	11f	H12	1	1	1	6,225	21	185	5,770	300			-
Stem, ch 1,000–3,000 front face, verticals (a3)	12a	H12	1	1	1	6,150	21	185	5,700	300			-
	12b	H12	1	1	1	6,075	21	185	5,625	300			-
	12c	H12	1	1	1	6,000	21	185	5,555	300			-
	12d	H12	1	1	1	5,925	21	185	5,480	300			-
	12e	H12	1	1	1	5,850	21	185	5,410	300			-
	12f	H12	1	1	1	5,775	21	185	5,335	300			-
	12g	H12	1	1	1	5,725	21	185	5,265	300			-
	12h	H12	1	1	1	5,650	21	185	5,190	300			-
	12i	H12	1	1	1	5,575	21	185	5,120	300			-
	12j	H12	1	1	1	5,500	21	185	5,045	300			-
	12k	H12	1	1	1	5,425	21	185	4,975	300			-
	12l	H12	1	1	1	5,350	21	185	4,900	300			-
	12m	H12	1	1	1	5,275	21	185	4,830	300			-
Stem, ch 3,000–5,000 front face, verticals (a3)	13a	H12	1	1	1	5,200	21	185	4,755	300			-
	13b	H12	1	1	1	5,050	21	185	4,610	300			-
	13c	H12	1	1	1	4,900	21	185	4,460	300			-
	13d	H12	1	1	1	4,750	21	185	4,310	300			-

Bar schedule, continued

MEMBER	BAR MARK	TYPE AND SIZE	NO. OF MBRS	NO. OF BARS IN EACH	TOTAL NO.	LENGTH OF EACH BAR (MM)	SHAPE CODE	A	B	C	D	E/R	REV
Stem, ch 3,000–5,000 front face, verticals (a3)	13e	H12	1	1	1	4,600	21	185	4,160	300		-	
	13f	H12	1	1	1	4,450	21	185	4,010	300		-	
	13g	H12	1	1	1	4,300	21	185	3,860	300		-	
Stem, ch 5,000–7,000 front face, verticals (a3)	14a	H12	1	1	1	4,150	21	185	3,710	300		-	
	14b	H12	1	1	1	4,075	21	185	3,620	300		-	
	14c	H12	1	1	1	3,975	21	185	3,530	300		-	
	14d	H12	1	1	1	3,900	21	185	3,440	300		-	
	14e	H12	1	1	1	3,800	21	185	3,350	300		-	
	14f	H12	1	1	1	3,700	21	185	3,260	300		-	
	14g	H12	1	1	1	3,625	21	185	3,170	300		-	
	14h	H12	1	1	1	3,525	21	185	3,080	300		-	
	14i	H12	1	1	1	3,450	21	185	2,990	300		-	
	14j	H12	1	1	1	3,350	21	185	2,900	300		-	
	14k	H12	1	1	1	3,250	21	185	2,810	300		-	
	15a	H12	1	1	1	3,175	21	185	2,720	300		-	
Base, ch 0–1,000 bottom, full width (a4)	15b	H12	1	1	1	3,075	21	185	2,630	300		-	
	15c	H12	1	1	1	2,975	21	185	2,530	300		-	
	15d	H12	1	1	1	2,875	21	185	2,430	300		-	
	16	H16	1	3	3	4,500	21	150	4,250	150		-	
Base, ch 1,000–3,000 bottom, full width (a4)	17	H12	1	7	7	3,425	21	150	3,150	150		-	
Base, ch 3,000–5,000 bottom, full width (a4)	18	H12	1	7	7	2,825	21	150	2,550	150		-	
Base, ch 5,000–7,000 bottom, full width (a4)	19	H12	1	6	6	2,425	21	150	2,150	150		-	
Base, ch 7,000–8,000 bottom, full width (a4)	20	H12	1	2	2	1,725	21	150	1,450	150		-	
Base, ch 0–1,000 bottom, toe side (extra) (a5)	21	H16	1	3	3	2,775	11	2,635	150			-	

Bar schedule, continued

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Base, ch 1,000–3,000 bottom, toe side (extra) (a5)	22	H12	1	7	7	2,050	11	1,905	150				-
Base, ch 3,000–5,000 bottom, toe side (extra) (a5)	23	H12	1	6	6	1,650	11	1,505	150				-
Base, ch 5,000–7,000 bottom, toe side (extra) (a5)	24	H12	1	6	6	1,550	11	1,405	150				-
Base, ch 7,000–8,000 bottom, toe side (extra) (a5)	25	H12	1	2	2	1,350	11	1,205	150				-
Base, ch 0–1,000 top of heel (extra) (a7)	26	H16	1	3	3	4,175	99	150	2,530	600	915		-
Shape 99. B rises 200 over 2,600 (4.4°); C level across the stem; D falls 200 over 1,200 (9.5°). A square to B. Length is the centreline length.													
Base, ch 1,000–3,000 top of heel (extra) (a7)	27	H12	1	6	6	3,250	99	150	1,925	500	685		-
Shape 99. B rises 100 over 2,000 (2.9°); C level across the stem; D falls 100 over 800 (7.1°). A square to B. Length is the centreline length.													
Base, ch 3,000–5,000 top of heel (extra) (a7)	28	H12	1	7	7	2,825	99	150	1,725	400	430	150	-
Shape 99. B rises 100 over 1,800 (3.2°); C level across the stem; D falls 100 over 500 (11.3°). A and E square to B and D. Length is the centreline length.													
Base, ch 5,000–7,000 top of heel (extra) (a7)	29	H12	1	6	6	2,425	21	150	2,150	150			-
Base, ch 7,000–8,000 top of heel (extra) (a7)	30	H12	1	2	2	1,725	21	150	1,450	150			-
Base, ch 0–1,000 top, full width (a8)	31	H16	1	3	3	4,525	99	150	2,530	600	1,140	150	-
Shape 99. B rises 200 over 2,600 (4.4°); C level across the stem; D falls 200 over 1,200 (9.5°). A and E square to B and D. Length is the centreline length.													
Base, ch 1,000–3,000 top, full width (a8)	32	H12	1	7	7	3,425	99	150	1,925	500	730	150	-
Shape 99. B rises 100 over 2,000 (2.9°); C level across the stem; D falls 100 over 800 (7.1°). A and E square to B and D. Length is the centreline length.													

Bar schedule, continued

MEMBER	BAR MARK	TYPE AND SIZE	NO. OF MBRS	NO. OF BARS IN EACH	TOTAL NO.	LENGTH OF EACH BAR (MM)	SHAPE CODE	A	B	C	D	E/R	REV
Base, ch 3,000–5,000 top, full width (a8)	33	H12	1	7	7	2,825	99	150	1,725	400	430	150	-
Shape 99. B rises 100 over 1,800 (3.2°); C level across the stem; D falls 100 over 500 (11.3°). A and E square to B and D. Length is the centreline length.													
Base, ch 5,000–7,000 top, full width (a8)	34	H12	1	5	5	2,425	21	150	2,150	150			-
Base, ch 7,000–8,000 top, full width (a8)	35	H12	1	3	3	1,725	21	150	1,450	150			-
Base, ch 0–8,000 bottom, along the wall (a6)	36a	H12	1	18	18	1,075	00	1,075					-
	36b	H12	1	6	6	850	00	850					-
	37a	H10	1	8	8	7,075	00	7,075					-
	37b	H10	1	4	4	6,075	00	6,075					-
	37c	H10	1	2	2	4,075	00	4,075					-
	37d	H10	1	4	4	2,075	00	2,075					-
Base, ch 0–8,000 top of heel, along the wall (a6)	38	H12	1	14	14	850	00	850					-
	39a	H10	1	5	5	2,850	00	2,850					-
	39b	H10	1	23	23	1,850	00	1,850					-
Base, ch 0–8,000 top of toe, along the wall (a6)	40	H12	1	6	6	850	00	850					-
	41a	H10	1	1	1	2,850	00	2,850					-
	41b	H10	1	7	7	1,850	00	1,850					-
Stem, ch 0–8,000 earth face, along the wall (a9)	42a	H10	1	12	12	2,850	00	2,850					-
	42b	H10	1	1	1	2,600	00	2,600					-
	42c	H10	1	1	1	2,250	00	2,250					-
	42d	H10	1	1	1	1,875	00	1,875					-
	42e	H10	1	44	44	1,850	00	1,850					-
	42f	H10	1	1	1	1,725	00	1,725					-

Bar schedule, continued

MEMBER	BAR MARK	TYPE AND SIZE	NO. OF MBRS	NO. OF BARS IN EACH	TOTAL NO.	LENGTH OF EACH BAR (MM)	SHAPE CODE	A	B	C	D	E/R	REV
Stem, ch 0-8,000 earth face, along the wall (a9)	42g	H10	1	1	1	1,575	00	1,575					-
	42h	H10	1	1	1	1,525	00	1,525					-
	42i	H10	1	1	1	1,375	00	1,375					-
	42j	H10	1	1	1	1,200	00	1,200					-
	42k	H10	1	1	1	1,175	00	1,175					-
	42l	H10	1	1	1	1,000	00	1,000					-
	42m	H10	1	1	1	850	00	850					-
	42n	H10	1	1	1	800	00	800					-
	42o	H10	1	1	1	650	00	650					-
	42p	H10	1	1	1	450	00	450					-
	43a	H12	1	29	29	850	00	850					-
	43b	H12	1	1	1	775	00	775					-
	43c	H12	1	1	1	475	00	475					-
Stem, ch 0-8,000 front face, along the wall (a9)	43d	H12	1	1	1	400	00	400					-
	44a	H10	1	10	10	7,075	00	7,075					-
	44b	H10	1	1	1	6,850	00	6,850					-
	44c	H10	1	1	1	6,825	00	6,825					-
	44d	H10	1	1	1	6,475	00	6,475					-
	44e	H10	1	1	1	6,100	00	6,100					-
	44f	H10	1	1	1	5,750	00	5,750					-
	44g	H10	1	1	1	5,400	00	5,400					-
	44h	H10	1	1	1	5,025	00	5,025					-
	44i	H10	1	1	1	4,675	00	4,675					-
	44j	H10	1	1	1	4,300	00	4,300					-

Bar schedule, continued

MEMBER	BAR MARK	TYPE AND SIZE	NO. OF MBRS	NO. OF BARS IN EACH	TOTAL NO.	LENGTH OF EACH BAR (MM)	SHAPE CODE	A	B	C	D	E/R	REV
Stem, ch 0-8,000 front face, along the wall (a9)	44k	H10	1	1	1	3,950	00	3,950					-
	44l	H10	1	1	1	3,600	00	3,600					-
	44m	H10	1	1	1	3,225	00	3,225					-
	44n	H10	1	1	1	2,875	00	2,875					-
	44o	H10	1	1	1	2,850	00	2,850					-
	44p	H10	1	1	1	2,500	00	2,500					-
	44q	H10	1	1	1	2,150	00	2,150					-
	44r	H10	1	1	1	1,800	00	1,800					-
	44s	H10	1	1	1	1,425	00	1,425					-
	44t	H10	1	1	1	1,075	00	1,075					-
	45a	H12	1	1	1	1,475	00	1,475					-
	45b	H12	1	1	1	1,125	00	1,125					-
	45c	H12	1	27	27	1,075	00	1,075					-
	45d	H12	1	1	1	775	00	775					-
	45e	H12	1	1	1	400	00	400					-

Summary by bar size

SIZE	BARS	LENGTH (M)	MASS (KG)
H10	153	452.2	278.6
H12	256	600.6	533.4
H16	33	160.6	253.6
H20	6	37.6	92.9
Total	448		1,158.4

167 lines, 448 bars. Longest bar 7,075 mm, within 12 m stock. Wall concrete 19.9 m³, so 58.2 kg of steel per m³.

Format sample, prepared to BS 8666:2020 from a real wing wall drawing with project details removed. Our AI sets out every bar; an engineer checks the schedule and raises the points to confirm.

Basis

Source	The wall, bar sizes and spacings are those of the wing wall in our case studies: one typical section, a dimension table and a reinforcement schedule by height band. Re-presented here to BS 8666:2020.
Bar by bar	Every bar position along the wall is set out. Transverse bars start 75 mm off the abutment face at the spacing of the band each falls in. Bars whose length varies under the falling top, or that stop at the steps and the sloping top, are scheduled one length per line with suffixed marks (01a, 01b ...), not as averages.
Layering	Base: a4 bottom transverse outermost, a6 distribution on them, stem bottom legs on the a6. Stem top: all top legs at 45 mm cover; they run parallel and are offset along the wall, so they never cross. Horizontals (a9) inside the verticals. a2 is offset half a spacing from a1, and each a3 sits midway between its a1 and a2 neighbours (at least 20 mm clear, checked bar by bar); base sets a4, a8, a5, a7 at quarter spacings, so no two bars share a plane.
Cover	75 mm to earth faces and the base, 40 mm to the front face (drawing note 4). Top cover 45 mm measured vertically, which is 40 mm square to the 1V:2H top; horizontals stop 90 mm short of the sloping top for the same 40 mm. Bar ends keep 75 mm at the wall ends and at the steps.
Steps	The earth face and the base top step where the dimension table changes (ch 1,000, 3,000, 5,000). Bars on those faces stop 75 mm each side of a step; bars on the front face and base underside run through (Q-09).
Dimensions	Outside dimensions in multiples of 5 mm, taken down where a bar fits between two faces and up for anchorage legs. Lengths rounded up to 25 mm; straight bars between faces taken down to 25 mm so cover is never reduced.
Shapes	Codes 00, 11, 21 by the BS 8666:2020 formulas (11: $A + B - 0.5r - d$; 21: $A + B + C - r - 2d$). The earth face is battered up to 3° (vertical from ch 5,000), so a1 and a2 are bent square and sprung to it. Base top bars on the haunched base are code 99 with every leg, rise and angle given; where the base top is flat (ch 5,000 to 8,000) they are code 21.
Radius and P	Minimum scheduling radius r and end projection P from Table 2 (B500): H10 20/120, H12 24/125, H16 32/140, H20 70/190 mm. Every end leg is checked against P (Q-01).
Mass	Total length × BS 4449 nominal mass (H10 0.616, H12 0.888, H16 1.579, H20 2.466 kg/m). The schedule itself carries no mass column, as BS 8666 sets out.

Points to confirm with the designer

Raised while scheduling. Each states the basis adopted meanwhile, so the schedule can be checked now and revised on the answer.

REF	POINT	BASIS ADOPTED MEANWHILE
Q-01	a1 and a2 at ch 0 to 1,000 are H20. Their top leg across the 300 mm stem top would be 185 mm, below the 190 mm minimum end projection P for H20 (BS 8666 Table 2).	Scheduled as shape 11 with no top leg (marks 01a to 01c, 06a to 06c). The a3 top legs still cross the stem top. Confirm, or detail a U-bar cap.
Q-02	Distribution bars change from H12 to H10 at ch 1,000. Drawing note 7 laps them by the greater of 12 diameters and 300 mm, shorter than a full tension lap to BS EN 1992-1-1.	Lapped 300 mm as drawn on the front face and base underside, where the bars run through. Confirm the lap.
Q-03	The drawing does not show how the distribution bars meet the abutment.	Taken stopping 75 mm off the abutment face. If they are to anchor into the abutment, they lengthen by the anchorage.
Q-04	No U-bars at the free end and no edge bar along the sloping top are shown.	None scheduled. Bars stop 75 mm off the end face and 40 mm (square) under the top.
Q-05	a2 has the same shape as a1 and no curtailment level.	Taken full height, offset half a spacing from a1.
Q-06	a7 (heel top, extra) is anchored 57 diameters past the stem (drawing note 6). Length past the rear face of the stem: 830 mm along the bar at ch 3,000 to 5,000 (including the kink onto the toe slope) and 725 straight at ch 5,000 to 7,000, both over the 684 needed; at ch 7,000 to 8,000 only 525. In the last three bands a7 also matches a8 bar for bar.	From ch 5,000 a7 is scheduled as a full-width U (marks 29 and 30). At ch 7,000 to 8,000: 525 straight plus a 150 down leg is 675 along the bar, 9 mm short of 684 unless the bend is counted. Confirm, or detail a hook; and confirm the doubled top steel in those bands is intended.
Q-07	a3 is 12 @ 300 in the 4.5 to 3.5 m band, against 12 @ 145 above and 12 @ 180 below.	Scheduled as drawn. It looks like a drawing error (150?); confirm.
Q-08	Stem verticals are drawn continuous from the base, so they stand 6.5 m out of the base pour.	Scheduled as drawn. We suggest starter bars to a kicker with lapped verticals; on the answer we reschedule the stem.
Q-09	The earth face and the base top step at ch 1,000, 3,000 and 5,000.	Bars on those faces stop 75 mm each side of each step. Confirm whether the steps are joints or need continuity bars.
Q-10	Chairs and spacers for the base top mat are not shown.	Not scheduled: by the contractor.
Q-11	For Gulf use: 40 mm cover to the front face.	Scheduled as drawn. Check it against the exposure class in the project specification.