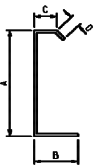
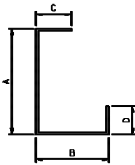


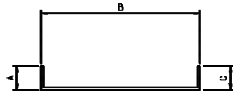
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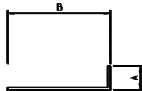
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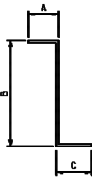
TYPE - 3



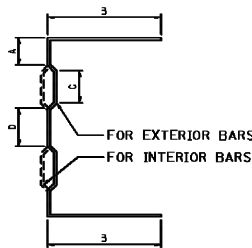
TYPE - 4



TYPE - 5



TYPE - 6



TYPE - 7

NOTES:

1. ALL DIMENSIONS ARE IN MILLIMETERS UNLESS OTHERWISE NOTED.
2. DESIGN, FABRICATION, AND CONSTRUCTION SHALL COMPLY WITH SAES-Q-001. PRECAST CONCRETE SHALL ALSO COMPLY WITH SAES-Q-012.
3. EXCAVATION AND BACKFILL SHALL COMPLY WITH SAES-A-114.
4. ORIGINAL DESIGN LOADING WAS CALCULATED USING A CLASS H-20-40 TRUCK WITH MAXIMUM AXLE LOAD OF 145 KN (32.5 KIPS).
5. REVISED DESIGN LOADING WAS CALCULATED USING A CLASS HS-20 TRUCK WITH MAXIMUM WEIGHT OF 40 TONS & AXLE LOAD OF 170.06 KNS (38.14 KIPS).
6. REINFORCING STEEL SHALL CONFORM TO ASTM-615 GRADE 50 WITH A MINIMUM YIELD STRENGTH, $F_y=345$ MPa (50,000 PSI). BARS SHALL BE EPOXY COATED IN ACCORDANCE WITH 09-SAMSS-106. ALL REINFORCING BARS SHALL COMPLY WITH SASO SSA2/ 1979.
7. FABRICATION AND INSTALLATION OF FBE COATED REBAR SHALL BE IN ACCORDANCE WITH SAES-Q-001 AND 09-SASS-106.

MAINTENANCE HOLE TYPE I-A												
MARK	TYP OF BAR	NO. REQ'D	SIZE OF BAR	DIMENSIONS				ANGLE OF HOOK	CUTTING LENGTH	NO. x CUTTING LENGTH = TOTAL LENGTH METERS		LOCATION
				A	B	C	D					
MK-1	I	8	16						2100	16.80		TOP SLAB
	I	4	16						390	1.56		
	I	2	16						300	0.60		
MK-2	I	10	16						1750	10.50		TOP SLAB
	I	4	16						560	2.24		
	I	2	16						480	0.96		
MK-3	I	4	16						1380	5.52		TOP SLAB
MK-3	I	4	16						1580	6.32		TOP SLAB
MK-4	4	28	16	300	2300	300			2900	81.20		WALL SECTION
MK-5	4	14	12	1250	1750	1250			4250	59.50		WALL SECTION
MK-6	I	9	16						2250	20.25		BOTTOM SLAB
MK-7	I	8	16						2700	21.60		BOTTOM SLAB

MAINTENANCE HOLE TYPE I-D												
MARK	TYP OF BAR	NO. REQ'D	SIZE OF BAR	DIMENSIONS				ANGLE OF HOOK	CUTTING LENGTH	NO. x CUTTING LENGTH = TOTAL LENGTH METERS		LOCATION
				A	B	C	D					
MK-1	I	12	16						2100	25.20		TOP SLAB
	I	4	16						565	2.26		
	I	2	16						480	0.96		
MK-2	I	8	16						3950	31.60		TOP SLAB
	I	4	16						1490	5.96		
	I	2	16						1400	2.80		
MK-3	I	4	16						2970	11.88		TOP SLAB
MK-3	I	4	16						2970	11.88		TOP SLAB
MK-4	4	40	16	300	2300	300			2900	116.00		WALL SECTION
MK-5	4	14	12	2175	2180	2175			6450	90.30		WALL SECTION
MK-6	I	15	16						2600	39.00		BOTTOM SLAB
MK-7	I	9	16						4550	40.95		BOTTOM SLAB

MAINTENANCE HOLE TYPE 2-A												
MARK	TYP OF BAR	NO. REQ'D	SIZE OF BAR	DIMENSIONS				ANGLE OF HOOK	CUTTING LENGTH	NO. x CUTTING LENGTH = TOTAL LENGTH METERS		LOCATION
				A	B	C	D					
MK-1	4	11	20	200	3275				3475	38.23		TOP SLAB
	5	4	20	200	1080				1280	5.12		
	2	2	20	200	1000				1200	2.40		
MK-2	4	9	20	200	3850				4050	36.45		TOP SLAB
	5	4	20	200	1450				1650	6.60		
	5	2	20	200	1350				1550	3.10		
MK-3	I	4	20						3950	15.80		TOP SLAB
MK-3	I	4	20						3650	14.40		TOP SLAB
MK-4	4	52	16	300	2350				2650	137.80		WALL SECTION
MK-5	7	18	12	250	2725	400	1950		5325	95.85		WALL SECTION
MK-6	7	18	12	125	1800	400	1800		4125	74.25		WALL SECTION
MK-7	6	48	12	300	2200	150			2650	127.20		WALL SECTION
MK-8	4	30	16	200	3650				3850	115.50		BOTTOM SLAB
MK-9	4	26	16	200	4150				4350	113.10		BOTTOM SLAB

MAINTENANCE HOLE TYPE I-B												
MARK	TYP OF BAR	NO. REQ'D	SIZE OF BAR	DIMENSIONS				ANGLE OF HOOK	CUTTING LENGTH	NO. x CUTTING LENGTH = TOTAL LENGTH METERS		LOCATION
				A	B	C	D					
MK-1	I	10	16						1750	17.50		TOP SLAB
	I	4	16						390	1.56		
	I	2	16						300	0.60		
MK-2	I	6	16						3000	18.00		TOP SLAB
	I	4	16						1015	4.06		
	I	2	16						930	1.86		
MK-3	I	4	16						2020	8.08		TOP SLAB
MK-3	I	4	16						2218	8.87		TOP SLAB
MK-4	4	30	16	300	2300	300			2900	87.00		WALL SECTION
MK-5	4	14	12	1700	1750	1700			2900	72.10		WALL SECTION
MK-6	I	12	16						2250	27.00		BOTTOM SLAB
MK-7	I	8	16						3600	28.80		BOTTOM SLAB

SERVICE MAINTENANCE HOLE												
MARK	TYP OF BAR	NO. REQ'D	SIZE OF BAR	DIMENSIONS				ANGLE OF HOOK	CUTTING LENGTH	NO. x CUTTING LENGTH = TOTAL LENGTH METERS		LOCATION
				A	B	C	D					
MK-1	4	4	20	100	1550	100			1750	7.00		TOP SLAB
	5	2	20	100	250				350	0.70		
	5	4	20	100	325				325	1.30		
MK-2	4	2	16	100	1750	100			1950	3.90		TOP SLAB
	5	4	16	100	375				475	1.90		
	5	4	16	100	475				575	2.30		
MK-3	I	4	16						1100	4.40		TOP SLAB
MK-3	I	4	16						1300	5.20		TOP SLAB
MK-4	2	14	20	2150	400	300	50		2900	40.60		WALL SECTION
MK-5	3	6	12	1600	1750	250	250		3850	23.10		WALL SECTION
MK-6	I	8	12						1950	15.60		BOTTOM SLAB
MK-7	I	6	12						2250	13.50		BOTTOM SLAB

MAINTENANCE HOLE TYPE 2-B												
MARK	TYP OF BAR	NO. REQ'D	SIZE OF BAR	DIMENSIONS				ANGLE OF HOOK	CUTTING LENGTH	NO. x CUTTING LENGTH = TOTAL LENGTH METERS		LOCATION
				A	B	C	D					
MK-1	4	11	20	200	4100				4300	47.30		TOP SLAB
	5	2	20	200	1495				1695	3.40		
	5	4	20	200	1560				1760	7.04		
MK-2	4	13	20	200	4300				4500	58.50		TOP SLAB
	5	2	22	200	1575				1775	3.55		
	5	4	22	200	1595				1795	7.18		
MK-3	I	4	20						4795	19.18		TOP SLAB
MK-3	I	4	20						4495	17.98		TOP SLAB
MK-4	4	58	16	500	3050				3550	205.90		WALL SECTION
MK-5	7	12	12	250	2525	400	2750		5925	71.10		WALL SECTION
MK-6	7	12	12	125	1800	400	2600		4925	59.10		WALL SECTION
MK-7	6	54	12	300	2900	150			3350	180.90		WALL SECTION
MK-8	4	17	20	200	4550				4750	80.75		BOTTOM SLAB
MK-9	4	16	20	200	4750	200			5150	82.40		BOTTOM SLAB

MAINTENANCE HOLE TYPE I-C												
MARK	TYP OF BAR	NO. REQ'D	SIZE OF BAR	DIMENSIONS				ANGLE OF HOOK	CUTTING LENGTH	NO. x CUTTING LENGTH = TOTAL LENGTH METERS		LOCATION
				A	B	C	D					
MK-1	I	12	16						2100	25.20		TOP SLAB
	I	4	16						600	2.40		
	I	2	16						500	1.00		
MK-2	I	6	16						3350	20.10		TOP SLAB
	I	4	16						1190	4.76		
	I	2	16						1100	2.20		
MK-3	I	4	16						2512	10.05		TOP SLAB
MK-3	I	4	16						2712	10.05		TOP SLAB
MK-4	4	36	16	300	2300	300			2900	104.40		WALL SECTION
MK-5	4	14	12	1875	2100	1875			5850	81.90		WALL SECTION
MK-6	I	13	16						2600	33.80		BOTTOM SLAB
MK-7	I	9	16						3950	35.55		BOTTOM SLAB

SCALE: _____

REVISION VALIDATION

THIS REVISION NO. 04 IS COVERED FOR ALL APPROVAL AND CERTIFICATION REQUIREMENTS, PER SAEP-334, UNDER DRAWING COMPLETION CERTIFICATE NO. 00-00000-0000-000

DESIGN CERTIFICATION (DESIGN AGENCY)		REVIEW FOR KEY DRAWINGS (SAUDI ARAMCO)		OTHER	
ENGR./DATE	CERTIFIED BY/DATE	CONST. AGENCY/DATE	OPERATIONS/DATE	BY/DATE	

REV. NO.	DATE	REVISION DESCRIPTION
04		

JOB ORDER/EWO NO. 00-00000-0000 THIS REVISION IS NOT TO BE USED FOR CONSTRUCTION UNTIL CERTIFIED AND DATED

SAUDI ARABIAN OIL COMPANY
STD COMMS MAINTENANCE HOLE
BAR BENDING SHEDULE (20 TONS)

STD. DWG.
