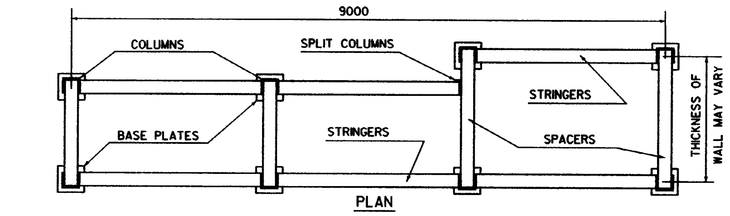


PLAN AND ELEVATION OF TYPICAL WALL

SHEET THICKNESS REQUIRED FOR WALL MEMBERS	
MEMBER TYPE	THICKNESS
1	1.63
2	2.01
3	2.77
4	3.51

UNITS REQUIRED FOR PANEL SECTIONS

WALL HEIGHT	STRINGER 2850 TYPE 1	STRINGER 2850 TYPE 2	STRINGER 2850 TYPE 3	STRINGER 2850 TYPE 4	STRINGER STIFFENER 2850
1200	4				1
1600	6				1
2000	8				1
2400	10				1
2800	12				1
3200	14				1
3600	14	2			1
4000	14	4			1
4400	14	6			1
4800	14	8			1
5200	14	8	2		1
5600	14	8	4		1
6000	14	8	6		1
6400	14	8	8		1
6800	14	8	10		1
7200	14	8	12		1
7600	14	8	14		1
8000	14	8	14	2	1
8400	14	8	14	4	1
8800	14	8	14	6	1
9200	14	8	14	8	1

NOTE :
THIS TABLE APPLIES ONLY TO STANDARD PANEL SECTIONS AND INCLUDES UNITS FOR BOTH FRONT AND REAR OF A 3000 ELEMENT OF WALL.

UNITS REQUIRED FOR SHORT PANEL SECTIONS

WALL HEIGHT	SHORT STRINGERS IN FRONT OF WALL TYPE 1 STD 2850	TYPE 1 SHORT 2700	TYPE 2 STD 2850	TYPE 2 SHORT 2700	TYPE 3 STD 2850	TYPE 3 SHORT 2700	TYPE 4 STD 2850	TYPE 4 SHORT 2700	SHORT STRINGER STIFFENER	SHORT STRINGERS IN REAR OF WALL TYPE 1 STD 2850	TYPE 1 SHORT 2700	TYPE 2 STD 2850	TYPE 2 SHORT 2700	TYPE 3 STD 2850	TYPE 3 SHORT 2700	TYPE 4 STD 2850	TYPE 4 SHORT 2700	STANDARD STRINGER STIFFENER
1200	1	3							1	3	1							1
1600	2	4							1	4	2							1
2000	3	5							1	5	3							1
2400	4	6							1	6	4							1
2800	5	7							1	7	5							1
3200	6	8							1	8	6							1
3600	6	8	1	1					1	8	6	1	1					1
4000	6	8	2	2					1	8	6	2	2					1
4400	6	8	3	3					1	8	6	3	3					1
4800	6	8	4	4					1	8	6	4	4					1
5200	6	8	4	4	1	1			1	8	6	4	4	1	1			1
5600	6	8	4	4	2	2			1	8	6	4	4	2	2			1
6000	6	8	4	4	3	3			1	8	6	4	4	3	3			1
6400	6	8	4	4	4	4			1	8	6	4	4	4	4			1
6800	6	8	4	4	5	5			1	8	6	4	4	5	5			1
7200	6	8	4	4	6	6			1	8	6	4	4	6	6			1
7600	6	8	4	4	7	7			1	8	6	4	4	7	7			1
8000	6	8	4	4	7	7	1	1	1	8	6	4	4	7	7	1	1	1
8400	6	8	4	4	7	7	2	2	1	8	6	4	4	7	7	2	2	1
8800	6	8	4	4	7	7	3	3	1	8	6	4	4	7	7	3	3	1
9200	6	8	4	4	7	7	4	4	1	8	6	4	4	7	7	4	4	1

NOTE:
THIS TABLE APPLIES ONLY TO SHORT PANEL SECTIONS FOR CURVED WALLS AND INCLUDES UNITS FOR BOTH FRONT AND REAR OF A 2850 ELEMENT OF WALL.

UNITS REQUIRED FOR TRANSVERSE SECTIONS

DESIGN	WALL HEIGHT	BEARING PLATES	FRONT COLUMN HEIGHT 1st LIFT	2nd LIFT	3rd LIFT	TOTAL HEIGHT	REAR COLUMN HEIGHT 1st LIFT	2nd LIFT	3rd LIFT	TOTAL HEIGHT	TOTAL COLUMN LENGTH (m)	COLUMN SPLICE	COLUMN CAP	SPACERS TYPE AND LENGTH 1 1560	1 2220	2 2880	3 3540	3 4200	BOTTOM SPACERS TYPE AND LENGTH 1 1560	1 2220	2 2880	3 3540	3 4200	WALL HEIGHT	DESIGN
A	1200	2	1200			1200	400			400	1.6			0					1					1200	A
	1600	2	1600			1600	800			800	2.4			1					1					1600	
	2000	2	2000			2000	1200			1200	3.2			2					1					2000	
	2400	2	2400			2400	1600			1600	4.0			3					1					2400	
	2800	2	2800			2800	2000			2000	4.8			4					1					2800	
	3200	2	3200			3200	2400			2400	5.6			5					1					3200	
B	2800	2	2800			2800	2000			2000	4.8				4					1				2800	B
	3200	2	3200			3200	2400			2400	5.6				5					1				3200	
	3600	2	3600			3600	2800			2800	6.4				6					1				3600	
	4000	2	2400	1600		4000	3200			3200	7.2	1			7					1				4000	
	4400	2	2400	2000		4400	3600			3600	8.0	1			8					1				4400	
	4800	2	2400	2400		4800	2400	1600		4000	8.8	2			9					1				4800	
	5200	2	3600	1600		5200	2400	2000		4400	9.6	2			10					1				5200	
C	4400	2	2400	2000		4400	3600			3600	8.0	1				8					1			4400	C
	4800	2	2400	2400		4800	2400	1600		4000	8.8	2				9					1			4800	
	5200	2	3600	1600		5200	2400	2000		4400	9.6	2				10					1			5200	
	5600	2	3600	2000		5600	2400	2400		4800	10.4	2				11					1			5600	
	6000	2	3600	2400		6000	3600	1600		5200	11.2	2				12					1			6000	
	6400	2	3600	2800		6400	3600	2000		5600	12.0	2				13					1			6400	
	6800	2	3600	3200		6800	3600	2400		6000	12.8	2				14					1			6800	
	7200	2	3600	3600		7200	3600	2800		6400	13.6	2				15					1			7200	
	7600	2	3600	2400	1600	7600	3600	3200		6800	14.4	3				16					1			7600	
	8000	2	3600	2400	2000	8000	3600	3600		7200	15.2	3				17					1			8000	
D	5600	2	3600	2000		5600	2400	2400		4800	10.4	2					11					1		5600	D
	6000	2	3600	2400		6000	3600	1600		5200	11.2	2					12					1		6000	
	6400	2	3600	2800		6400	3600	2000		5600	12.0	2					13					1		6400	
	6800	2	3600	3200		6800	3600	2400		6000	12.8	2					14					1		6800	
	7200	2	3600	3600		7200	3600	2800		6400	13.6	2					15					1		7200	
	7600	2	3600	2400	1600	7600	3600	3200		6800	14.4	3					16					1		7600	
	8000	2	3600	2400	2000	8000	3600	3600		7200	15.2	3					17					1		8000	
E	6800	2	3600	3200		6800	3600	2400		6000	12.8	2						14					1	6800	E
	7200	2	3600	3600		7200	3600	2800		6400	13.6	2						15					1	7200	
	7600	2	3600	2400	1600	7600	3600	3200		6800	14.4	3						16					1	7600	
	8000	2	3600	2400	2000	8000	3600	3600		7200	15.2	3						17					1	8000	
	8400	2	3600	2400	2400	8400	3600	2400	1600	7600	16.0	4						18					1	8400	
	8800	2	3600	3600	1600	8800	3600	2400	2000	8000	16.8	4						19					1	8800	
	9200	2	3600	3600	2000	9200	3600	2400	2400	8400	17.6	4						20					1	9200	

BEARING PLATES 400 x 550

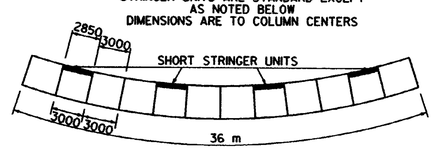
NOTE :
SPLIT COLUMNS ARE USED WHERE CHANGES IN THICKNESS OF WALL ARE MADE TO CONNECT REAR STRINGERS OF THINNER WALL TO TRANSVERSE SECTION OF THICKER WALL. THEY ARE THE SAME HEIGHT AS THE REAR COLUMNS FOR THE THINNER WALL.

CURVE DATA FOR BIN-TYPE RETAINING WALLS

DESIGN	WALL HEIGHT	RADIUS OF CURVE (m) 1500	1000	900	800	700	600	500	450	400	350	300	250	200	190	180	170	160	150	140	130	120	110	100	95	90	85	80	75	70	65	60	55	50
A	1200	52	35	31	28	24	20	17	15	13	12	10	9	7	6	6	6	6	5	5	4	4	4	3	3	3	3	3	3	2	2	2	2	2
	1600	52	35	31	28	24	20	17	15	13	12	10	9	7	6	6	6	6	5	5	4	4	4	3	3	3	3	3	3	2	2	2	2	2
	2000	52	35	31	28	24	20	17	15	13	12	10	9	7	6	6	6	6	5	5	4	4	4	3	3	3	3	3	3	2	2			
	2400	52	35	31	28	24	20	17	15	13	12	10	9	7	6	6	6	6	5	5	4	4	4	3	3	3	3	3						
	2800	52	35	31	28	24	20	17	15	13	12	10	9	7	6	6	6	6	5	5	4	4	4	3	3	3								
	3200	52	35	31	28	24	20	17	15	13	12	10	9	7	6	6	6	6	5	5	4	4	4											
B	2800	36	24	21	19	16	14	II	10	9	8	7	6	5	4	4	4	4	3	3	3	3	3	2	2									
	3200	36	24	21	19	16	14	II	10	9	8	7	6	5	4	4	4	4	3	3	3	3	2											
	3600	36	24	21	19	16	14	II	10	9	8	7	6	5	4	4	4	4	3	3	3	3												
	4000	36	24	21	19	16	14	II	10	9	8	7	6	5	4	4	4	4	3	3														
	4400	36	24	21	19	16	14	II	10	9	8	7	6	5	4	4	4	4	3															
	4800	36	24	21	19	16	14	II	10	9	8	7	6	5	4	4	4	4																
	5200	36	24	21	19	16	14	II	10	9	8	7	6	5	4	4																		
C	4400	27	18	16	14	12	10	9	8	7	6	5	5	4	3	3	3	3	3															
	4800	27	18	16	14	12	10	9	8	7	6	5	5	4	3	3	3	3																
	5200	27	18	16	14	12	10	9	8	7	6	5	5	4	3	3																		
	5600	27	18	16	14	12	10	9	8	7	6	5	5	4																				
	6000	27	18	16	14	12	10	9	8	7	6	5	5	4																				
	6400	27	18	16	14	12	10	9	8	7	6	5	5																					
D	5600	21	14	13	12	10	9	7	6	5	5	4	4	3																				
	6000	21	14	13	12	10	9	7	6	5	5	4	4	3																				
	6400	21	14	13	12	10	9	7	6	5	5	4	4																					
	6800	21	14	13	12	10	9	7	6	5	5	4	4																					
	7200	21	14	13	12	10	9	7	6	5	5	4	4																					
	7600	21	14	13	12	10	9	7	6	5	5	4	4																					
	8000	21	14	13	12	10	9	7	6	5	5	4																						
E	6800	18	11	10	9	8	7	6	5	4	4	3	3																					
	7200	18	11	10	9	8	7	6	5	4	4	3	3																					
	7600	18	11	10	9	8	7	6	5	4	4	3	3																					
	8000	18	11	10	9	8	7	6	5	4	4	3																						
	8400	18	11	10	9	8	7	6	5	4	4	3																						
	8800	18	11	10	9	8	7	6	5	4	4	3																						
	9200	18	11	10	9	8	7	6	5	4	4																							

FIGURES IN TABLE INDICATE NUMBER OF BINS WHICH ONE SET OF SHORT STRINGERS MUST BE INCLUDED IN THE FRONT OR REAR OF ONE BIN TO PRODUCE CURVES. EXAMPLE : A WALL 3.2 m IN HEIGHT, DESIGN (B) MUST HAVE ONE SET OF SHORT STRINGER UNITS INCLUDED IN EVERY 3 BINS IN ORDER TO BUILD ON A 120-m CURVE.

STRINGER UNITS ARE STANDARD EXCEPT AS NOTED BELOW
DIMENSIONS ARE TO COLUMN CENTERS



NOTE :
CURVATURE LIMITS ARE ESTABLISHED BY THE VARIATION IN CENTER TO CENTER SPACING BETWEEN THE TOP AND BOTTOM OF COLUMNS RESULTING FROM SLIGHT PLAY AT THE JOINTS. THE DIFFERENCE IN THE CHORD LENGTHS AT THE TOP AND BOTTOM OF EACH PANEL VARIES WITH THE BATTER IN THE WALL BECAUSE OF DIFFERENT RADII AT THE TOP AND BOTTOM OF THE WALL. DATA SET FORTH IN THIS TABLE APPLY ONLY TO WALLS ON A 6:1 BATTER.

NOTE: ALL DIMENSIONS ARE IN MILLIMETERS (mm) EXCEPT WHERE NOTED.

REVISIONS AND CORRECTIONS

JULY 10, 1997 - ORIGINAL APPROVAL DATE

APPROVED

DIRECTOR OF PROJECT DEVELOPMENT

Warren B. Fogg
STRUCTURES DESIGN ENGINEER

METAL BIN-TYPE RETAINING WALL

VERMONT AGENCY OF TRANSPORTATION

Metric
STANDARD
H-1bM