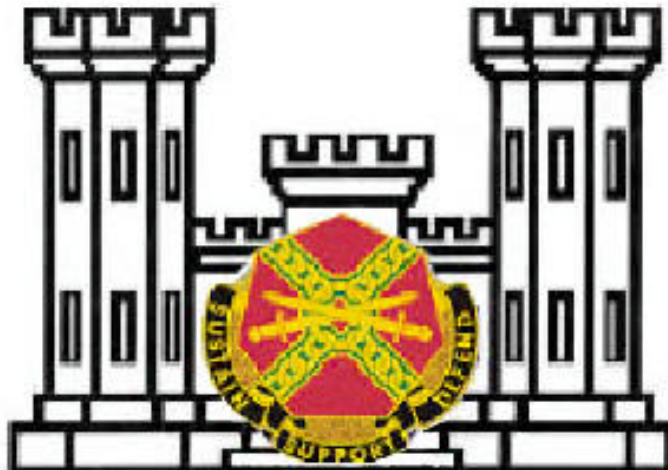


**STANDARD DETAIL
DRAWINGS
FOR
O&MA PROJECTS, KOREA**



October 1, 2003

**DEPARTMENT OF THE ARMY
INSTALLATION MANAGEMENT AGENCY
KOREA REGION OFFICE**



DEPARTMENT OF THE ARMY
INSTALLATION MANAGEMENT AGENCY (IMA)
KOREA REGION OFFICE (KORO)
Unit #15742
APO AP 96205-5742

REPLY TO
ATTENTION OF:

SFIM-KO-PW-F

1 October 2003

MEMORANDUM FOR SEE DISTRIBUTION

SUBJECT: Standard Detail Drawings for O&MA Projects, Korea

1. The Standard Detail Drawings for O&MA Projects, Korea, dated 1 October 1 2003, are to be used in the performance of the O&MA construction contracts.
2. Individual construction contract packages will list applicable specific standard detail drawing numbers on the contract drawings. Any deviation from the Standard Detail Drawing must be specified in the contract drawings.
3. This publication will be updated and revised as needed to furnish new/revised requirements and to provide latest design and construction techniques.
4. Any comments, recommendations, and suggestions should be forwarded to Installation Management Agency (IMA) Korea Region Office (KORO) Public Works Division (PWD) , Regional Engineering Support Center (RESC) , ATTN : SFIM-KO-PW-F (Mr. Daniel C. Hong, 724-5059, Email : hongd@usfk.korea.army.mil), Unit #15742 APO AP 96205-5742

EDGAR J. YANGER
COL, EN
Chief, KORO Public Works Division

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**CIVIL
STANDARD DETAILS**

OCTOBER 2003

**IMA-KORO
REGIONAL ENGINEER SUPPORT CENTER**

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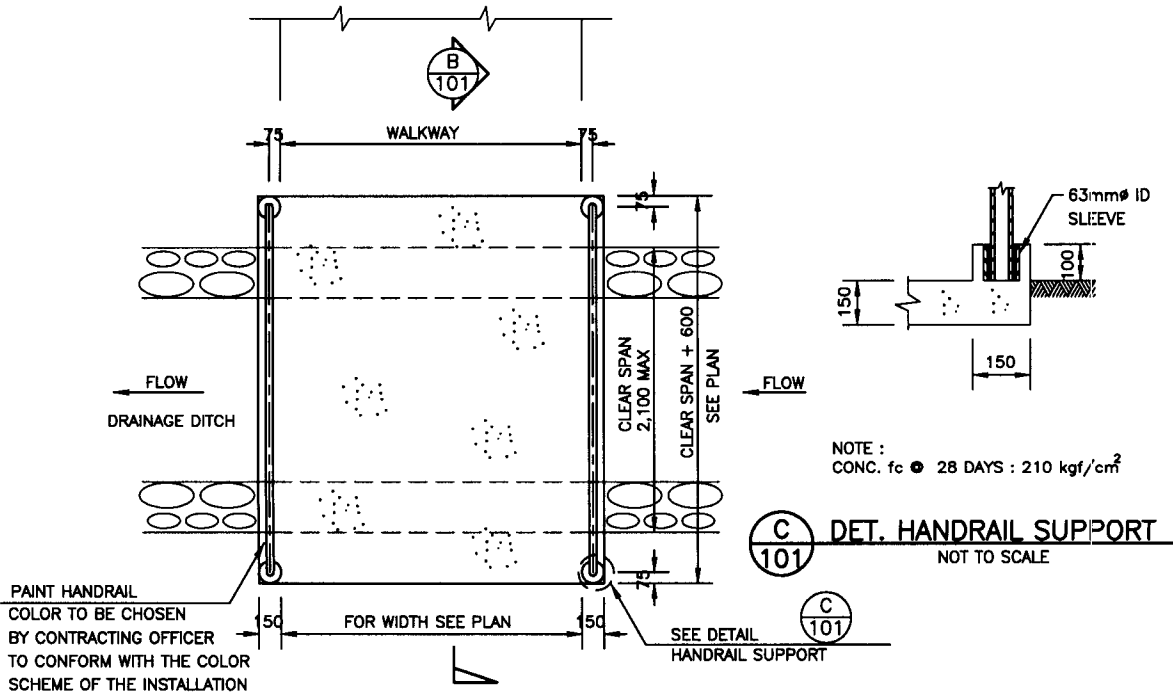
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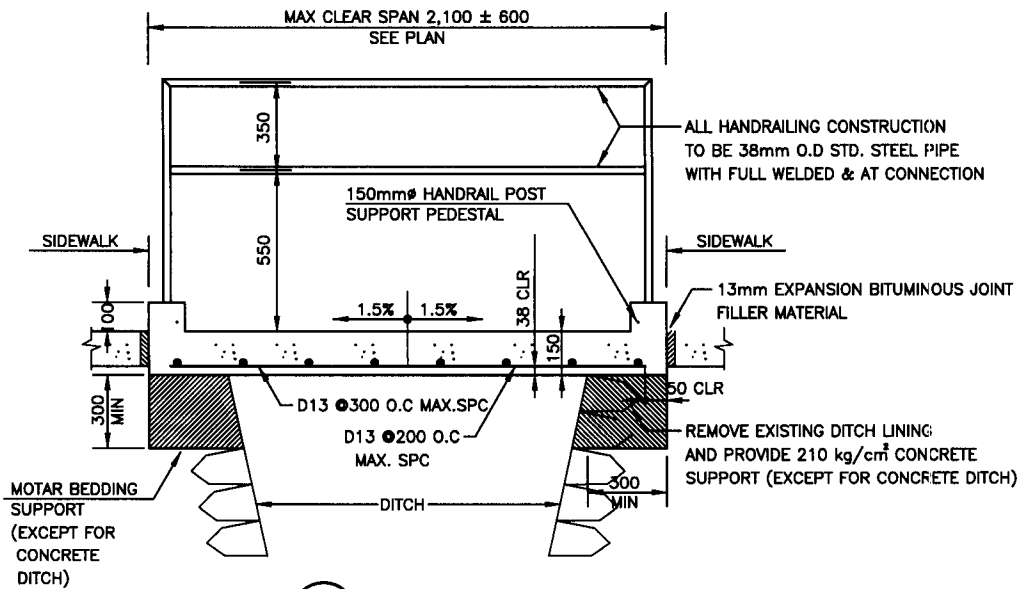
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STONE MASONRY PROTECTION	00000 – C2112
STONE WALL	00000 – C2113
GABION	00000 – C2114
REPAIR A.C. PAVEMENT -1	00000 – C2115
REPAIR A.C. PAVEMENT -2	00000 – C2116
REPLACE AC SURFACE COURSE	00000 – C2117

REPLACE AC SURFACE COURSE	00000 – C2118
REPLACE AC PAVEMENT	00000 – C2119
REPAIR AC PAVEMENT CRACK	00000 – C2120
AC OVERLAY ON AC PAVEMENT	00000 – C2121
REPAIR AC PAVEMENT – POT HOLE	00000 – C2122
CONNECT & MILLING AC PAVEMENT	00000 – C2123
REPAIR/REPLACE SHOULDER	00000 – C2124
SECTION – OVER LAY W/BASE COURSE & SEAL COAT	00000 – C2125
AC PAVING ON EXISTING UNPAVED ROAD	00000 – C2126
AC OVERLAY ON EXST AC PAVEMENT	00000 – C2127
DOUBLE SURFACE TREATMENT	00000 – C2128
PCC PAVING AND SINGLE SURFACE TREATMENT	00000 – C2129
ASPHALT PAVED SIDEWALK	00000 – C2130
LAYDOWN FABRIC	00000 – C2131
GRAVEL SURFACED ROAD	00000 – C2132
REPAIR ERODED SLOPE & EARTH DITCH	00000 – C2133
RETAINING WALL – 1, CONCRETE	00000 – C2134
RETAINING WALL – 2, CONCRETE	00000 – C2135
RETAINING WALL – 3, CONCRETE	00000 – C2136
RETAINING WALL – 4, CONCRETE	00000 – C2137
CONCRETE RETAINING WALL	00000 – C2138
CONCRETE RETAINING WALL	00000 – C2139
CONCRETE RETAINING WALL	00000 – C2140
STEPPED FOOTING & JOINT DETAILS	00000 – C2141
CMU WALL FENCTYPE F11	00000 – C2142

RED BRICK FENCE TYPE F12	00000 – C2143
RED BRICK FENCMISC DET	00000 – C2144
CMU FENCE W/KOREAN ROOF TILE	00000 – C2145
CMU FENCMISC DET	00000 – C2146
PLAN OF SPALL REPAIRS	00000 – C2147
PAVEMENT REPAIR DETAIL	00000 – C2148
JOINT DETAIL, PAVEMENT	00000 – C2149
REPAIR PCC PAVEMENT CRACKS	00000 – C2150
REPAIR SPALLS (CORNER AND EDGE)	00000 – C2151
LONGITUDINAL/TRANSVERSE CRACKS	00000 – C2152
DRILL FOR PCC PAVEMENT	00000 – C2153
REPLACE PCC PAD IN AC PAVEMENT	00000 – C2154
REPAIR PCC PAVEMENT CRACKS	00000 – C2155
PAVEMENT DETAIL	00000 – C2156
PRECAST CEMENT BRICK PAVED SIDEWALK	00000 – C2157
RAIL ACCESSORIES	00000 – C2158
SUBDRAIN ALONG RAILROAD	00000 – C2159
CONCRETE BLOCK LANDSCADING	00000 – C2160



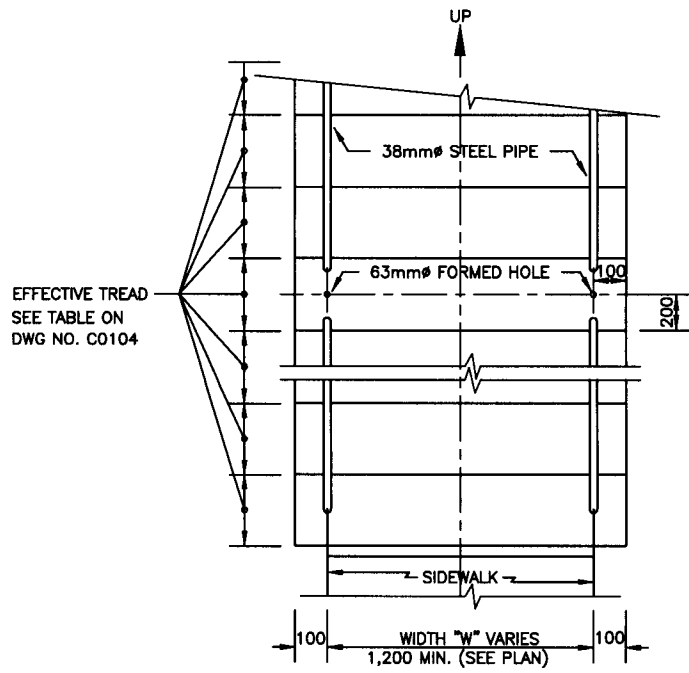
A
101 PLAN



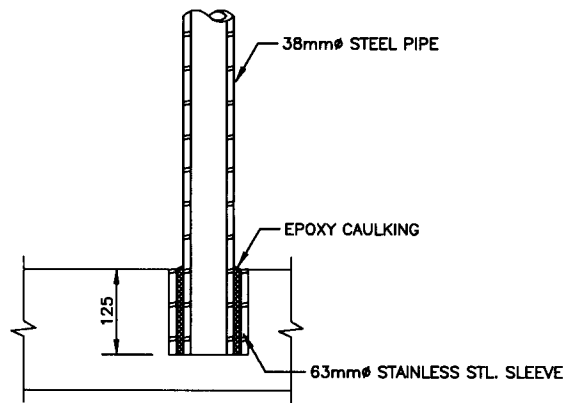
B
101 SECTION

DITCH CROSSING AT DITCH
NOT TO SCALE

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER			REV DATE	DWG NO.
TITLE	DITH CROSSING	SPEC	02511 OCT 2003	C0101

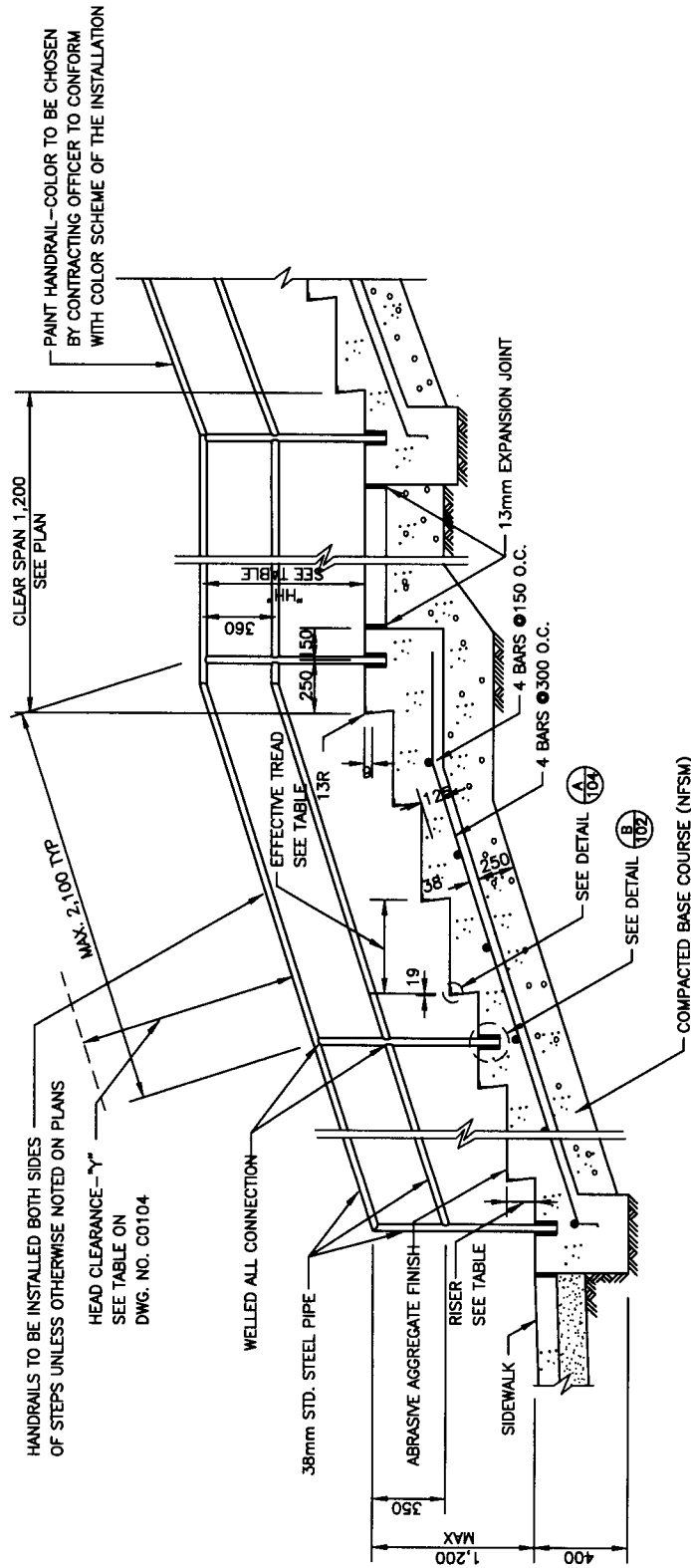


A
102 PARTIAL PLAN



B
102 POST DETAIL

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	CONCRETE STEPS & HANDRAIL - 1	SPEC	02511	OCT 2003	C0102

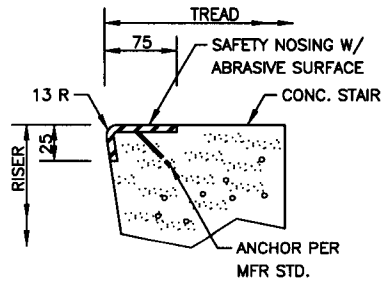


NOTE :
SEE DWG. NO. C0104
FOR TABLE.

A LONGITUDINAL SECTION
103

CONCRETE STEPS WITH HANDRAIL
NOT TO SCALE

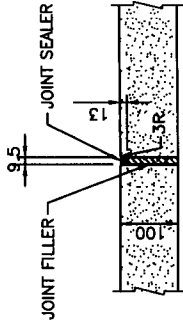
IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	CONCRETE STEPS & HANDRAIL - 2	SPEC	02511	OCT 2003	C0103



(A)
104 SAFETY NOSING DETAILS

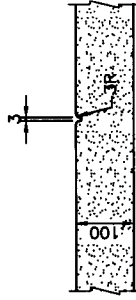
TABLE OF PROPORTIONS				
HH HANDRAIL HEIGHT (mm)	RISER (mm)	EFFECTIVE TREAD (mm)	STAIR ANGLE (°) (DEGREES)	HEAD CLEARANCES
				Y VERTICAL (mm)
900	100	713	8°	2,100
	107	603	10°	2,100
875	113	530	12°	2,130
	119	478	14°	2,130
850	125	435	16°	2,130
	132	405	18°	2,150
825	138	378	20°	2,150
	144	355	22°	2,150

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	CONCRETE STEPS & HANDRAIL – 3	SPEC	02511	OCT 2003	C0104



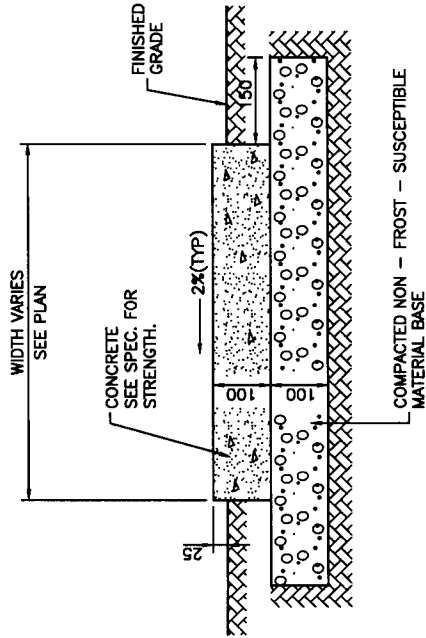
PROVIDE EXPANSION JOINTS AT MAXIMUM 15m INTERVALS FOR STRAIGHT SECTIONS AND AT ALL RETURNS OF WALKS, AND WHERE WALKS ABUT OTHER CONCRETE STRUCTURES

B EXPANSION JOINT
105



C CONTRACTION JOINT
105

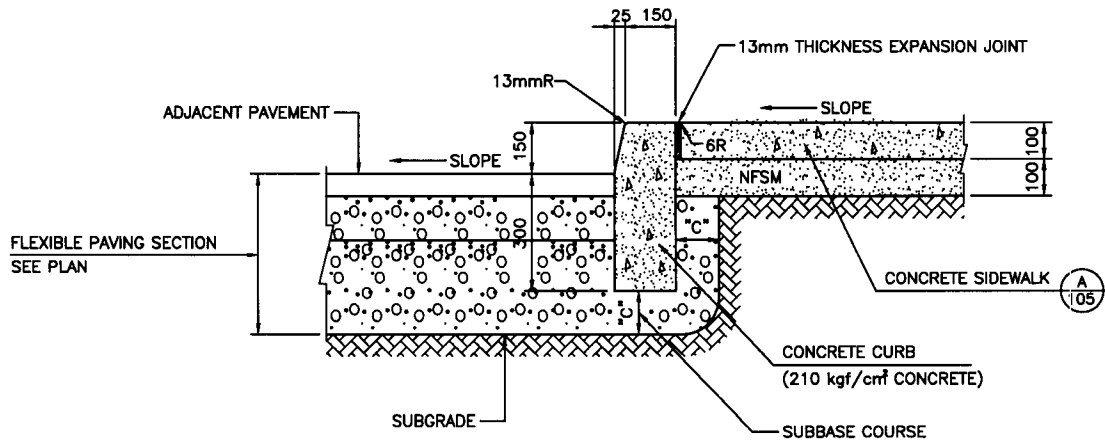
TRANSVERSE CONTRACTION JOINTS SHALL BE SPACED SO THAT THE RATIO OF SLAB LENGTH TO WIDTH WILL NOT EXCEED 1.25. THE DEPTH OF THE CONTRACTION JOINT WILL BE AT LEAST ONE - FOURTH OF THE SIDEWALK SLAB THICKNESS, BUT NOT LESS THAN THE MAXIMUM NOMINAL SIZE OF THE AGGREGATE USED.



A SECTION
105

CONCRETE SIDEWALK
NOT TO SCALE

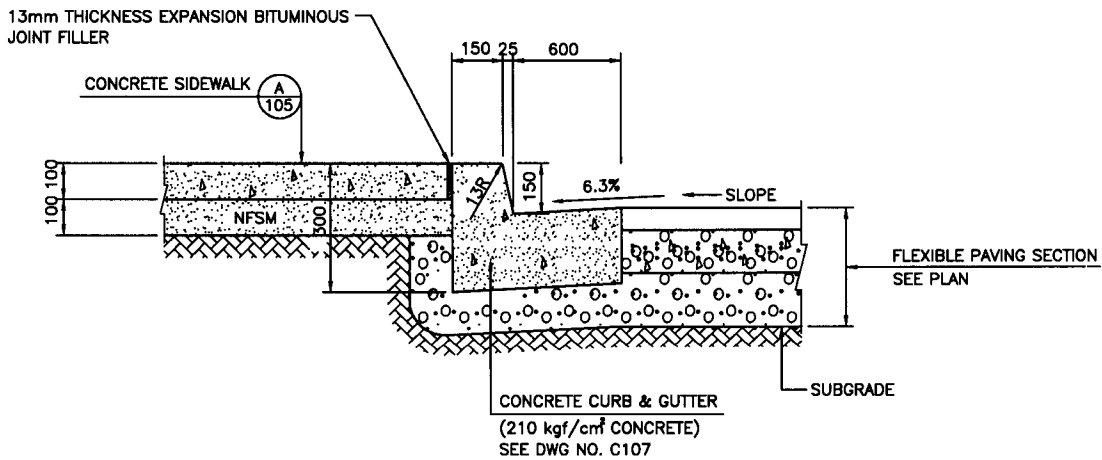
IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER			REV DATE	DWG NO.
TITLE	CONC SIDEWALK, EXPANSION & CONTRACTION JOINT	SPEC	02511	OCT 2003
				C0105



NOTE:

1. PROVIDE EXPANSION JOINTS AT MAXIMUM 15m. INTERVALS (MATCH SIDEWALK)
2. PRECAST CURBS SHALL BE USED WITH PAVED ROADWAYS ONLY
3. "C" DIMENSION CONSTANT EQUALS PAVEMENTS SECTION MINUS 300mm

A CONCRETE CURB
 106 NOT TO SCALE



NOTE:

1. PROVIDE EXPANSION JOINTS AT MAXIMUM 15m. INTERVALS (MATCH SIDEWALK)
2. "C" DIMENSION CONSTANT EQUALS PAVEMENT'S SECTION MINUS 300mm

B CONCRETE CURB & GUTTER DETAIL
 106 NOT TO SCALE

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER

REV DATE

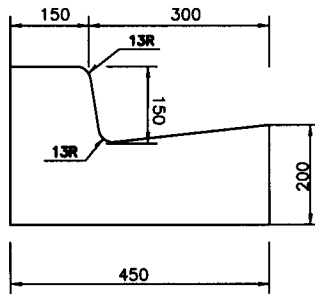
DWG NO.

TITLE CONCRETE CURB, CURB & GUTTER

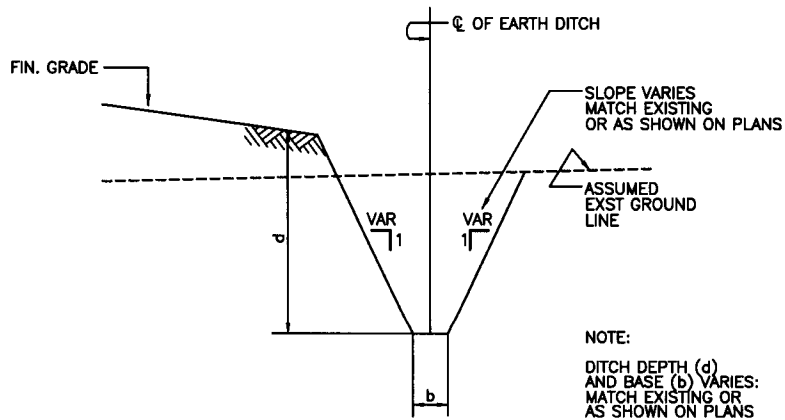
SPEC 02511

OCT 2003

C0106



CURB & GUTTER



EARTH DITCH – TYPICAL

NOT TO SCALE

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER

REV DATE

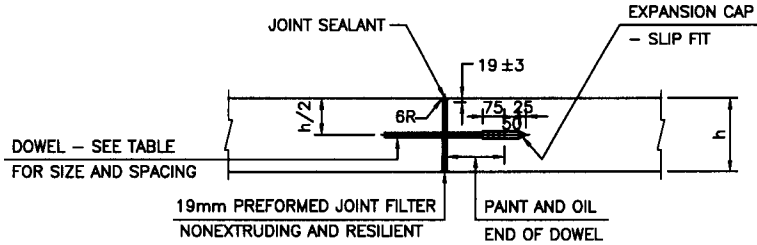
DWG NO.

TITLE DRAINAGE – CURB & GUTTER / EARTH DITCH

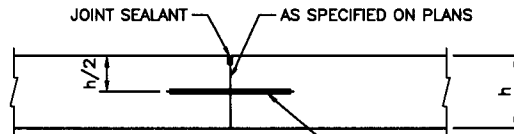
SPEC 02511

OCT 2003

C0107

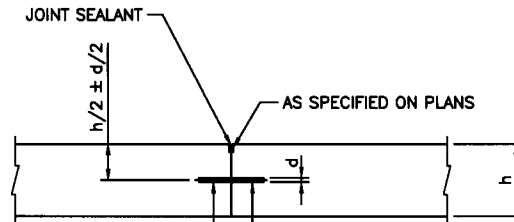


(A) TRANSVERSE EXPANSION JOINT



NOTE:
STEEL TIE BARS 750mm LONG AND
SPACED 750mm ON CENTERS USED ONLY
IN JOINT ADJACENT TO FREE EDGES

(B) LONGITUDINAL CONTRACTION JOINT



DOWEL - ONE END PAINTED
AND OILED - SEE TABLE
2 FOR SIZE AND SPACING

USED ONLY IN THE LAST 3
TRANSVERSE JOINTS FROM
THE EDGE OF PAVING

(C) TRANSVERSE CONTRACTION JOINT

SIZE AND SPACING FOR DOWELS, mm

PAVEMENT THICKNESS	DOWEL DIAMETER	MINIMUM DOWEL LENGTH	DOWEL SPACING	DOWEL SIZE (mm) AND TYPE
LESS THAN 200	19	400	300	19 ROUND BAR
200 TO 275	25	400	300	25 ROUND BAR
300 TO 375	31	500	375	32 ROUND BAR 1 EXTRA - STRENGTH PIPE
	32	500	375	

NOTE: ONE END OF DOWEL SHALL BE PAINTED & OILED

NON REINFORCED PCC ROADS AND PARKING AREA

NOT TO SCALE

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER

REV DATE

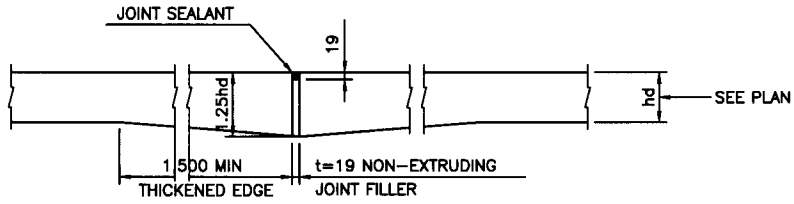
DWG NO.

TITLE EXPANSION & CONTRACTION JOINT OF PCC ROADS

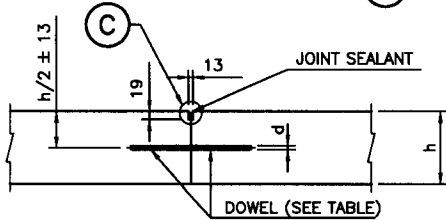
SPEC 02515

OCT 2003

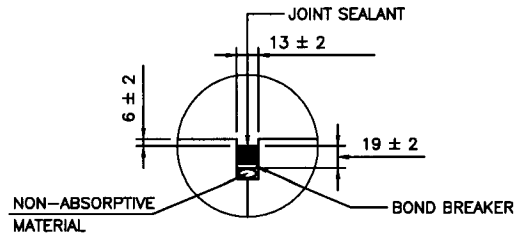
C0201



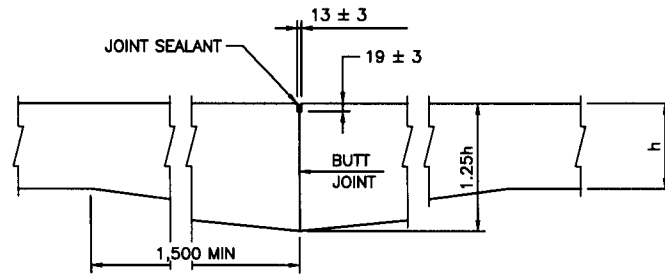
(A) THICKENED EDGE EXPANSION JOINT



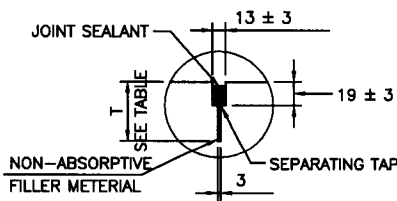
(B) DOWELED CONSTRUCTION JOINT



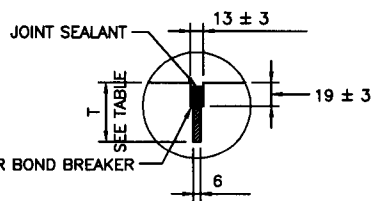
(C) CONSTRUCTION JOINT DETAIL



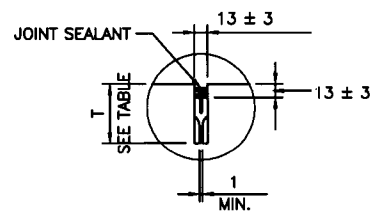
(D) THICKENED EDGE LONGITUDINAL CONSTRUCTION JOINT



(E) SAWED JOINT



(F) FIBERBOARD FILLER JOINT



(G) PREFAB METAL JOINT

NOTE:
DO NOT USE PREFAB METAL JOINT
FOR AIR FORCE PROJECTS

PAVEMENT THICKNESS h mm	DEPTH OF CONTRACTION JOINT T mm
225 OR LESS	38
250	47
300	50
350	72
400	78

AIR FORCE PROJECTS	
PAVEMENT THICKNESS h mm	DEPTH OF CONTRACTION JOINT T mm
<= 250	1/4h
300 - 400	75

(H) CONTRACTION JOINT DETAILS

NONREINFORCED PCC ROADS AND PARKING AREA

NOT TO SCALE

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER

REV DATE

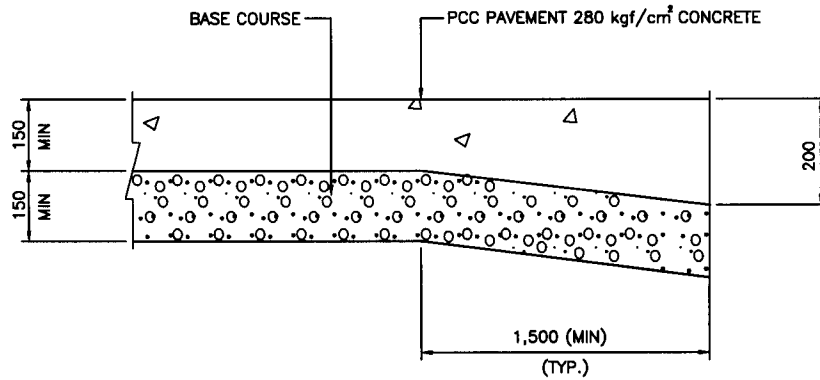
DWG NO.

TITLE THICKENED EDGE EXPANSION, CONSTRUCTION JOINTS

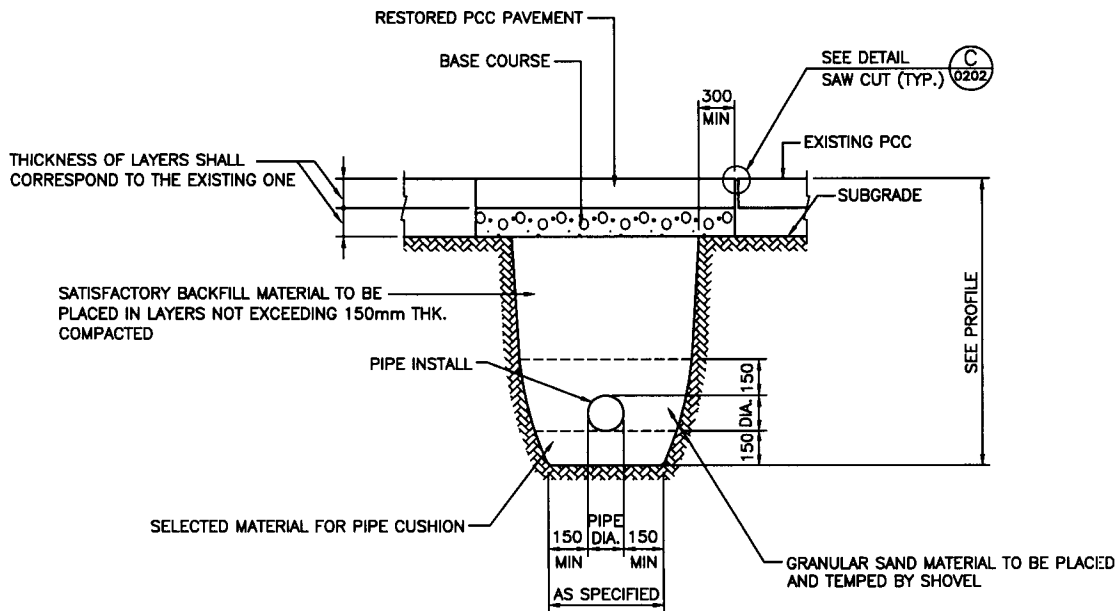
SPEC 02515

OCT 2003

C0202



(A) THICKENED EDGE JOINT
NOT TO SCALE

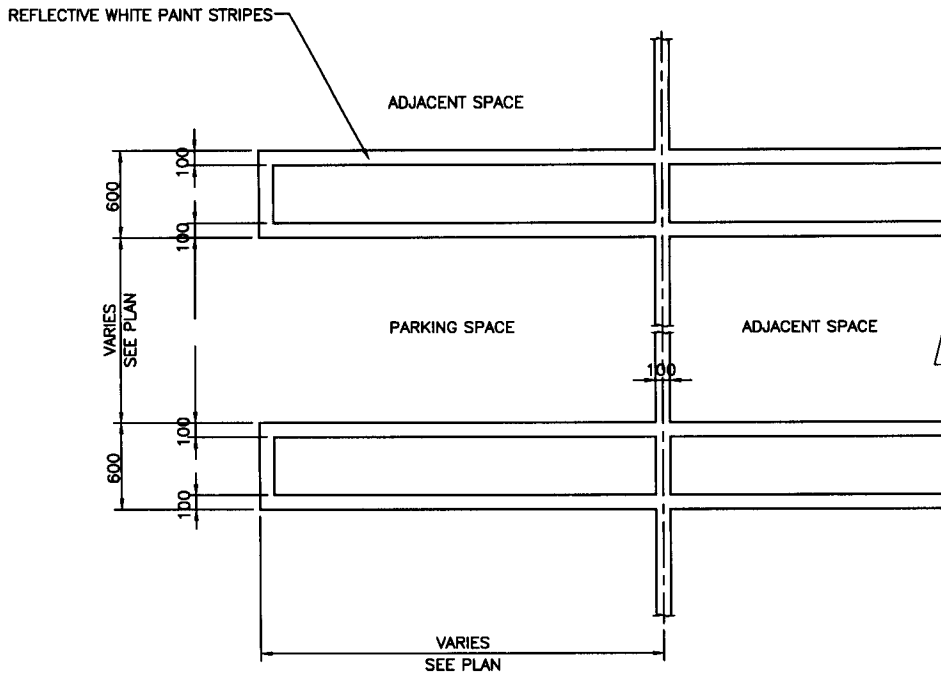


NOTE:
SHORING FOR EXCAVATION SHALL BE PROVIDED
DEPTH OVER 1.5m IAW EM 385-1-1.

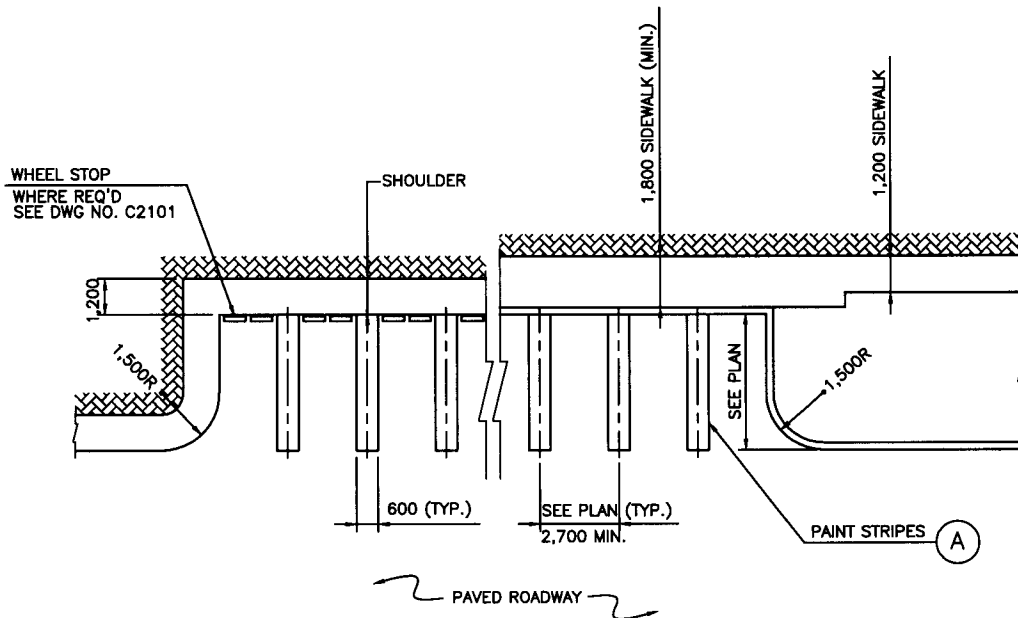
TYPICAL PCC PAVEMENT TRENCH RESTORATION DETAIL

NOT TO SCALE

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	PCC PAVEMENT TRENCH RESTORATION	SPEC	02515	OCT 2003	C0203

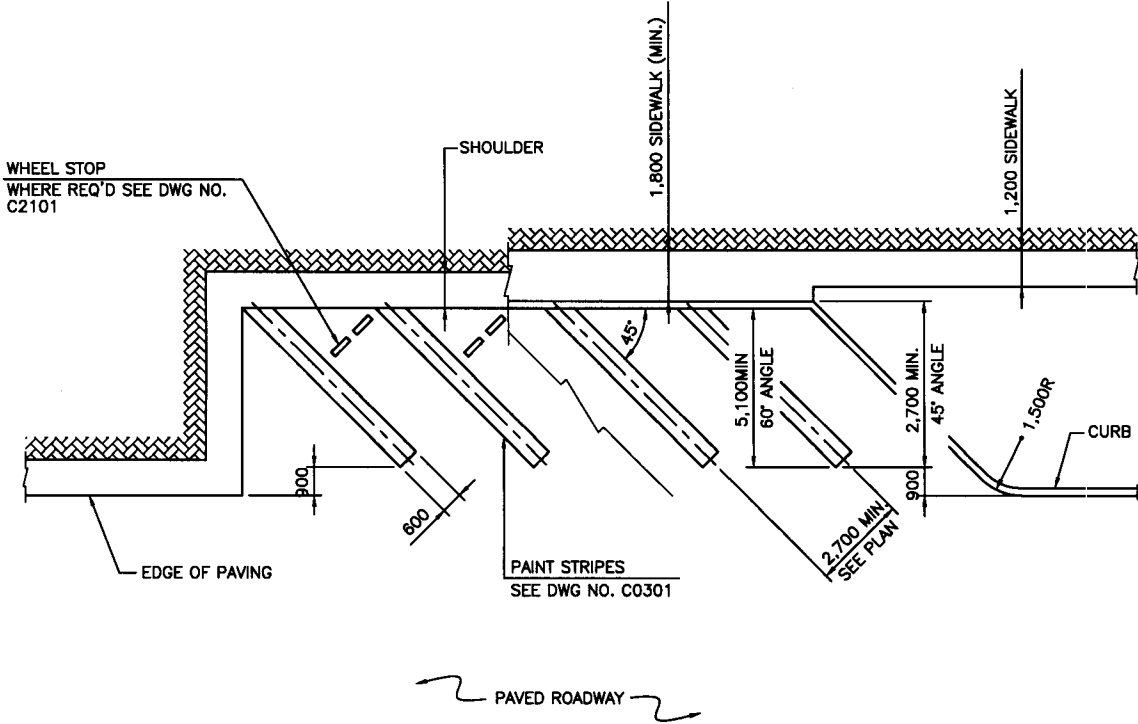


(A) PARKING SPACE STRIPING
NOT TO SCALE



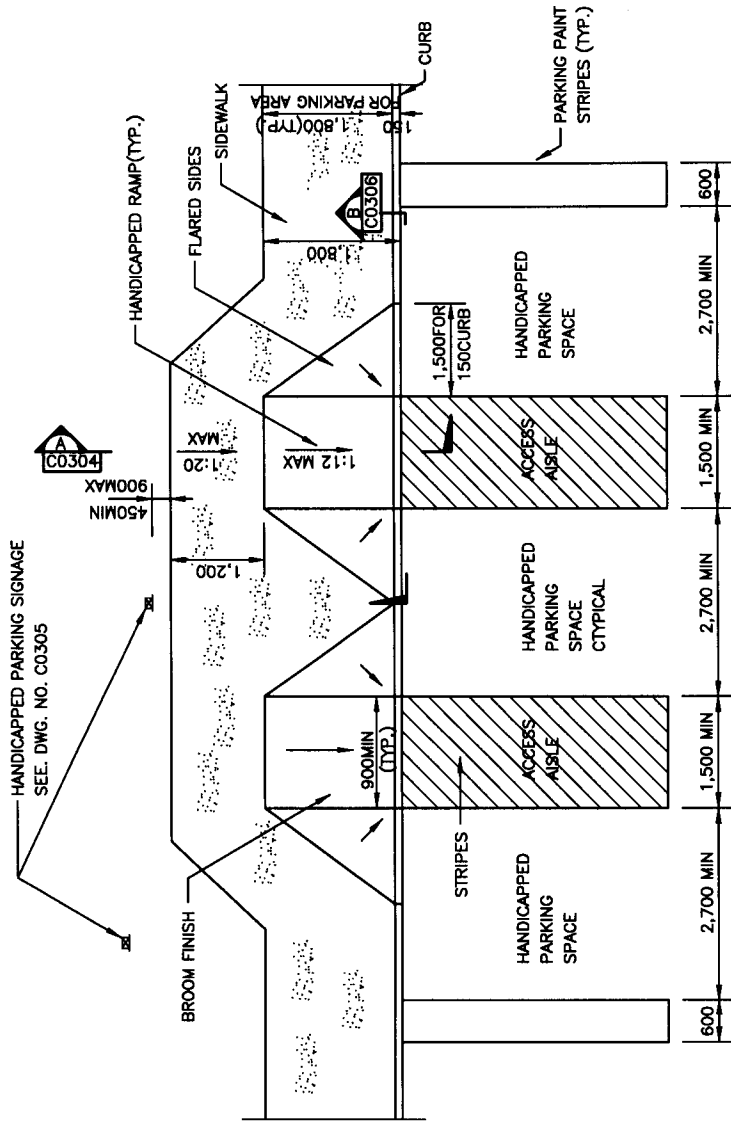
(B) 90° PARKING LAYOUT - TYPICAL
NOT TO SCALE

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	PARKING SPACE STRIPING, PARKING LOT LAYOUT - 1	SPEC	02580	OCT 2003	C0301



(C) ANGLE PARKING - TYPICAL
NOT TO SCALE

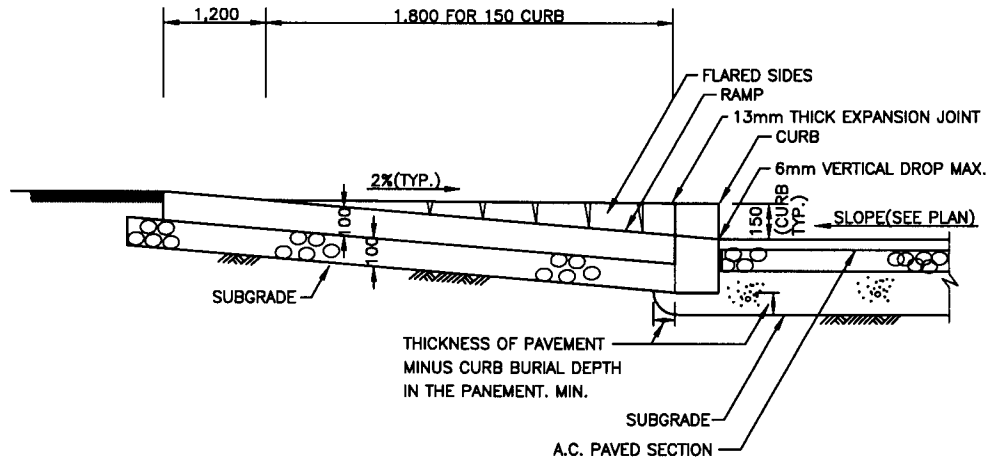
IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	ANGLE PARKING, PARKING LOT LAYOUT - 2	SPEC	02580	OCT 2003	C0302



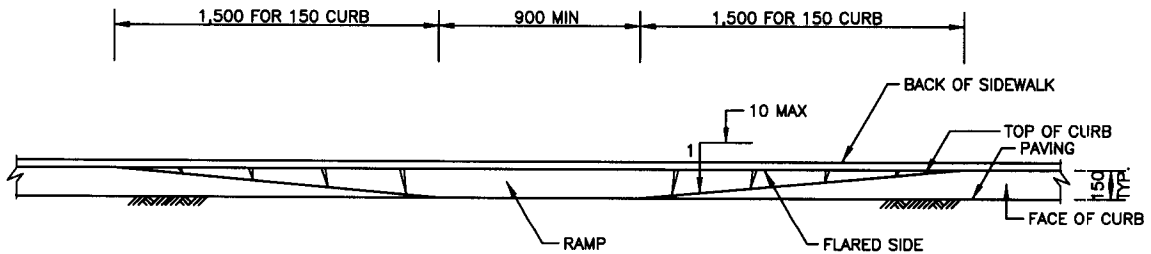
A PLAN - 2 RAMPS SHOWN
C0303 NOT TO SCALE

HANDICAPPED RAMP DETAILS
 NOT TO SCALE

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	HANDICAPPED PARKING	SPEC	02580	OCT 2003	C0303



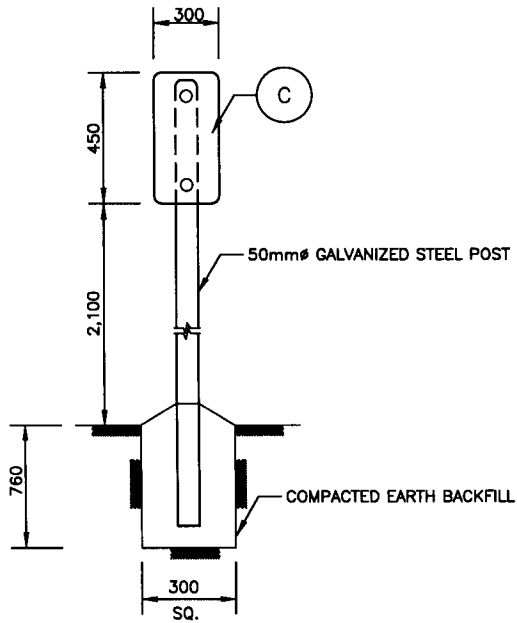
A SECTION
C0304



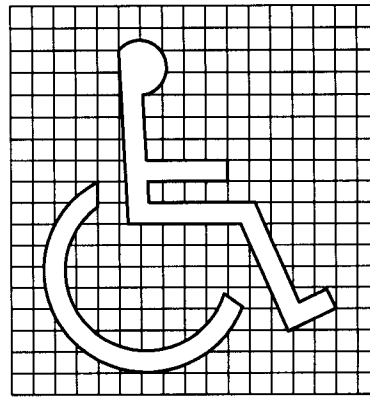
B SECTION

B HANDICAPPED RAMP DETAILS
C0304
NOT TO SCALE

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	HANDICAPPED PARKING	SPEC	02580	OCT 2003	C0304

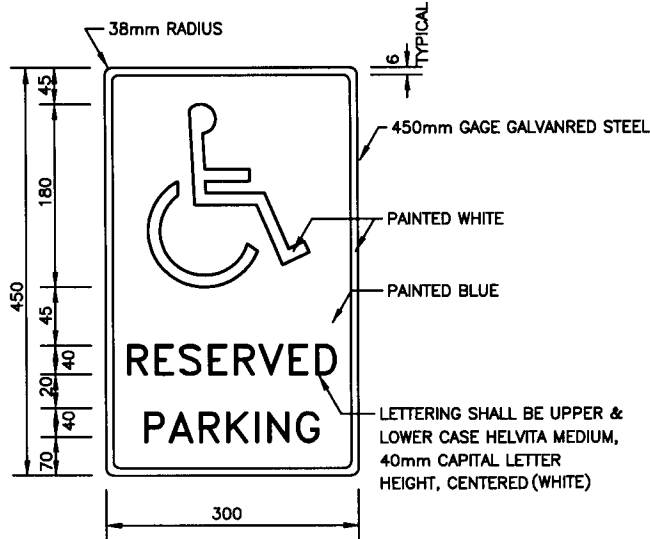


STEEL POST



B SIGN PROPORTIONS
NOT TO SCALE

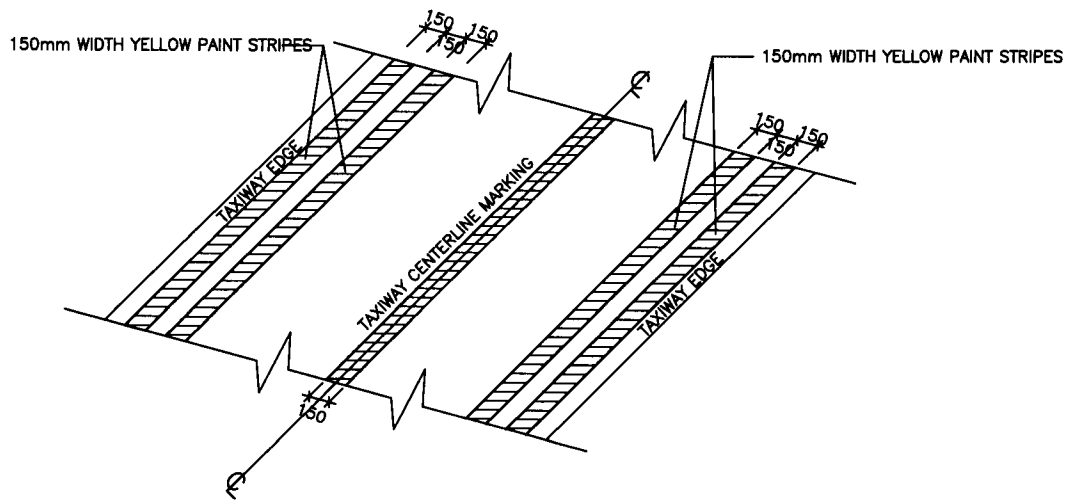
A STEEL SIGN POST INSTALLATION
NOT TO SCALE



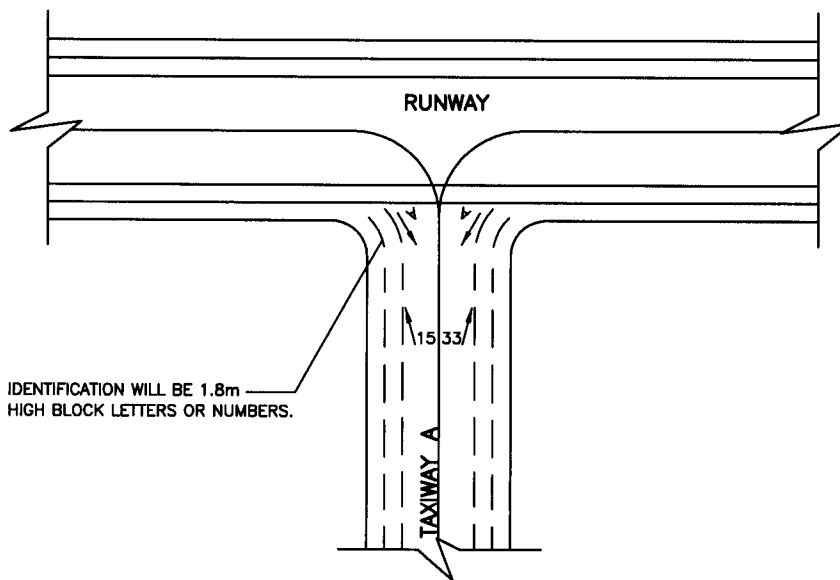
C SIGN DETAIL
NOT TO SCALE

HANDICAPPED PARKING DETAILS
NOT TO SCALE

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	HANDICAPPED PARKING SIGN	SPEC	02580	OCT 2003	C0305



TAXIWAY EDGE MARKING

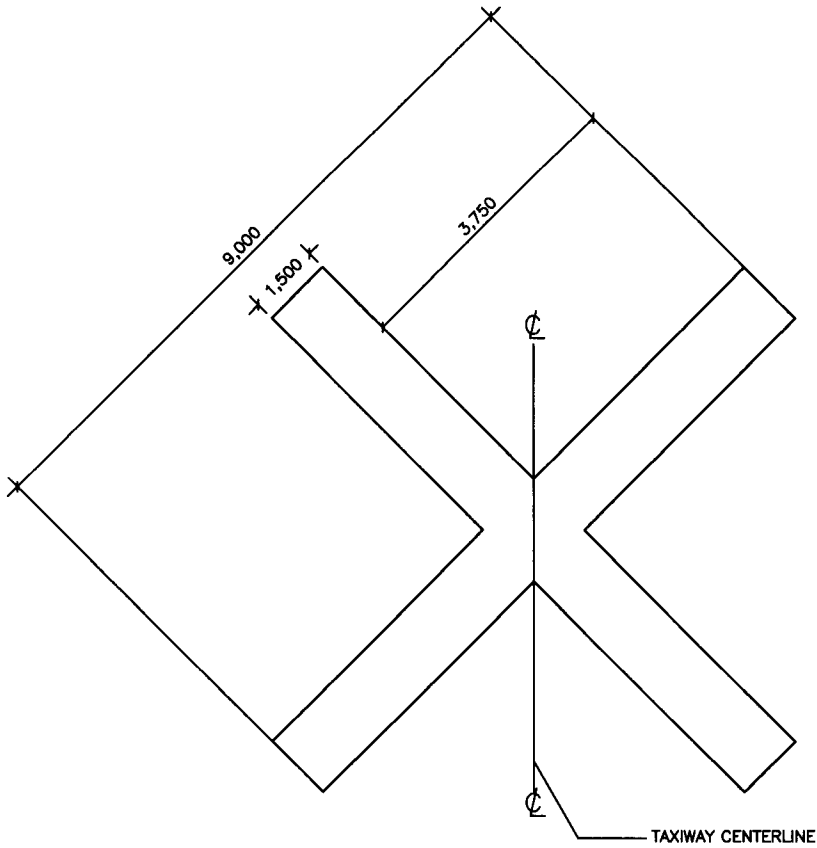


NOTES :

1. COLOR MARKING : TAXIWAYS WILL BE MARKED WITH NONREFLECTIVE YELLOW PAINT.
2. MARKING MATERIALS : PAINT USE IN MARKING OR REMARKING TAX-WAY PAVEMENT WILL CONFORM TO CRITERIA IN CORPS OF ENGINEERS GUIDE SPECIFICATION 02763 "PAVEMENT MARKINGS," AND TO THE FOLLOWING SPECIFICATION
 - a. TAXIWAYS : NONREFLECTIVE PAINT WILL CONSIST OF THE PIGMENTED BINDER PAINT COVERED BY FEDERAL SPECIFICATION TT-P-1952.
 - b. APPLICATION OF PAINT : PAINTED MARKINGS WILL BE APPLIED TO PAVED AREAS ONLY AFTER THE PAVEMENTS HAVE BEEN ALLOWED TO CURE THOROUGHLY.
CARE WILL BE TAKEN TO INSURE THAT THE PAVEMENT SURFACE IS DRY AND CLEAN PERIOD TO PAINTING.
WHEN PAINTED MARKINGS ARE TO BE ALPLIED TO RIGID PAVEMENTS THAT HAVE BEEN CURED WITH A MEMBRANE TYPE CURING COMPOUND. THE SURFACE TO BE PAINTED MUST BE CLEANED THOROUGHLY AND THE CURING COMPOUND MUST BE REMOVED BY SANDBLASTING. FLEXIBLE PAVEMENT WILL BE ALLOWED TO CURE AS LONG AS PRACTICABLE BEFORE PAINTING, AND, TO PREVENT UNDUE SOFTENING OF THE BITUMEN BY THE PAINT.

TAXIWAY IDENTIFICATION MARKING

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	TAXIWAY MARKING	SPEC	02580	OCT 2003	C0306



CLOSED TAXIWAY

AIRFIELD MARKING

NOT TO SCALE

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER

REV DATE

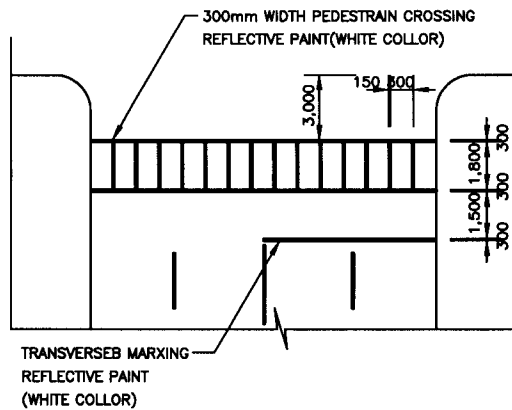
DWG NO.

TITLE CLOSED TAXIWAY MARKING

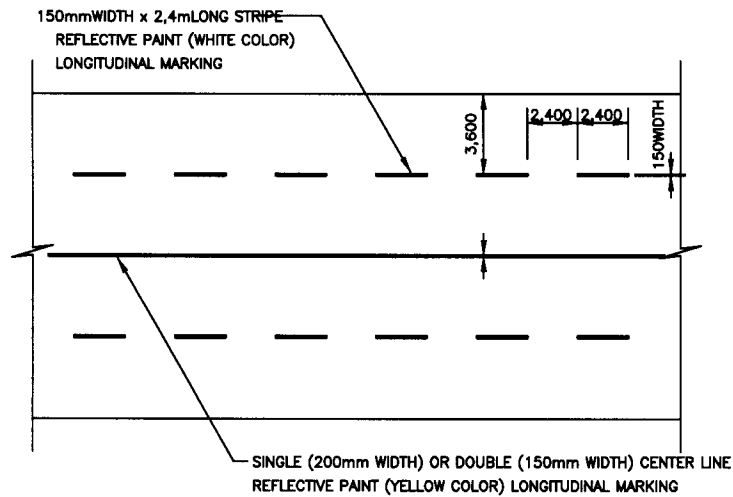
SPEC 02580

OCT 2003

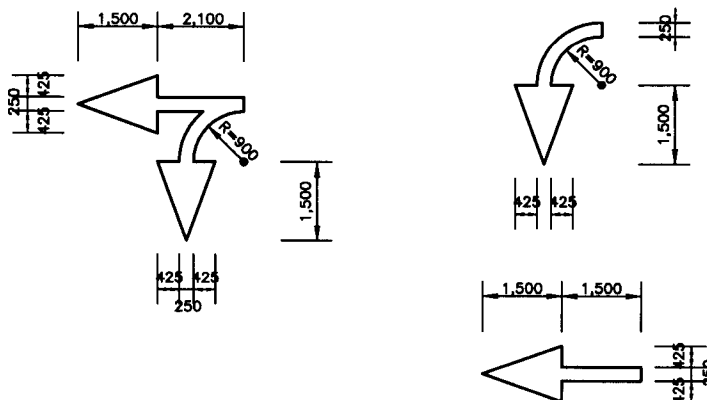
C0307



PEDESTRIAN CROSSING DETAIL

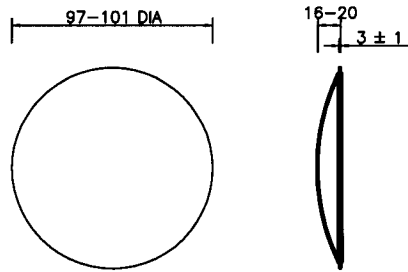


STRIPE LONGITUDINAL ROAD MARKING

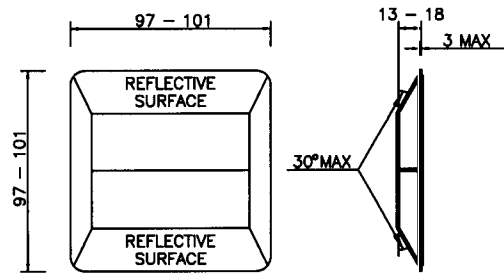


TRAFFIC SIGN DETAIL

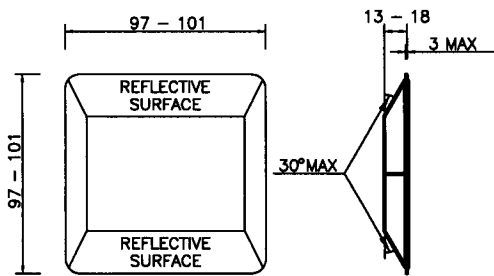
IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	MISC PAVEMENT MARKING - 1	SPEC	02580	OCT 2003	C0308



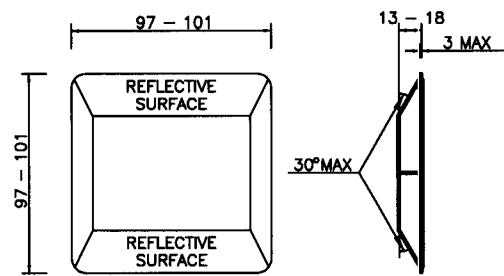
TYPE A
NON-REFLECTIVE WHITE MARKER



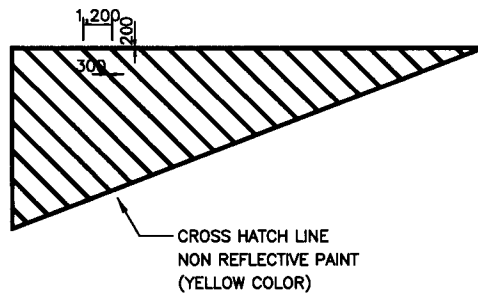
TYPE C
RED-CLEAR REFLECTIVE MARKER



TYPE D
TWO-WAY YELLOW REFLECTIVE MARKER

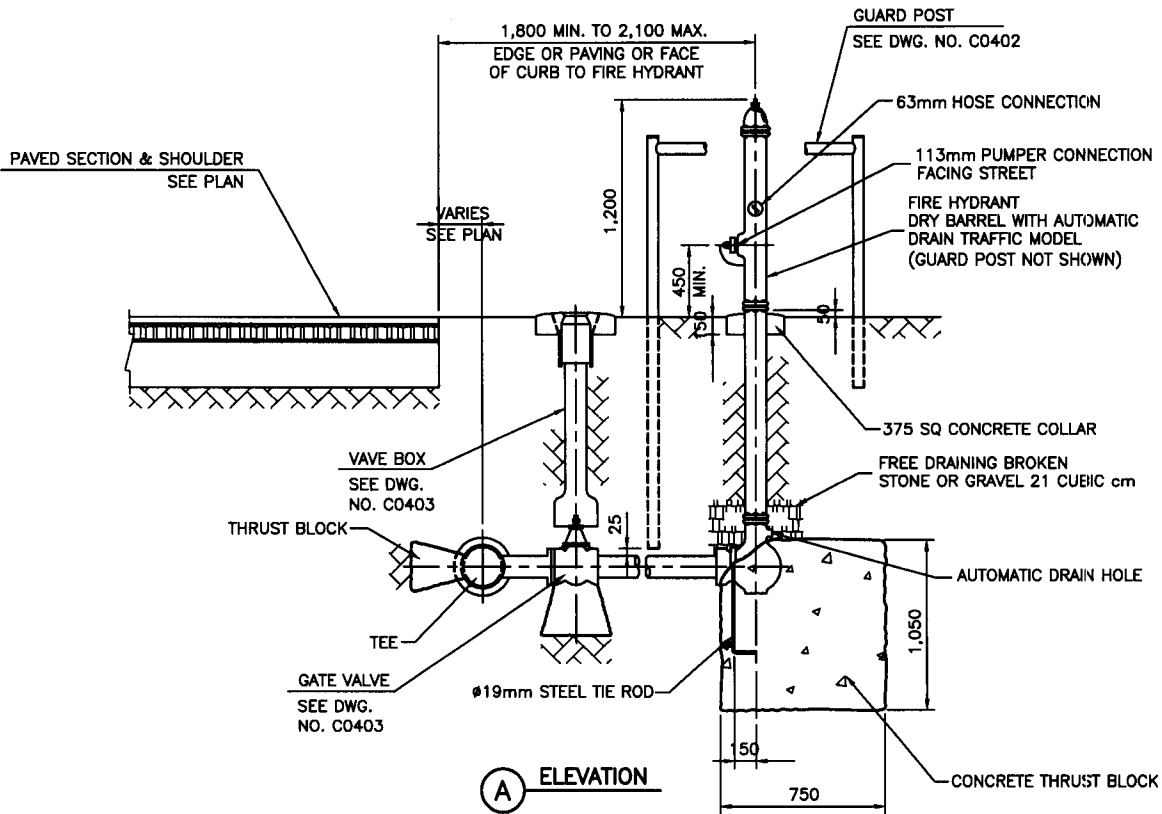


TYPE H
ONE-WAY YELLOW REFLECTIVE MARKER

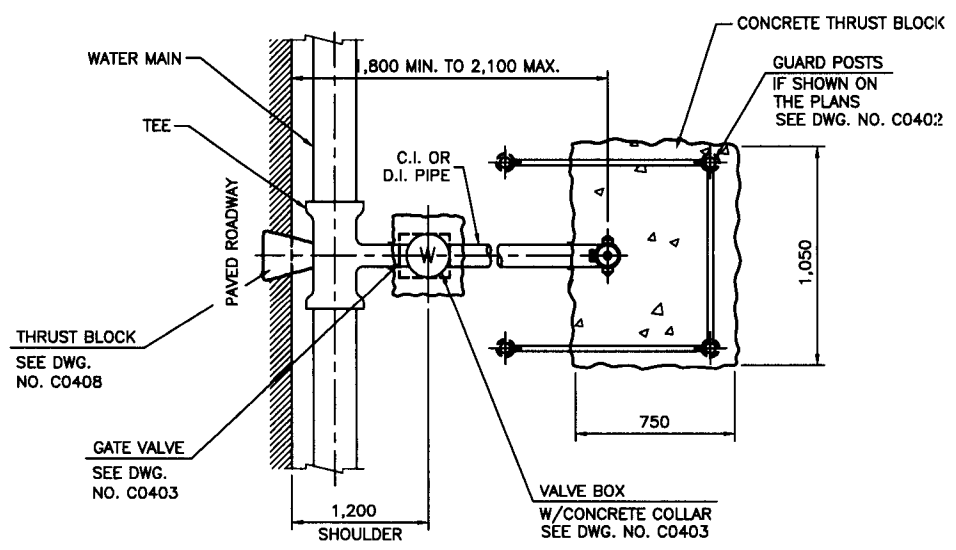


PAINTED ISLAND DETAIL

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	MISC PAVEMENT MARKING - 2	SPEC	02580	OCT 2003	C0309



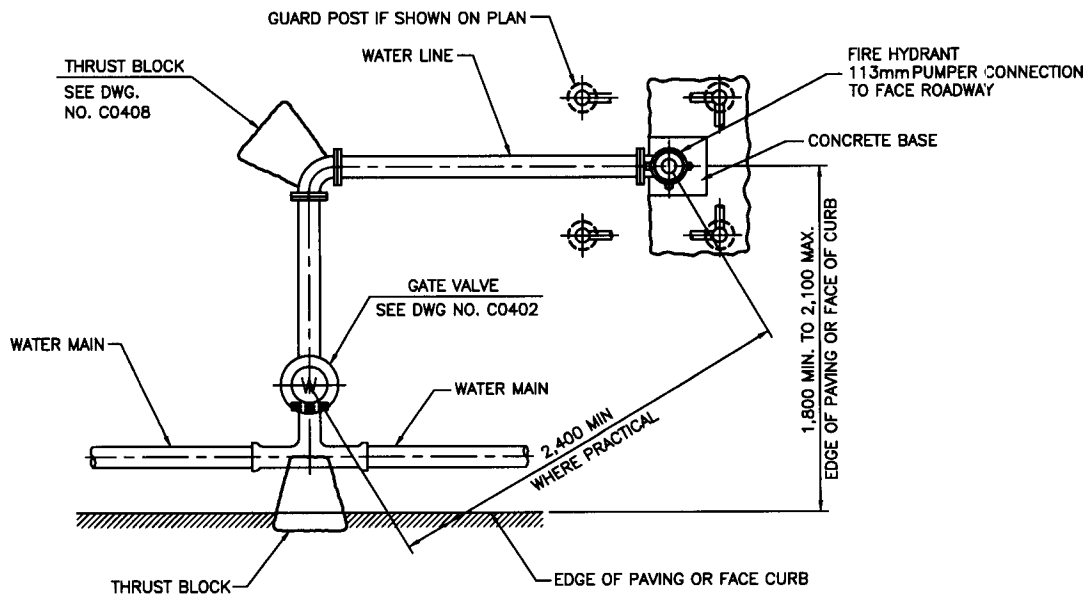
(A) ELEVATION



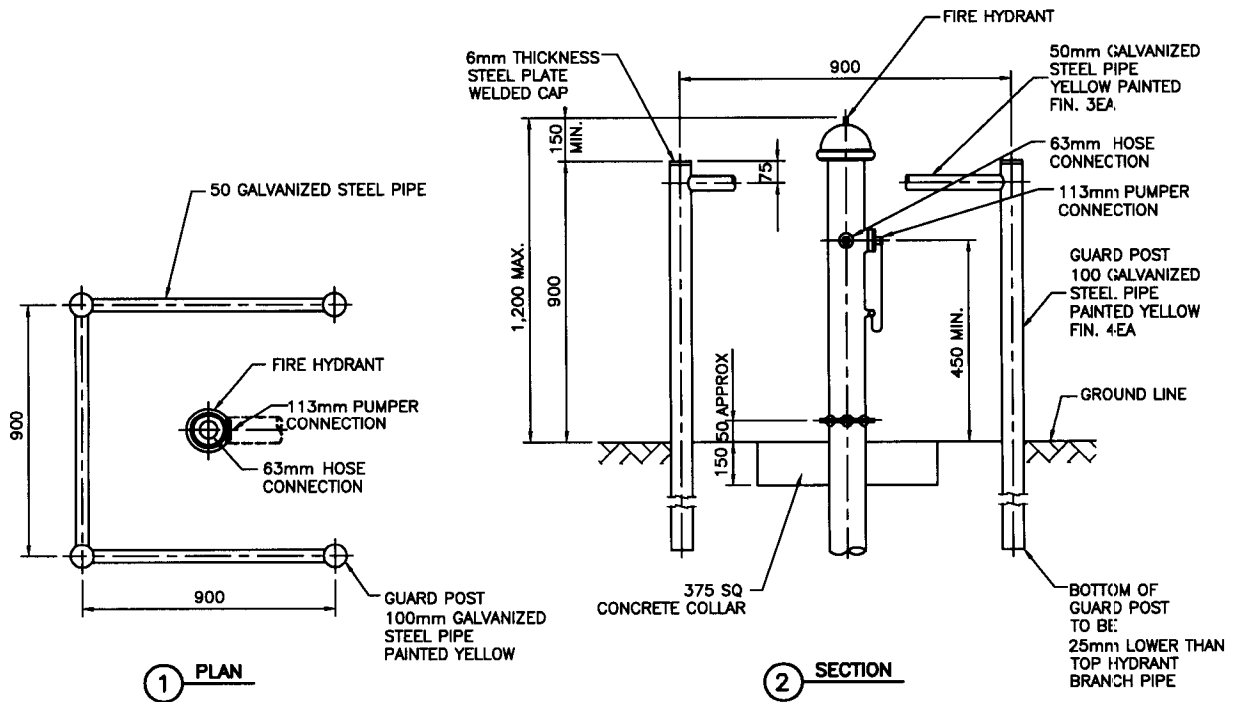
(B) PLAN

TYPICAL FIRE HYDRANT INSTALLATION
NOT TO SCALE

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER			REV DATE	DWG NO.
TITLE	FIRE HYDRANT INSTALLATION, TYPICAL	SPEC	02660	OCT 2003
				C0401



A RESTRICTIVE FIRE HYDRANT INSTALLATION
NOT TO SCALE



B FIRE HYDRANT GUARD POST
NOT TO SCALE

NOTE:
FOR AIR FORCE PROJECTS HYDRANT
AND GUARD POST PAINTING REQUIREMENT
ARE TO BE VERIFIED

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER

REV DATE

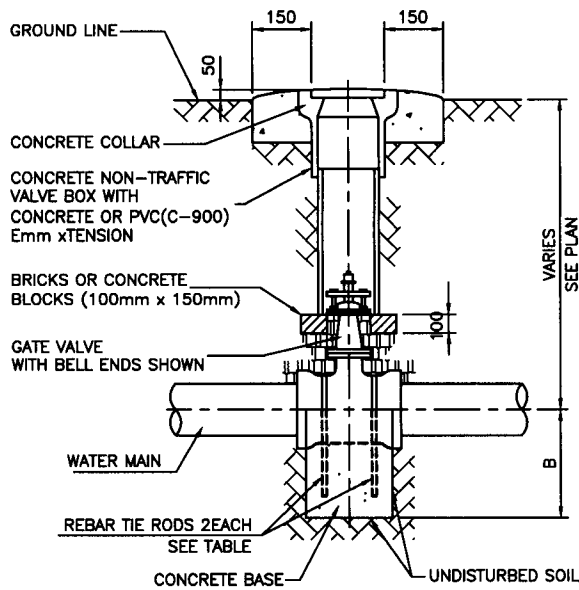
DWG NO.

TITLE RESTRICTIVE FIRE HYDRANT, GUARD POST

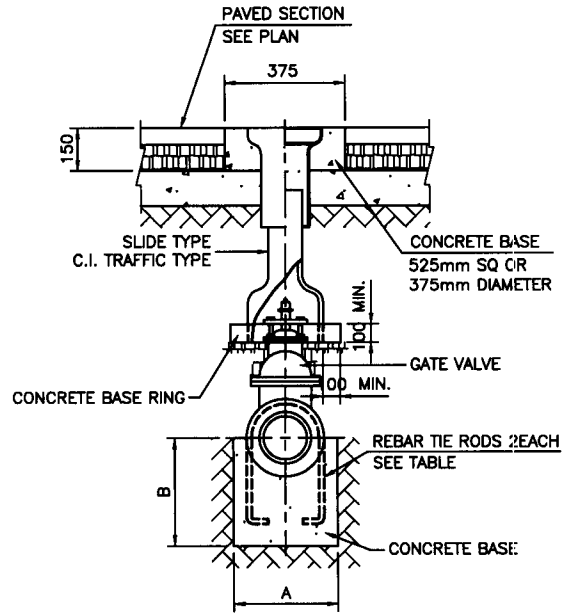
SPEC 02660

OCT 2003

C0402



① NON-TRAFFIC INSTALLATION

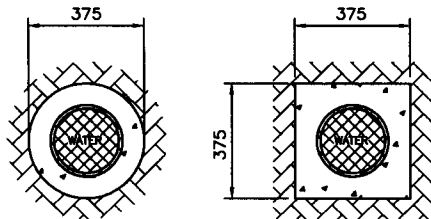


② TRAFFIC INSTALLATION

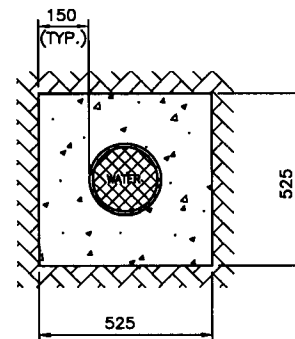
Ⓐ GATE VALVE AND VALVE BOX
NOT TO SCALE

DIMENSION TABLE OF CONCRETE BASE							
VALVE SIZE	A (WIDTH)	B (DEPTH)	TIE ROD	VALVE SIZE	A (WIDTH)	B (DEPTH)	TIE ROD
50	300	300	2-D10 BAR	200	850	850	2-D13 BAR
63	300	300	2-D10 BAR	250	1,050	1,150	2-D16 BAR
75	325	325	2-D10 BAR	300	1,500	1,200	2-D16 BAR
100	450	450	2-D10 BAR	350	1,500	1,800	2-D19 BAR
150	650	650	2-D13 BAR	400	1,500	2,100	2-D19 BAR

NOTE:
SIZE OF CONCRETE BASE IS BASED ON 175.8 tonf/m² PRESSURE IN THE PIPE AND 1.17 tonf/cmf² SOIL BEARING PRESSURE



① C.I. VALVE BOXES
TRAFFIC TYPE



② CONCRETE VALVE BOX
NON-TRAFFIC TYPE

Ⓑ PLAN - VALVE BOX
NOT TO SCALE

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER

REV DATE

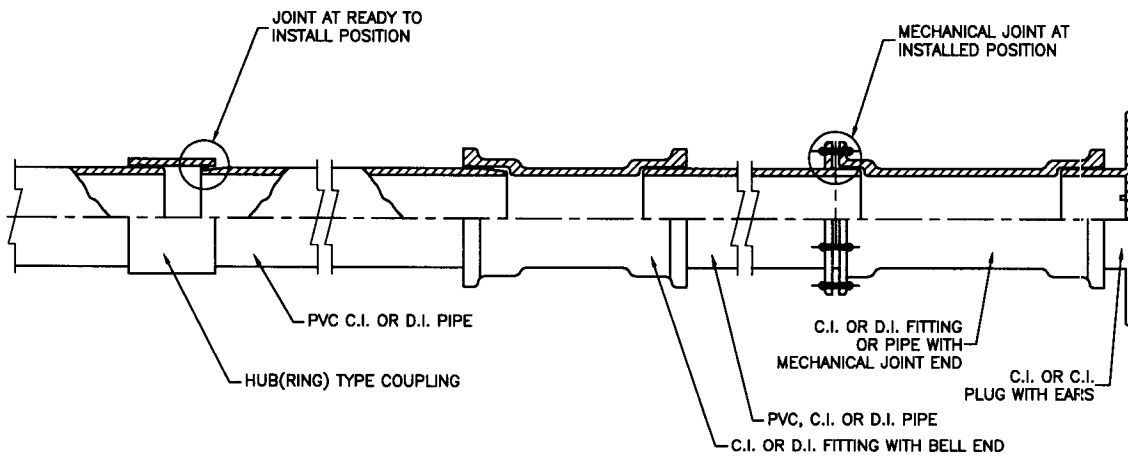
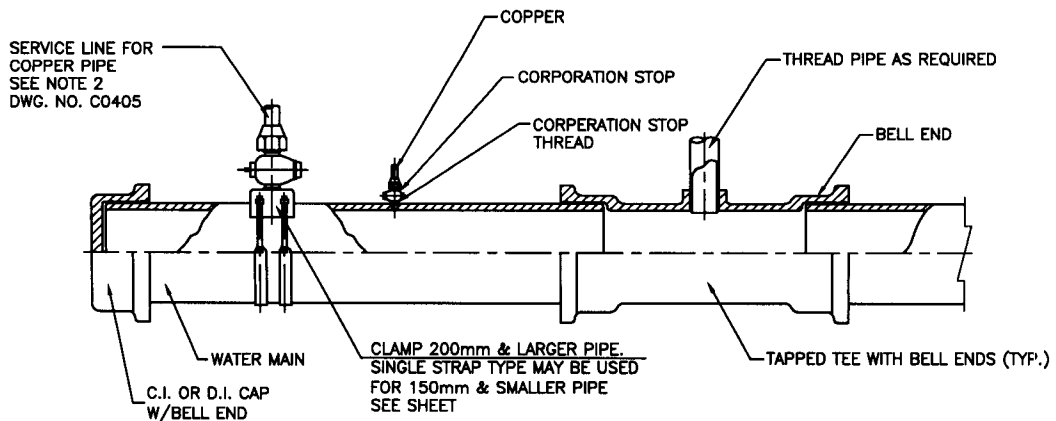
DWG NO.

TITLE GATE VALVE & VALVE BOX

SPEC 02660

OCT 2003

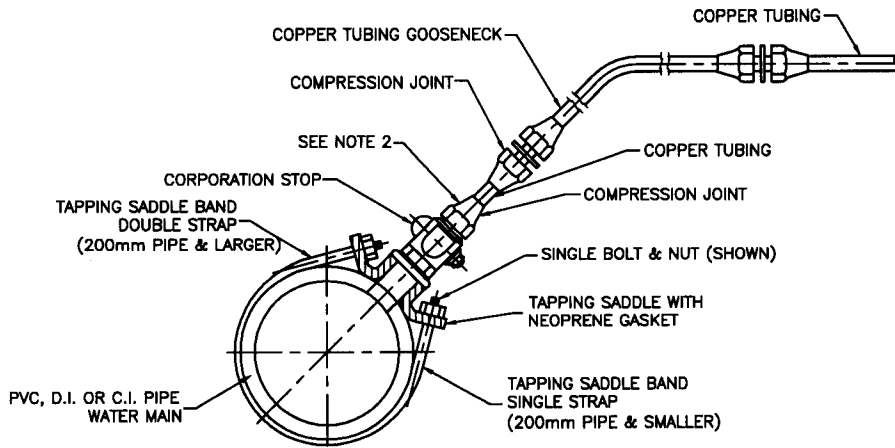
C0403



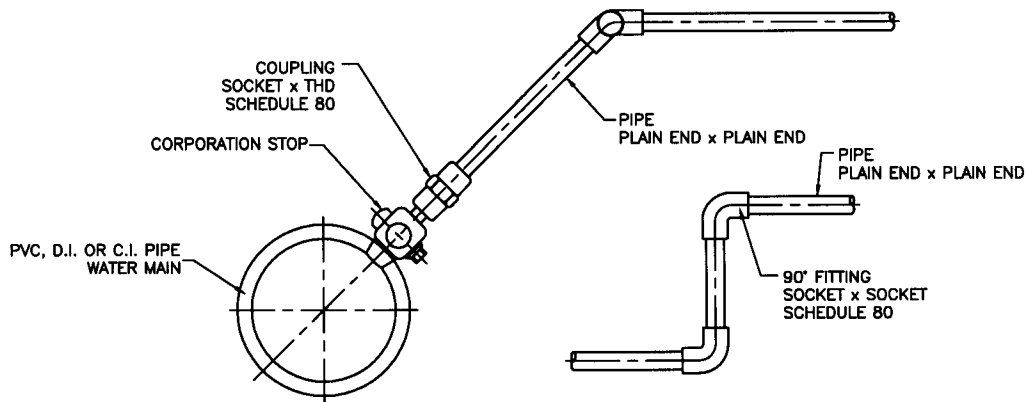
MISCELLANEOUS PIPE INSTALLATION DETAILS

NOT TO SCALE

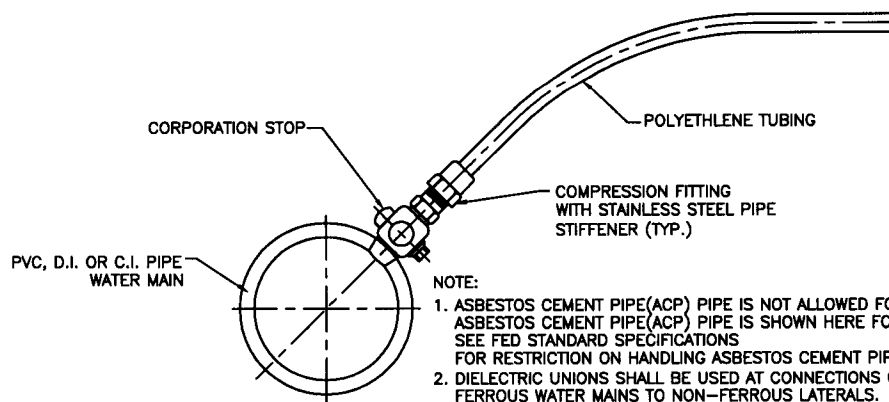
IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	MISCELLANEOUS PIPE INSTALLATION	SPEC	02660	OCT 2003	C0404



(A) TAPPING SADDLE WITH COPPER SERVICE – 19mm TO 50mm
NOT TO SCALE



(B) CORPORATION STOP WITH PVC SERVICE – 19mm TO 50mm
NOT TO SCALE

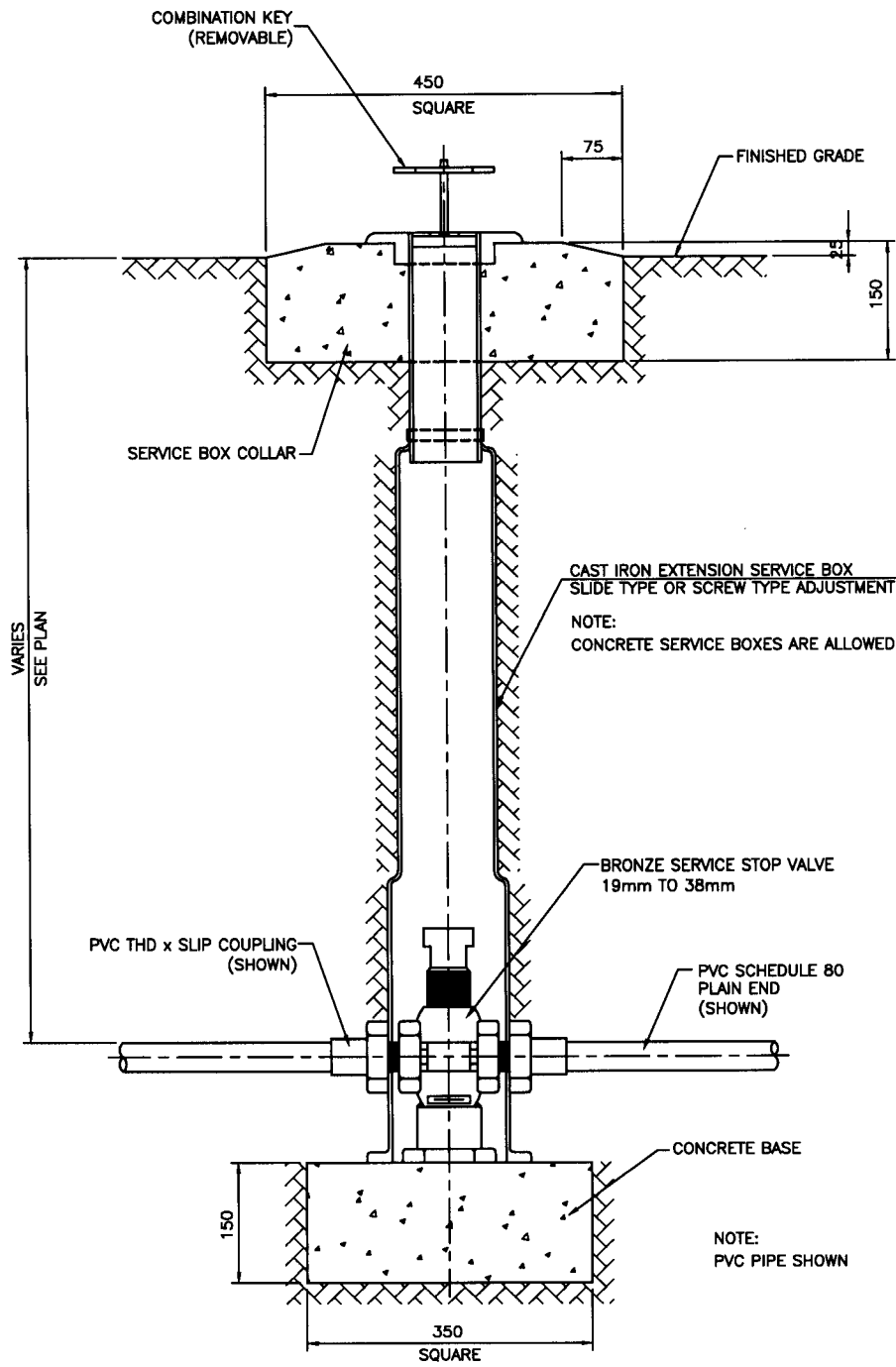


(C) CORPORATION STOP WITH POLYETHYLENE SERVICE – 19mm TO 50mm
NOT TO SCALE

WATER SERVICE CONNECTION

NOT TO SCALE

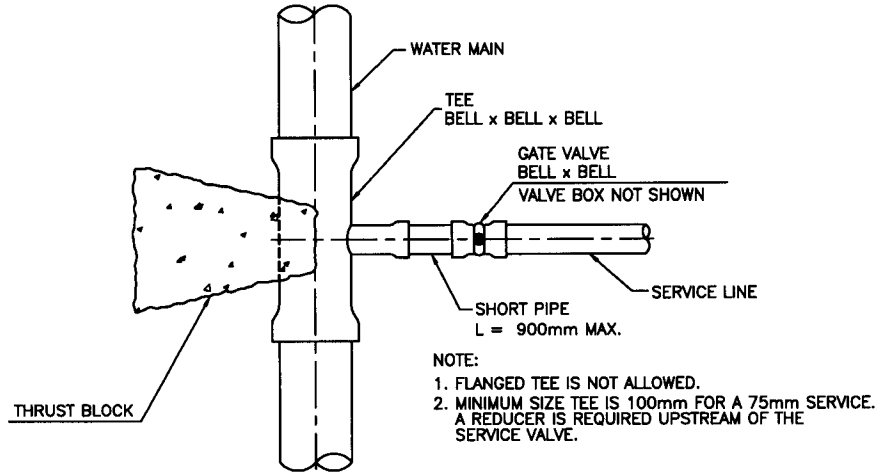
IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER		REV DATE	DWG NO.
TITLE	WATER SERVICE CONNECTION	SPEC 02660	OCT 2003 C0405



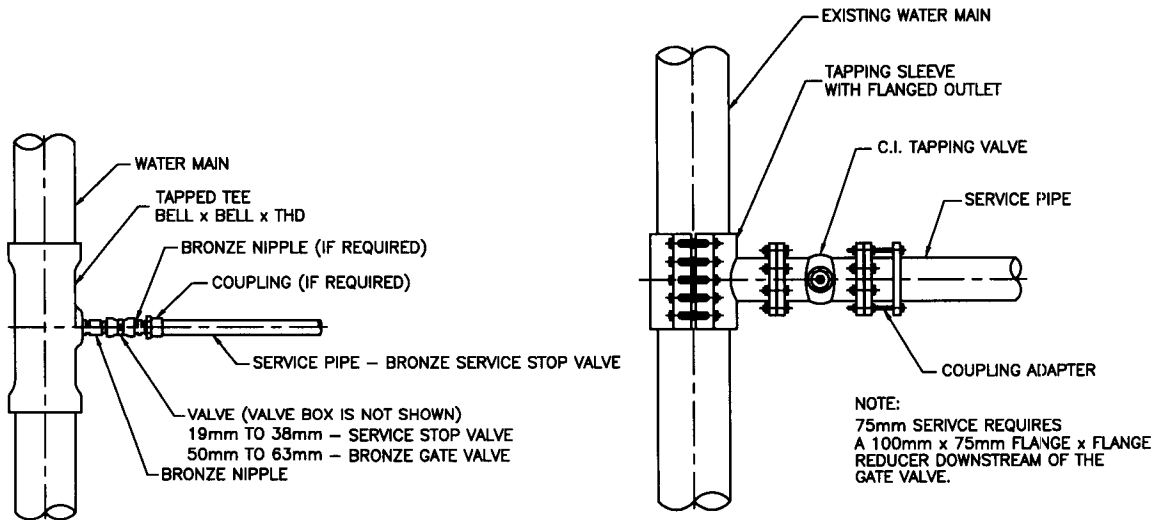
(A) TYPICAL SERVICE STOP
NOT TO SCALE

WATER SERVICE CONNECTION
NOT TO SCALE

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER		REV DATE	DWG NO.
TITLE	TYPICAL SERVICE STOP, WATER SERVICE CONNECTION	SPEC 02660	OCT 2003 C0406



A 75mm AND LARGER SERVICE - NEW PIPE LINE
NOT TO SCALE



B 19mm TO 63mm SERVICE - TAPPED TEE
NOT TO SCALE

C 75mm AND LARGER SERVICE - TAPPING SLEEVE
NOT TO SCALE

WATER SERVICE CONNECTION

NOT TO SCALE

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER

REV DATE

DWG NO.

TITLE

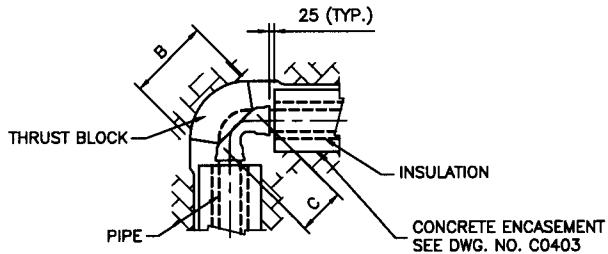
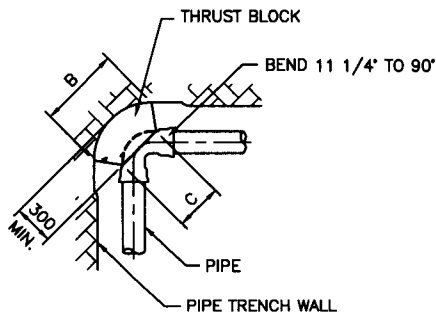
TAPPED TEE, TAPPING SLEEVE, WATER SERVICE CONNECTION

SPEC

02660

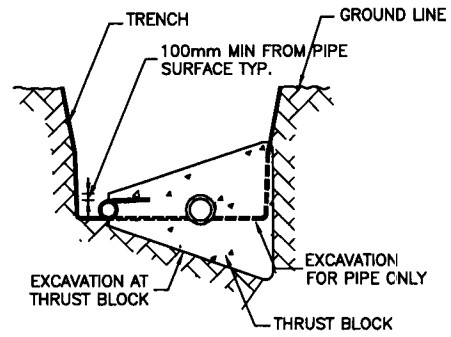
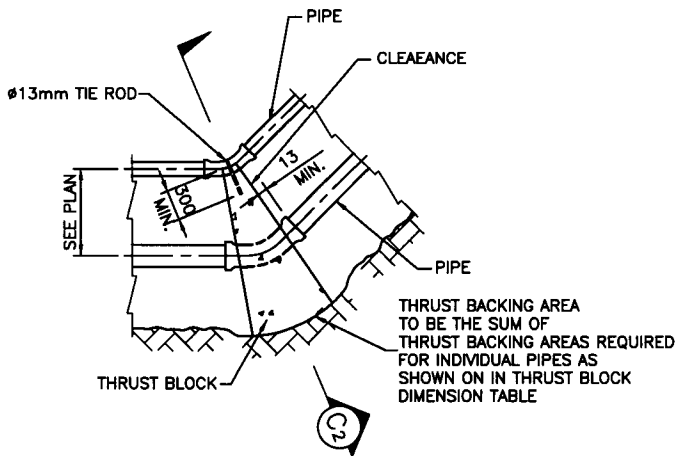
OCT 2003

C0407



NOTE : SEE TABLE ON DEG. NO. C0403 FOR ANGLE ① ② ③ ④

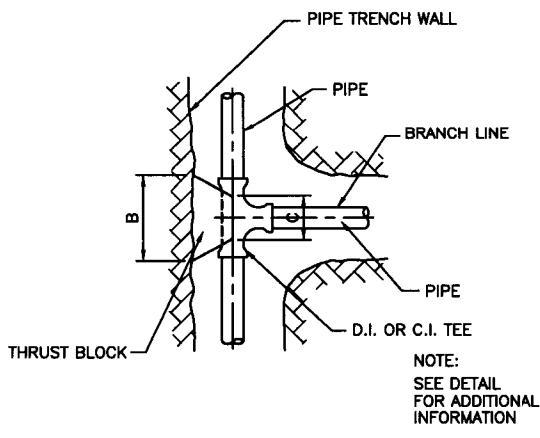
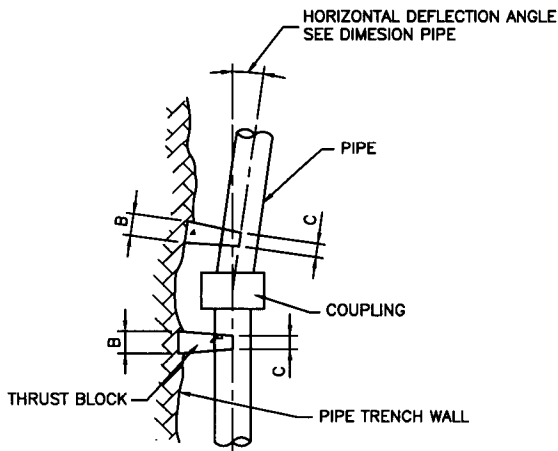
A PIPE BEND - AT ANGLE ① ② ③ ④ **B** CONCRETE ENCASED INSULATED PIPE AT ANGLE - ① ② ③ ④



1 PLAN

2 SECTION

C DOUBLE PIPE BEND

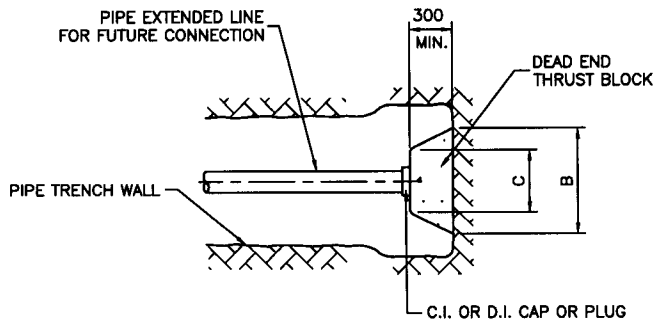


D PIPE DEFLECTION - ⑤

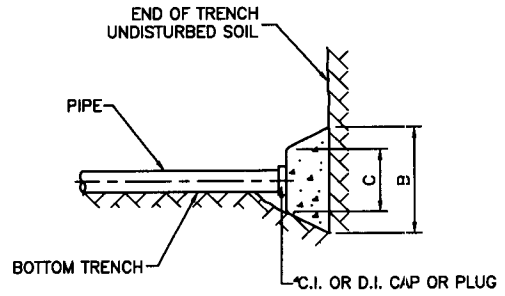
E TEE - ⑥

THRUST BLOCK
NOT TO SCALE

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER		REV DATE	DWG NO.
TITLE	THRUST BLOCK - 1	SPEC 02660	OCT 2003 C0408

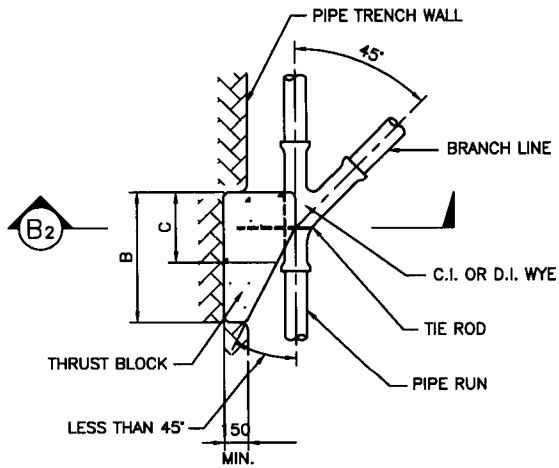


① PLAN

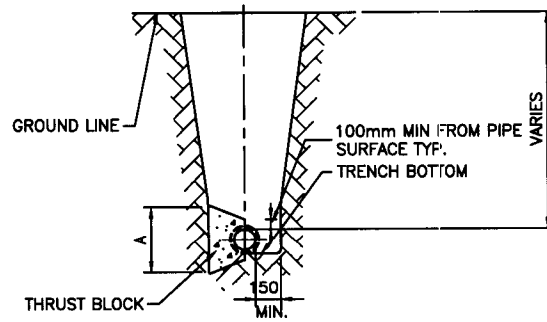


② ELEVATION

Ⓐ DEAD END - ⑦



① PLAN

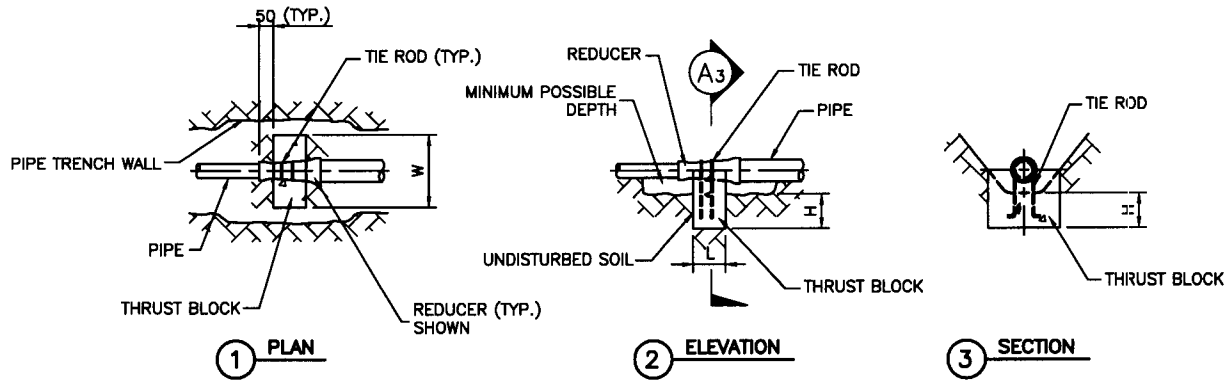


② TYP. SECTION

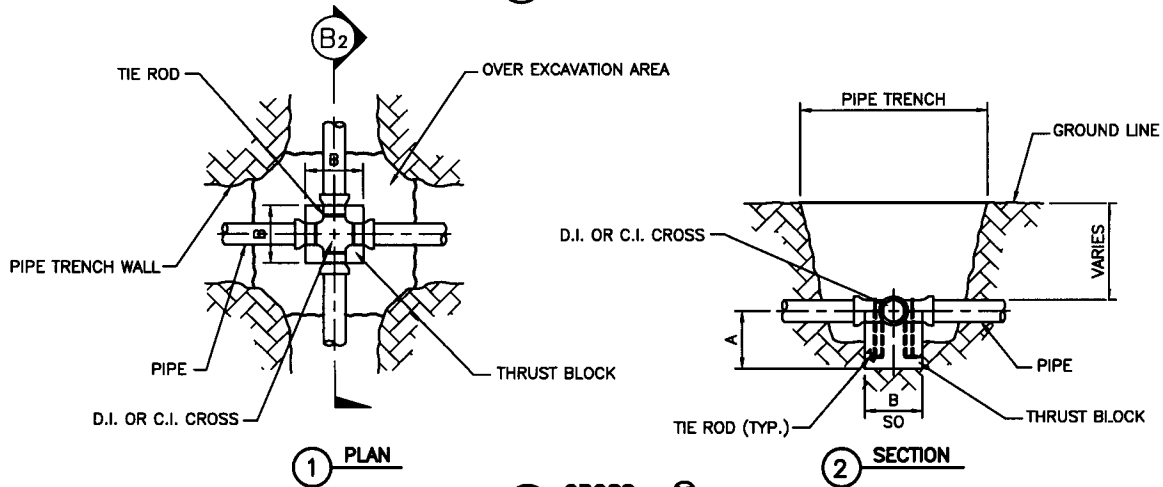
Ⓑ WYE BRANCH - ⑧

THRUST BLOCK
NOT TO SCALE

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER		REV DATE	DWG NO.
TITLE	THRUST BLOCK - 2	SPEC 02660	OCT 2003 C0409



A REDUCER - 3



B CROSS - 10

DEFLECTION ANGLE OFFSET DISTANCE				
PIPE DIAMETER (mm)	PVC (OFFSET FOR L = 6,000)		C.I. OR D.I. (OFFSET FOR L = 5,400)	
	BELL END mm	HUB END mm	BELL END mm	MECH JOINT mm
100	425	425	375	625
150	425	425	375	550
200	425	425	375	400
250	425	425	375	400
300	425	425	375	400
350	-	-	225	275
400	-	-	225	275

NOTE:

1. CAST IRON OR DUCTILE IRON BELL FITTINGS ARE SHOWN ON THIS SHEET. OTHER ARE APPROVED FITTING MAY BE USED.
2. FROMS ARE NOT REQUIRED FOR INSTALLATION OF THRUST BLOCKS.
3. ALL EXPOSED FERROUS SURFACES TO BE COATED WITH COAL TAR ENAMEL.
4. CONCRETE SHALL BE 140 kgf/cm²
5. THE CONTRACTOR OR CONSTRUCTION DIVISION SHOULD DETERMINE. THE ACTUAL ALLOWABLE BEARING CAPACITY OF THE IN SITU. SOIL IN DETERMINING THE SIZING OF THE THRUST BLOCKS.

THRUST BLOCK

NOT TO SCALE

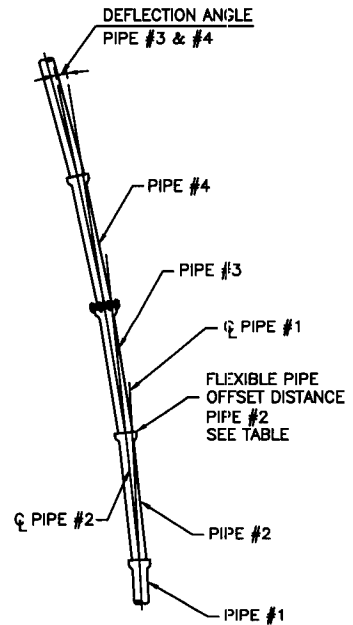
IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER			REV DATE	DWG NO.
TITLE	THRUST BLOCK - 3	SPEC	02660	OCT 2003
				C0410

DIMENSION TABLE FOR THRUST BLOCK - (I)

TYPE	PIPE SIZE	① 1/4(90°) BEND			② 1/8(45°) BEND			③ 1/16(22 1/2°) BEND			④ 1/32(11 1/4°) BEND			⑤ PIPE DEFECTION		
		A	B	C	A	B	C	A	B	C	A	B	C	A	B	C
		DEPTH	DEPTH	DEPTH	DEPTH	DEPTH	DEPTH	DEPTH	DEPTH	DEPTH	DEPTH	DEPTH	DEPTH	DEPTH	DEPTH	DEPTH
TYPE - I SOIL BEARING PRESSURE 1.17 tonf/cm ²	100	525	525	300	375	375	225	300	300	225	300	300	-	225	225	150
	150	775	775	450	650	650	225	400	400	225	300	300	225	300	300	150
	200	1,025	1,025	525	750	750	300	550	550	300	400	400	225	300	300	150
	250	1,300	1,300	525	950	950	375	675	675	375	475	475	300	325	325	150
	300	1,550	1,550	675	1,150	1,150	450	825	825	375	600	600	375	400	400	150
	350	1,800	1,800	750	1,350	1,350	450	950	950	450	675	675	450	450	450	150
	400	2,075	2,075	900	1,525	1,525	600	1,100	1,100	525	775	775	450	525	525	225
TYPE - II SOIL BEARING PRESSURE 1.56 tonf/cm ²	100	450	450	300	350	350	225	300	225	225	-	-	-	-	-	-
	150	675	675	375	575	575	225	350	350	225	300	300	225	-	-	-
	200	900	900	525	675	675	300	475	475	300	350	350	225	-	-	-
	250	1,125	1,125	525	825	825	375	600	600	375	425	425	225	300	300	150
	300	1,350	1,350	675	1,000	1,000	450	725	725	450	500	500	300	350	350	150
	350	1,575	1,575	675	1,175	1,175	450	825	825	450	600	600	300	400	400	150
	400	1,800	1,800	750	1,325	1,325	600	950	950	450	675	675	300	450	450	150

TYPE	PIPE SIZE	⑥ TEE BRANCH			⑦ DEAD END			⑧ WYE			
		A	B	C	A	B	C	A	B	C	TIE ROD
		DEPTH	DEPTH	DEPTH	DEPTH	DEPTH	DEPTH	DEPTH	DEPTH	DEPTH	DEPTH
TYPE - I SOIL BEARING PRESSURE 1.17 tonf/cm ²	100	450	450	225	450	450	300	450	450	150	Ø13
	150	650	650	300	650	650	450	650	650	225	Ø19
	200	875	875	450	875	875	450	875	875	300	Ø19
	250	1,100	1,100	525	1,100	1,100	650	1,100	1,100	450	Ø25
	300	1,300	1,300	600	1,300	1,300	850	1,300	1,300	600	Ø25
	350	1,525	1,525	675	1,525	1,525	1,075	-	-	-	- NA -
	400	1,750	1,750	750	1,750	1,750	1,300	-	-	-	- NA -
TYPE - II SOIL BEARING PRESSURE 1.56 tonf/cm ²	100	375	375	225	375	375	300	375	375	150	Ø13
	150	575	575	300	575	575	300	575	575	225	Ø19
	200	750	750	375	750	750	450	750	750	300	Ø19
	250	950	950	450	950	950	500	950	950	450	Ø25
	300	1,125	1,125	525	1,125	1,125	750	1,125	1,125	600	Ø25
	350	1,325	1,325	600	1,325	1,325	825	-	-	-	- NA -
	400	1,500	1,500	675	1,500	1,500	1,050	-	-	-	- NA -

NOTE:
 1. DIMENSION "C" AS SHOWN IN TABLE IS MINIMUM ALLOWABLE DIMENSION AND MAY BE EXCEEDED AS LONG AS NO PART OF THE FITTING JOINT IS COVERED BY CONCRETE.
 2. TEE AND 45° BEND TO BE USED IN LIEU OF "WYE" FOR 350mm AND 400mm BRANCH PIPE SIZE.



(A) HORIZONTAL PIPE DEFECTION

DIMENSION TABLE FOR THRUST BLOCK - (II)								
⑨ REDUCER					⑩ CROSS			
REDUCER	W	H	L	TIE ROD	PIPE SIZE	A	B	TIE SIZE
150 x 100	500	500	300	Ø1-19	100	-	-	-
200 x 100	750	750	300	Ø1-25	150	-	-	-
200 x 150	600	600	300	Ø1-19	200	525	825	Ø2-13
250 x 150	875	875	300	Ø2-25	250	525	825	Ø2-13
250 x 200	650	650	300	Ø1-25	300	675	975	Ø2-19
300 x 150	1,125	1,125	375	Ø2-6	350	675	975	Ø2-19
300 x 200	975	975	375	Ø2-25	400	675	975	Ø2-19
300 x 250	725	725	300	Ø2-25				
350 x 200	1,250	1,250	375	Ø2-06				
350 x 250	1,050	1,050	375	Ø2-25				
350 x 300	650	650	375	Ø1-31				
400 x 250	1,350	1,350	375	Ø2-38				
400 x 300	1,175	1,175	375	Ø2-31				
400 x 350	850	850	375	Ø1-31				

NOTE:
 DIMENSIONS OF THRUST BLOCKS FOR CROSS AND REDUCER TO BE USED FOR ALL TYPES OF SOIL UNLESS OTHERWISE INDICATED ON THE PLANS.

THRUST BLOCK
 NOT TO SCALE

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER

REV DATE

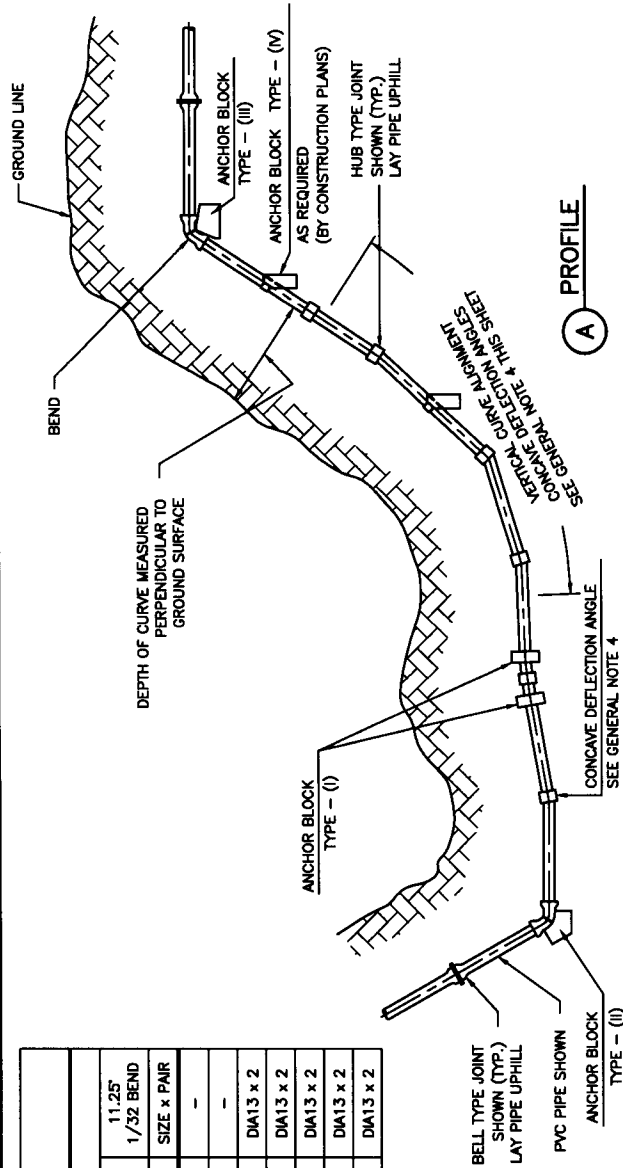
DWG NO.

TITLE THRUST BLOCK - 4, DIMENSION TABLE

SPEC 02660

OCT 2003

C0411



TIE ROD TABLE					
PIPE SIZE	TYPE - (I) BLOCK	TYPE - (II) BLOCK			
		90° BEND	45° BEND	22.5° BEND	11.25° BEND
	SIZE x PAIR	SIZE x PAIR	SIZE x PAIR	SIZE x PAIR	SIZE x PAIR
100	13	DA13 x 2	DA13 x 2	-	-
150	13	DA13 x 2	DA13 x 2	DA13 x 2	-
200	13	DA19 x 2	DA13 x 2	DA13 x 2	DA13 x 2
250	19	DA19 x 2	DA13 x 2	DA13 x 2	DA13 x 2
300	19	DA25 x 2	DA19 x 2	DA13 x 2	DA13 x 2
350	25	DA25 x 2	DA19 x 2	DA13 x 2	DA13 x 2
400	25	DA16 x 2	DA25 x 2	DA19 x 2	DA13 x 2

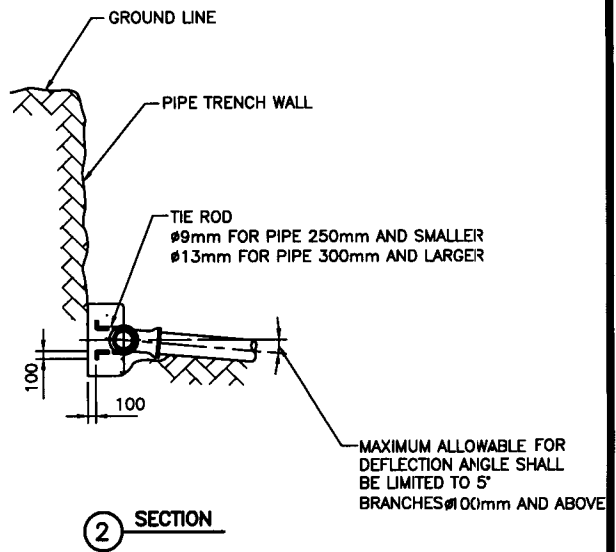
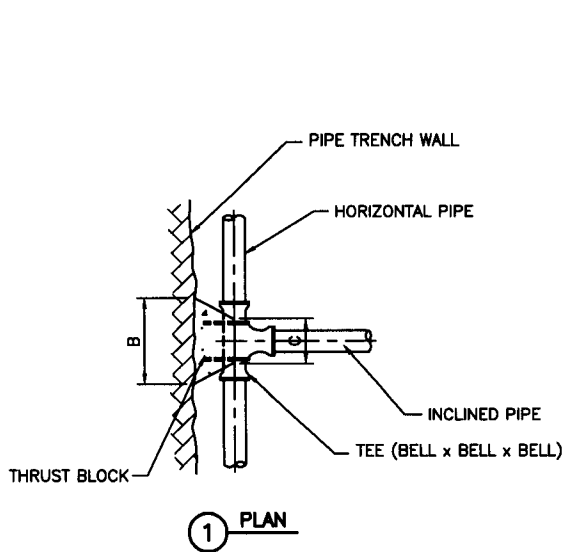
NOTE:
 1. ASSUMED 17.6 kgf/cm² INTERNAL PIPE PRESSURE.
 2. ALL EXPOSED STEEL SHALL BE COALTER ENAMEL COATED.

PIPE SIZE	TYPE - (I) PIPE DEFLECTION	DIMENSION TABLE FOR ANCHOR BLOCKS																
		TYPE - (II)				TYPE - (III)				TYPE - (IV)								
		1/4(90°) BEND	1/8(45°) BEND	1/16(22.5°) BEND	1/32(11°) BEND	1/4(90°) BEND	1/8(45°) BEND	1/16(22.13°) BEND	1/32(11/4°) BEND	1/4(90°) BEND	1/8(45°) BEND	1/16(22.13°) BEND	1/32(11/4°) BEND					
100	-	525	400	400	300	300	300	-	825	825	825	825	600	600	600	500	500	500
150	-	800	800	850	400	400	400	300	1050	1050	1050	1050	975	975	975	750	750	750
200	450	1050	1050	775	550	550	550	400	1325	1325	1325	1325	1175	1175	1175	975	975	975
250	450	1300	1300	950	675	675	675	450	1525	1525	1525	1525	1350	1350	1350	1125	1125	1125
300	600	1550	1550	1150	825	825	825	525	1725	1725	1725	1725	1550	1550	1550	1275	1275	1275
350	600	1800	1800	1350	950	950	950	675	1925	1925	1925	1925	1700	1700	1700	1375	1375	1375
400	750	2075	2075	1525	1075	1075	1075	775	2100	2100	2100	2100	1800	1800	1800	1500	1500	1500

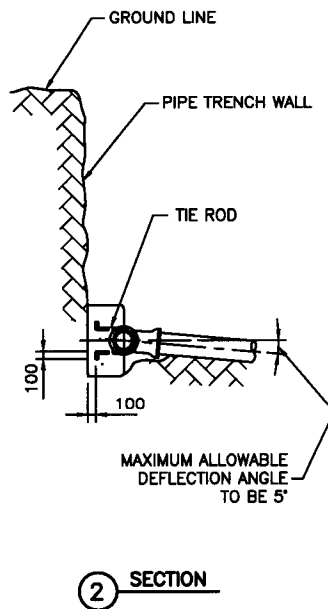
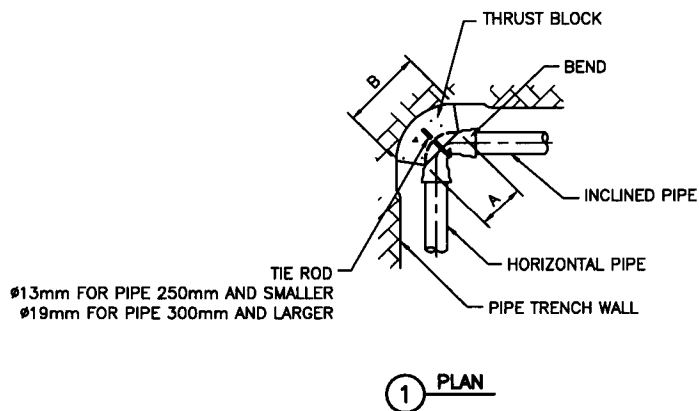
NOTE:
 1. THRUST BLOCK NOTES TO BE APPLIED FOR TYPE - (II) ANCHOR BLOCK.
 2. A DASH(-) INDICATES NO ANCHOR BLOCK IS REQUIRED.
 3. PIPE DEFLECTION - SEE NOTE 4 THIS SHEET.
 4. ANCHOR BLOCK SIZE ASSUMES 17.6 kgf/cm² INTERNAL PIPE PRESSURE AND 1.17 tonf/cm² SOIL BEARING PRESSURE FOR TYPE - (II).

GENERAL NOTES:
 1. DIMENSIONS OF ANCHOR BLOCKS ARE BASED ON MAXIMUM WATER TEST PRESSURE OF 17.6 kgf/cm².
 2. TYPE - (I) ANCHOR BLOCK SHALL BE EXTENDED TO EXCAVATED TRENCH WALLS WITHOUT FORMS TO PRODUCE A FIRM CONTACT WITH UNDISTURBED SOIL.
 3. FORMS ARE NOT REQUIRED FOR INSTALLATION OF ANCHOR BLOCKS.
 4. ALLOWABLE MAXIMUM VERTICAL HUB BELL OR FITTING DEFLECTION ANGLES WITHOUT ANCHOR BLOCK AT JOINTS TO BE 3° FOR PIPE UP TO 200mm DIAMETER 63mm FOR 250mm AND 300mm PIPE AND 38mm FOR 350mm AND 400mm PIPE EXCEPT AS OTHERWISE NOTED ON CONSTRUCTION PLANS.
 5. ALL EXPOSED FERROUS SURFACES TO BE COATED WITH COALTER ENAMEL.
 6. CONCRETE SHALL BE 140 kgf/cm².

ANCHOR BLOCK AND VERTICAL CURVE INSTALLATION
 NOT TO SCALE



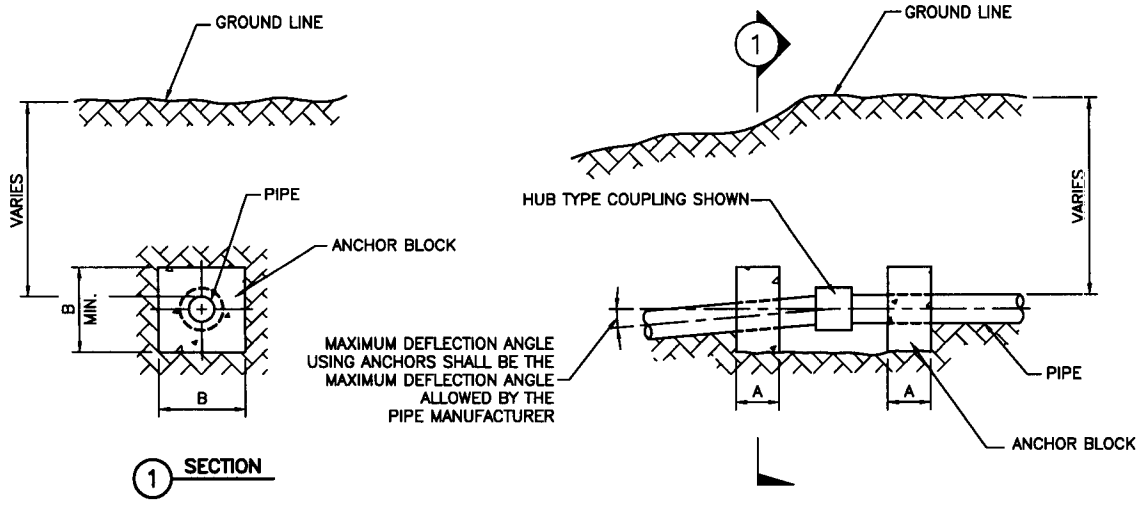
Ⓐ TEE



Ⓑ 90° BEND

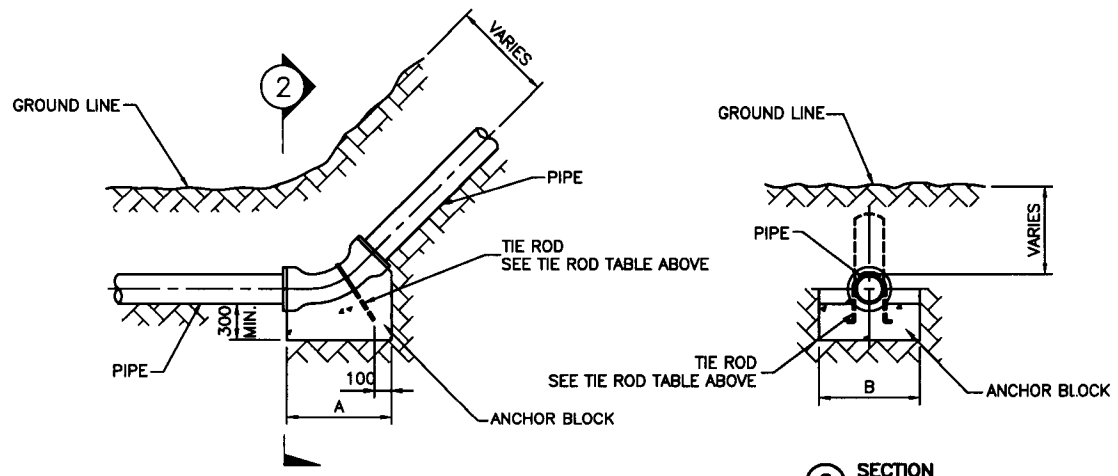
THRUST BLOCK WITH UPWARD THRUST
NOT TO SCALE

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER			REV DATE	DWG NO.
TITLE	THRUST BLOCK WITH UPWARD THRUST	SPEC	02660	OCT 2003
				C0413



1 SECTION

A ANCHOR BLOCK TYPE - (I)
NOT TO SCALE

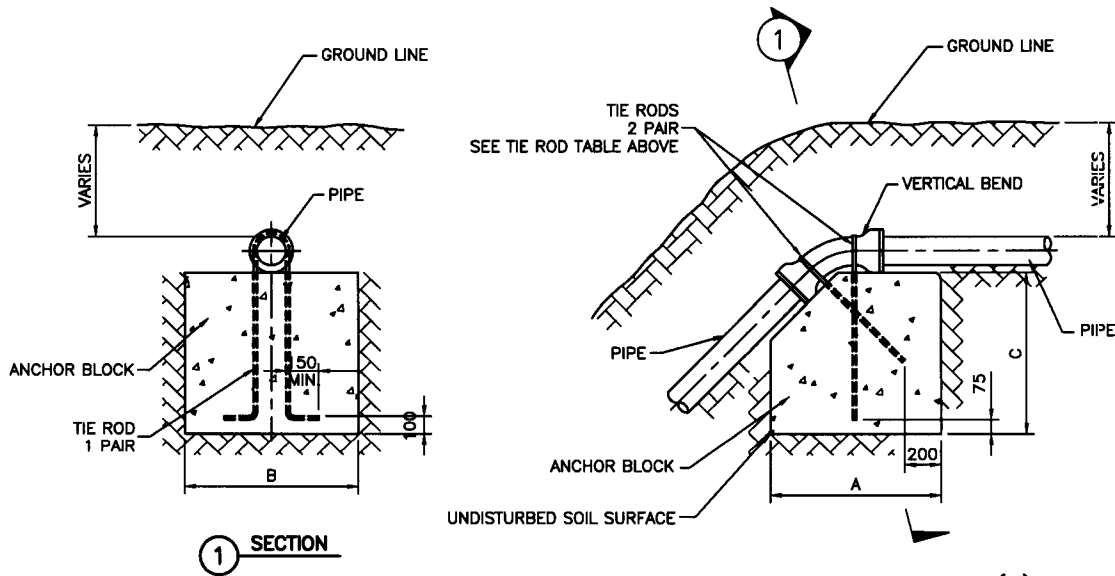


B ANCHOR BLOCK TYPE - (II)
NOT TO SCALE

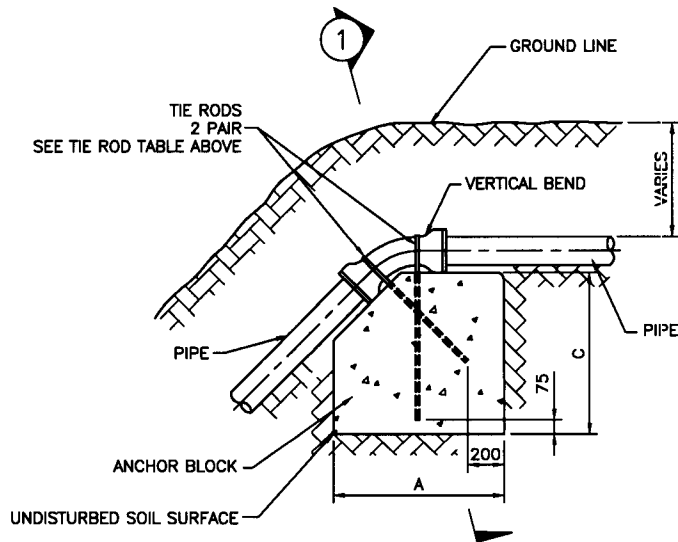
GENERAL NOTES:

1. DIMENSIONS OF ANCHOR BLOCKS ARE BASED ON MAXIMUM WATER TEST PRESSURE OF 17.6 kgf/cm².
2. TYPE - (II) ANCHOR BLOCK SHALL BE EXTENDED TO EXCAVATED TRENCH WALLS WITHOUT FORMS TO PRODUCE A FIRM CONTACT WITH UNDISTURBED SOIL.
3. FORMS ARE NOT REQUIRED FOR INSTALLATION OF ANCHOR BLOCKS.
4. ALLOWABLE MAXIMUM VERTICAL HUB BELL OR FITTING DEFLECTION ANGLES WITHOUT ANCHOR BLOCK AT JOINTS TO BE 3° FOR PIPE UP TO 200mm DIAMETER 63mm FOR 250mm AND 300mm PIPE. AND 38mm FOR 350mm AND 400mm PIPE EXCEPT AS OTHERWISE NOTED ON CONSTRUCTION PLANS.
5. ALL EXPOSED FERROUS SURFACES TO BE COATED WITH COALTAR ENAMEL.
6. CONCRETE SHALL BE 140 kgf/cm².

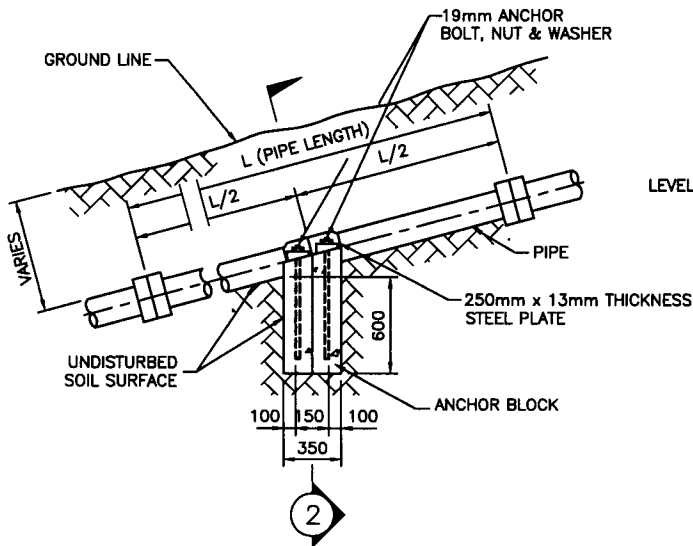
IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	ANCHOR BLOCK TYPE - (I), (II)	SPEC	02660	OCT 2003	C0414



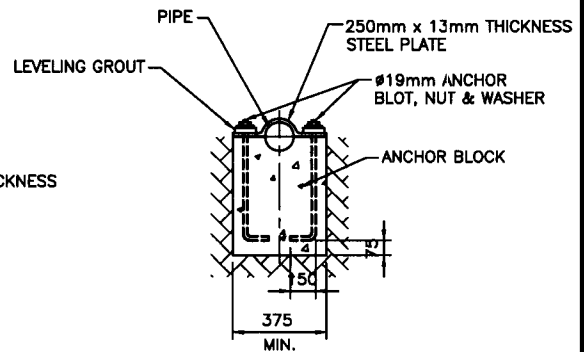
1 SECTION



A ANCHOR BLOCK TYPE - (III)
NOT TO SCALE



B ANCHOR BLOCK TYPE - (IV)
NOT TO SCALE



2 SECTION

GENERAL NOTES:

1. DIMENSIONS OF ANCHOR BLOCKS ARE BASED ON MAXIMUM WATER TEST PRESSURE OF 17.6 kgf/cm².
2. TYPE - (II) ANCHOR BLOCK SHALL BE EXTENDED TO EXCAVATED TRENCH WALLS WITHOUT FORMS TO PRODUCE A FIRM CONTACT WITH UNDISTURBED SOIL.
3. FORMS ARE NOT REQUIRED FOR INSTALLATION OF ANCHOR BLOCKS.
4. ALLOWABLE MAXIMUM VERTICAL HUB BELL OR FITTING DEFLECTION ANGLES WITHOUT ANCHOR BLOCK AT JOINTS TO BE 3° FOR PIPE UP TO 200mm DIAMETER 63mm FOR 250mm AND 300mm PIPE. AND 38mm FOR 350mm AND 400mm PIPE EXCEPT AS OTHERWISE NOTED ON CONSTRUCTION PLANS.
5. ALL EXPOSED FERROUS SURFACES TO BE COATED WITH COALTAR ENAMEL.
6. CONCRETE SHALL BE 140 kgf/cm².

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER

REV DATE

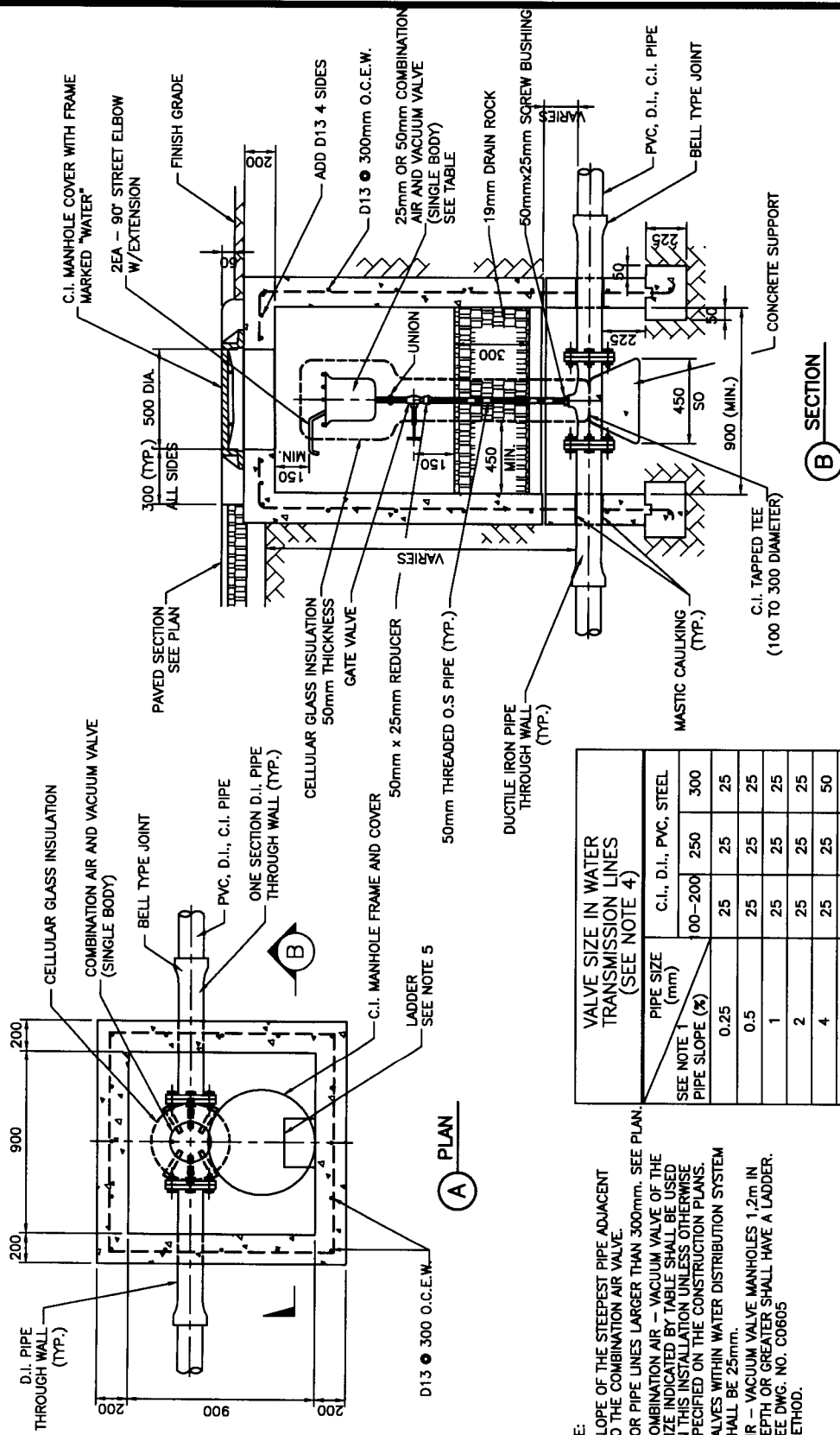
DWG NO.

TITLE ANCHOR BLOCK TYPE - (III), (IV)

SPEC 02660

OCT 2003

C0415



VALVE SIZE IN WATER TRANSMISSION LINES (SEE NOTE 4)

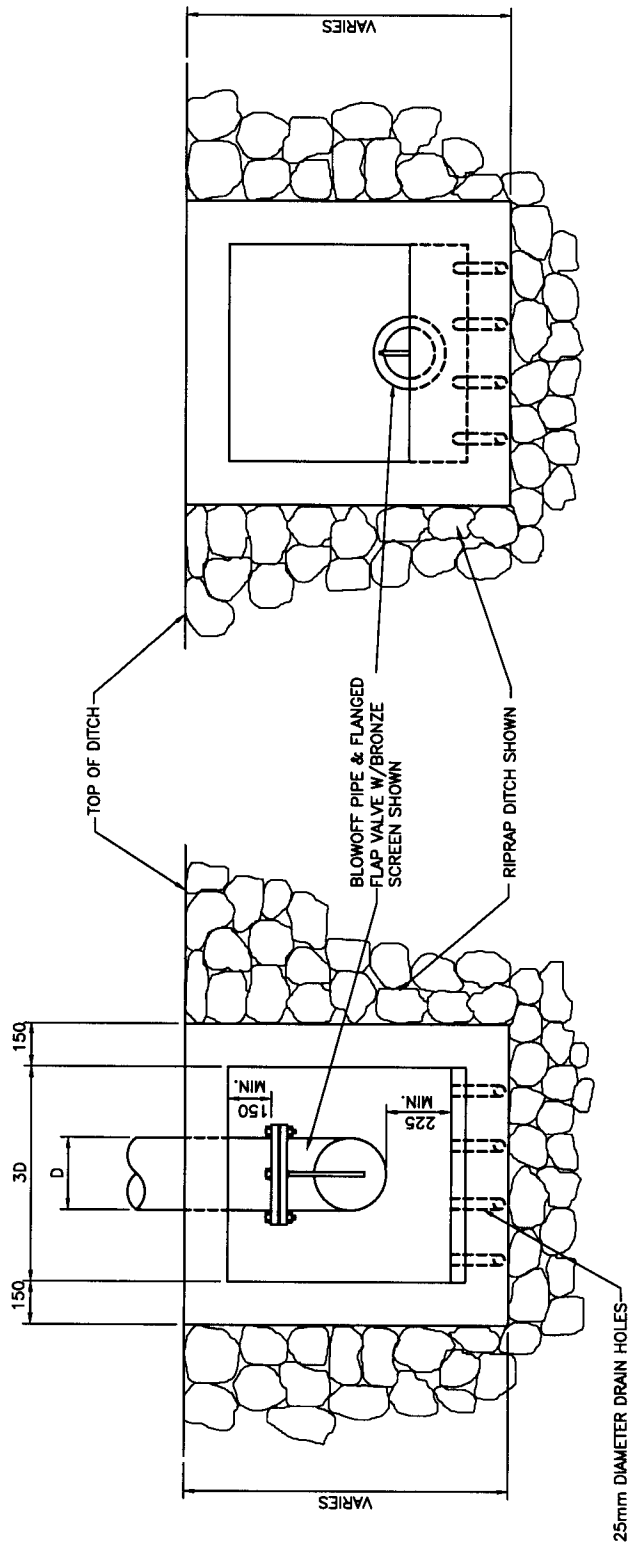
PIPE SIZE (mm)	C.I., D.I., PVC, STEEL	
	100-200	250 300
0.25	25 25	25 25
0.5	25 25	25 25
1	25 25	25 25
2	25 25	25 25
4	25 25	25 25
7	25 25	25 25
10	25 25	25 25

- NOTE:
1. SLOPE OF THE STEEPEST PIPE ADJACENT TO THE COMBINATION AIR VALVE.
 2. FOR PIPE LINES LARGER THAN 300mm. SEE PLAN.
 3. COMBINATION AIR - VACUUM VALVE OF THE SIZE INDICATED BY TABLE SHALL BE USED IN THIS INSTALLATION UNLESS OTHERWISE SPECIFIED ON THE CONSTRUCTION PLANS.
 4. VALVES WITHIN WATER DISTRIBUTION SYSTEM SHALL BE 25mm.
 5. AIR - VACUUM VALVE MANHOLES 1.2m IN DEPTH OR GREATER SHALL HAVE A LADDER. SEE DWG. NO. C0605 METHOD.

COMBINATION AIR - VACUUM VALVE INSTALLATION

NOT TO SCALE

TITLE		SPEC		REV DATE	DWG NO.
COMBINATION AIR - VACUUM VALVE		02660		OCT 2003	C0416
IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER					



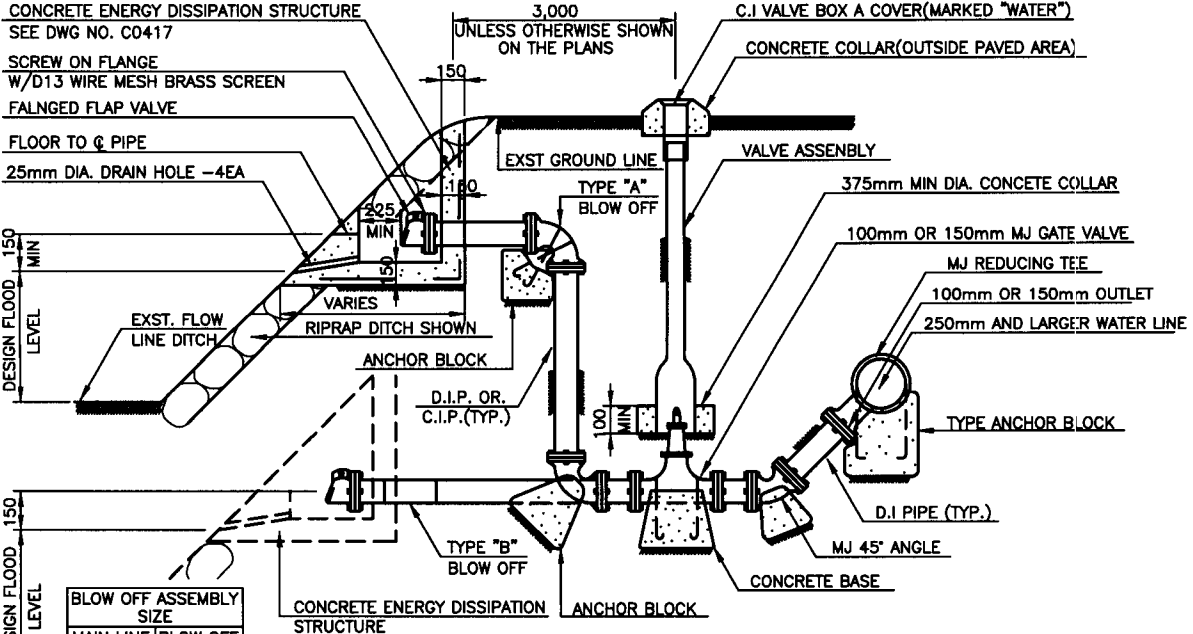
(A) PLAN

(B) ELEVATION

NOTE:
 PROVIDE D13 REINFORCEMENT AT 300mm O.C. BOTH WAYS
 WITH 300mm MINIMUM OVERLAP AT CORNERS.

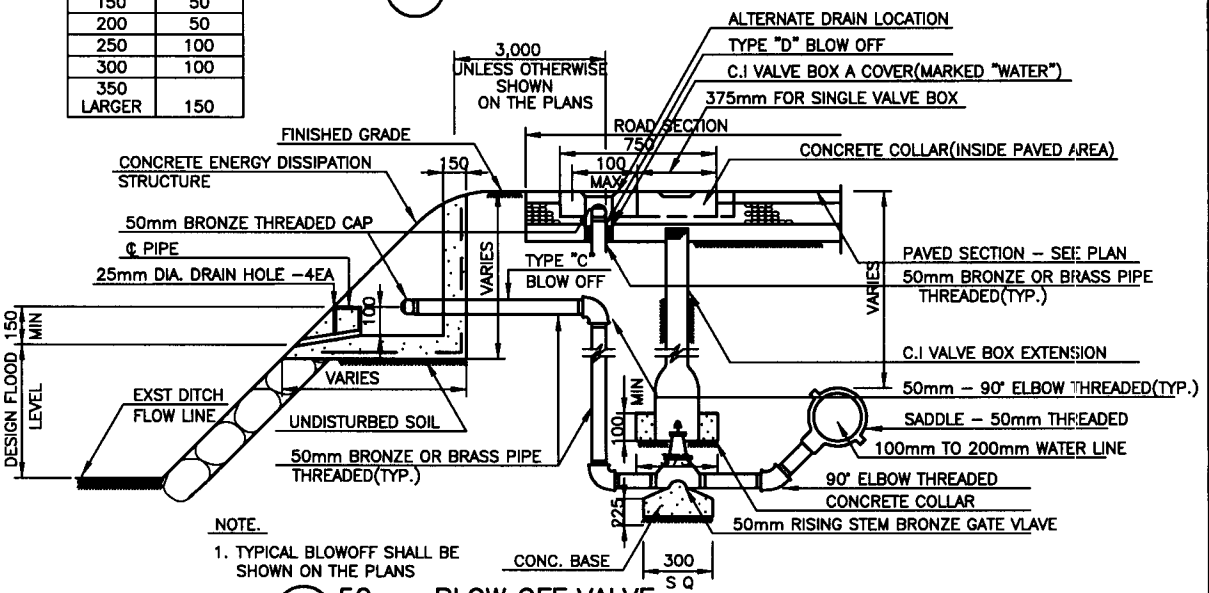
CONCRETE ENERGY DISSIPATION STRUCTURE
NOT TO SCALE

TITLE		CONCRETE ENERGY DISSIPATION STRUCTURE		SPEC		02660		REV DATE		OCT 2003		DWG NO.		C0417	
IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER															



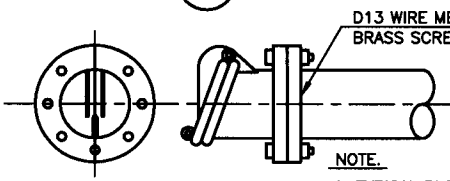
BLOW OFF ASSEMBLY SIZE	
MAIN LINE SIZE	BLOW OFF SIZE
100	50
150	50
200	50
250	100
300	100
350	150
LARGER	150

(A) 100mm AND 150mm BLOW OFF VALVE

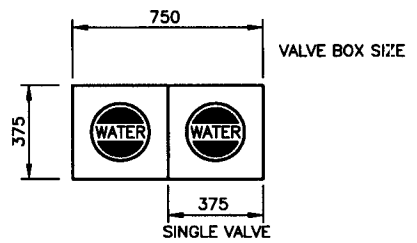


NOTE:
1. TYPICAL BLOWOFF SHALL BE SHOWN ON THE PLANS

(B) 50mm BLOW OFF VALVE



(C) DETAIL FLAP VALVE

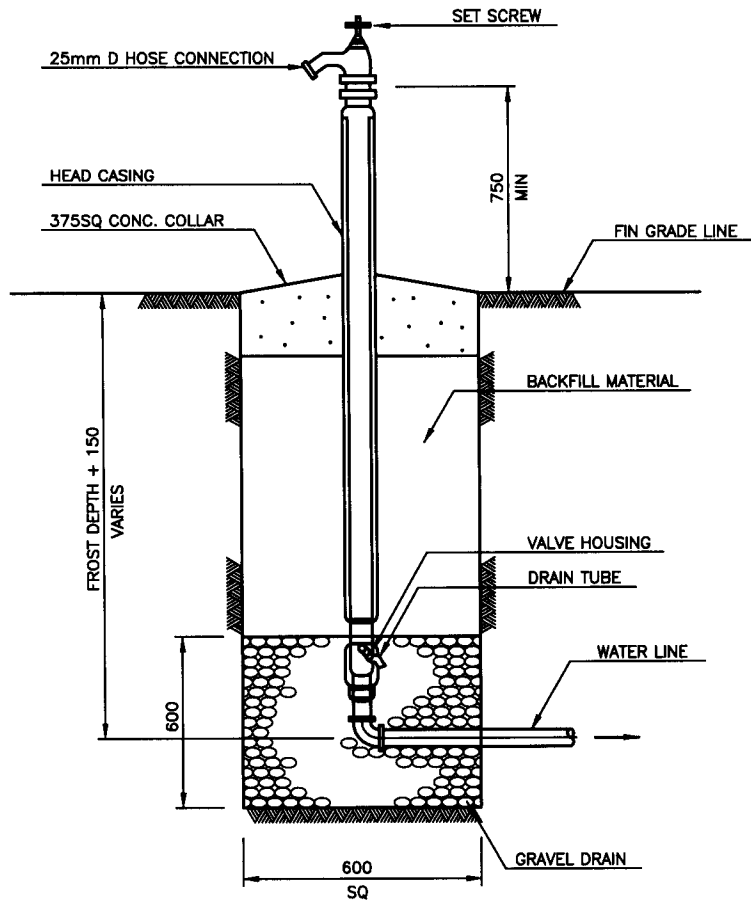


(C) DETAIL

BLOW OFF VALVE INSTALLATION

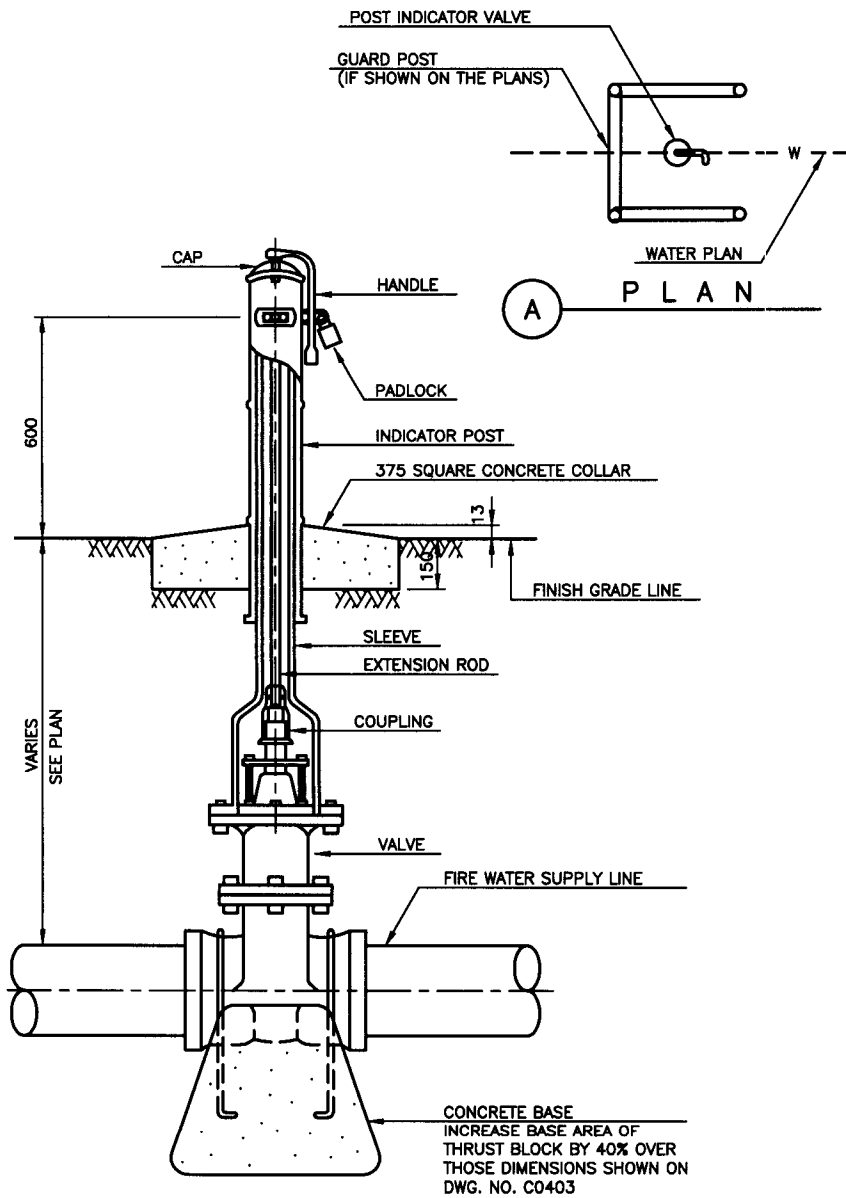
NOT TO SCALE

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER		REV DATE	DWG NO.
TITLE	BLOW-OFF VALVE INSTALLATION	SPEC	02660
		OCT 2003	C0418



25mm FREEZE PROOF HOSE BIBB
NOT TO SCALE

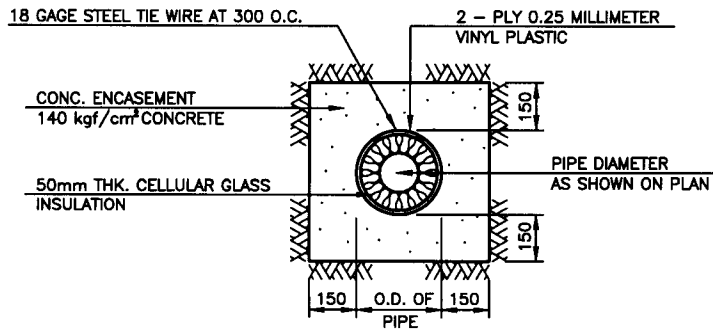
IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER			REV DATE	DWG NO.
TITLE	25mm FREEZE PROOF HOSE BIBB	SPEC	02660	OCT 2003
				C0419



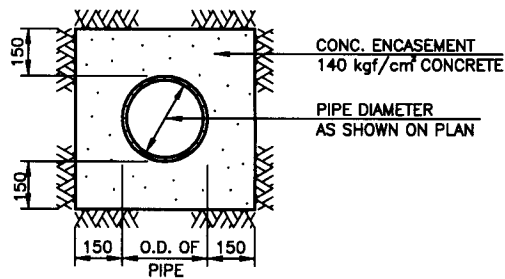
POST INDICATOR VALVE

NOT TO SCALE

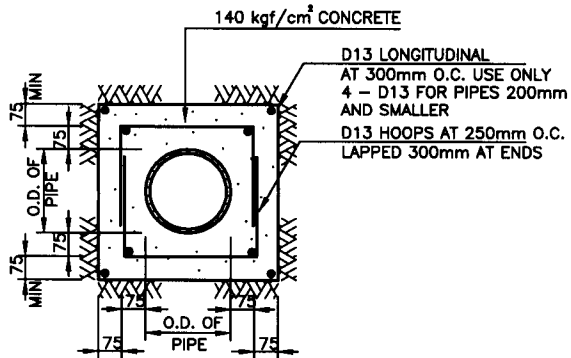
IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	POST INDICATOR VALVE	SPEC	02660	OCT 2003	C0420



A CONCRETE ENCASEMENT WITH INSULATION
NOT TO SCALE



B CONCRETE ENCASEMENT
NOT TO SCALE

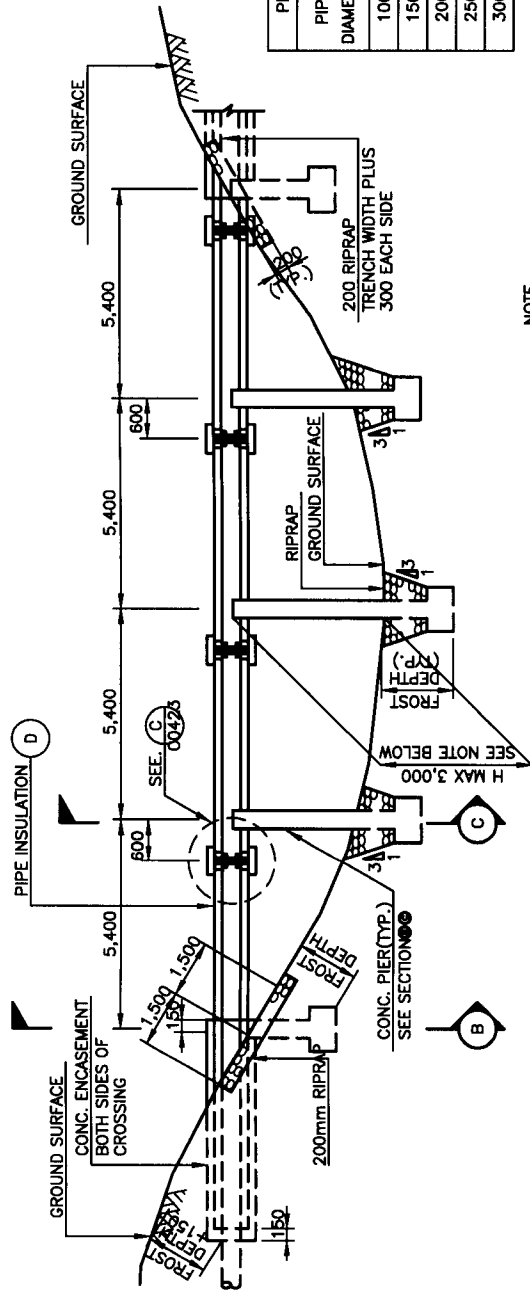


C REINFORCED CONCRETE ENCASEMENT
NOT TO SCALE

NOTE :

1. ALL ENCASED JOINTS OF STEEL PIPE 100mm AND LARGER IN DIAMETER SHALL BE BUTT WELDED

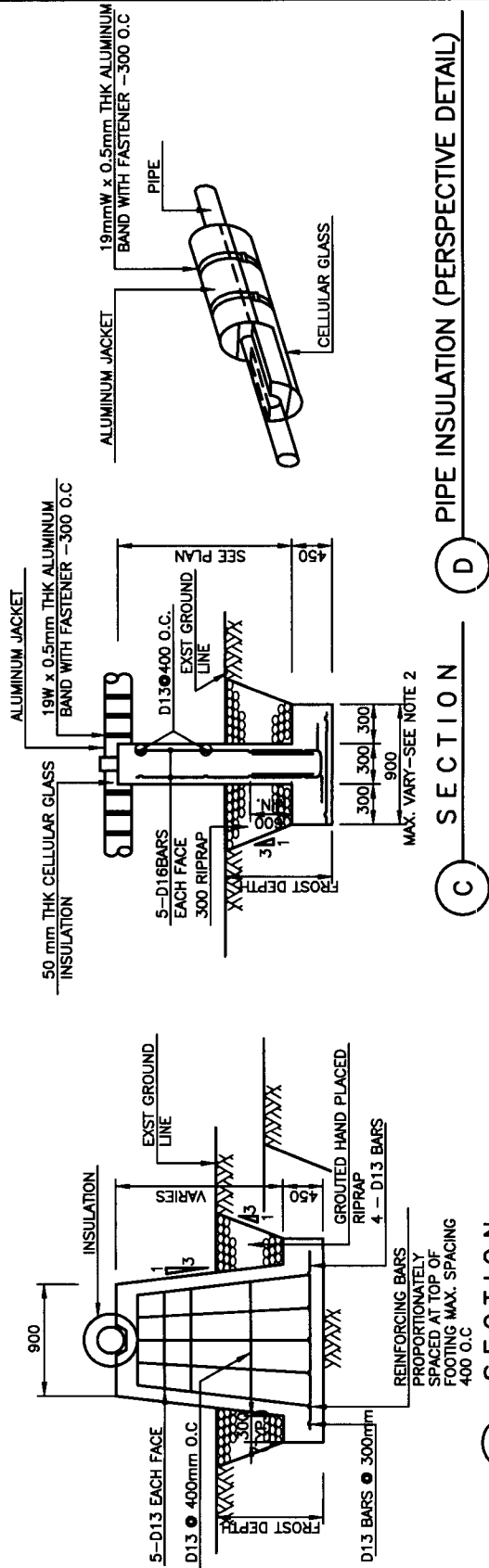
IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	CONCRETE ENCASEMENT OF WATER LINE	SPEC	02660	OCT 2003	C0421



PIPE STRAP DIMENSIONS - SEE (F)			
PIPE DIAMETER	A	B	C
100	31	294	484
150	44	369	603
200	63	456	741
250	75	531	857
300	88	606	978

NOTE:
1. THE CONTRACTOR SHALL NOTIFY THE CONTRACTING OFFICERS REPRESENTATIVE FOR H GREATER THAN 3m

ELEVATION



PIPE INSULATION (PERSPECTIVE DETAIL)

TYPICAL PIER - SUPPORTED PIPE LINE

NOT TO SCALE

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER

REV DATE

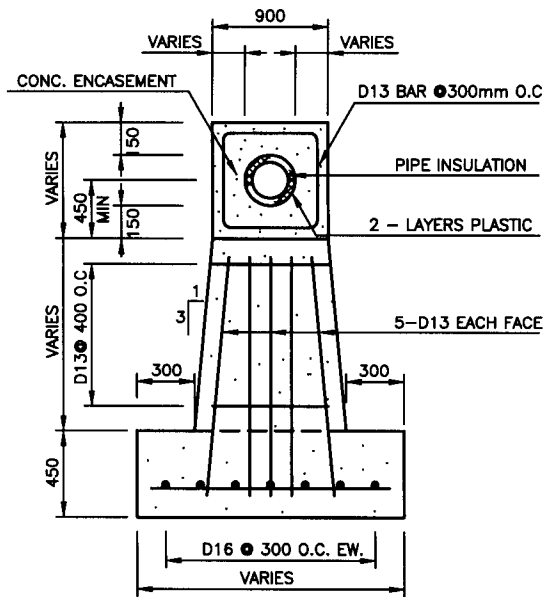
DWG NO.

TITLE TYPICAL PIER - SUPPORTED PIPE LINE - 1

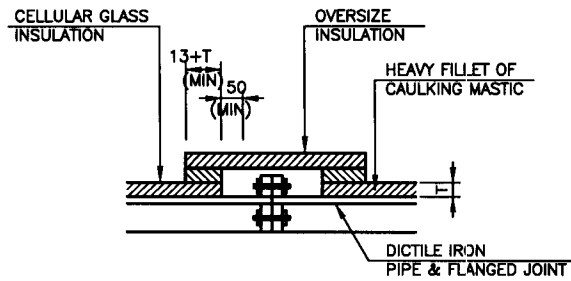
SPEC 02660

OCT 2003

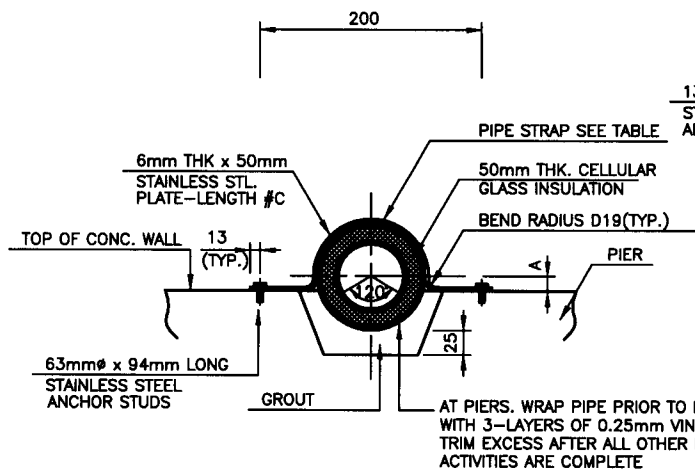
C0422



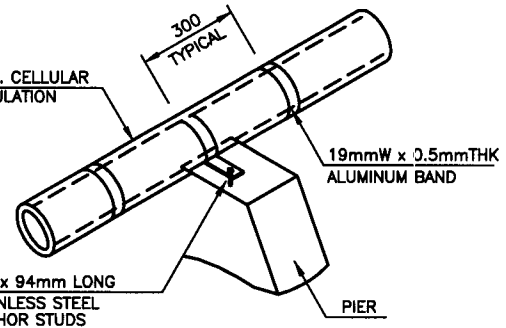
A SECTION



C INSULATION FOR MECHANICAL JOINT



B DETAIL



D PERSPECTIVE DETAIL

NOTES :

1. THE BASE DIMENSION OF THE PIER VARIES IN ACCORDANCE WITH THE HEIGHT OF THE PIER THE TOP OF THE PIER IS 900mm WIDTH AND THE SIDES SLOPE AT 1:3
2. THE CONTRACTOR OR CONSTRUCTION DIVISION SHOULD DETERMINE THE ACTUAL ALLOWABLE BEARING CAPACITY OF THE IN SITU SOILS IN DETERMINING THE SIZING OF FOOTINGS OTHER THAN THOSE SHOWN ON THE PLAN

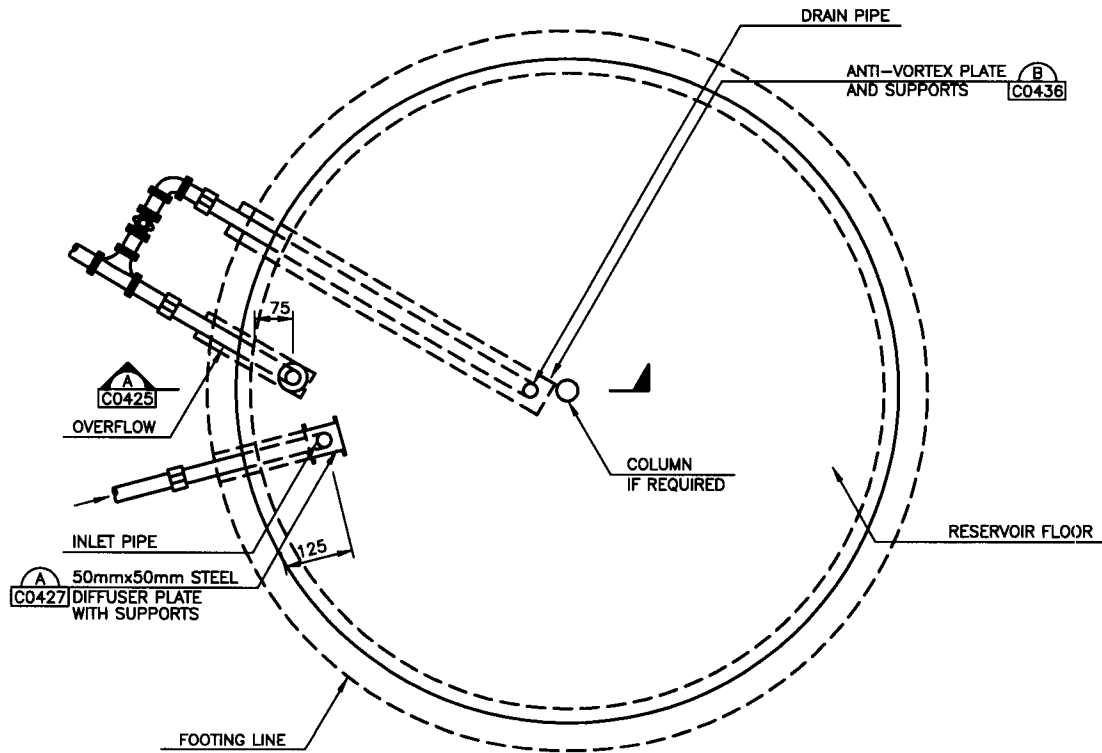
TYPICAL PIER – SUPPORTED PIPE LINE

NOT TO SCALE

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	TYPICAL PIER – SUPPORTED PIPE LINE – 2	SPEC	02660	OCT 2003	C0423

NOTES :

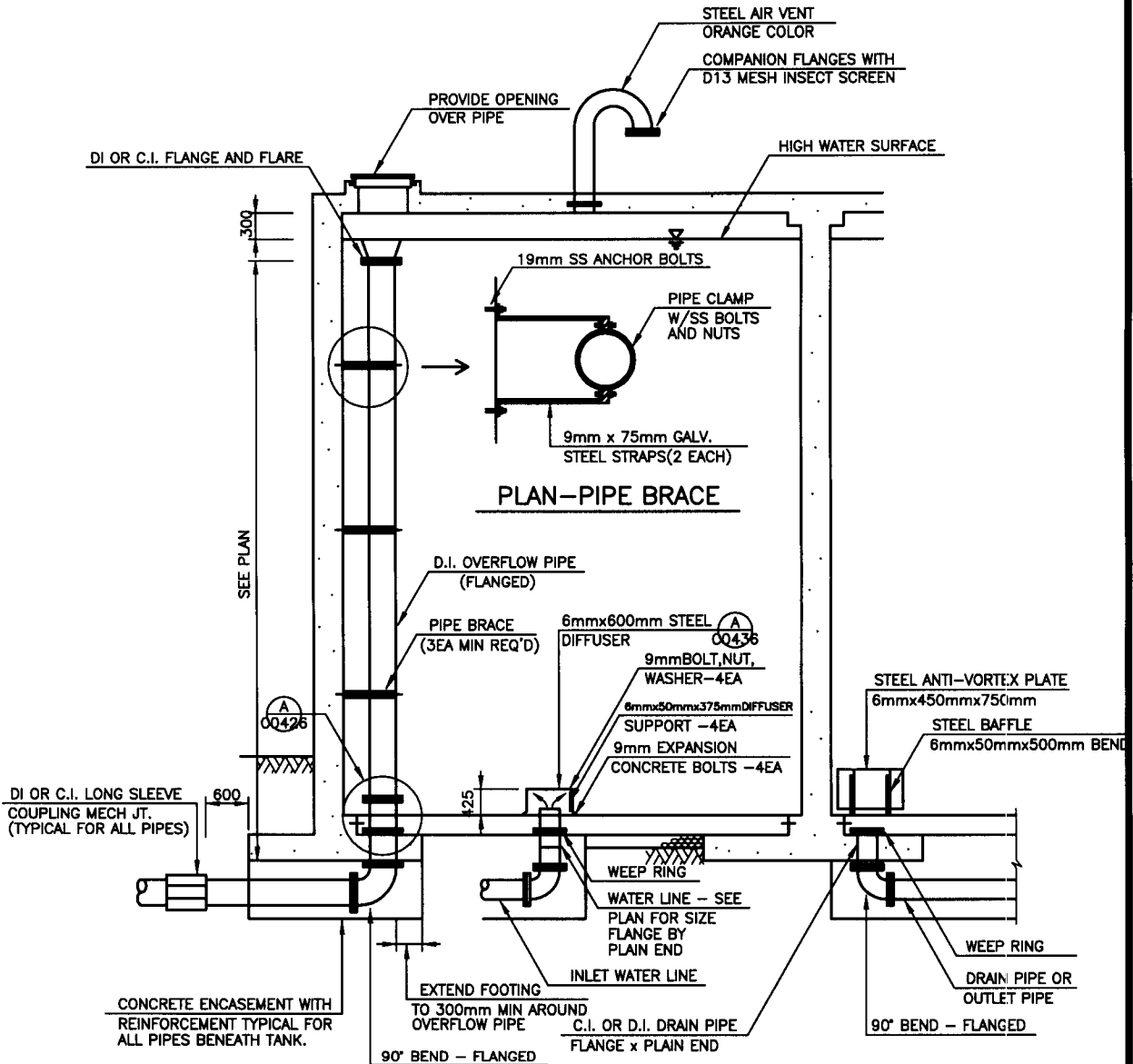
1. DRAIN PIPE DETAIL SHALL BE USED FOR OUTLET PIPE DETAIL FOR RESERVOIR WHERE. A SEPARATE INLET & OUTLET PIPE ARE REQUIRED
2. THE DIAMETER OF ALL PIPES, INLET, OUTLET, DRAIN, OVERFLOW AND VENTS SHALL BE SHOWN ON THE CONSTRUCTION DRAWINGS.
3. ALL PIPING BENEATH RESERVOIR SHALL BE CAST IRON OR DUCTILE IRON PIPE.
4. LOCATIONS OF PIPES, VENTS, GAUGE, HATCH AND LADDERS SHALL BE AS SHOWN ON THE PLAN.
5. ALL PIPING UNDER THE TANK STRUCTURE SHALL BE D.I. OR C.I.
6. PROVIDE INLET DIFFUSER AND OUTLET ANTI-VORTEX PLATE WHEN REQUIRED ON PLAN.
7. FOR REINFORCEMENT, SEE STRUCTURAL DRAWING FOR ON PLAN.



A PIPING LAYOUT PLAN

TYPICAL WATER RESERVOIR PIPING
NOT TO SCALE

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	CONCRETE WATER RESERVOIR - 1	SPEC	02660	OCT 2003	C0424



A PIPING – SECTION

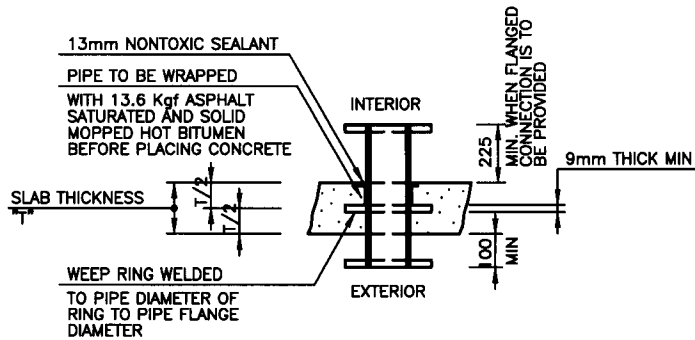
NOTES :

1. WATER LEVEL INDICATOR SHALL BE A COMMERCIALY MANUFACTURED AND MARKETED PRODUCT SUCH AS SHAND JUR'S CO. FIG. 2302, VAREC-FIG.6700 OR APPROVED EQUIVALENT.
2. INDICATOR SHALL BE CALIBRATED TO MEASURE THE TOTAL DEPTH OF THE TANK WITH DIVISIONS AT 450mm AND NUMERALS AT EVEN 1.5m INTERVALS.
3. FLOAT AND COUNTER WEIGHT OF SUFFICIENT DISPLACEMENT AND WEIGHT SHALL BE PROVIDED TO PROPERLY BALANCE THE TARGET.
4. FLOAT, CABLES AND RELATED APPURTENANCES SHALL BE 316 SS UNLESS OTHERWISE APPROVED. BOARD SHALL BE ALUMINUM.

TYPICAL WATER RESERVOIR PIPING

NOT TO SCALE

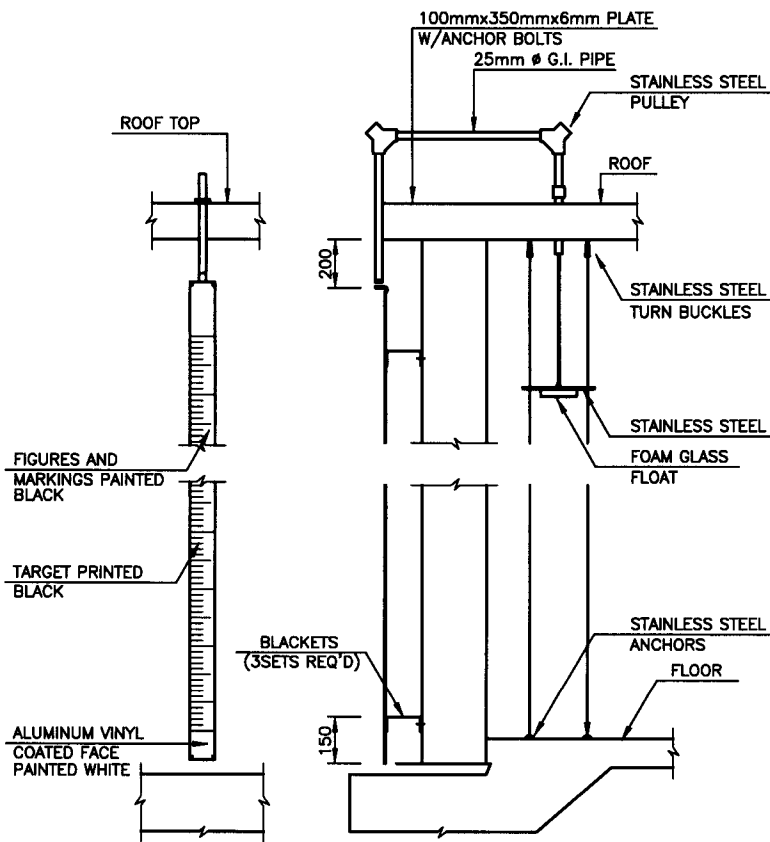
IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	CONCRETE WATER RESERVOIR – 2	SPEC	02660	OCT 2003	C0425



A PIPE PENETRATION DETAIL

NOTES :

1. WATER LEVEL INDICATOR SHALL BE A COMMERCIALY MANUFACTURED AND MARKETED PRODUCT SUCH AS SHAND JURIS CO. FIG. 2302, VAREC-FIG.6700 OR APPROVED EQUIVALENT.
2. INDICATOR SHALL BE CALIBRATED TO MEASURE THE TOTAL DEPTH OF THE TANK WITH DIVISIONS AT 450mm AND NUMERALS AT EVEN 1.5m INTERVALS.
3. FLOAT AND COUNTER WEIGHT OF SUFFICIENT DISPLACEMENT AND WEIGHT SHALL BE PROVIDED TO PROPERLY BALANCE THE TARGET.
4. FLOAT, CABLES AND RELATED APPURTENANCES SHALL BE 316 SS UNLESS OTHERWISE APPROVED. BOARD SHALL BE ALUMINUM.

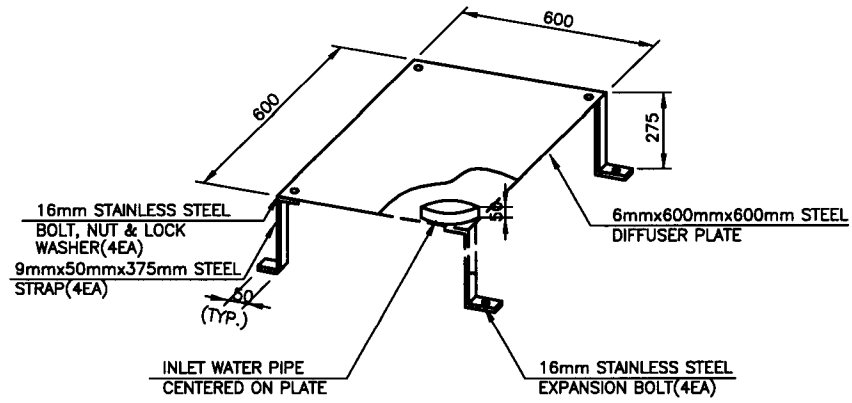


B WATER LEVEL GAUGE

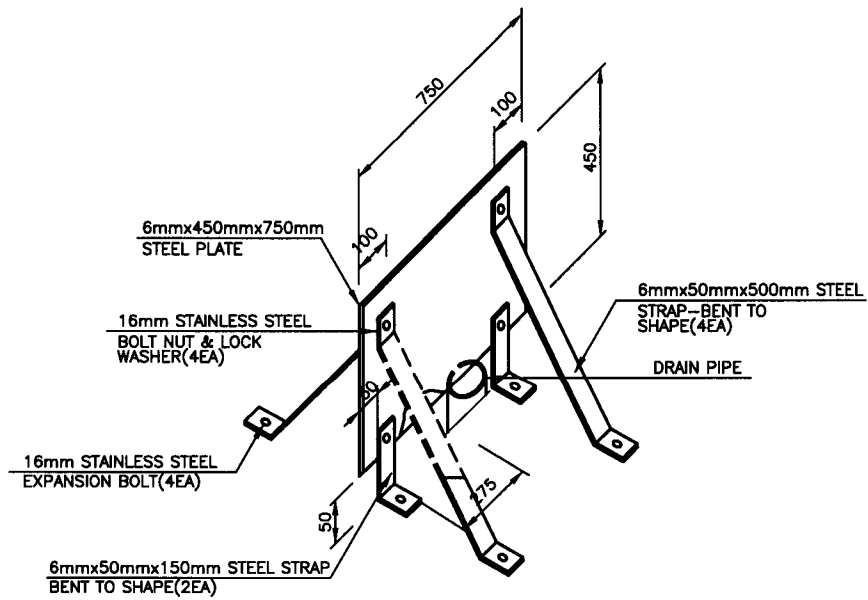
TYPICAL WATER RESERVOIR PIPING

NOT TO SCALE

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER			REV DATE	DWG NO.	
TITLE	CONCRETE WATER RESERVOIR - 3	SPEC	02660	OCT 2003	C0426

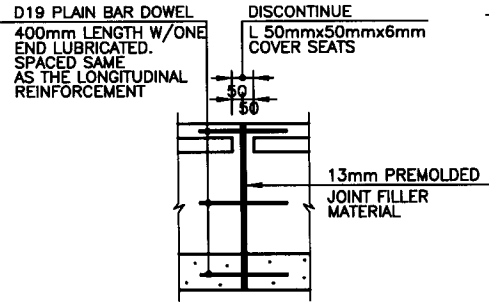


(A) DIFFUSER DETAIL

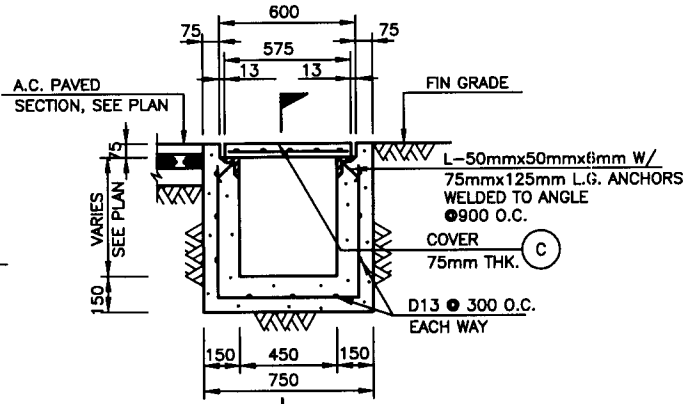


(B) ANTI - VORTEX PLATE DETAIL

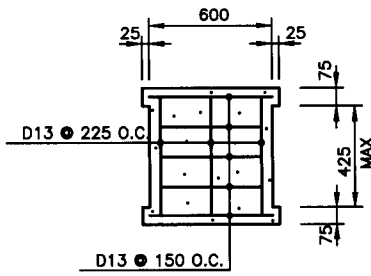
IMA—KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	CONCRETE WATER RESERVOIR - 4	SPEC	02660	OCT 2003	C0427



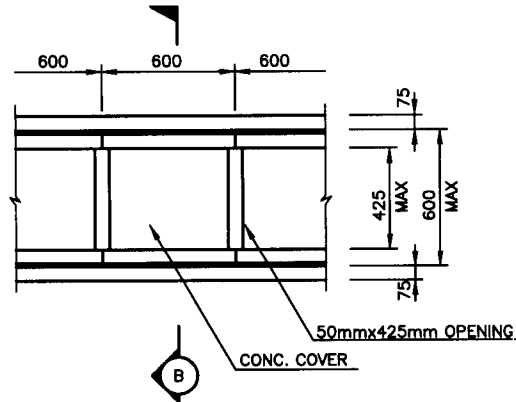
(A) PRECAST



(B) SECTION



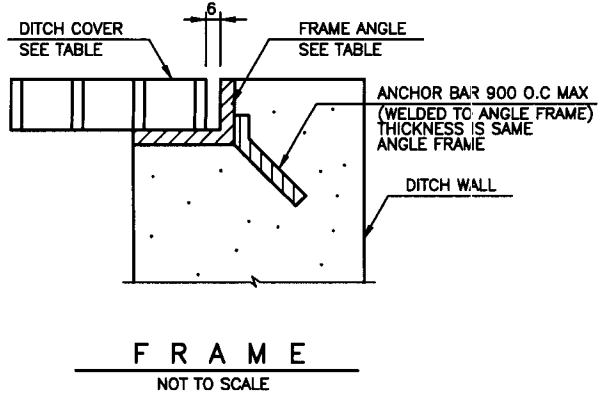
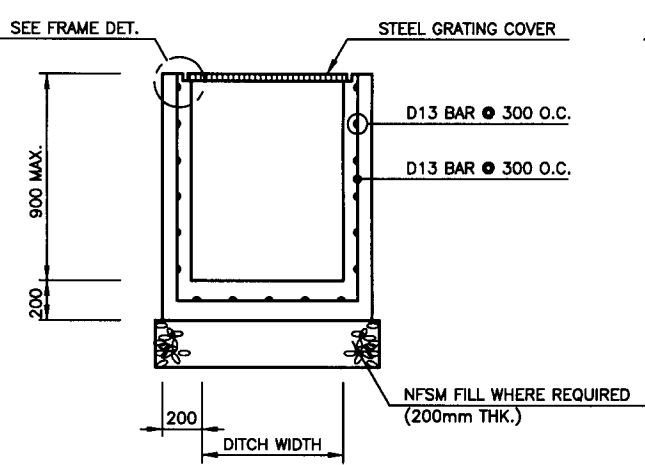
(C) COVER DETAIL



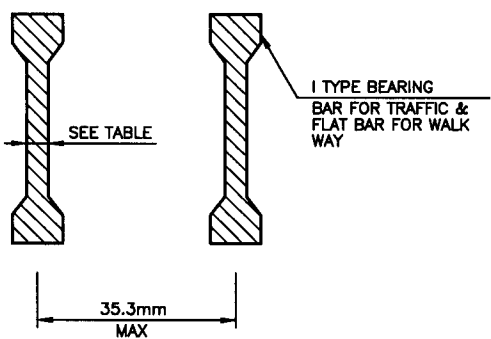
(B) SECTION

NON - TRAFFIC TYPE CONCRETE COVERED DITCH
NOT TO SCALE

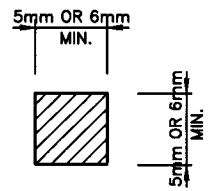
IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER			REV DATE	DWG NO.
TITLE	CONC. COVERED DITCH, NON-TRAFFIC TYPE	SPEC	02720	OCT 2003
				C0501



FRAME
NOT TO SCALE



BEARING BAR (A,B,C,D)
NOT TO SCALE



NOTE : CROSSING BAR SHALL BE TWISTED.

CROSSING BAR
NOT TO SCALE

SCHEDULE OF STEEL GRATING

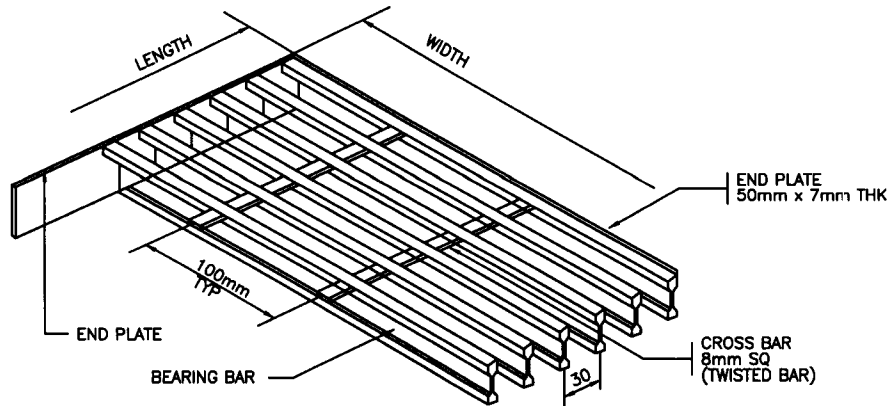
WIDTH OF DITCH	BEARING BAR FOR			CROSSING BAR SIZE FOR			FRAME(ANGLE)			
	H - 20	POV (H-2)	SIDEWALK	H - 20	POV(H-2)	WALKWAY	H - 20	POV	POV(H-2)	WALKWAY
300	I-50@35.3	F-25@25.0	F-25@25.0	8mm	6mm	6mm	71x60x6	L56x61x6	L30x30x3	L30x30x3
450	I-65@35.3	I-32@30.0	F-25@25.0	8mm	6mm	6mm	81x60x6	L71x61x6	L40x40x5	L30x30x3
600	I-75@35.3	I-44@30.0	F-25@25.0	8mm	6mm	6mm	81x60x6	L81x61x6	L50x50x6	L30x30x3

NOTE 1. SPACES FOR CROSSING BAR ARE 100mm O.C

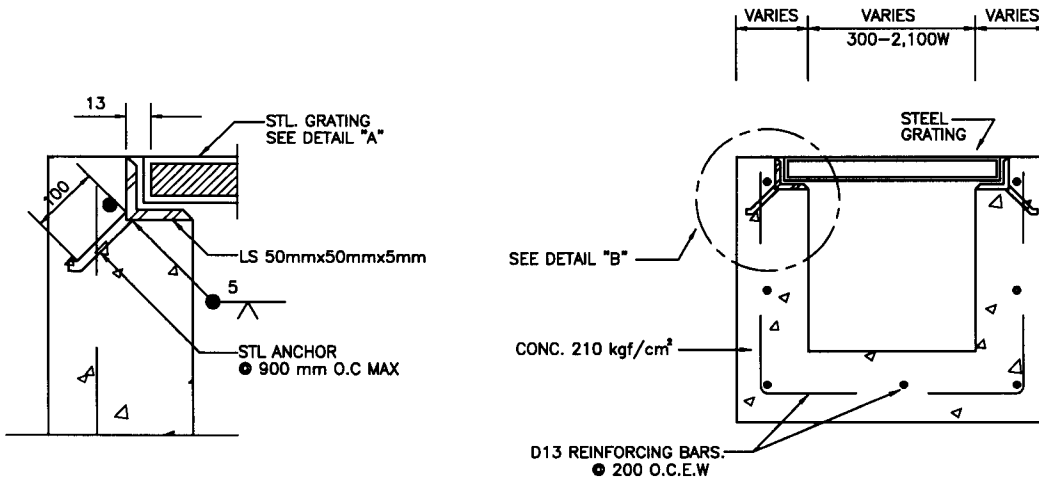
STEEL GRATING COVERED DITCH

NOT TO SCALE

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	STEEL GRATING COVERED DITCH	SPEC	02720	OCT 2003	C0502



PARTIAL PERSPECTIVE DETAIL "A" (STL GRATING)

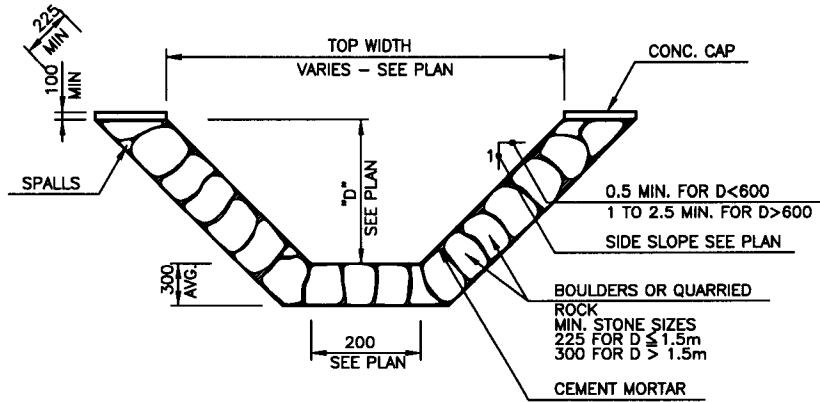


DETAIL "B"

SECTION

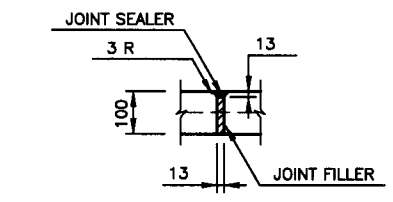
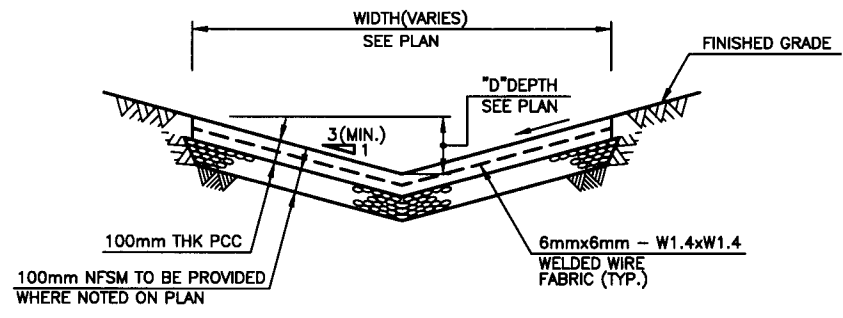
TYP. CONC. DITCH W/ STL. GRATING
 NOT TO SCALE

IMA--KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	STEEL GRATING COVERED DITCH (50mm HIGH GRATING)	SPEC	02720	OCT 2003	C0503

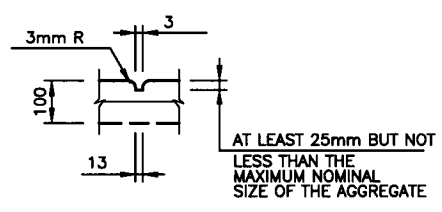


A OPEN STONE DITCH
NOT TO SCALE

NOTE :
1. PROVIDE RIPRAP OR STONE MASONRY PER PLANS.



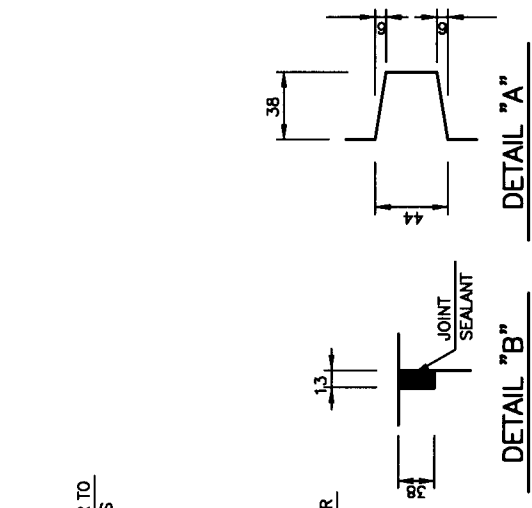
EXPANSION JOINT
1. EXPANSION JOINT ARE TO BE PROVIDED AT MAXIMUM INTERVALS OF 15m ON STRAIGHT PORTIONS, AT THE BEGINNING AND ENDS OF ALL CURVES AND WHERE LINING ABUTS OTHER CONCRETE.



CONTRACTION JOINT
1. CONTRACTION JOINTS ARE TO PROVIDED THROUGHOUT AND SHALL BE SPACED SO THAT LENGTH TO WIDTH RATIO OF THE SLAB DOES NOT EXCEED 375mm

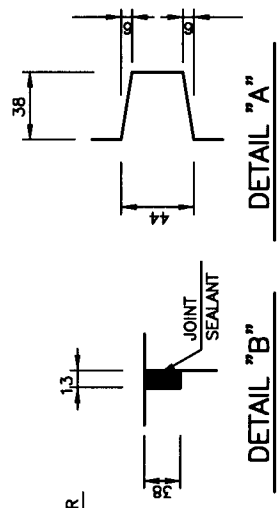
B CONC. LINED SWALE
NOT TO SCALE

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER			REV DATE	DWG NO.
TITLE	OPEN STONE DITCH & CONCRETE LINED SWALE	SPEC	02720	OCT 2003
				C0504

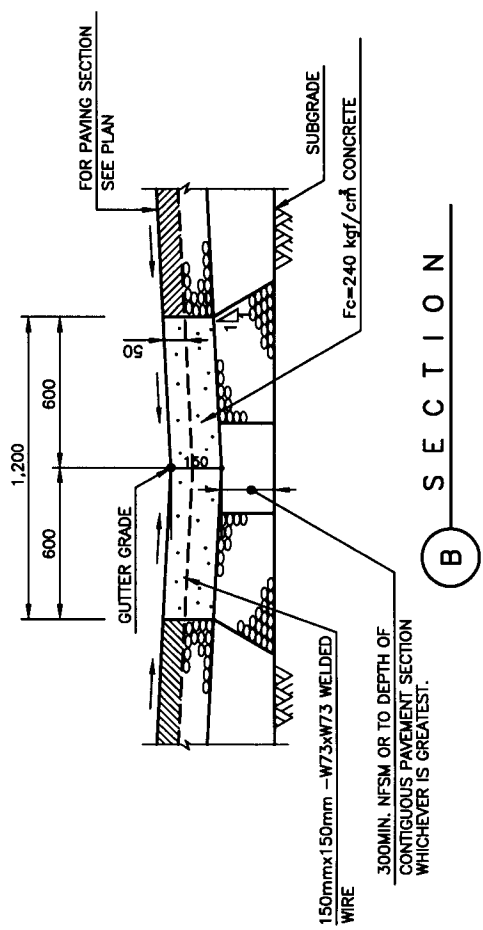


150mm THK. CONC. REINFORCED WITH 6mmx6mm-W2.9xW2.9 WELDED WIRE FABRIC CONSTRUCTION TO BE MONOLITHIC WITH CURB RETURN CONSTRUCTION UNLESS OTHERWISE NOTED ON PLANS

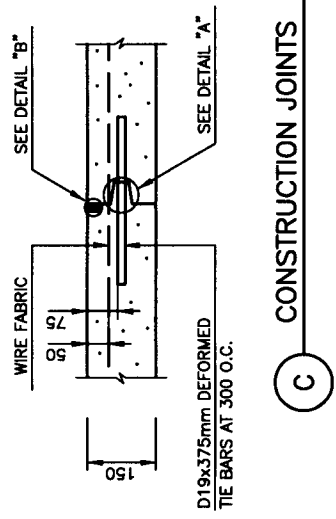
A P L A N



DETAIL "A"
DETAIL "B"



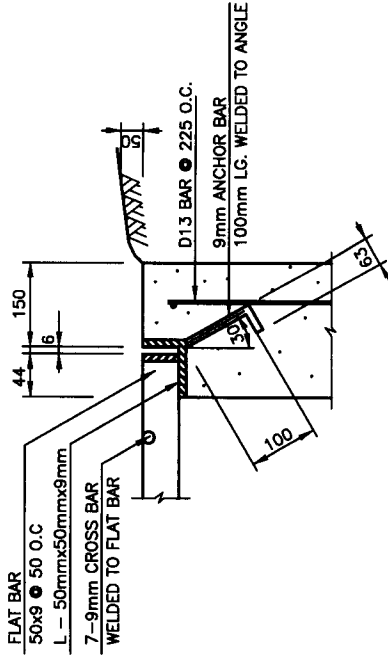
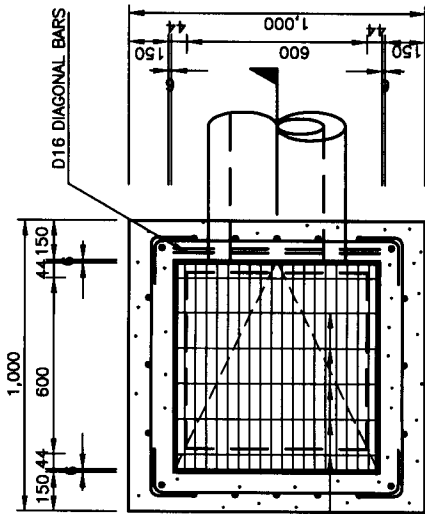
B S E C T I O N



C C O N S T R U C T I O N J O I N T S

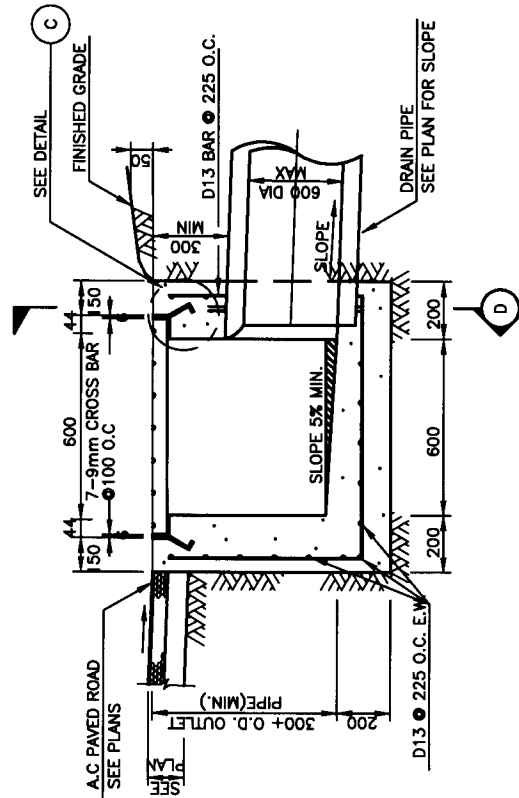
THRU. GUTTER
NOT TO SCALE

TITLE		IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER		REV DATE	DWG NO.
CONCRETE THRU GUTTER		SPEC	02720	OCT 2003	C0505

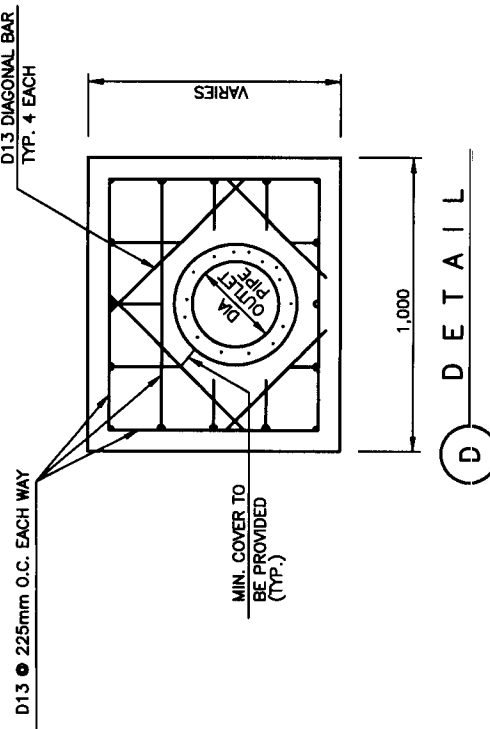


A SHALLOW SURFACE INLET - PLAN

C D E T A I L



B SECTION



D D E T A I L

SURFACE INLET

NOT TO SCALE

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER

REV DATE

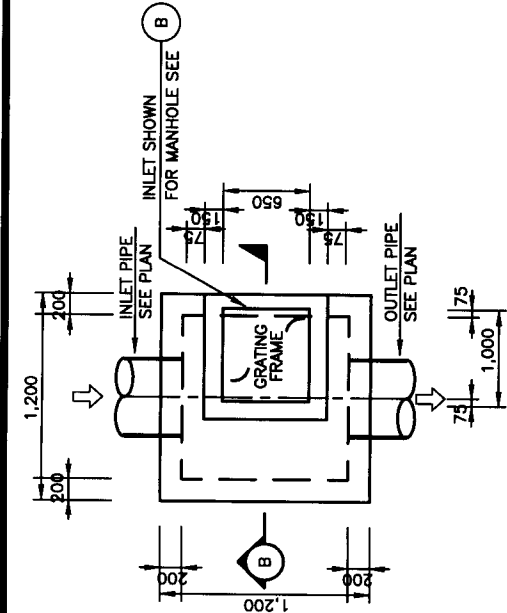
DWG NO.

TITLE SURFACE INLET TYPE 1

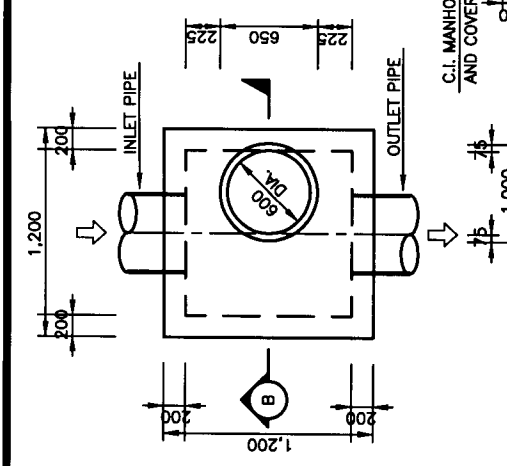
SPEC 02720

OCT 2003

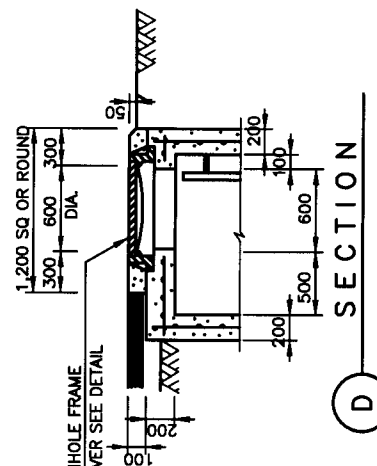
C0506



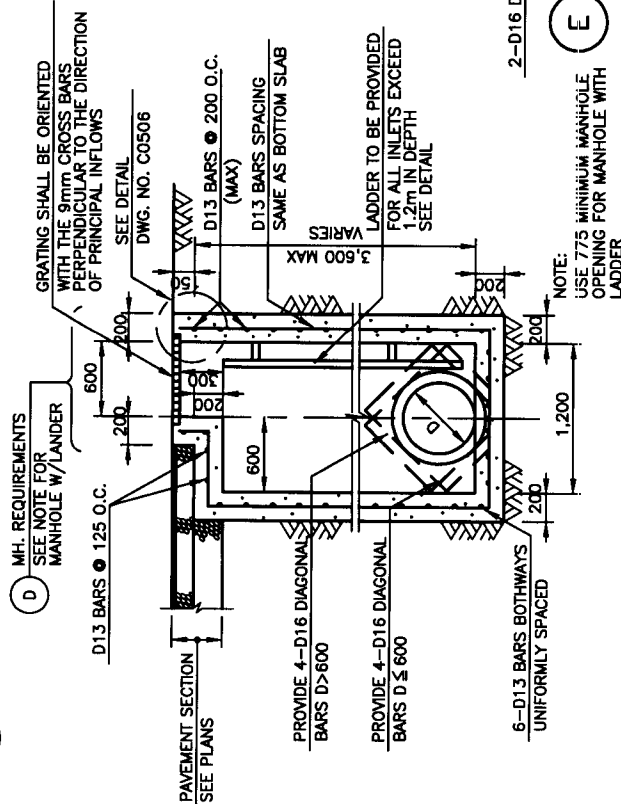
A DEEP SURFACE INLET AND MANHOLE PLAN



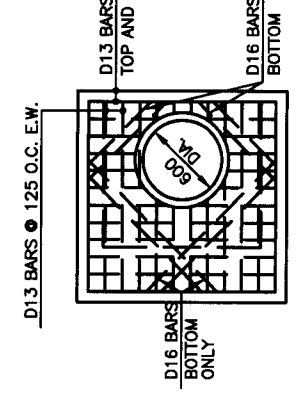
B SURFACE INLET & DRAIN MANHOLE PLAN



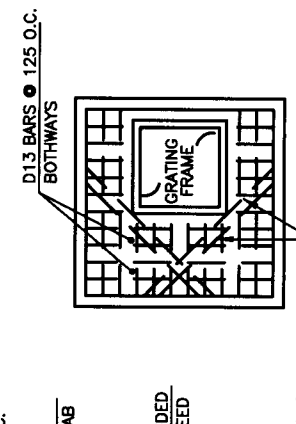
D SECTION



C SECTION



F TOP SLAB REINFORCING DRAINAGE MANHOLE



E TOP SLAB REINFORCING DRAIN INLET

E SURFACE INLET & DRAIN MANHOLE

NOT TO SCALE

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER

REV DATE

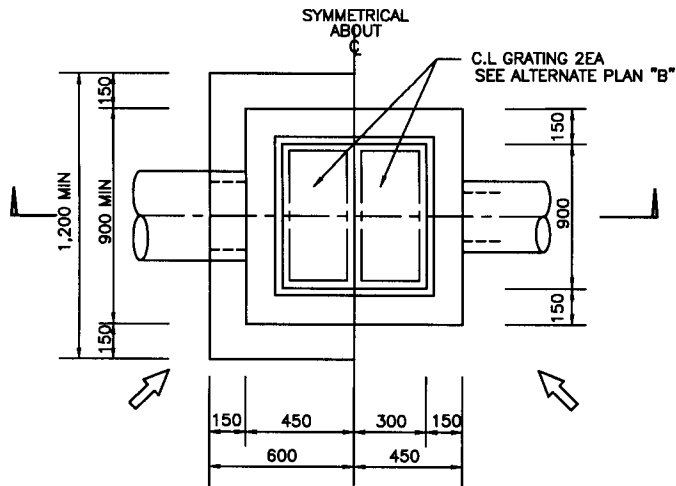
DWG NO.

TITLE SURFACE INLET TYPE 2 & DRAIN MANHOLE

SPEC 02720

OCT 2003

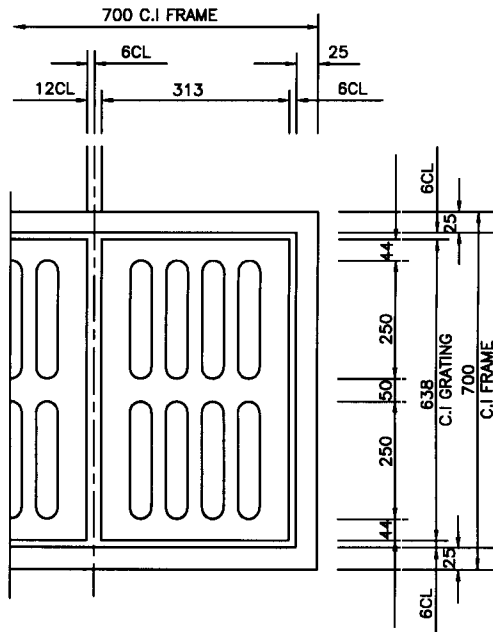
C0507



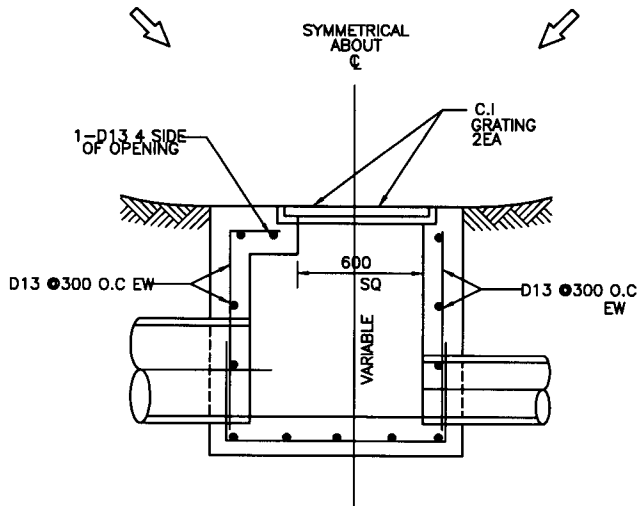
FOR PIPES
600mm ϕ AND
LARGER

FOR PIPES
SMALLER
THAN 525 ϕ

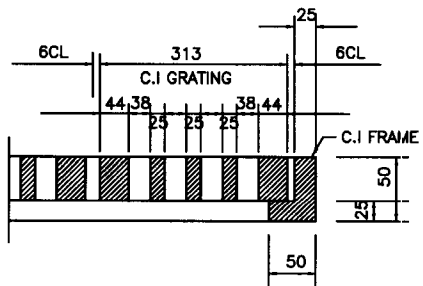
ALTERNATE PLAN "A"



ALTERNATE PLAN "B"



ALTERNATE SECTION



SECTION

C.I. FRAME & GRATING

SURFACE (DRAINAGE) INLET

NOT TO SCALE

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER

REV DATE

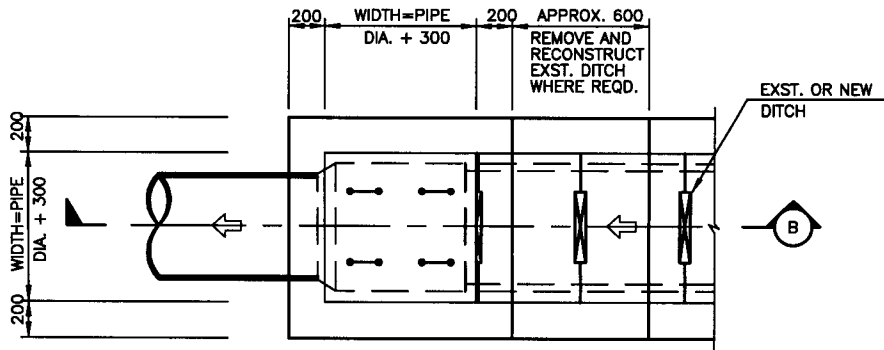
DWG NO.

TITLE SURFACE INLET W/CI COVER

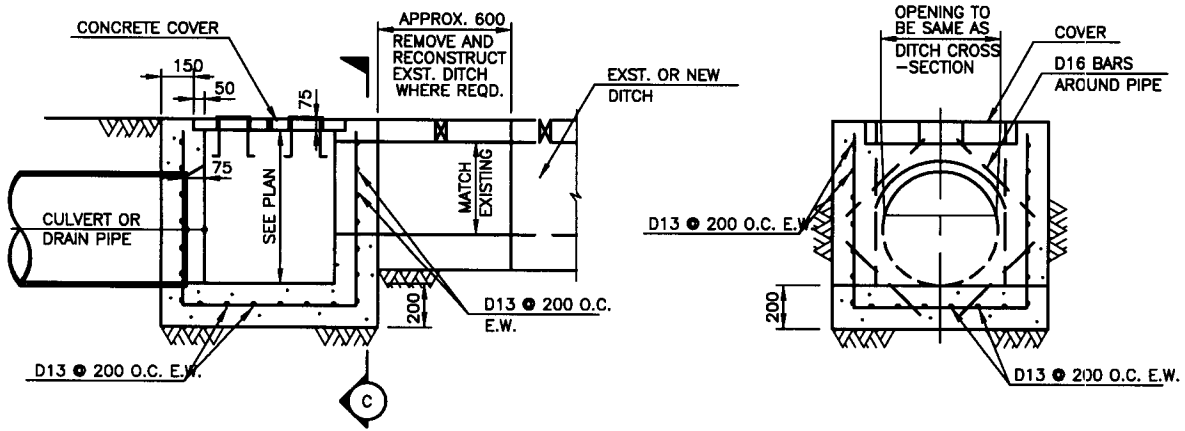
SPEC 02720

OCT 2003

C0508



(A) PLAN



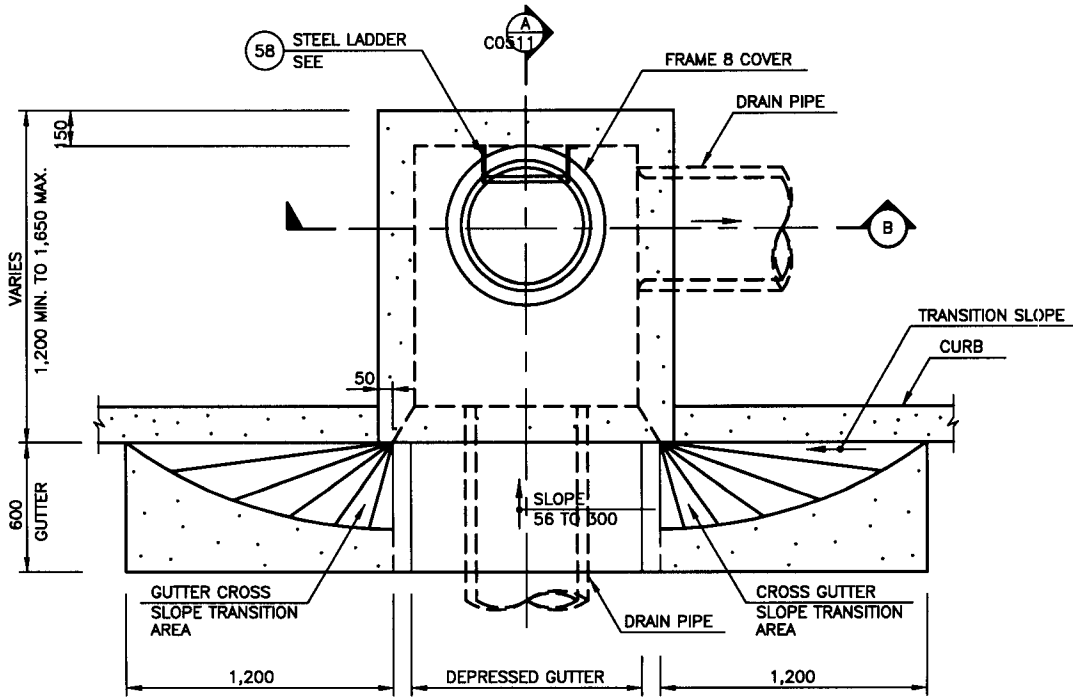
(B) SECTION

(C) SECTION

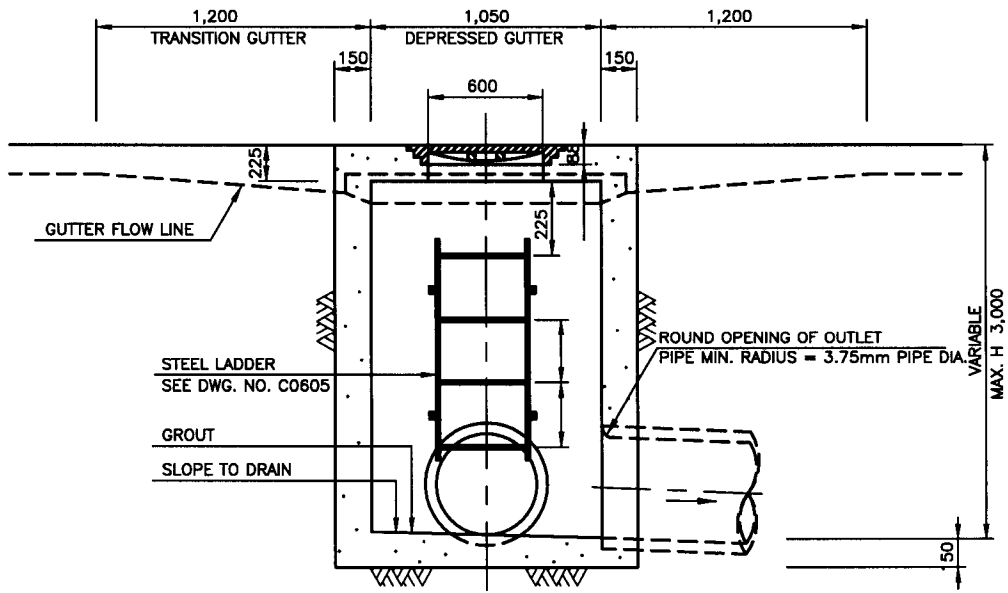
JUNCTION BOX

NOT TO SCALE

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	JUNCTION BOX	SPEC	02720	OCT 2003	C0509



A PLAN

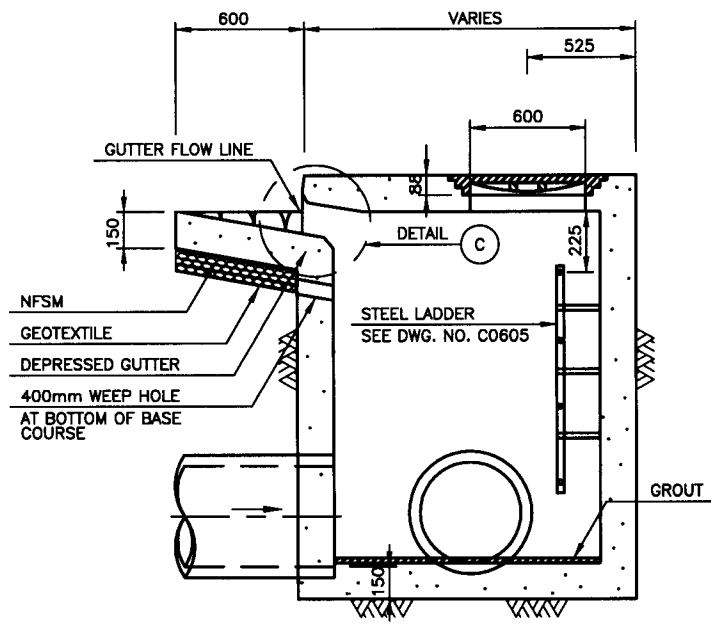


B ELEVATION

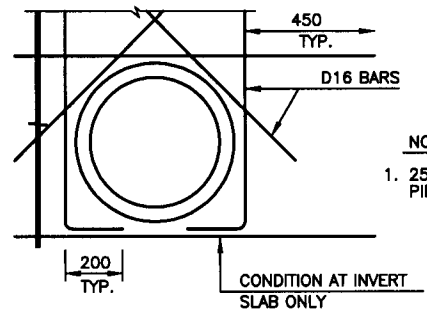
- NOTES :
1. USE 775mm MINIMUM MANHOLE OPENING FOR MANHOLE WITH LADDER

CURB INLET
NOT TO SCALE

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER			REV DATE	DWG NO.
TITLE	CURB INLET - 1	SPEC	02720	OCT 2003
				C0510

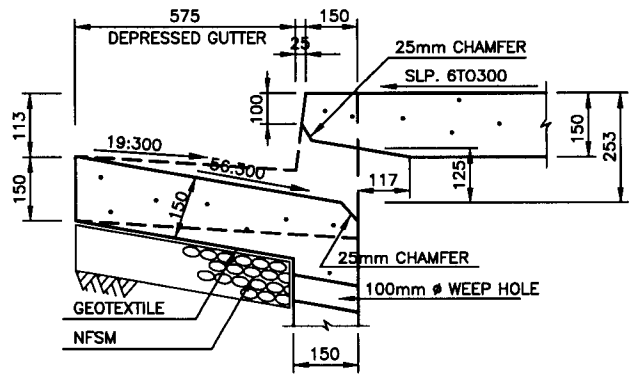


(A) SECTION



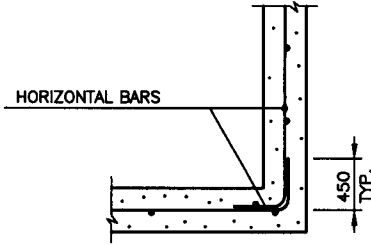
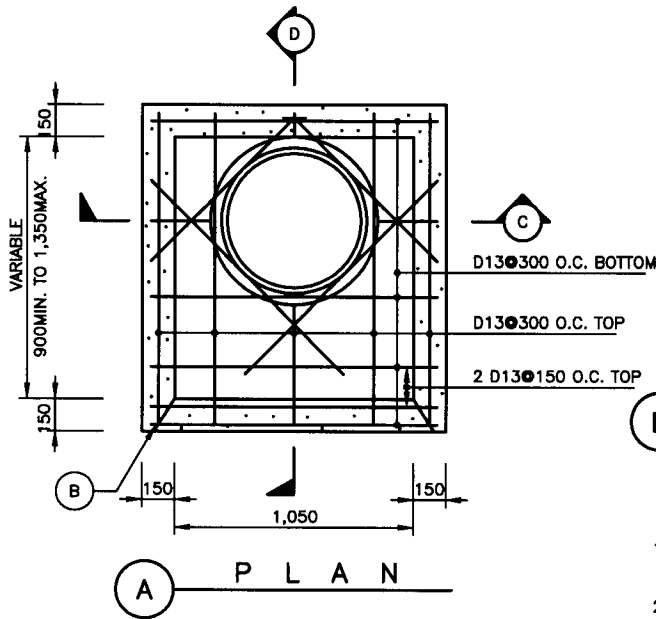
NOTE :
1. 25mm CLEAR BTWN. PIPE & STEEL

**(B) TYP. REINFORCEMENT FOR PIPE OPENING
TYP. FOR ALL MANHOLE CONSTR.**



(C) DETAIL

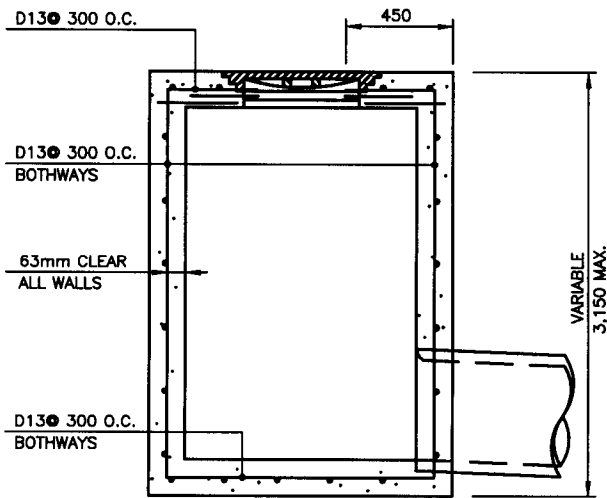
IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER			REV DATE	DWG NO.
TITLE	CURB INLET - 2	SPEC	02720	OCT 2003
				C0511



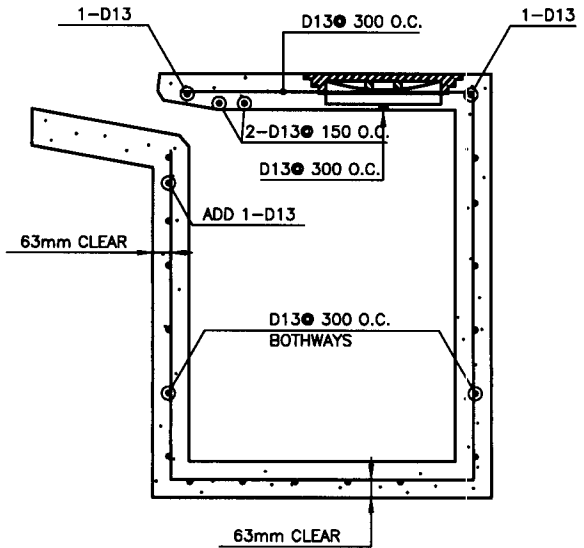
B TYP. CORNER REINFORCEMENT LAPPING
TYP. FOR ALL MANHOLE CONSTR.

NOTES :

- LADDERS SHALL BE PROVIDED FOR ALL CURB INLET STRUCTURES WITH DEPTHS GREATER THAN 1,200mm SEE DWG. NO. C0605
- SPLICED REINFORCING BARS SHALL BE LAPPED AT LEAST 750mm DIAMETERS.



C SECTION

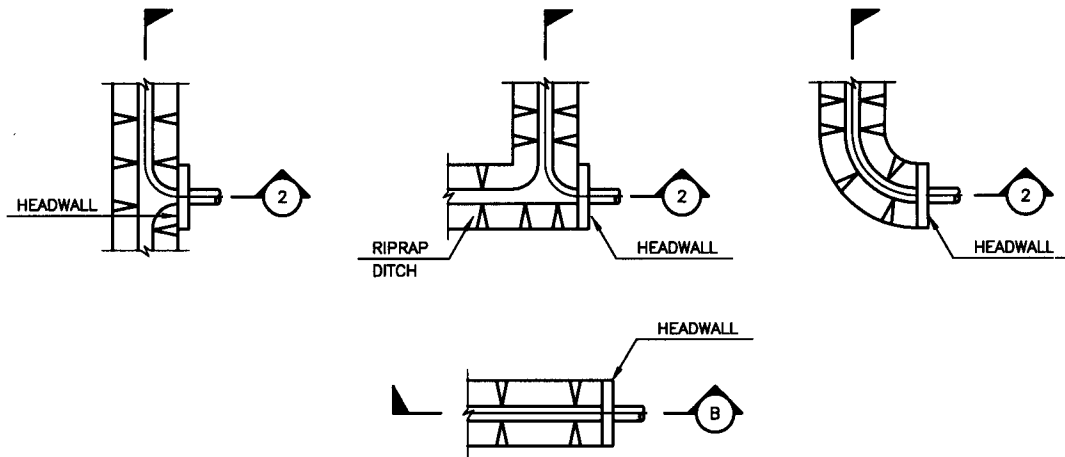


D SECTION

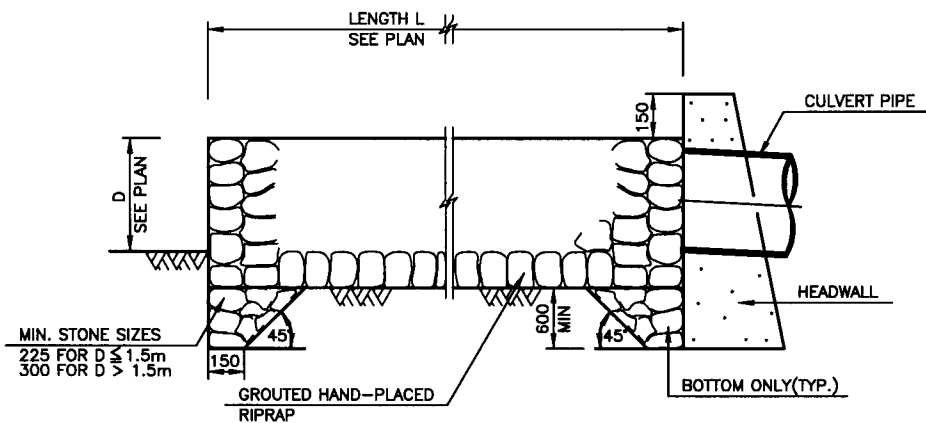
CURB INLET REINFORCING

NOT TO SCALE

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	CURB INLET - 3	SPEC	02720	OCT 2003	C0512

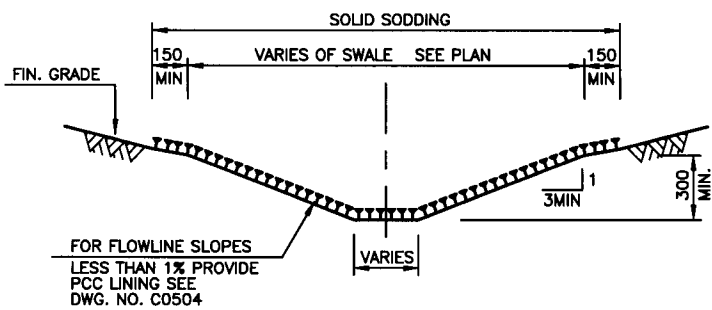


1 APRON VARIATIONS



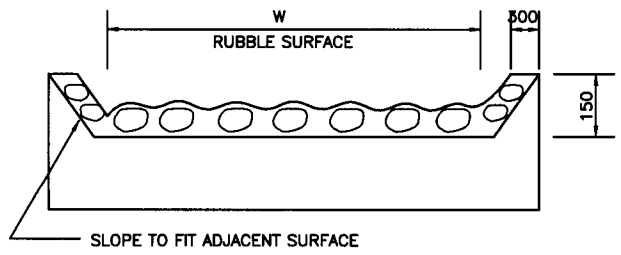
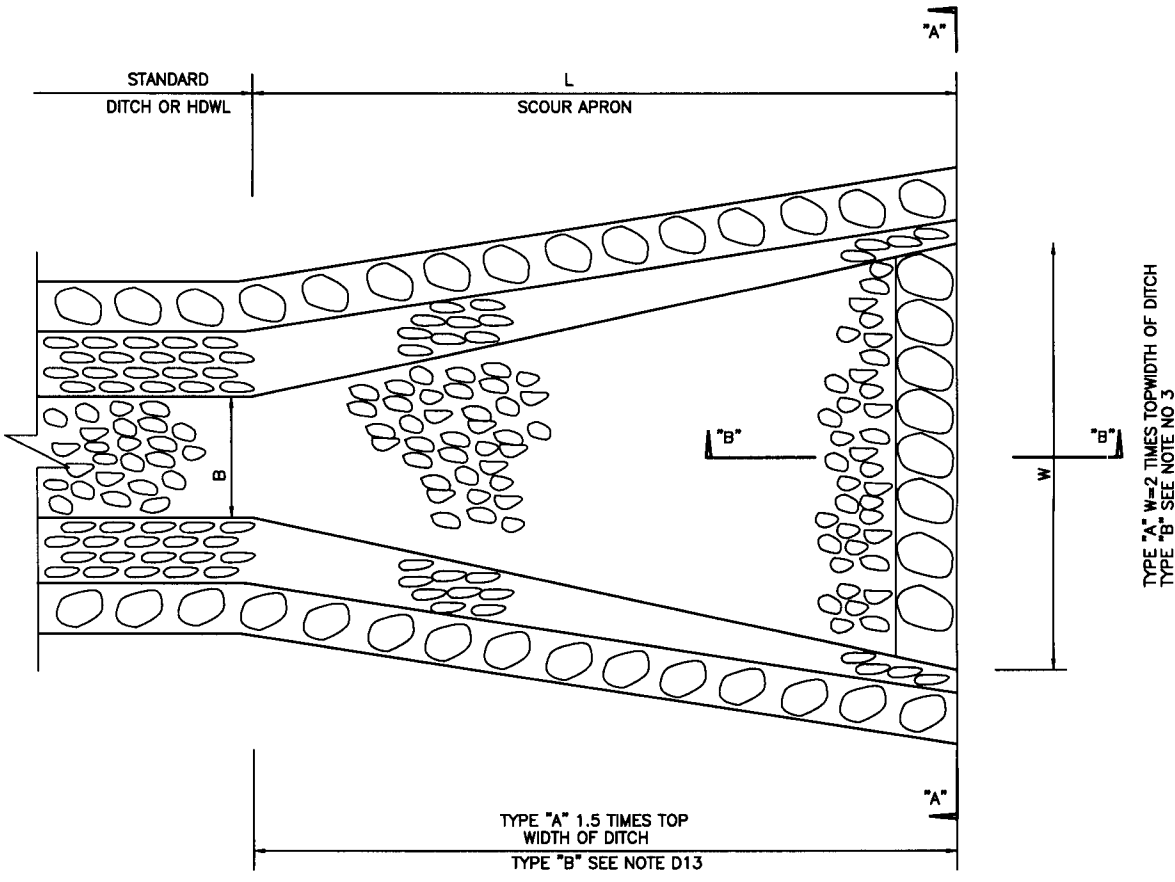
2 SECTION

A RIPRAP APRON
NOT TO SCALE

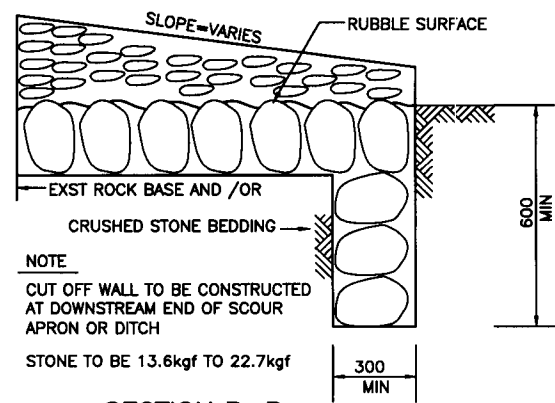


B EARTHEN SWALE
NOT TO SCALE

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	RIPRAP APRON & EARTHEN SWALE	SPEC	02720	OCT 2003	C0513



SECTION A-A



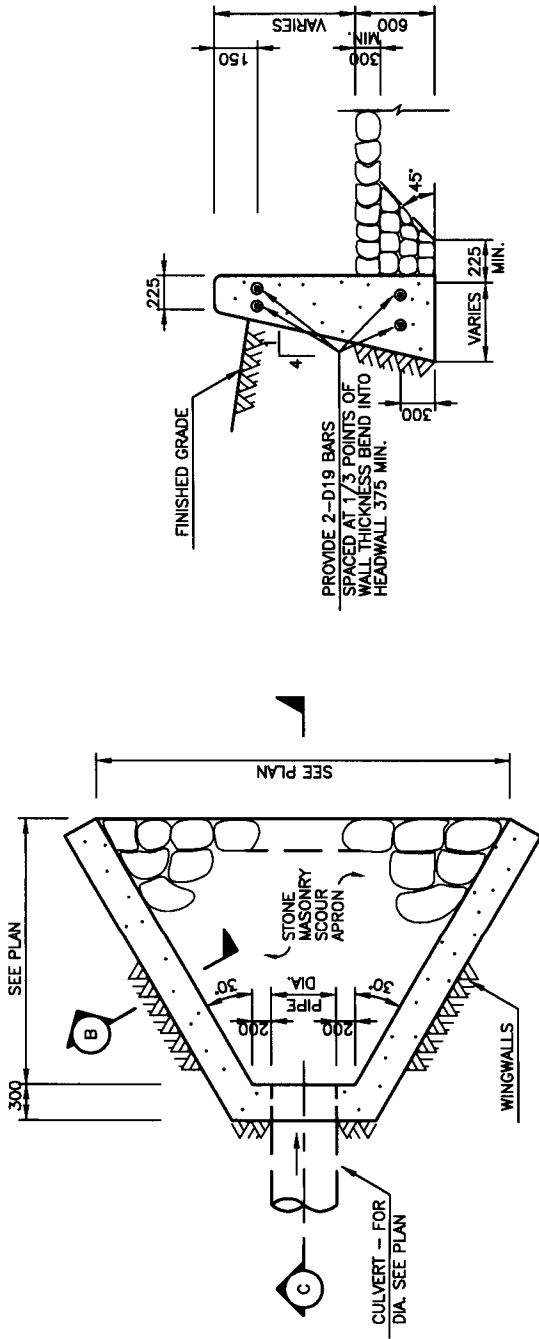
SECTION B-B

NOTE

1. STONE TO BE 9kgf TO 22.7kgf
2. SCOUR APRON LOCATION AND SLOPE WILL BE LOCATED BY CONTRACTING OFFICER UNLESS OTHERWISE INDICATED ON PLAN
3. TYPE "B" (ODD SHAPE) APRON AT HEADWALLS, DITCH INTERSECTIONS AND OTHER PLACES SHALL BE SHAPED IN THE FIELD

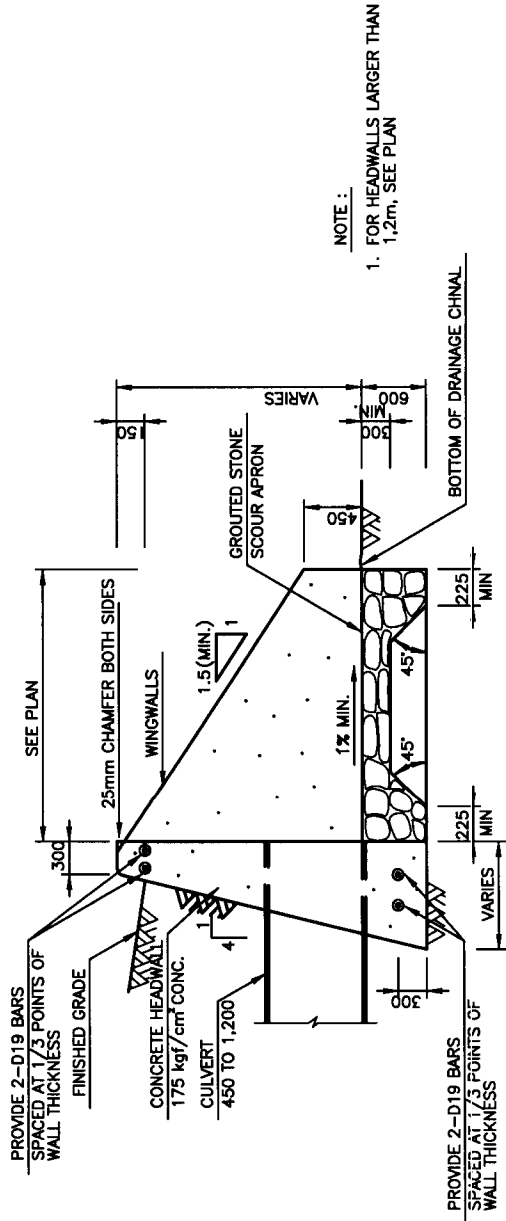
STONE SCOUR APRON
NOT TO SCALE

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	STONE SCOUR APRON	SPEC	02720	OCT 2003	C0514



WINGWALLS - SECTION

B

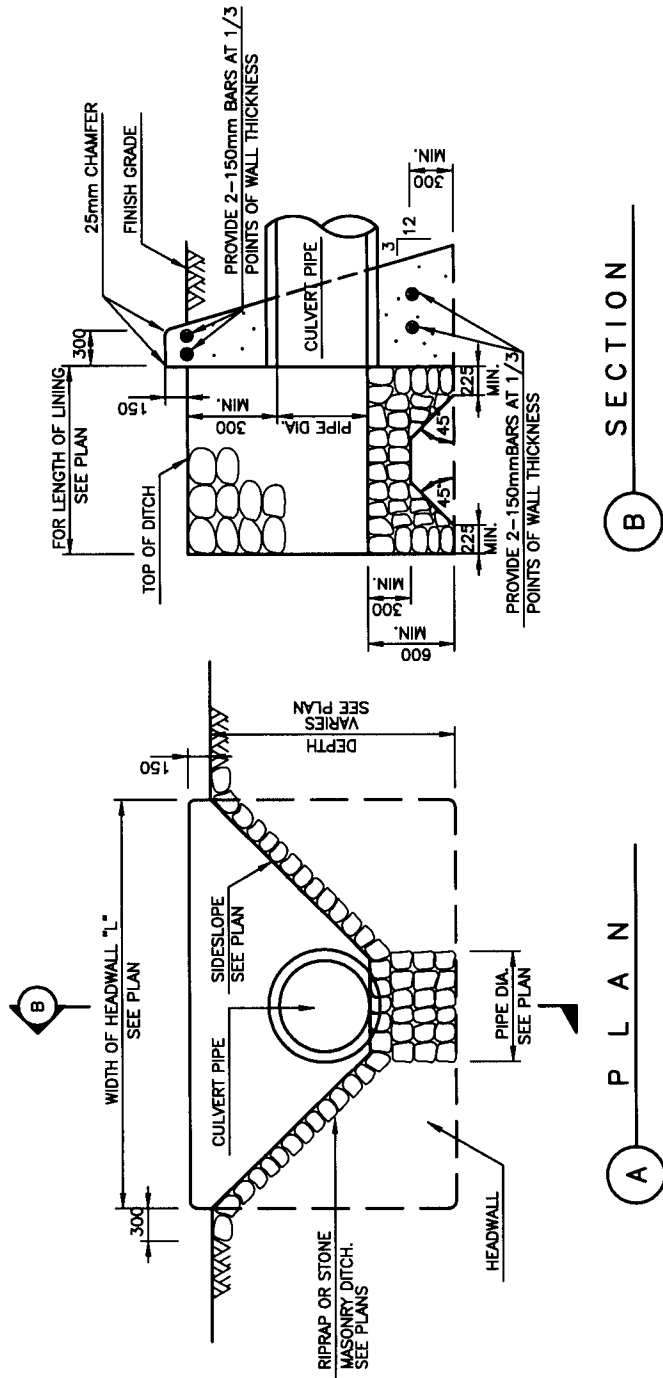


CONCRETE HEADWALL W/WINGS-450mm TO 1,200mm PIPE

NOT TO SCALE

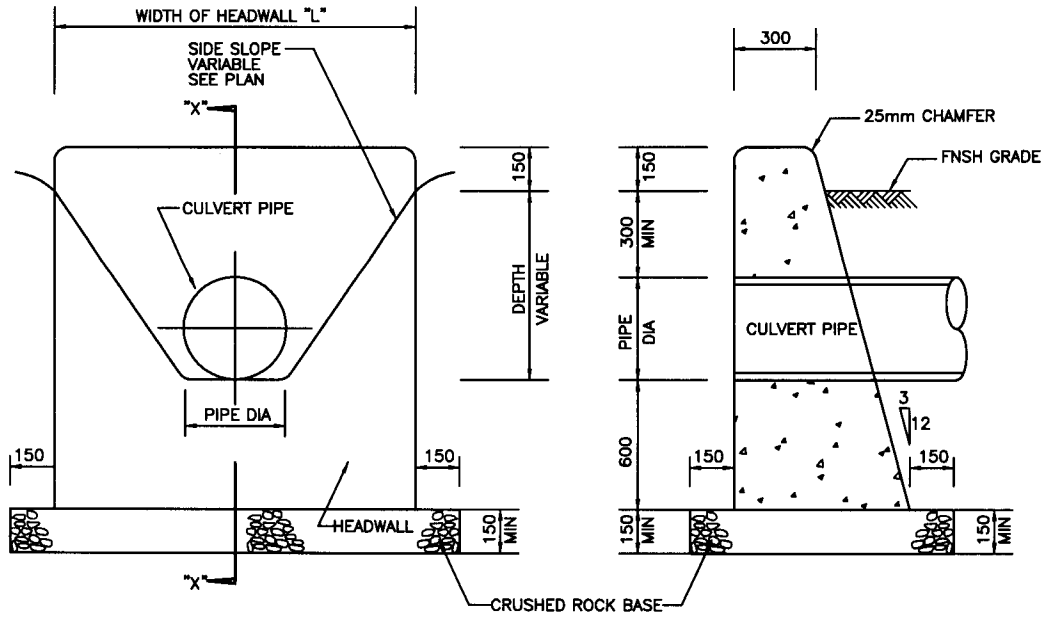
C

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER		REV DATE	DWG NO.
TITLE	CONCRETE HEADWALL WITH WINGS	SPEC 02720	OCT 2003 C0515



CONC. HEADWALL – 300mm TO 900mm PIPE
NOT TO SCALE

TITLE		CONCRETE HEADWALL W/O SCOUR APRON		SPEC		02720	REV DATE	OCT 2003	DWG NO.	C0516
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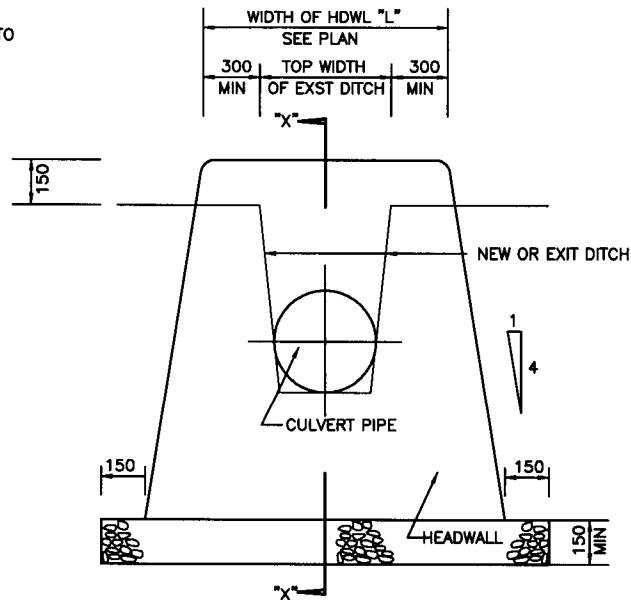


ELEVATION

SECTION "X"-"X"

TYPE "A"

HEADWALL INSTALLED ADJACENT TO
TRAPEZOID OPEN DITCH



ELEVATION

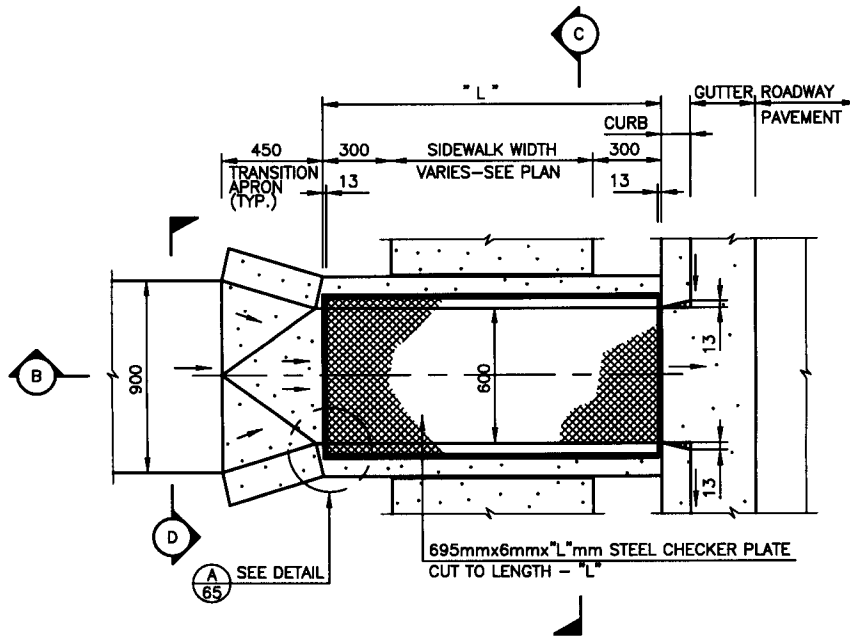
TYPE "B"

HEADWALL INSTALLED IN NEW OR
EXISTING STONE "U" TYPE DITCH

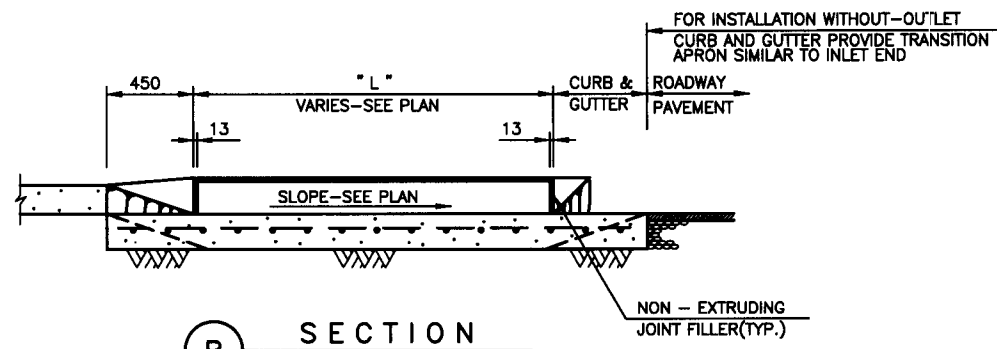
CONCRETE HEADWALL FOR CULVERT

NOT TO SCALE

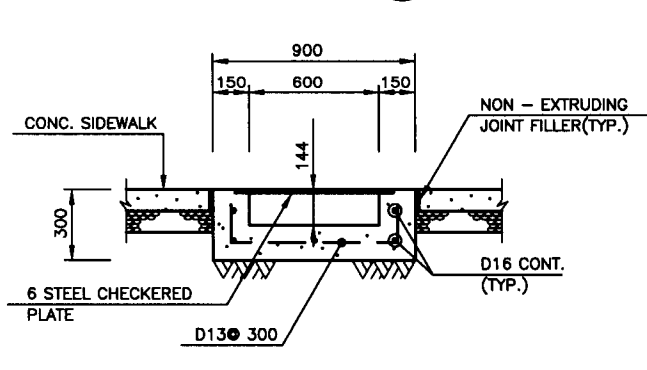
IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	CONCRETE HEADWALL W/O SCOUR APRON	SPEC	02720	OCT 2003	C0517



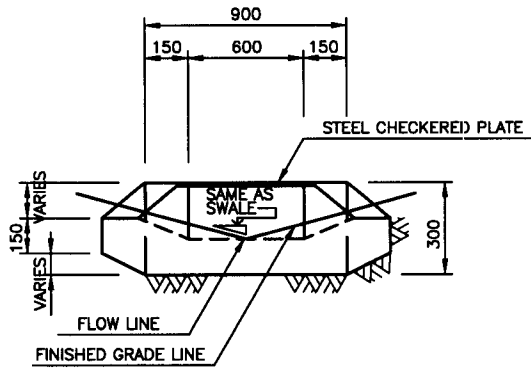
A PLAN



B SECTION



C SECTION

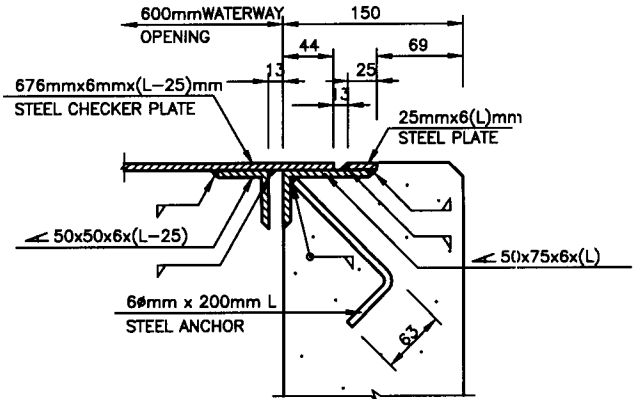
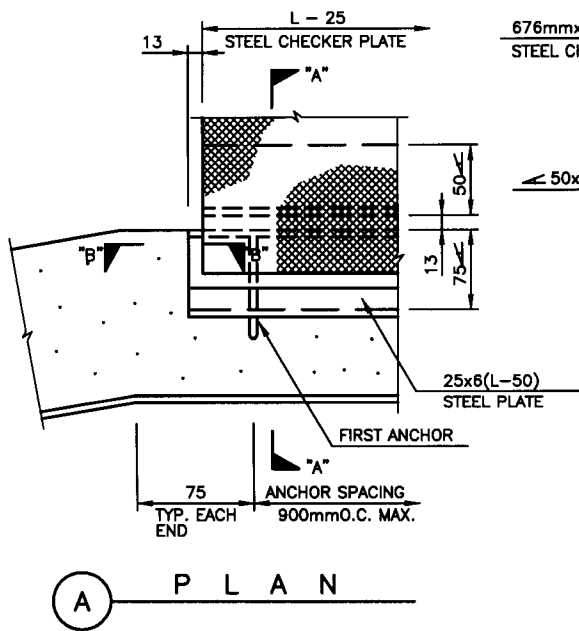


D END ELEVATION

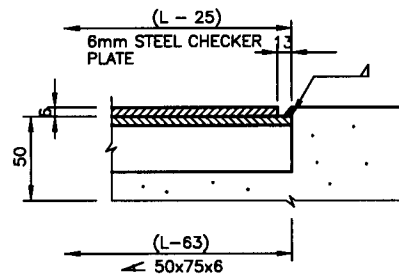
SIDEWALK CULVERT

NOT TO SCALE

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER		REV DATE	DWG NO.
TITLE	SIDEWALK CULVERT - 1	SPEC 02720	OCT 2003 C0518



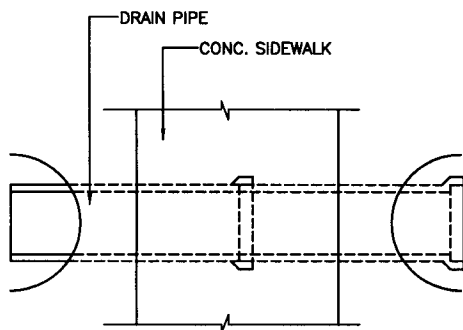
SECTION "A" - "A"



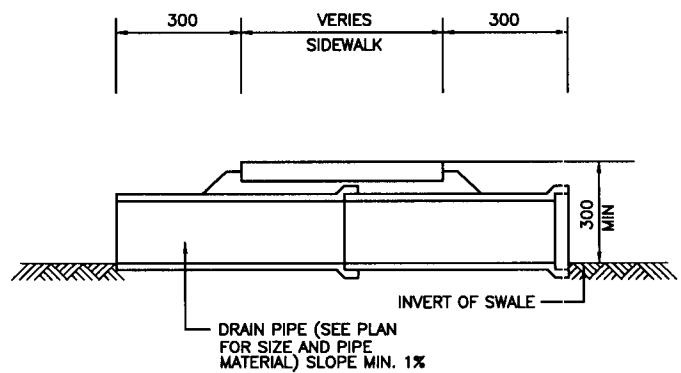
SECTION "B" - "B"

SIDWALK CULVERT

NOT TO SCALE



PLAN



SECTION

SIDWALK DRAIN

NOT TO SCALE

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER

REV DATE

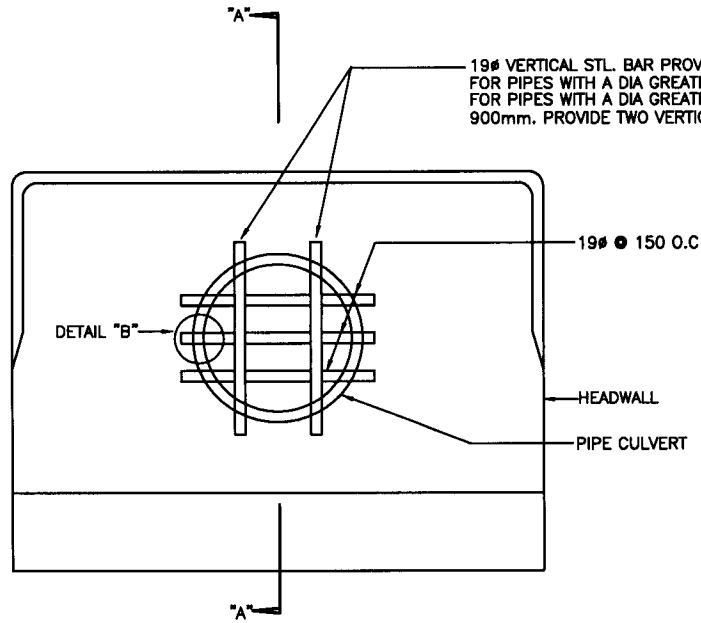
DWG NO.

TITLE SIDWALK CULVERT 2 & DRAIN

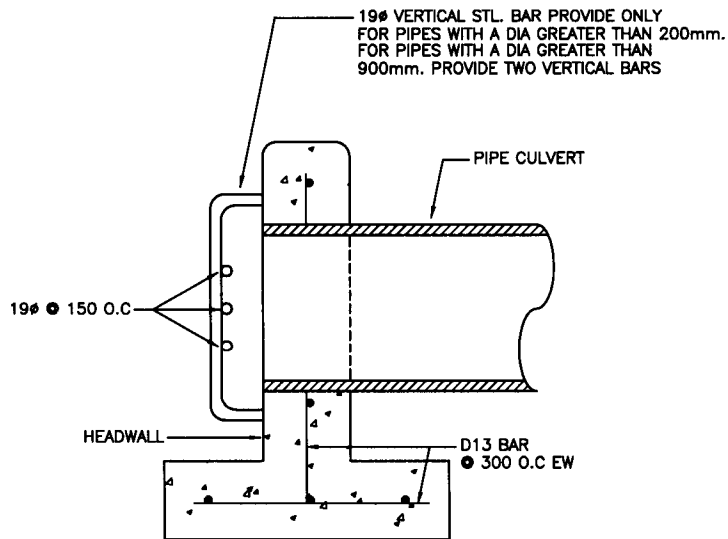
SPEC 02720

OCT 2003

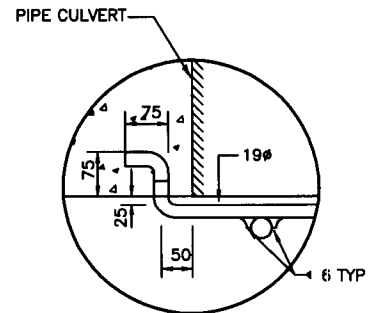
C0519



FRONT ELEVATION



SECTION A-A



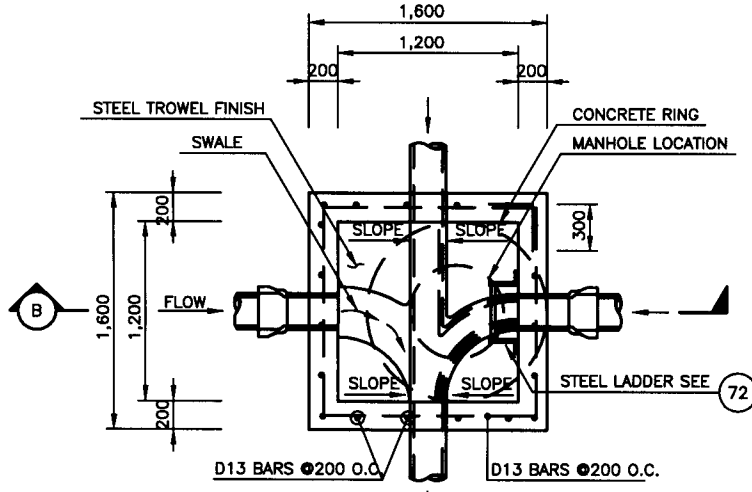
DETAIL "B"

MAN PROOFED PIPE CULVERTS

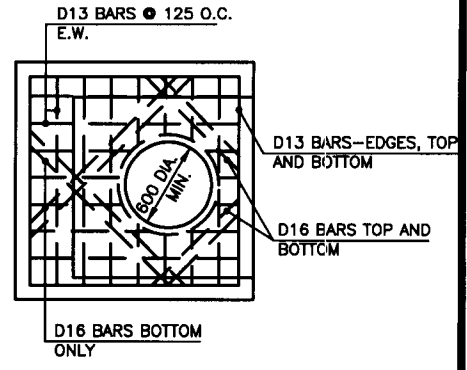
NOT TO SCALE

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	MANPROOFING	SPEC	02720	OCT 2003	C0520

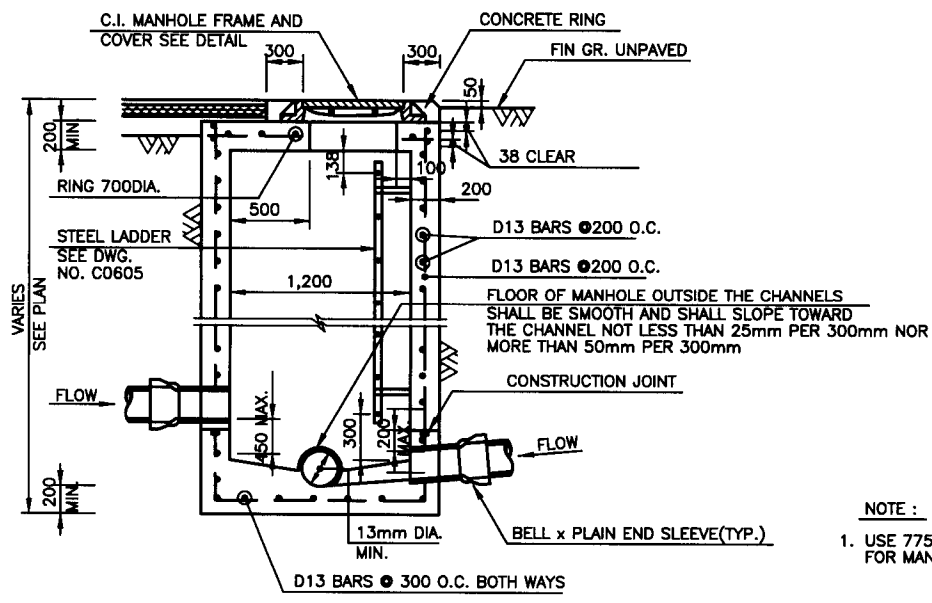
1. WHEREVER MANHOLES ARE SUBJECT TO TRAFFIC LOADS, RIBBED CAST IRON OR 100mm REINFORCED CONCRETE COVERS AS SHOWN SHALL BE USED UNLESS OTHERWISE INDICATED.
2. WHERE A NON-TRAFFIC TYPE MANHOLE IS SHOWN ON THE PLANS, CAST IRON WITHOUT THE SUPPORTING RIBS MAY BE USED.
3. COVER FRAMES SHALL BE SECURELY INSTALLED IN A BED OF CEMENT MORTAR.
4. INSTALL SHALLOW MANHOLE TOP SLAB AND COVER WHEN DEPTH FROM TOP OF CONCRETE SLAB TO INVERT OF MANHOLE IS 1.5m OR LESS.
5. INSTALL GALVANIZED STEEL LADDER ONLY WHEN DEPTH FROM TOP OF COVER TO INVERT OF MAIN SEWER EXCEEDS 1.2m, WALL ON WHICH LADDER IS INSTALLED SHALL BE VERTICAL FROM TOP SLAB TO INVERT.



A SECTION PLAN



C TOP SLAB REINFORCING

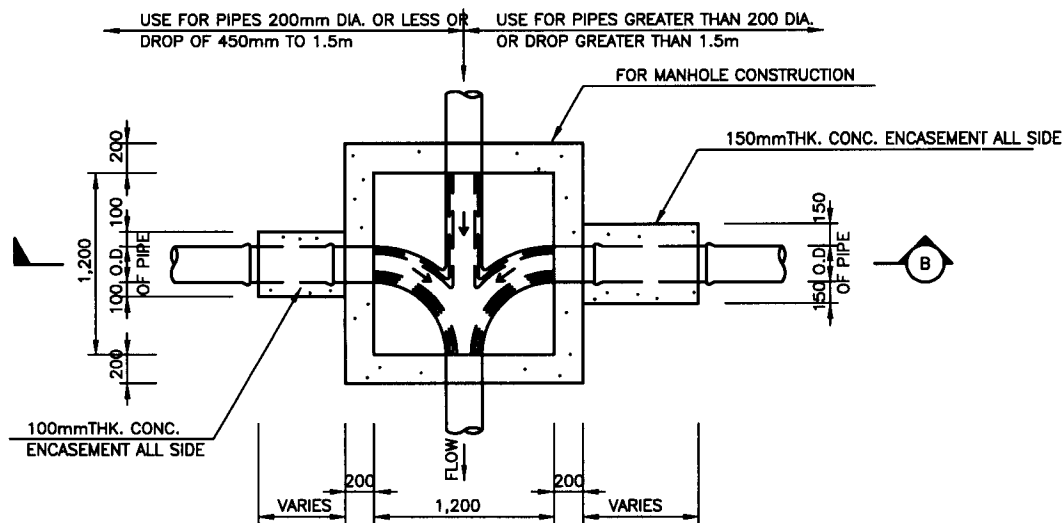


B SECTION

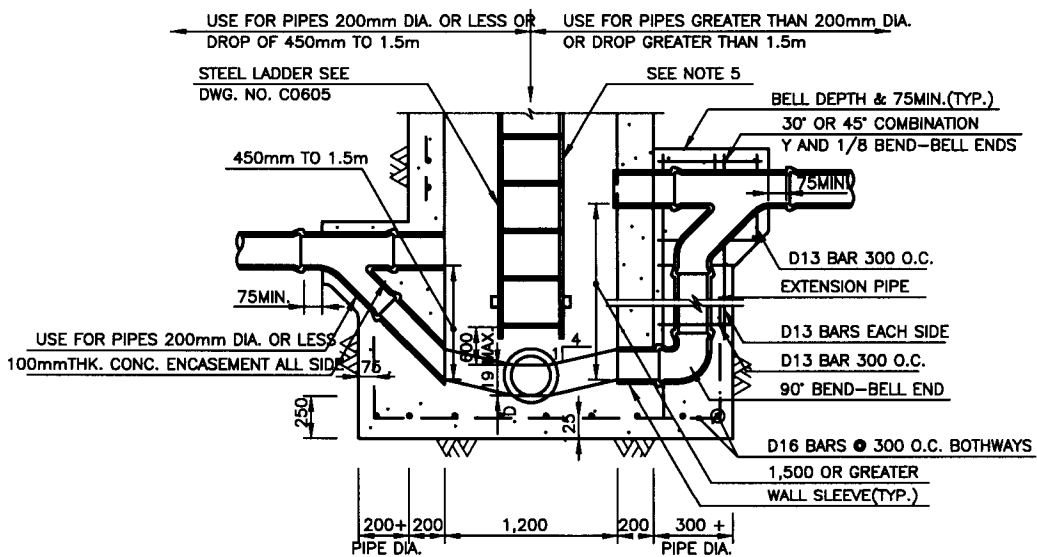
NOTE:
1. USE 775mm MINIMUM MANHOLE OPENING FOR MANHOLE WITH LADDER.

68 CONCRETE MANHOLE
NOT TO SCALE

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER			REV DATE	DWG NO.
TITLE	CONCRETE MANHOLE	SPEC	02730	OCT 2003
				C0601



(A) PLAN SECTION



(B) SECTION

DROP MANHOLE

NOT TO SCALE

1. WHEREVER MANHOLES ARE SUBJECT TO TRAFFIC LOADS, RIBBED CAST IRON OR 100mm REINFORCED CONCRETE COVERS AS SHOWN SHALL BE USED UNLESS OTHERWISE INDICATED.
2. WHERE A NON-TRAFFIC TYPE MANHOLE IS SHOWN ON THE PLANS, CAST IRON WITHOUT THE SUPPORTING RIBS MAY BE USED.
3. COVER FRAMES SHALL BE SECURELY INSTALLED IN A BED OF CEMENT MORTAR.
4. INSTALL SHALLOW MANHOLE TOP SLAB AND COVER WHEN DEPTH FROM TOP OF CONCRETE SLAB TO INVERT OF MANHOLE IS 1.5m OR LESS.
5. INSTALL GALVANIZED STEEL LADDER ONLY WHEN DEPTH FROM TOP OF COVER TO INVERT OF MAIN SEWER EXCEEDS 1.2m, WALL ON WHICH LADDER IS INSTALLED SHALL BE VERTICAL FROM TOP SLAB TO INVERT.

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER

REV DATE

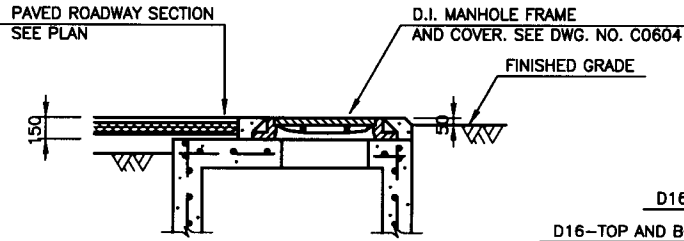
DWG NO.

TITLE DROP MANHOLE

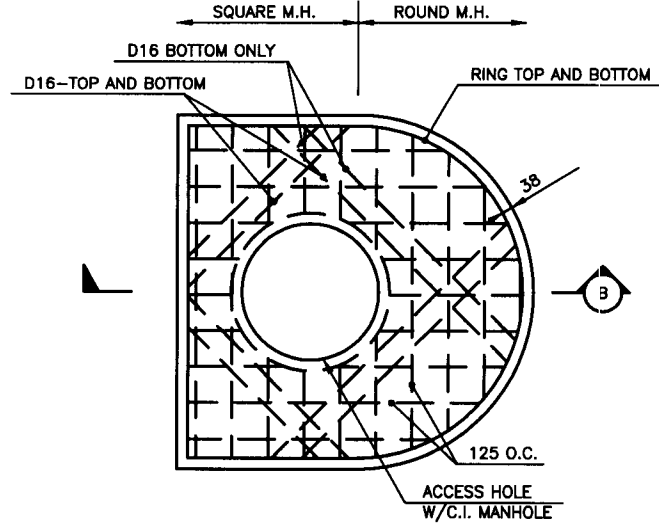
SPEC 02730

OCT 2003

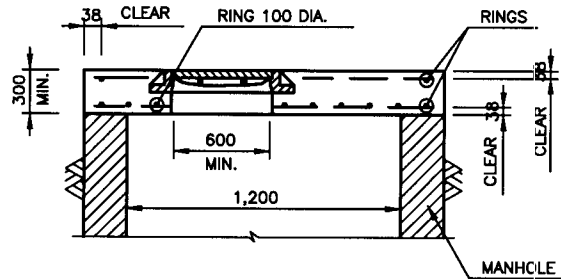
C0602



C STANDARD M.H. INSTALLATION



A TOP SLAB REINFORCING PLAN
SHALLOW MANHOLE



B SECTION-SHALLOW MANHOLE

SHALLOW CONCRETE MANHOLE

NOT TO SCALE

1. WHEREVER MANHOLES ARE SUBJECT TO TRAFFIC LOADS, RIBBED CAST IRON OR 100mm REINFORCED CONCRETE COVERS AS SHOWN SHALL BE USED UNLESS OTHERWISE INDICATED.
2. WHERE A NON-TRAFFIC TYPE MANHOLE IS SHOWN ON THE PLANS, CAST IRON WITHOUT THE SUPPORTING RIBS MAY BE USED.
3. COVER FRAMES SHALL BE SECURELY INSTALLED IN A BED OF CEMENT MORTAR.
4. INSTALL SHALLOW MANHOLE TOP SLAB AND COVER WHEN DEPTH FROM TOP OF CONCRETE SLAB TO INVERT OF MANHOLE IS 1.5m OR LESS.
5. INSTALL GALVANIZED STEEL LADDER ONLY WHEN DEPTH FROM TOP OF COVER TO INVERT OF MAIN SEWER EXCEEDS 1.2m. WALL ON WHICH LADDER IS INSTALLED SHALL BE VERTICAL FROM TOP SLAB TO INVERT.

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER

REV DATE

DWG NO.

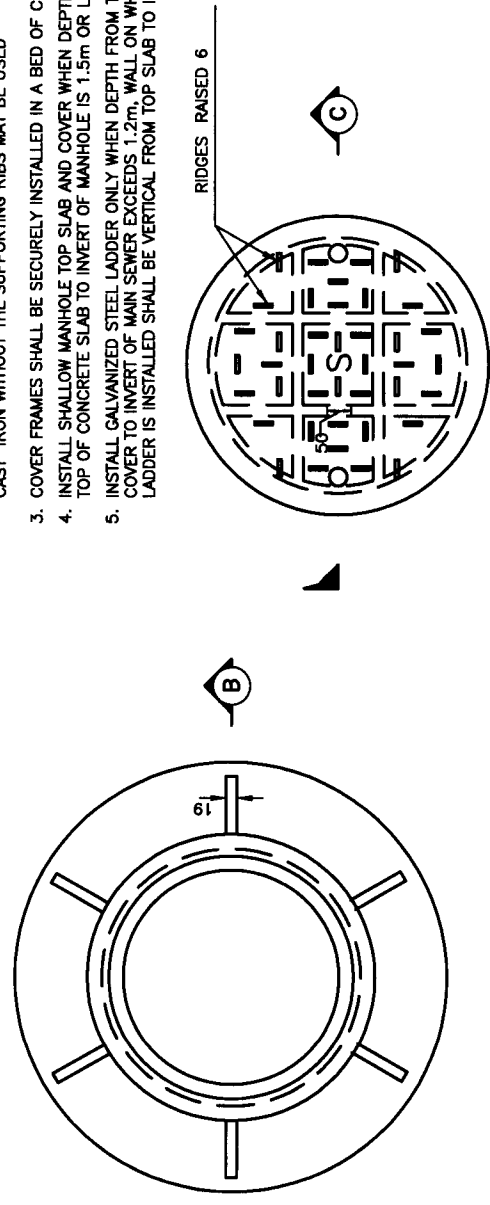
TITLE SHALLOW CONCRETE MANHOLE

SPEC 02730

OCT 2003

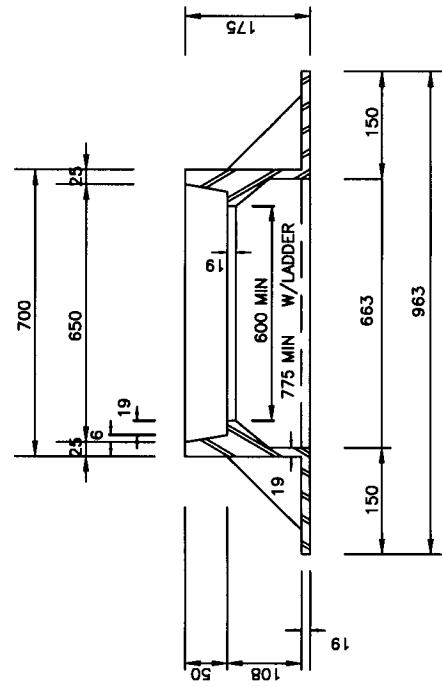
C0603

1. WHEREVER MANHOLES ARE SUBJECT TO TRAFFIC LOADS, RIBBED CAST IRON OR 100mm REINFORCED CONCRETE COVERS AS SHOWN SHALL BE USED UNLESS OTHERWISE INDICATED
2. WHERE A NON - TRAFFIC TYPE MANHOLE IS SHOWN ON THE PLANS, CAST IRON WITHOUT THE SUPPORTING RIBS MAY BE USED
3. COVER FRAMES SHALL BE SECURELY INSTALLED IN A BED OF CEMENT MORTAR
4. INSTALL SHALLOW MANHOLE TOP SLAB AND COVER WHEN DEPTH FROM TOP OF CONCRETE SLAB TO INVERT OF MANHOLE IS 1.5m OR LESS
5. INSTALL GALVANIZED STEEL LADDER ONLY WHEN DEPTH FROM TOP OF COVER TO INVERT OF MAIN SEWER EXCEEDS 1.2m. WALL ON WHICH LADDER IS INSTALLED SHALL BE VERTICAL FROM TOP SLAB TO INVERT.



A FRAME - PLAN

C COVER - PLAN



B SECTION

D SECTION

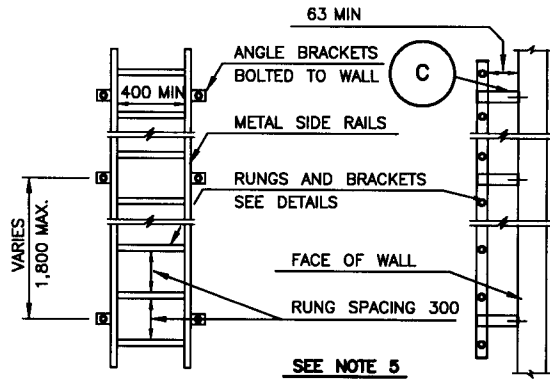
CAST IRON MANHOLE FRAME AND COVER

NOT TO SCALE

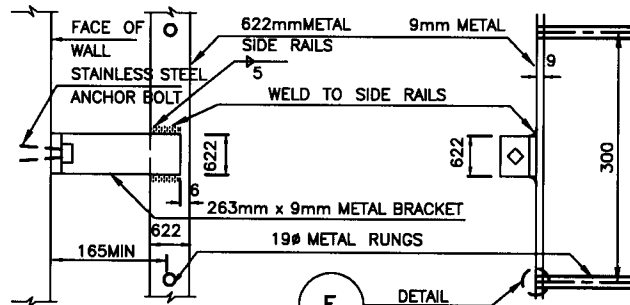
NOTE
 DESIGN OF RIBBED CAST IRON COVERS AND FRAMES IS BASED ON A WHEEL LOAD OF 7.3tonf PLUS 25% ALLOWANCE FOR IMPACT.
 OTHER DESIGNS DIFFERING ONLY IN NON - ESSENTIAL DETAILS AND AS APPROVED BY THE CONTRACTING OFFICER MAY BE USED. TOTAL WEIGHT SHALL NOT BE LESS THAN 181 kgf. THE LETTER "S" AT LEAST 50 HIGH SHALL BE CAST IN CENTER OF COVER.

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER		REV DATE	DWG NO.
TITLE	CAST IRON MANHOLE FRAME AND COVER	SPEC 02730	OCT 2003
			C0604

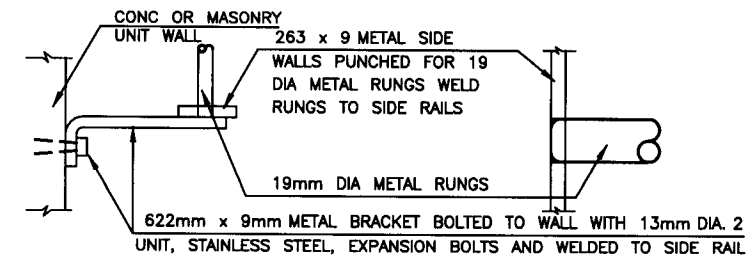
1. WHEREVER MANHOLES ARE SUBJECT TO TRAFFIC LOADS, RIBBED CAST IRON OR 100mm REINFORCED CONCRETE COVERS AS SHOWN SHALL BE USED UNLESS OTHERWISE INDICATED
2. WHERE A NON - TRAFFIC TYPE MANHOLE IS SHOWN ON THE PLANS, CAST IRON WITHOUT THE SUPPORTING RIBS MAY BE USED
3. COVER FRAMES SHALL BE SECURELY INSTALLED IN A BED OF CEMENT MORTAR
4. INSTALL SHALLOW MANHOLE TOP SLAB AND COVER WHEN DEPTH FROM TOP OF CONCRETE SLAB TO INVERT OF MANHOLE IS 1.5m OR LESS
5. INSTALL GALVANIZED STEEL LADDER ONLY WHEN DEPTH FROM TOP OF COVER TO INVERT OF MAIN SEWER EXCEEDS 1.2m, WALL ON WHICH LADDER IS INSTALLED SHALL BE VERTICAL FROM TOP SLAB TO INVERT.



A FRONT ELEVATION **B** SIDE ELEVATION



C BRACKET - SIDE **D** BRACKET - FRONT

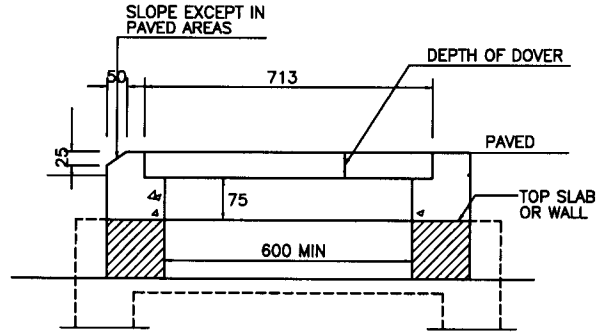


E BRACKET - TOP **D** RUNG - CONNECTION

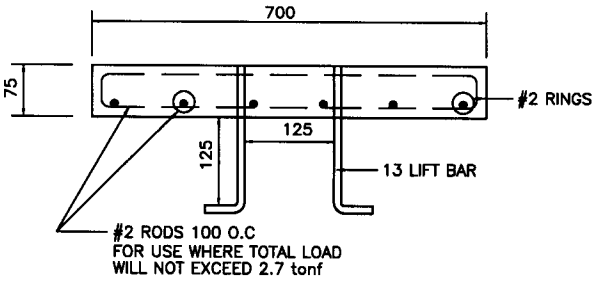
GALVANIZED STEEL M. H. LADDER

NOT TO SCALE

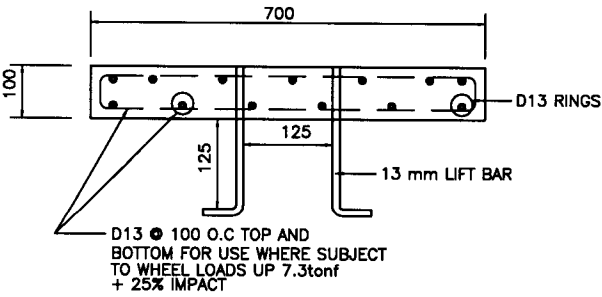
IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	GALVANIZED STEEL MANHOLE LADDER	SPEC	02730	OCT 2003	C0605



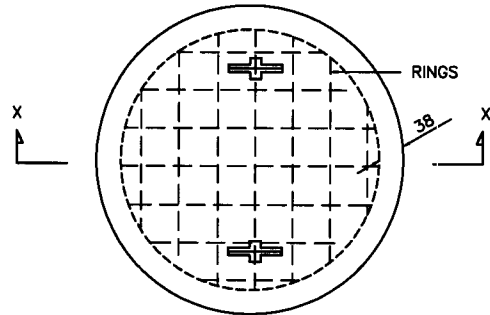
SECTION
FRAME FOR STANDARD MANHOLE



75mm COVER



100mm COVER
SECTION X-X

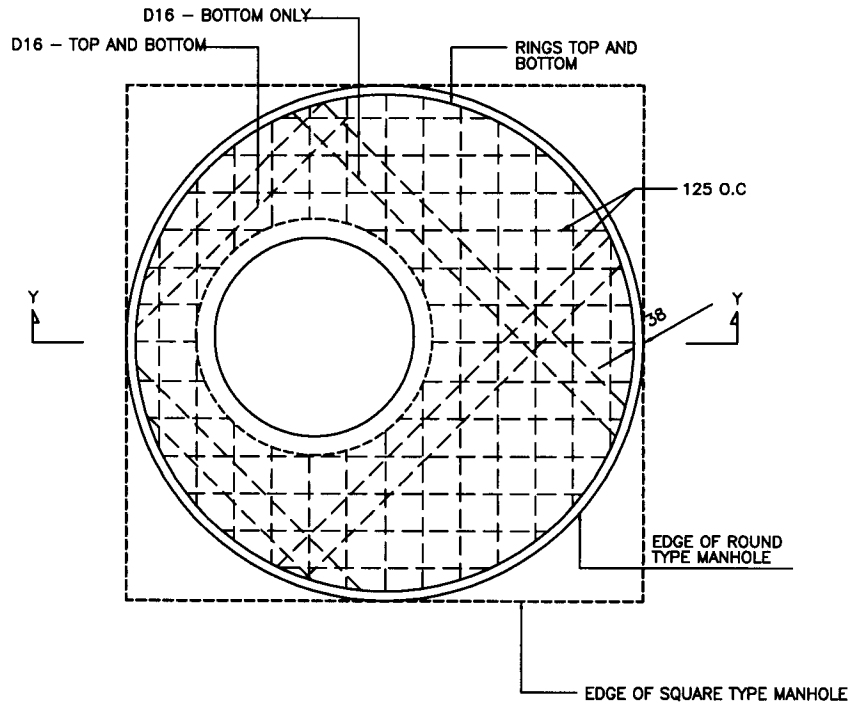


PLAN
REMOVABLE COVER

MANHOLE FRAME AND COVER CONCRETE-1

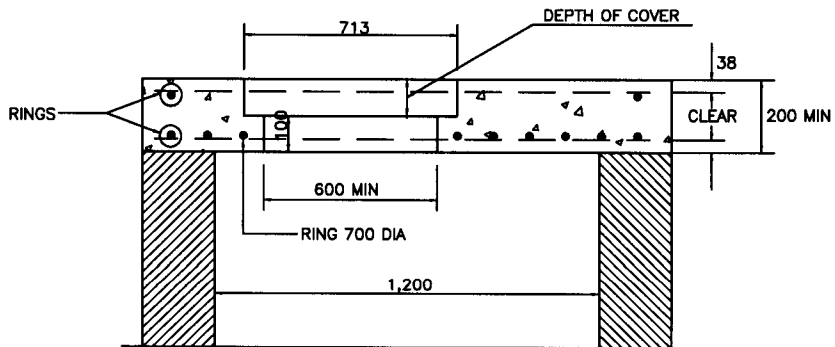
NOT TO SCALE

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	CONCRETE MANHOLE COVER	SPEC	02730	OCT 2003	C0606



PLAN

NOTE :
FOR SQUARE TYPE MANHOLE FRAMES
REINFORCING TO EXTEND TO 38mm FROM FACE



SECTION Y-Y

SHALLOW MANHOLE FRAME

MANHOLE FRAME AND COVER CONCRETE-2

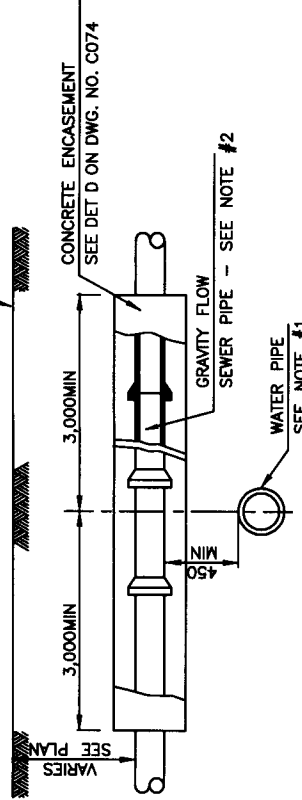
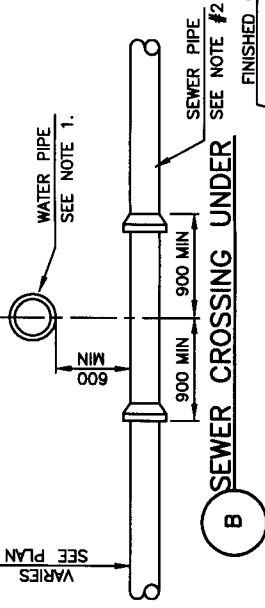
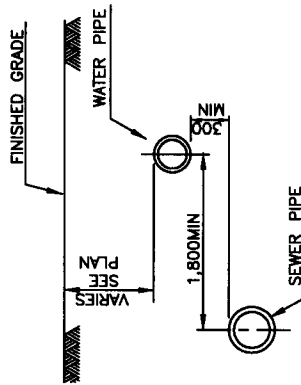
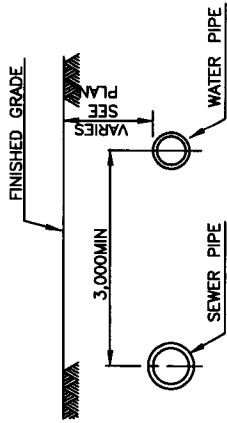
NOT TO SCALE

NOTE :
CONCRETE COVERS AND FRAMES USE CLASS A, 210 kgf/cm² CONCRETE. STEEL RINGS
MAY BE EITHER LAPPED OR WELDED AT ENDS ALL BARS SHALL BE HOOKED TO RINGS

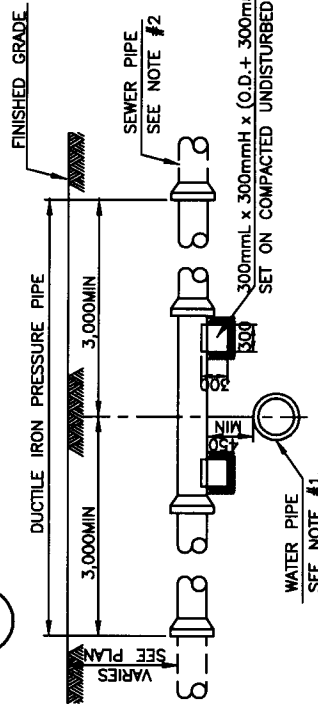
IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER			REV DATE	DWG NO.
TITLE	CONCRETE MANHOLE COVER	SPEC	O2730	OCT 2003
				C0607

NOTES :

1. A FULL LENGTH OF WATER MAIN PIPE WILL BE CENTERED BETWEEN JOINTS OF THE SEWER PIPE
2. IF A SEWER LINE JOINT FALLS WITHIN 900mm HORIZONTALLY OF THE WATER LINE, THE SEWER LINE WILL BE CONCRETE ENCASED FOR A DISTANCE OF 3m EACH SIDE OF CROSSING



C SEWER CROSSING OVER - ALTERNATE #1

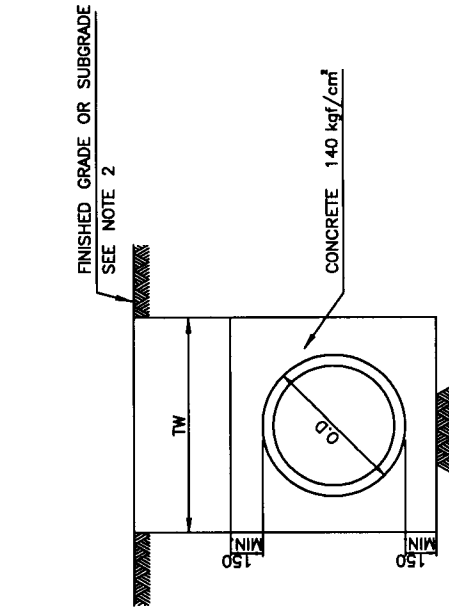
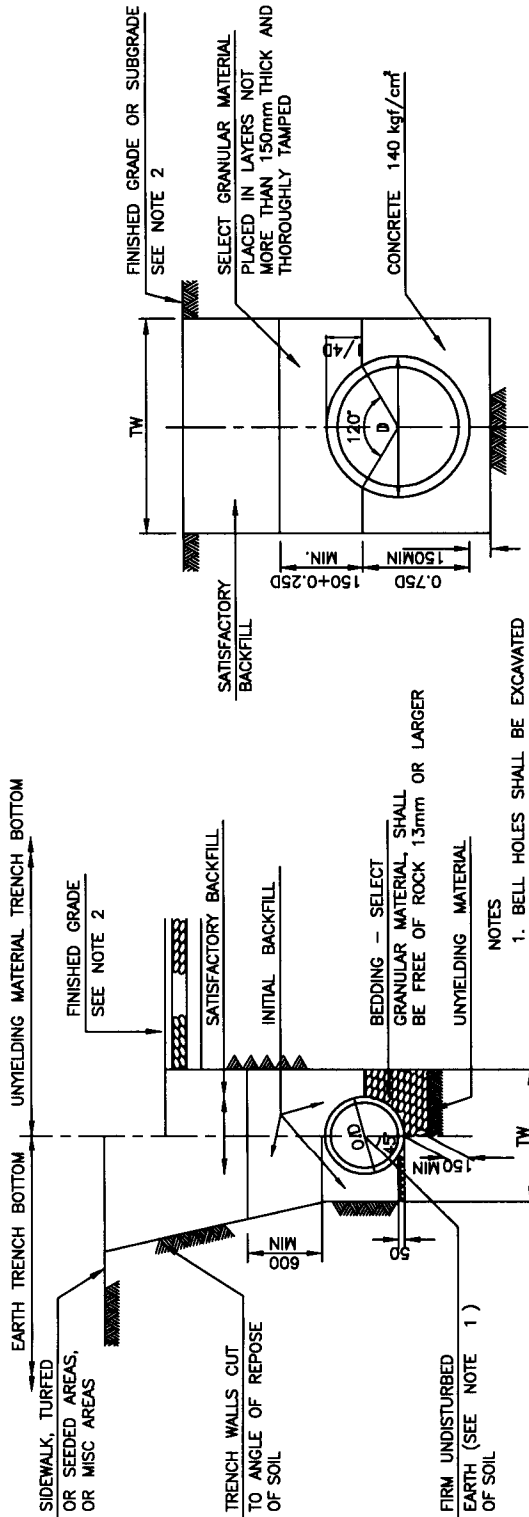


D SEWER CROSSING OVER - ALTERNATE #2

WATER AND SEWER CROSSING AND PARALLEL PIPES

NOT TO SCALE

TITLE		IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER		REV DATE	DWG NO.
WATER AND SEWER CROSSING AND PARALLEL PIPES		SPEC	02730	OCT 2003	C0608



NOTES

- BELL HOLES SHALL BE EXCAVATED TO THE NECESSARY SIZE AT EACH JOINT OR COUPLING TO ELIMINATE POINT BEARING
- FOR PAVEMENT REPLACEMENT OR NEW PAVEMENT, SEE 40-17-0017-0005

TYPICAL TRENCH SECTION

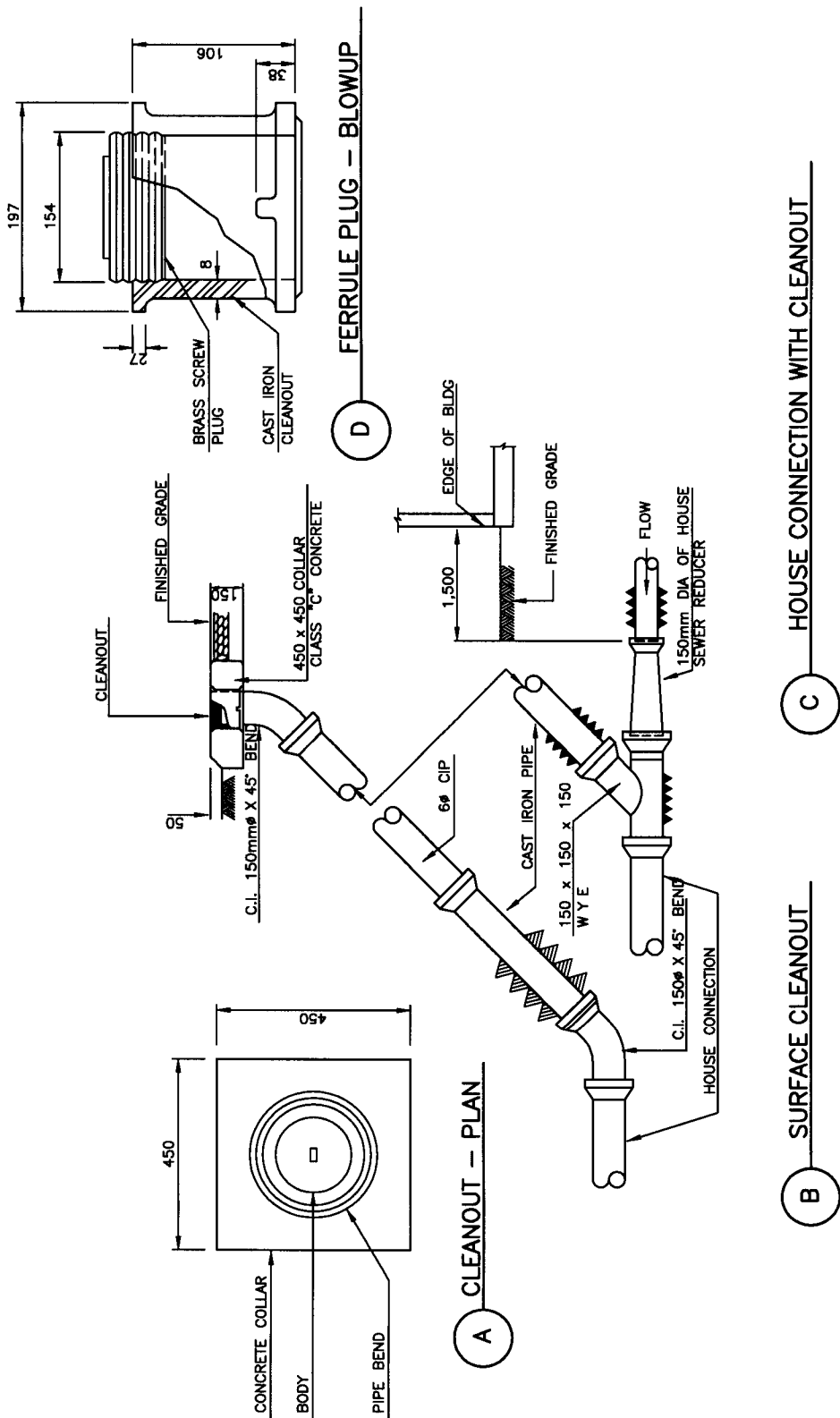
GENERAL NOTES

- PIPE TRENCH DETAILS MAY BE USED FOR WATER PIPE LINE INSTALLATION IF SHOWN ON THE PLANS

PIPE TRENCH INSTALLATION

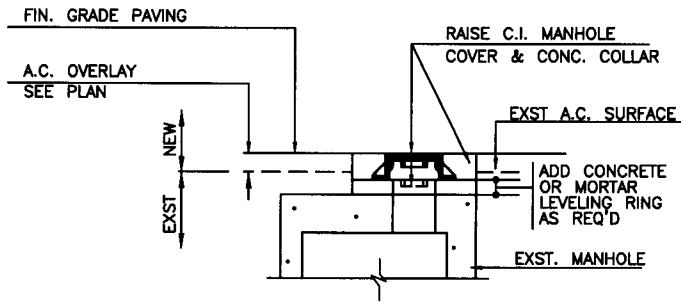
NOT TO SCALE

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER		REV DATE	DWG NO.
TITLE	PIPE TRENCH INSTALLATION	SPEC 02730	OCT 2003 C0609

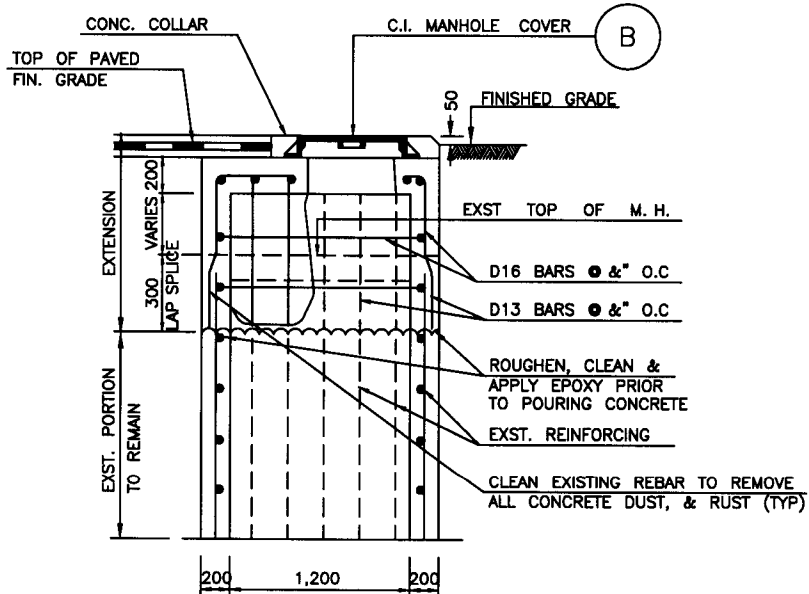


SURFACE CLEANOUT AND HOUSE CONNECTION
NOT TO SCALE

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER			REV DATE	DWG NO.
TITLE	SURFACE CLEANOUT AND CONNECTION	SPEC	02730	OCT 2003
				C0610



B RAISE MANHOLE COVER DETAIL
NOT TO SCALE

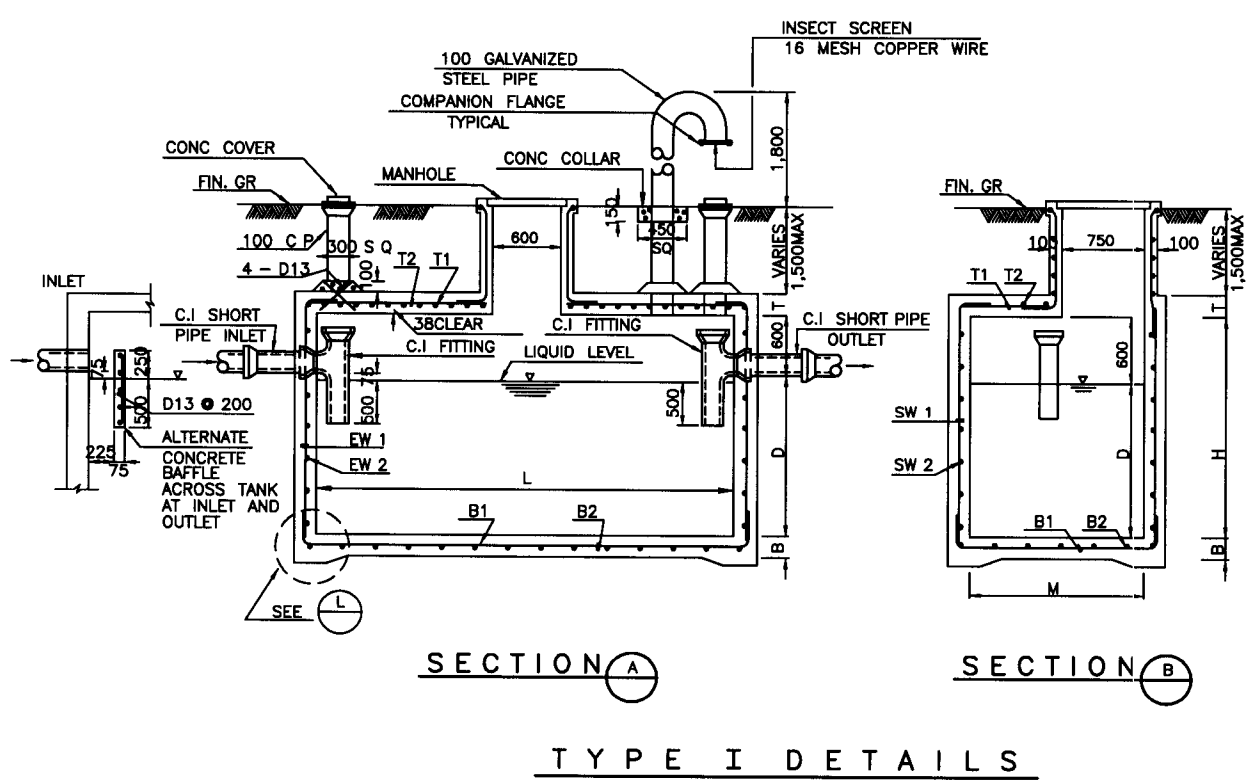
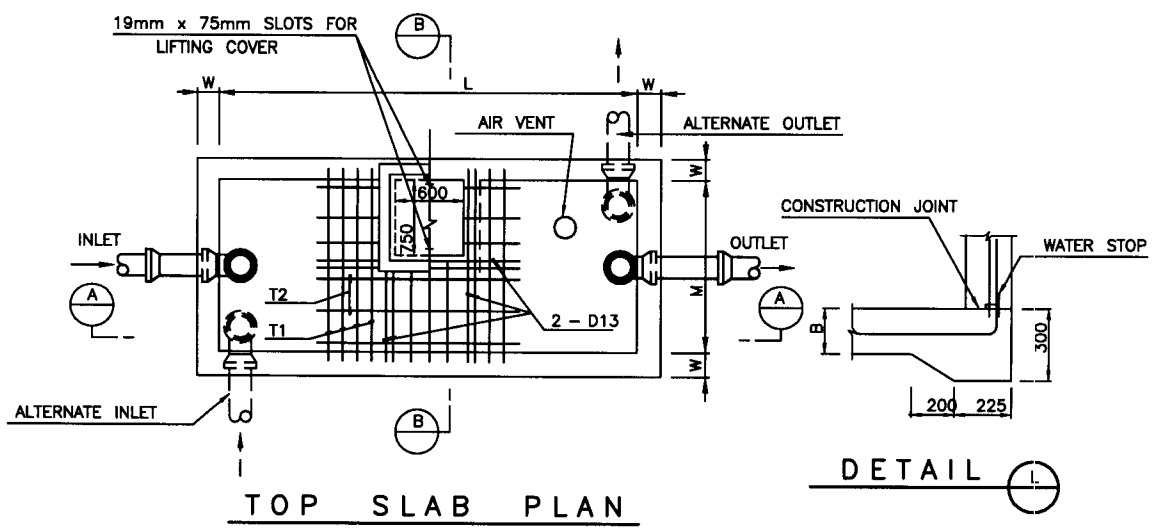


A RAISE EXISTING MANHOLE - DETAIL
NOT TO SCALE

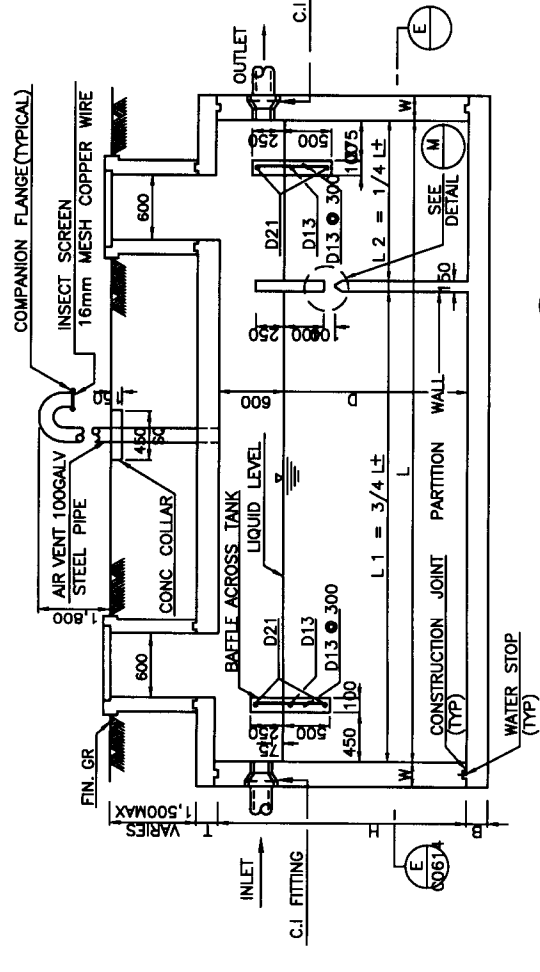
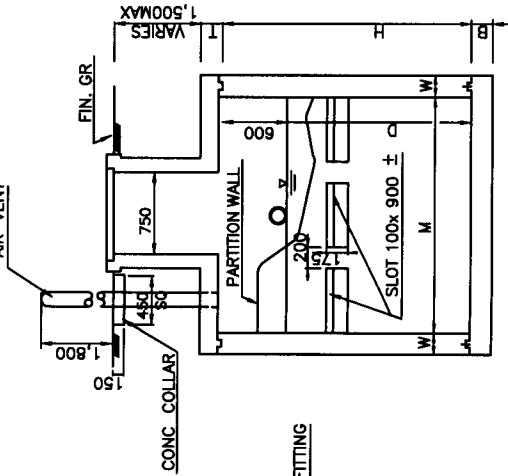
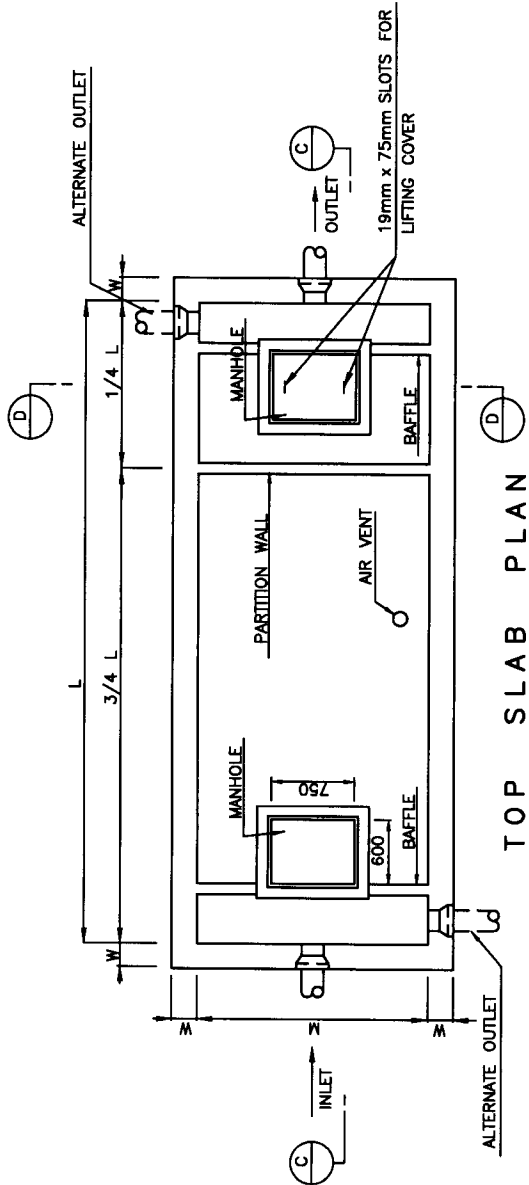
GENERAL NOTES

1. RAISE MANHOLE DETAILS MAY BE USED FOR WATER, AND STORM DRAIN MANHOLES IF SHOWN ON THE PLANS

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER			REV DATE	DWG NO.
TITLE	RAISED EXISTING MANHOLE COVER	SPEC	02730	OCT 2003
			C0611	



IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER		REV DATE	DWG NO.
TITLE	STANDARD CONCRETE SEPTIC TANK - 1	SPEC 02730	OCT 2003 C0612



SECTION D

SECTION C

TYPE II DETAILS

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER

REV DATE

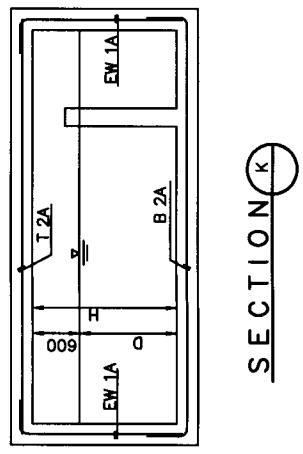
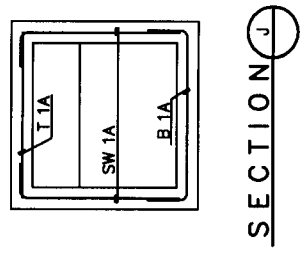
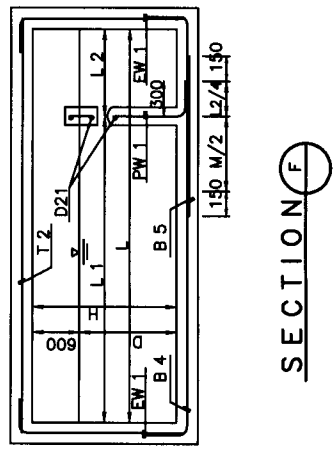
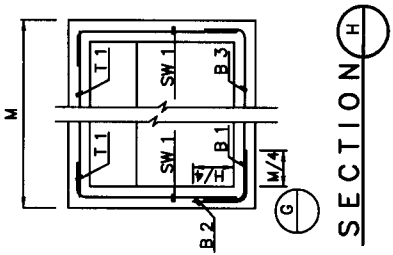
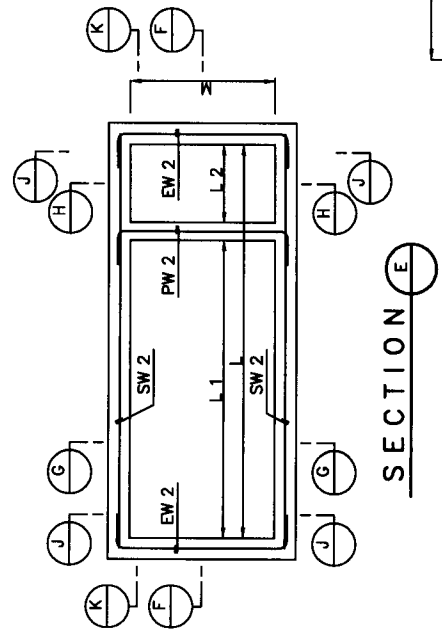
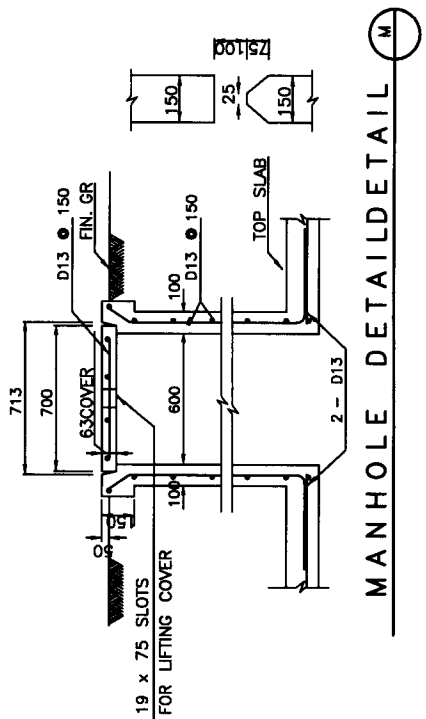
DWG NO.

TITLE STANDARD CONCRETE SEPTIC TANK - 2

SPEC 02730

OCT 2003

C0613



TITLE		IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER		REV DATE	DWG NO.
STANDARD CONCRETE SEPTIC TANK - 3		SPEC	02730	OCT 2003	C0614

S I Z E A N D R E I N F O R C E M E N T T A B L E

TYPE CAPACITY GALLON	TANK SIZE			THICKNESS			M I D D L E						S T R I P						R E I N F O R C E M E N T					
	L		M		D		T		B		A		T O P S L A B			B O T T O M			S L A B		S I D E W A L L		E N D W A L L	
	L	M	D	T	B	A	T1	T2	B1	B2	B3	B4	B5	SW1	SW2	EW1	EW2							
I	5 0 0	1,950	900	1,200	113	200	200	D13@250	D13@300	D13@150	D13@200			D13@150	D13@125	D13@200	D13@125							
	7 5 0	2,300	1,100	1,200	113	200	200	D13@200	D13@300	D13@150	D13@200			D13@150	D13@125	D13@200	D13@125							
	1,000	2,550	1,200	1,350	113	200	200	D13@200	D13@300	D13@200	D13@200			D13@200	D13@125	D13@200	D13@125							
	1,500	2,925	1,350	1,500	125	200	200	D13@300	D13@250	D13@175	D13@200			D13@175	D13@125	D13@200	D13@125							
	2,000	3,250	1,425	1,575	125	200	200	D13@300	D13@250	D13@175	D13@300			D13@175	D13@125	D13@300	D13@125							
	2,500	3,450	1,500	1,575	125	200	200	D13@250	D13@250	D13@150	D13@300			D13@150	D13@125	D13@300	D13@125							
	3,000	3,750	1,575	1,575	125	200	200	D13@250	D13@250	D13@150	D13@300			D13@150	D13@125	D13@300	D13@125							
	4,000	4,200	1,575	1,575	138	225	200	D13@250	D13@225	D13@150	D13@200	D13@250			D13@175	D13@250	D13@250							
	5,000	4,350	1,650	1,575	150	225	200	D13@200	D13@225	D13@150	D13@200	D13@300			D13@175	D13@250	D13@250							
	6,000	4,650	1,800	1,575	150	225	200	D13@200	D13@225	D13@150	D13@200	D13@300			D13@175	D13@250	D13@250							
II	4,000	5,250	1,950	1,575	175	225	200	D13@200	D13@200	D13@150	D13@150			D13@150	D13@250	D13@250	D13@250							
	4,500	5,450	1,950	1,575	175	225	200	D13@200	D13@200	D13@150	D13@150			D13@150	D13@250	D13@250	D13@250							
	5,000	5,775	2,100	1,650	175	225	200	D13@200	D13@200	D13@150	D13@150			D13@150	D13@250	D13@250	D13@250							
	2,500																							
	2,750																							
	3,000																							
	3,500																							
	4,000																							
	4,500																							
	5,000																							

TYPE CAPACITY GALLON	P A T I O N		C O L U M N S T R I P R E I N F O R C E M E N T					
	W A L L		T O P S L A B		B O T T O M		S I D E W A L L	
	PW1	PW2	T1A	T2A	B1A	B2A	SW1A	EW1A
5 0 0								
7 5 0								
1,000								
1,500								
1,700								
2,000								
2,500								
2,750	D13@250	D13@175	D13@300	D13@200	D13@300	D13@300	D13@250	D13@200
3,000	D13@250	D13@175	D13@300	D13@300	D13@300	D13@300	D13@250	D13@200
3,500	D13@250	D13@175	D13@300	D13@300	D13@250	D13@300	D13@250	D13@200
4,000	D13@250	D13@175	D13@300	D13@300	D13@250	D13@300	D13@225	D13@200
4,500	D13@250	D13@175	D13@300	D13@300	D13@250	D13@300	D13@225	D13@200
5,000	D13@250	D13@175	D13@300	D13@300	D13@250	D13@300	D13@225	D13@200

D E S I G N N O T E S

- A. D E S I G N L O A D S**
- 1 NO TRAFFIC ON THE ROOF SLAB
 - 2 MAXIMUM SOIL COVERAGE ON ROOF SLAB 1,500
- B. M E T E R I A L S T E N G T H**
- 1 REINFORCING STEEL $F_y = 3,000 \text{ kgf/cm}^2$
 2 CONCRETE CLASS AA $f_c = 280 \text{ kgf/cm}^2$

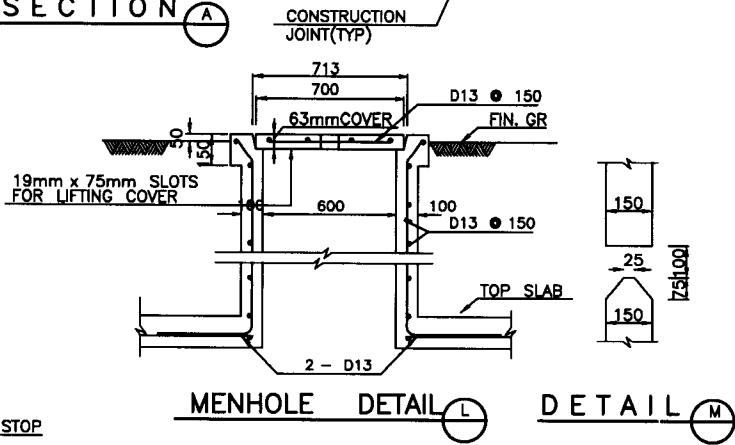
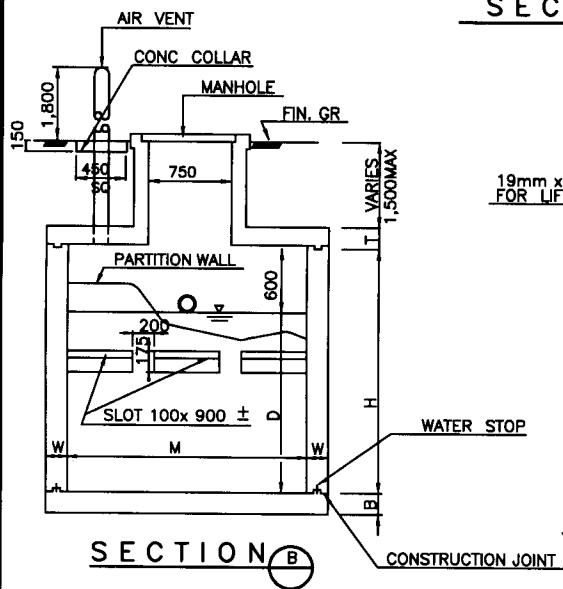
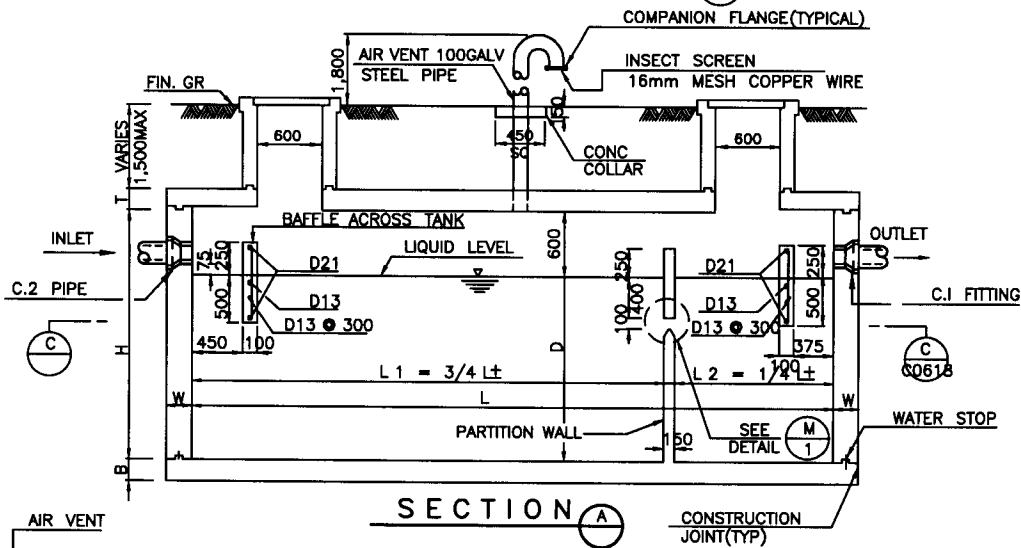
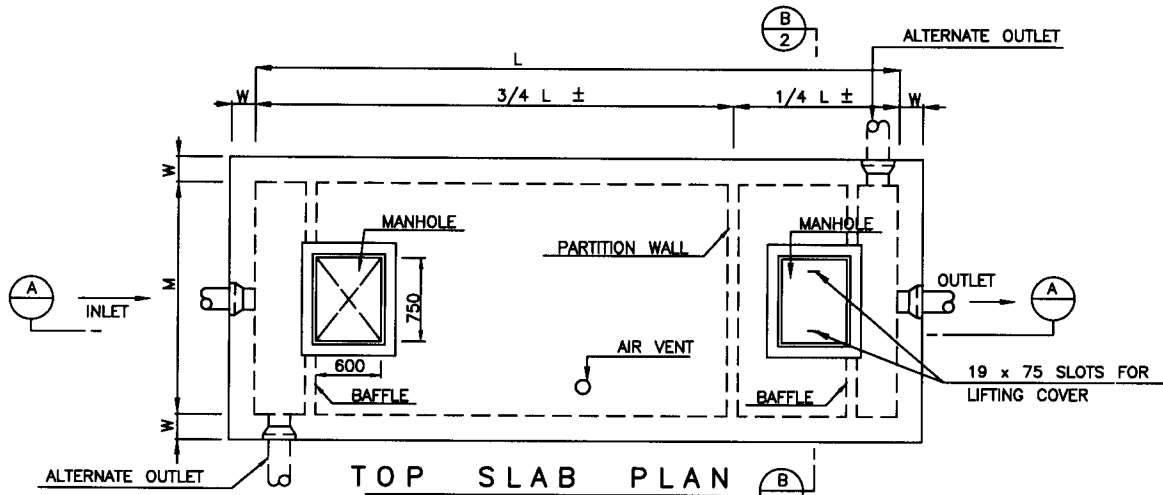
C O N S T R U C T I O N N O T E S

- 1 MINIMUM REINFORCEMENT LAP SPlice LENGTH SHALL BE 300 FOR D13 BAR, 350 FOR D16 BAR
- 2 REINFORCEMENT DETAILING AND PLACEMENT, UNLESS OTHERWISE NOTED, SHALL CONFORM TO ACI 318 - 86 AND ACI 315 - 80
- 3 CONCRETE COVERING FOR REINFORCEMENT SHALL BE AS FOLLOWS
 - BASE SLAB BOTTOM 81
 - ALL OTHER 31
- 4 UNLESS OTHERWISE SHOWN CONCRETE FORMWORK TOLERANCES SHALL CONFORM TO ACI 347 - 88
- 5 ALL PIPE AND FITTINGS SHALL BE CAST IRON SOIL PIPE
- 6 AIR VENTS SHALL BE PAINTED ORANGE

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER

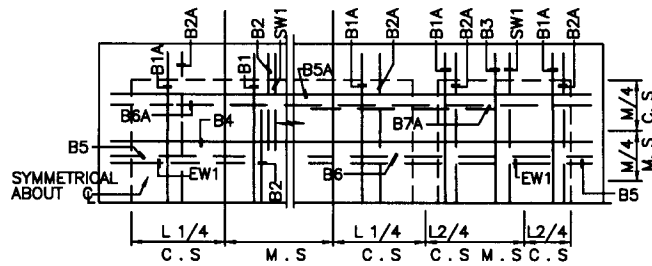
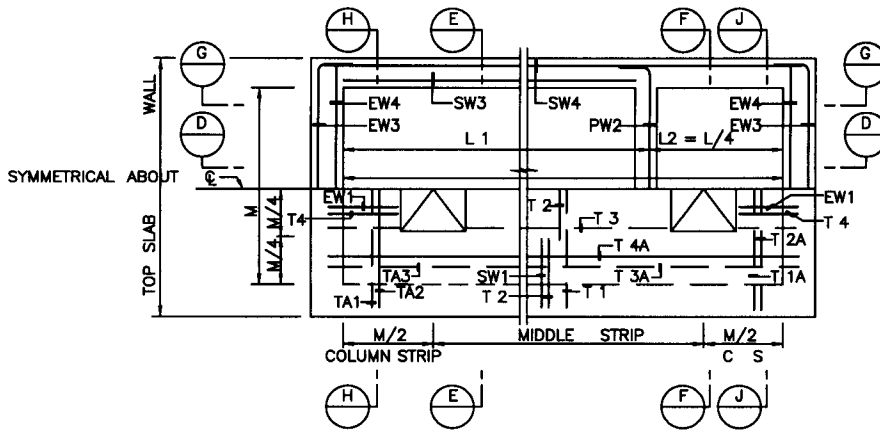
REV DATE	DWG NO.
OCT 2003	C0615

TITLE	SPEC	O2730	OCT 2003	C0615
STANDARD CONCRETE SEPTIC TANK - 4				

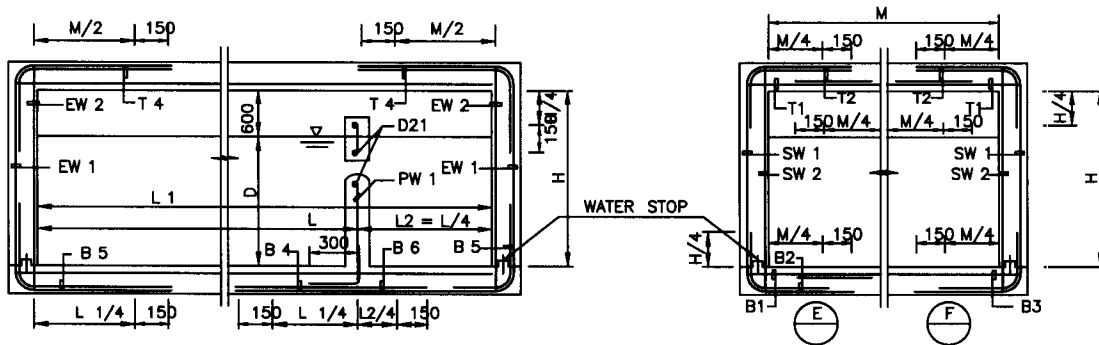


T Y P E III & IV - G E N E R A L D E T A I L S

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER			REV DATE	DWG NO.
TITLE	STANDARD CONCRETE SEPTIC TANK - 5	SPEC	02730 OCT 2003	C0616



BOTTOM SLAB PLAN

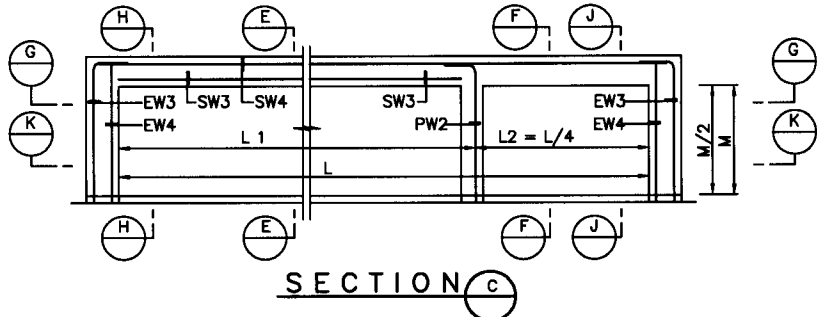


SECTION D

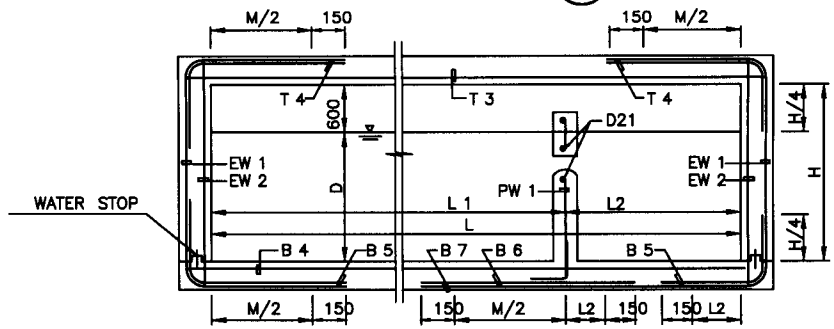
SECTION

TYPE III DETAILS

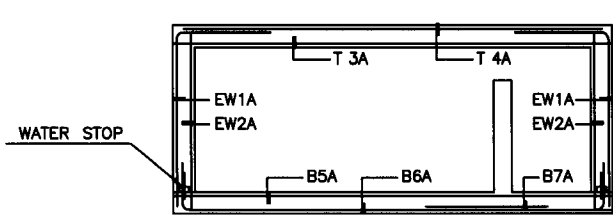
IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER		REV DATE	DWG NO.
TITLE	STANDARD CONCRETE SEPTIC TANK - 6	SPEC 02730	OCT 2003 C0617



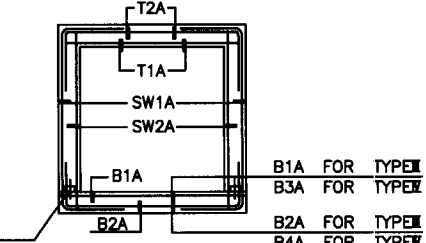
SECTION C



SECTION K

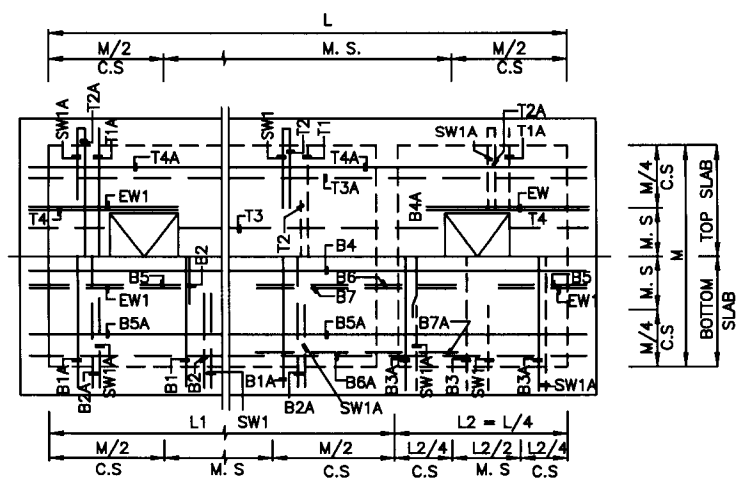


SECTION G



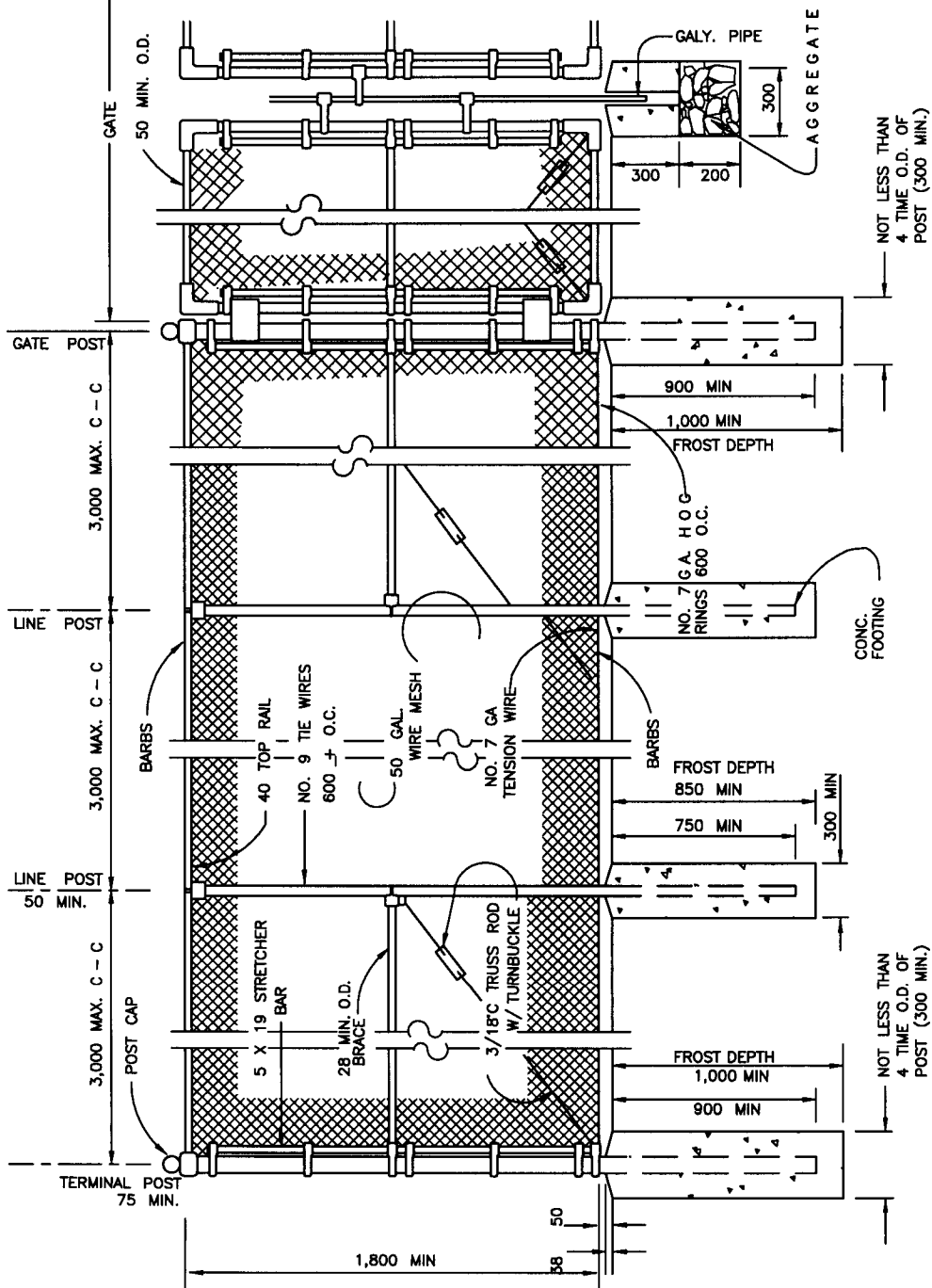
SECTION H J

- B1A FOR TYPE I
- B3A FOR TYPE W
- B2A FOR TYPE I
- B4A FOR TYPE W



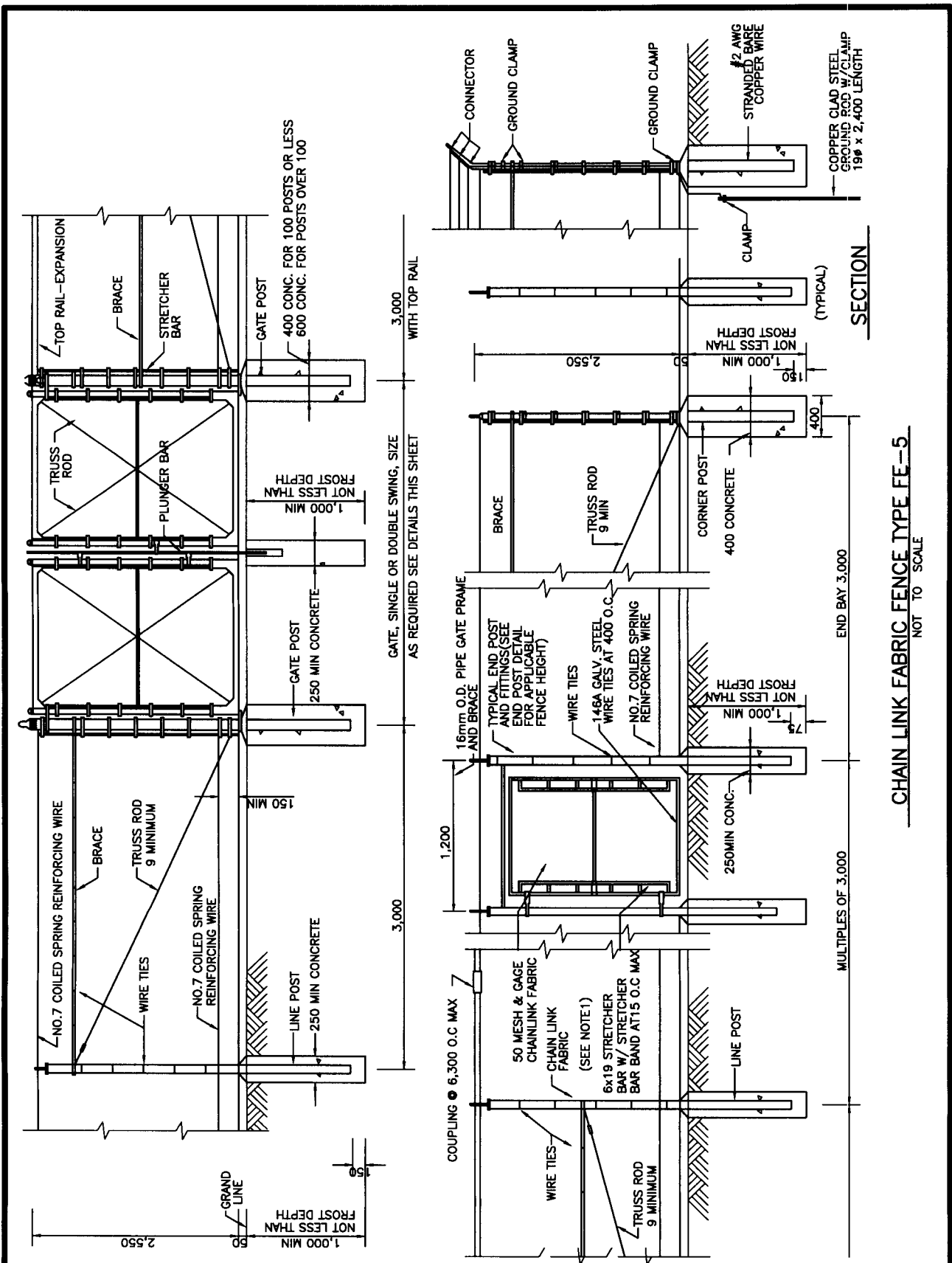
TYPE IV DETAILS

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER		REV DATE	DWG NO.
TITLE	STANDARD CONCRETE SEPTIC TANK - 7	SPEC 02730	OCT 2003 C0618



CHAIN LINK FENCE

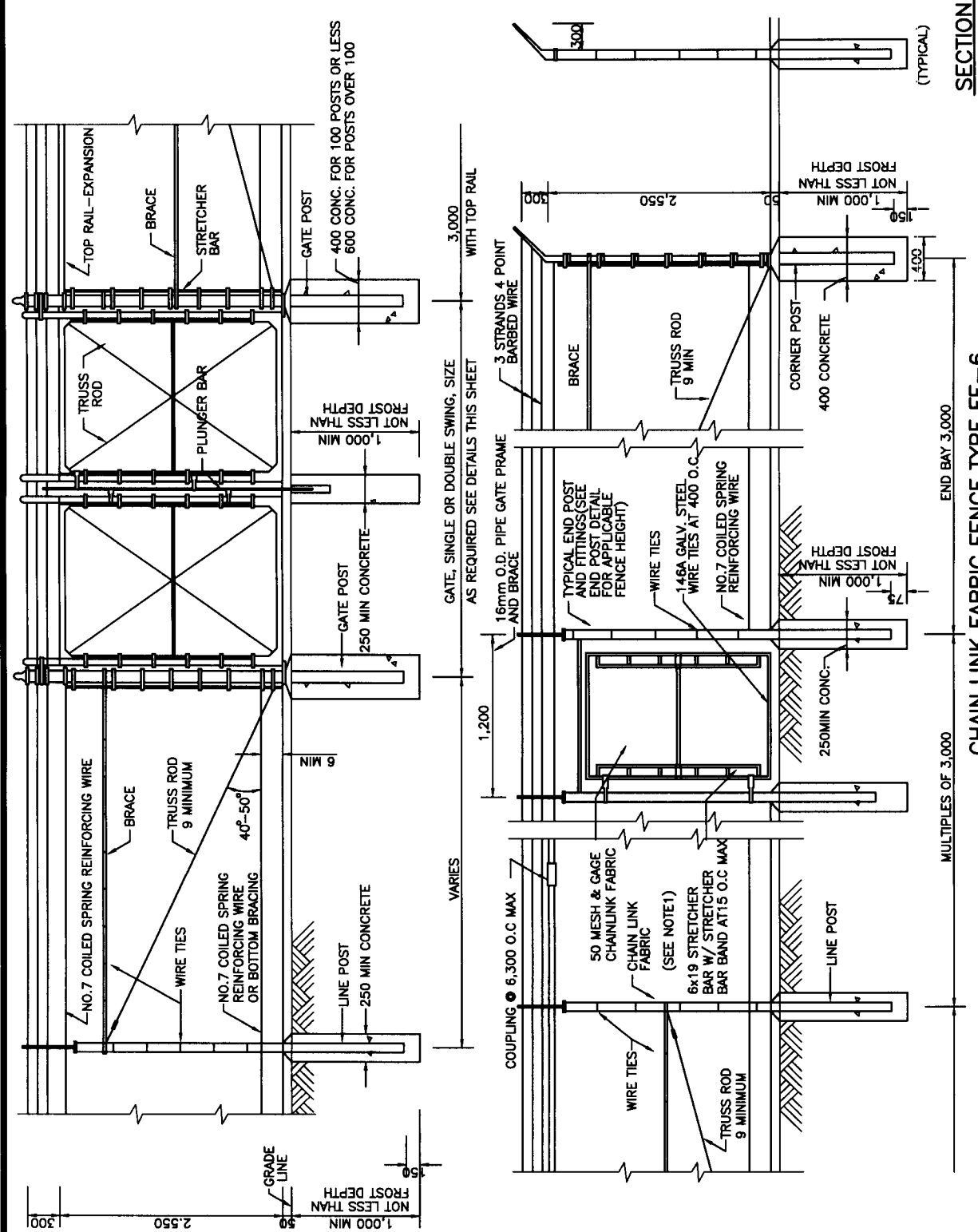
IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER		REV DATE	DWG NO.
TITLE	CHAIN LINK FENCE - 1	SPEC 02831	OCT 2003 C0701



SECTION

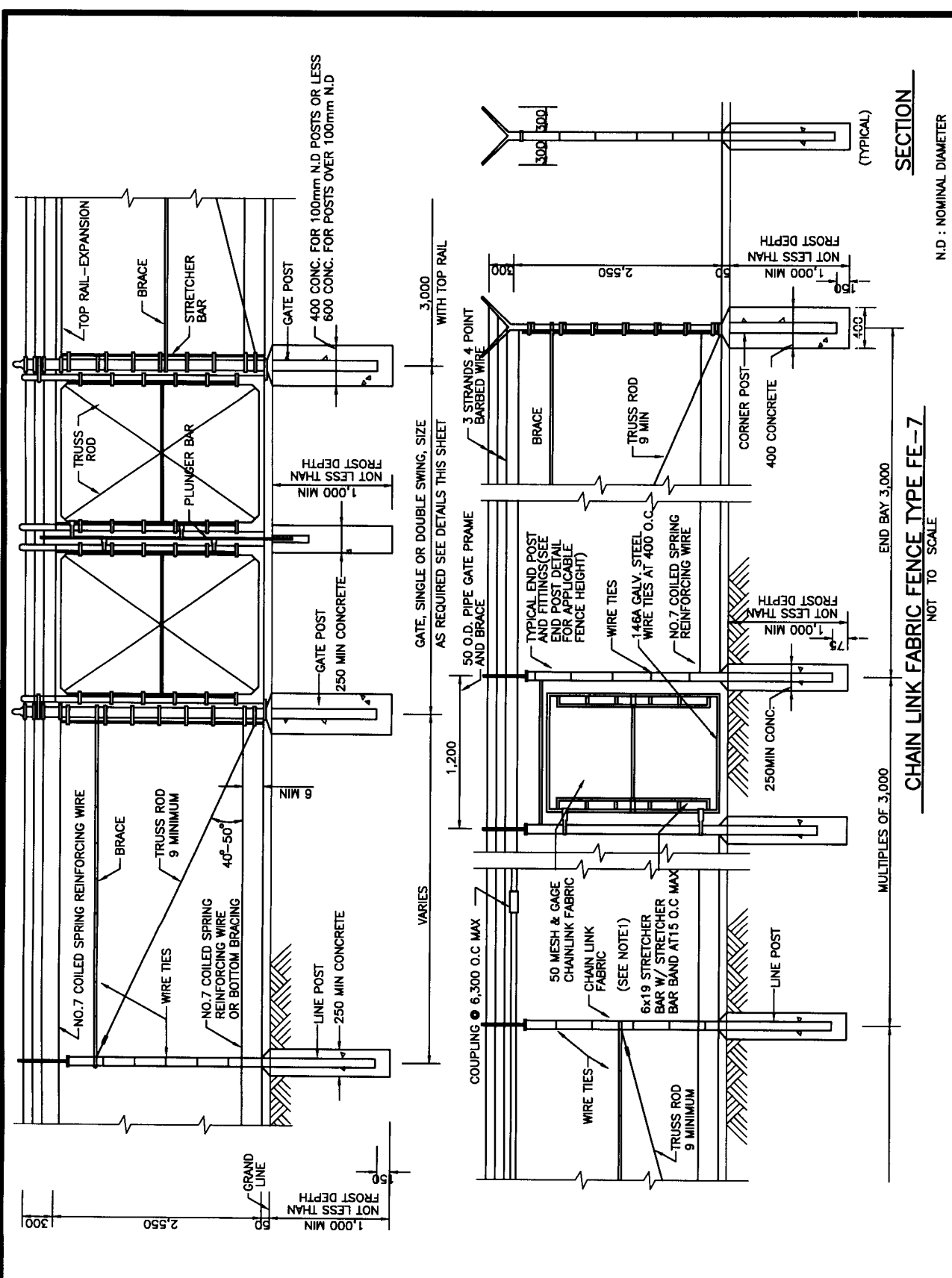
CHAIN LINK FENCE TYPE FE-5
NOT TO SCALE

TITLE		CHAIN LINK FENCE - TYPE FE - 5		SPEC		02831		REV DATE		OCT 2003		DWG NO.		C0702	
IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER															



CHAIN LINK FABRIC FENCE TYPE FE-6
NOT TO SCALE

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER		REV DATE	DWG NO.
TITLE	CHAIN LINK FENCE - TYPE FE - 6	OCT 2003	C0703
SPEC	02831	OCT 2003	C0703



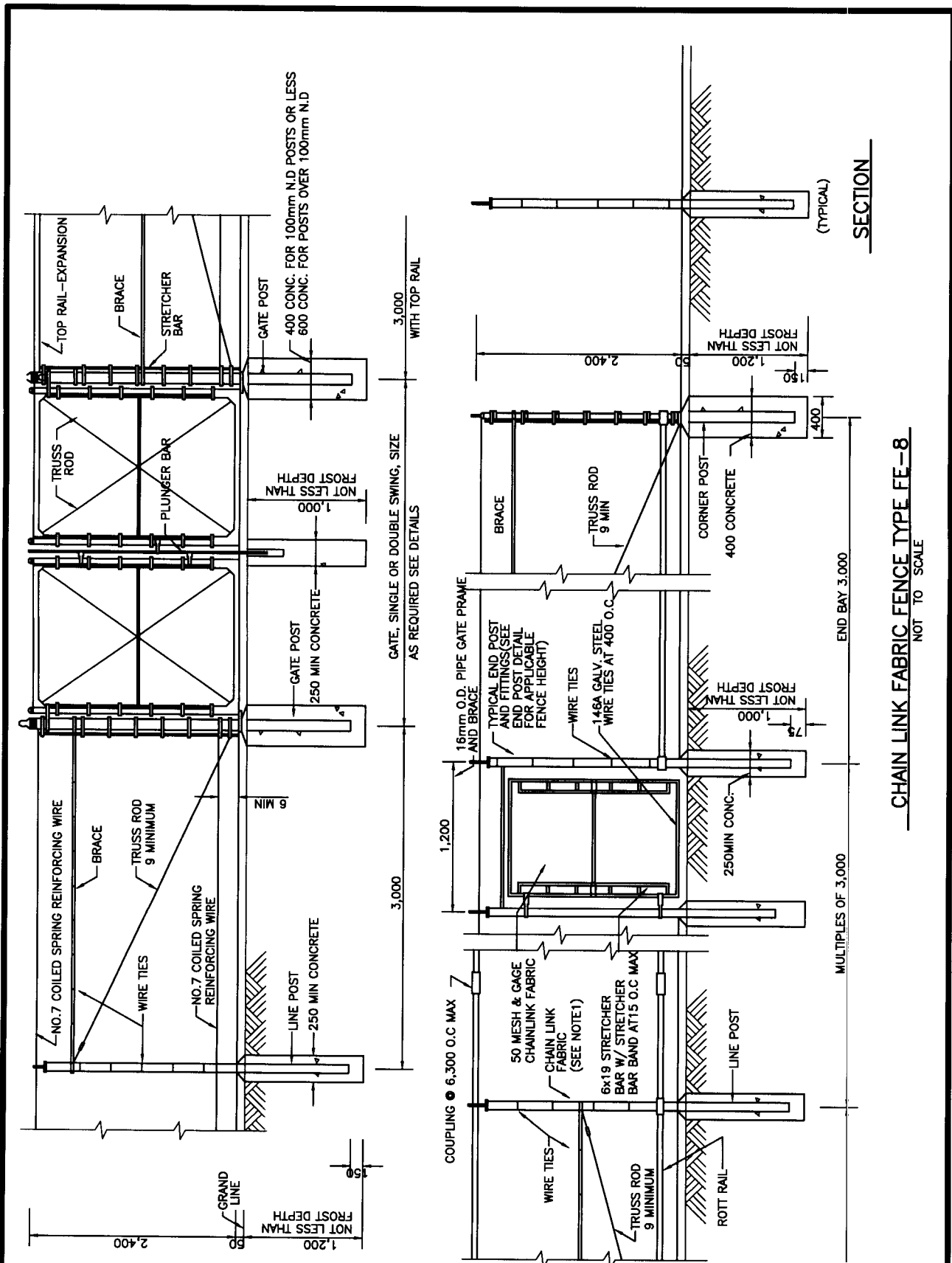
N.D. : NOMINAL DIAMETER

SECTION

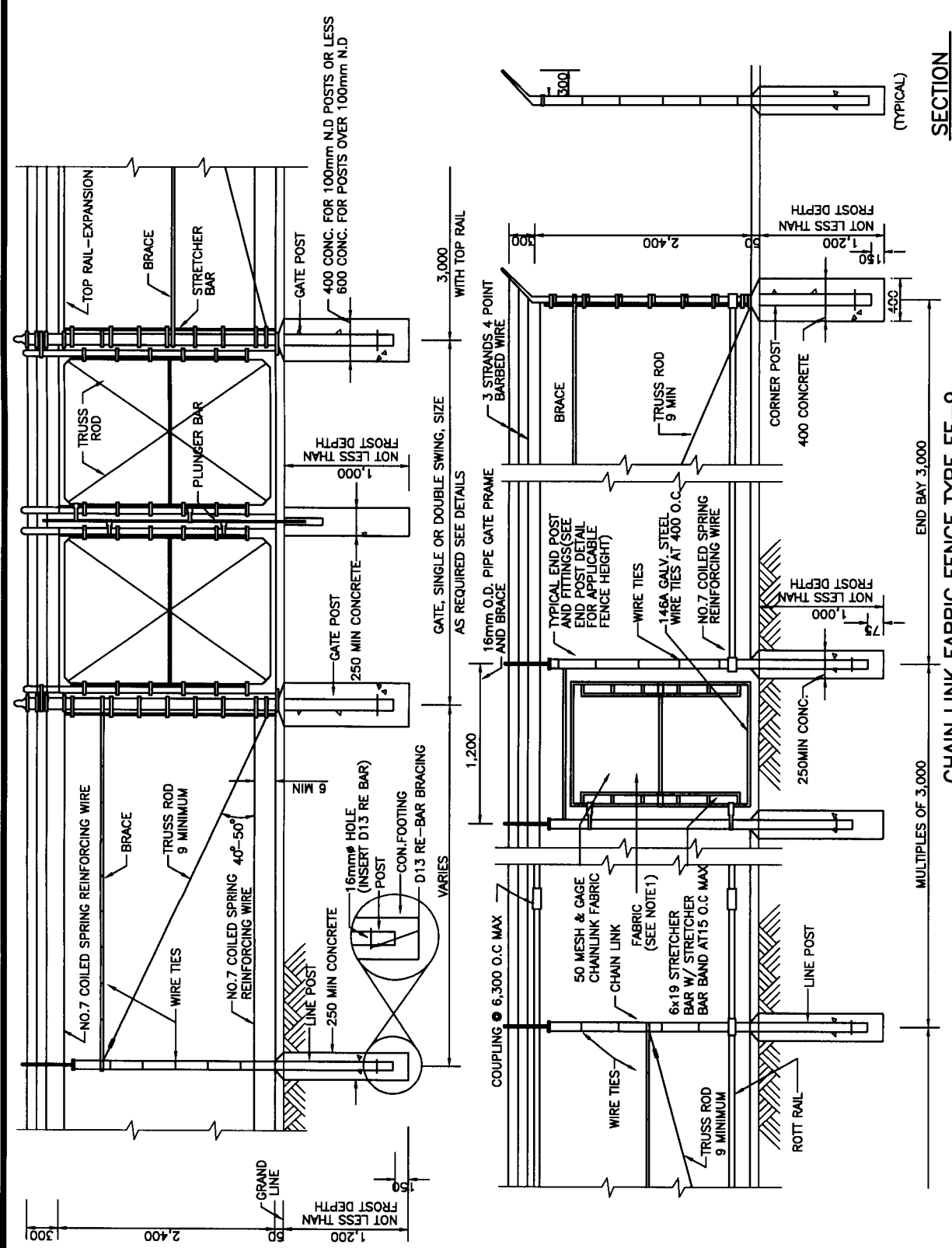
CHAIN LINK FABRIC FENCE TYPE FE-7

NOT TO SCALE

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	CHAIN LINK FENCE - TYPE FE - 7	SPEC	02831	OCT 2003	C0704



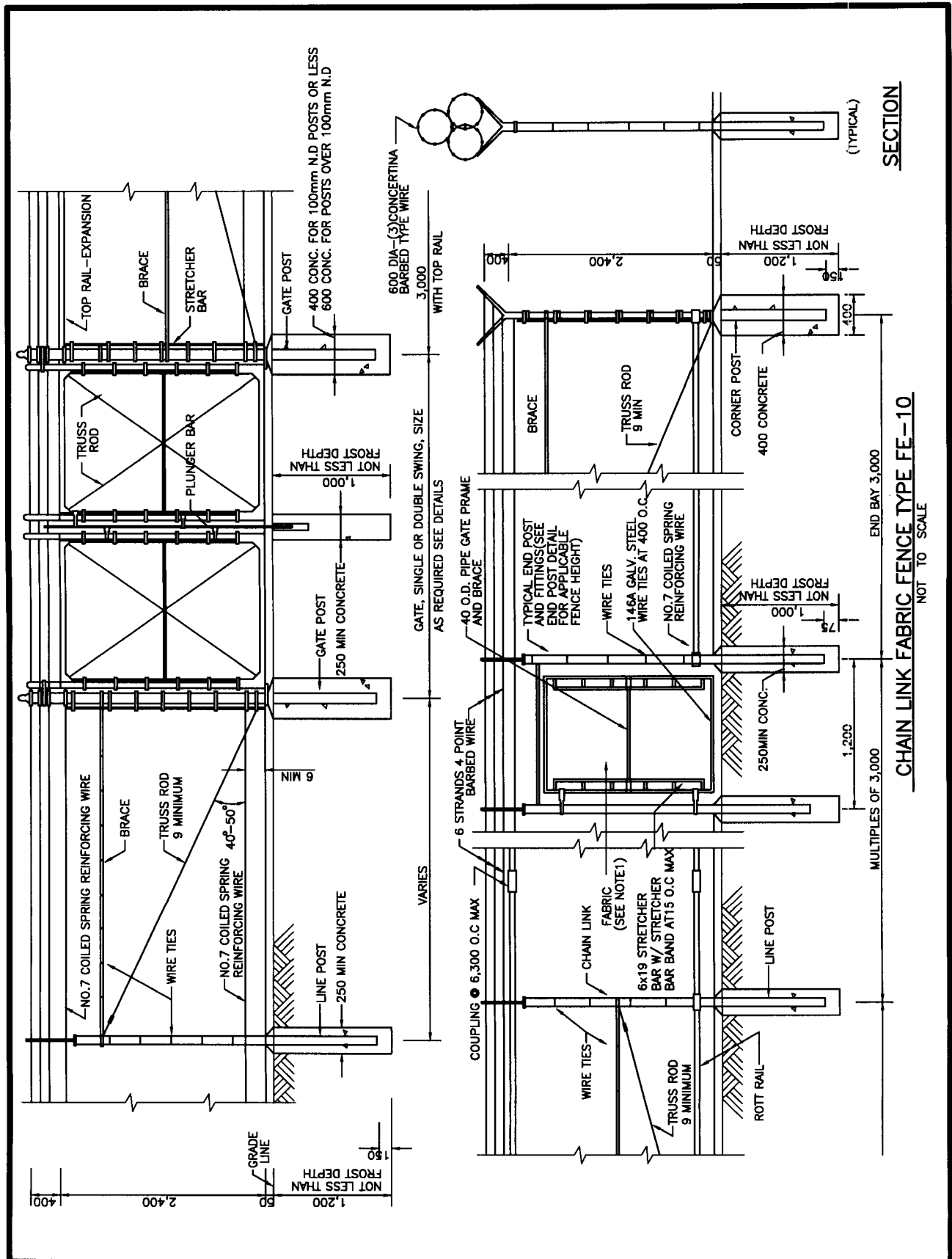
IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER		REV DATE	DWG NO.
TITLE	CHAIN LINK FENCE - TYPE FE - 8	SPEC	02831
		OCT 2003	C0705



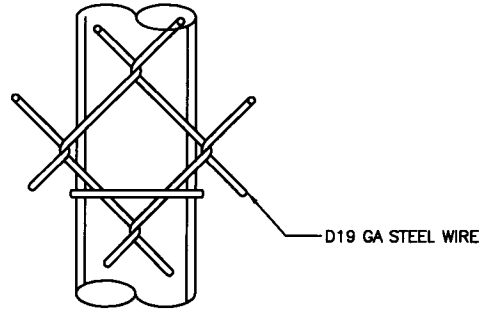
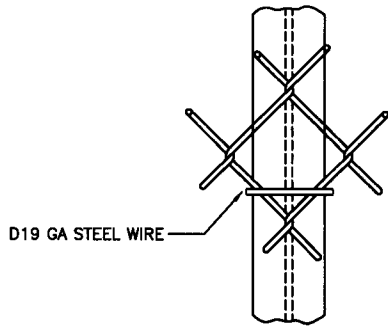
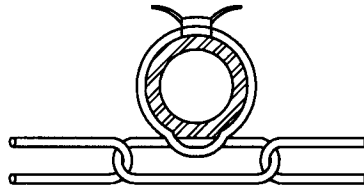
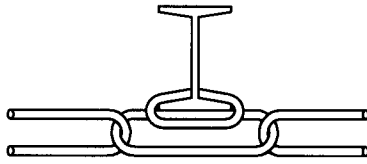
SECTION

CHAIN LINK FABRIC FENCE TYPE FE-9
NOT TO SCALE

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER		REV DATE	DWG NO.
TITLE	CHAIN LINK FENCE - TYPE FE - 9	SPEC	02831
		OCT 2003	C0706



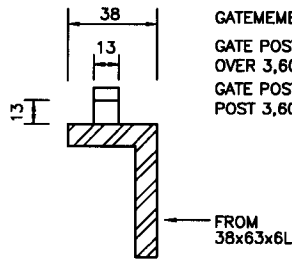
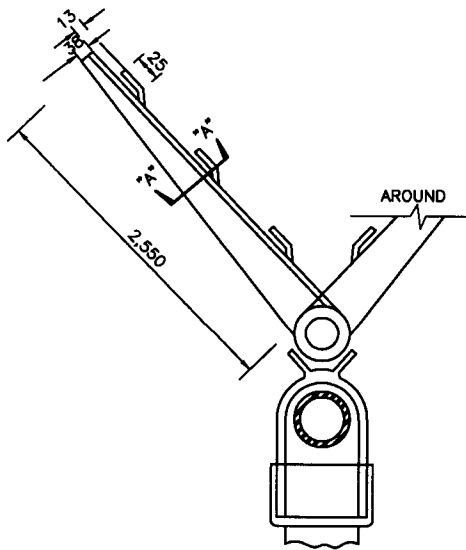
IMA—KORO, REGIONAL ENGINEER SUPPORT CENTER		REV DATE	DWG NO.
TITLE	CHAIN LINK FENCE — TYPE FE — 10	SPEC 02831	OCT 2003 C0707



H - BEAM

ROUND POST

LINE POST ATTACHMENTS



SEC. "A" - "A"

FENCE MEMBERS

TOP/BOTT RAIL	47	O.D	(3.43 kgf/m)
BRACE	47	O.D	(3.43 kgf/m)
LINE POST	60	O.D	(5.52 kgf/m)
CORNER POST	72	O.D	(8.75 kgf/m)
GATEMEMBER	47	O.D	(4.11 kgf/m)
GATE POST OVER 3,600	100	O.D	(13.77 kgf/m)
GATE POST 3,600 OR LESS	75	O.D	(11.46 kgf/m)

(TYPICAL)

TOP RAIL/BARBED WIRE ARMS

NOT TO SCALE

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER

REV DATE

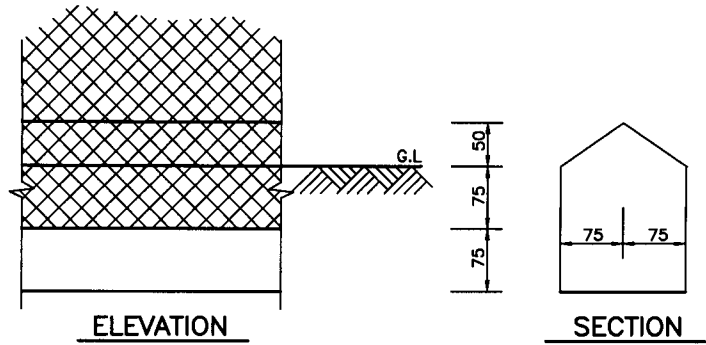
DWG NO.

TITLE CHAIN LINK FENCE - MISC DET - 1

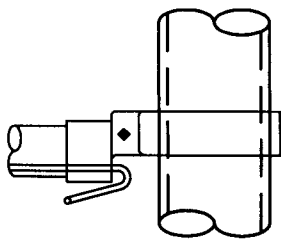
SPEC 02831

OCT 2003

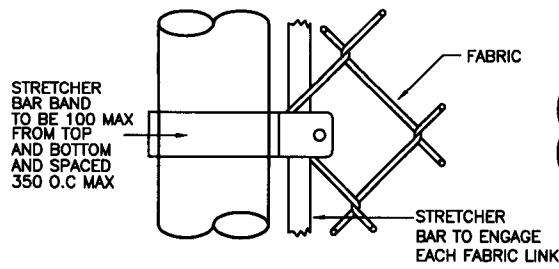
C0708



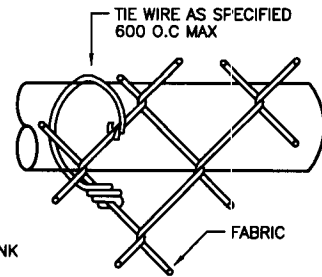
DETAIL OF PHYSICAL SECURITY CONC. CURB (APRON)



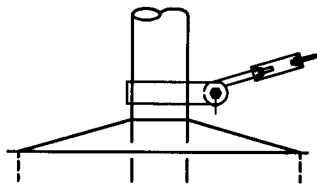
CLAMP FOR BRACE RAIL
ROUND POST



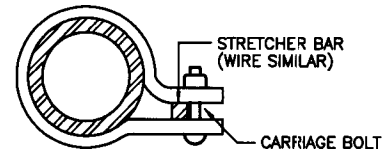
DETAIL—END OR GATE POST



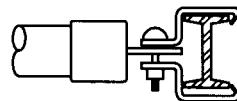
WIRE TIES FOR
TOP PR BRACE RAIL



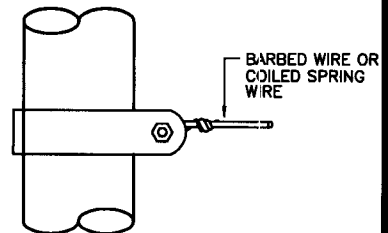
TRUSS ROD & BAND



PLAN AT BANDS



CLAMP FOR BRACE
RAIL H-BEAM



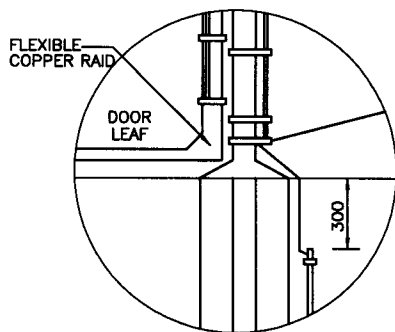
BAND FOR WIRE STRETCHING

FASTENING DETAILS – FOR TUBULAR POST OR H – COLUMNS

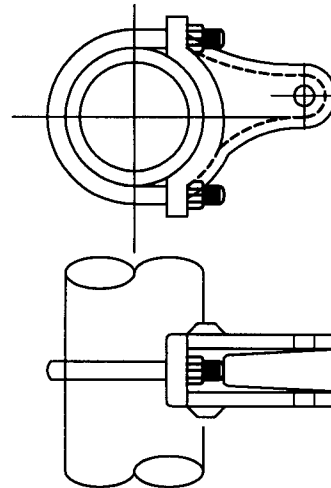
IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	CHAIN LINK FENCE – MISC DET – 2	SPEC	02831	OCT 2003	C0709

NOTES

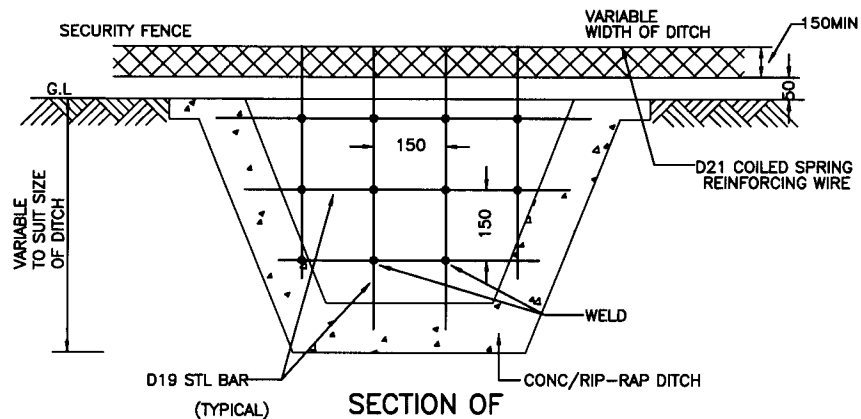
1. ALL FABRIC SHALL BE D28 GAGE WIRE WOVEN IN A50mm MESH. TYPE FE-5 FENCE, TOP EDGE TO BE KNUCKLED FINISH, BOTTOM EDGE TWISTED AND BARBED TYPE FE-6 AND FE-7 FENCE, TOP AND BOTTOM EDGES TO BE TWISTED AND BARBED
2. SINGLE EXTENSION ARMS SHALL POINT OUT WIRED AT AN ANGLE OF 45° AND DOUBLE EXTENSION ARMS POINT OUTWARD AND INWARD AT 45° ANGLES. ALL EXTENSION ARMS TO BE 12 GAGE PRESSED STEEL.
3. SEE FENCE LAYOUT DRAWING FOR TYPE OF FENCE, NOMINAL SIZE OF GATE, WHETHER GATE IS SINGLE OR DOUBLE WALL WHETHER GATE SWINGS THROUGH 90° OR 180° AND WHETHER TOP RAIL OR TOP REINFORCING WIRE IS REQUIRED.
4. THREADED ENDS OF ALL FENCING BOLTS AND CONNECTOR BOLTS SHALL BE MUSHROOMED AFTER INSTALLATION.
5. ALL FENCES SHALL BE GROUNDED AT EACH TERMINATION, EACH CORNER, AND EACH SIDE OF EACH GATE, FENCES CROSSED BY PRIMARY POWER LINES SHALL BE GROUNDED, AT A POINT DIRECTLY BELOW CROSSING AND AT POINTS APPROXIMATELY 45m ON EACH SIDE OF CROSSING. FENCES PARALLEL TO OR WITHIN 30m OF PRIMARY POWER LINE SHALL BE GROUNDED EVERY 150m ALL OTHER FENCES SHALL BE GROUNDED AT INTERVALS OF 300m MAXIMUM.



DETAIL AT GATE
(TYPICAL)
GROUNDING DETAIL
SEE NOTE 5

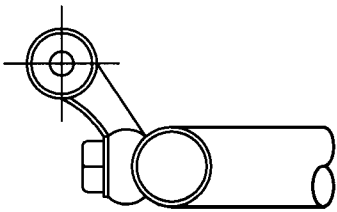


(TYPICAL)
POST HINGE

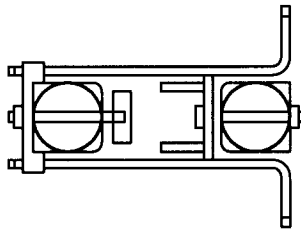


SECTION OF
WATER COURSE BARRIER
NOT TO SCALE

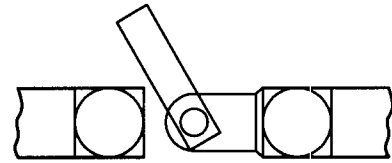
IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	CHAIN LINK FENCE - MISC DET - 3	SPEC	02831	OCT 2003	C0710



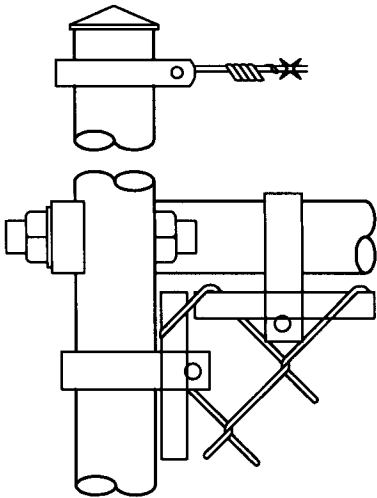
GATE FRAME HINGE



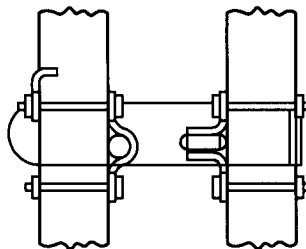
LATCH ASSEMBLY



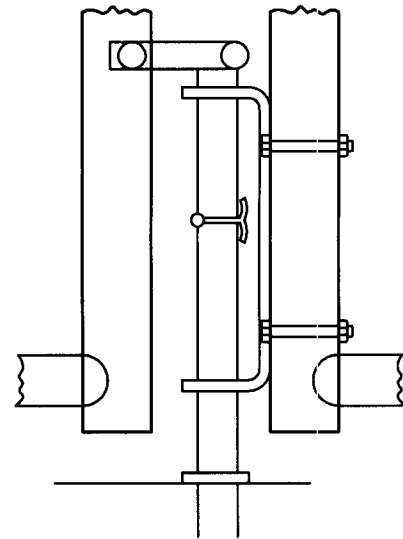
DROP BAR ASSEMBLY



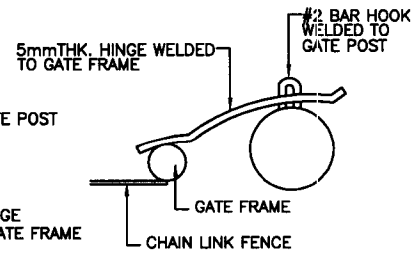
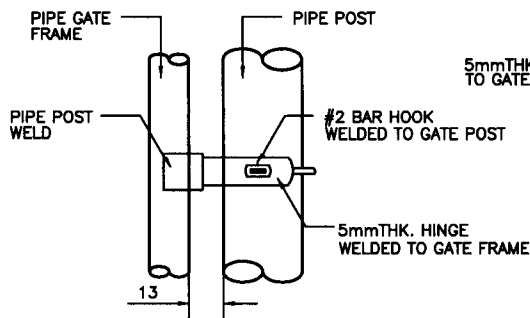
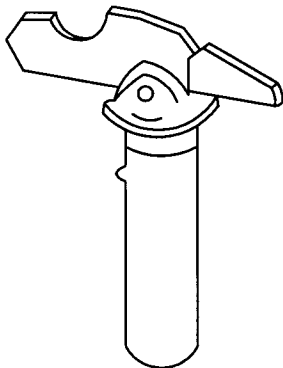
GATE KEEPER
(TO HOLD GATE OPEN)



DROP BAR ASSEMBLY



TYPICAL HOOK DETAIL



SWING GATE DETAILS

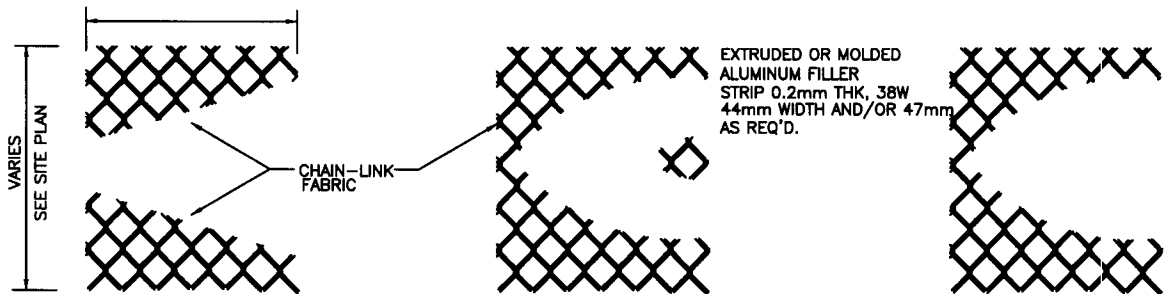
NO SCALE

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	CHAIN LINK FENCE – SWING GATE	SPEC	02831	OCT 2003	C0711

NOTES

1. TYPE FE – 8 FENCE, TOP EDGE TO BE KNUCKLEFINSH, BOTTOM EDGE TWISTED AND BARBED.
2. TYPE FE – 10 FENCE, TOP EDGE TO BE TWISTED, BARBED AND CONCERTINA, BOTTOM EDGE TO BE
3. TYPE FE – 9 FENCE, TOP AND BOTTOM EDGES TO BE TWISTED AND BARBED.
4. TYPE FE – 11 FENCE
 - a. THE MINIMUM ULTIMATE COMPRESSIVE STRENGTH OF STRUCTURAL CONC. SHALL BE 210 kgf/cm² AT 28 DAYS.
 - b. ALL REINFORCING BARS SHALL BE DEFORMED BARS OF INTERMEDIATE GRADE ACCORDING TO SPEC.
5. TYPE IV POLYVINYL CHLORIDE (PVC) COATED FABRIC SHALL BE PROVIDED WHEN CALLED FOR BY THE DRAWING, COLORED MEDIUM GREEN, DARK GREEN, OR BLACK PER FED SPEC RR – F – 191/1 AS SHOWN OR AS APPROVED.
6. EXST CHAIN LINK FENCE TO BE REPAINTED SHALL BE CLEANED WITH WIRE BRUSHING AND PAINTED WITH 2(TWO) COAT TT – P – 641G & AM – 1)FOR GALVANIZED SURFACE)

PRIVACY DECORATIVE SALTING INSTALLATION INSTRUCTIONS



STEP 1.

INSERT BOTTOM HORIZONTAL CHANNEL: OPEN SIDE UP WITH LONGER LEG AWAY FROM INSTALLER LEADING END OF CHANNEL MA BE TRIM TO A 45° TO MAKE INSTALLATION EASIER

STEP 2.

INSERT VERTICAL SLATS USING EVERY OTHER ONE TO HOLD BOTTOM CHANNEL OPEN (2,4,6, 8,10,12,ETC.) NOW FILL THE OPENINGS (1,3,5,7, 9,11, ETC.)

STEP 3.

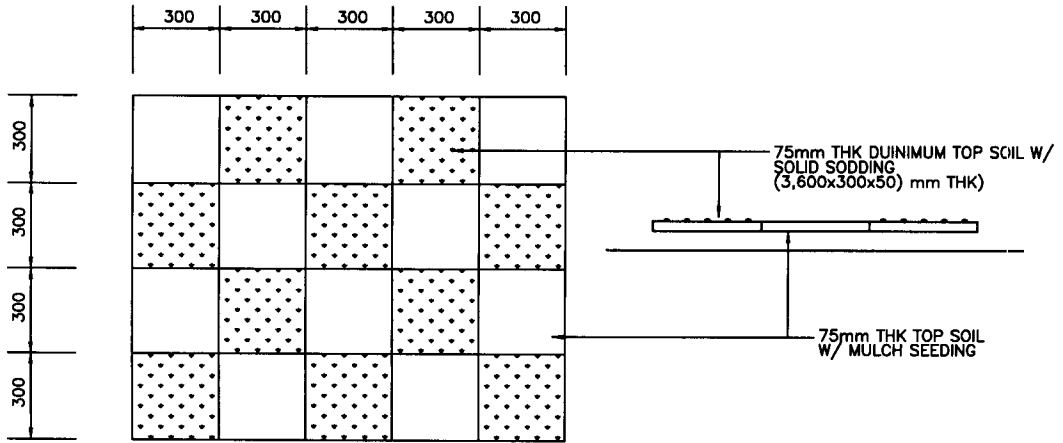
TO FINISH ADJUST THE SLATSIN BOTTOM CHANNEL TO PROD UNIFORM APPEARANCE.



DET, SALTING W/COLOR ALUMINUM FILLER STRIP ON CHAIN-LINK FENCE

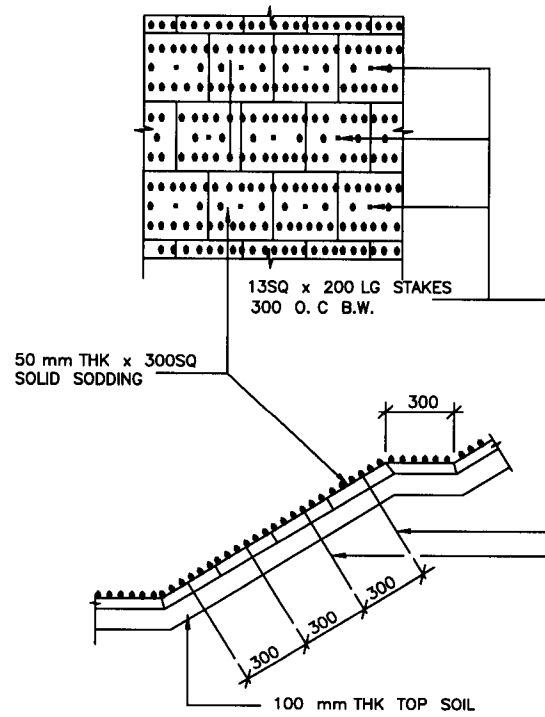
NOT TO SCALE

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	CHAIN LINK FENCE	SPEC	02831	OCT 2003	C0712



SPOT SODDING

NOT TO SCALE



SOILED SODDING DETAIL

NOT TO SCALE

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER

REV DATE

DWG NO.

TITLE SODDING

SPEC 02935

OCT 2003

C0801

2 - 50 X 50 DOUGLAS FIR
OR 50 + DIA. LODGE
POLE PINE STAKES.
STAKES SHALL BE VERTICAL
MIN. LENGTH 2,400

NEW 13 RUBBER HOSE &
#14 GA. GALV. ANNEALED
STEEL WIRE (TYP)

ROOT BALL

FINISHED GRADE

PREPARED SOIL

75 MIN.
150 MAX.

300
MIN

LOCATE EQ. DISTANCE
BETWEEN GROUND AND
UPPER TIE
(OMIT THIS TIE WHEN
UPPER TIE IS 1,200 OR
LESS FROM GROUND.)

STAPLE TO STAKE

TYP. 50 GRANITE MULCH.
25 OVER PLANT PIT
WHERE GRANITE IS
SHOW ON PLAN.

600DP. ● 5 GAL
900DP. ● 15 GAL
150 MIN. INTO UNDISTURBED SOIL

600 DIA. ● 5 GAL
900 DIA. ● 5 GAL

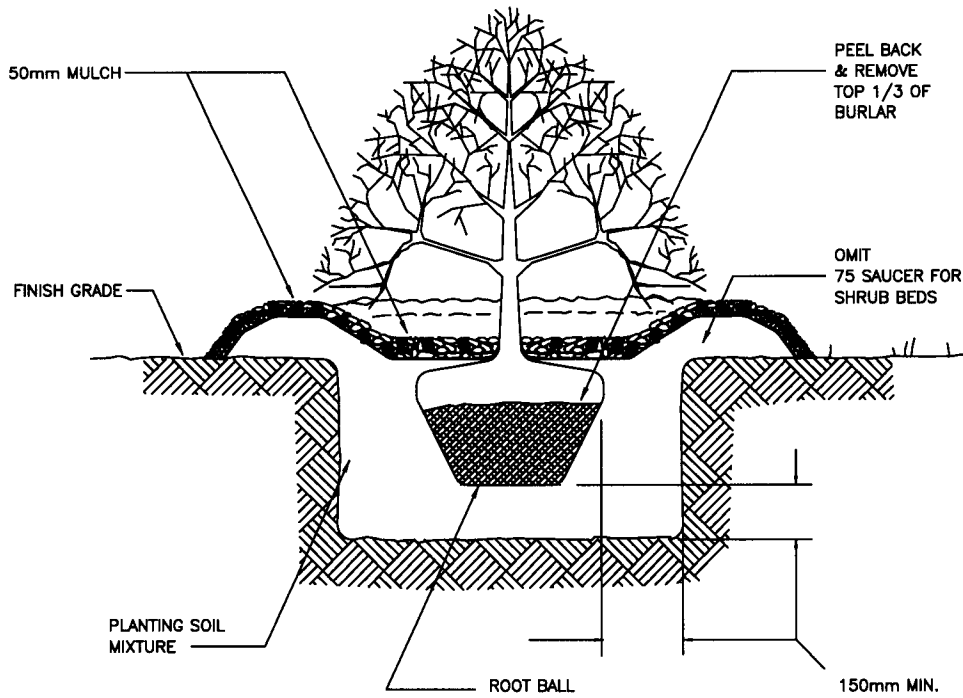
NOTE :

- 1) STAKING SHALL BE CONSTRUCTED SO TRUNK HAS FLEXIBILITY.
- 2) PLANTS TO BE STAKED ARE NOTED ON PLANTING SCHEDULE SHEET UNDER REMARKS.
- 3) THIS DETAIL IS APPLICABLE FOR TREE PLANTING ON LEVEL GROUND AND 4 : 1 MAX. SLOPES.

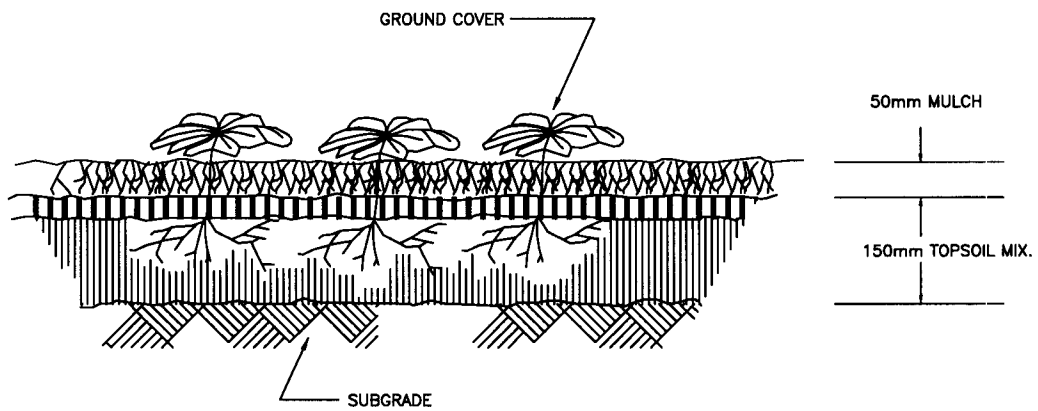
TREE PLANTING & STAKING

NOT TO SCALE

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	TREE PLANTING & STAKING	SPEC	02950	OCT 2003	C0802

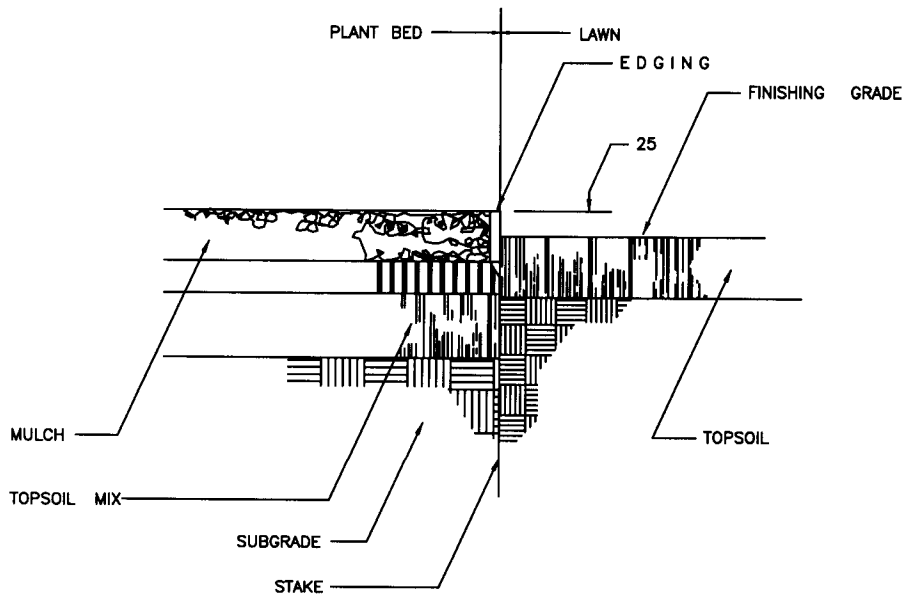
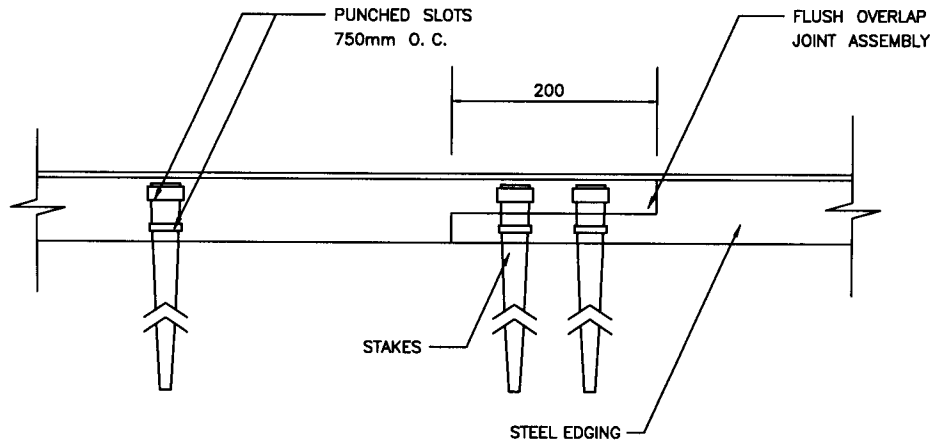


DECIDUOUS & EVERGREEN SHRUB PLANTING



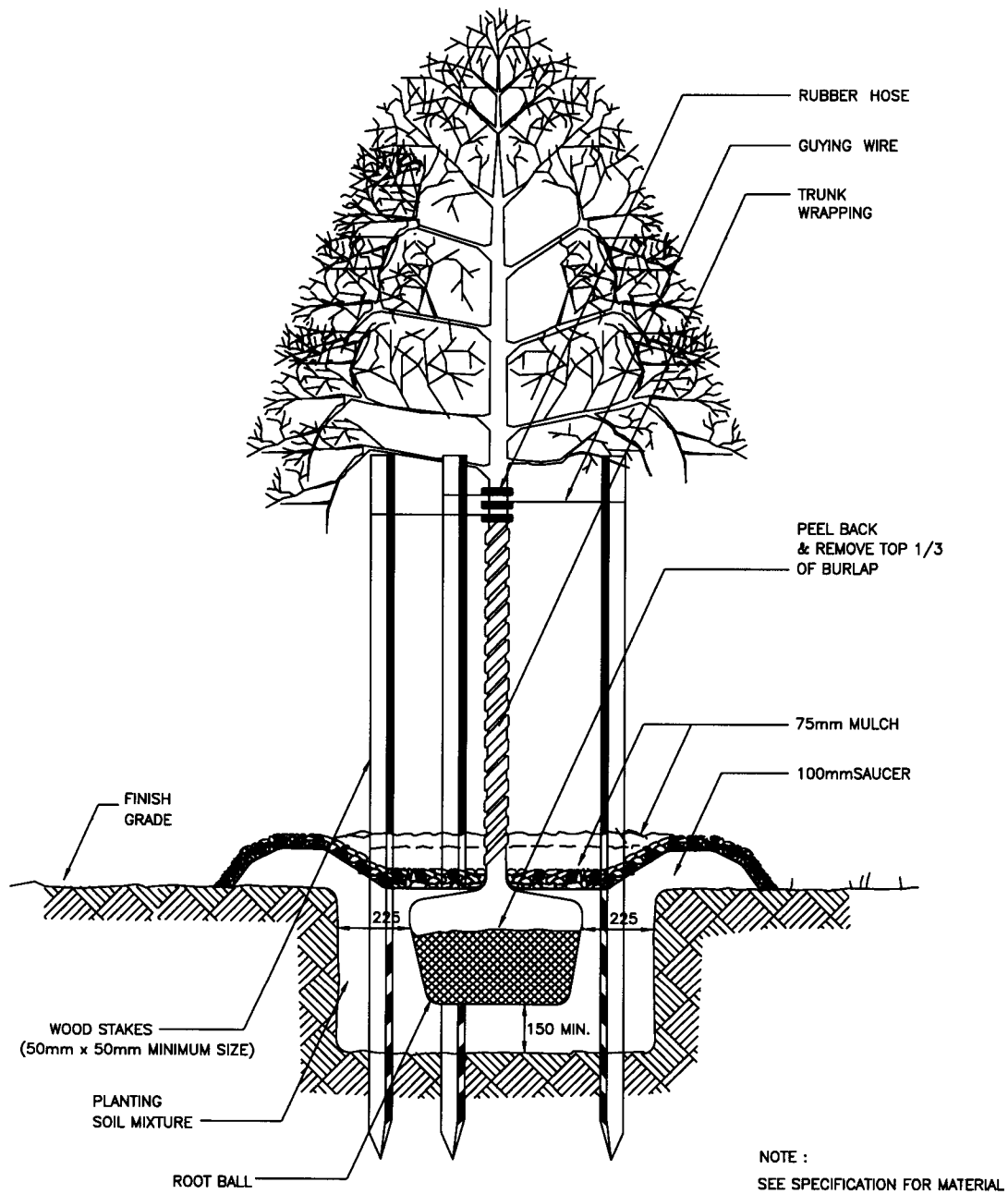
GROUND COVER PLANTING

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER		REV DATE	DWG NO.
TITLE	DECIDUOUS & EVERGREEN SHRUB, GROUND COVER	SPEC 02950	OCT 2003 C0803



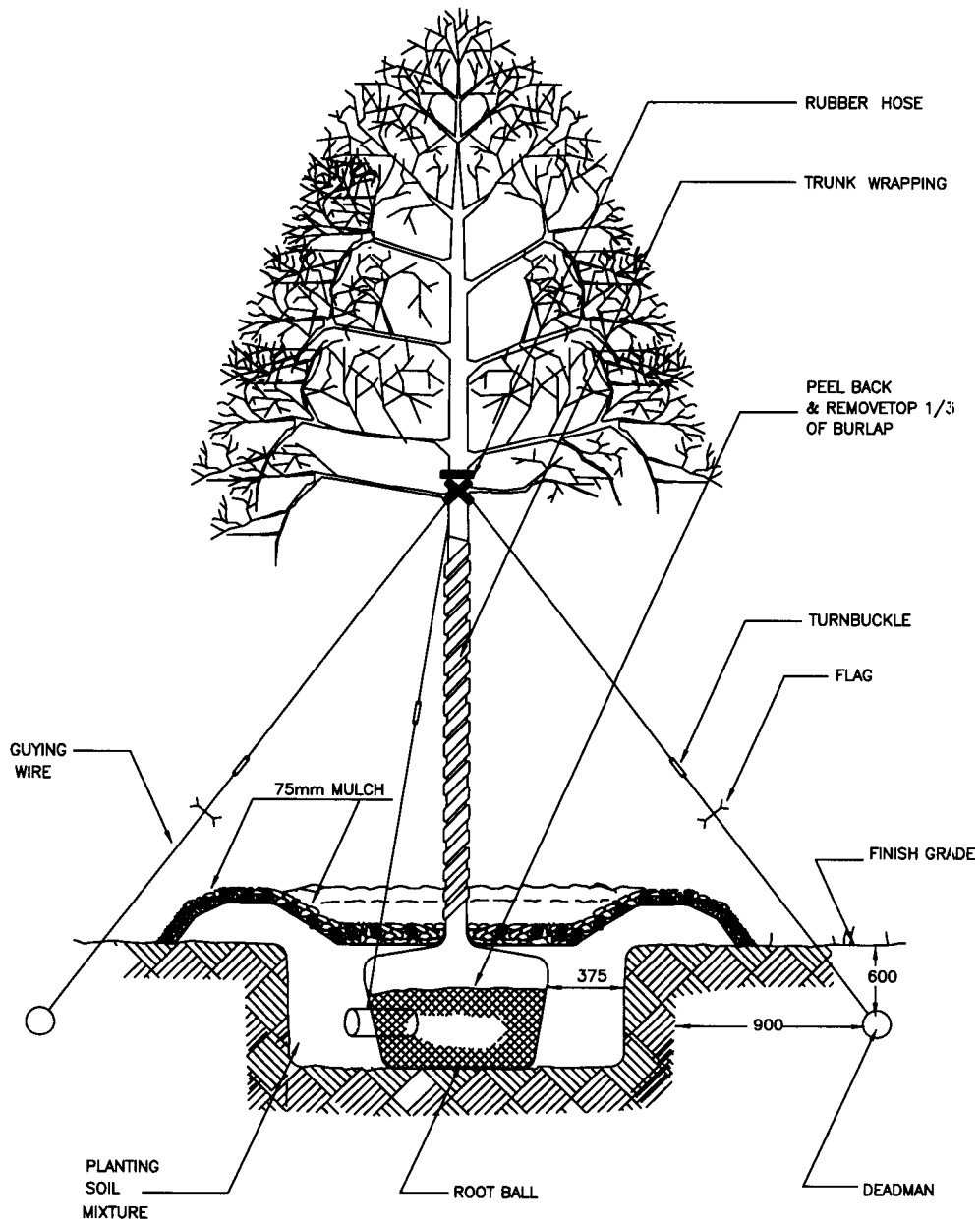
STEEL EDGING

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	STEEL EDGING	SPEC	02950	OCT 2003	C0804



FOR EVERGREEN & DECIDUOUS TREES UNDER
100mm CALIPER PLANTING

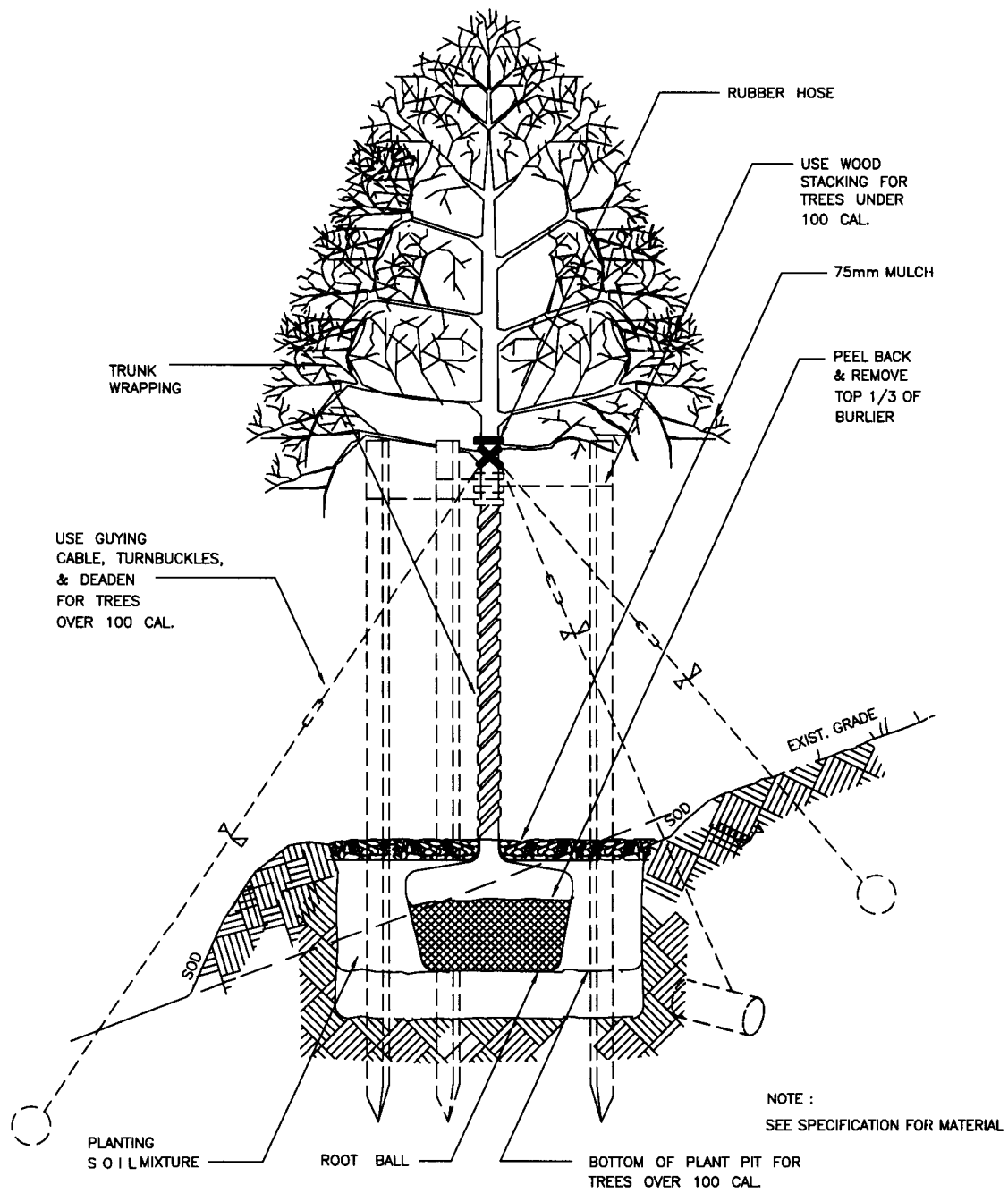
IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	EVERGREEN & DECIDUOUS TREES UNDER 100mm CALIPER - 1	SPEC	02950	OCT 2003	C0805



NOTE :
SEE SPECIFICATION FOR MATERIAL

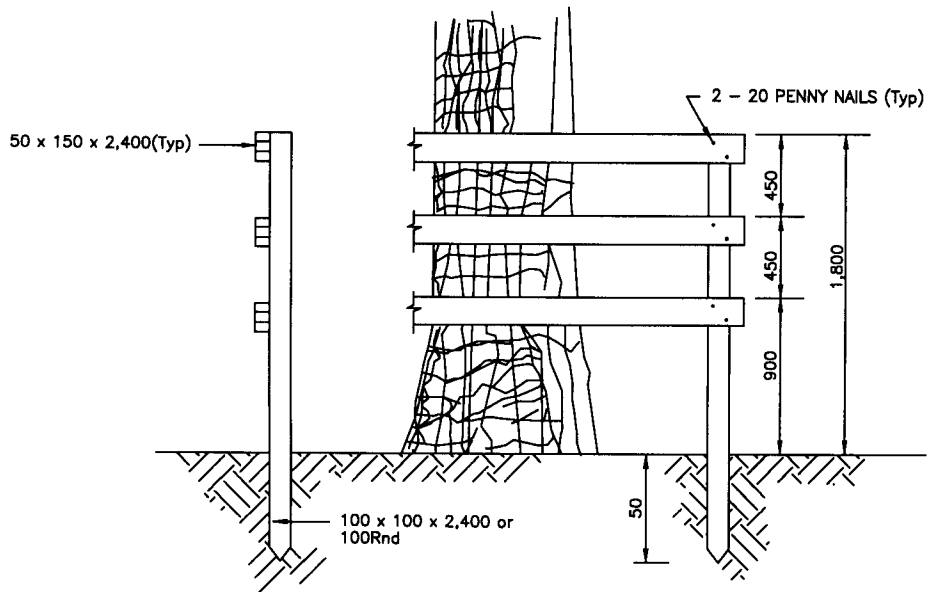
FOR EVERGREEN & DECIDUOUS TREES UNDER
100mm CALIPER PLANTING

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER			REV DATE	DWG NO.
TITLE	EVERGREEN & DECIDUOUS TREES UNDER 100mm CALIPER - 2	SPEC	02950	OCT 2003
				C0806



SLOPE PLANTING DECIDUOUS AND
EVERGREEN TREES

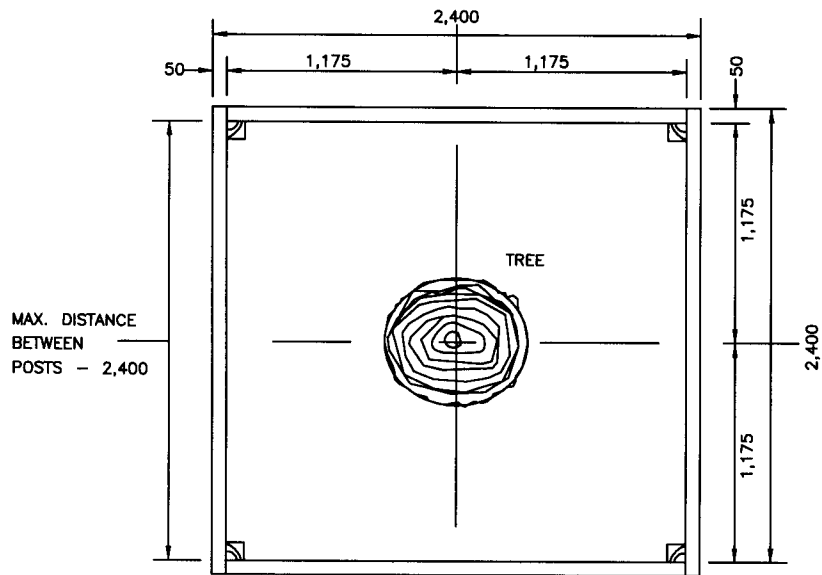
IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	SLOPE PLANTING, DECIDUOUS & EVERGREEN TREES	SPEC	02950	OCT 2003	C0807



SECTION ELEVATION

NOTE :

1. CLOSELY GROUPED TRESS MAY BE ENCLOSED IN ONE ENLARGED DEVICE.
2. SEE SPECIFICATION FOR MATERIAL



PLAN

TREE PROTECTION DEVICE

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER

REV DATE

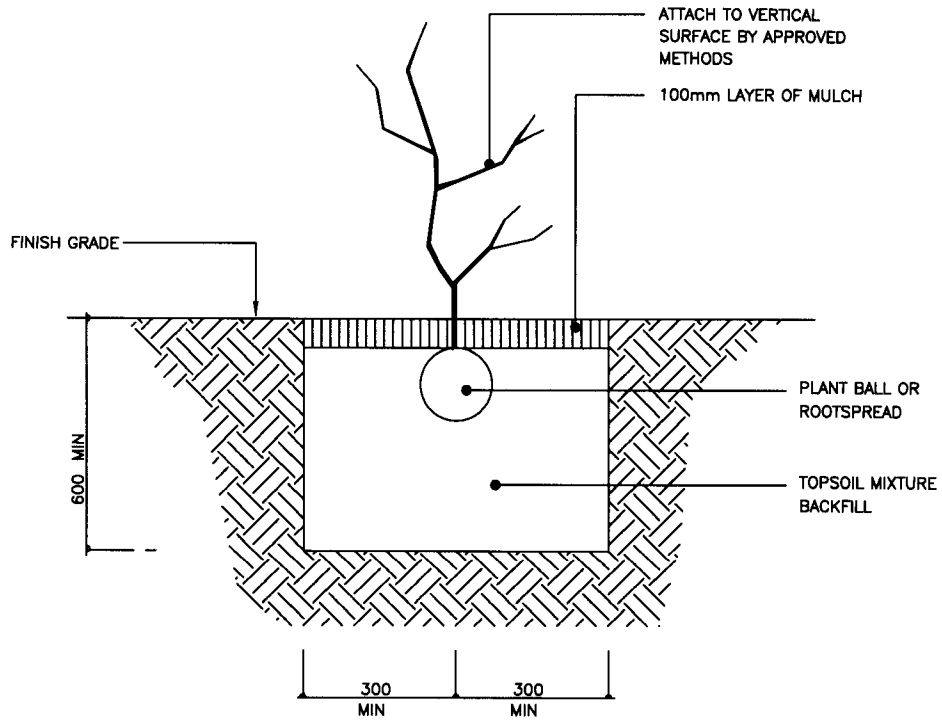
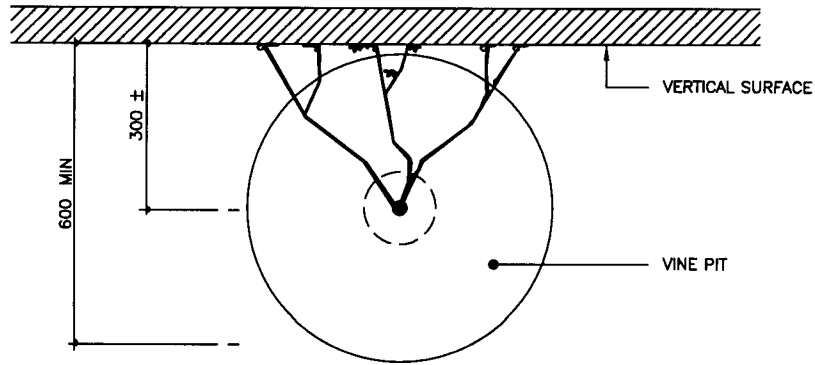
DWG NO.

TITLE TREE PROTECTION DEVICE

SPEC 02950

OCT 2003

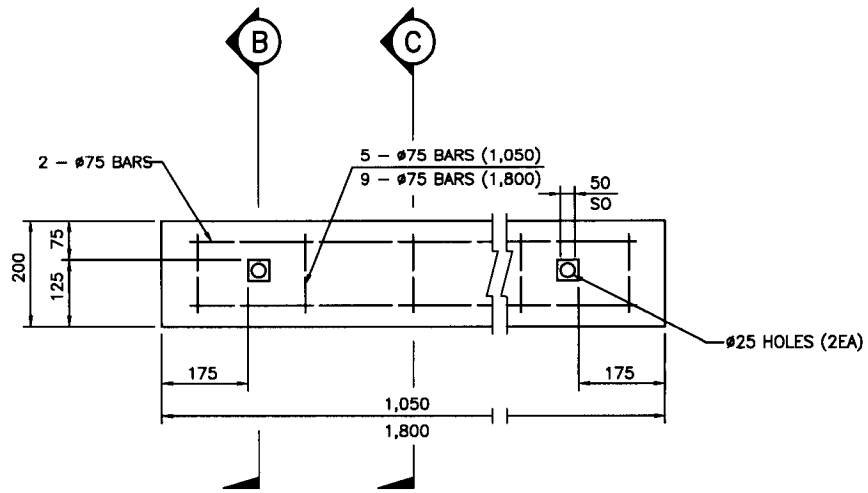
C0808



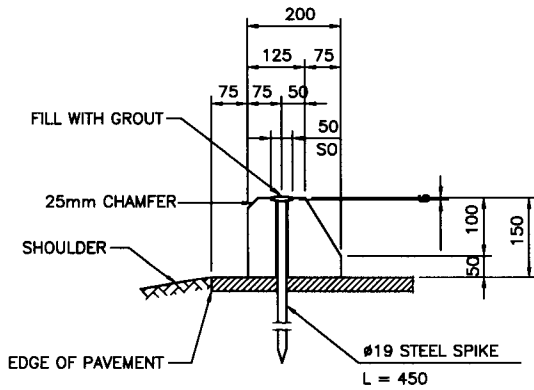
NOTE :
SEE SPECIFICATION FOR MATERIAL

VINE PLANTING

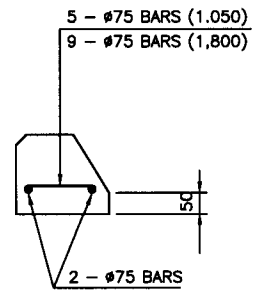
IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	VINE PLANTING	SPEC	02950	OCT 2003	C0809



(A) PLAN



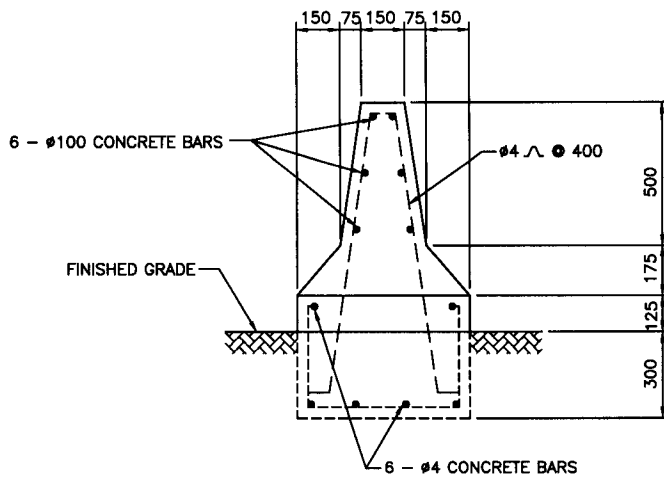
(B) SECTION



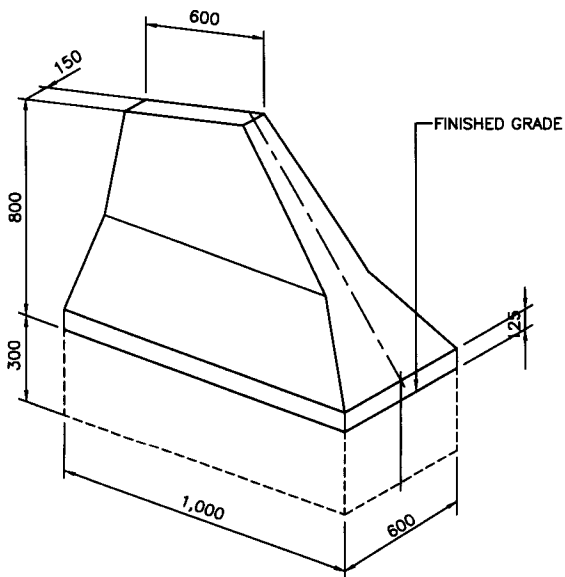
(C) SECTION

WHEEL STOP
NOT TO SCALE

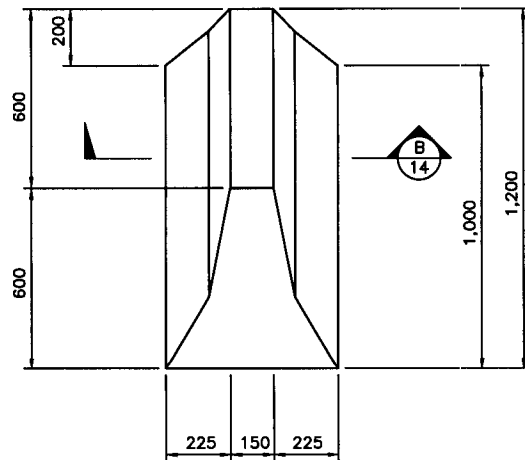
IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER			REV DATE	DWG NO.
TITLE	CONCRETE WHEEL STOP	SPEC	OCT 2003	C2101



B ELEVATION
14



A ISOMETRIC
14

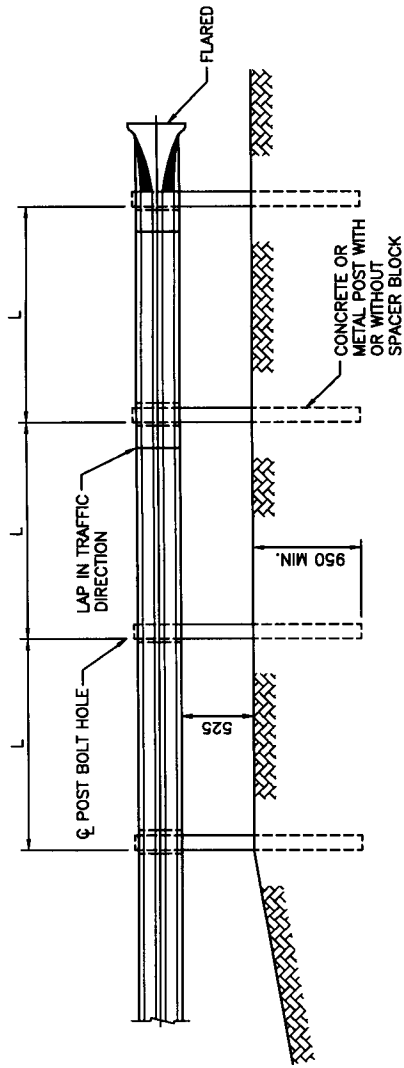


C PLAN
14

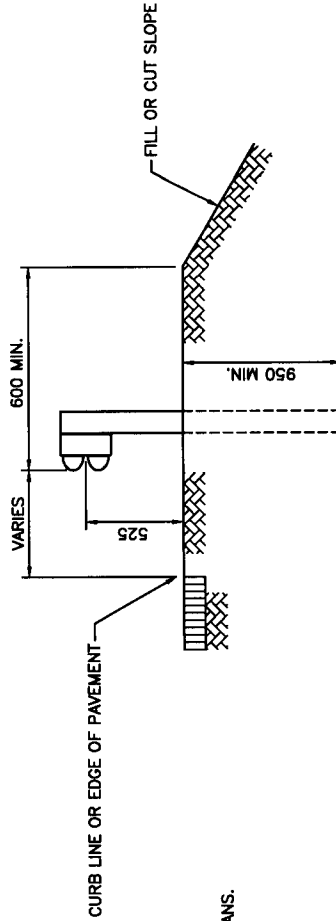
CONCRETE VEHICLE DEFLECTOR

NOT TO SCALE

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER		REV DATE	DWG NO.
TITLE	CONCRETE VEHICLE DEFLECTOR	OCT 2003	C2102
	SPEC		



A TYPICAL ELEVATION

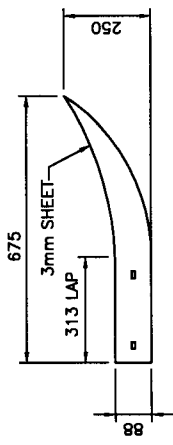


B TYPICAL SECTION

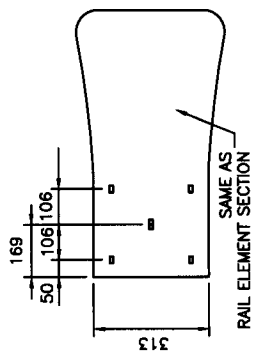
- NOTE:
1. L SHALL BE 3,000 OR 875 AS DESIGNATED ON PLANS.
L SHALL BE 3,000 IF NOT OTHERWISE SPECIFIED.
 2. GUARD RAIL SHALL BE WITH OR WITHOUT SPACER BLOCK AS NOTED ON PLANS.
PROVIDE WITHOUT SPACER BLOCK IF NOT NOTED.

GUARD RAIL
NOT TO SCALE

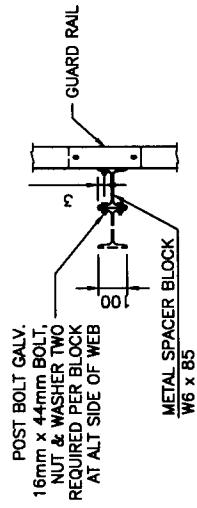
IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER		REV DATE	DWG NO.
TITLE	STEEL GUARD RAILS TYPE 1 - (1)	OCT 2003	C2103
SPEC			



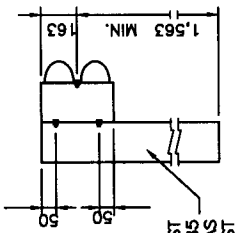
PLAN



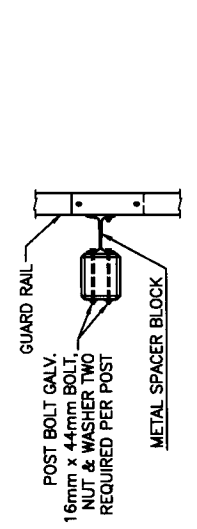
ELEVATION



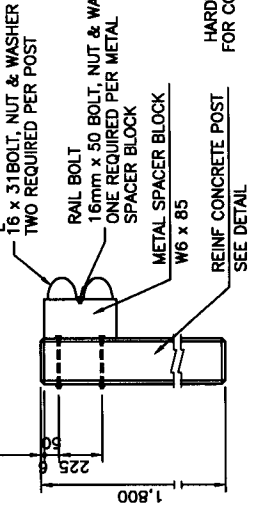
PLAN



ELEVATION

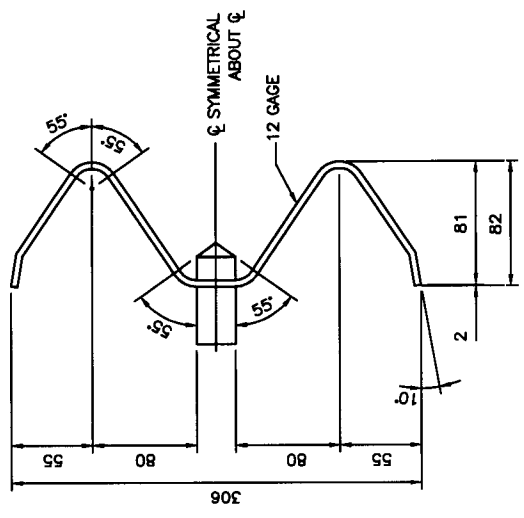


PLAN



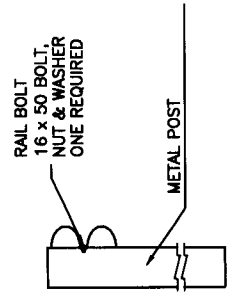
ELEVATION

(C) FLARED END



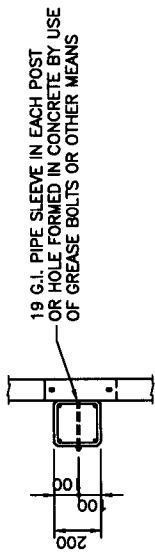
(F) RAIL ELEMENT SECTION

(B) METAL POST WITH SPACER BLOCK

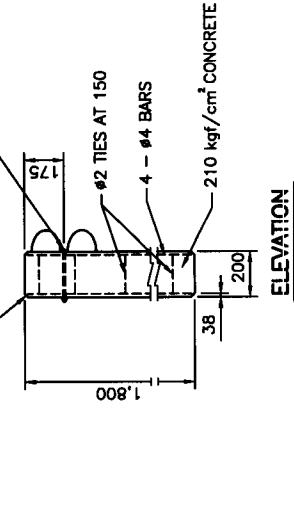


(E) METAL POST WITHOUT SPACER BLOCK

(A) CONCRETE POST WITH SPACER BLOCK



PLAN



ELEVATION

(D) CONCRETE POST WITHOUT SPACER BLOCK

(G) GUARD RAIL
NOT TO SCALE

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER

REV DATE

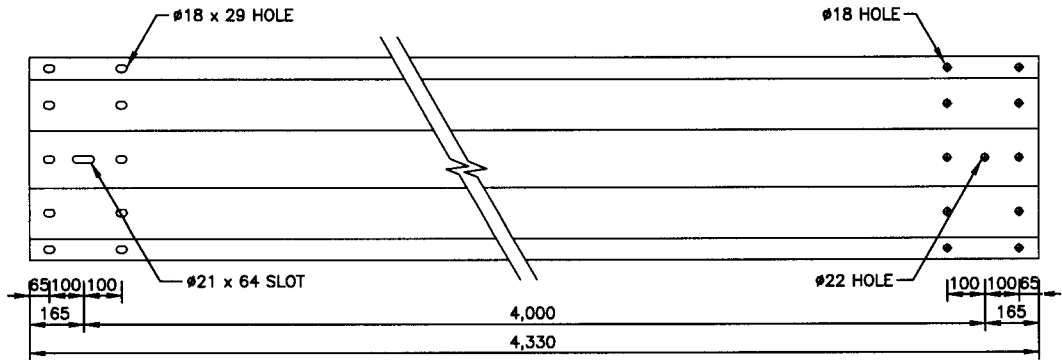
DWG NO.

TITLE STEEL GUARD RAILS TYPE 1 - (2)

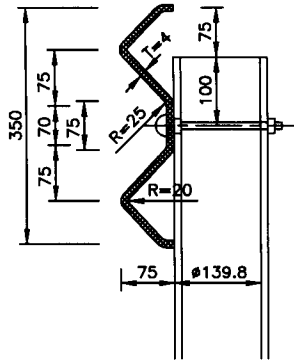
SPEC

OCT 2003

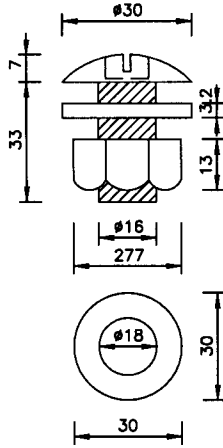
C2104



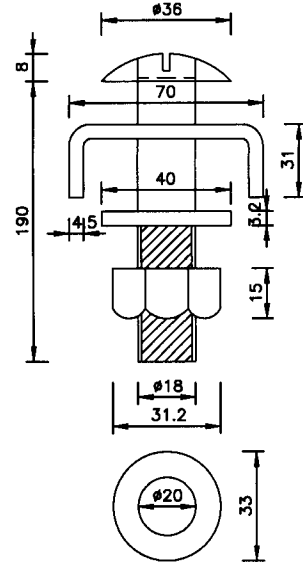
GUARD RAIL



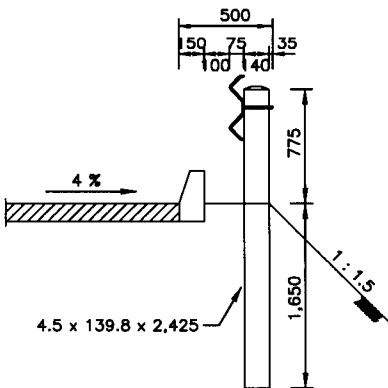
SECTION



BOLT & NUT FOR SPLICE RAIL



CONNECTION BOLT



INSTALLATION DET

NOTES

1. DIMENSIONS ARE IN MILLIMETER.
2. ALL MATERIALS SHALL CONFIRM TO THE REQUIREMENTS FROM STANDARD SPECIFICATION FOR CONSTRUCTION OF HIGH WAY PUBLISHED BY MINISTRY OF CONSTRUCT ON AND TRAFFIC KOREA.

NOTES

DESIGN CRITERIA

1. POST : KS D 3566 CLASS 2 OR APPROVED EQUAL.
2. BOLT, NUT : KS B 1002 AND KS B 1012
3. BRACKET : KS D 3503 CLASS 2 OR APPROVER EQUAL.
4. ALL ABOVE ITEMS SHALL BE GALVANIZED OR PAINTED AS INDICATED ON THE PLAN.

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER

REV DATE

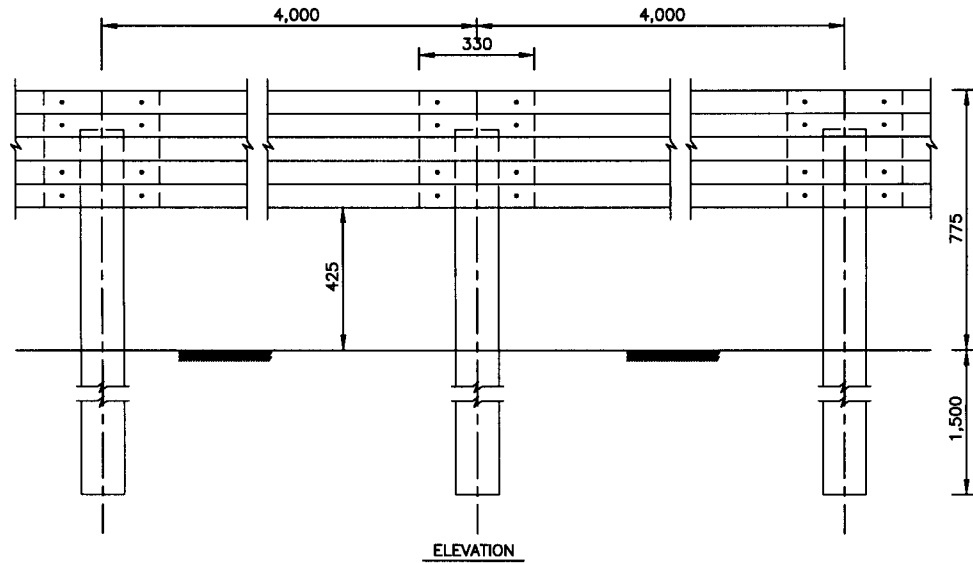
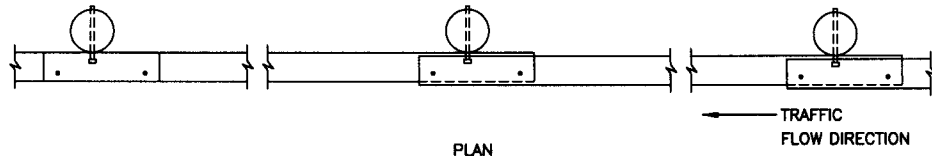
DWG NO.

TITLE GUARD RAIL TYPE 2 - (1)

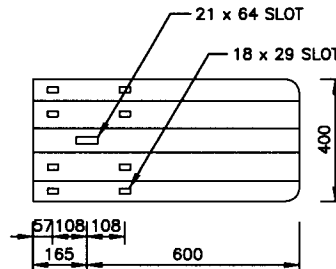
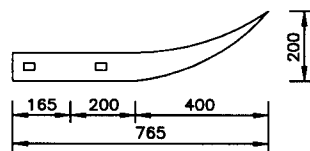
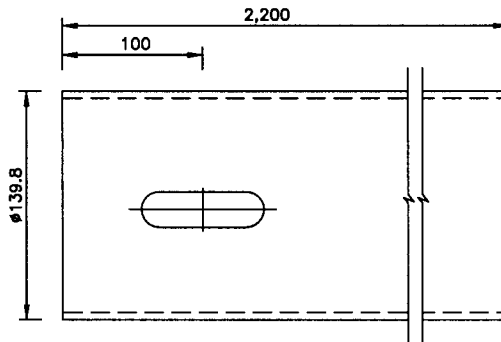
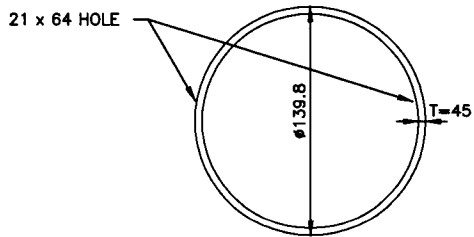
SPEC

OCT 2003

C2105



POST



RAIL END

NOTES

DIMENSIONS ARE IN MILLIMETER.

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER

REV DATE

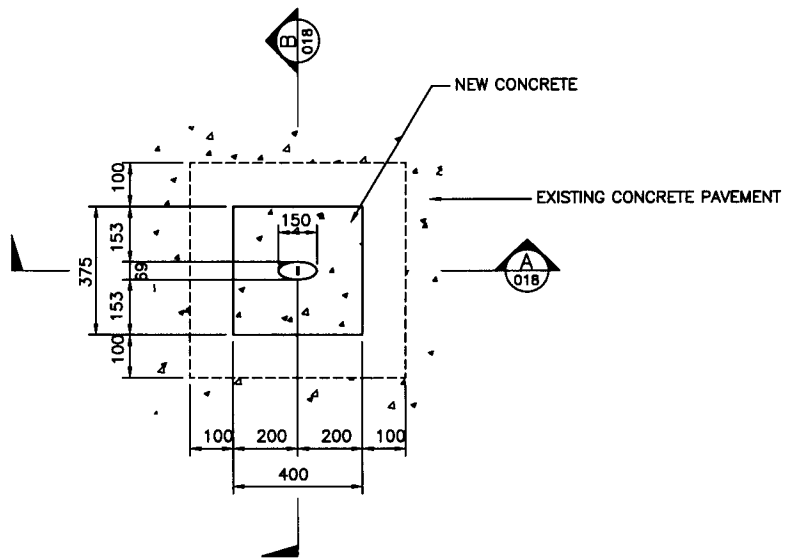
DWG NO.

TITLE GUARD RAIL TYPE 2 - (2)

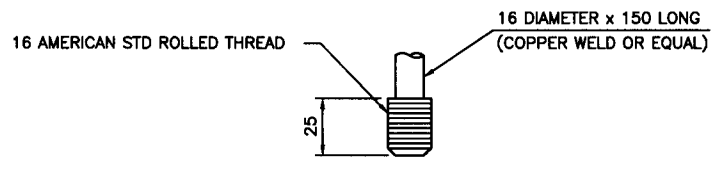
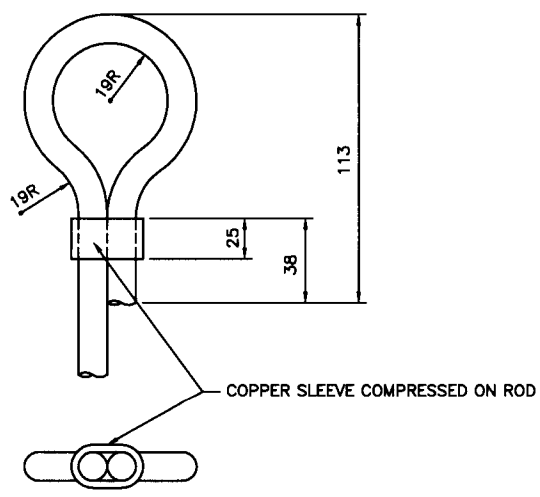
SPEC

OCT 2003

C2106

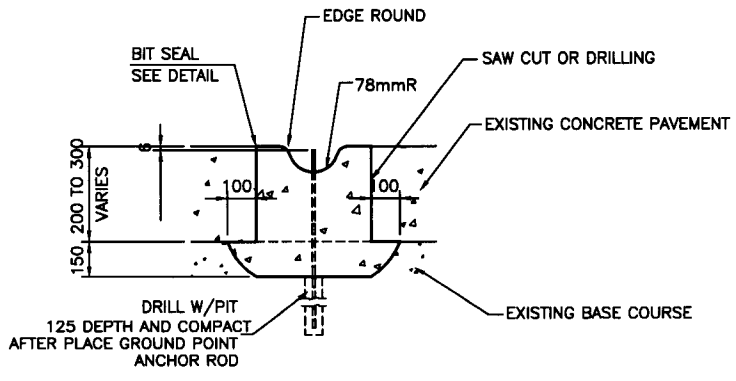


PLAN
NOT TO SCALE

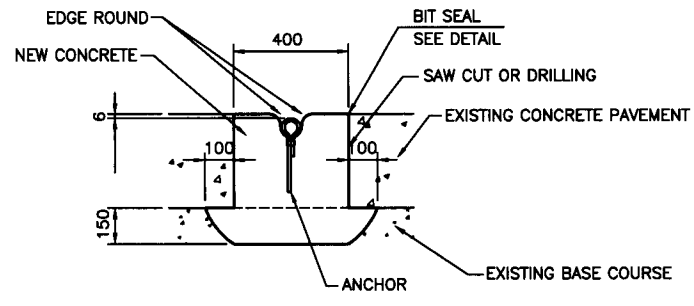


GROUND POINT ANCHOR
NOT TO SCALE

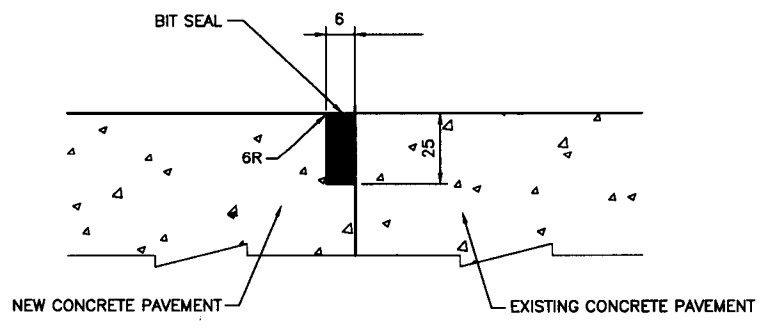
IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER			REV DATE	DWG NO.
TITLE	GROUND POINT ANCHOR AT AIRFIELD	SPEC	OCT 2003	C2107



(A) SECTION
NOT TO SCALE



(B) SECTION
NOT TO SCALE

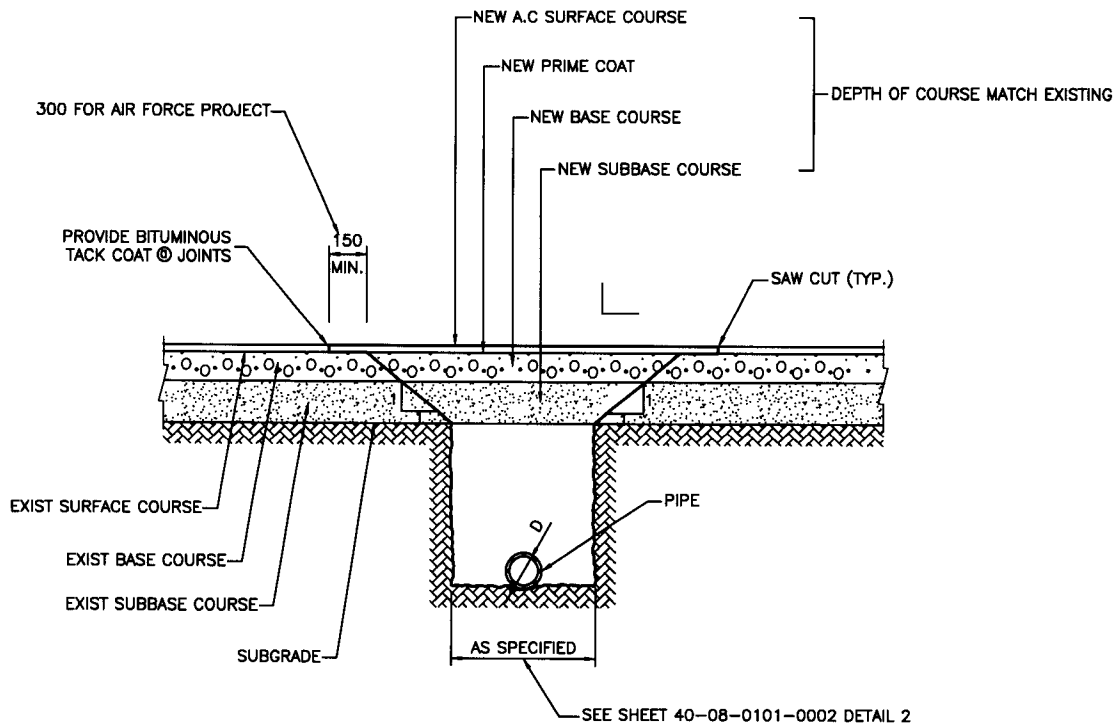


SEALING DETAIL
NOT TO SCALE

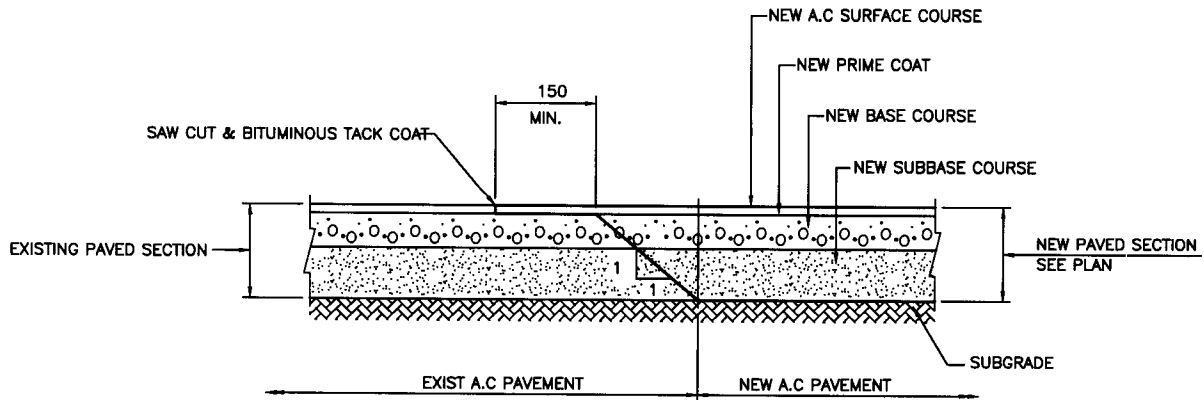
NOTE : THE SEALANT MUST BE APPLIED TO DEPTH OF 3mm TO 6mm BELOW THE SURFACE OF PAVEMENT.

GROUND POINT ANCHOR
NOT TO SCALE

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER		REV DATE	DWG NO.
TITLE	GROUND POINT ANCHOR AT AIRFIELD	SPEC	OCT 2003 C2108



(A) TYPICAL A.C PAVEMENT TRENCH RESTORATION DETAIL
NOT TO SCALE

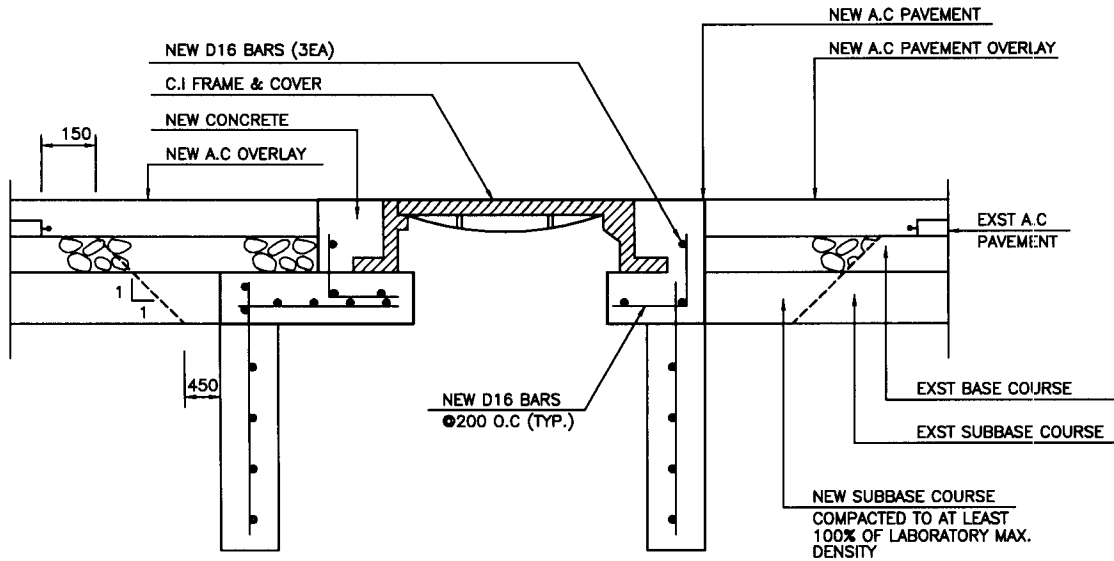


(B) NEW/EXIST PAVEMENT JOINT
NOT TO SCALE

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	A.C PAVEMENT RESTORATION	SPEC	02551	OCT 2003	C2109

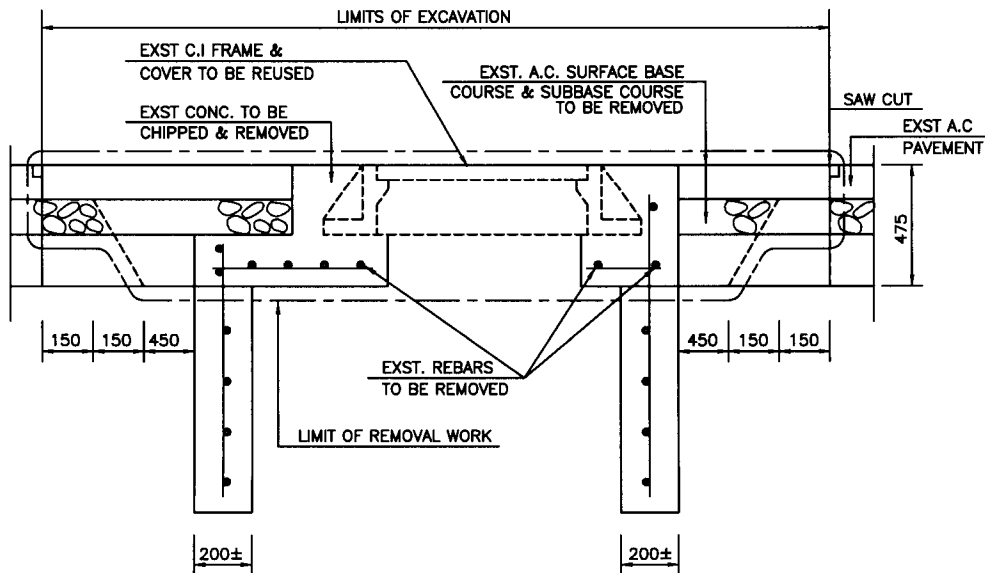
SEQUENCE OF REPAIR WORK:

1. EXCAVATE TO LIMITS SHOWN ON REMOVAL WORK SECTION.
2. CHIP CONC. BASE & REMOVE C.I. FRAME & COVER (C.I. FRAME & COVER TO BE REUSED)
3. CONSTRUCT NEW CONC. BASE TO REQUIRED ELEV. USING OLD C.I. FRAME & COVER (SEE RAISING MANHOLE SECTION)
4. SUBGRADE PREPARATION
5. CONSTRUCT SUBBASE COURSE COMPACTED TO AT LEAS 100% OF CE-55 MAX. DENSITY. & BASE COURSE (COMPACT TO AT LEAST 100% OF LABORATORY MAX. DENSITY)
6. APPLY-TACK COAT & PRIME COAT
7. LAY A.C PAVING & OVERLAY.



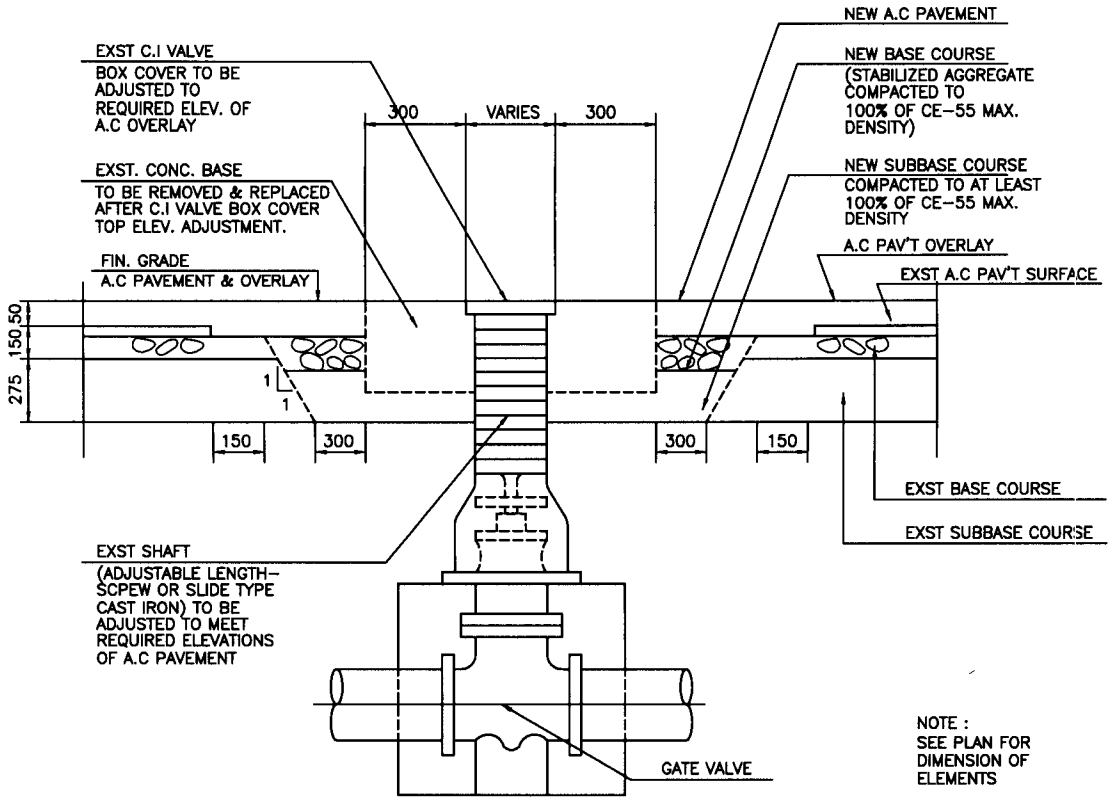
RAISING MANHOLE
NOT TO SCALE

NOTE :
SEE DESIGN DOCUMENT
FOR SIZE OF MEMBERS

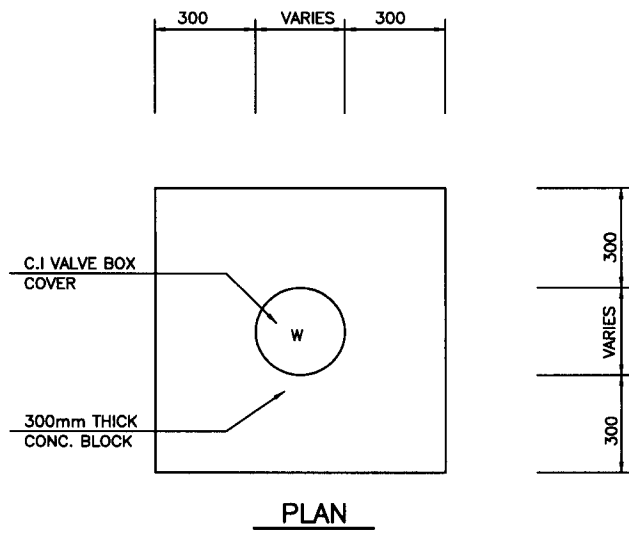


REMOVAL WORK
NOT TO SCALE

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER			REV DATE	DWG NO.
TITLE	RAISING MANHOLE	SPEC	OCT 2003	C2110

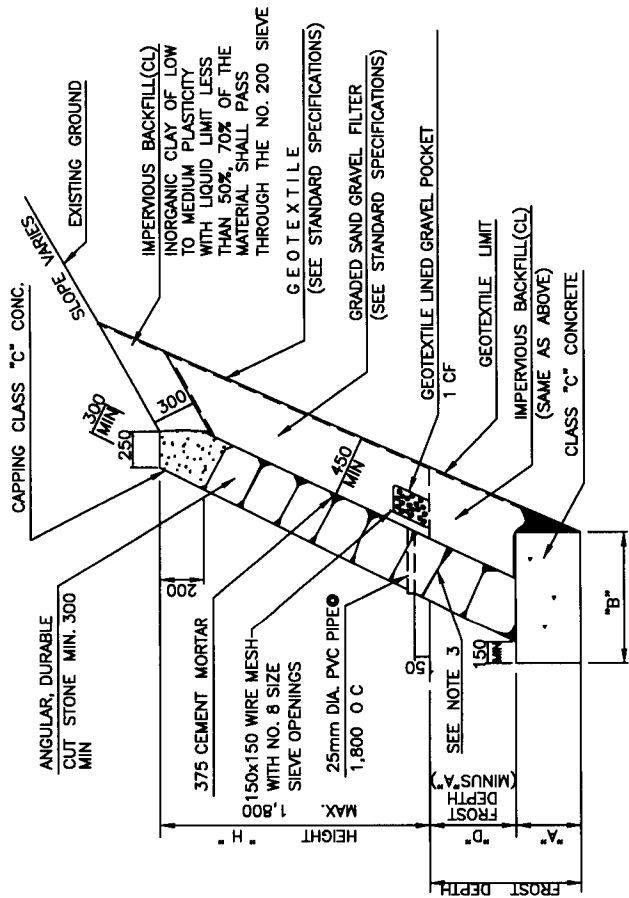


REMOVAL & RAISING C.I. VALVE BOX COVER
(SEE WORK REQUIRED ABOVE)



RAISING TOP OF GATE VALVE BOX
NOT TO SCALE

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER		REV DATE	DWG NO.
TITLE	RAISING GATE VALVE BOX	SPEC	OCT 2003 C2111



DIMENSION TABLE

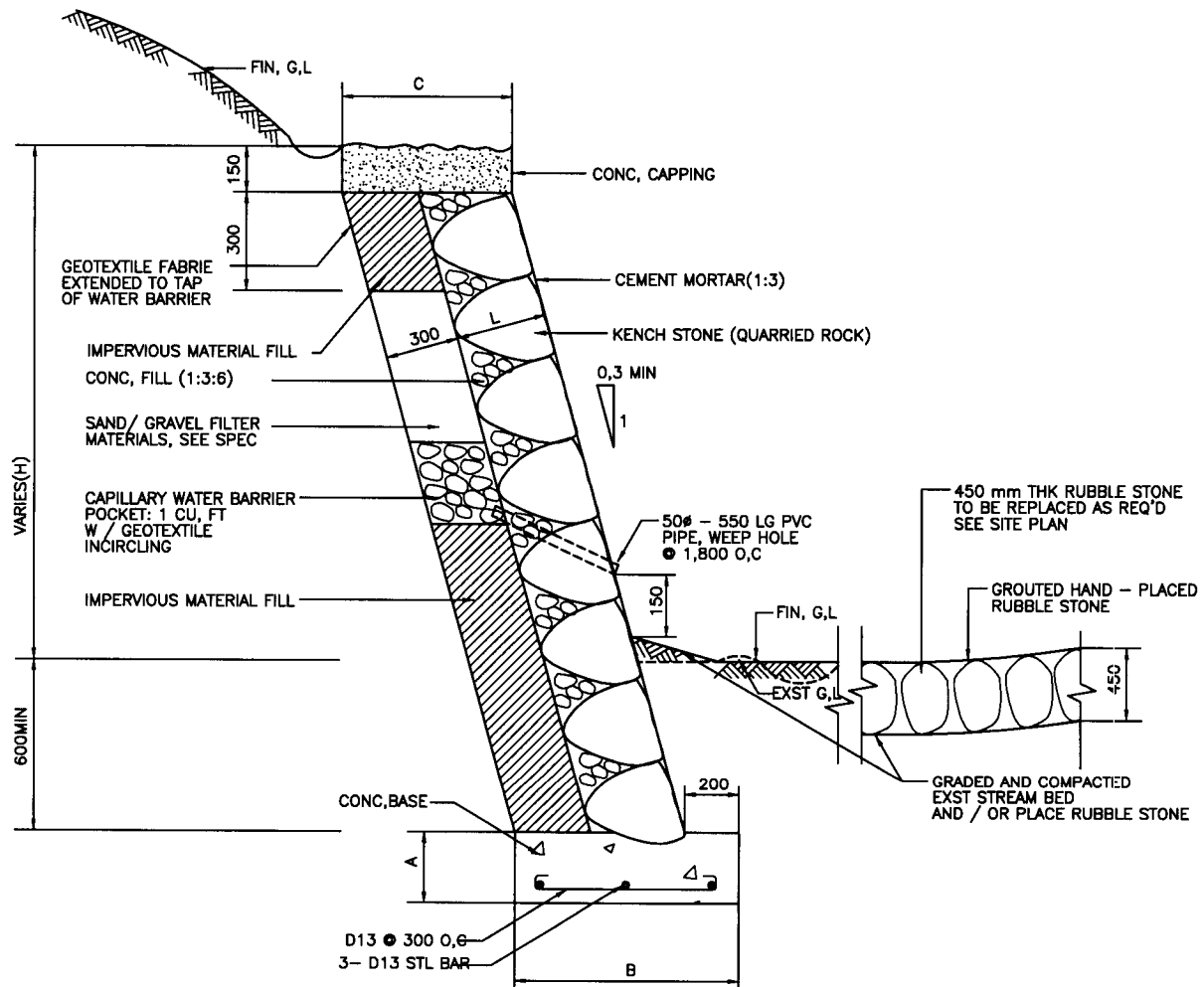
HEIGHT "H"	"A"	"B"
1,200 OR LESS	300	750
1,200 OR 1,800	450	1,050

- N O T E :**
1. STONE MASONRY SLOPE PROTECTION SHALL ONLY BE USED IN STABLE CUT SLOPES
 2. STONE MASONRY SLOPE PROTECTION SHALL NOT EXCEED 1.8m IN HEIGHT
 3. OMIT GROUT FROM VERTICAL JOINTS IN FIRST COURSE
 4. MAXIMUM FACE SLOPE SHALL BE 1/2 HORIZONTAL TO 1.0 VERTICAL

STONE MASONRY SLOPE PROTECTION
(FOR STABLE CUT SLOPES ONLY)
 NOT TO SCALE

TITLE		IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER		REV DATE	DWG NO.
STONE MASONRY PROTECTION		SPEC		OCT 2003	C2112

TABLE						
WALL HEIGHT	KENCH STONE (QUARRIED ROCK)			FOUNDATION		CAPPING
H	L	AVG. SURFACE	AVQ. WEIGHT	A	B	C
1,800 OR LESS	350	250 SQ	41 kgf	300	850	650

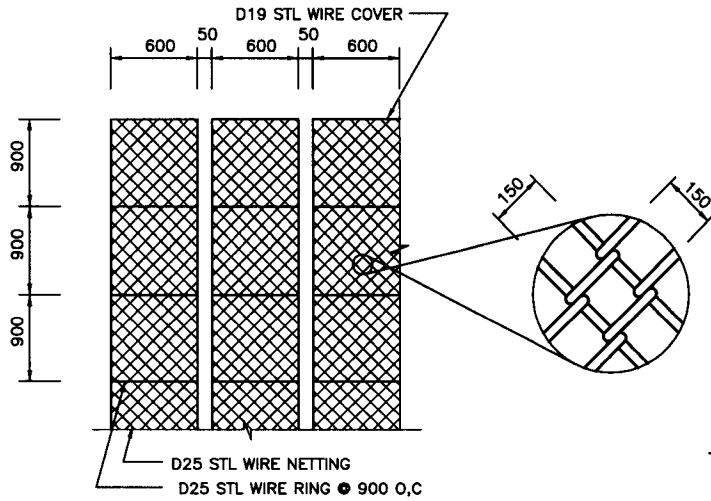


NOTE :
 1, USE THIS TO REPAIR EXISTING STONE WALL ONLY,
 2, DO NOT USE THIS DETAIL FOR NEW RETAINING WALL,

KENCH STONE WALL & RUBBLE STONE BED, DEF,

NOT TO SCALE

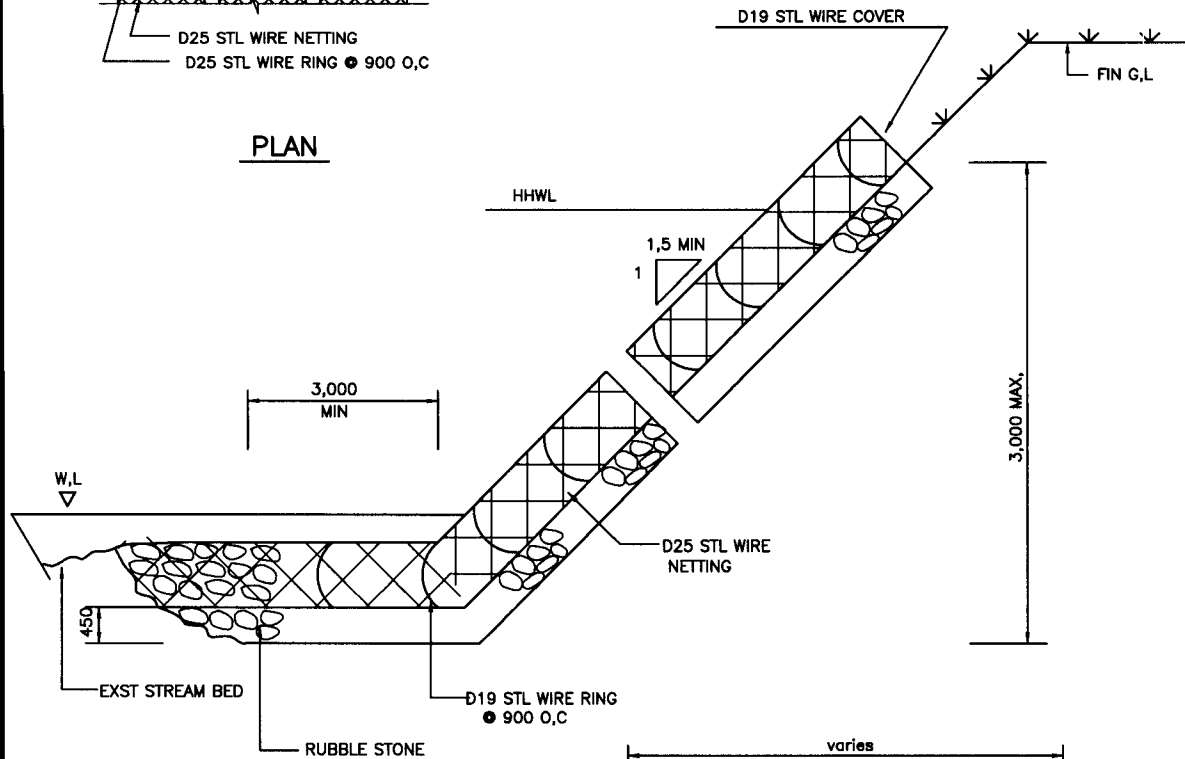
IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	STONE WALL	SPEC		OCT 2003	C2113



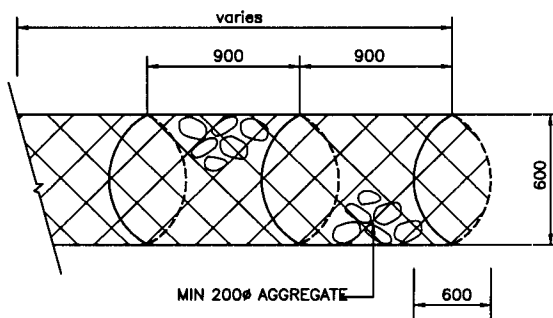
PLAN

NOTES

- 1, FILL GABION WITH AGGREGATE, MINIMUM (200mm<DIA<300mm) AGGREGATE SIZE OF 200 DIAMETER AND SECURE GABION BY TWISTING EVERY MESH AS RECOMMENDED BY MANUFACTURER
- 2, GABION COVER WILL BE PROVIDED TO END AND, BEGINNING POINT
- 3, CONSTRUCT CIRCLE GABION WITH A CONFORMING D25 GALVANIZED STEEL WIRE MESH (150 SQ) BY DAE SUNG WIRE NETTING CO, LTD OR APPROVED EQUAL



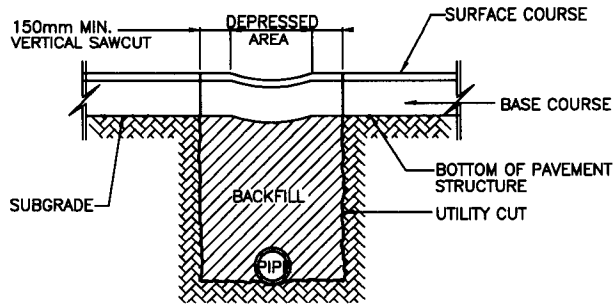
TYPICAL SECTION



CIRCLE GABION DETAIL

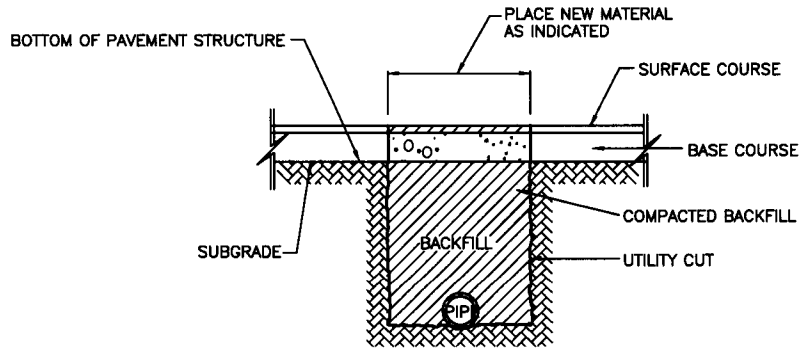
NOT TO SCALE

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER			REV DATE	DWG NO.
TITLE	GABION	SPEC	OCT 2003	C2114



REPAIR RANGE TO UTILITY CUT

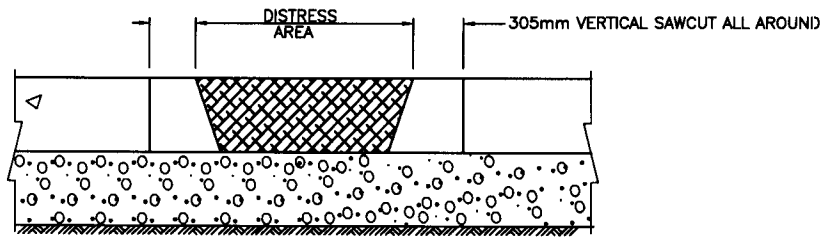
NOT TO SCALE



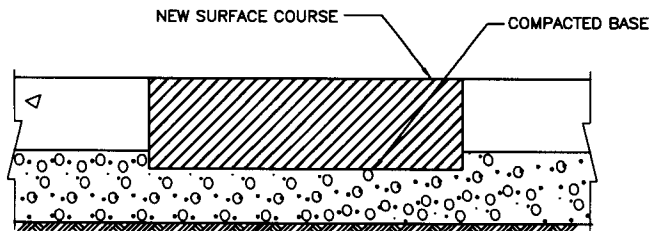
REPAIR TO UTILITY CUT

NOT TO SCALE

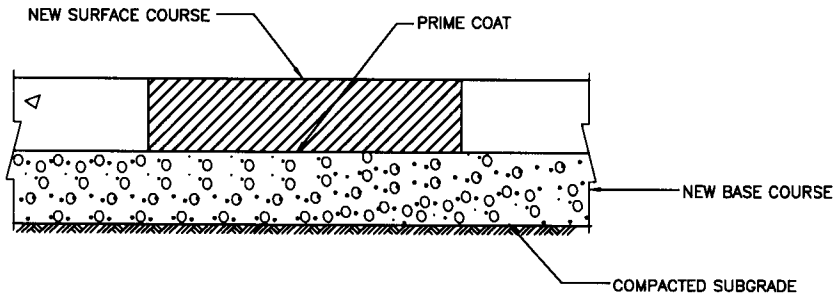
IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	REPAIR AC PAVEMENT - 1	SPEC		OCT 2003	C2115



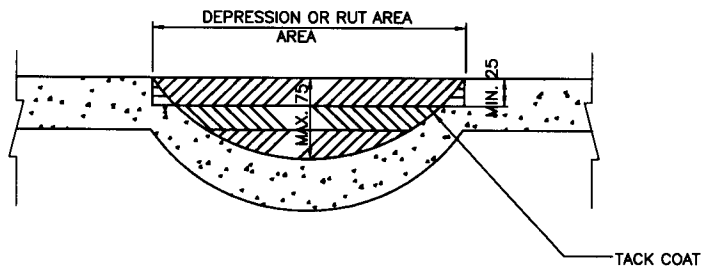
(A) REPAIR RANGE
NOT TO SCALE



(B) PARTIAL - DEPTH REPAIR
NOT TO SCALE



(C) FULL - DEPTH REPAIR
NOT TO SCALE



(D) FILLING DEPRESSION AND RUTS
NOT TO SCALE

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER

REV DATE

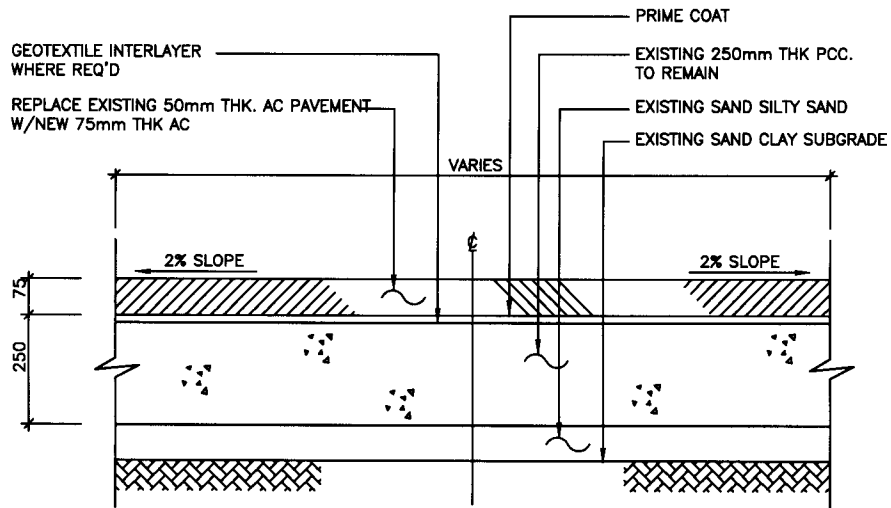
DWG NO.

TITLE REPAIR AC PAVEMENT - 2

SPEC

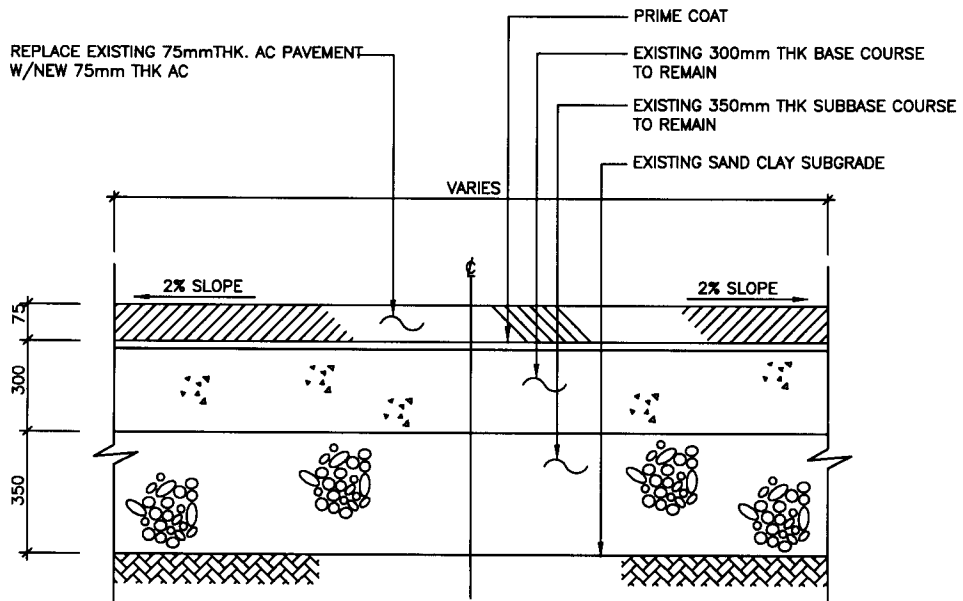
OCT 2003

C2116



SECTION
NOT TO SCALE
75mm THK AC

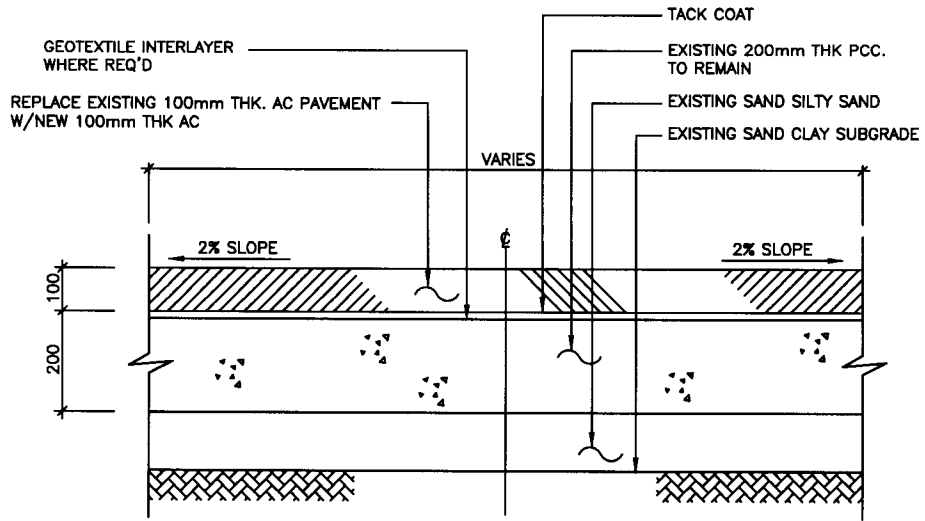
NOTE :
SEE OMA STD SPEC, SEE 02225
PARA 2.9.2.1 FOR SUBGRADE COMPACTION.



SECTION
NOT TO SCALE
75mm THK AC

NOTE :
1) ALL CRACK & POT HOLE SHALL BE REPAIRED PRIOR TO DO THE NEW AC PAVING.
2) SEE OMA STD SPEC, SEE 02225
PARA 2.9.2.1 FOR SUBGRADE COMPACTION.

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER			REV DATE	DWG NO.
TITLE	REPLACE AC SURFACE COURSE	SPEC	OCT 2003	C2117



SECTION
 NOT TO SCALE
100mm THK AC

REPLACE EXISTING AC. PAVEMENT W/NEW AC
 NOT TO SCALE

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER			REV DATE	DWG NO.
TITLE	REPLACE AC SURFACE COURSE	SPEC	OCT 2003	C2118

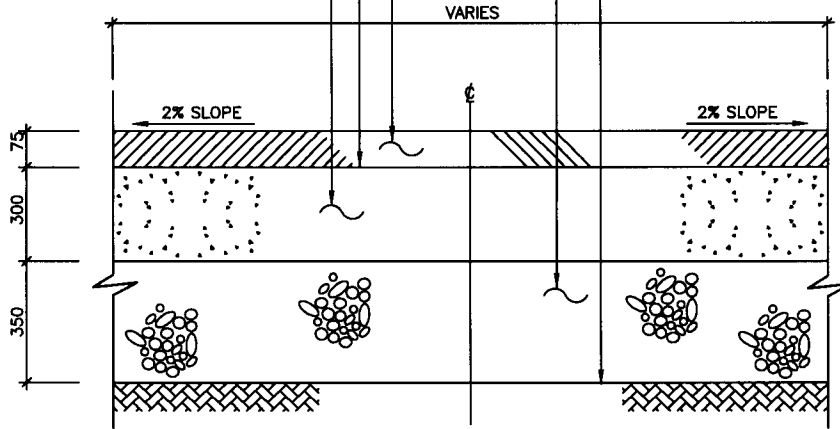
REPLACE EXISTING 75mm THK. AC PAVEMENT
W/NEW 75mm THK AC

PRIME COAT

REPLACE EXISTING 300mm THK. BASE COURSE
SHALL BE COMPACTED
AT LEAST 100% OF CE-55 MAX DENSITY

EXISTING 350mm THK SUBBASE COURSE
TO REMAIN

EXISTING SUBGRADE



SECTION
NOT TO SCALE

REPLACE AC. W/BASE COURSE

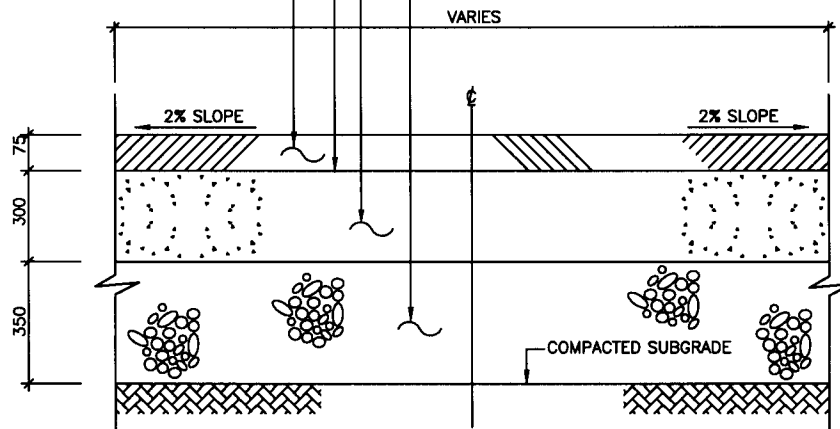
NOTE :
SEE OMA STD SPEC, SEE 02225

REPLACE EXISTING 150mm THK. AC PAVEMENT
W/NEW 75mm THK AC

PRIME COAT

REPLACE EXISTING 300mm THK. BASE COURSE
(STABILIZED AGGREGATE) SHALL BE COMPACTED
TO AT LEAST 100% OF LABORATORY MAX DENSITY

REPLACE 350mm THK. SUBBASE COURSE
SHALL BE COMPACTED
TO AT LEAST 100% OF LABORATORY MAX DENSITY



SECTION
NOT TO SCALE

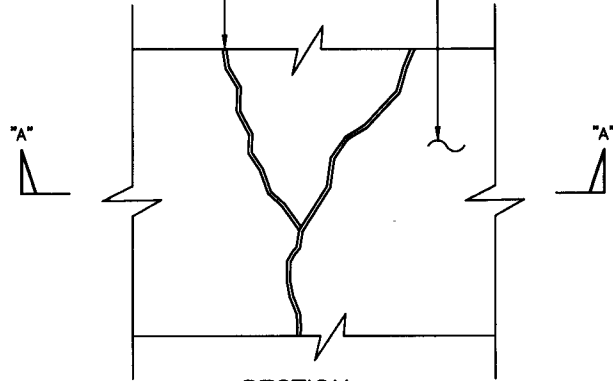
REPLACE AC. W/BASE COURSE AND SUBBASE COURSE

2

REPLACE AC. W/ BASE COURSE

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER			REV DATE	DWG NO.
TITLE	REPLACE AC PAVEMENT	SPEC	OCT 2003	C2119

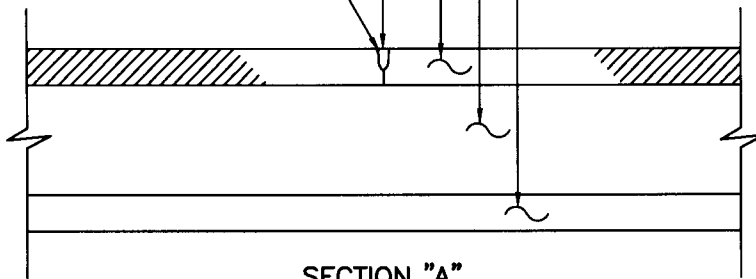
EXISTING LOW, MEDIUM AND HIGH SEVERITY JOINT CRACKING



SECTION
NOT TO SCALE

PENETRATION GRADE ASPHALT OR TAR, SEALING MATERIAL SEE NOTE
EXISTING LOW, MEDIUM AND HIGH SEVERITY JOINT CRACKING

EXISTING AC PAVEMENT
EXISTING BASE COURSE
EXISTING SUBBASE COURSE



SECTION "A"
NOT TO SCALE

TAXIWAY AND APRONS

SEVERITY	MAXIMUM DEPTH OF DEPRESSION	NONFILLED CRACK WIDTH
L -----	25	IS LESS THAN 9mm
M -----	50	9mm TO 75mm
H -----	50	75mm

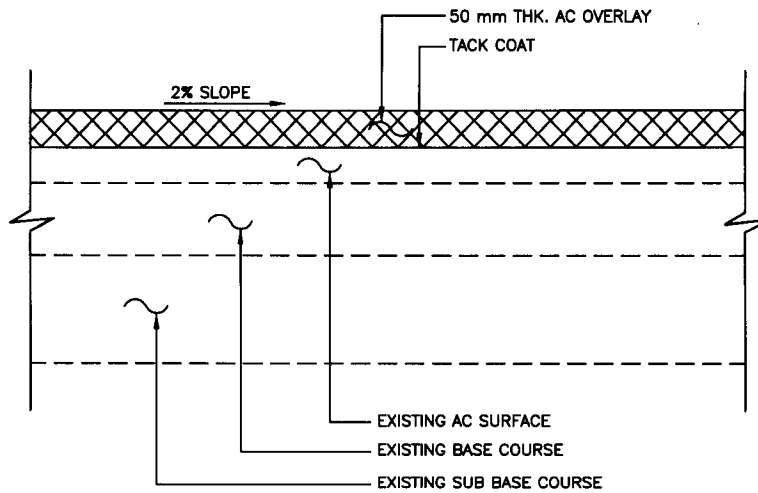
NOTE :

1. REPAIR SEAL PENETRATION GRADE ASPHALT OR TAR SEALING MATERIAL, SEALING CRACKS IN THE AC. PAVED AREAS SHALL BE IAW CEGS-02975
2. CLEANING CRACKED AC. WITH COMPRESSED AIR
3. REFERENCE : TM 5-623, TM-5-826, TM-624 AND ASPHALT IN PAVEMENT MAINTENANCE (MS-16)

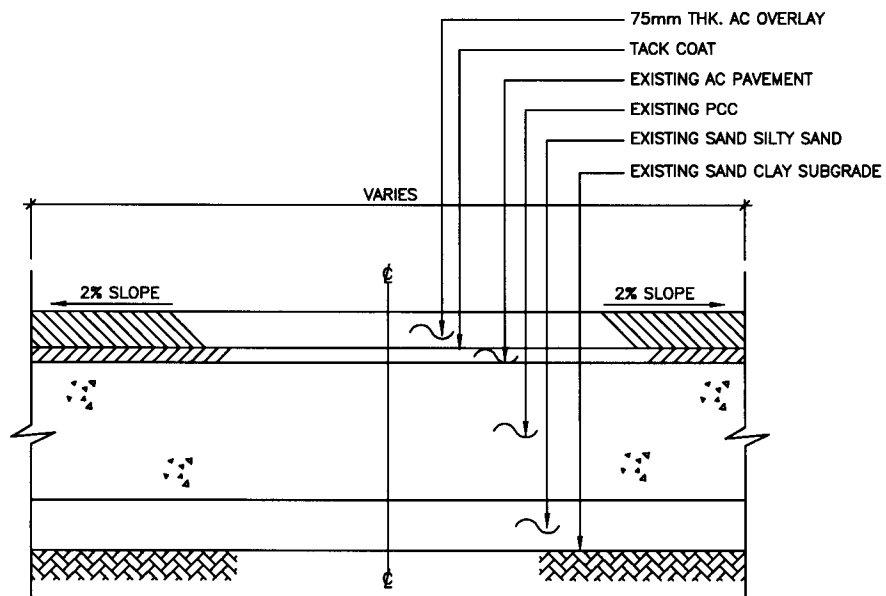
3

LOW, MEDIUM AND HIGH SEVERITY JOINT CRACKING

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER			REV DATE	DWG NO.
TITLE	REPAIR AC PAVEMENT CRACK	SPEC	OCT 2003	C2120



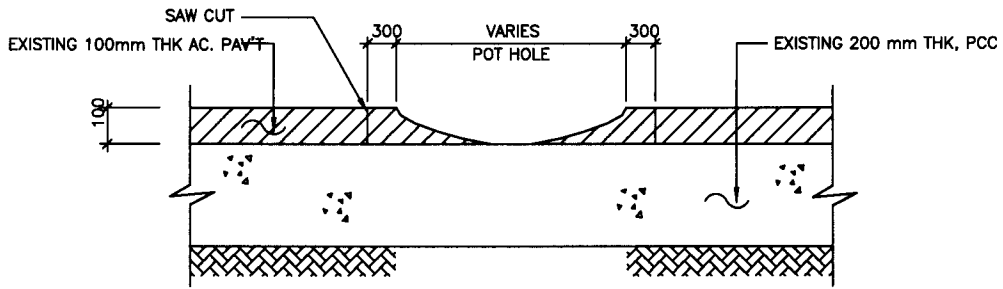
SECTION
NOT TO SCALE
50 mm THK AC. OVERLAY



SECTION
NOT TO SCALE
75mm THK AC. OVERLAY

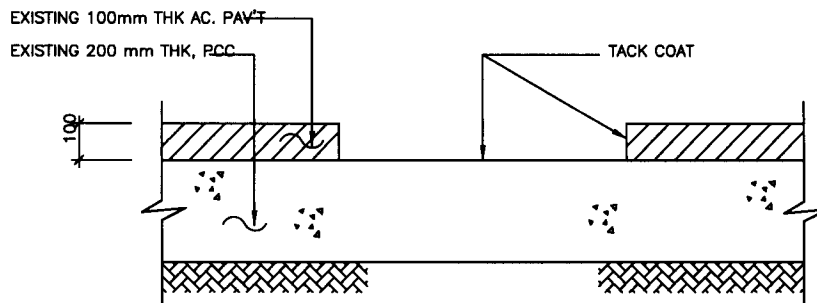
4 AC. OVERLAY
NOT TO SCALE

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER		REV DATE	DWG NO.
TITLE	AC OVERLAY ON AC PAVEMENT	SPEC	OCT 2003 C2121



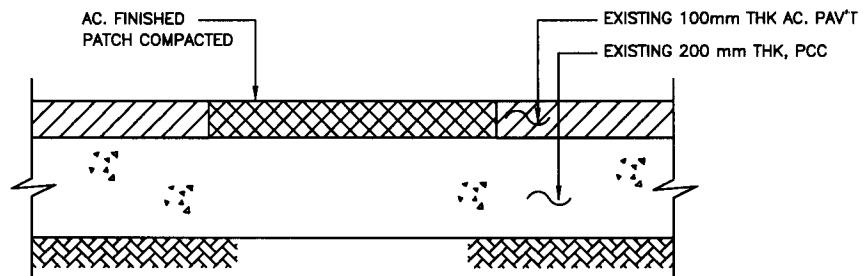
UNGRADED POT HOLE

SECTION
NOT TO SCALE



SURFACE REMOVED TO FIRM SUPPORT
AND TACK COAT APPLIED

SECTION
NOT TO SCALE

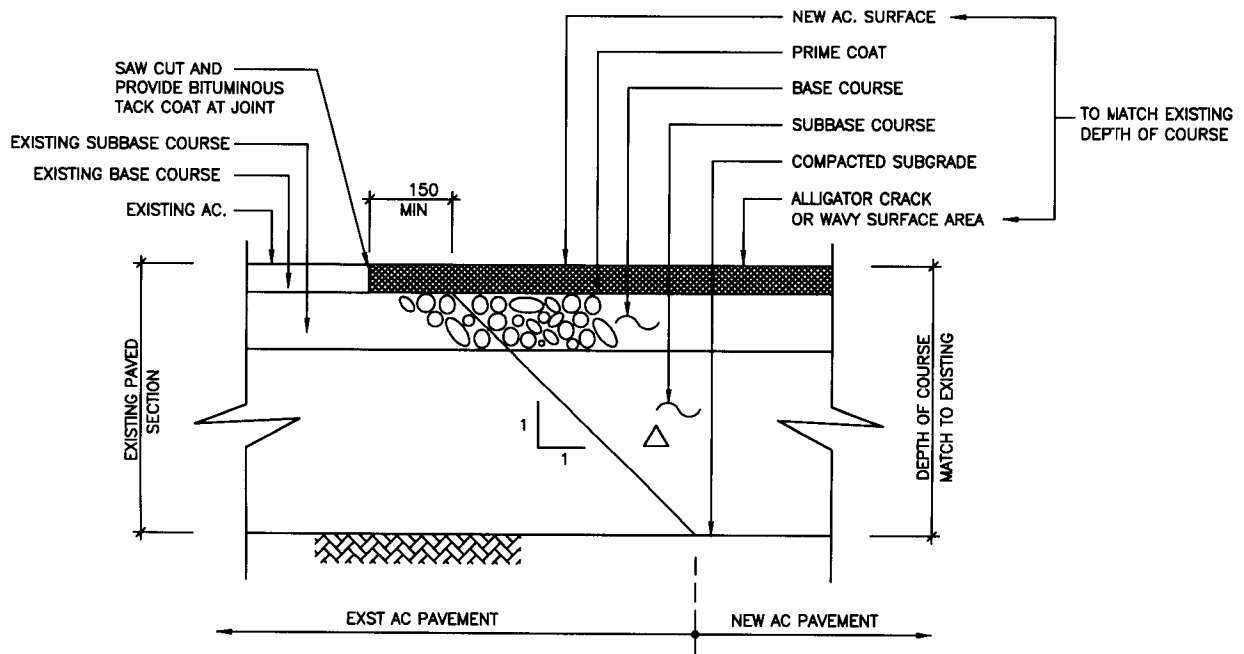


FULL-DEPTH ASPHALT MIXTURE PLACED
W/BEING COMPACTED AND FINISHED PATCH COMPACTED
TO LEVEL OF SURROUNDING

SECTION
NOT TO SCALE

REPAIR AC POT HOLE
NOT TO SCALE

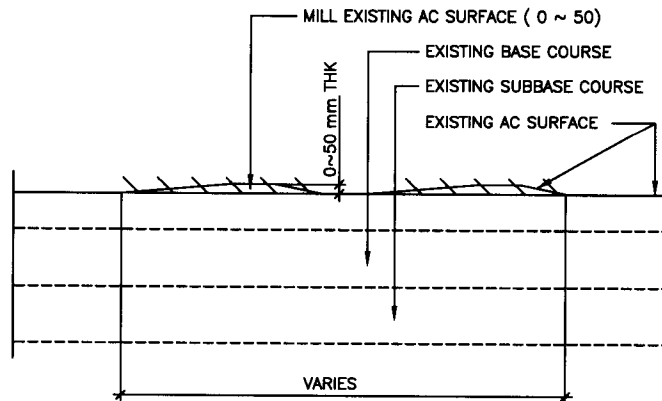
IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER			REV DATE	DWG NO.
TITLE	REPAIR AC PAVEMENT - POT HOLE	SPEC	OCT 2003	C2122



NOTE : BASE COURSE AND SUBBASE COURSE FOR NEW AC PAVEMENT SHALL BE COMPACTED AT LEAST 100% OF LABORATORY MAX. DENSITY.

AC. PAVEMENT JOINT DETAIL

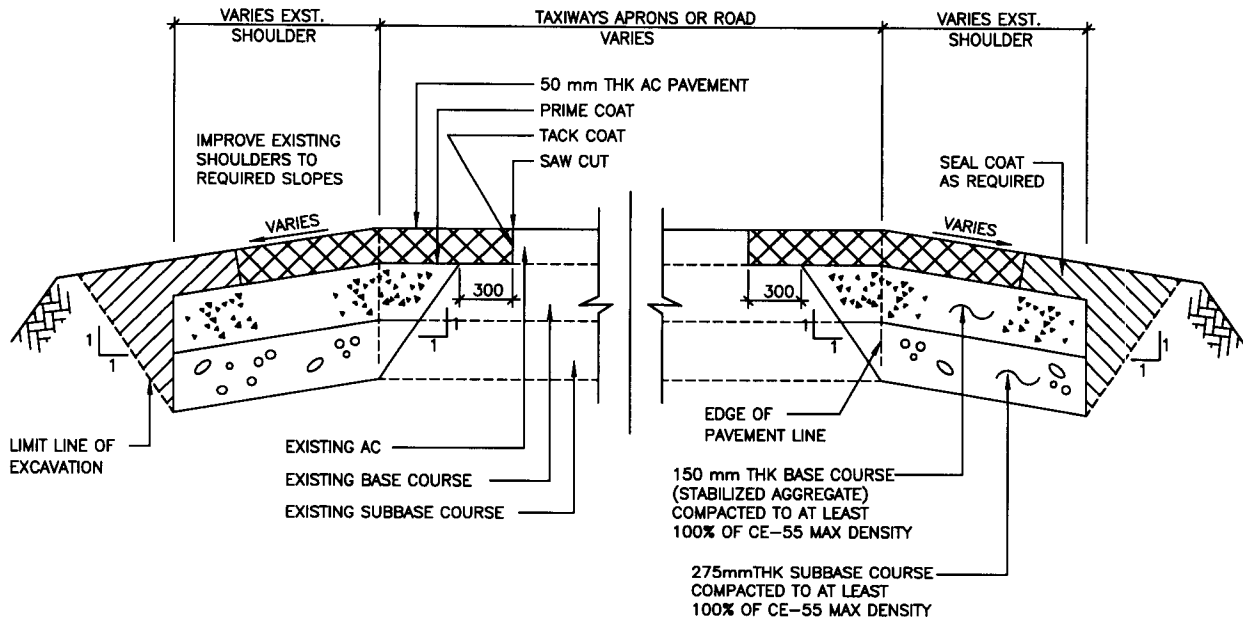
NOT TO SCALE



8 MILL EXISTING AC SURFACE

NOT TO SCALE

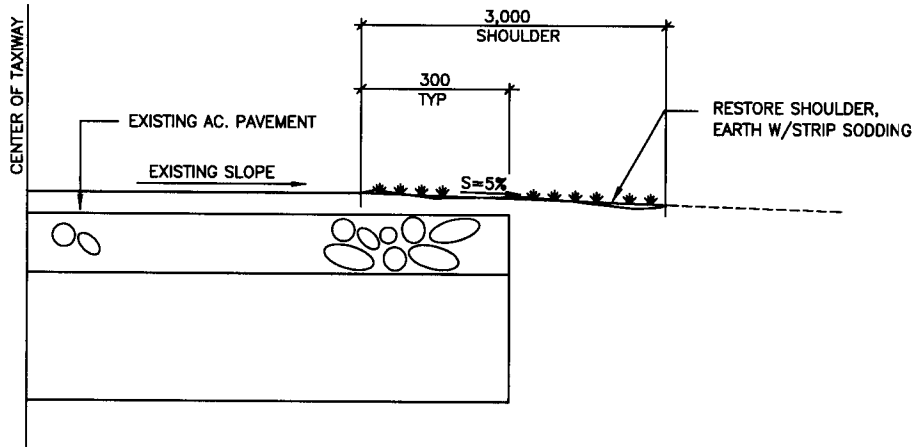
IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER			REV DATE	DWG NO.
TITLE	CONNECT & MILLING AC PAVEMENT	SPEC	OCT 2003	C2123



7

REPAIR/REPLACE SHOULDER W/BASE COURSE

NOT TO SCALE

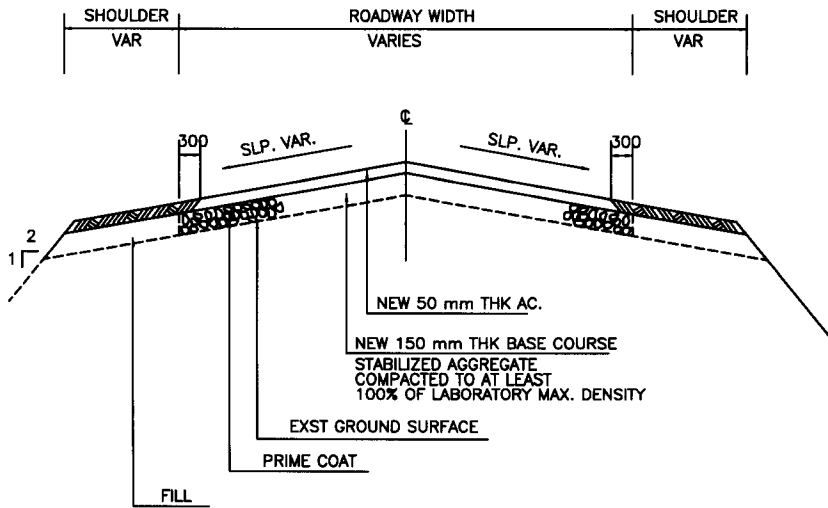


TYPICAL SECTION FOR SHOULDER

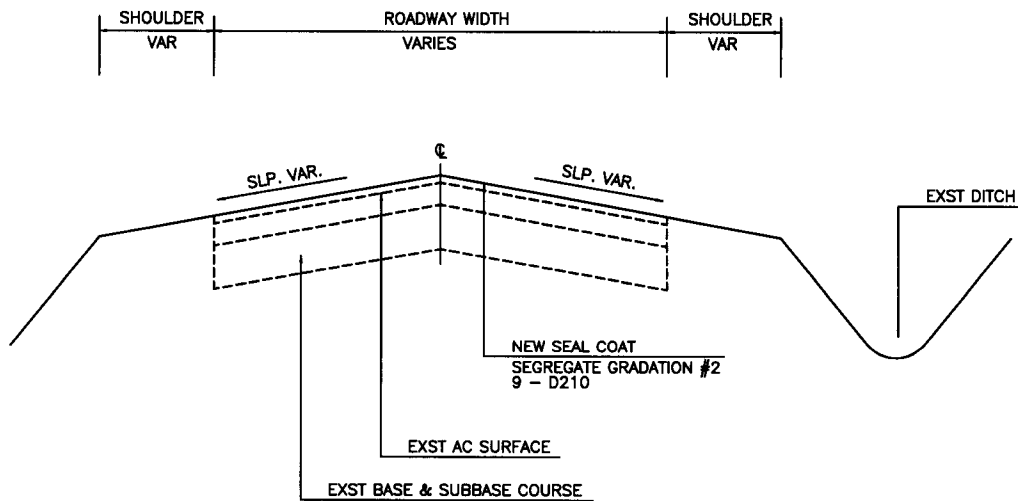
RESTORE SHOULDER

NOT TO SCALE

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER			REV DATE	DWG NO.
TITLE	REPAIR/REPLACE SHOULDER	SPEC	OCT 2003	C2124



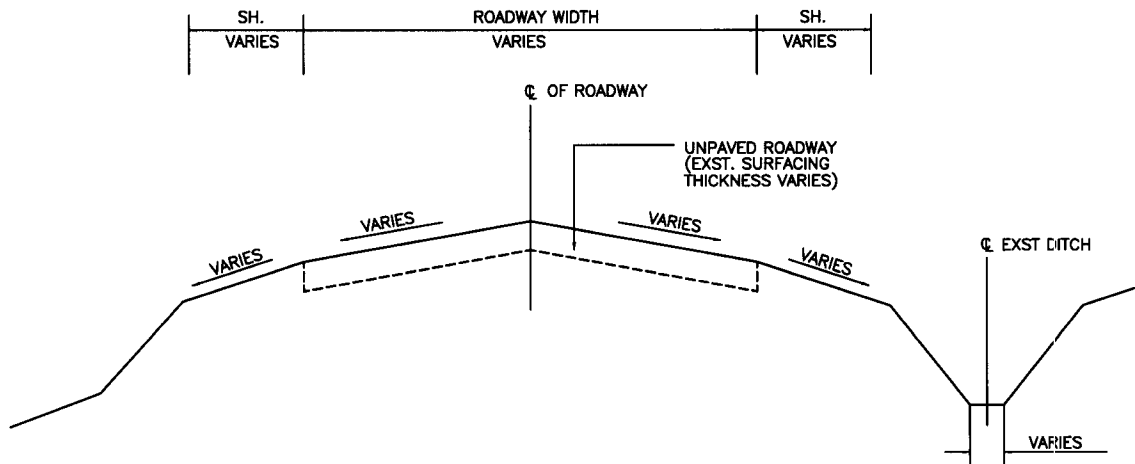
OVERLAY W/BASE COURSE - SECTION
NOT TO SCALE



SEAL COAT - SECTION
NOT TO SCALE

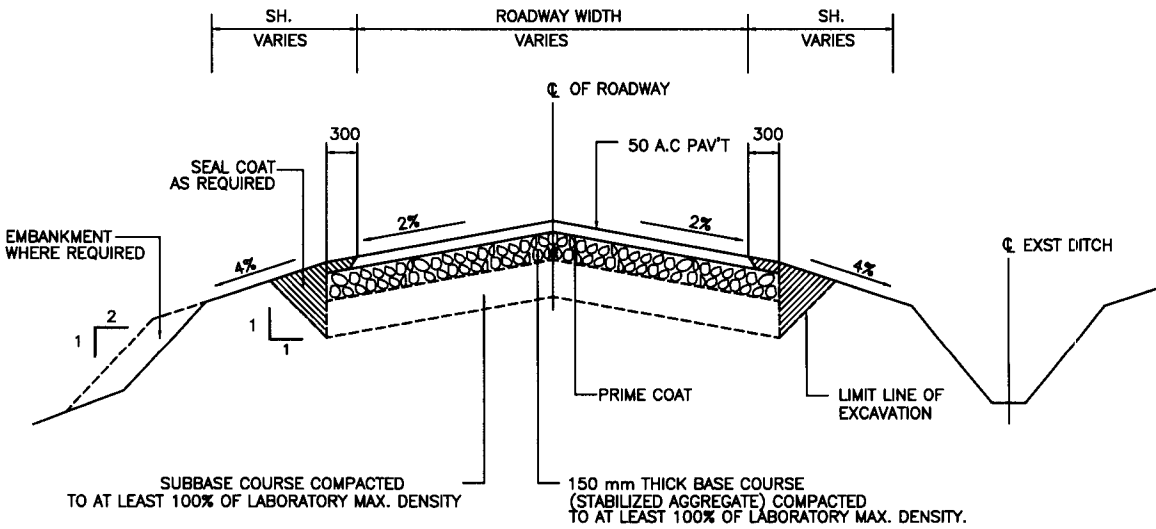
IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER			REV DATE	DWG NO.
TITLE	SECTION-OVER LAY W/BASE COURSE & SEAL COAT	SPEC	OCT 2003	C2125

NOTE ; REPAIR DITCHES WHEN CALLED FOR SEPARATELY



EXST. UNPAVED ROADWAY SECTION – TYP.

NOT TO SCALE

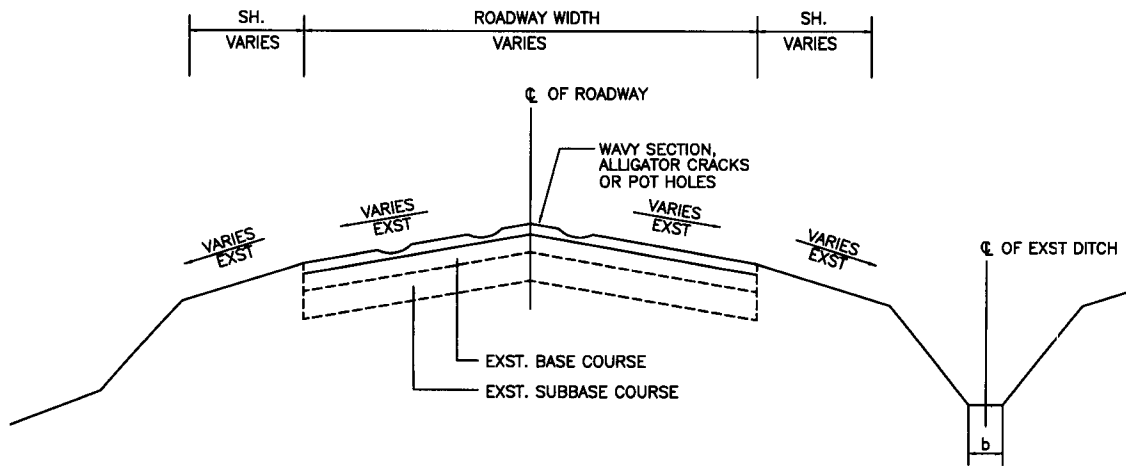


NEW AC. PAV'T. INSTALLATION

NOT TO SCALE

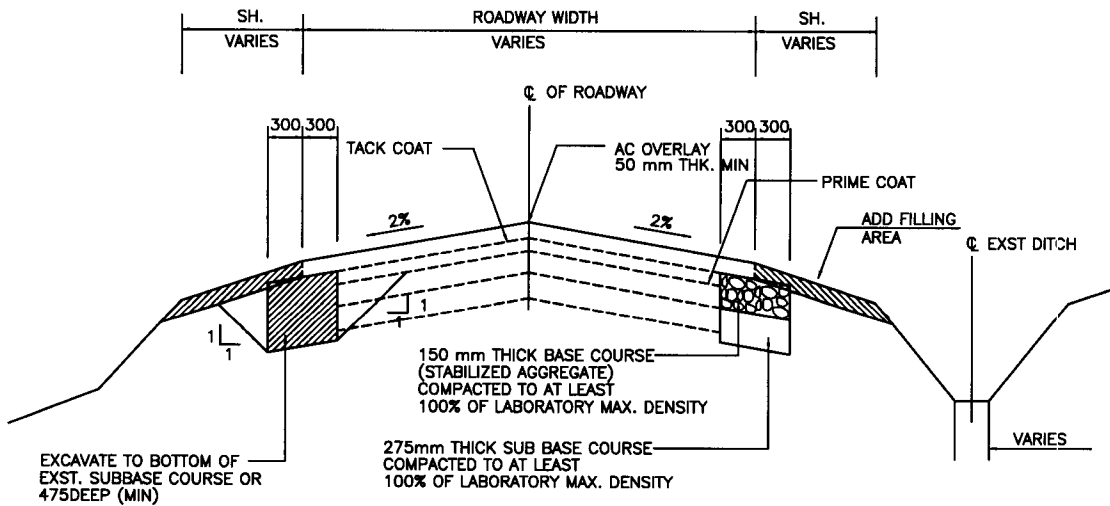
IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER			REV DATE	DWG NO.
TITLE	AC PAVING ON EXISTING UNPAVED ROAD	SPEC	OCT 2003	C2126

NOTE ; REPAIR DITCHES WHEN CALLED FOR SEPARATELY



EXST. ROADWAY SECTION

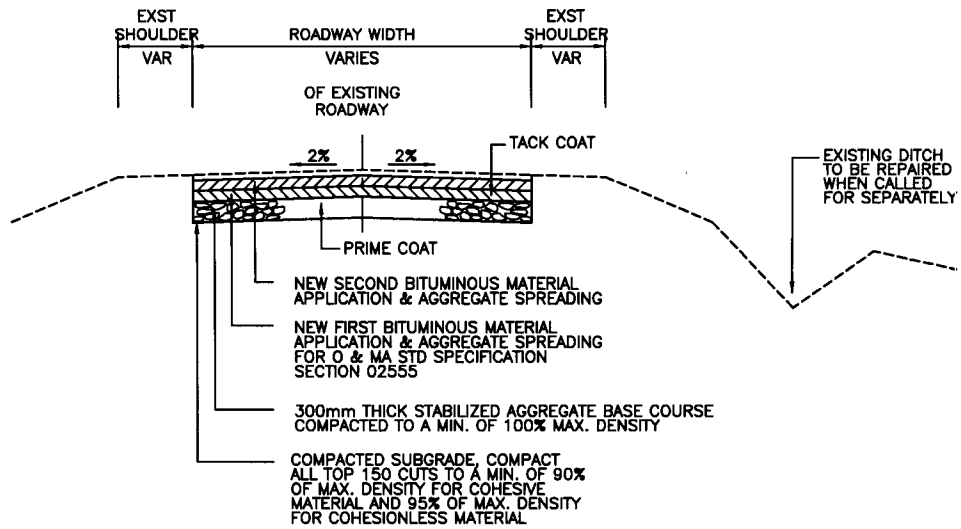
NOT TO SCALE



AC. OVERLAY WORK – SECTION

NOT TO SCALE

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER			REV DATE	DWG NO.
TITLE	AC OVERLAY ON EXST AC PAVEMENT	SPEC	OCT 2003	C2127

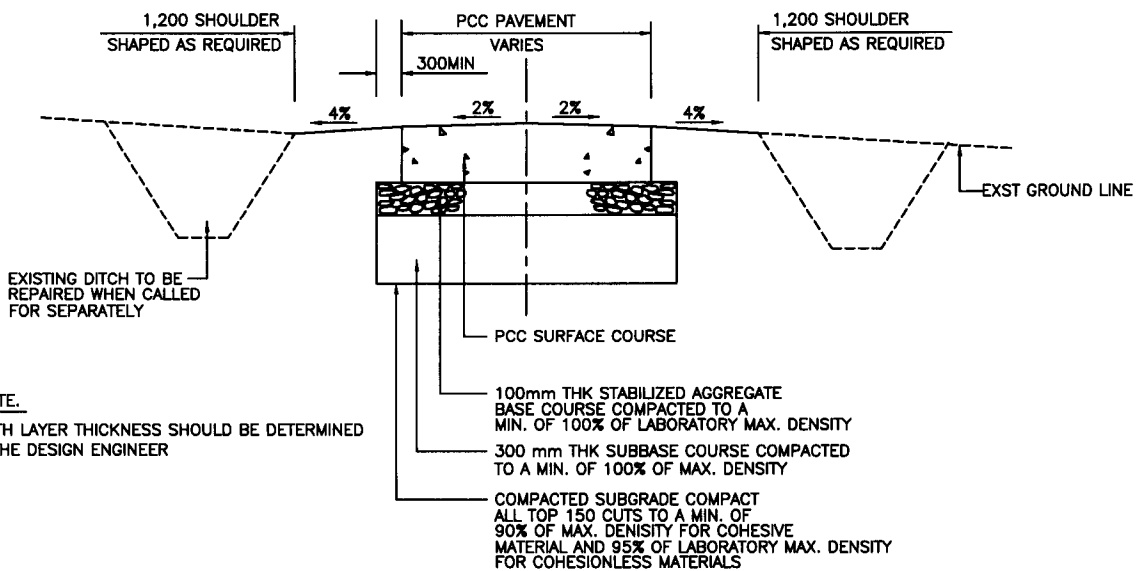


TYPICAL SECTION

DOUBLE BITUMINOUS SURFACE TREATMENT (PVMNT)

NOT TO SCALE

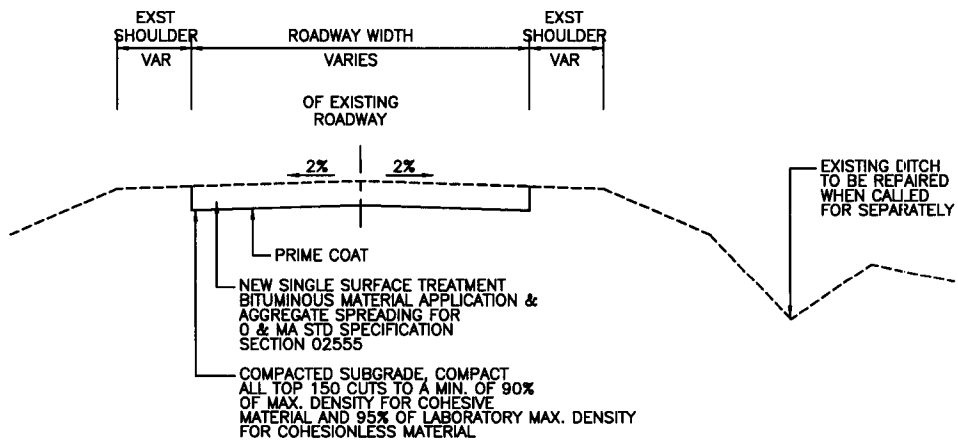
IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER			REV DATE	DWG NO.
TITLE	DOUBLE SURFACE TREATMENT	SPEC	OCT 2003	C2128



NOTE.
EARTH LAYER THICKNESS SHOULD BE DETERMINED BY THE DESIGN ENGINEER

PORTLAND CEMENT CONCRETE (PCC) PAVEMENT

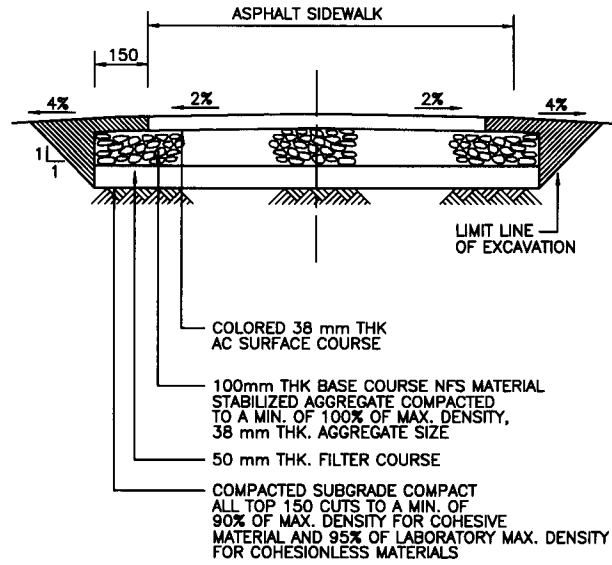
NOT TO SCALE



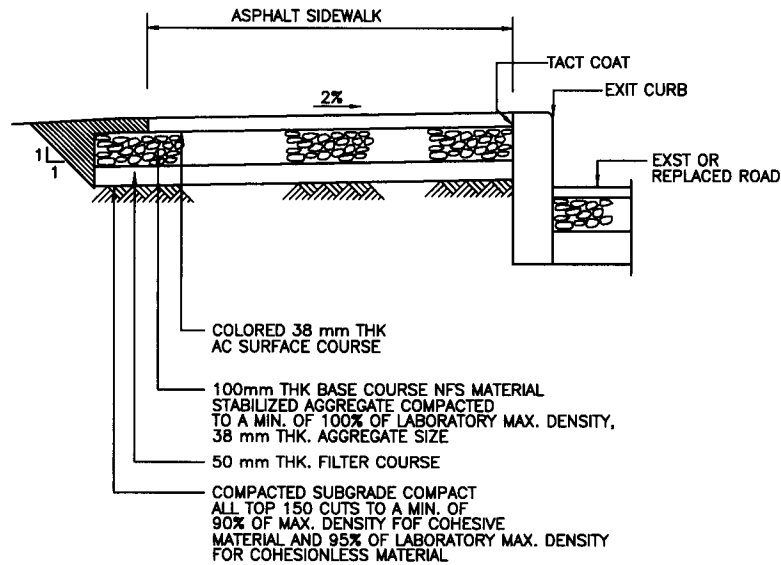
**TYPICAL SECTION
SINGLE BITUMINOUS SURFACE TREATMENT (PVMNT)**

NOT TO SCALE

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER			REV DATE	DWG NO.
TITLE	PCC PAVING AND SINGLE SURFACE TREATMENT	SPEC	OCT 2003	C2129



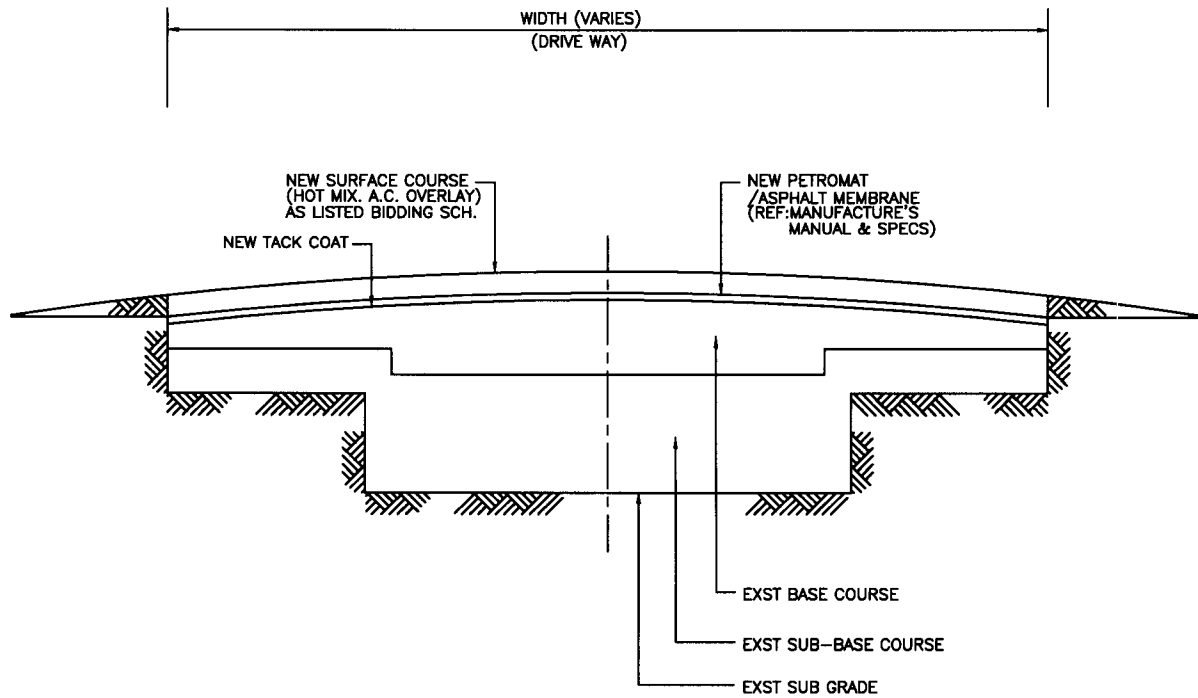
CASE #1



CASE #2

ASPHALT SIDEWALK
NOT TO SCALE

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER			REV DATE	DWG NO.
TITLE	ASPHALT PAVED SIDEWALK	SPEC	OCT 2003	C2130



REF:

MATERIAL SPECIFICATION (PETROMAT / ASPHALT MEMBRANE)

FABRIC

ITEM	TYPICAL	MINIMUM
WEIGHT. kg/SQ.m	0.15	0.13
TENSILE STRENGTH. kgf(1)	52.1	40.8
ELONGATION-AT-BREAK. % (1)	65	55
MULLEIN BURST STRENGTH. kgf/cm ²	16.5	14.1
ASPHALT RETENTION GALS/SQ m(2)		0.024
COLOR	BLACK BLEND	
WIDTH. mm(3)	75 & 150	
LENGTH/ROOL. m	110	

- (1) ASTM METHOD D - 1632 - 64
 (2) PHILLIPS PROCEDURE
 (3) OTHER WIDTH. AVAILABLE ON ORDER

FABRIC

ITEM	QUALITY	SPEC.
ASPHALT CEMENT	PENETRATION OR VISCOSITY GRADE	AASHTO M-20 AASHTO M-226
CATIONIC ASPHALT EMULSION	CRS - 2 CRS - 1h	AASHTO M-20B
ANIONIC ASPHALT EMULSION	RS - 2 BS - 1	AASHTO M-140

AGGREGATE:

SMALL QUANTITIES OF HOT MIX. SPREAD OVER THE FABRIC WILL SERVE THIS PURPOSE

NOTE:

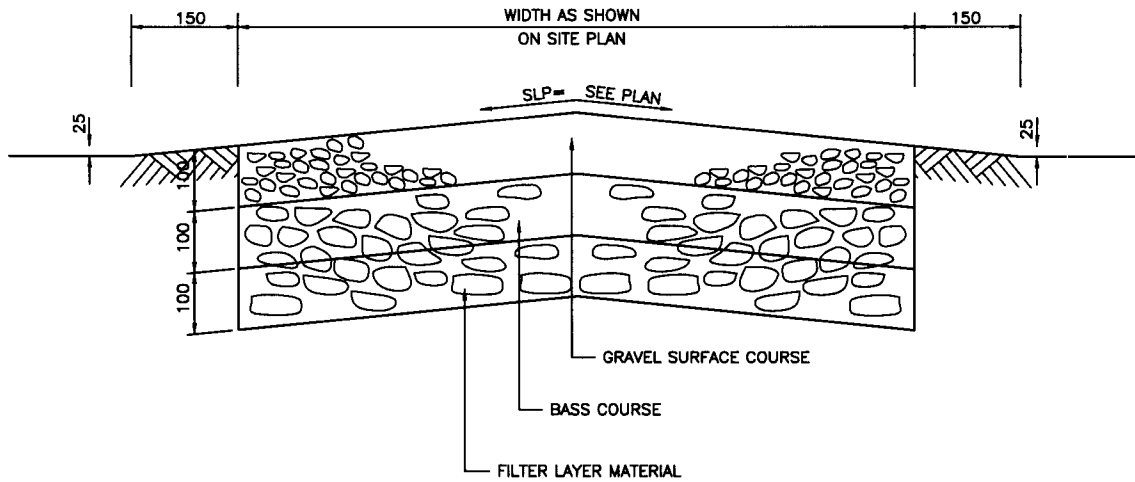
THE PETROMAT PROTECTIVE MEMBRANE SYSTEM CONSISTS OF PETROMAT NONWOVEN POLYPROPYLENE FABRIC SEALED WITH ASPHALT CEMENT

MANUFACTURE : PHILLIPS FIBER CORP. USA
 OR AS APPROVED EQUAL

TYP. SECTION OF LAY DOWN FABRIC

NOT TO SCALE

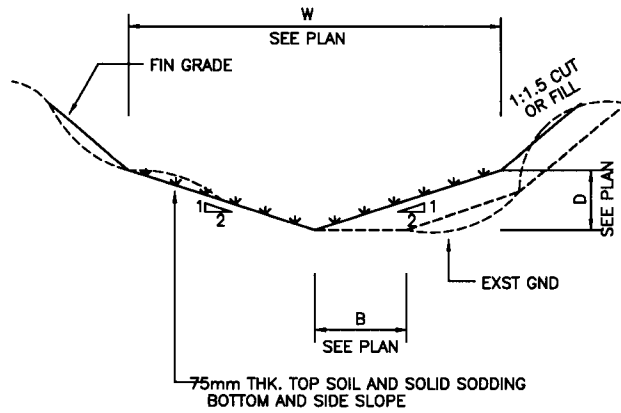
IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	LAY DOWN FABRIC	SPEC		OCT 2003	C2131



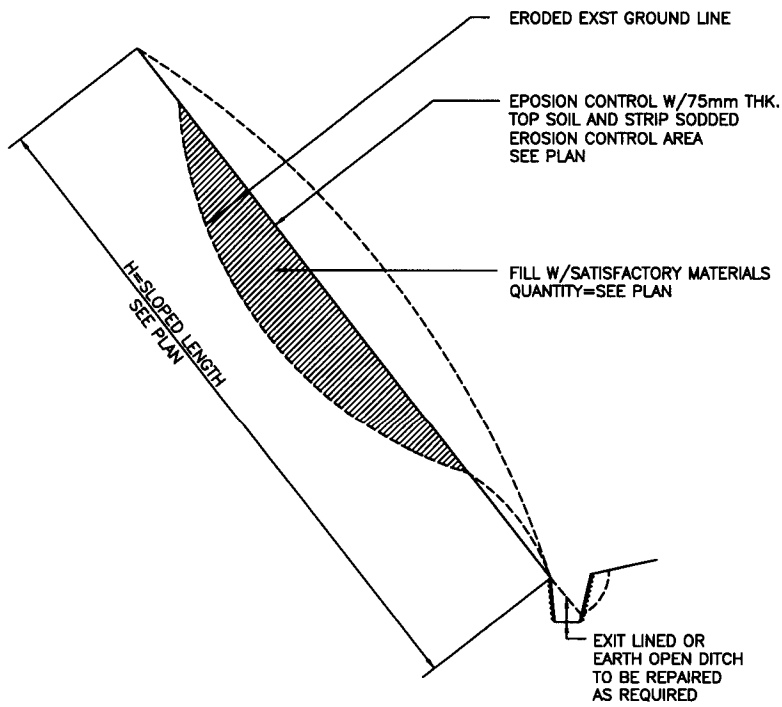
GRAVEL OR CRUSHED STONE COMPACTED.
SEE SPECIFICATIONS FOR MATERIAL.

GRAVEL ROAD
NOT TO SCALE

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER			REV DATE	DWG NO.
TITLE	GRAVEL SURFACED ROAD	SPEC	OCT 2003	C2132

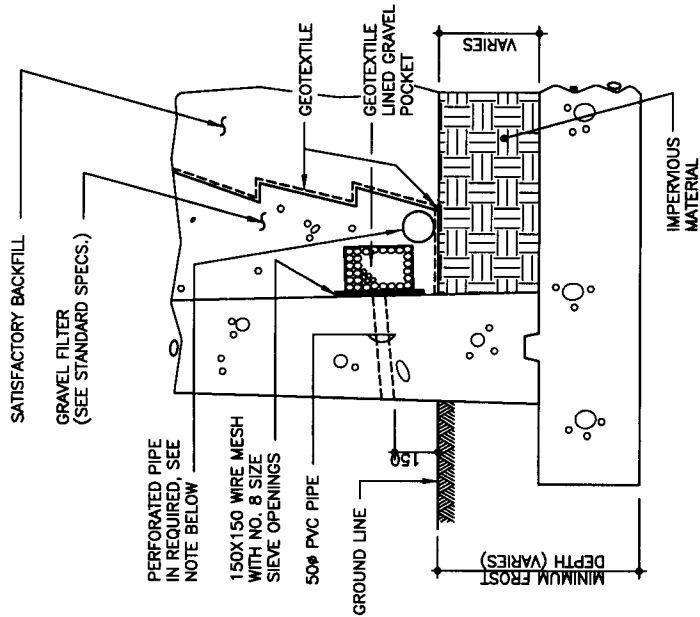


EARTH OPEN DITCH
NOT TO SCALE

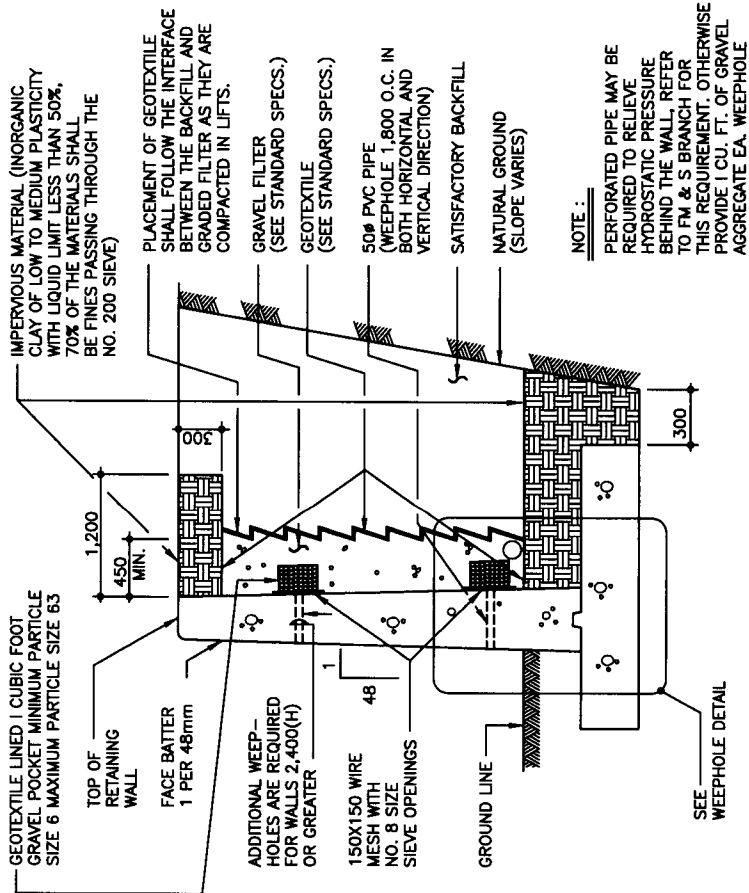


EROSION CONTROL
NOT TO SCALE

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER		REV DATE	DWG NO.
TITLE	REPAIR ERODED SLOPE & EARTH DITCH	SPEC	OCT 2003 C2133



WEEPHOLE DETAIL



FILTER MATERIAL

FILTER MATERIAL LIMITS

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER

REV DATE

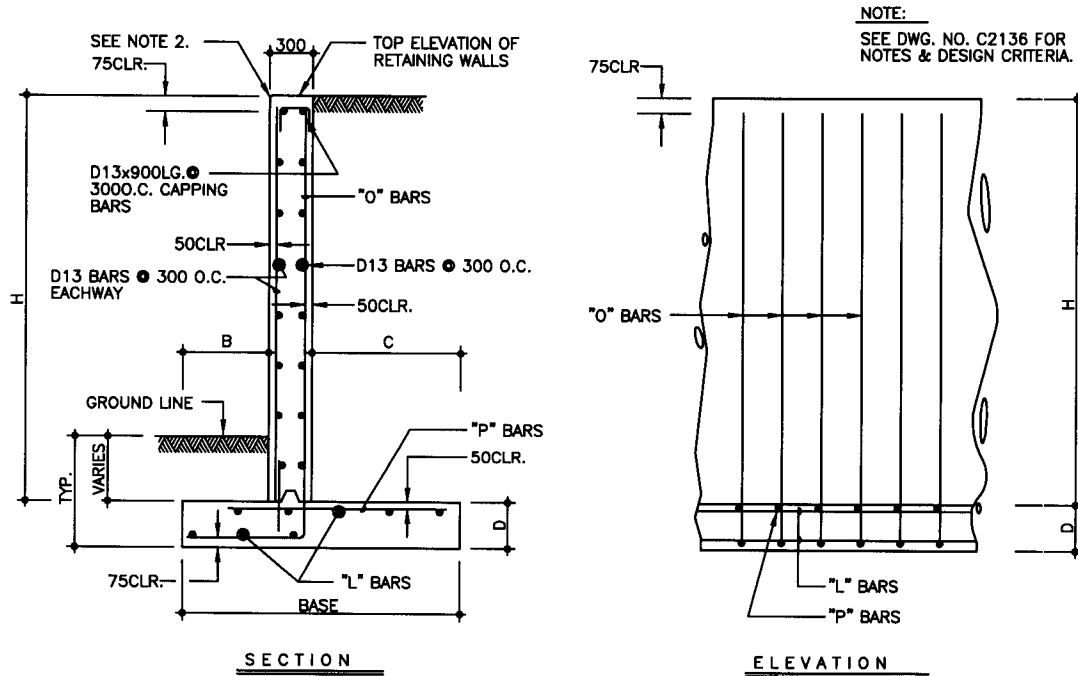
DWG NO.

TITLE RETAINING WALL-1, CONCRETE

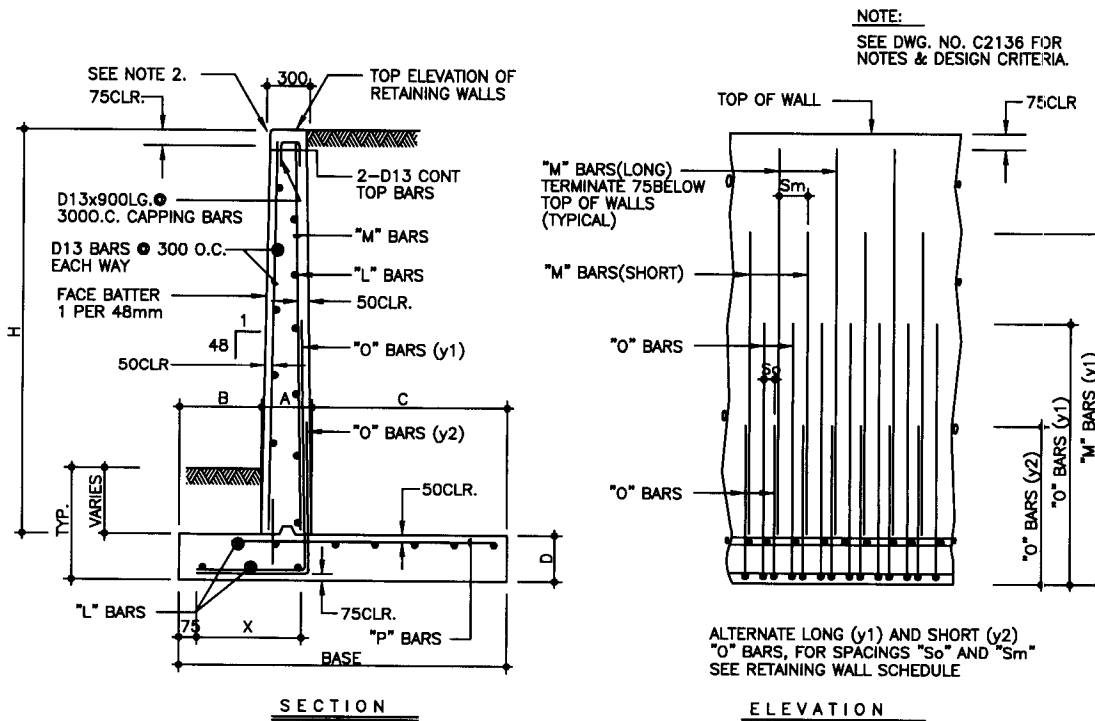
SPEC

OCT 2003

C2134

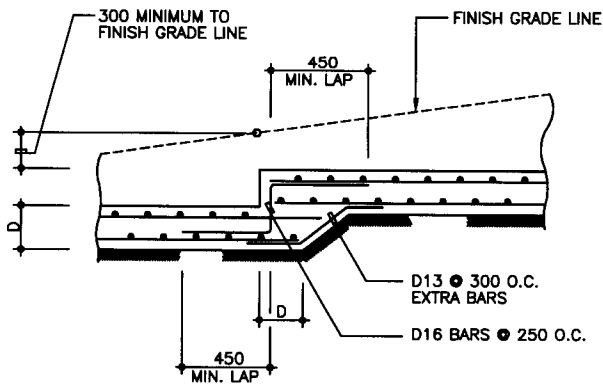


WALL HEIGHT ≤ 2,400

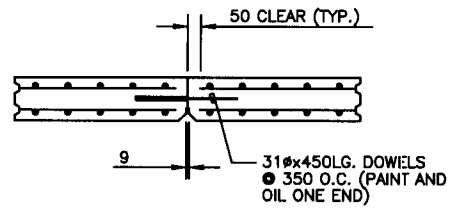


WALL HEIGHT > 2,400

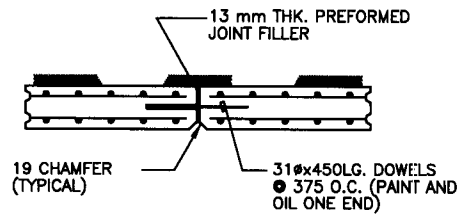
IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER		REV DATE	DWG NO.
TITLE	RETAINING WALL-2, CONCRETE	SPEC	OCT 2003 C2135



STEPPED FOOTING DETAIL

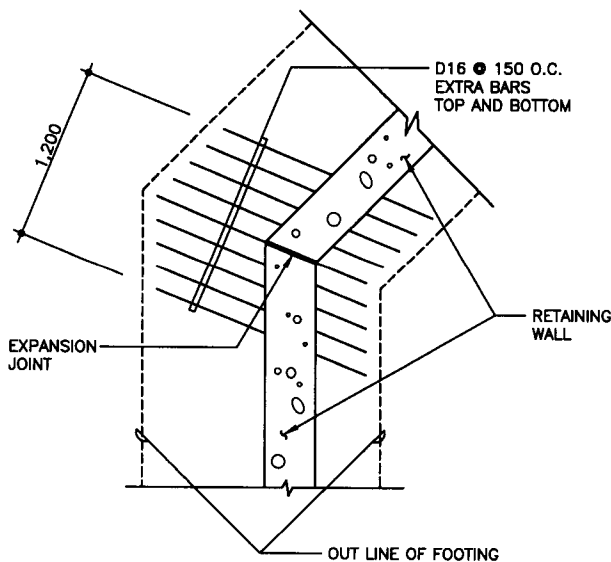


TYP. CONTRACTION JOINT
(MAX SPACING 12m)



EXPANSION JOINT
(MAX SPACING 30m)

JOINT DETAILS



AT WALL 45° BEND DETAIL

DESIGN CRITERIA

- I. CONCRETE :
COMPRESSIVE STRENGTH OF CONCRETE f_c' @ 28 DAYS
SHALL BE 210 kgf/cm^2
- II. REINFORCING STEEL :
REINFORCING STEEL SHALL CONFORM TO ASTM A-615,
GRADE 40, $f_y = 3,000 \text{ kgf/cm}^2$
- III. SOIL PARAMETERS USED :

ANGLE OF INTERNAL FRICTION	$\phi = 30^\circ$
SOIL DENSITY	$r = 2.0 \text{ kgf/cm}^3$
ANGLE OF WALL FRICTION	$f = 17^\circ$
BACKFIELD SLOPE ANGLE	$i = 0$

NOTES

1. RETAINING WALL FOOTINGS SHALL BEAR OR CAST AGAINST UNDISTURBED SOIL. OVER-EXCAVATION SHALL BE FILLED WITH 140 kgf/cm^2 CONCRETE PRIOR TO FOOTING PLACEMENT.
2. RETAINING WALL EXPOSED EDGES SHALL BE CHAMFERED A MINIMUM OF $3/4 \text{ mm}$.

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER

REV DATE

DWG NO.

TITLE RETAINING WALL-3, CONCRETE

SPEC

OCT 2003

C2136

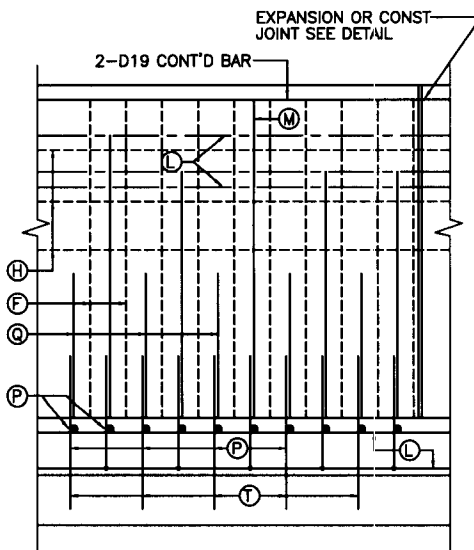
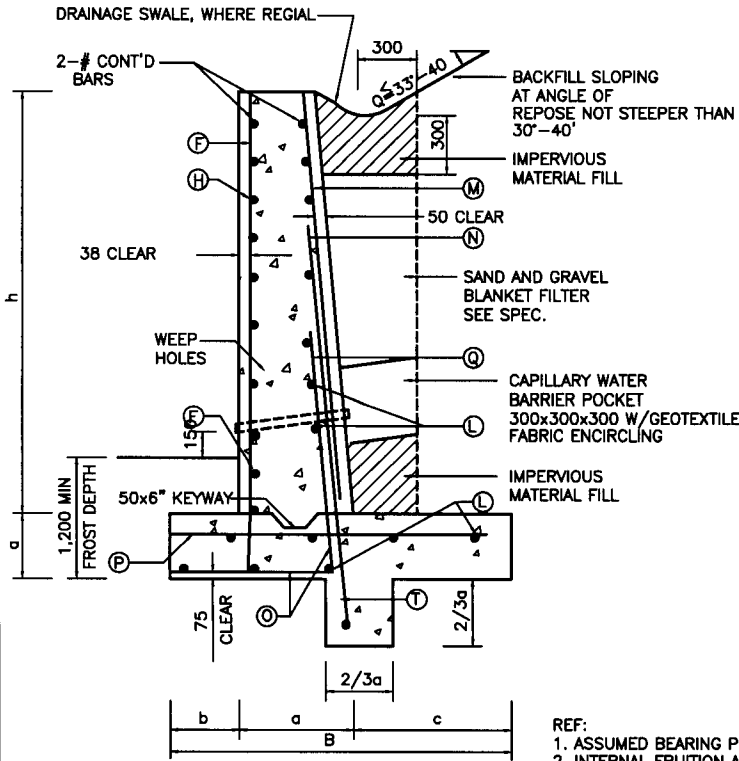
RETAINING WALL SCHEDULE

CONCRETE DIMENSIONS					STRUCTURAL REINFORCEMENT							
MARK NO. OR H (m)	BASE (mm)	B (mm)	A OR D (mm)	C (mm)	"O" BARS				"M" BARS(*)		"P" BARS	"L" BARS
					SIZE & SPACING (So)	X (mm)	y1 (mm)	y2 (mm)	SIZE & SPACING (Sm)	y1 (mm)	SIZE, LENGTH & SPACING	SIZE, LENGTH & SPACING
ALLOWABLE SOIL BEARING PRESSURE $\leq 1.17 \text{ kgf/cm}^2$												
1.5m	900	300	300	300	D13 @ 275	450	1,125	-	-	-	D13x750@275	D13 @ 300
1.8m	900	300	300	300	D13 @ 275	450	1,425	-	-	-	D13x750@275	D13 @ 300
2.1m	1,200	450	300	450	D13 @ 275	600	1,725	-	-	-	D13x1,050@275	D13 @ 300
2.4m	1,425	575	300	600	D13 @ 275	675	2,075	-	-	-	D13x1,275@275	D13 @ 300
2.7m	1,650	675	400	575	D16 @ 325	925	2,225	-	-	-	D16x1,575@325	D16 @ 325
3.0m	1,875	750	400	725	D16 @ 325	1,000	1,300	775	D16 @ 350	1,825	D16x1,725@300	D16 @ 300
3.3m	2,075	975	413	638	D16 @ 600	1,238	1,450	875	D16 @ 325	2,075	D16x1,650@300	D16 @ 300
3.6m	2,400	975	425	1,000	D16 @ 225	1,250	1,575	950	D16 @ 300	2,225	D16x2,075@300	D16 @ 300
3.9m	2,625	1,125	438	1,063	D19 @ 263	1,425	1,725	1,050	D16 @ 300	2,225	D16x2,100@275	D16 @ 300
4.2m	NOT RECOMMENDED											
ALLOWABLE SOIL BEARING PRESSURE $< 1.2 \text{ kgf/cm}^2$												
5	900	300	300	300	D13 @ 275	450	1,125	-	-	-	D13x750@275	D13 @ 300
6	900	300	300	300	D13 @ 275	450	1,425	-	-	-	D13x750@275	D13 @ 300
7	1,050	300	300	450	D13 @ 275	450	1,725	-	-	-	D13x900@275	D13 @ 275
8	1,200	300	300	600	D13 @ 275	450	2,075	-	-	-	D13x1,050@275	D13 @ 275
9	1,350	300	400	650	D16 @ 325	550	2,225	-	-	-	D16x1,200 @ 325	D16 @ 325
10	1,650	450	400	500	D16 @ 325	700	1,300	500	D16 @ 350	1,825	D16x1,500 @ 325	D16 @ 325
11	1,800	600	413	788	D16 @ 300	850	1,450	825	D16 @ 300	2,075	D16x1,650@300	D16 @ 300
12	2,250	675	425	1,150	D16 @ 225	950	1,600	950	D16 @ 325	2,225	D16x2,175@300	D16 @ 300
13	2,400	825	438	1,138	D19 @ 263	1,113	1,725	1,025	D16 @ 325	2,225	D16x2,175@275	D16 @ 300
14	2,700	900	450	1,350	D19 @ 213	1,200	1,875	1,125	D16 @ 275	2,625	D16x2,400@275	D16 @ 300
ALLOWABLE SOIL BEARING PRESSURE $> 1.2 \text{ kgf/cm}^2$												
5	750	300	300	150	D13 @ 275	450	1,125	-	-	-	D13x600@275	D13 @ 300
6	900	300	300	300	D13 @ 275	450	1,425	-	-	-	D13x750@275	D13 @ 300
7	1,050	300	300	450	D13 @ 275	450	900	-	-	-	D13x900@275	D13 @ 275
8	1,200	300	300	600	D13 @ 275	450	1,050	-	-	-	D13x1,050@275	D13 @ 275
9	1,350	300	400	650	D16 @ 325	550	1,150	-	-	-	D16x1,200@325	D16 @ 325
10	1,500	300	400	500	D16 @ 325	550	1,300	500	D16 @ 350	1,825	D16x1,350@325	D16 @ 325
11	1,650	450	413	788	D16 @ 300	713	1,450	900	D16 @ 325	2,075	D16x1,500@300	D16 @ 300
12	1,725	600	425	700	D16 @ 225	900	1,600	975	D16 @ 325	2,225	D16x1,575@300	D16 @ 300
13	1,875	600	438	838	D19 @ 263	900	1,750	1,050	D16 @ 300	2,225	D16x1,725@275	D16 @ 300
14	2,100	600	450	1,050	D19 @ 213	900	1,875	1,125	D16 @ 275	2,625	D16x1,950@263	D16 @ 300

LEGEND

- * WHERE "M" BARS ARE REQUIRED, ALTERNATE "M" LONG AND "M" SHORT BARS (SPACING Sm)
- "M" LONG BARS SHALL TERMINATE 75 BELOW TOP OF RETAINING WALL. SEE DETAIL ②

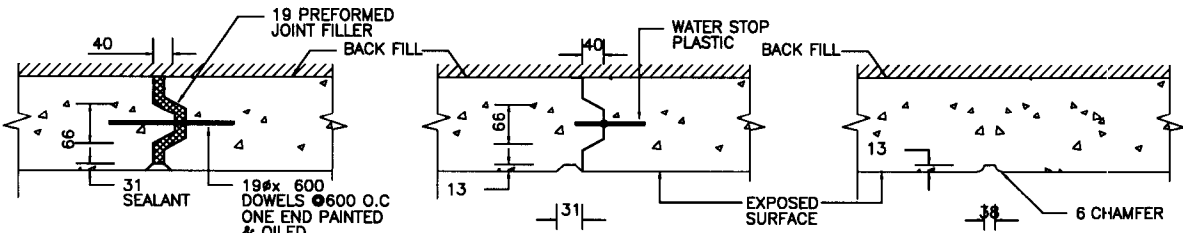
IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	RETAINING WALL-4, CONCRETE	SPEC		OCT 2003	C2137



ELEVATION
NOT TO SCALE

- REF:
 1. ASSUMED BEARING PRESSURE AT 7.6 tonf/m²
 2. INTERNAL FRICTION ANGLE : 30°-40°
 3. UNIT WEIGHT OF SOIL : 1.7tonf/m³
 4. NO SURCHARGE LOAD

TYPICAL CANTILEVERED RET. WALL SEC
NOT TO SCALE



EXPANSION JOINT
(18m MAX O.C)
NOT TO SCALE

CONSTRUCTION JOINT
(9m MAX O.C)
NOT TO SCALE

CONTROL JOINT
(1.5m O.C)
NOT TO SCALE

TYPICAL JOINTS IN CONCRETE WALLS

NOTE :
SEE DWG NO. FOR REINFORCING BAR SIZE

V.J. SHALL BE LOCATED
750 FROM CENTER OF
COLUMNS.

H.J. SHALL START 150
FROM TOP OF RET WALL

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER		REV DATE	DWG NO.
TITLE	CONC. RETAINING WALL	SPEC	OCT 2003 C2138

CONCRETE OUTLINES OF RET. WALL

HEIGHT OF WALL=h (m)	B (mm.)		a (mm.)		b (mm.)		c (mm.)	
0.9m	750		275		175		300	
1.2m	950		300		225		425	
1.5m	1,150		325		300		525	
1.8m	1,350		350		375		625	
2.1m	1,575		375		450		750	
2.4m	1,775		400		525		900	
2.7m	2,000		425		600		975	
3.0m	2,225		450		675		1,100	
3.3m	2,425		475		750		1,200	
3.6m	2,650		500		825		1,325	
3.9m	2,850		525		900		1,425	
4.2m	3,075		550		975		1,550	
4.5m	3,300		575		1,050		1,675	

REINFORCEMENT OF RET WALL

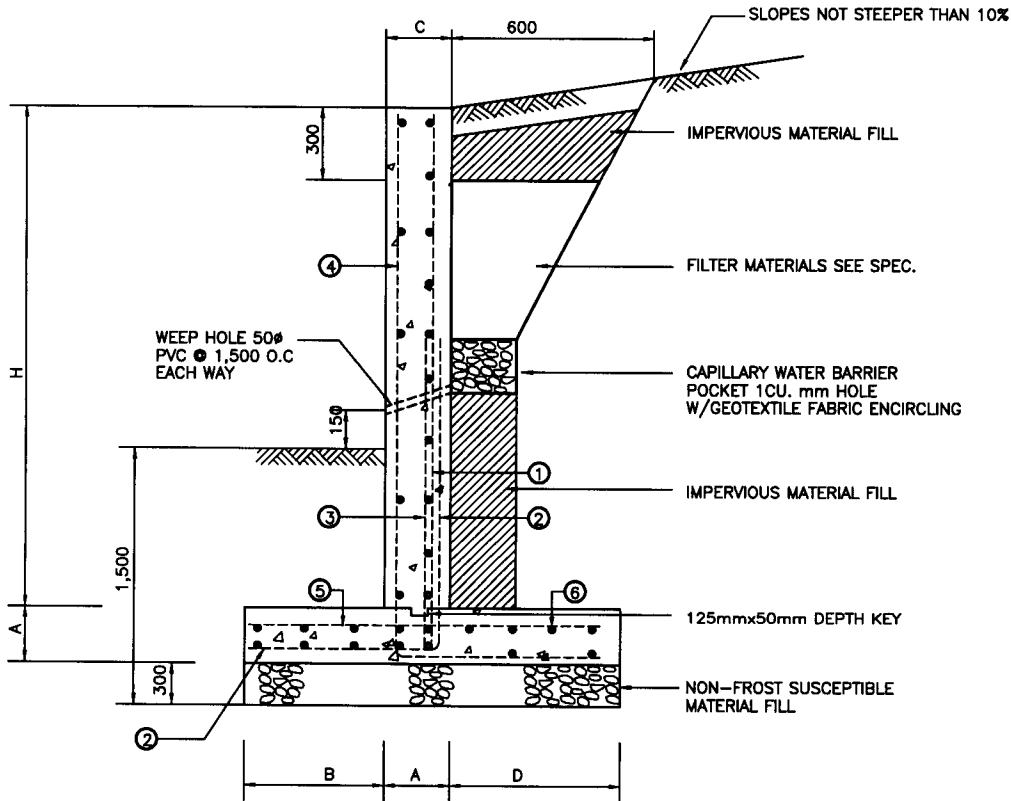
HEIGHT OF WALL=h (m)	M		N		Q		P		O		T		F		L		H				
	BAR SIZE	LENGTH (mm.)	BAR SIZE	LENGTH (mm.)	BAR SIZE	LENGTH (mm.)	BAR SIZE	LENGTH (mm.)	BAR SIZE	LENGTH (mm.)	BAR SIZE	LENGTH (mm.)	BAR SIZE	LENGTH (mm.)	BAR SIZE	LENGTH (mm.)	BAR SIZE	LENGTH (mm.)			
0.9m							D13	550	450	D13	450			D13	850	450	D13	250	75	D13	300
1.2m							D13	675	450	D13	450			D13	1,150	450	D13	250	100	D13	300
1.5m							D13	775	400	D13	400			D13	1,450	450	D13	250	100	D13	375
1.8m							D13	875	450	D13	450			D13	1,750	400	D13	225	100	D13	350
2.1m							D13	1,000	225	D13	450			D13	2,050	400	D13	275	150	D13	350
2.4m	D13	2,350					D16	1,150	325	D13	375			D13	2,350	350	D13	325	175	D13	350
2.7m	D13	2,650					D16	1,275	300	D13	300			D13	2,650	300	D13	400	225	D13	300
3.0m	D13	2,950					D16	1,400	250	D13	250			D13	2,950	300	D13	425	250	D13	300
3.3m	D13	3,250					D16	1,500	200	D19	400			D13	3,250	450	D13	475	275	D13	300
3.6m	D13	3,550					D21	1,800	325	D19	325			D13	3,550	450	D13	550	300	D13	300
3.9m	D13	3,850					D21	2,000	275	D19	275			D13	3,850	450	D13	525	275	D16	350
4.2m	D16	4,150					D25	2,250	300	D21	300			D13	4,150	450	D13	575	300	D16	350
4.5m	D16	4,450					D25	2,400	250	D21	250			D13	4,450	450	D13	600	325	D16	350

TITLE		CONCRETE RETAINING WALL		SPEC		REV DATE		OCT 2003		DWG NO.		C2139	
IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER													

SCHEDULE OF REINF. CONC. RETAINING WALL											
TYPE	H	B	A	D	C	REQ'D RE-BAR(STEM)				REQ'D	REQ'D
						① H	② 1/2H	③ 1/2H	④ H	⑤ HEEL	⑥ TIE BAR
	m	mm	mm	mm	mm						
	5.1m	1,350	375	1,275	300	D25@450	D25@450	D25@450	D13@450	D19@150	D13@250
	5.7m	1,550	450	1,450	300	D25@450	D25@450	D25@450	D13@450	D19@150	D16@300

REF:

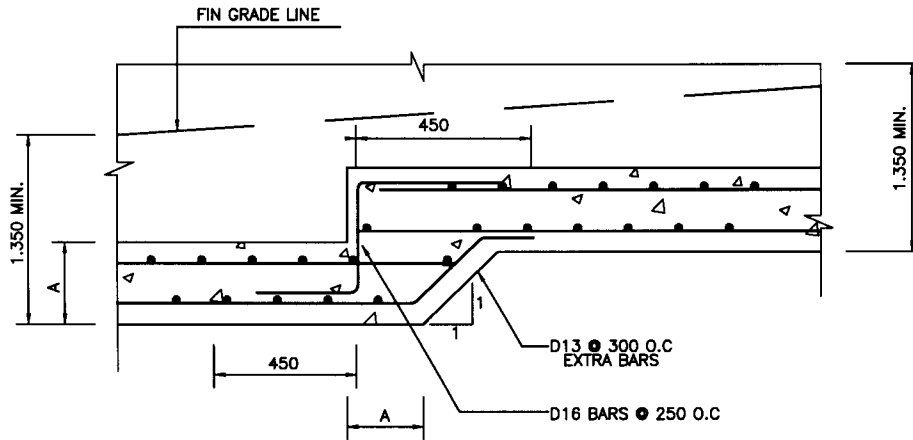
ASSUMED BEARING
PRESSURE AT 0.7kgf/cm²



REIF. CONC. RETAINING WALL DETAIL

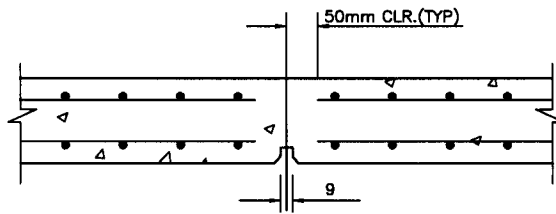
NOT TO SCALE

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	CONCRETE RETAINING WALL	SPEC		OCT 2003	C2140



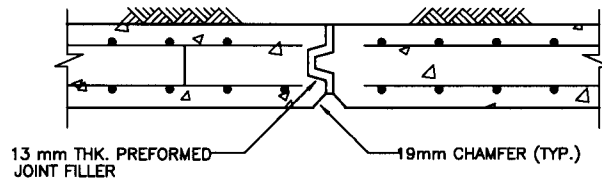
STEPPED FOOTING DETAIL

NOT TO SCALE



TYP CONTRACTION JOINT

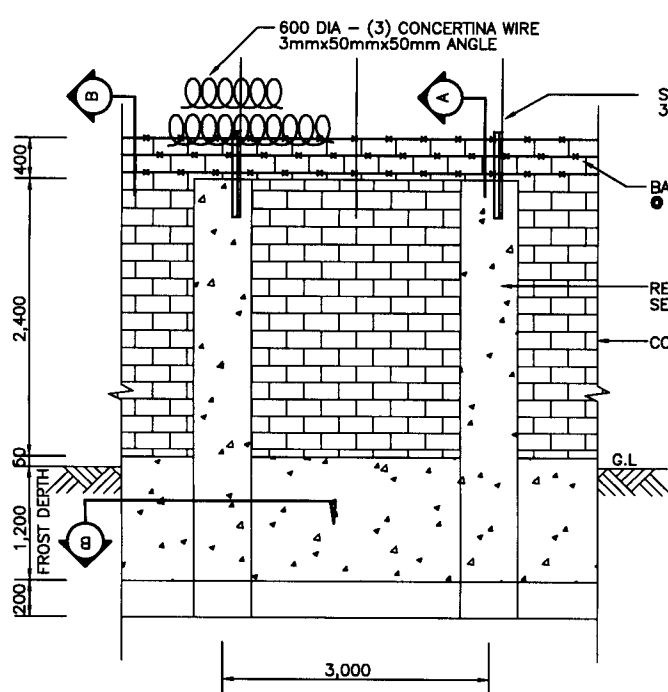
NOT TO SCALE



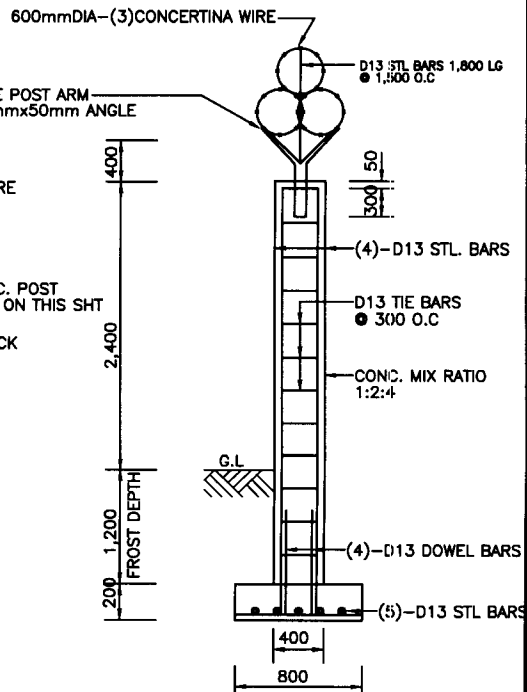
EXP JOINT DETAIL

NOT TO SCALE

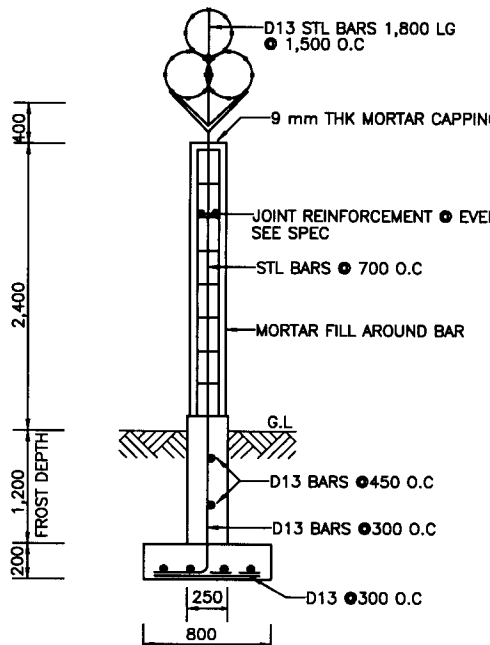
IMA--KORO, REGIONAL ENGINEER SUPPORT CENTER		REV DATE	DWG NO.
TITLE	STEPPED FOOTING & JOINT DETAILS	SPEC	OCT 2003 C2141



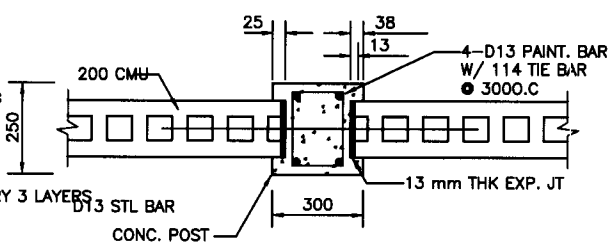
ELEVATION



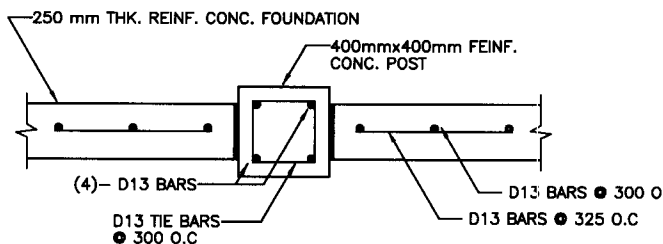
SECTION - "A"



SECTION - "B"



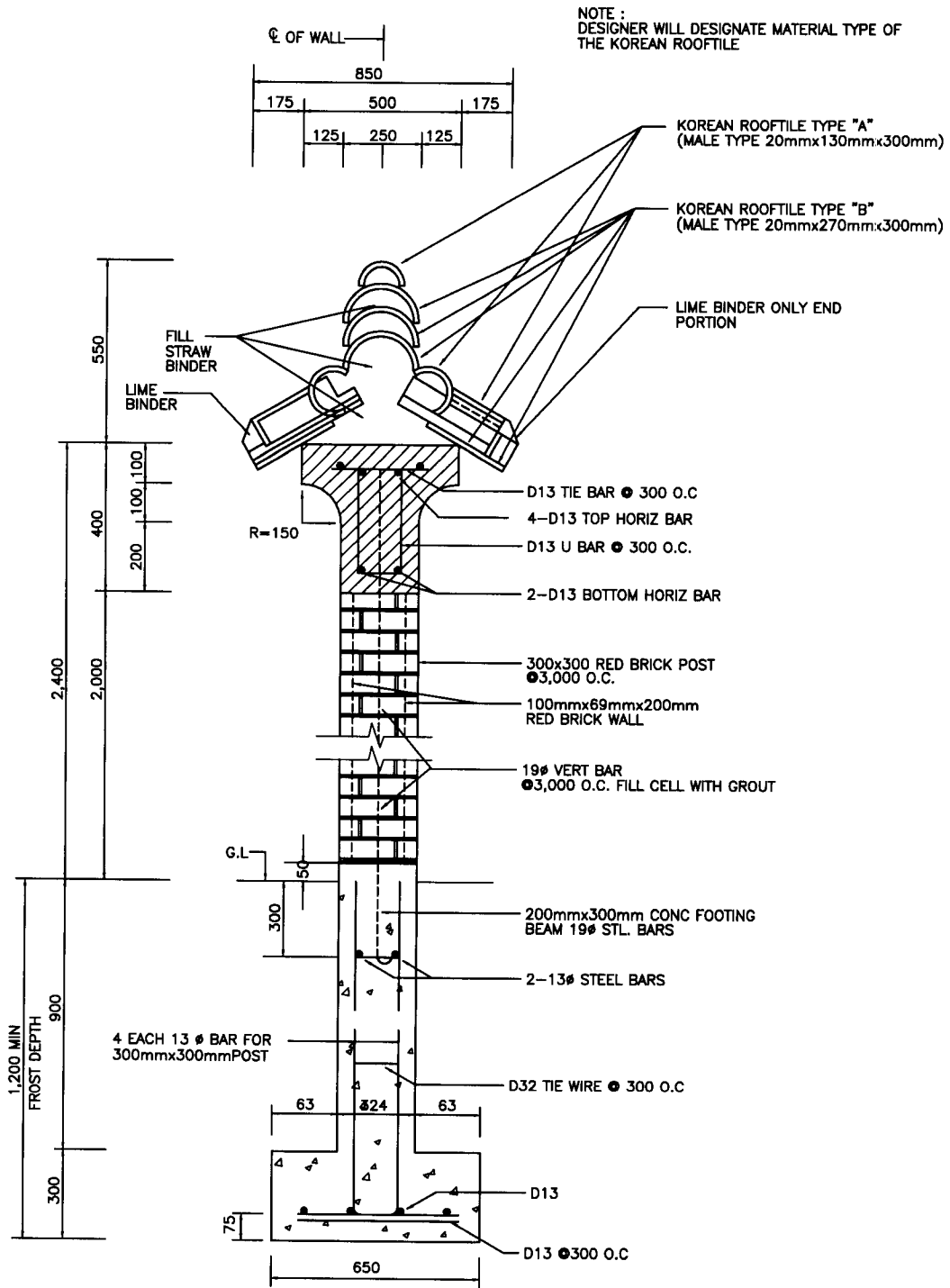
DET, EXP, JOINT BETWEEN CMU & CONC. POST



SECTION - "C"

4
-1
CONC. BLOCK WALL FENCE TYPE FE - 11
NOT TO SCALE

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER		REV DATE	DWG NO.
TITLE	CMU WALL FENCE - TYPE FE - 11	OCT 2003	C2142
	SPEC		



TYPICAL DETAIL OF KOREAN
ROOFTILE DECORATIVE RED BRICK FENCE TYPE FE-12

NOT TO SCALE

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER

REV DATE

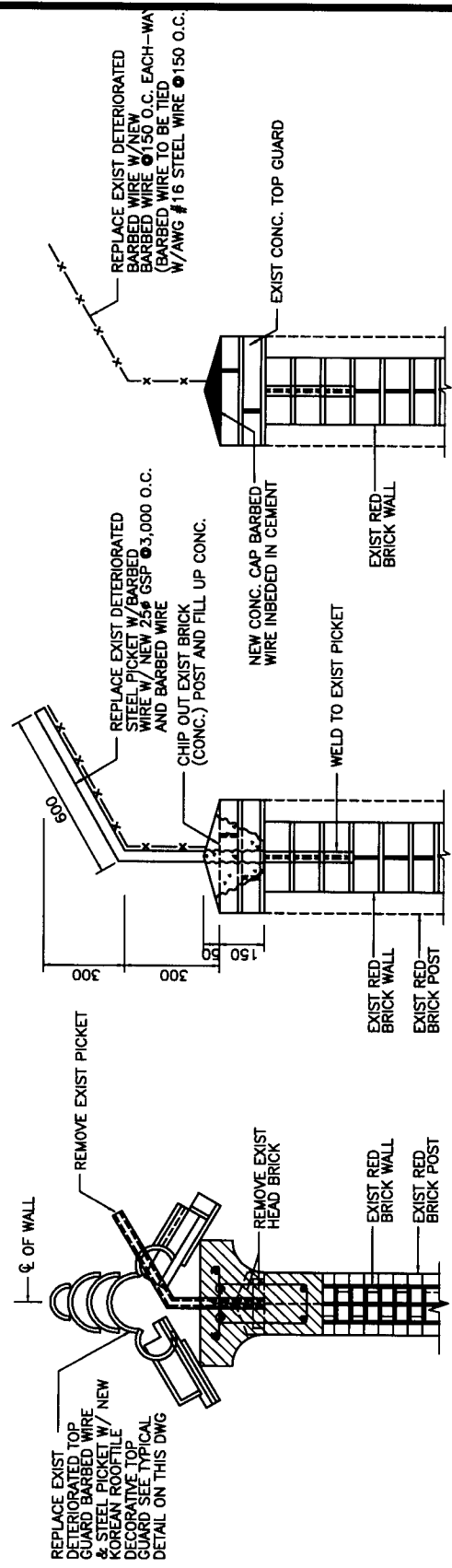
DWG NO.

TITLE RED BRICK FENCE TYPE FE-12

SPEC 16370

OCT 2003

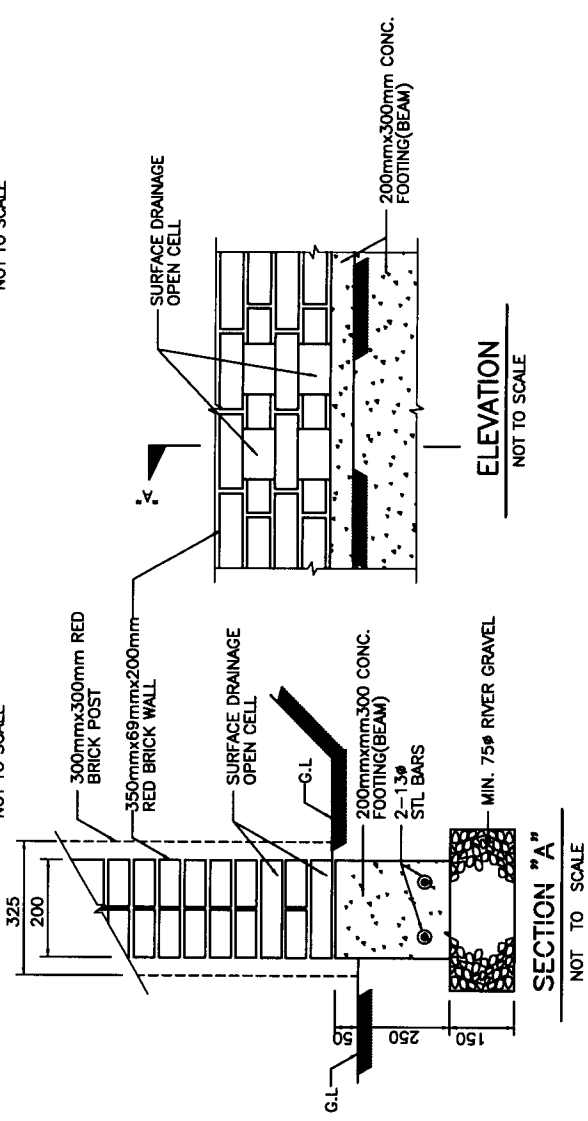
C2143



**KOREAN ROOF TILE
DECORATIVE TOP GUARD**
NOT TO SCALE

**STEEL PICKET
W/BARBED WIRE**
NOT TO SCALE

**STEEL PICKET
W/BARBED WIRE**
NOT TO SCALE



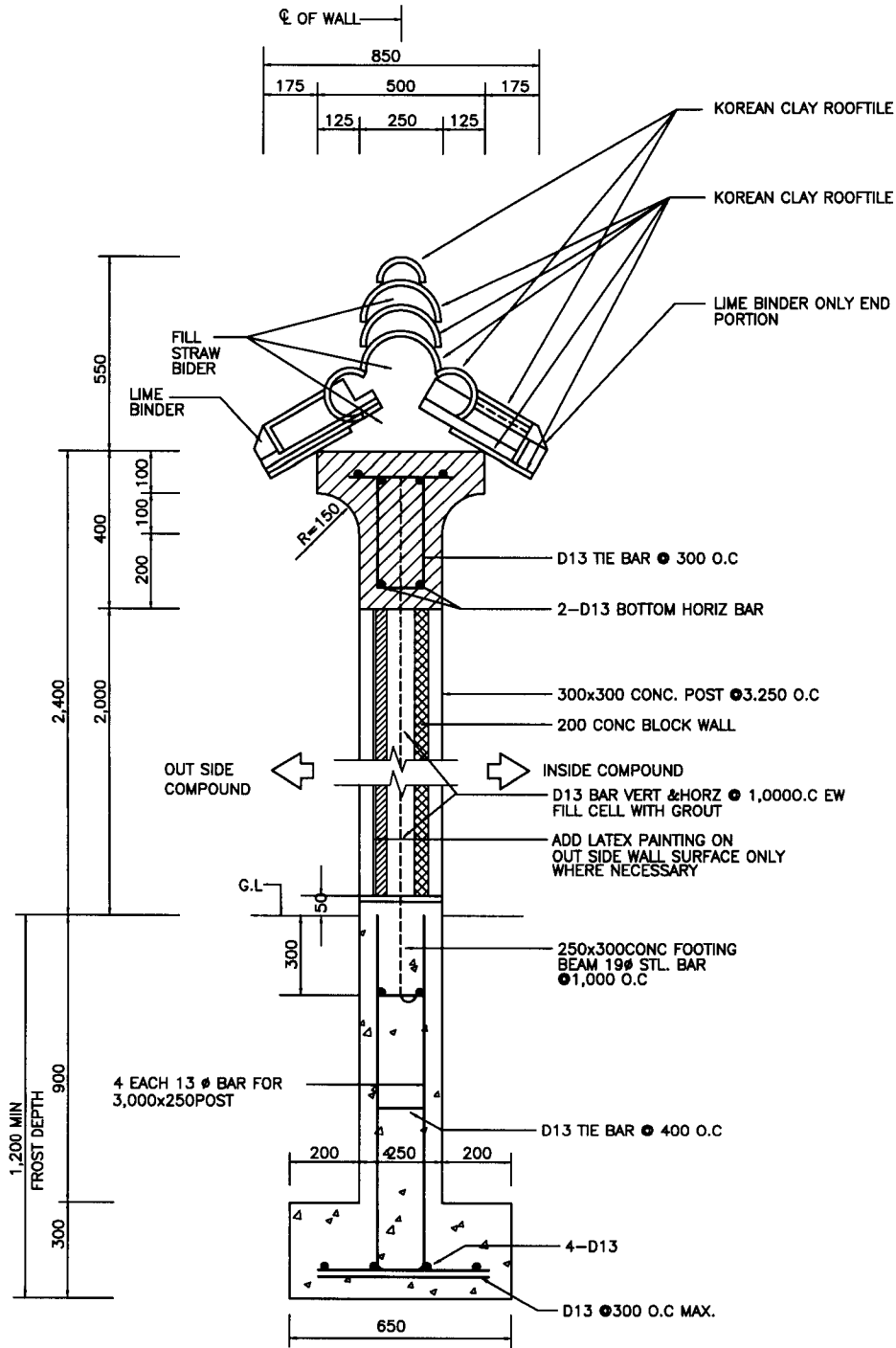
SECTION "A"
NOT TO SCALE

ELEVATION
NOT TO SCALE

SURFACE DRAINAGE DETAIL (RED BRICK)

NOTE : DESIGNER SHALL SPECIFY THE MATERIAL TYPE, KIND OF ROOF TILE

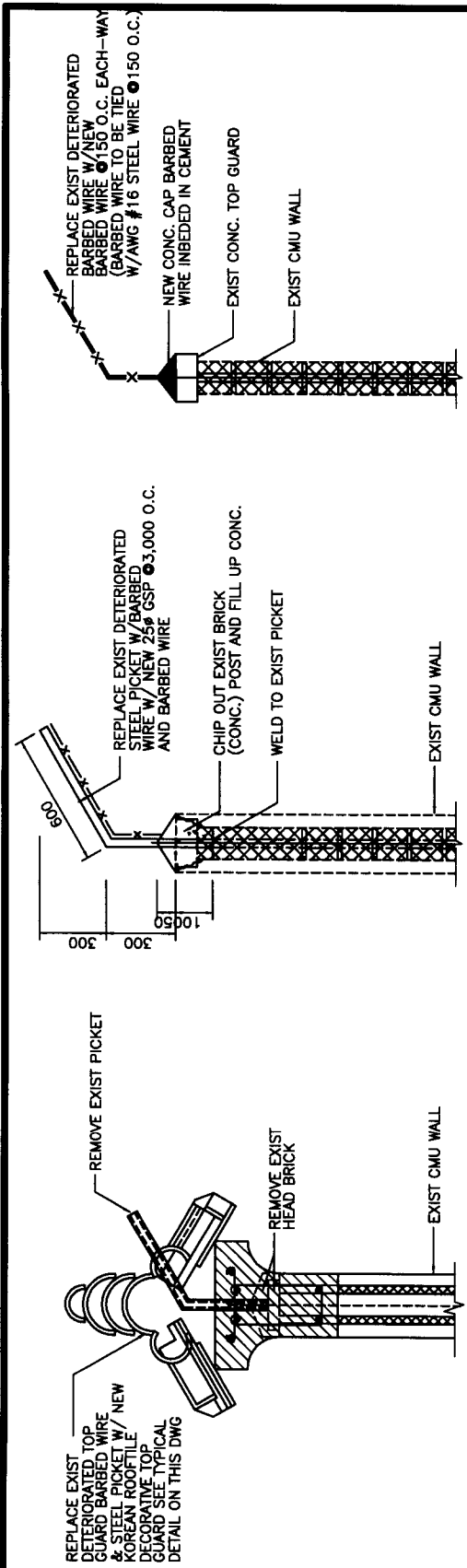
IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER			REV DATE	DWG NO.
TITLE	RED BRICK FENCE - MISC DET	SPEC	16370	OCT 2003
				C2144



**TYPICAL DETAIL OF KOREAN
 ROOFTILE DECORATIVE CMU FENCE**

NOT TO SCALE

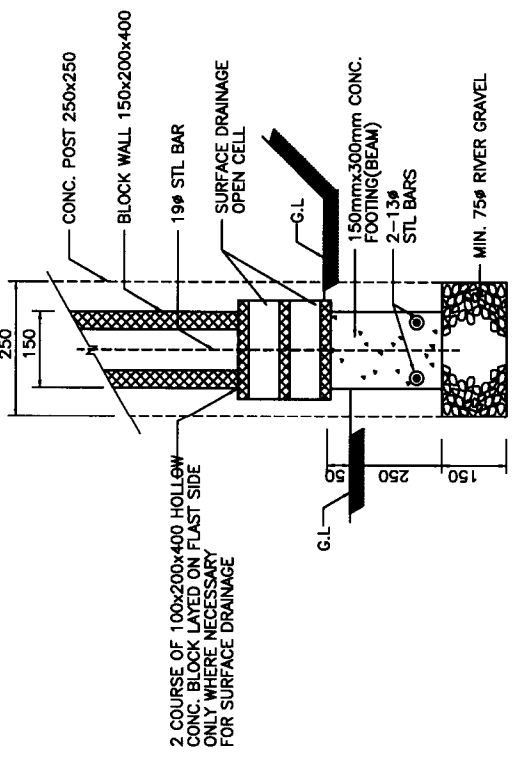
IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER		REV DATE	DWG NO.
TITLE	CMU FENCE W/KOREAN ROOF TILE	SPEC	OCT 2003 C2145



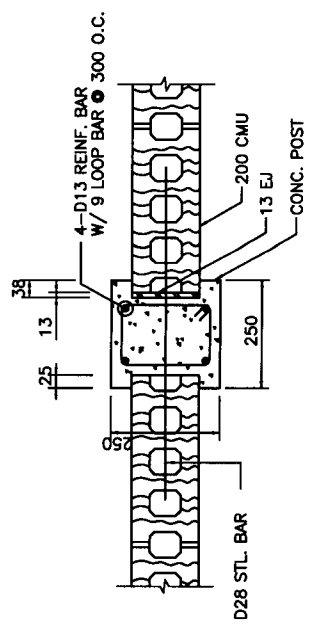
**KOREAN ROOFTILE
DECORATIVE TOP GUARD**
NOT TO SCALE

**STEEL PICKET
W/ BARBED WIRE**
NOT TO SCALE

**STEEL PICKET
W/ BARBED WIRE**
NOT TO SCALE

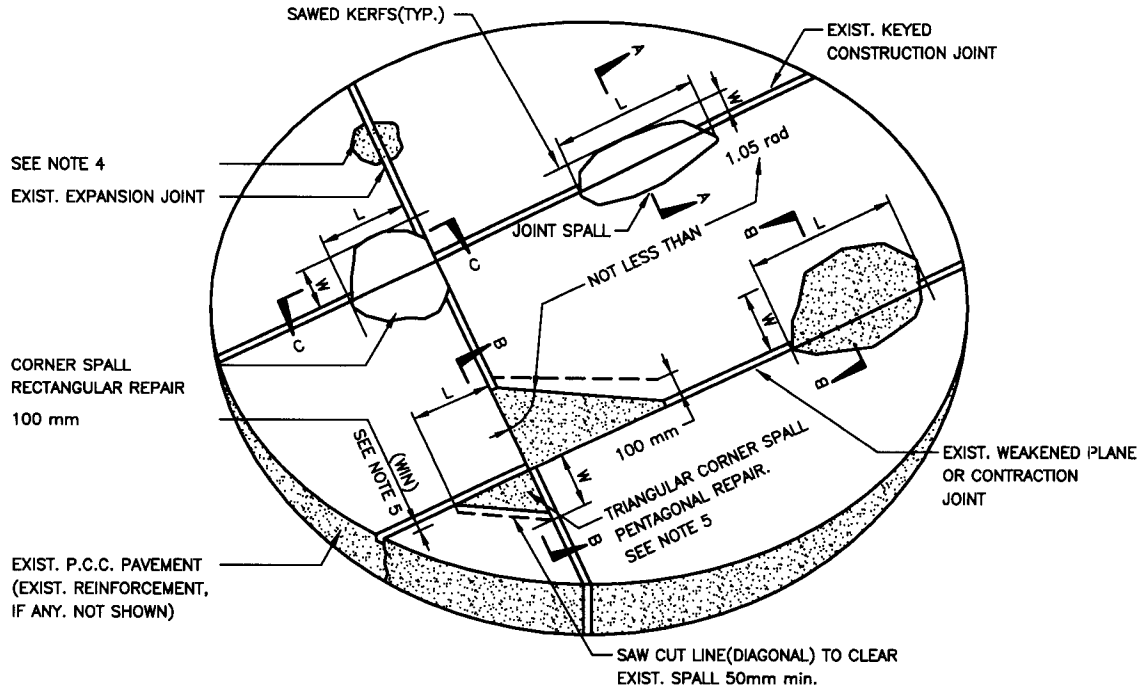


SECTION OF SURFACE DRAINAGE DETAIL
NOT TO SCALE



DET, EXP. JOINT BETWEEN CMU AND CONC. POST

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER		REV DATE	DWG NO.
TITLE	CMU FENCE - MISC DET	OCT 2003	C2146
SPEC			



PLAN OF SPALL REPAIRS

NOT TO SCALE

GENERAL NOTES

1. APPROX. LOCATION, LENGTH(L) AND WIDTH(W) OF EACH SPALL REPAIR ARE SHOWN ON JOINT LAYOUT DRAWINGS. EXACT LOCATION AND DIMENSIONS SHALL BE DETERMINED AND MARKED IN THE FIELD AND APPROVED AS SPECIFIED.
2. SPALLS OCCUR IN MANY SIZES AND SHAPES. REPAIR DETAILS SHOWN ARE INTENDED TO REMOVE AND REPLACE ALL DETERIORATED CONCRETE, AND TO MAINTAIN THE SIZE OF THE SPALL REPAIR TO THE MINIMUM PRACTICAL TO AVOID UNNECESSARY REMOVAL OF SOUND CONCRETE.
3. JOINT SPALLS WITH ACTUAL CAVITY WIDTHS LESS THAN 50 MM SHALL BE REPAIRED BY CLEANING AND FILLING WITH JOINT SEALANT IN LIEU OF P. C. CONCRETE.
4. WHERE SPALL REPAIRS ARE REQUIRED ON EACH SIDE OF A JOINT OR CRACK, A NON-FLEXIBLE TYPE FILLER OR INSERT SHALL BE SECURED IN ALIGNMENT WITH THE JOINT OR CRACK AFTER BREAKING OUT THE SPALLED CONCRETE THE SPALL REPAIRS SHALL BE COMPLETED ON ONE SIDE AT A TIME AS SPECIFIED.
5. AT TRIANGULAR SPALLS WHERE BOTH THE LENGTH AND WIDTH OF THE REPAIR EXCEED 300 MM, THE REPAIR SHALL BE MADE PENTAGONAL TO AVOID FEATHER EDGED CORNERS AND TO MINIMIZE SIZE OF REPAIR AREA. SAWCUTS SHALL BE MADE TO INTERSECT JOINT LINES AT APPROX. 1.57 RAD (1.05 RAD) MIN. FOR NOT LESS THAN 100 MM AS SHOWN.
6. BREAK OUT AND REMOVE PAVEMENT AND UNSOUND CONCRETE WITHIN SAWCUTS TO A DEPTH NOT LESS THAN 50 MM CLEAN EXPOSED CAVITY SURFACES AS SPECIFIED.
7. DOWELS, TIE-BARS, OR CONTINUOUS REINF. EXPOSED DURING PREPARATION OF SPALLED AREAS SHALL BE REMOVED AS SPECIFIED FOR THE WIDTH OF JOINT BUT NOT LESS 13 MM.
8. WHERE PRACTICAL AND AT OPTION OF CONTRACTOR, A 13 MM MIN. WIDTH GROOVE MAY BE SAWED AT EXISTING JOINT LINES TO A POINT 13 MM MIN. BELOW THE PREPARED CAVITY SURFACE TO HOLD NEW FILLER INSERTS DURING CONCRETE PLACEMENT.
9. PROVIDE JOINT FILLER TO MAINTAIN EXISTING JOINTS AND WORKING CRACKS. WIDTH OF FILLER SHALL BE ABOUT EQUAL TO WIDTH OF EXISTING GAP AT THE JOINT OR CRACK BUT NOT LESS THAN DIMENSIONS SHOWN. DEPTH OF FILLER SHALL BE NOT LESS THAN DEPTH OF NEW PATCH MATERIAL. INSTALL FILLER NEATLY TO PREVENT NEW GROUT OR CONCRETE FROM BY-PASSING FILLER AND ENTERING THE JOINT SPACE.
10. AT OPTION OF CONTRACTOR, A NEAT BEAD OF CAULK MAY BE APPLIED AS INDICATED TO PREVENT GROUT OR CONCRETE FROM BY-PASSING FILLER AND ENTERING THE JOINT SPACE.
11. APPLY AND SCRUB SAND-CEMENT GROUT BONDING COURSE ON ALL EXPOSED CAVITY SURFACES EXCEPT FACES OF JOINTS AND WORKING DRACKS. FILL CAVITY FLUSH WITH PAVEMENT SURFACE WITH CONCRETE AS SPECIFIED.

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER

REV DATE

DWG NO.

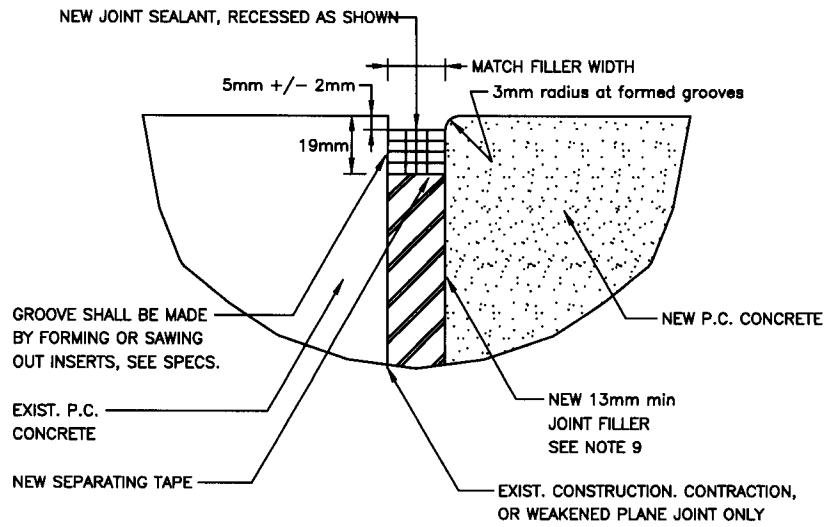
TITLE

PLAN OF SPALL REPAIRS

SPEC

OCT 2003

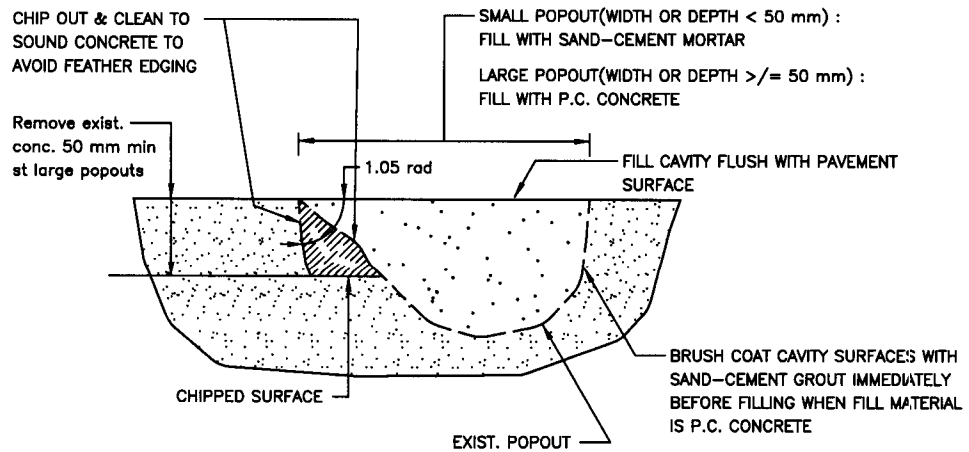
C2147



DETAIL "A"

GROOVE FOR JOINT SEALANT AT SPALL REPAIR

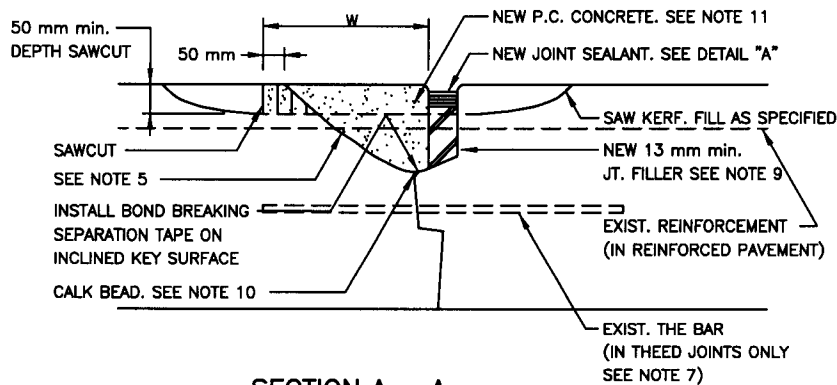
NOT TO SCALE



TYPICAL SECTION : POPOUT REPAIR

NOT TO SCALE

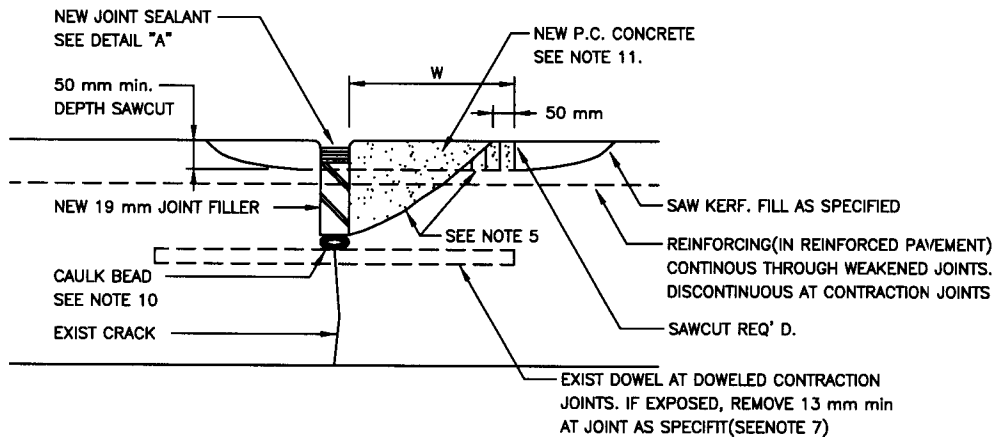
IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER			REV DATE	DWG NO.
TITLE	PAVEMENT REPAIR DETAIL	SPEC	OCT 2003	C2148



SECTION A - A

SPALL AT KEYED CONTRACTION JOINT

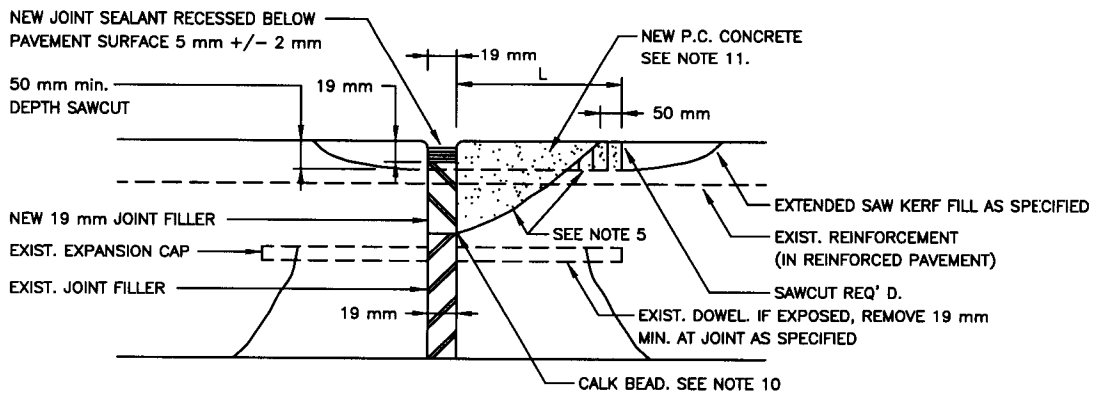
NOT TO SCALE



SECTION B - B

SPALL AT WEAKENED PLANE OR CONTRACTION JOINT

NOT TO SCALE



SECTION C - C

SPALL AT EXPANSION JOINT

NOT TO SCALE

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER

REV DATE

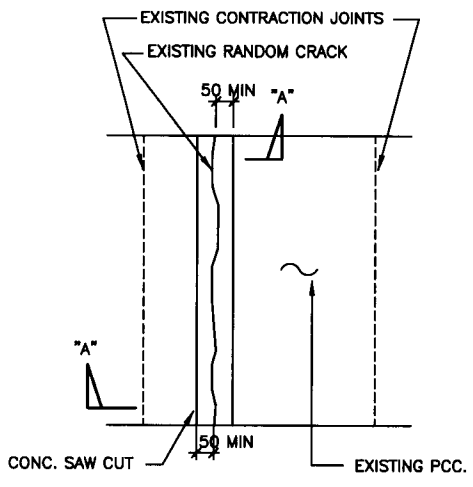
DWG NO.

TITLE JOINT DETAIL, PAVEMENT

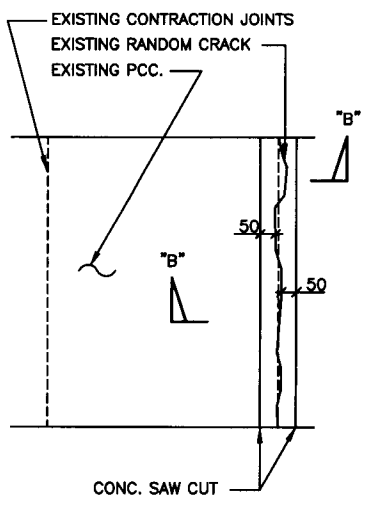
SPEC

OCT 2003

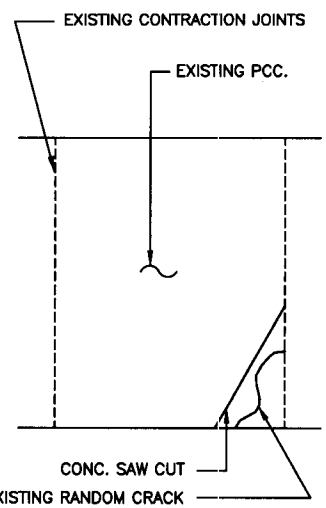
C2149



RANDOM CRACK WITHIN SLAB

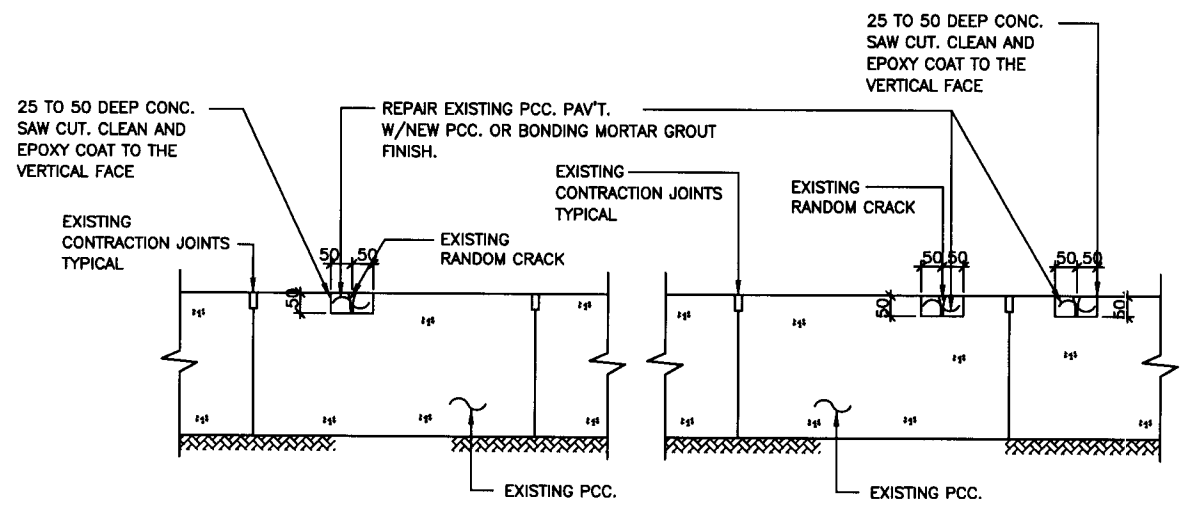


UNCONTROLLED CONTRACTION CRACK AT JOINT



CORNER BREAK

P L A N



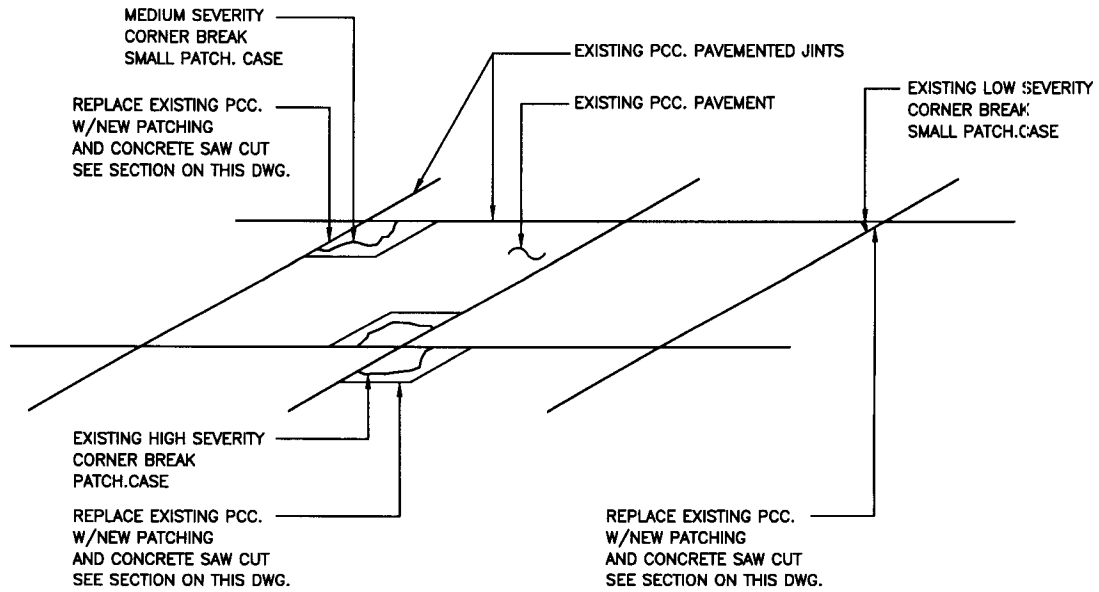
REMOVE PCC CONCRETE SECTION "A"

REMOVE PCC CONCRETE SECTION "B"

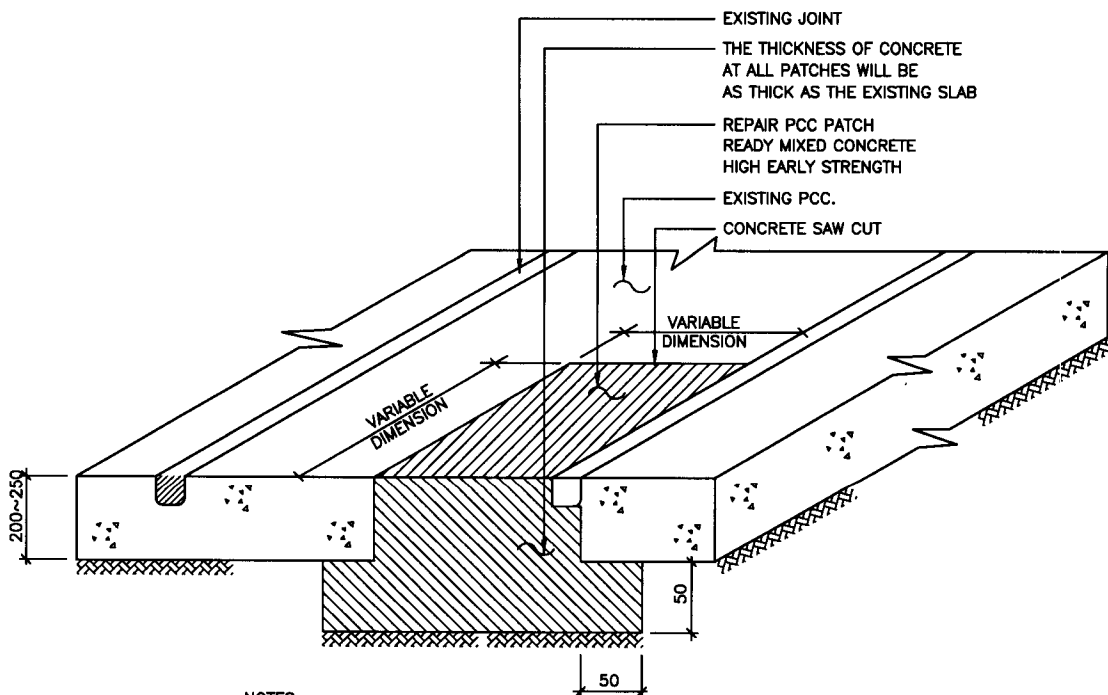
9

REPAIR PCC PAVEMENT CRACKS
NOT TO SCALE

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER		REV DATE	DWG NO.
TITLE	REPAIR PCC PAVEMENT CRACKS	SPEC	OCT 2003 C2150



PLAN FOR EXISTING SPALLS (CORNER AND EDGE)



NOTES :

1. COMPRESSIVE STRENGTH AT 28 DAYS 280 kgf/cm².
2. FLEXURAL STRENGTH AT 28 DAYS 43 kgf/cm².

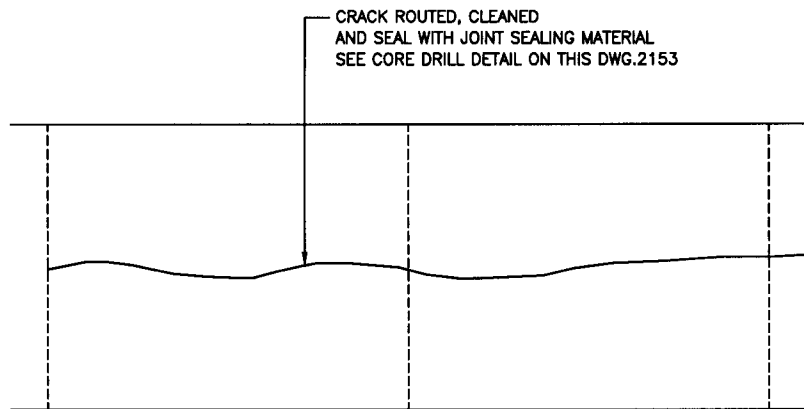
PATCHING NEAR JOINT OR EDGES

10

REPAIR SPALLS (CORNER AND EDGE)

NOT TO SCALE

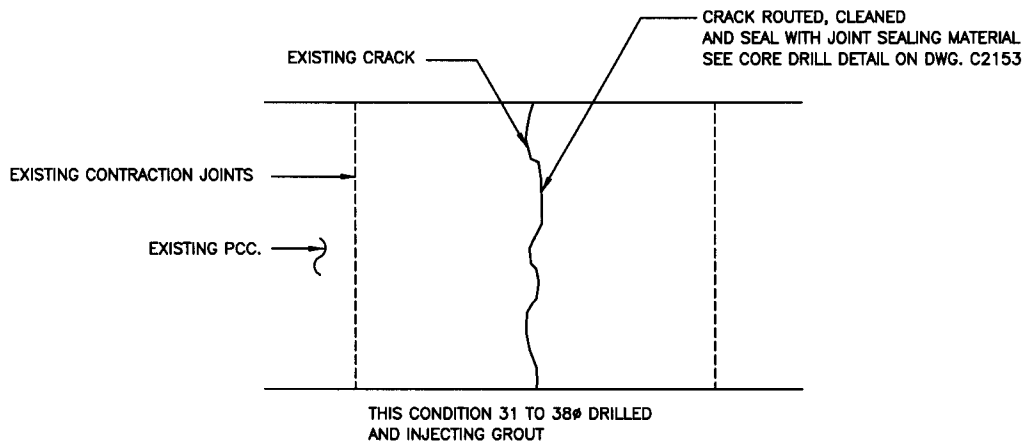
IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER			REV DATE	DWG NO.
TITLE	REPAIR SPALLS (CORNER AND EDGE)	SPEC	OCT 2003	C2151



TYPE FOR LONGITUDINAL CRACKING

P L A N

NOT TO SCALE

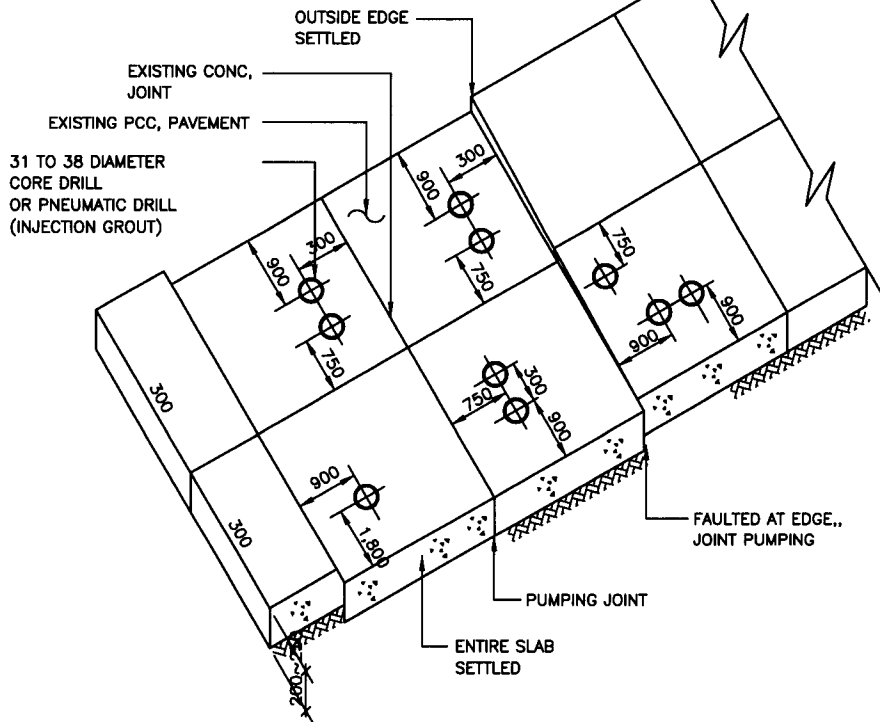


TYPE FOR TRANSVERSE CRACKS

P L A N

NOT TO SCALE

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER			REV DATE	DWG NO.
TITLE	LONGITUDINAL/TRANSVERSE CRACKS	SPEC	OCT 2003	C2152



NOTES :

- 1, HOLES SIZE : 31 TO 38 DIAMETER WILL BE DRILLED BY A CORE DRILL OR A PNEUMATIC DRILL
- 2, LOCATION OF INJECTION HOLES FOR INJECTION THE GROUT
- 3, AS A GENERAL RULE, HOLES WILL BE NOT BE PLACED CLOSER THAN 450mm FROM EDGES OR JOINT
- 4, THEY WILL BE LOCATED ON NOT MORE THAN 1.8m CENTERS SO THAT APPROXIMATELY 1.8 TO 2.7 SQUARE METER OF SLAB IS RAISED BY PUMPING ANYONE HOLE
- 5, ADDITIONAL HOLES MAY BE REQUIRED IF THE SLABS ARE CRACKED

EQUIPMENT :

1. CONCRETE OR PUGMILL-TYPE MORTAR MIXER,
2. HYDRAULIC JACKING UNIT OF THE POSITIVE-DISPLACEMENT TYPE CAPABLE OF INSTANTANEOUS CONTROL OF GROUT PRESSURE,
3. CONCRETE BUGGY TO TRANSPORT GROUT FROM THE MIXER TO THE JACKING UNIT.
4. WATER TANK WITH A MINIMUM CAPACITY OF 250 GALLONS,
5. DUMP TRUCK FOR HAULING GROUTING MATERIALS AND FOR TOWING THE PORTABLE MIXER.
6. PORTABLE AIR COMPRESSOR,
7. PNEUMATIC HAMMER OR DRILLING RIG WITH SIX POINT 31 TO 38 mm DIAMETER PNEUMATIC DRILL BITS,
8. TEN TAPERED WOODEN PLUGS,

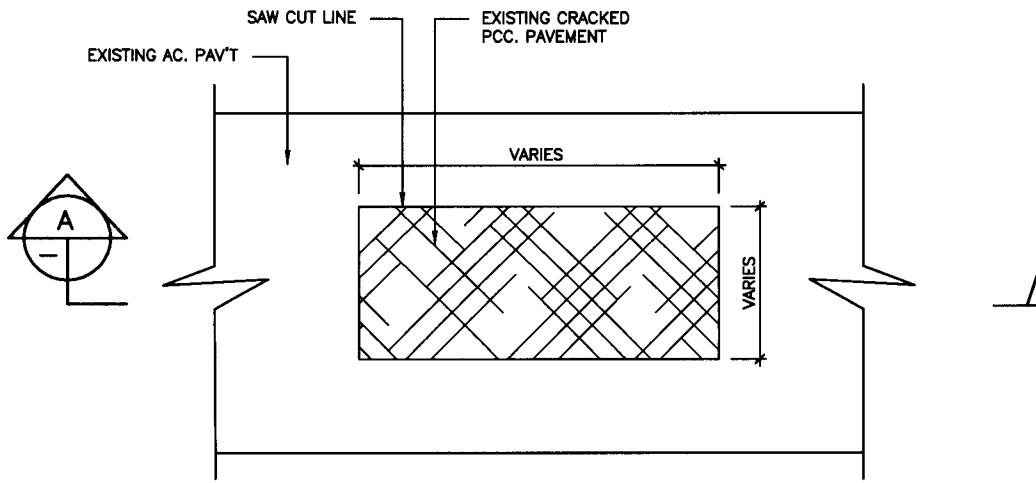
TYPE FOR CORE DRILL OR PNEUMATIC DRILL

11

CORE DRILL FOR PCC PAVEMENT CRACK REPAIR

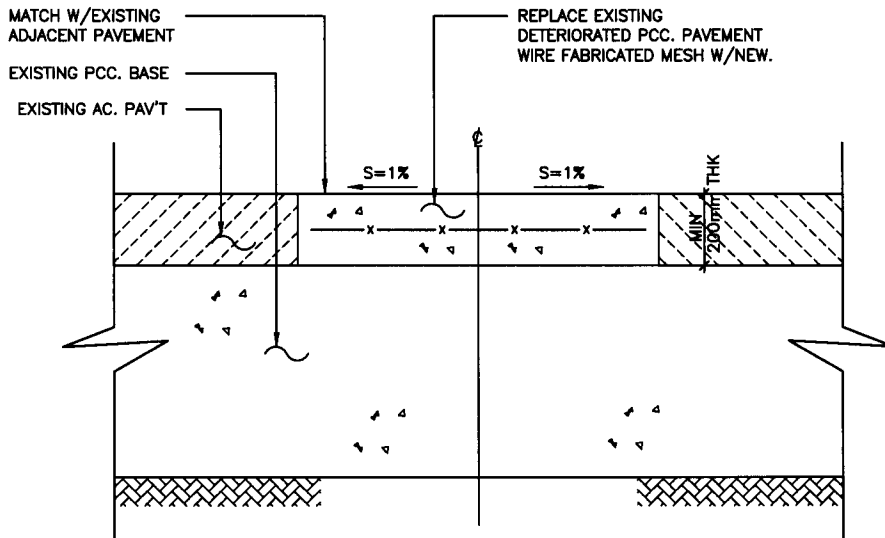
NOT TO SCALE

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER			REV DATE	DWG NO.
TITLE	DRILL FOR PCC PAVEMENT	SPEC	OCT 2003	C2153



PLAN

NOT TO SCALE

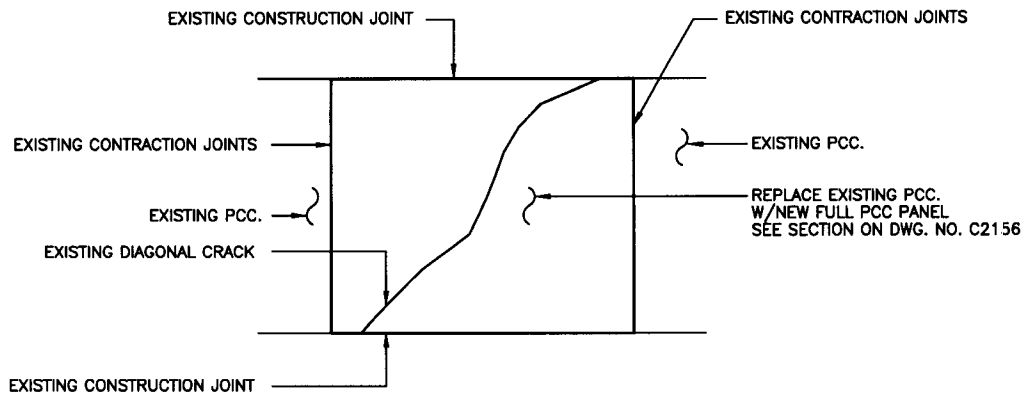


SECTION

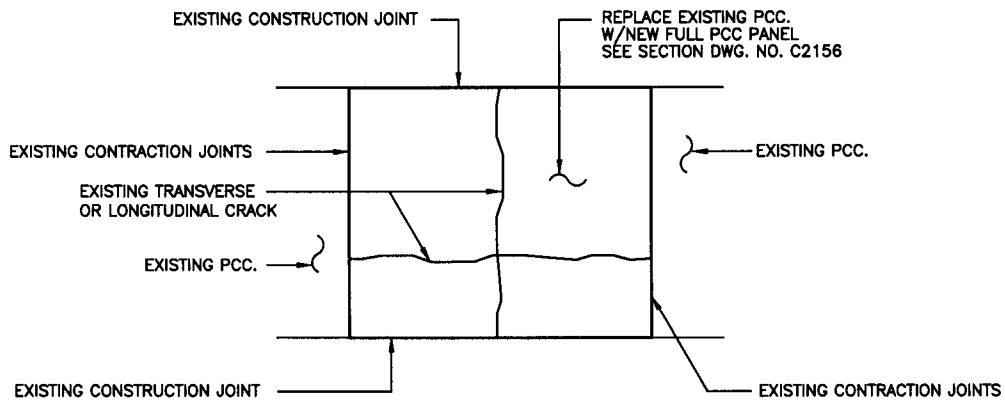
REPLACE PCC PAD IN AC PAVEMENT

NOT TO SCALE

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER			REV DATE	DWG NO.
TITLE	REPLACE PCC PAD IN AC PAVEMENT	SPEC	OCT 2003	C2154

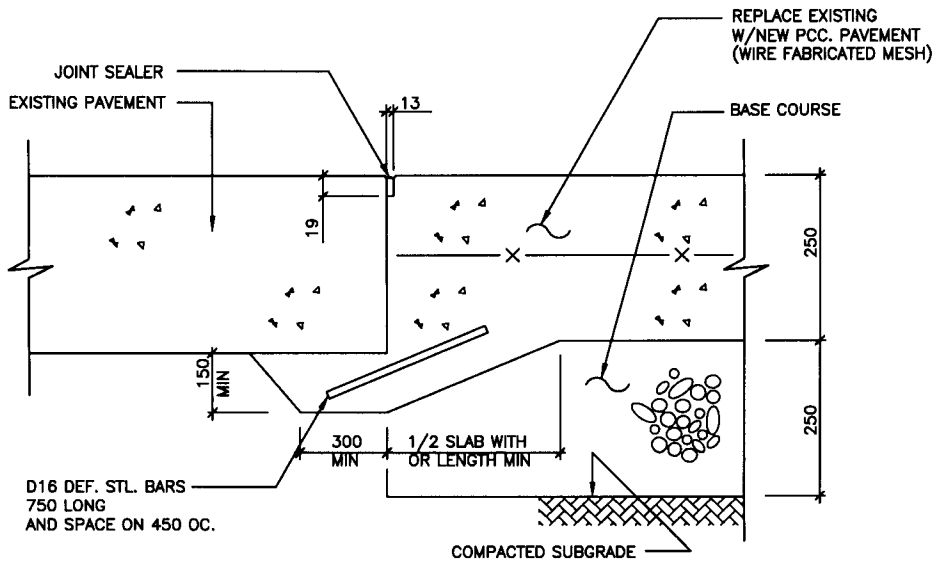


REPLACE FULL PANEL
TYPE FOR DIAGONAL CRACK



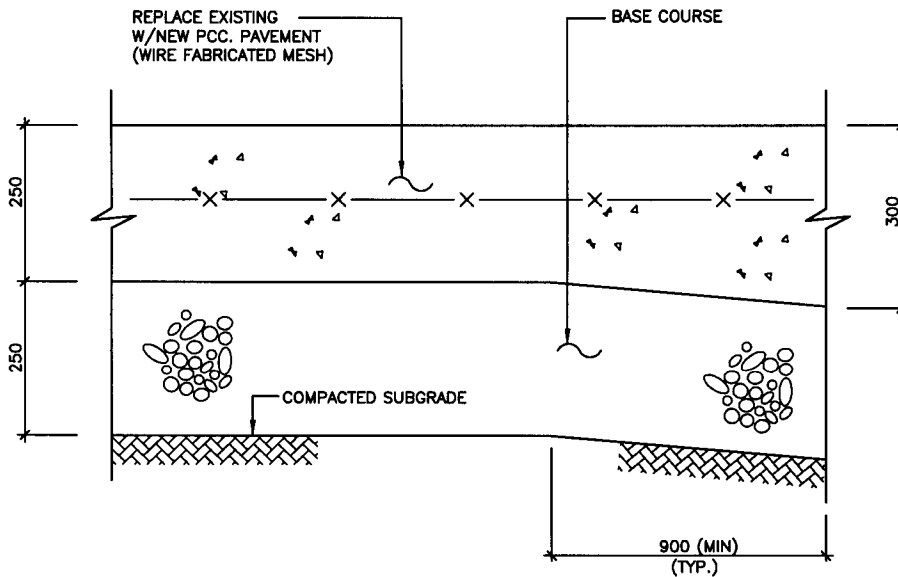
REPLACE FULL PANEL
TYPE FOR TRANSVERSE OR LONGITUDINAL CRACK

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER			REV DATE	DWG NO.
TITLE	REPAIR PCC PAVEMENT CRACKS	SPEC	OCT 2003	C2155



**SPECIAL JOINT BETWEEN
NEW AND EXISTING PAVEMENT
TRANSVERSE OR LONGTUDINAL**

CONSTRUCTION JOINTS

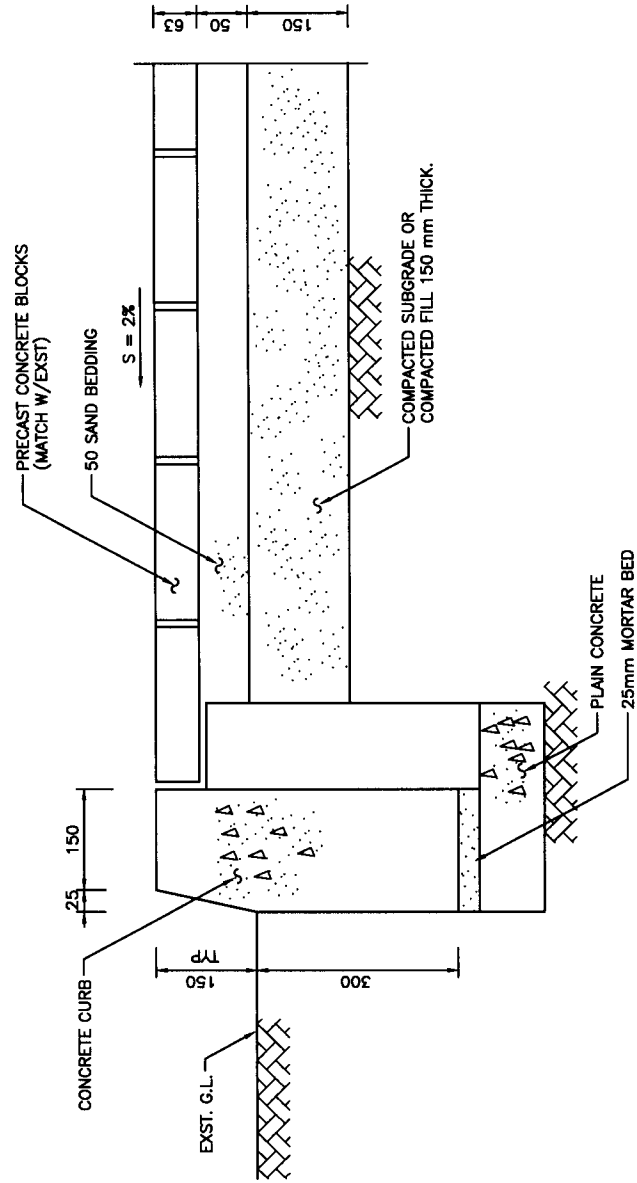


THICKENED EDGE JOINT

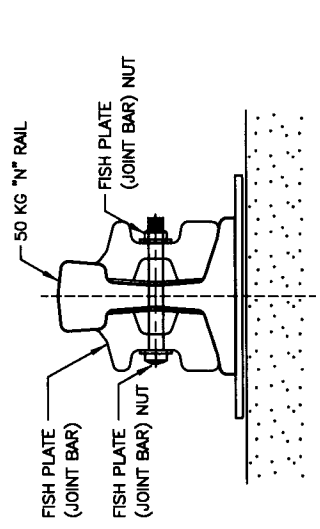
**REPLACE EXISTING PCC. PAVEMENTED CRACKS
W/NEW PCC PAVEMENT**

NOT TO SCALE

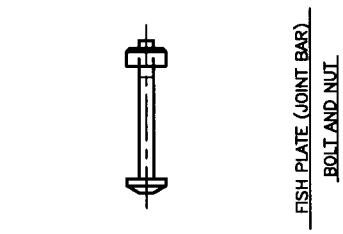
IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER			REV DATE	DWG NO.
TITLE	PAVEMENT DETAIL	SPEC	OCT 2003	C2156



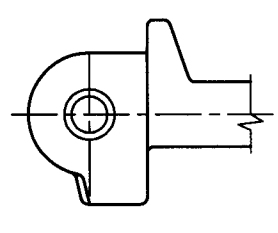
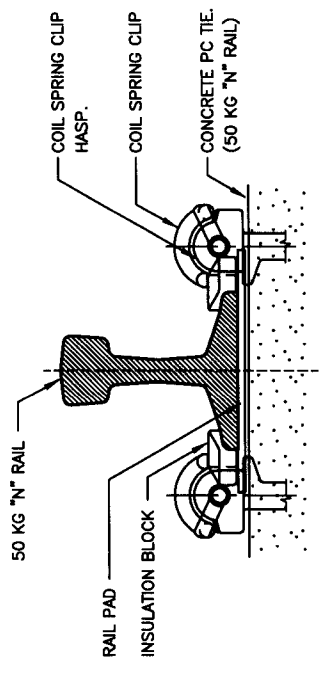
IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER		REV DATE	DWG NO.
TITLE	PRECAST CEMENT BRICK PAVED SIDEWALK	OCT 2003	C2157
SPEC			



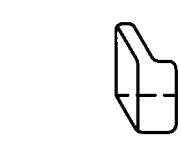
FISH PLATE (JOINT BAR)



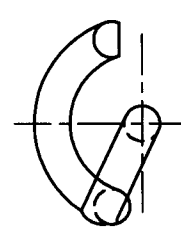
FISH PLATE (JOINT BAR)
BOLT AND NUT



COIL SPRING CLIP HASP



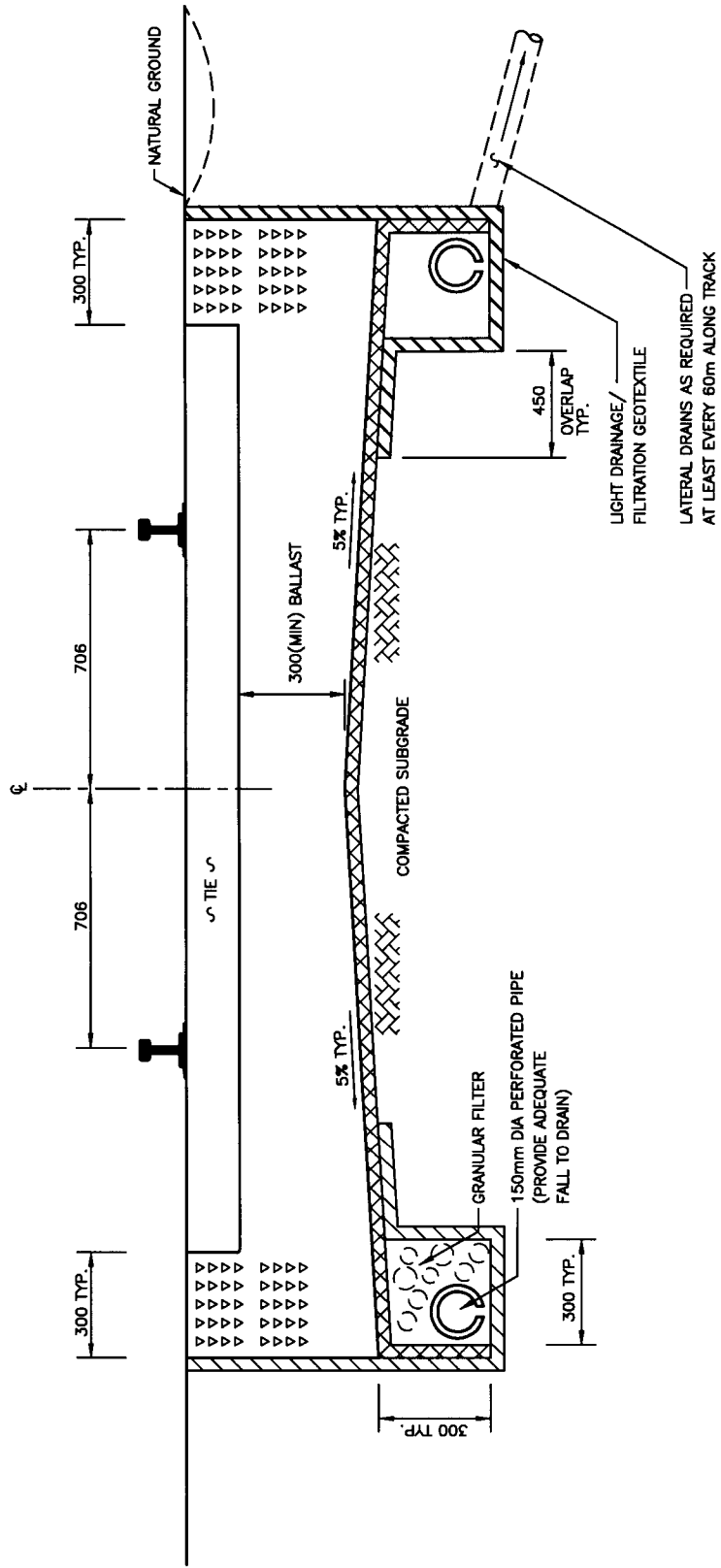
INSULATION BLOCK



COIL SPRING CLIP

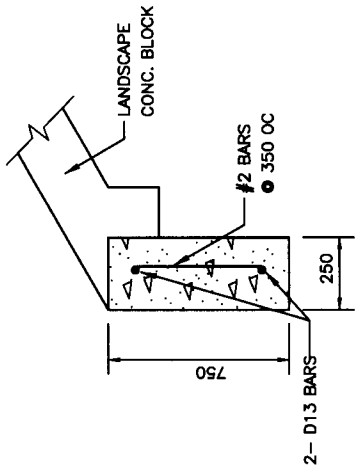
RAIL CONNECTION DETAIL AND ACCESSORIES
NOT TO SCALE

IMA--KORO, REGIONAL ENGINEER SUPPORT CENTER		REV DATE	DWG NO.
TITLE	RAIL ACCESSORIES	SPEC	OCT 2003 C2158

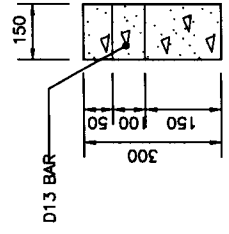


SUBDRAINAGE FOR SURROUNDING GROUND ABOVE BOTTOM OF BLAST
NOT TO SCALE

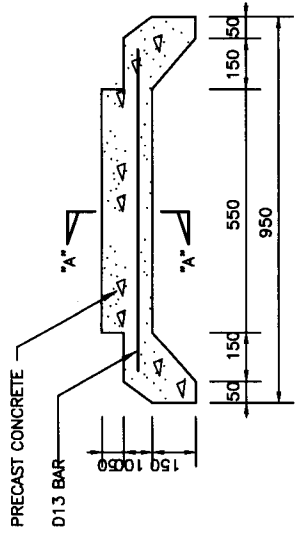
IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER		REV DATE	DWG NO.
TITLE	SUBDRAIN ALONG RAILROAD	SPEC	OCT 2003 C2159



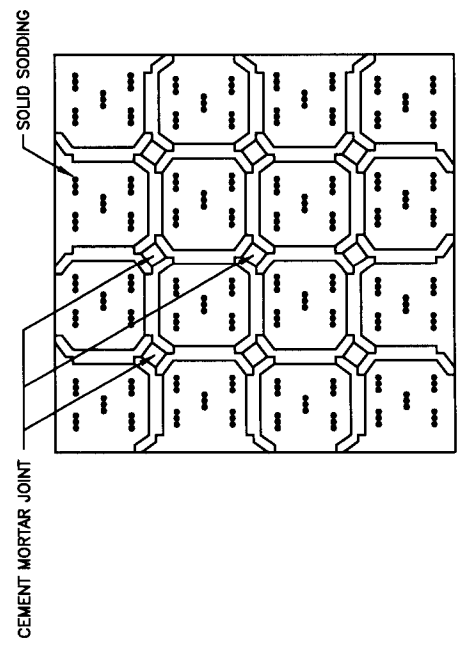
LANDSCAPE CONC. FOUNDATION
NOT TO SCALE



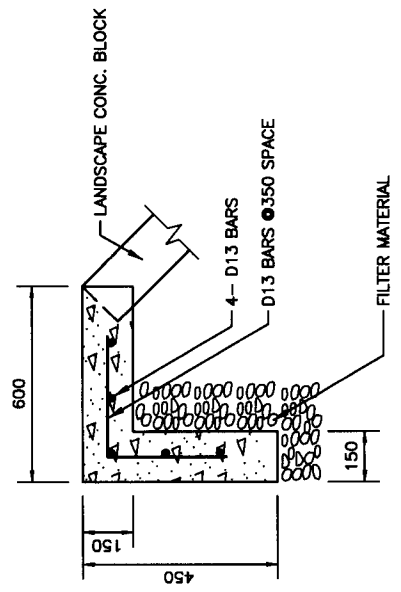
SECTION "A-A"
NOT TO SCALE



P L A N
NOT TO SCALE



LAYOUT PLAN
NOT TO SCALE



LANDSCAPE TOP CONC. SLAB
NOT TO SCALE

LANDSCAPE CONCRETE BLOCK DETAIL
NOT TO SCALE

TITLE		IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER		REV DATE	DWG NO.
CONCRETE BLOCK LANDSCAPING		SPEC		OCT 2003	C2160

ARCHITECTURAL STANDARD DETAILS

OCTOBER 2003

**IMA-KORO
REGIONAL ENGINEER SUPPORT CENTER**

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ABBREVIATIONS – 3	00000 – A0003
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ASPHALT SHINGLES - 1	07311 – A0601
ASPHALT SHINGLES - 2	07311 – A0602
ASPHALT SHINGLES - 3	07311 – A0603
ROOFING DETAILS, ROOF TILE - 1	07320 – A0701
ROOFING DETAILS, ROOF TIL2	07320 – A0702
ROOFING DETAILS, ROOF TIL3	07320 – A0703

ROOFING DETAILS, ROOF TIL4	07320 – A0704
ROOFING DETAILS, ROOF TIL5	07320 – A0705
ROOFING DETAILS, ROOF TIL6	07320 – A0706
ROOFING DETAILS, ROOF TIL7	07320 – A0707
ROOFING & SIDING DETAILS, PROTECTED METAL – 1	07413 – A0801
ROOFING & SIDING DETAILS, PROTECTED METAL – 2	07413 – A0802
ROOFING & SIDING DETAILS, PROTECTED METAL – 3	07413 – A0803
ROOFING & SIDING DETAILS, PROTECTED METAL – 4	07413 – A0804
ROOFING & SIDING DETAILS, PROTECTED METAL – 5	07413 – A0805
ROOFING & SIDING DETAILS, PROTECTED METAL – 6	07413 – A0806
ROOFING & SIDING DETAILS, PROTECTED METAL – 7	07413 – A0807
ROOFING & SIDING DETAILS, PROTECTED METAL – 8	07413 – A0808
ROOFING & SIDING DETAILS, PROTECTED METAL – 9	07413 – A0809
ROOFING & SIDING DETAILS, PROTECTED METAL – 10	07413 – A0810
ROOFING & SIDING DETAILS, PROTECTED METAL – 11	07413 – A0811
ROOFING & SIDING DETAILS, PROTECTED METAL – 12	07413 – A0812
ROOFING & SIDING DETAILS, PROTECTED METAL – 13	07413 – A0813
ROOFING & SIDING DETAILS, PROTECTED METAL – 14	07413 – A0814
WALL EXP. JOINT DETAIL	07413 – A0815
PIPE PENETRATION DETAIL	07413 – A0816
CABLE TIE DOWN (GUY WIRE) ANCHOR DETAIL	07413 – A0817
SMOKE STACK DETAIL	07413 – A0818
GOOSENECK DETAIL	07413 – A0819
BUILT-UP ASPHALT ROOFING	07511 – A0901
BUILT-UP ASPHALT ROOFING	07511 – A0902
BUILT-UP ASPHALT ROOFING	07511 – A0903

ROOFING DETAIL – 1, BUILT-UP ASPHALT ROOFING	07511 – A0904
ROOFING DETAIL – 2, BUILT-UP ASPHALT ROOFING	07511 – A0905
ROOFING DETAIL – 3, BUILT-UP ASPHALT ROOFING	07511 – A0906
ROOFING DETAIL – 4, BUILT-UP ASPHALT ROOFING	07511 – A0907
ROOFING DETAIL – 5, BUILT-UP ASPHALT ROOFING	07511 – A0908
ROOFING DETAIL – 6, BUILT-UP ASPHALT ROOFING	07511 – A0909
ROOFING DETAIL – 7, BUILT-UP ASPHALT ROOFING	07511 – A0910
ROOFING DETAIL – 8, BUILT-UP ASPHALT ROOFING	07511 – A0911
ROOFING DETAIL – 9, BUILT-UP ASPHALT ROOFING	07511 – A0912
ROOFING DETAIL – 10, BUILT-UP ASPHALT ROOFING	07511 – A0913
ROOFING DETAIL – 11, BUILT-UP ASPHALT ROOFING	07511 – A0914
ROOFING DETAIL – 12, BUILT-UP ASPHALT ROOFING	07511 – A0915
ROOFING DETAIL – 13, BUILT-UP ASPHALT ROOFING	07511 – A0916
ROOFING DETAIL – 14, BUILT-UP ASPHALT ROOFING	07511 – A0917
SPRAYED POLYURETHANE FOAM (SPF) ROOFING	07540 – A1001
SPRAYED POLYURETHANE FOAM (SPF) ROOFING	07540 – A1002
SPRAYED POLYURETHANE FOAM (SPF) ROOFING	07540 – A1003
SPRAYED POLYURETHANE FOAM (SPF) ROOFING	07540 – A1004
SPRAYED POLYURETHANE FOAM (SPF) ROOFING	07540 – A1005
SPRAYED POLYURETHANE FOAM (SPF) ROOFING	07540 – A1006
FLUID APPLIED ROOFING	07141 – A1101
FLUID APPLIED ROOFING	07141 – A1102
FLUID APPLIED ROOFING	07141 – A1103
FLUID APPLIED ROOFING	07141 – A1104
FLUID APPLIED ROOFING	07141 – A1105
FLUID APPLIED ROOFING	07141 – A1106

CONCRETE SPLASH BLOCK DETAILS	07600 – A1201
SPLASH BLOCK DETAILS	07600 – A1202
GUTTER AND DOWNSPOUT	07600 – A1203
GUTTER DETAILS – 1	07600 – A1204
GUTTER DETAILS – 2	07600 – A1205
DOWNSPOUT DETAILS	07600 – A1206
TYPICAL JOINT DETAILS – 1	07900 – A1301
TYPICAL JOINT DETAILS – 2	07900 – A1302
TYPICAL JOINT DETAILS – 3	07900 – A1303
TYPICAL JOINT DETAILS – 4	07900 – A1304
TYPICAL JOINT DETAILS – 5	07900 – A1305
TYPICAL JOINT DETAILS – 6	07900 – A1306
TYPICAL JOINT DETAILS – 7	07900 – A1307
OVERHEAD ROLLING DOOR	08330 – A1401
OVERHEAD ROLLING DOOR	08330 – A1402
OVERHEAD ROLLING DOOR	08330 – A1403
OVERHEAD ROLLING DOOR	08330 – A1404
CEILING DETAILS, CEMENT PLASTERING – 1	09200 – A1501
CEILING DETAILS, CEMENT PLASTERING – 2	09200 – A1502
CEILING DETAILS, CEMENT PLASTERING – 3	09200 – A1503
CEILING DETAILS, CEMENT PLASTERING	09200 – A1504
WALL DETAILS, CEMENT PLASTERING – 1	09200 – A1505
WALL DETAILS, CEMENT PLASTERING – 2	09200 – A1506
WALL DETAILS, CEMENT PLASTERING – 3	09200 – A1507
WALL DETAILS, CEMENT PLASTERING – 4	09200 – A1508
WALL DETAILS, CEMENT PLASTERING – 5	09200 – A1509

GYPSUM BOARD	09250 – A1601
TYP. STUD PARTITION TOP BRACE	09250 – A1602
CEILING DETAILS - 1, GYPSUM BOARD	09250 – A1603
CEILING DETAILS - 2, GYPSUM BOARD	09250 – A1604
WALL DETAILS – 1, GYPSUM BOARD	09250 – A1605
WALL DETAILS – 2, GYPSUM BOARD	09250 – A1606
WALL DETAILS - 3, GYPSUM BOARD	09250 – A1607
WALL DETAILS - 4, GYPSUM BOARD	09250 – A1608
WALL DETAILS - 5, GYPSUM BOARD	09250 – A1609
WALL DETAILS - 6, GYPSUM BOARD	09250 – A1610
CEILING & WALL DETAILS - 1 , GYPSUM BOARD	09250 – A1611
CEILING & WALL DETAILS - 2 , GYPSUM BOARD	09250 – A1612
CEILING & WALL DETAILS - 3 , GYPSUM BOARD	09250 – A1613
CERAMIC TILE	09310 – A1701
CERAMIC TILE	09310 – A1702
CERAMIC TILE INSTALLATION FOR WALL & FLOOR – 1	09310 – A1703
CERAMIC TILE INSTALLATION FOR WALL & FLOOR – 2	09310 – A1704
CERAMIC TILE INSTALLATION FOR WALL & FLOOR – 3	09310 – A1705
CERAMIC TILE INSTALLATION FOR WALL & FLOOR – 4	09310 – A1706
INTERIOR WALL SECTION AND CURB DETAILS	09310 – A1707
INTERIOR WALL SECTION AND CURB DETAILS	09310 – A1708
INTERIOR WALL SECTION AND CURB DETAILS	09310 – A1709
CEILING DETAILS – 1, ACOUSTICAL	09510 – A1801
CEILING DETAILS – 2, ACOUSTICAL	09510 – A1802
CONCEALED GRID ACOUSTICAL TILE CEILING DETAILS	09510 – A1803
CONCEALED GRID ACOUSTICAL TILE CEILING DETAILS	09510 – A1804

CONCEALED GRID ACOUSTICAL TILE CEILING DETAILS	09510 – A1805
EXPOSED GRID ACOUSTICAL TILE CEILING DETAILS	09510 – A1806
EXPOSED GRID ACOUSTICAL TILE CEILING DETAILS	09510 – A1807
WOOD STRIP FLOORING DETAILS	09640 – A1901
TOILET PARTITIONS – 1	10160 – A2001
TOILET PARTITIONS – 2, (HANDICAPPED)	10160 – A2002
TOILET PARTITIONS – 3	10160 – A2003
TOILET PARTITIONS – 4	10160 – A2004
TOILET PARTITIONS – 5	10160 – A2005
TOILET PARTITIONS – 6	10160 – A2006
EXTERIOR SIGN TYPE B2	10430 – A2101
EXTERIOR SIGN TYPE B2	10430 – A2102
EXTERIOR SIGN TYPE B2	10430 – A2103
EXTERIOR SIGN TYPE B3	10430 – A2104
EXTERIOR SIGN TYPE B4	10430 – A2105
EXTERIOR SIGN TYPE C2	10430 – A2106
EXTERIOR SIGN TYPE C3	10430 – A2107
EXTERIOR SIGN TYPE C4	10430 – A2108
EXTERIOR SIGN TYPE 01	10430 – A2109
EXTERIOR SIGN TYPE 02	10430 – A2110
EXTERIOR SIGN TYPE 03	10430 – A2111
EXTERIOR SIGN TYPE 04	10430 – A2112
INTERIOR SIGN TYPE AA6	10440 – A2201
INTERIOR SIGN TYPE AA6	10440 – A2202
INTERIOR SIGN TYPE BB2	10440 – A2203
INTERIOR SIGN TYPE BB2/BB4	10440 – A2204

INTERIOR SIGN TYPE BB7	10440 – A2205
INTERIOR SIGN TYPE BB7	10440 – A2206
INTERIOR HANDICAPPED SIGN	10440 – A2207
TOILET ACCESSORIES – 1	10800 – A2301
TOILET ACCESSORIES – 2	10800 – A2302
TOILET ACCESSORIES (HANDICAPPED) – 3	10800 – A2303
TOILET ACCESSORIES – 4	10800 – A2304
TOILET ACCESSORIES – 5	10800 – A2305
TOILET ACCESSORIES – 6	10800 – A2306
TOILET ACCESSORIES – 7	10800 – A2307
TOILET ACCESSORIES – 8	10800 – A2308
TOILET ACCESSORIES – 9	10800 – A2309
TOILET ACCESSORIES – 10	10800 – A2310
TOILET ACCESSORIES – 11	10800 – A2311
TOILET ACCESSORIES – 12	10800 – A2312
TOILET ACCESSORIES (HANDICAPPED) – 13	10800 – A2313
TOILET ACCESSORIES (HANDICAPPED) – 14	10800 – A2314
COUNTER PLAN & ELEVATIONS	12320 – A2401
COUNTER PLAN & ELEVATIONS	12320 – A2402
COUNTER DETAILS	12320 – A2403
COUNTER DETAILS	12320 – A2404
COUNTER DETAILS	12320 – A2405
KITCHEN CABINETS FOR FAMILY HOUSING	12320 – A2406
KITCHEN CABINETS FOR FAMILY HOUSING	12320 – A2407
KITCHEN CABINETS FOR FAMILY HOUSING	12320 – A2408
KITCHEN CABINETS	12320 – A2409

KITCHEN CABINETS	12320 – A2410
KITCHEN CABINETS	12320 – A2411
KITCHEN CABINETS	12320 – A2412
KITCHEN CABINETS	12320 – A2413
KITCHEN CABINETS	12320 – A2414
KITCHEN CABINETS	12320 – A2415
KITCHEN CABINETS	12320 – A2416
KITCHEN CABINETS	12320 – A2417

AB	ANCHOR BOLT	DET(S)	DETAIL(S)
ACFT	AIRCRAFT	DF	DRINKING FOUNTAIN
ACS	ACCESS	DIA OR Ø	DIAMETER
ACST	ACOUSTIC	DIAG	DIAGONAL
ADH	ADHESIVE	DIM	DIMENSION
ADJ	ADJACENT	DN	DOWN
AHR	ANCHOR	DP	DAMPPROOFING
AL	ALUMINUM	DR	DRAIN OR DOOR
ANDZ OR ANOD	ANODIZE	DSGN	DESIGN
ANG	ANGLE	DST	DOOR STOP
AP	ACCESS PANEL	DWG(S)	DRAWING(S)
APPROX	APPROXIMATE	DWR	DRAWER
ARCH	ARCHITECTURE		
ASPH	ASPHALT		
ATC	ACOUSTIC TILE CEILING	EA	EACH
AUTO	AUTOMATIC	EF	EACH FACE
		EHD	ELECTRIC HAND DRYER
		EIAE	EXTERIOR INSULATION
			AESTHETIC JOINT
BB	BULLETIN BOARD	EIAJ	EXTERIOR INSULATION
BD	BOARD		AREA JOINT
BF	BOTH FACE		EXTERIOR INSULATION
BITUM	BITUMINOUS	EICJ	CONTROL JOINT
BKS	BARRACKS		EXTERIOR INSULATION
BLDG(S)	BUILDING (S)	EIEX	EXPANSION JOINT
BLKG	BLOCKING		EXTERIOR INSULATION AND FINISH SYSTEM
BM	BEAM	EIFS	ELEVATION
BN	BULL-NOSE BLOCK	EL	EXPANDED METAL LATH
BOT	BOTTOM	EML	ENCLOSURE
BP	BASE PLATE	ENCL	ENTRANCE
BRK	BRICK	ENTR	EQUAL
BRKT	BRACKET	EQ OR EQL	EQUIPMENT
BS	BOTH SIDES	EQPT	EACH WAY
BSMT	BASEMENT	EW	ELECTRIC WATER COOLER
BUR	BUILT-UP ROOFING	EWC	EXHAUST OR EXPANSION
BW	BOTH WAYS	EXH	EXPOSED
		EXP	EXPANSION JOINT
		EXP JT	EXISTING
		EXST	EXISTING
		EXT	EXTERIOR
CAB	CABINET	FAC	FACILITY
CFE	CONTRACTORS FURNISHED	FB	FLAT BAR
	EQUIPMENT	FD	FLOOR DRAIN
CHAN	CHANNEL	FDN	FOUNDATION
CI	CAST IRON	FDR	FIRE DOOR
CIP	CAST IRON PIPE	FEC	FIRE EXTINGUISHER CABINET
CJ	CONSTRUCTION JOINT	FED	FEDERAL
CL OR CL	CENTER LINE	FEXT	FIRE EXTINGUISHER
CLJ	CONTROL JOINT	FHC	FIRE HOSE CABINET
CLG	CEILING	FHMS	FLAT HEAD MACHINE SCREW
CLKG	CAULKING	FL	FLOOR
CLR	CONTROL OR CLEAR	FLG	FLOORING
CLWG	CLEAR WIRE GLASS	FNSH OR FIN	FINISH
CMT	CERAMIC MOSAIC TILE	FR	FRAME
CMU	CONCRETE MASONRY UNIT	FS	FAR SIDE OR FULL SIZE
COL	COLUMN	FT	FOOT
COMB	COMBINATION	FTD	FACIAL TISSUE DISPENSER
COMM	COMMUNICATION	FURN	FURNITURE
CONC	CONCRETE	FXD	FIXED
CONN	CONNECTION	FXTR	FIXTURE
CONT	CONTINUOUS OR CONTINUE		
CONTD	CONTINUED	G	GIRDER OR GLASS
CORR	CORRUGATED	GA	GAGE
CPC	CEMENT PLASTER CEILING	GALV	GALVANIZE
CPL	CEMENT PLASTER	GB	GRAB BAR, GRADE BEAM
CPLRY	CAPILLARY		
CRV	CURVE		
CS	CAST STEEL		
CSB	CONCRETE SPLASH BLOCK		
CT	CERAMIC TILE		
CTG	COATING		
C TO C	CENTER TO CENTER		
CUFT	CUBIC FEET		
CWB	CAPILLARY WATER BARRIER		

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER

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TITLE ABBREVIATIONS-1

SPEC

OCT 2003

A0001

GFM	GOVERNMENT FURNISHED MATERIAL	MET	METAL
GFP	GOVERNMENT FURNISHED PROPERTY	METD	METAL DOOR
GIE	GOVERNMENT INSTALLED EQUIPMENT	METF	METAL FLOORING
GIM	GOVERNMENT INSTALLED MATERIAL	METP	METAL PARTITION
GL	GRADE LINE / GROUND LEVEL	METR	METAL ROOF
GOE	GOVERNMENT OWNED EQUIPMENT	METS	METAL STRIP
GR	GRAB ROD	MET-T-PTN	METAL TOILET PARTITION
GSP	GALVANIZED STL PIPE	MEZZ	MEZZANINE
GUT	GUTTER	MFR	MANUFACTURER
GWB	GYPSUM WALL BOARD	MG	MIRROR GLASS
GWT	GLAZED WALL TILE	MGS	METAL GRAVEL STOP
GYM	GYMNASIUM	MIN	MINIMUM
GYP	GYPSUM	MIR	MIRROR
		MIR/S	MIRROR WITH SHELF
		MISC	MISCELLANEOUS
		MLP	METAL LATH AND PLASTER
		MM	MIRROR METAL
		MO	MASONRY OPENING
		MOPR	MOP RACK
HAZ	HAZARDOUS	MOPR/S	MOP RACK AND SHELF
HDW	HARDWARE	MSCR	MACHINE SCREW
HDWD	HARDWOOD	MSP	METAL SPLASH PAN
HEX	HEXAGON	MT	MIRROR, TILT
HGR	HANGER	MTG	MOUNTING
HGT	HEIGHT		
HM	HOLLOW METAL		
HMDF	HOLLOW METAL DOOR & FRAME	NA	NOT APPLICABLE
HANDRAIL	HANDRAIL	NFSM	NON FROST SUSCEPTIBLE MATERIAL
HORIZ	HORIZONTAL	NIC	NOT IN CONTRACT
		NO OR #	NUMBER
		NOM	NOMINAL
JAW	IN ACCORDANCE WITH	NRC	NOISE REDUCTION COEFFICIENT
ID	INSIDE DIAMETER	NS	NEAR SIDE
IN	INCH	NTS	
INSUL	INSULATING, INSULATOR OR INSULATION		
		OA	OVERALL
INTR	INTERIOR	OC	ON CENTER
IPS	INSIDE PIPE SIZE	OCT	OCTAGON
		OD	OUTSIDE DIAMETER
J	JOINT	OF	OUTSIDE FACE
JC	JANITOR CLOSET OR	OPNG	OPENING
	JOINT COMPOUND	OPP	OPPOSITE
JT	JOINT	OPPHD	OPPOSITE HAND
		ORIG	ORIGINAL
		OVHD	OVERHEAD
L	LONG		
LAD	LADDER	PC	PILE CAP, PRECAST CONCRETE
LAM	LAMINATE		PRESTRESSED CONCRETE
LAQ	LACQUER	PED	PEDESTAL
LAV	LAVATORY	PEJ	PREMOLDED EXPANSION JOINT
LG	LENGTH	PEU	POLYURETHANE
LH	LEFT HAND	PL OR R.	PLATE
LL	LIVE LOAD	PLAS	PLASTER
LNG	LINING	PLYWD	PLYWOOD
LONG	LONGITUDINAL	PM	PROTECTED METAL
LR	LADDER RUNG	PNL	PANEL
LT	LIGHT	PNT	PAINT
LTC	LATTICE	PREFAB	PREFABRICATED
LVD	LOUVERED DOOR	PRF	PROOF
LVR	LOUVER	PRMLD	PREMOLDED
LYT	LAYOUT	PROJ	PROJECT
		PT	POINT
M & R	MAINTENANCE & REPAIR	PT / WR	PAPER TOWEL DISPENSER/ WASTE RECEPTACLE
MA	METAL ANCHOR		
MAINT	MAINTENANCE	PTD	PAPER TOWEL DISPENSER
MATL	MATERIAL	PTN	PARTITION
MAX	MAXIMUM	PVC	POLYVINYL CHLORIDE
MC	MEDICINE CABINET	PWC	PAPER WALL COVERING
MDL OR MID	MIDDLE	PWD/PNL	PLYWOOD/PANELING
MECH	MECHANICAL		

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TITLE

ABBREVIATIONS-2

SPEC

OCT 2003

A0002

QRY	QUARRY	STL	STEEL
QTB	QUARRY TILE BASE	STRL	STRUCTURAL
QTF	QUARRY TILE FLOOR	SUSP	SUSPENDED
QTR	QUARTER	SV	SHEET VINYL FLOORING
QTY	QUANTITY	SYMM	SYMMETRICAL
QUAL	QUALITY		
R OR RL	RAIL	T & G	TONGUE AND GROOVE
RAD	RADIUS	TB	TOWEL BAR
RB	ROOF BEAM, RUBBER BASE	TEL	TELEPHONE
RBR	RUBBER	TEMP	TEMPORARY OR TEMPERATURE
RC	REINFORCED CONCRETE	TER	TERRAZZO
RD	ROOF DRAIN OR ROAD	THK	THICK
RDG	RIDGE	THRU	THROUGH
RECT	RECTANGULAR	TOT	TOTAL
REFR	REFRIGERATOR	TP	TOWEL PIN
REINF	REINFORCED, REINFORCEMENT	TR	TOWEL RACK
RELOC	RELOCATED	TRTD	TREATED
REPL	REPLACE	TSCD	TOILET SEAT COVER DISPENSER
REQD	REQUIRED	TTD	TOILET TISSUE DISPENSER
RFG	ROOFING	TTH	TOOTH BRUSH & TUMBLER
RG	ROOF GIRDER		HOLDER
RH	RIGHT HAND	TV	TELEVISION
RHMS	ROUND HEAD MACHINE SCREW	TW	TILE WAINSCOT
RHS	RIGHT HAND SIDE	TYP	TYPICAL
RIV	ROOF INSULATIONS VENT		
RM	ROOM	UNIF	UNIFORM
RO	ROUGH OPENING	UR	URINAL
RPR	REPAIR		
RS	ROOF SLAB		
RSD	ROLLING STEEL DOOR	VAR	VARIABLE
RVT	RIVET	VB	VAPOR BARRIER
		VCB	VINYL COVE BASE
		VCT	VINYL COMPOSITION TILE
SATC	SUSPENDED ACOUSTICAL	VENT	VENTILATOR
	CEILING	VERT	VERTICAL
SB	SPLASH BLOCK	VEST	VESTIBULE
SC	SHOWER CURTAIN		
SCD	SCREEN DOOR		
SCHD	SCHEDULE	WA	WAINSCOT
SCR	SHOWER CURTAIN ROD	WB	WOOD BASE
SCRN	SCREEN	WBL	WOOD BLOCKING
SD	SOAP DISPENSER	WC	WATER CLOSET
SDG	SIDING	WCR	WATER COOLER
SDL	SADDLE	WD	WIDTH OR WOOD OR
SEC	SECTION		WOOD DOOR
SF OR SQFT	SQUARE FOOT	WDO	WINDOW
SGL	SINGLE	WG	WIRED GLASS
SGR	SOAP AND GRAB COMBINATION	WF	WALL FOOTING
	RECESSED MOUNTED	W/	WITH
SH	SOAP HOLDER / SHOWER HEAD	W/O	WITHOUT
SHR	SHOWER	WLB	WALL BOARD
SHT OR SH	SHEET	WLD	WELDED
SIM	SIMILAR	WM	WIRE MESH
SLP	SLOPE	WP	WORK POINT
SM	SHEET METAL	WPG	WATER PROOFING
SMHD	SHELF, METAL, HEAVY DUTY	WTR	WATER
SMLD	SHELF, METAL, LIGHT DUTY	WWF	WELDED WIRE FABRIC
SND	SANITARY NAPKIN AND		
	TAMPON DISPOSER		
SNDL	SANITARY NAPKIN DISPOSAL		
SNTD	SANITARY NAPKIN AND		
	TAMPON DISPENSER		
SPC	SUSPENDED PLASTER CEILING		
SPEC(S)	SPECIFICATION(S)		
SQ	SQUARE		
SS	SERVICE SINK		
SSAC	SUSPENDED SPRAYED		
	ACOUSTICAL CEILING		
SST	STAINLESS STEEL		
STC	SOUND TRANSMISSION		
	COEFFICIENT		
STD	STANDARD		

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TITLE ABBREVIATIONS-3

SPEC

OCT 2003

A0003

FLOOR PLANS

	CONC W/EXT. INSUL		STUD FRAMED WITH ACST. INSULATION EXCEPT AS NOTED
	CMU OR (CMU W/ " _ " STEEL FURRING)		STUD FRAMED EXCEPT AS NOTED (LEAD LINING OF _ TO _ HT)
	CONC OR(CONC W/ " _ " STEEL FURRING)		EXISTING (MAT'L AS NOTED) TO REMAIN
	CMU W/ EXT INSUL		
	EXISTING (MAT'L AS NOTED) TO BE REMOVED		NOTE : FOR FINISH ON FURRED STUD FRAMED OR OTHER WALLS OR PARTITIONS SEE FINISH SCHEDULE
	STUD FRAMED AS NOTED		

CROSS SECTIONS/DETAILS

	CONC MASONRY UNITS(CMU)		CERAMIC & QUARRY TILE
	BRICK OR STONE		PLYWOOD
	CONC(POURED IN PLACE)		WOOD(ROUGH)
	CONC(PRECAST)		WOOD(FINISH)
	PLASTER GWB STUCCO SETTING BED		METAL(LARGE SCALE)
	INSULATION(BATT & BLANKET)		EXISTING(MET'L AS NOTED) TO REMAIN
	INSUL(RIGID)		EXISTING(MAT'L AS NOTED) TO BE REMOVED
	ACOUSTIC UNITS		

CEILING PLANS

	PARTITION FRAMING TO ROOF OR UNDERSIDE OF FLOOR ABOVE		FIRE RATED PARTITIONS (INDICATE U.L. OR F.M. DESIGNATION AND HOURLY RATINGS OF CEILING & FLOOR/ROOF ASSEMBLY IN AREA/ROOM WHERE OCCURS)
	PARTITION FRAMING ABOVE CEILING		LIGHTING FIXTURES
	PARTITION FRAMING TO CEILING FRAMING		HEATING, VENTILATING, A/C ITEMS
	PARTITION FRAMING TO CEILING FINISH		OTHER(AS NOTED)

ROOF PLANS

	GRAVITY TYPE ROOF VENTILATORS(SIZE NOTED)		VENT(FOR BOILER/APPLIANCE) SEE MECH FOR SIZE
	POWER ROOF VENTILATORS		OTHER(AS NOTED)

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DWG NO.

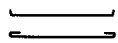
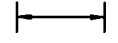
TITLE LEGEND & SYMBOLS-1

SPEC

OCT 2003

A0004

REINFORCED CONCRETE STRUCTURE SYMBOLS

—	PLAIN ENDS
	HOOKED OR BENT BOTH ENDS
□	SQUARE OR RECTANGULAR
○	CIRCULAR
	LIMITS OF AREA COVERED BY BARS
+	ANCHOR BOLT(IN PLAN)
f_c'	ULTIMATE COMPRESSIVE STRENGTH OF CONCRETE
f_y	YIELD STRESS IN REINFORCEMENT

STRUCTURAL STEEL OR ALUMINUM CONSTRUCTION SYMBOLS

W	WIDE FLANGE SHAPE
S	I BEAMS
C	CHANNEL
L	ANGLE
WT	STRUCTURAL, CUT FROM ROLLED SHAPES
PL	PLATE

GENERAL NOTES :

METHODS OF WALL FASTENING :

1. TOGGLE BOLTS SHALL BE USED IN C. M. U.
WALL (HOLLOW CELLS)
2. AHR BOLTS IN METAL EXPANSION SHIELDS
SHALL BE USED IN FILLED CMU OR CONCRETE
WALL
3. TOGGLE BOLTS OR SELF TAPPING SCREWS
WITH A METAL BACKER PLATE FASTENED
BETWEEN STUDS SHALL BE USED IN GWB
OR CEMENT PLASTER FRAMED WALLS

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER

REV DATE

DWG NO.

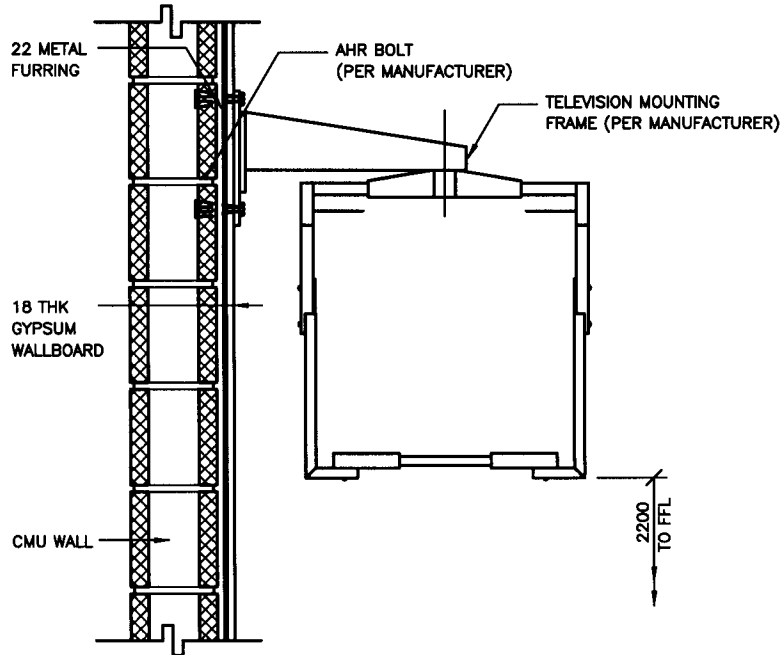
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LEGEND & SYMBOLS-2

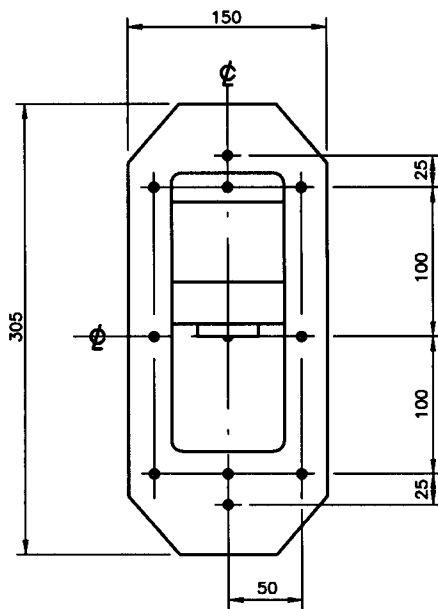
SPEC

OCT 2003

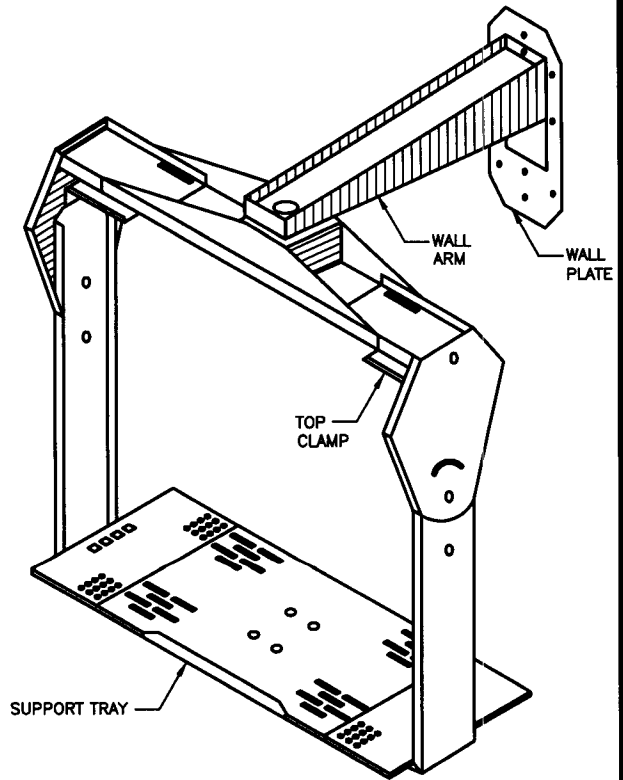
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SECTION



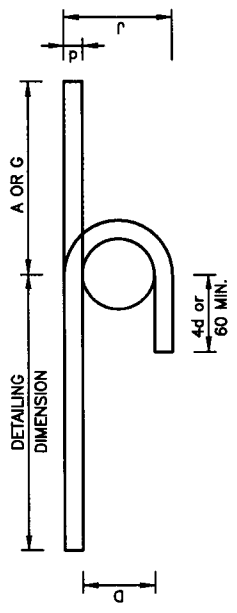
WALL PLATE DETAIL



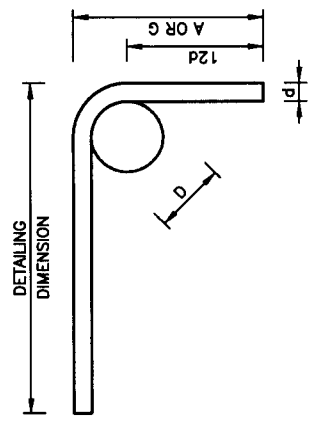
ISOMETRIC

TELEVISION MOUNTING FRAME DETAIL

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER			REV DATE	DWG NO.
TITLE	TELEVISION MOUNTING FRAME DETAIL	SPEC	OCT 2003	A0006



180° HOOK



90° HOOK

BAR SIZE	D (1) (MM)	180° HOOKS		90° HOOKS	
		A OR G	J	A OR G	
D10	70	125	75	150	
D13	75	150	100	200	
D16	95	175	125	250	
D19	115	200	150	300	
D22	130	250	175	350	
D25	150	275	200	400	
D28	240	375	300	475	
D31	270	425	330	550	

(1) D = 6d FOR D10 THRU D25 BARS
 D = 8d FOR D28 THRU D31 BARS

MAIN BARS

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER

REV DATE

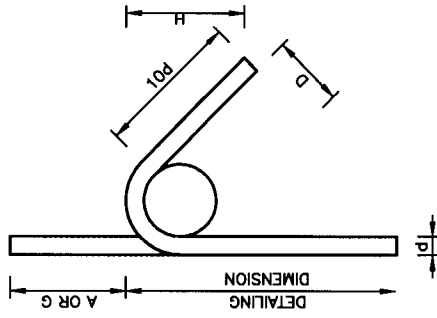
DWG NO.

TITLE STANDARD HOOK FOR MAIN BARS, STIRRUPS & TIES

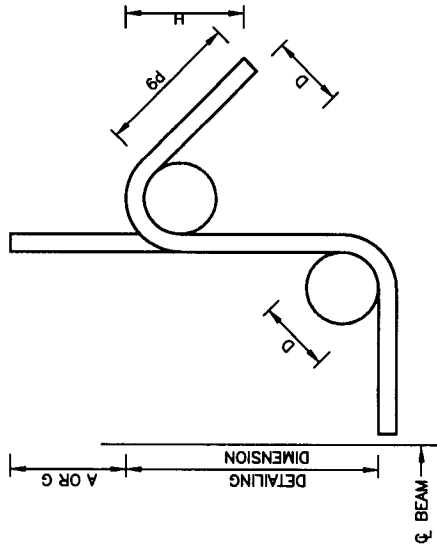
SPEC 03300

OCT 2003

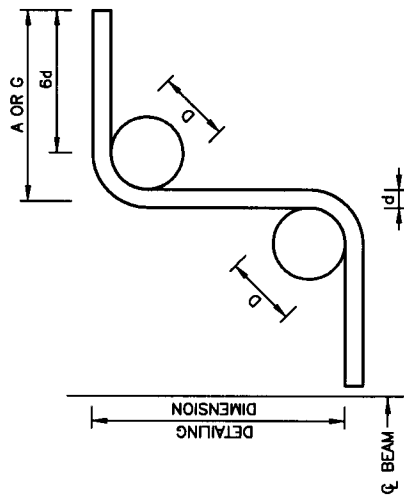
A0101



135° HOOK



135° HOOK



90° HOOK

BAR SIZE	D (MM)	180° HOOKS	
		A OR G	H APPROX
D10	40	125	90
D13	50	165	115
D16	65	200	140
D19	115	270	165
D22	130	315	195

- ① D = 4d FOR D10 THRU D16 BARS
- D = 6d FOR D19 THRU D22 BARS

- ② FOR 90° HOOK SEE 1A/-/1

SEISMIC STIRRUPS OR TIES

BAR SIZE	D (MM)	90° HOOKS		135° HOOKS	
		A OR G	H APPROX	A OR G	H APPROX
D10	40	100	65	100	65
D13	50	115	75	115	75
D16	65	150	95	140	95

- ① D = 4d FOR D10 THRU D16 BARS

STANDARD STIRRUPS OR TIES

IMA--KORO, REGIONAL ENGINEER SUPPORT CENTER

REV DATE

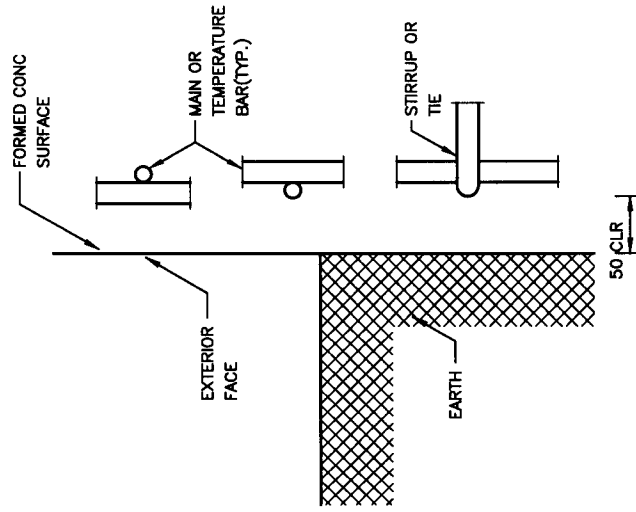
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TITLE STANDARD HOOK FOR MAIN BARS, STIRRUPS & TIES

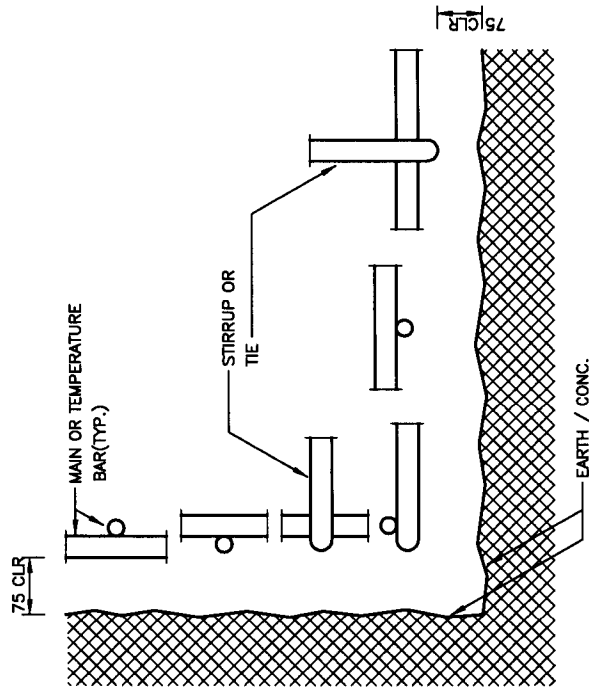
SPEC 03300

OCT 2003

A0102



CONCRETE EXPOSED TO
EARTH OR WEATHER



CONCRETE CAST
AGAINST EARTH

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER

REV DATE

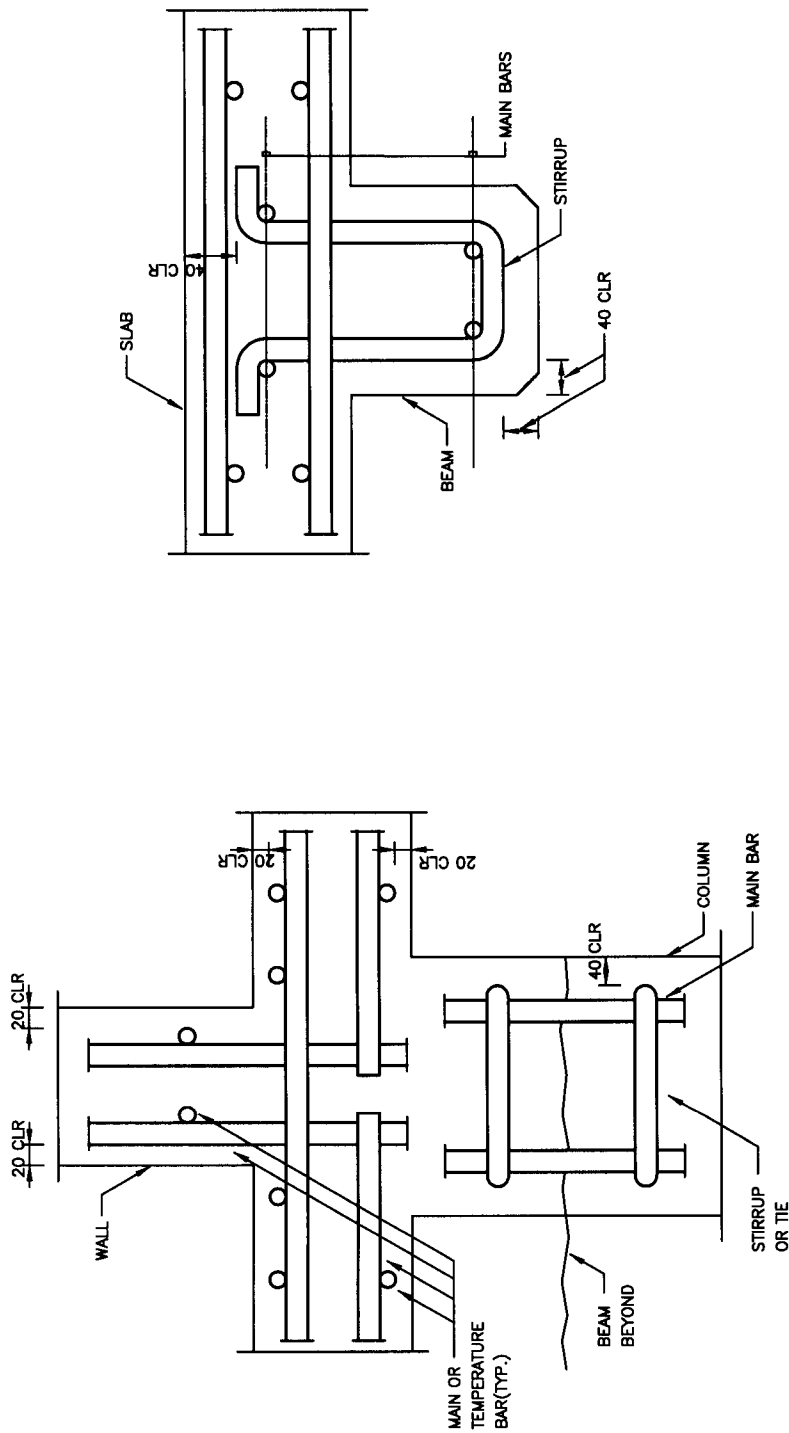
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TITLE CONCRETE PROTECTION FOR REINF. BARS

SPEC 03300

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A0103

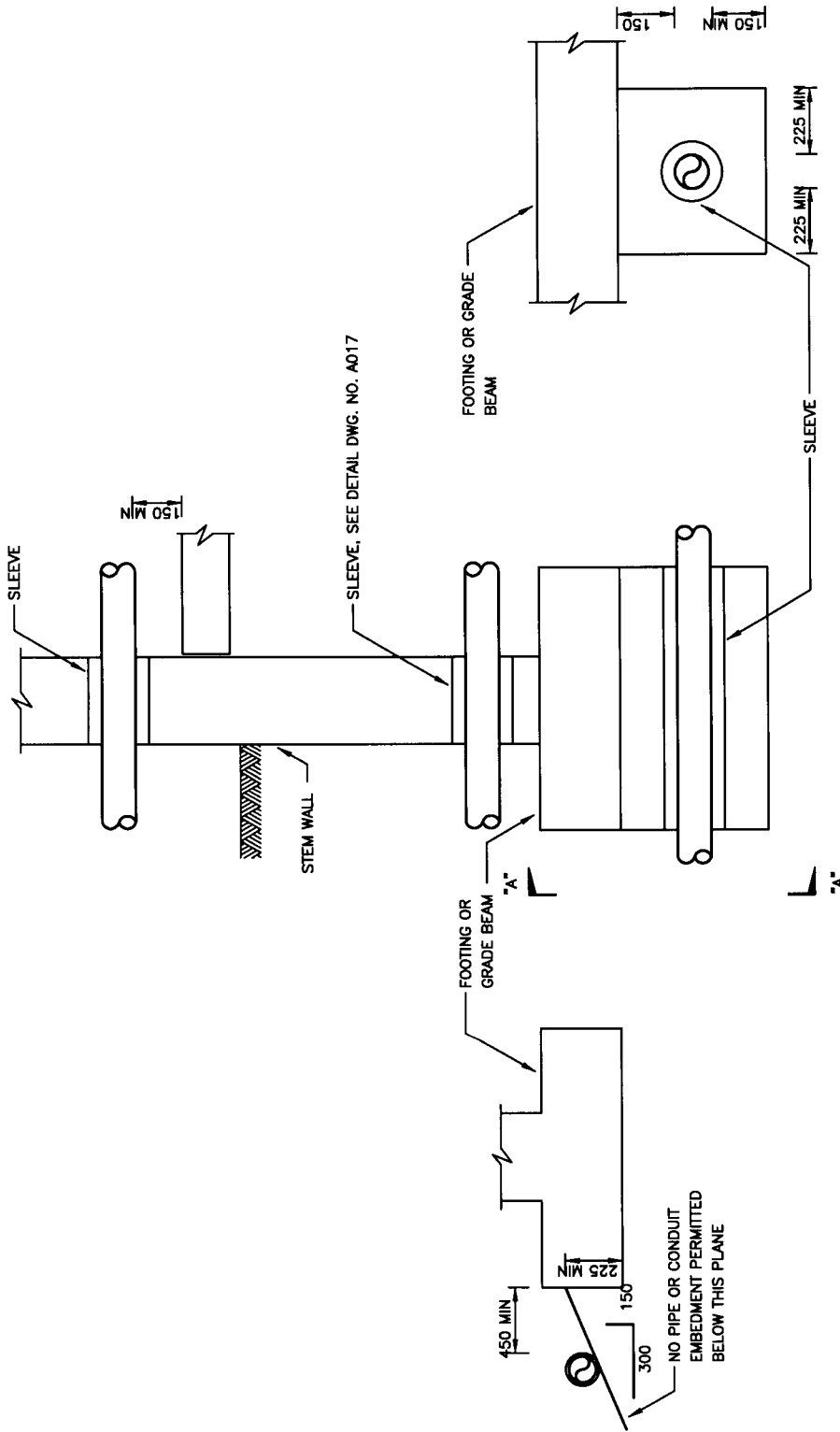


**CONCRETE NOT EXPOSED TO
EARTH OR WEATHER**

NOTES :

1. PROTECTIVE COVER SHOWN IS MINIMUM PERMITTED
2. THICKER PROTECTIVE COVER INDICATED IN SPECIFIC DETAILS SHALL GOVERN.
3. PROTECTIVE COVER SHOWN IS FOR CAST-IN-PLACE CONCRETE ONLY. FOR PRECAST CONCRETE COVER, REFER TO ACI - 318 CHAPTER 7.

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	CONCRETE PROTECTION FOR REINF. BARS	SPEC	03300	OCT 2003	A0104

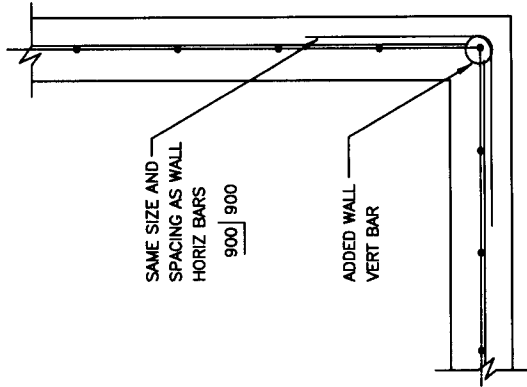


PERPENDICULAR PIPE

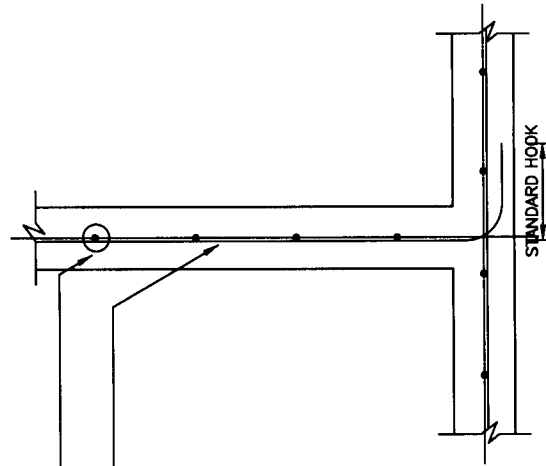
PARALLEL PIPE

PIPE OR CONDUIT AT FOUNDATION

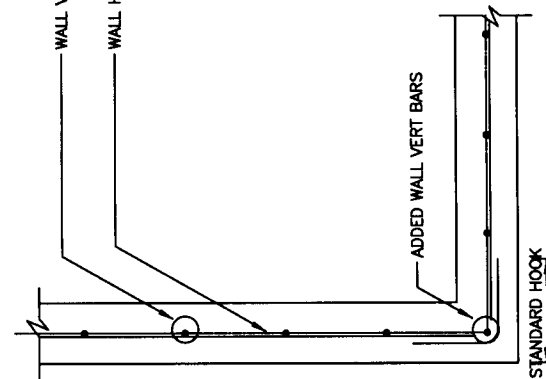
IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER			REV DATE	DWG NO.
TITLE	PIPE OR CONDUIT AT FOUNDATION	SPEC	O3300	OCT 2003
				A0105



ALTERNATE CORNER



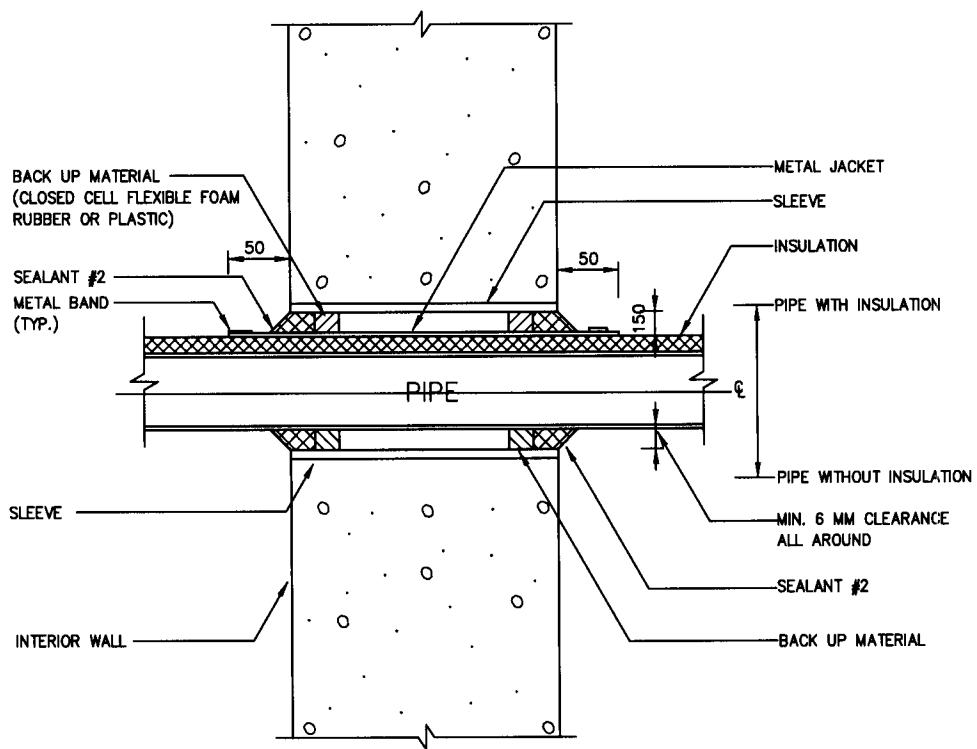
TEE INTERSECTION



CORNER

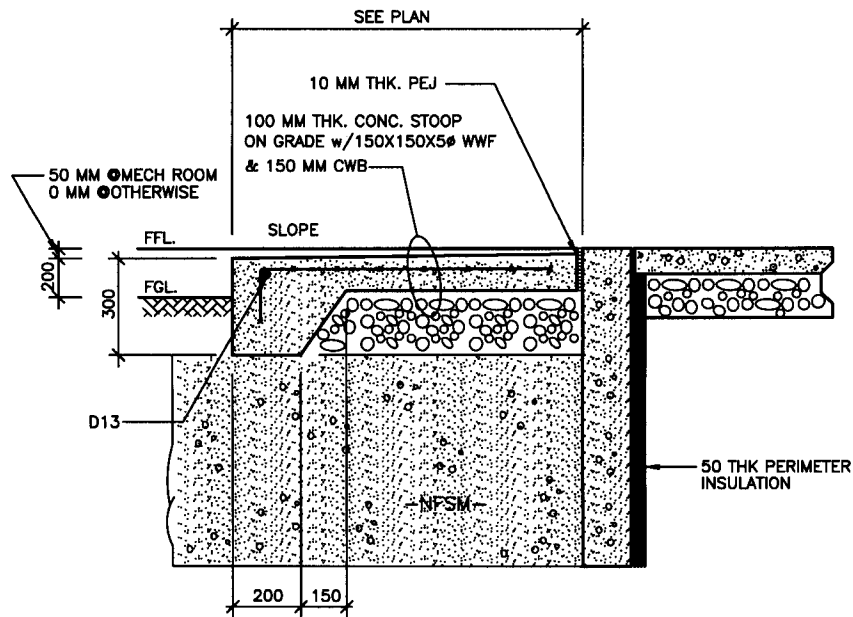
HORIZONTAL BAR LAPS AT WALL INTERSECTION

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	HORIZONTAL BAR LAPS AT WALL INTERSECTION	SPEC	03300	OCT 2003	A0106

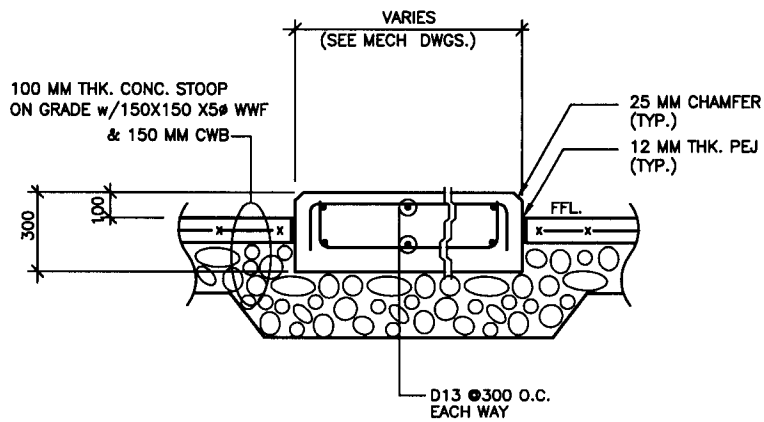


PIPE SLEEVE

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	PIPE SLEEVE	SPEC	03300	OCT 2003	A0107



CONCRETE STOOP



CONCRETE PAD DETAIL

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER

REV DATE

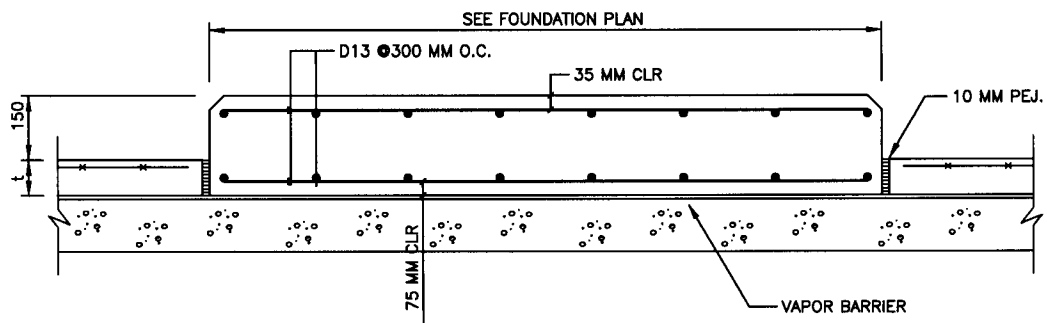
DWG NO.

TITLE CONCRETE STOOP & CONCRETE PAD DETAIL

SPEC 03300

OCT 2003

A0108



SEE FOUNDATION PLAN FOR SLAB
THICKNESS AND REINFORCEMENT

MECHANICAL EQUIPMENT PAD

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER

REV DATE

DWG NO.

TITLE

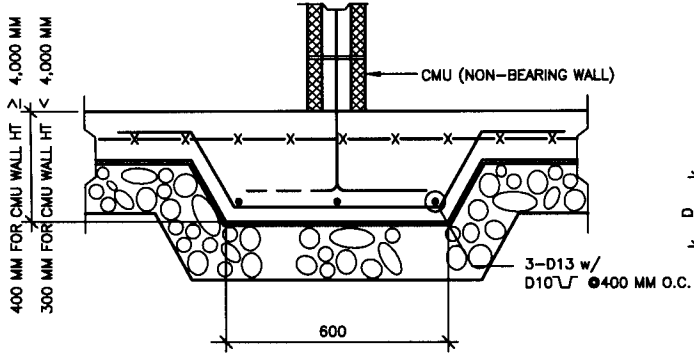
MECHANICAL EQUIPMENT PAD

SPEC

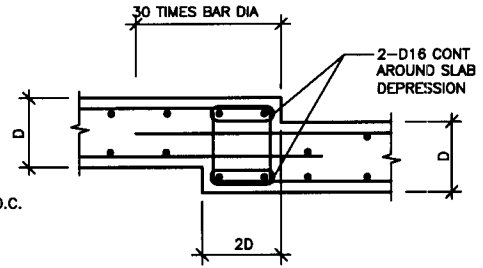
03300

OCT 2003

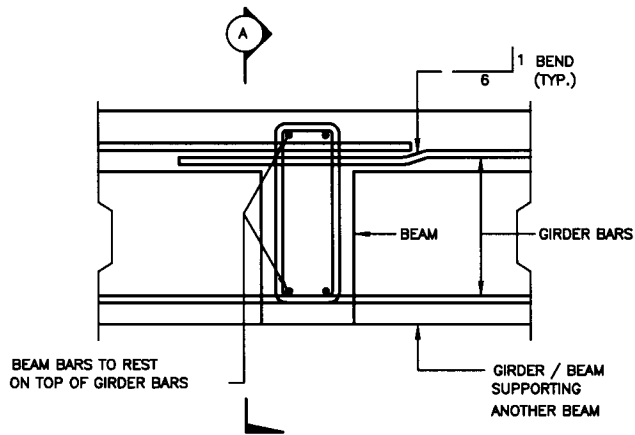
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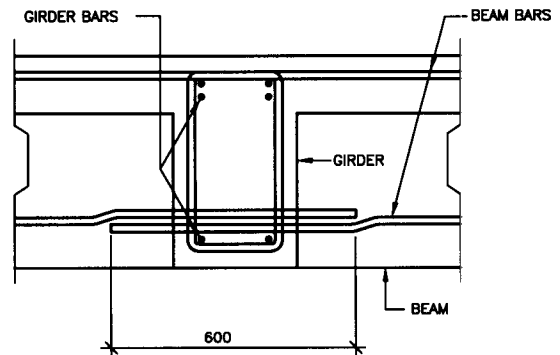
TYP. THICKENED SLAB (TS-1)



FRAMED SLAB REINFORCING
AT DEPRESSION
(AT STRUCTURAL SLAB AND SLAB
ON GRADE w/PILE FOUNDATION)



BEAM & GIRDER JOINT DETAIL



SECTION

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER

REV DATE

DWG NO.

TITLE

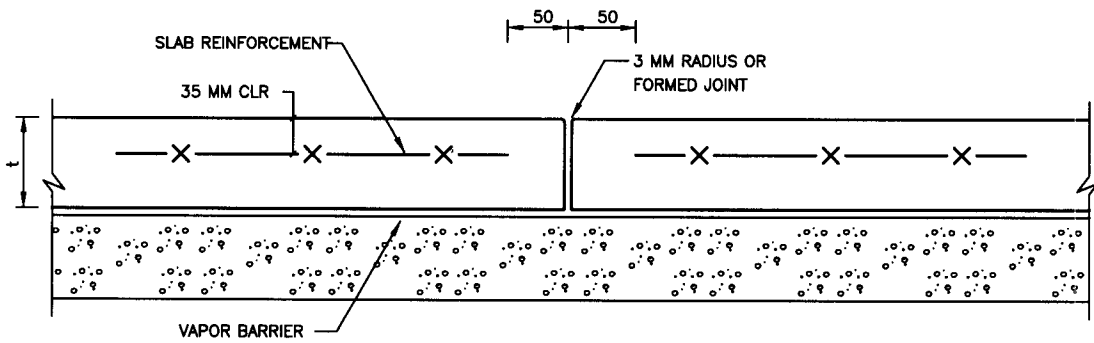
BEAM & GIRDER JOINT DETAILS

SPEC

03300

OCT 2003

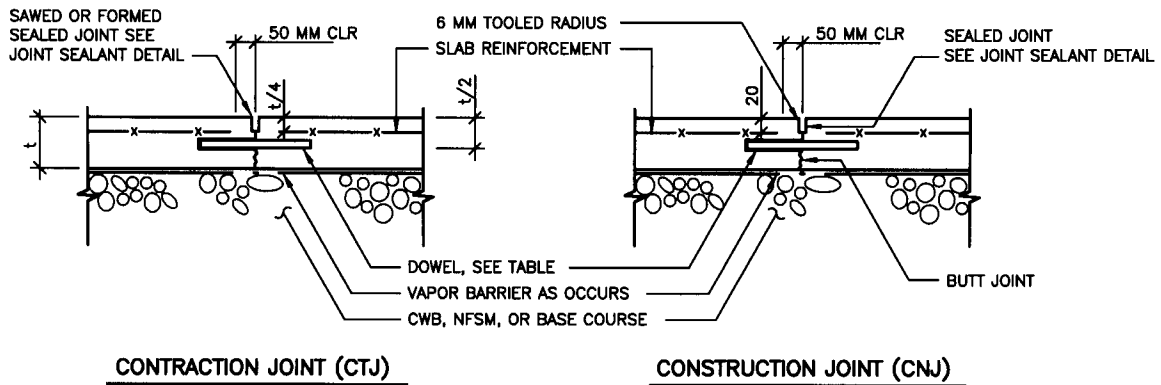
A0110



SEE FOUNDATION PLAN FOR SLAB
THICKNESS AND REINFORCEMENT

CONTRACTION JOINT (CTJ)

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	JOINTS FOR CONCRETE SLABS	SPEC	03300	OCT 2003	A0111



t (MM)	DOWEL DIAMETER (MM)	DOWEL LENGTH (MM)	MAXIMUM DOWEL SPACING	
			CTJ (MM)	CNJ (MM)
LESS THAN 200	20	400	300	300
LESS THAN 300	25	400	300	300
LESS THAN 400	30	500	360	360

NOTE

1. USE SMOOTH BAR DOWELS, PAINT AND OIL OR GREASE ONE END
2. SEE FOUNDATION PLAN FOR SLAB THICKNESS (t) AND SLAB REINFORCEMENT

JOINT IN FLOOR SLAB SUBJECT TO VEHICLE TRAFFIC

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER

REV DATE

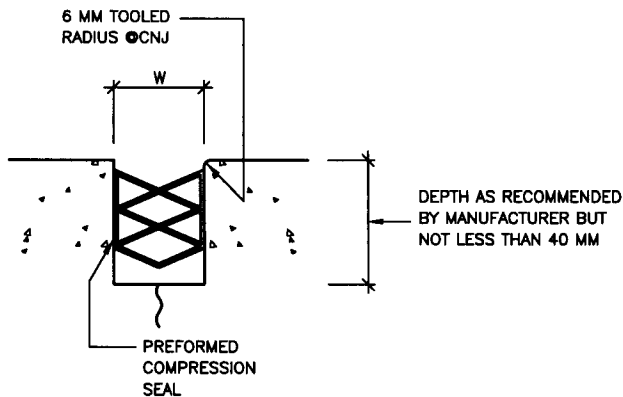
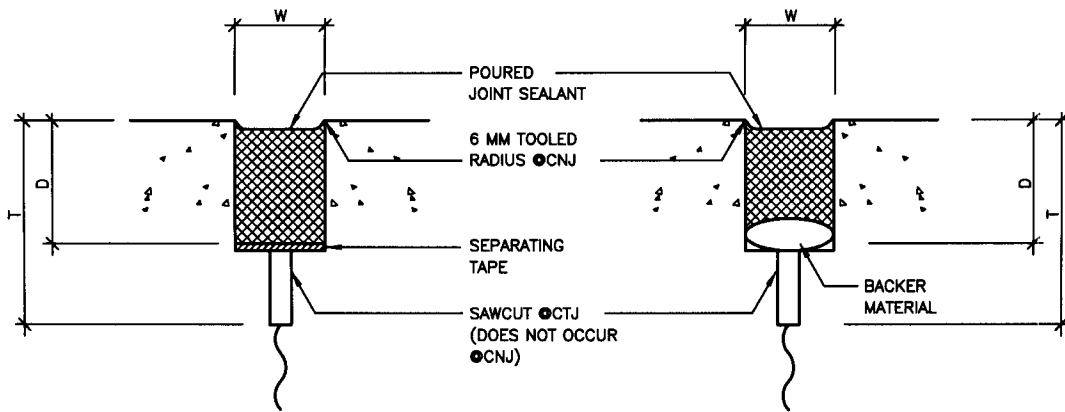
DWG NO.

TITLE JOINTS FOR CONCRETE SLABS

SPEC 03300

OCT 2003

A0112



TABLE

JOINT SPACING MM	W. (MM)	
	MIN.	MAX.
< 7500	12	15
7500 TO 15000	20	23
> 15000	25	28

- W = WIDTH OF SEALANT RESERVOIR (SEE TABLE)
- D = DEPTH OF SEALANT : 1.0~1.5 TIMES W
- T = DEPTH OF INITIAL SAWCUT.
1/4 OF THE SLAB THICKNESS
FOR SLABS LESS THAN 300 MM
75 MM FOR SLABS 300~450 MM
OR 1/6 OF THE SLAB THICKNESS
FOR SLAB OVER 450 MM

- NOTES :
1. SEPARATION TAPE OR BACKER MATERIAL REQUIRED TO PREVENT JOINT SEALANT FROM FLOWING INTO SAWCUT, TO SEPARATE NONCOMPATIBLE MATERIALS, AND TO PREVENT SEALANT FROM BONDING TO BOTTOM OF RESERVOIR.
 2. TOP OF SEALANT WILL BE 3 MM TO 6 MM BELOW TOP OF SAWCUT.
 3. COMPRESSION SEAL MUST BE IN COMPRESSION AT ALL TIMES.

JOINT SEALANT DETAILS

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	JOINT SEALANT DETAILS	SPEC	03300	OCT 2003	A0113

GENERAL NOTES

A. CONCRETE

CLEAN AND ROUGH JOINT SHALL REFER TO A CONCRETE TO CONCRETE CONTACT SURFACE WHICH IS CLEAN AND FREE OF LAITANCE AND INTENTIONALLY ROUGHENED TO AN AMPLITUDE OF 3 MM (MINIMUM)

B. MECHANICAL EQUIPMENT

1. DIMENSIONS, LOCATIONS, AND SIZES OF EQUIPMENT SUPPORTS, PADS, AND ROOF OR WALL OPENINGS SHOWN ON THESE DRAWINGS ARE FOR INFORMATION ONLY AND SHALL BE MODIFIED TO SUIT THE SELECTED EQUIPMENT.
2. ANCHOR BOLTS SHALL BE SIZED AND LOCATED AS REQUIRED BY THE EQUIPMENT MANUFACTURER'S SHOP DRAWINGS. A MINIMUM DISTANCE OF 150 MM SHALL BE MAINTAINED FROM CENTER OF ANCHOR BOLT TO EDGE OF EQUIPMENT PAD.
3. SEE MECHANICAL DRAWINGS FOR ADDITIONAL PIPES, RISERS, VENTS, AND DUCTS WHICH PENETRATE THE ROOF, FLOOR OR WALL.
4. CONCRETE PLACED OVER PIPING SHALL BE POURED ONLY AFTER THE PIPING HAS BEEN INSPECTED, TESTED AND APPROVED.

DESIGN DATA

A. CONCRETE

1. ROOF : LIVE 100 KG/SQ M
SNOW 75 KG/SQ M
2. FLOOR : (LIVE) 250 KG/SQ M
OFFICES 300 KG/SQ M
TOILETS
OTHERS (SEE TM 5-809-1, TABLE 4-1)
3. WIND : V = 128 KM/H
BASIC WIND SPEED I = 1.0
IMPORTANCE FACTOR C
EXPOSURE CATEGORY Kh = 0.82
EXPOSURE COEFFICIENT qh = 0.00256 kh (I V)² = 65 KG/SQ M
VELOCITY PRESSURE
4. SEISMIC : ZONE SEUL 0 PUSAN 1
KIMHAE 0 KWANGJU 1

B. FOUNDATIONS :

1. DESIGN PARAMETERS : 10 TON/SQ M
BEARING CAPACITY
FROST DEPTH 1,200 MM (SEOUL, CP CASEY, CP PAGE)
1,050 MM (OSAN AB, CP HUMPHREYS, CP LONG)
900 MM (TAEJON, KIMCHON)
750 MM (CP CARROLL CP HENRY)
600 MM (PUSAN)

C. MATERIAL STRENGTHS :

1. CONCRETE MINIMUM COMPRESSIVE STRENGTH AT 28 DAYS :
ALL CONCRETE UNLESS NOTED OTHERWISE
CLASS A $f'_c = 3,000$ PSI (210 KGF/SQ CM)
THRUST BLOCKS AND OTHER PLAIN CONCRETE
CLASS C $f'_c = 2,000$ PSI (140 KGF/SQ CM)
2. CONCRETE MASONRY UNITS (CMU)
CMU STRENGTH $f'_m = 1,350$ PSI (95.5 KGF/SQ CM)
GROUT STRENGTH $f'_c = 2,000$ PSI (140 KGF/SQ CM)
MORTAR TYPE "S"
3. METAL YIELD STRENGTHS (F_y) OR TENSILE STRENGTH (F_u)
REINFORCING BARS $f_y = 40,000$ PSI (30 KGF/SQ MM)
WELDED WIRE FABRIC $f_y = 65,000$ PSI (45 KGF/SQ MM)
STRUCTURAL STEEL $F_y = 34,000$ PSI (24 KGF/SQ MM)
COLD - FORMED STEEL SHAPES $F_y = 35,000$ PSI (25 KGF/SQ MM)
PROTECTED METAL ROOFING $F_y = 33,000$ PSI (24 KGF/SQ MM)
MACHINE / ANCHOR BOLTS $F_u = 60,000$ PSI (40 KGF/SQ MM)
HIGH STRENGTH BOLTS $F_u = 120,000$ PSI (85 KGF/SQ MM)
WELDING ELECTRODES $F_u = 60,000$ PSI (43 KGF/SQ MM)

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REV DATE

DWG NO.

TITLE

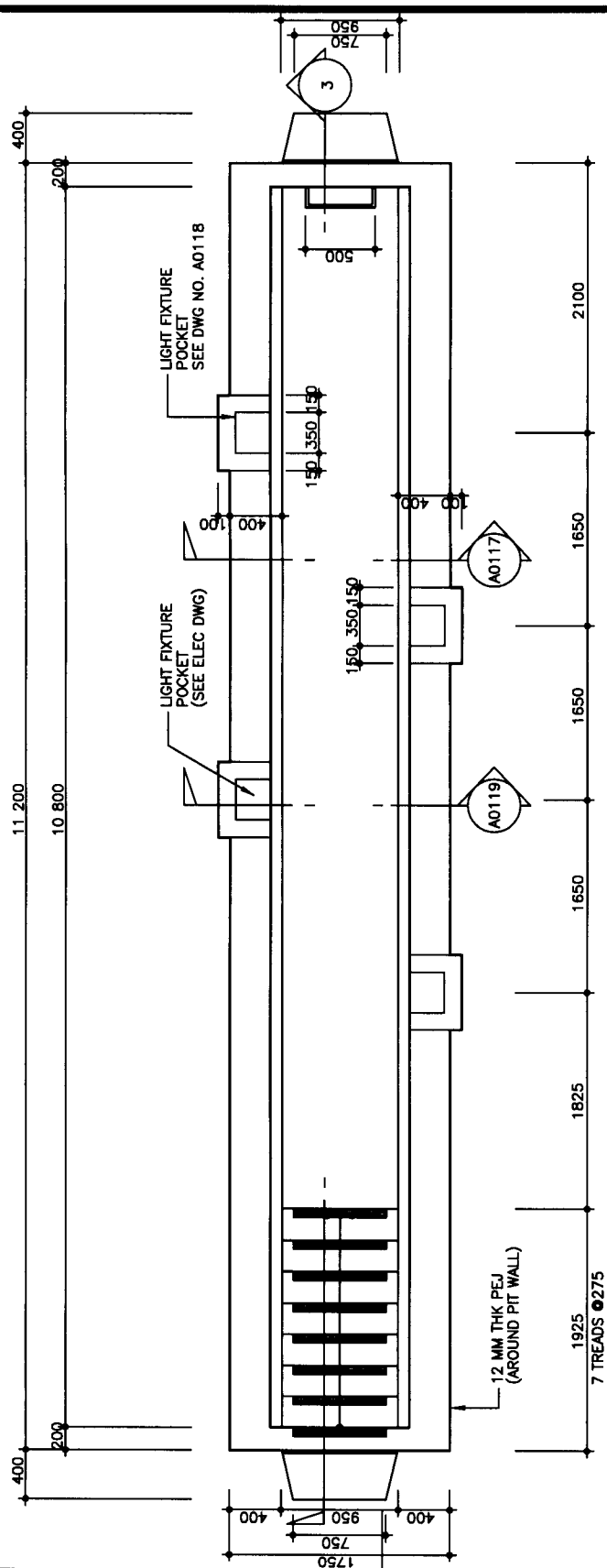
CONCRETE, DESIGN DATA

SPEC

03300

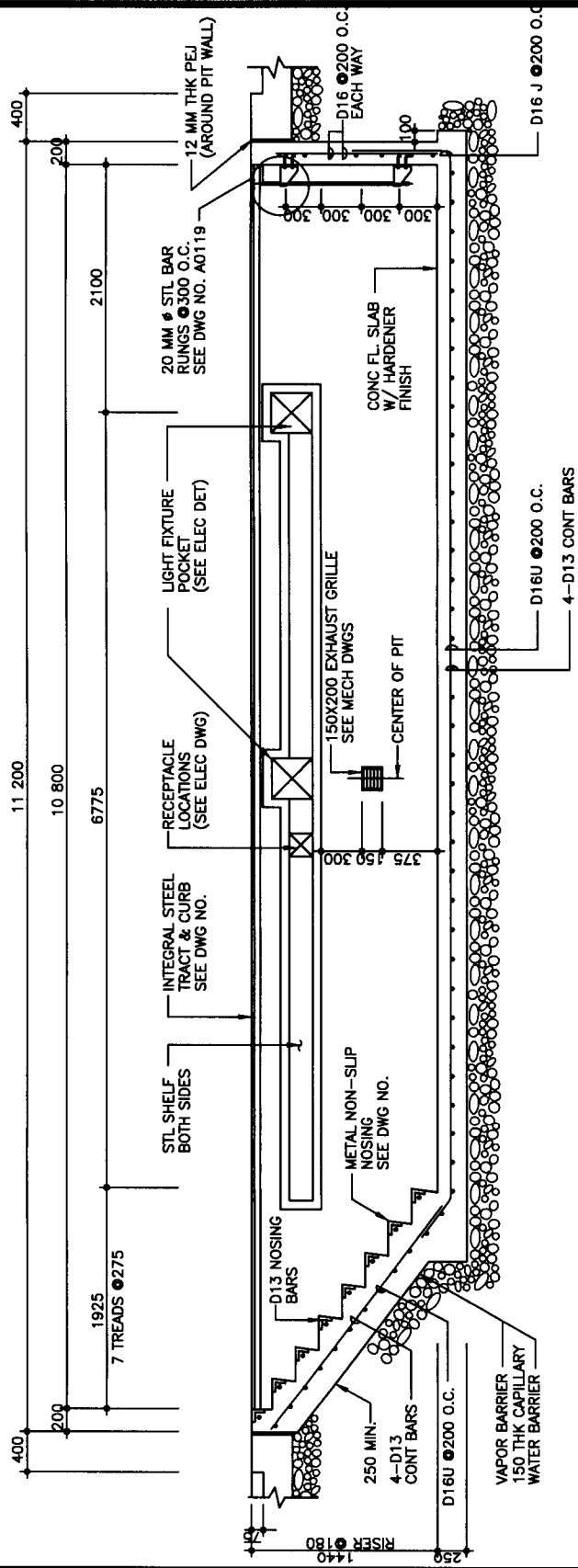
OCT 2003

A0114



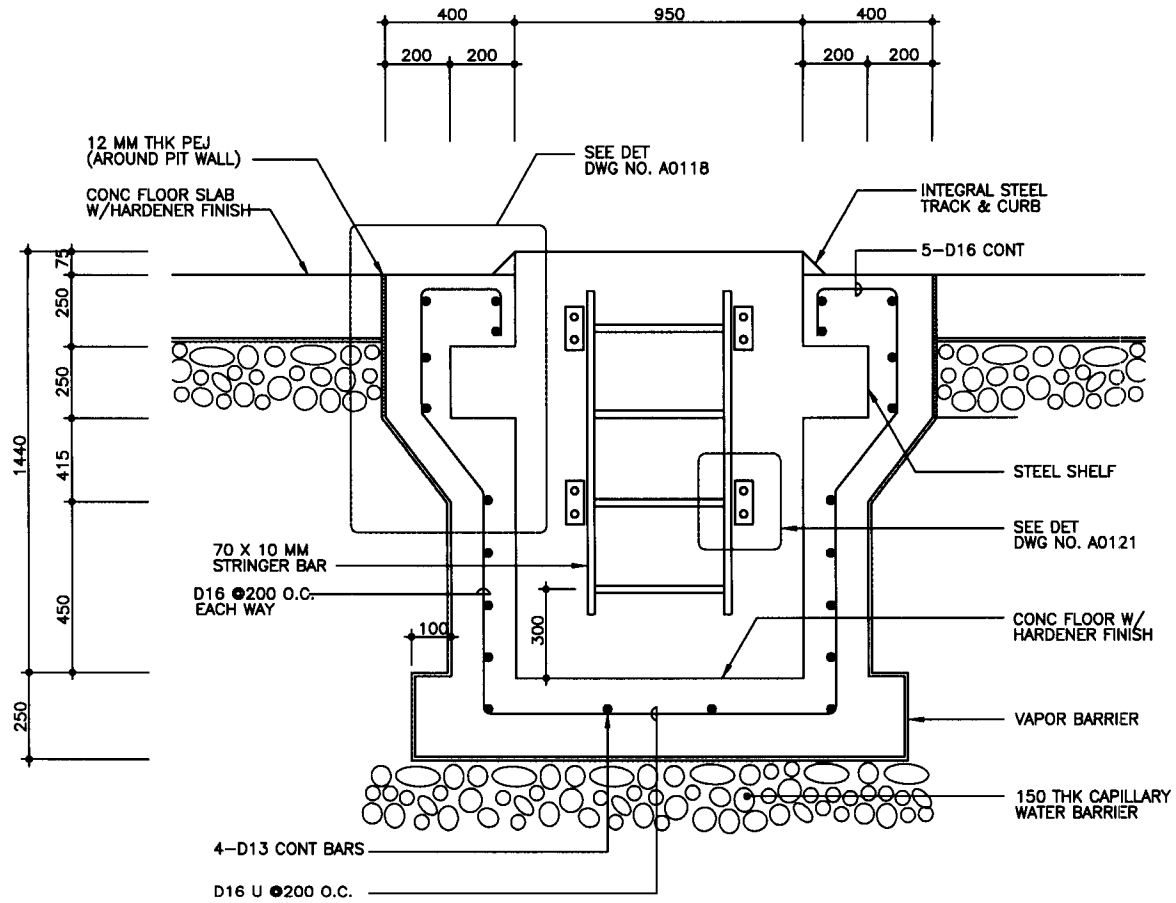
PIT PLAN

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER		REV DATE	DWG NO.
TITLE	PIT PLAN- 1	SPEC 03300	A0115
		OCT 2003	



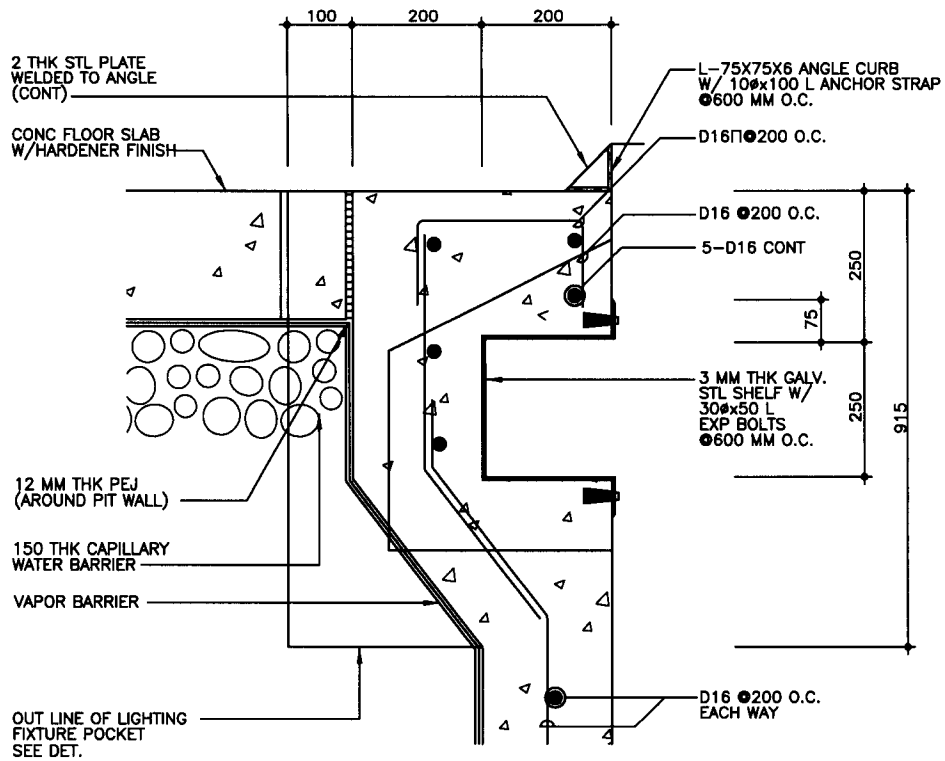
CROSS SECTION

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER		REV DATE	DWG NO.
TITLE	PIT CROSS SECTION - 2	SPEC	03300
		OCT 2003	A0116



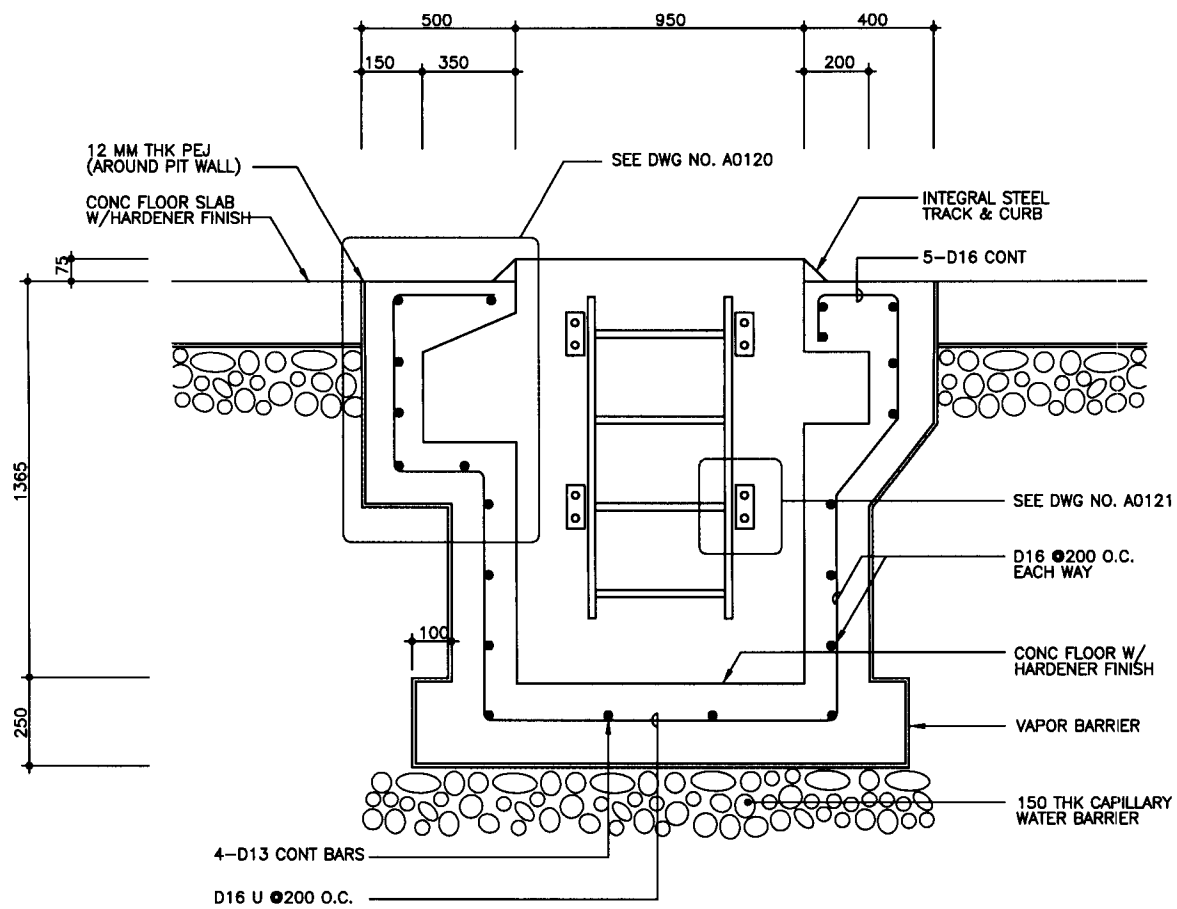
CROSS SECTION

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	PIT SECTION - 3	SPEC	03300	OCT 2003	A0117



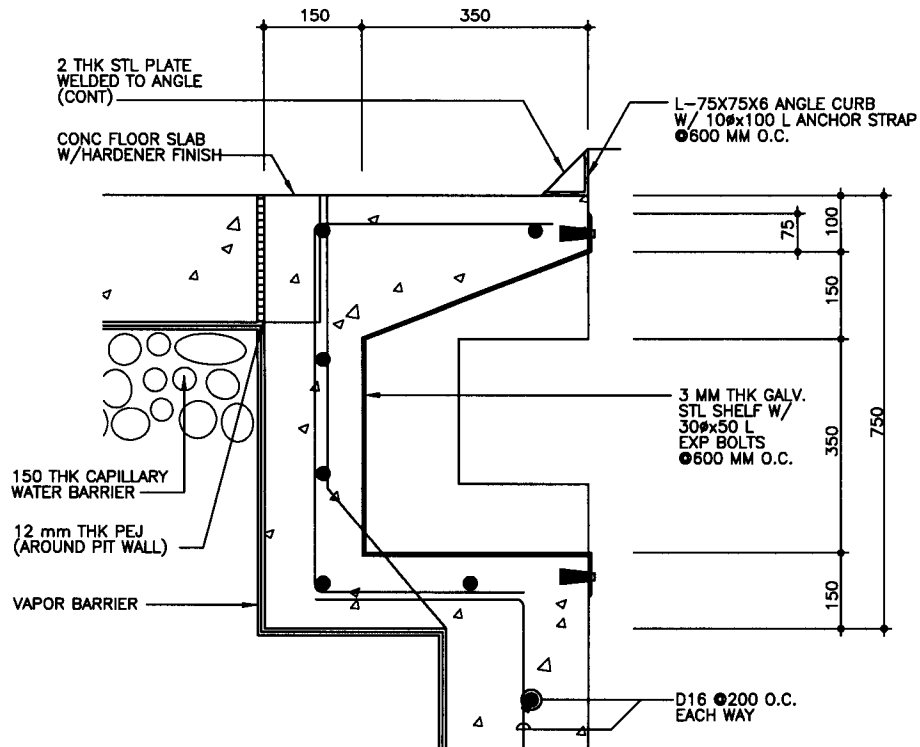
DETAIL

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	PIT DETAIL-4	SPEC	03300	OCT 2003	A0118



CROSS SECTION

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	PIT SECTION - 5	SPEC	03300	OCT 2003	A0119



DETAIL

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER

REV DATE

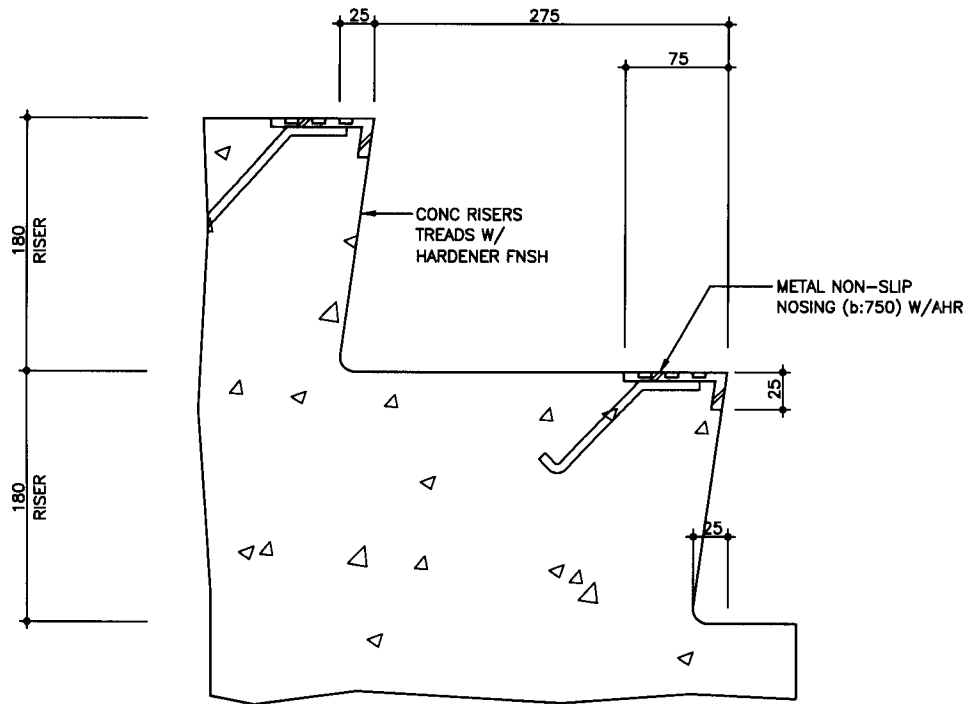
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TITLE PIT SECTION - 6

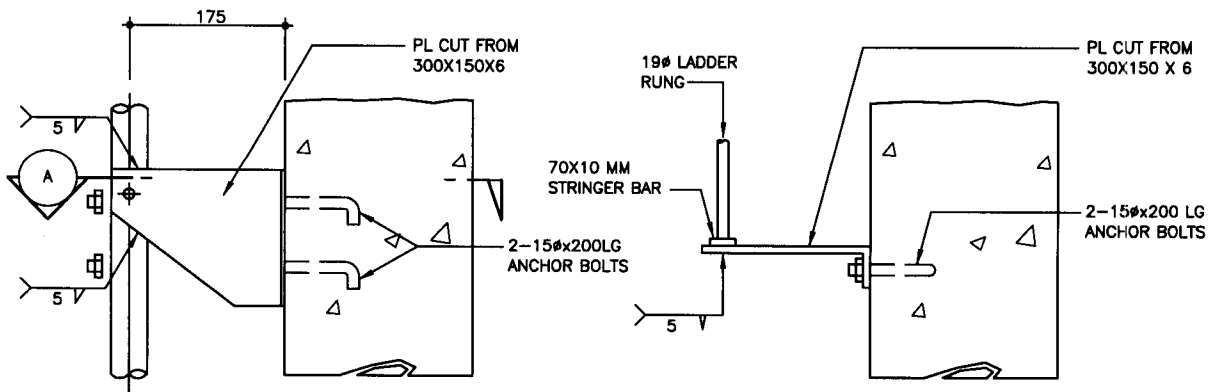
SPEC 03300

OCT 2003

A0120



DETAIL



DETAIL

A DETAIL

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER

REV DATE

DWG NO.

TITLE PIT DETAIL-7

SPEC 03300

OCT 2003

A0121

400 DEEP CONC BOND
BEAM W/ 4-D13 BARS
& D10 TIES @250 O.C.

THK 50 FIBER GLASS
BLANKET INSULATION

D13 BARS @800 O.C.

12 MM GWB CEILING

200 THK CMU WALL

38 MM STEEL
RUNNER CHANNEL

REINF WIRE AT EVERY
OTHER COURSE

2400 CEILING HEIGHT

THK 50 FIBER GLASS
BLANKET INSULATION

38 MM STEEL STUD
@450 O.C.

38 MM STEEL
BASE CHANNEL

100 MM WALL BASE

VCT FIN.

GL.

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER

REV DATE

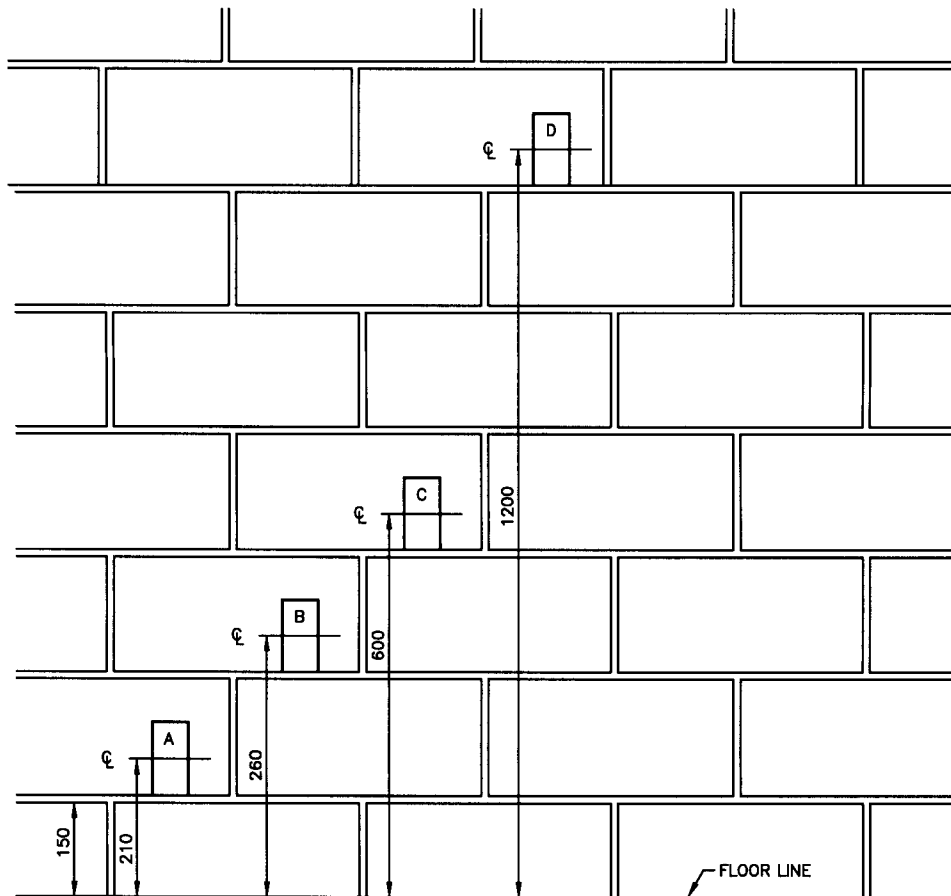
DWG NO.

TITLE MASONRY

SPEC 04200

OCT 2003

A0201



**OUTLET BOX LOCATIONS IN
NOM. 200 X 400 GLAZED TILE
OR CONCRETE BLOCK**

LEGEND

- A. USE WHERE FIN TUBE RADIATORS ARE INSTALLED SEE NOTE 2.
- B. STANDARD LOCATION WHEN SPECIFIED AS 300 UP.
- C. USE IN GARAGES OR AREAS REQUIRING MIN. 450 UP FROM FLOOR.
- D. TYPICAL SWITCH LOCATION.

NOTES :

- 1. DIMENSIONS SHOWN ARE APPROXIMATE AND WILL VARY ACCORDING TO BLOCK SIZE AND AS NOTED ABOVE.
- 2. WHEN SPACE DOES NOT PERMIT, MOUNT BOX ABOVE RADIATOR IN SAME RELATIVE POSITION IN BLOCK.

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REV DATE

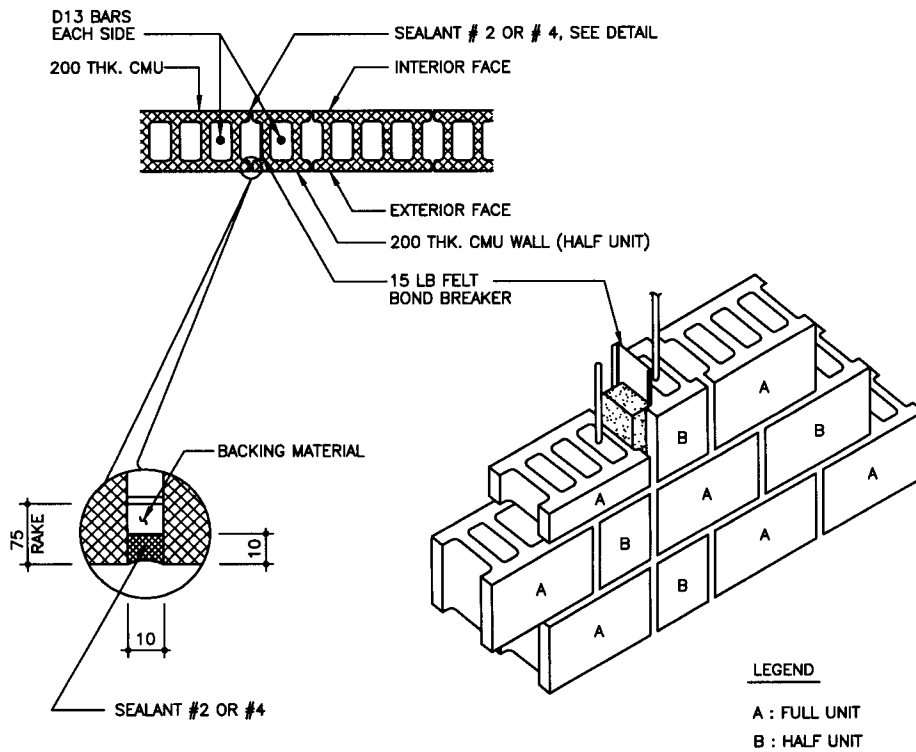
DWG NO.

TITLE MASONRY, OUTLET BOX LOCATIONS

SPEC 04200

OCT 2003

A0202



GENERAL NOTES

1. FOR JOINT CAULKING DETAILS, SEE STANDARD DRAWING
2. ALL DETAILS SHOWN ON THIS DRAWING ARE BASED ON USE OF ASTM C-90 CMU (COMPRESSIVE STRENGTH @28 DAYS $f_m' = 95 \text{ KGF/SQ CM}$).
3. FOR CMU REINFORCEMENT, LAP SPLICE LENGTH SHALL BE 300 OR 24D WHICHEVER IS LONGER.
4. JOINT REINFORCEMENT SHALL BE PLACED SO THAT LONGITUDINAL WIRES ARE CENTERED ON THE WALL OR WYTHE AND ARE FULLY EMBEDDED IN MORTAR FOR THEIR ENTIRE LENGTH.
5. HORIZONTAL JOINT REINFORCEMENT WHERE REQUIRED SHALL BE 2-GA D28 WIRES, TRUSS TYPE OR LADDER TYPE.
6. ALL JOINT REINFORCING SHALL BE DISCONTINUOUS ACROSS CONTROL JOINTS IN MASONRY.

BASIC CONTROL JOINT(C.J.) FOR CMU WALLS

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REV DATE

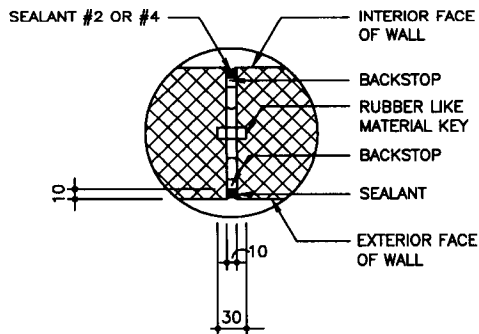
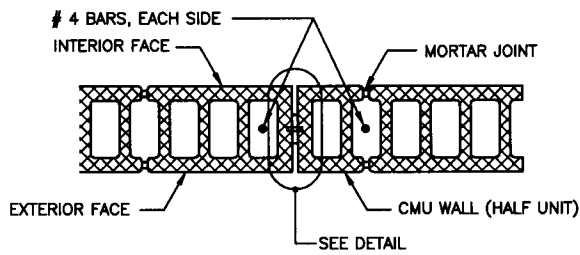
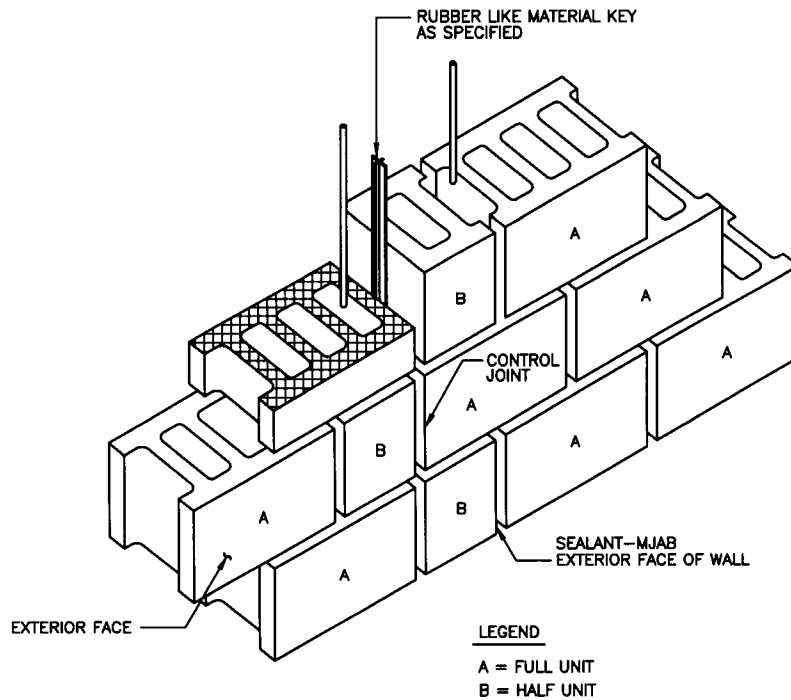
DWG NO.

TITLE CMU DETAILS-1, CONTROL JOINT

SPEC 04200

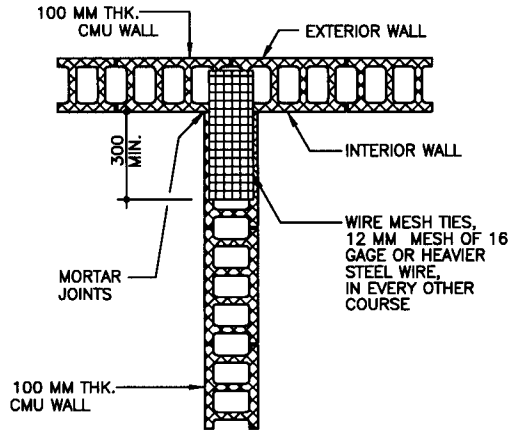
OCT 2003

A0203

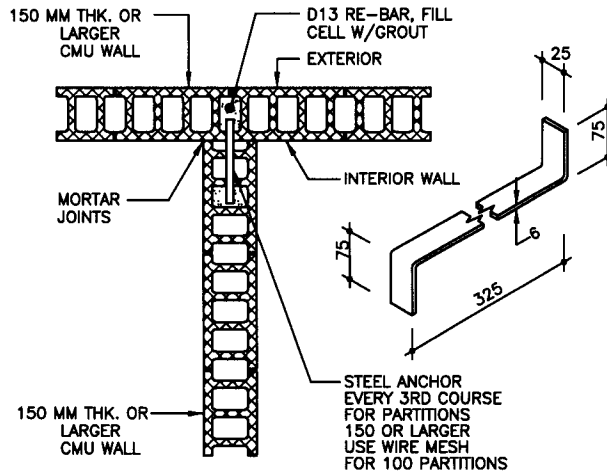


ALTERNATE BASIC CONTROL JOINT DETAIL

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER			REV DATE	DWG NO.
TITLE	CMU DETAILS-2, CONTROL JOINT	SPEC	04200	OCT 2003
				A0204

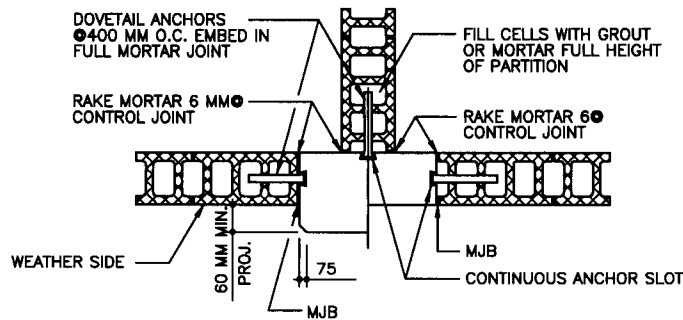


FOR WALLS = 100 MM THK.



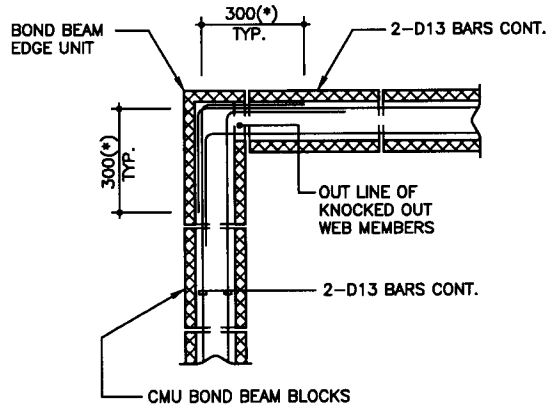
FOR WALLS > 100 MM THK.

CMU CORNER OR INTERSECTION DETAILS



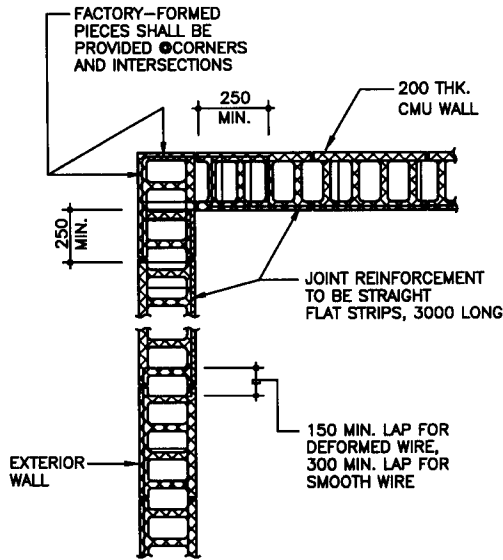
EXPOSED CONCRETE COL. FRAME

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	CMU DETAILS-3	SPEC	04200	OCT 2003	A0205



●CORNER OF CMU BOND BEAM BLOCKS

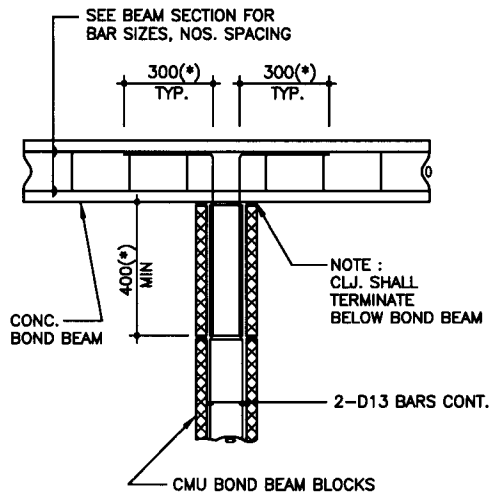
(*) 40d OR 600 WHICHEVER IS GREATER FOR SEISMIC AREAS



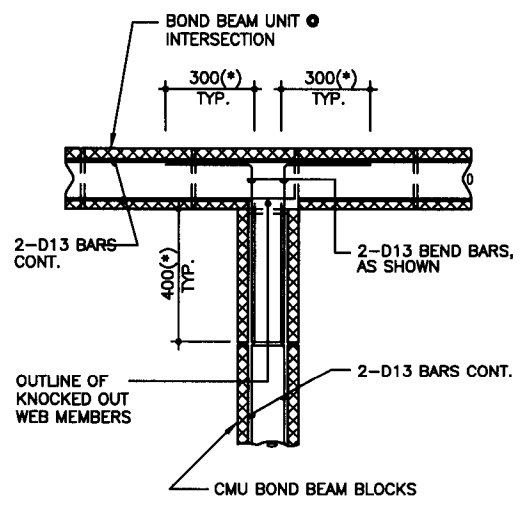
●HORIZONTAL JOINT REINF.

TYPICAL BAR BENDS

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	CMU DETAILS-4	SPEC	04200	OCT 2003	A0206



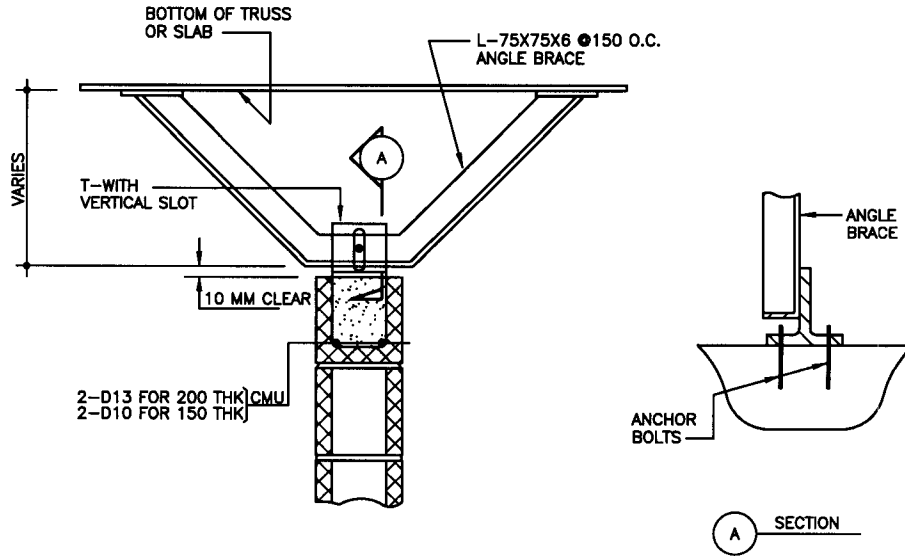
● CONC. & BOND BEAM BLOCKS
 (*) 40d OR 600 WHICHEVER IS GREATER FOR SEISMIC AREAS



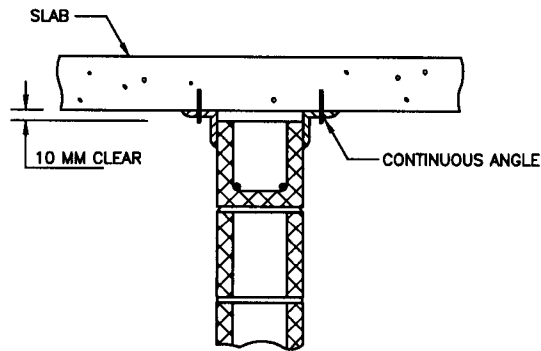
● CMU BOND BEAM BLOCKS
 (*) 40d OR 600 WHICHEVER IS GREATER FOR SEISMIC AREAS

TYPICAL BAR BENDS

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	CMU DETAILS-5	SPEC	04200	OCT 2003	A0207



OVERHEAD BRACING

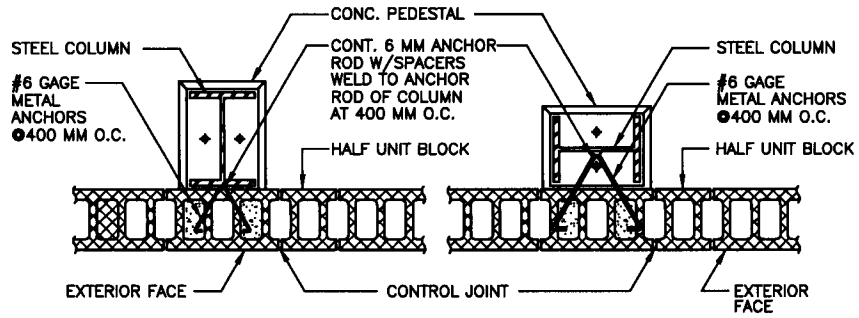


CONTINUOUS ANGLE

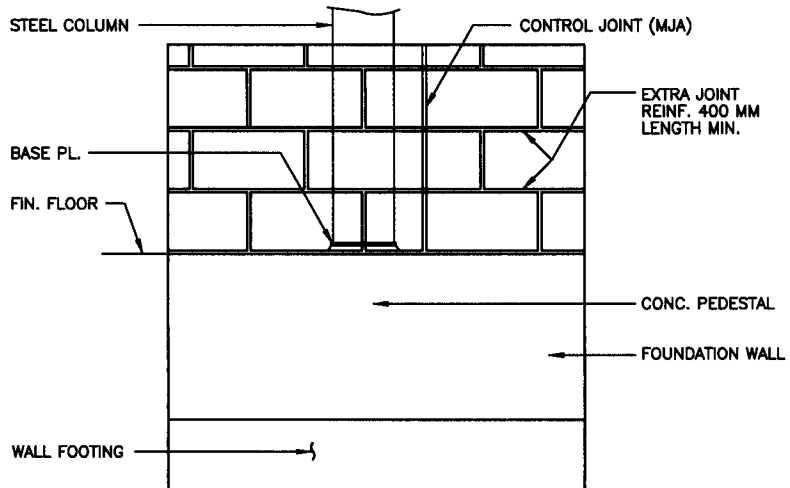
" FOR SEISMIC ZONE 1 ONLY "

DET. FOR ISOLATION OF WALLS

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	CMU DETAILS-6	SPEC	04200	OCT 2003	A0208



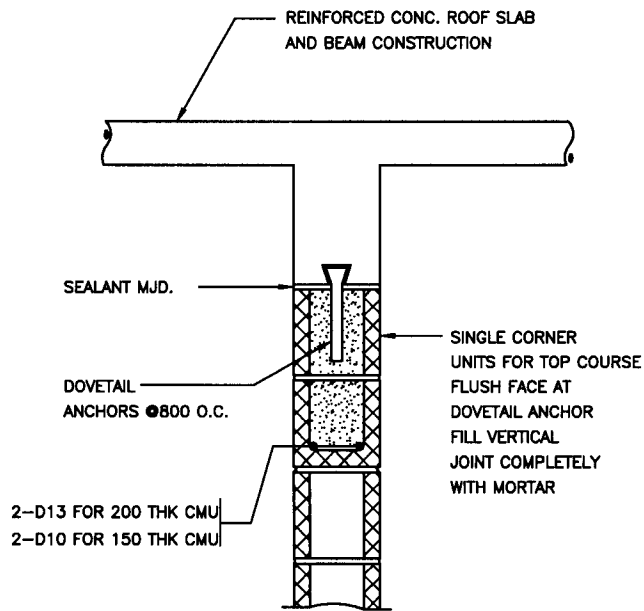
P L A N



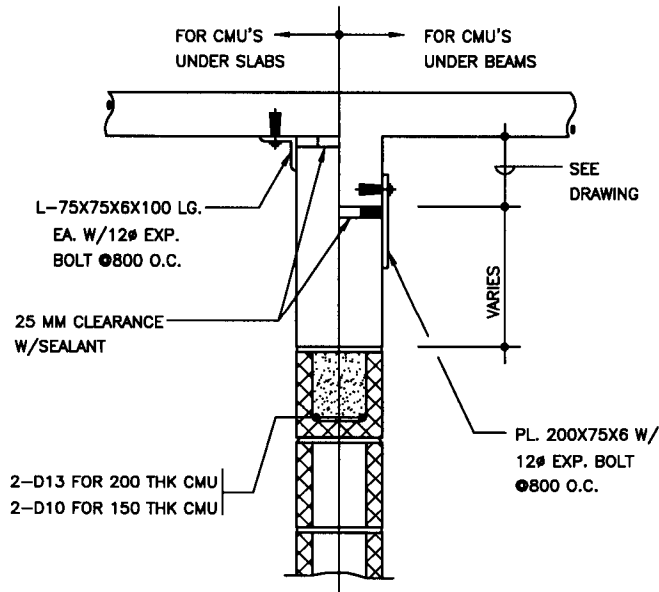
EXTERIOR WALL ELEVATION

CONTROL JOINT AT STEEL COLUMN

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	CMU DETAILS-7	SPEC	04200	OCT 2003	A0209



WHEN WALL HEIGHT MATCH
BLOCK LAYER



WHEN WALL HEIGHT DOES
NOT MATCH BLOCK LAYER

DETAIL FOR TOP OF NON-BEARING WALL

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER

REV DATE

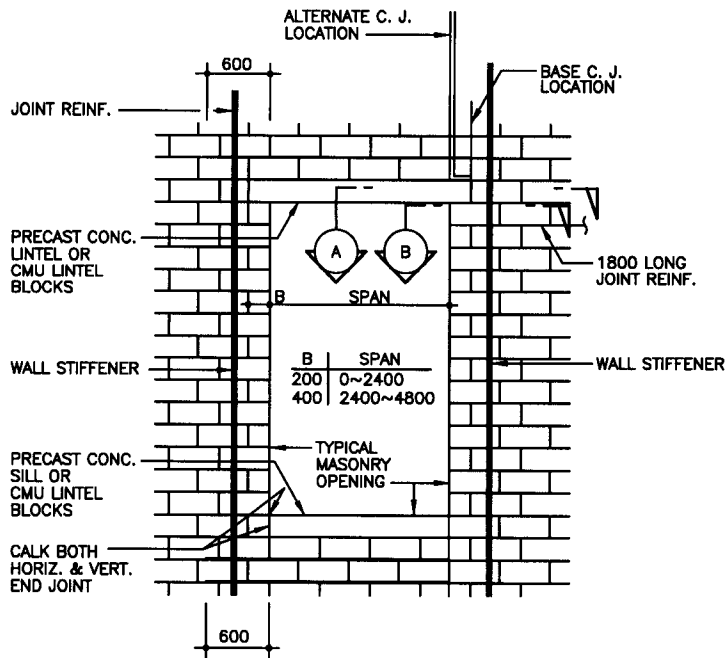
DWG NO.

TITLE CMU DETAILS-8

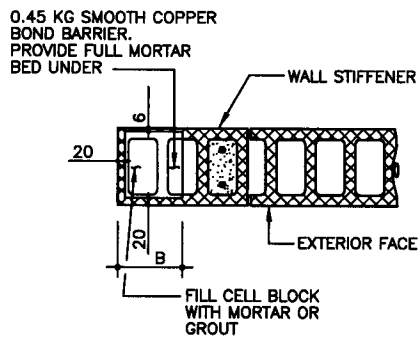
SPEC 04200

OCT 2003

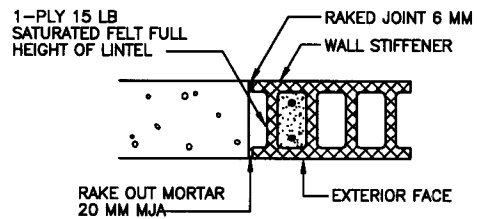
A0210



TWO COURSES JOINT REINF. BELOW SILL AND ABOVE LINTEL REQ'D DISCONTINUE REINF. AT CONTROL JOINTS IF C. J. ARE USED



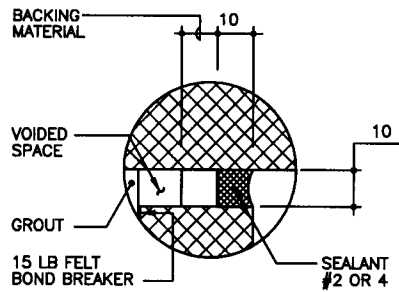
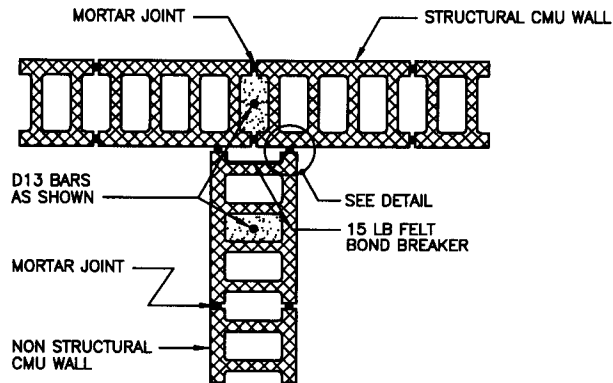
A SECTION



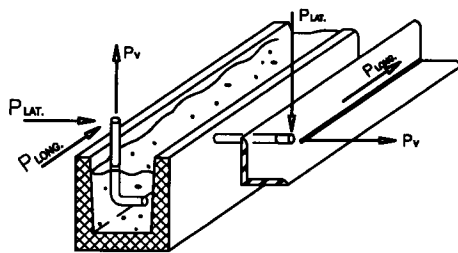
B SECTION

TYP. MASONRY OPENING DETAIL

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	CMU DETAILS-9	SPEC	04200	OCT 2003	A0211



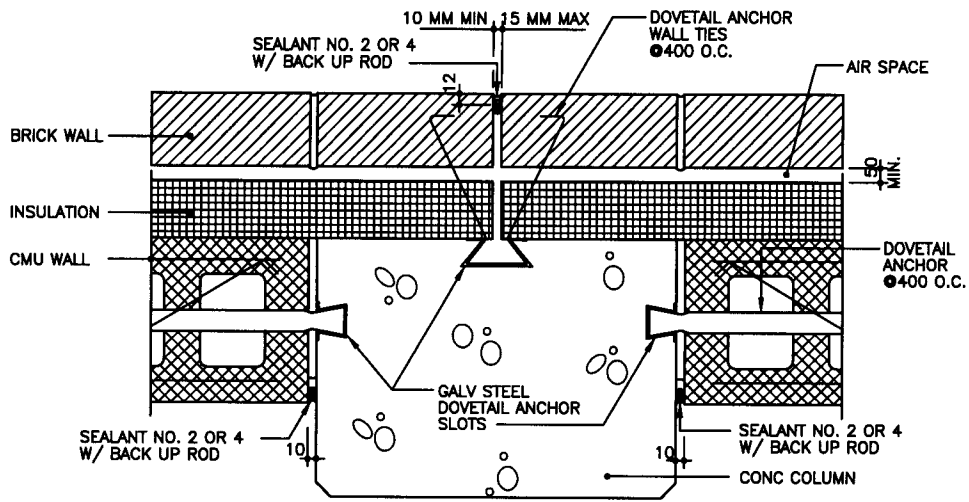
TYP. LOAD BEARING – NON LOAD BEARING INTERSECTION



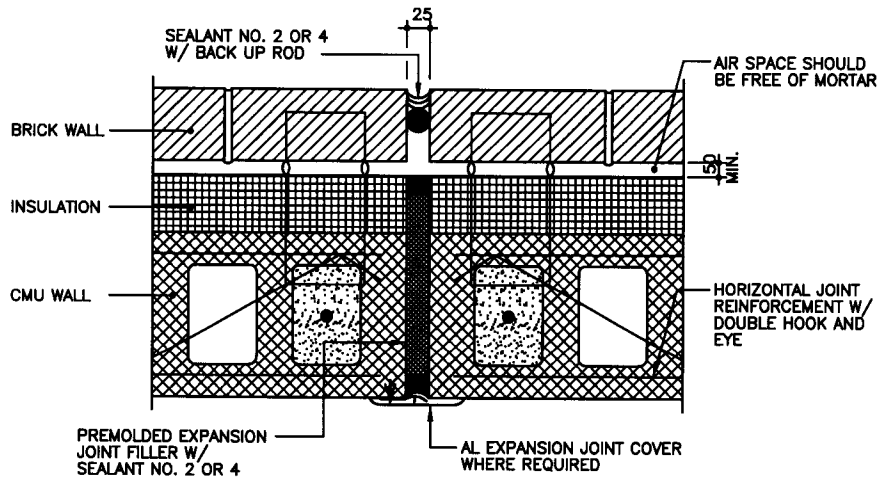
BOLT DIA. (MM)	P _V = P _{UR} (KG)	P _{LONG} (KG)	GROUT EMBED (MM)	EDGE DIST. (MM)
6	45	68	50	50
9	104	158	75	50
12	186	281	100	75
15	290	440	100	75
18	422	630	125	100
21	570	857	150	100
25	748	1120	175	125

ALLOWABLE BOLT LOADS IN MASONRY

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	CMU DETAILS-10	SPEC	04200	OCT 2003	A0212



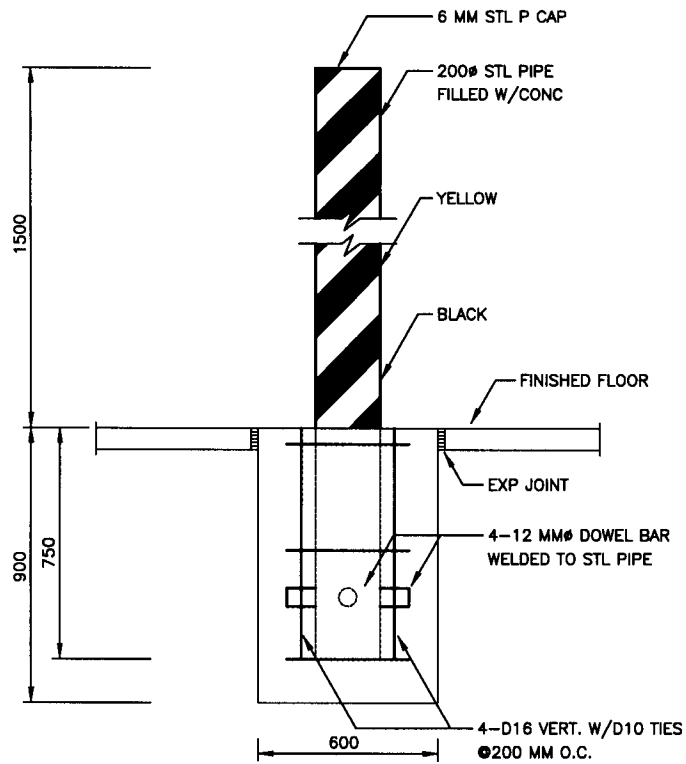
CONTROL JOINT @CONC COLUMN



EXP JOINT @MASONRY CAVITY WALL

CAVITY WALL JOINT DETAILS

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	CMU DETAILS-11	SPEC	04200	OCT 2003	A0213



GUARD POST DETAIL

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER

REV DATE

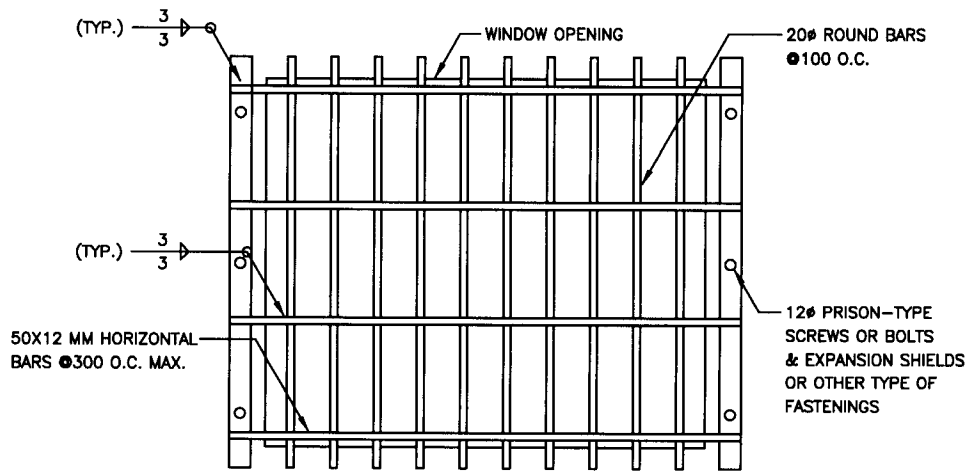
DWG NO.

TITLE GUARD POST DETAIL

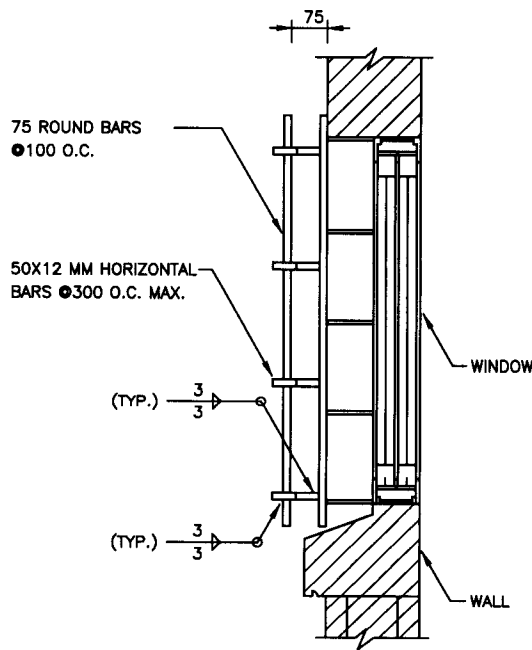
SPEC 05500

OCT 2003

A0301



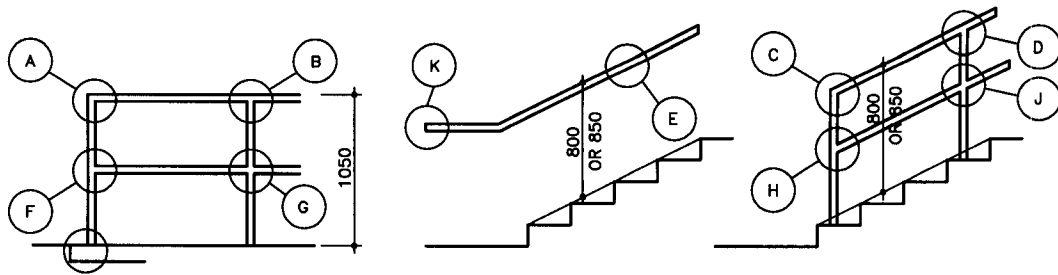
ELEVATION



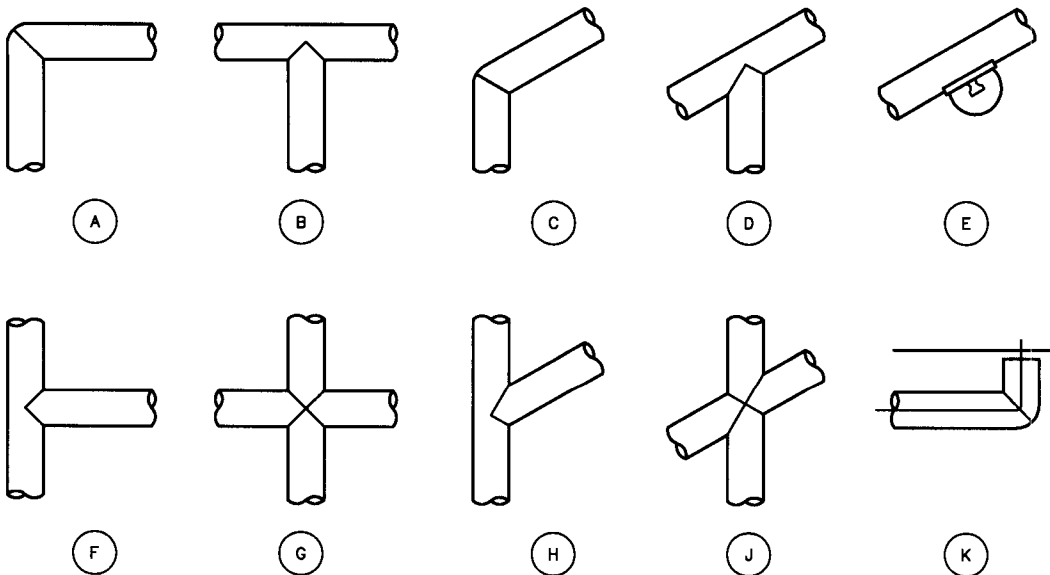
SECTION

WINDOW GUARDS

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	WINDOW GUARDS	SPEC	05500	OCT 2003	A0302

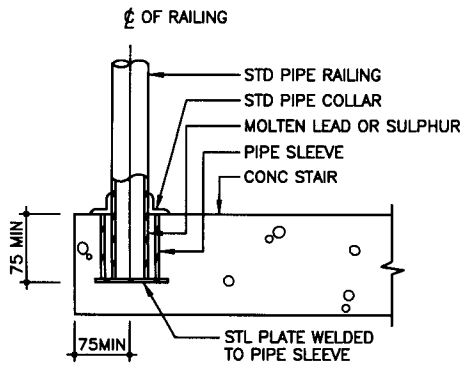


TYP. GUARDRAIL & HANDRAIL ELEVATIONS

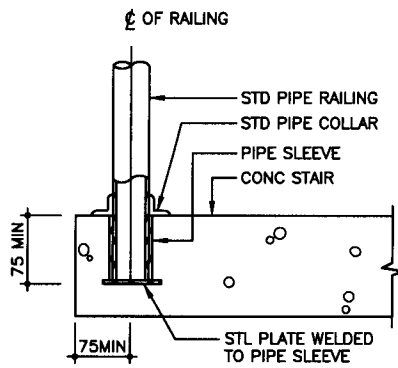


TYP. WELDED FLUSH FITTINGS – CONNECTIONS (38 MM O.D.)

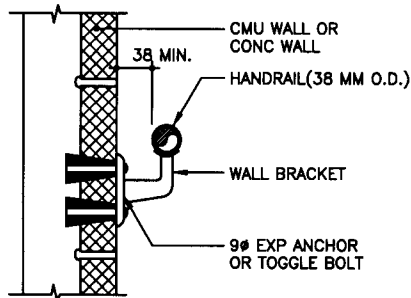
IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	GUARD & HANDRAIL DETAILS-1	SPEC	05500	OCT 2003	A0303



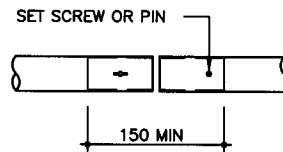
FIXED TYPE DETAILS



REMOVABLE TYPE DETAILS

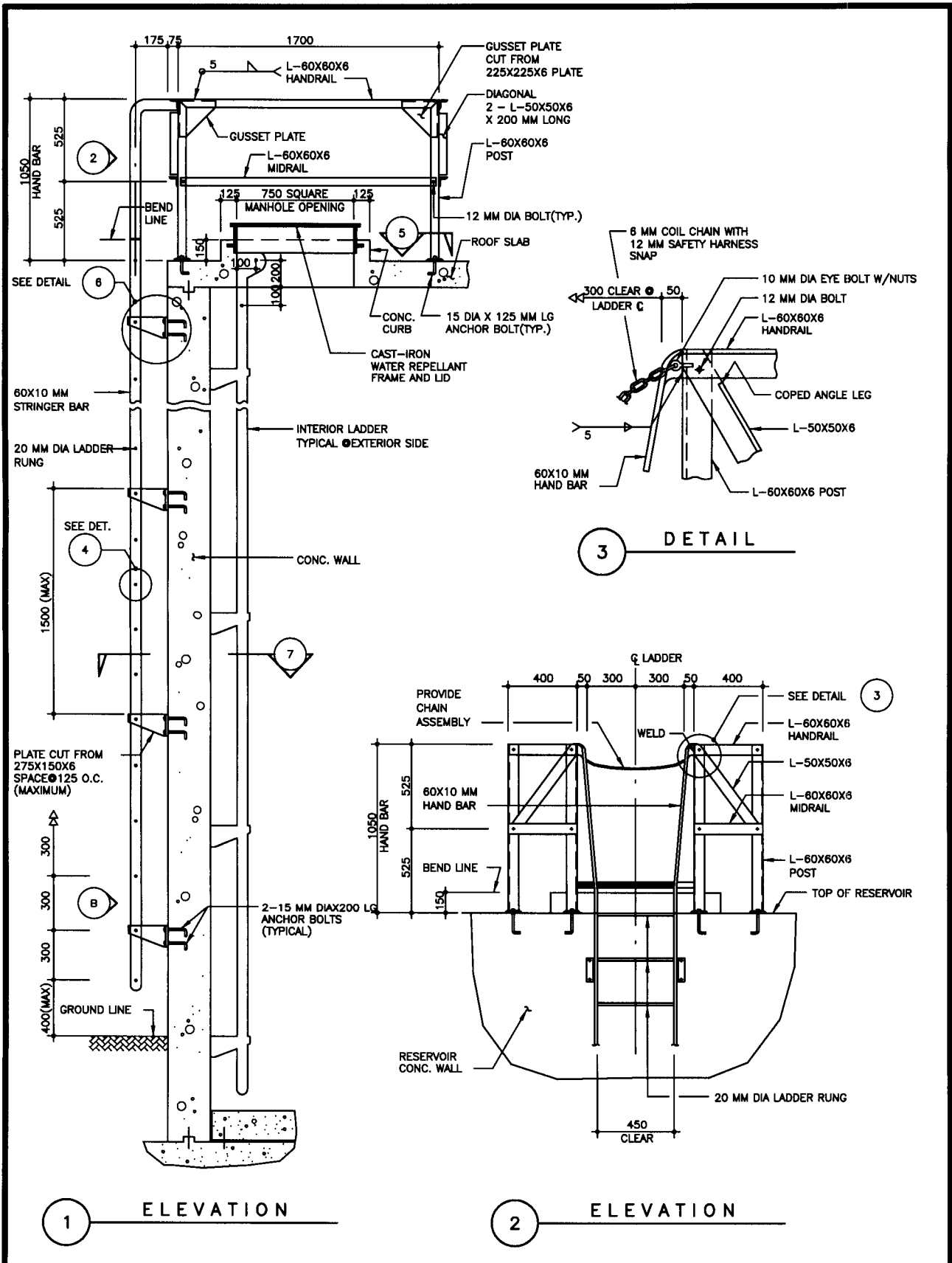


WALL BRACKET DET

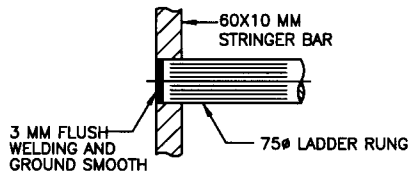


EXP JOINT @ LONG RAILING

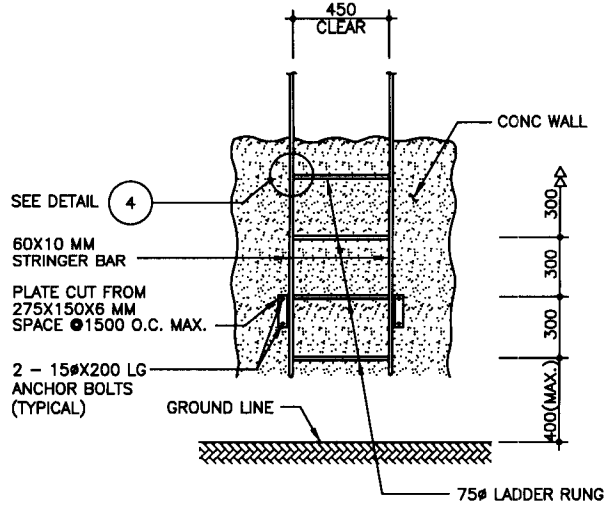
IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	GUARD & HANDRAIL DETAILS-2	SPEC	05500	OCT 2003	A0304



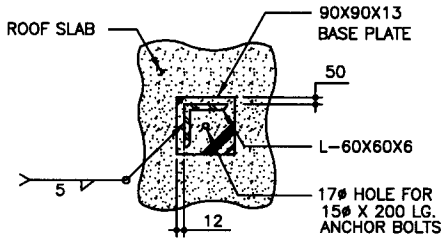
IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER		REV DATE	DWG NO.
TITLE	LADDER DETAILS FOR WATER RESERVOIR-1	SPEC 05500	OCT 2003 A0305



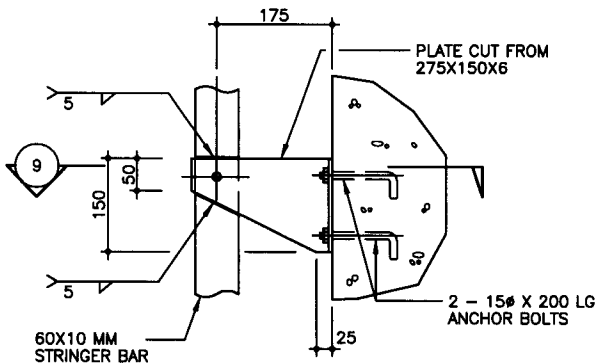
4 DETAIL



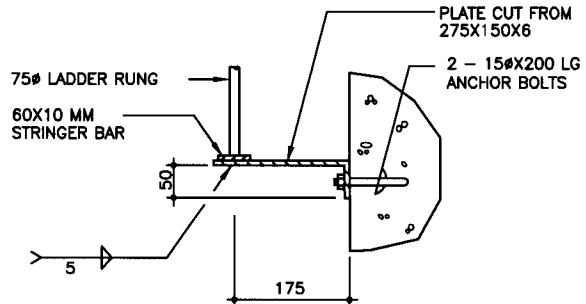
8 ELEVATION



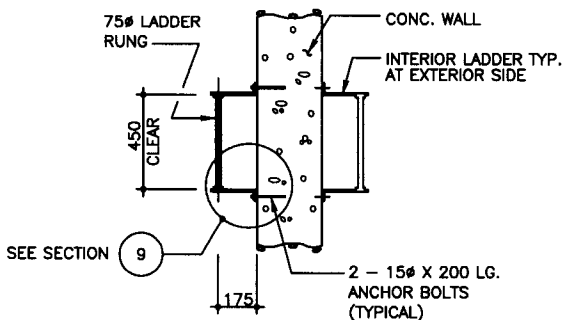
5 SECTION



6 DETAIL



9 SECTION



7 SECTION

NOTES :

- ① ALL BURRS, SHARP EDGES AND CORNERS SHALL BE GROUND SMOOTH
- ② USE 15# BOLTS UNLESS OTHERWISE NOTED. ALL BOLTS SHALL BE HOT DIPPED GALVANIZED
- ③ ALL STRUCTURAL STEEL SHAPES AND PLATES INSIDE WATER TANK SHALL BE HOT DIPPED GALVANIZED AND EPOXY COATED ACCORDING TO SPECIFICATIONS.
- ④ EXTERIOR STRUCTURAL STEEL SHAPES AND PLATES SHALL BE GALVANIZED AND PAINTED PER SPECIFICATIONS.
- ⑤ PROVIDE A MINIMUM OF TWO MANHOLE OPENINGS : FOR ACCESS AT LADDER AND FOR OVERFLOW PIPE.

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER

REV DATE

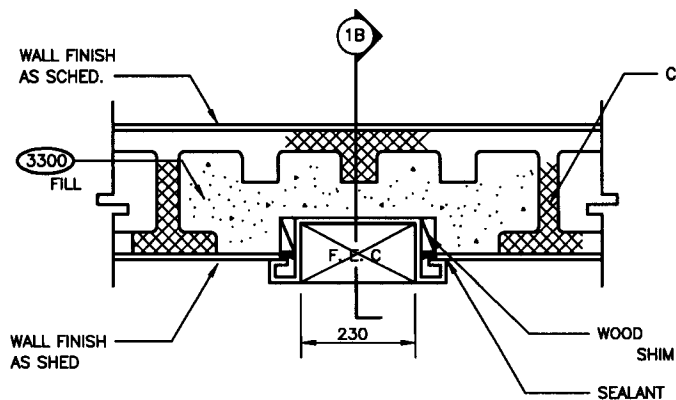
DWG NO.

TITLE LADDER DETAILS FOR WATER RESERVOIR-2

SPEC 05500

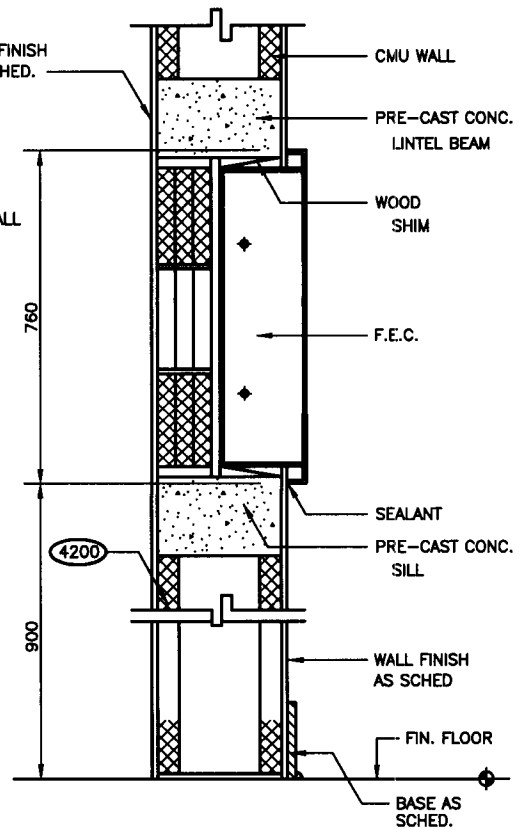
OCT 2003

A0306



1A PLAN

NOTE :
REFER TO FLOOR PLAN
FOR LOCATIONS.

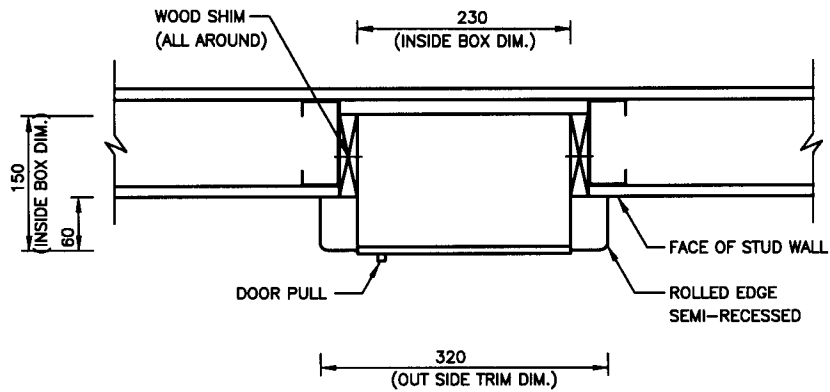


1B SECTION

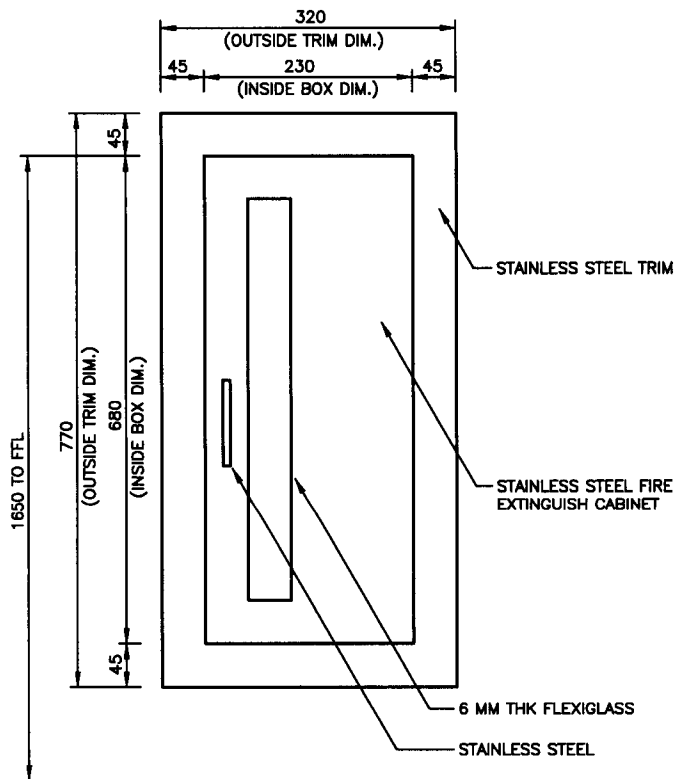
MATERIAL - STAINLESS STEEL(304) TRIM & DOOR
GLASS - 6 MM THK FLEXIGLASS
TANK - #20 GA CHROME STEEL
TRIM & DOOR - #20 GA STAINLESS STEEL

FIRE EXTINGUISHER CABINET

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	FIRE EXTINGUISHER CABINET (CMU WALL)	SPEC	05500	OCT 2003	A0307



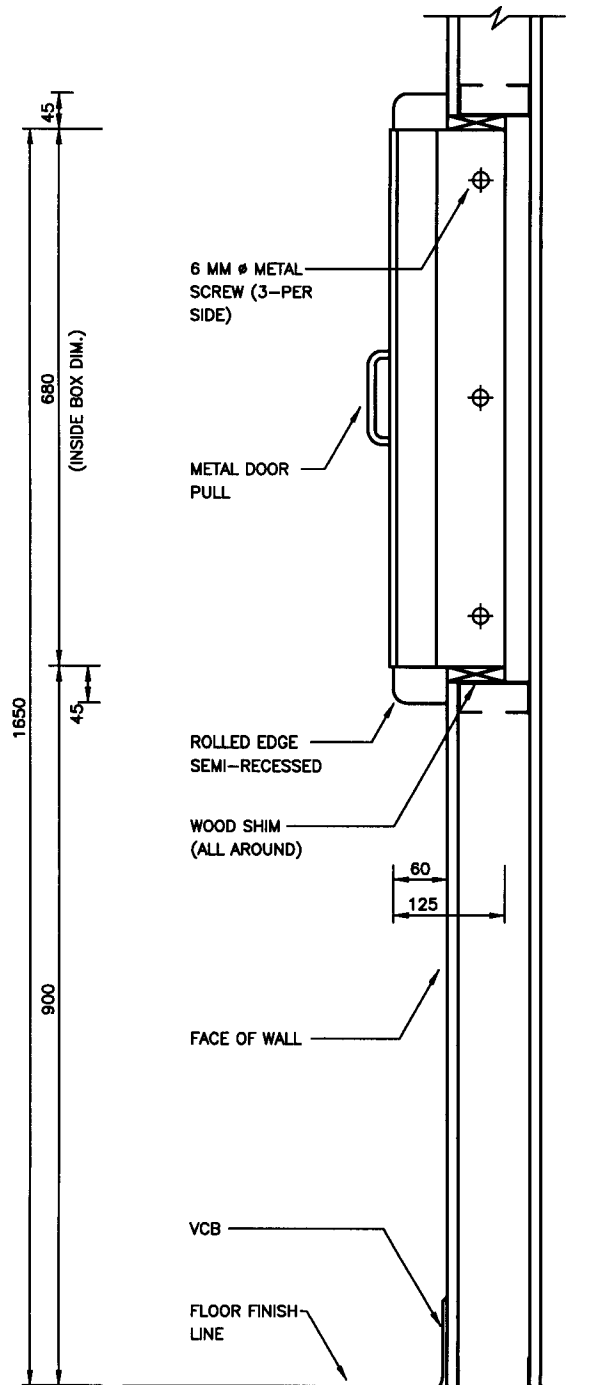
PLAN



ELEVATION

FIRE EXTINGUISHER CABINET DETAILS

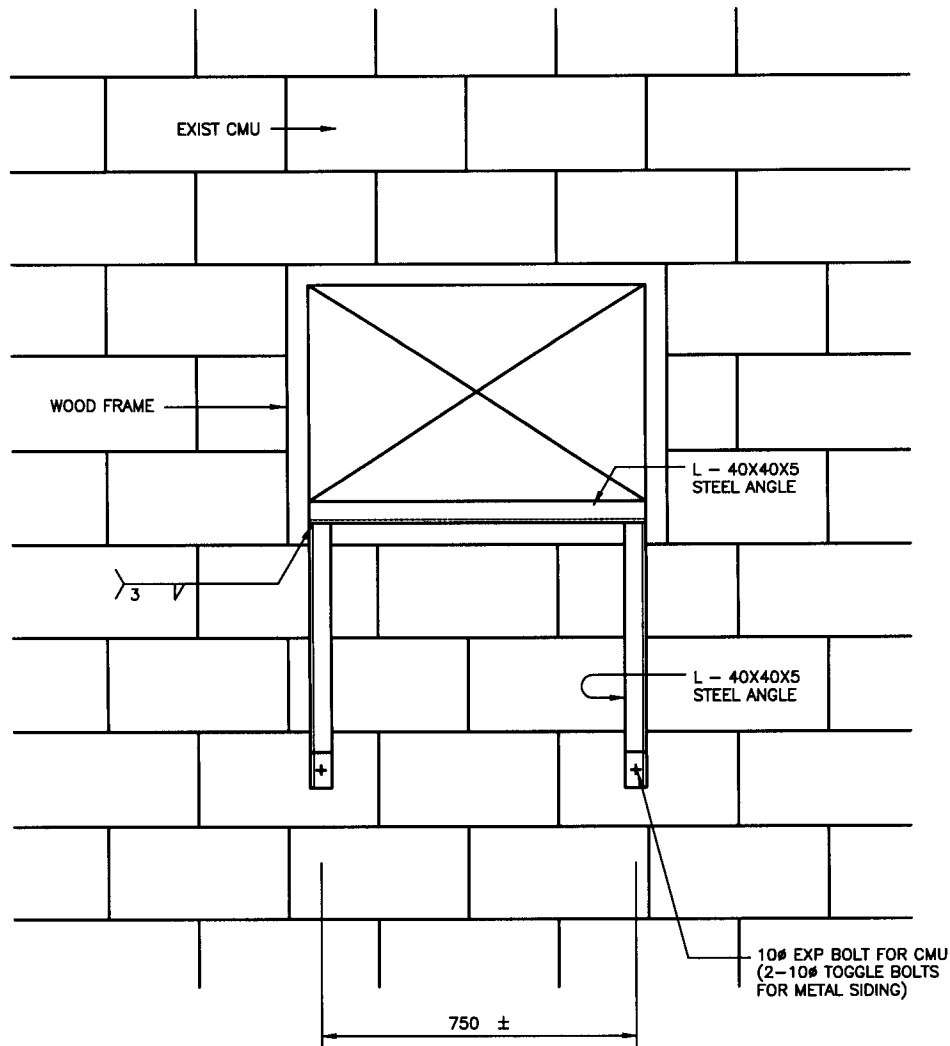
IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	FIRE EXTINGUISHER CABINET DETAILS (DRYWALL)	SPEC	05500	OCT 2003	A0308



SECTION

FIRE EXTINGUISHER CABINET DETAILS

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER			REV DATE	DWG NO.
TITLE	FIRE EXTINGUISHER CABINET DETAILS	SPEC	OCT 2003	A0309

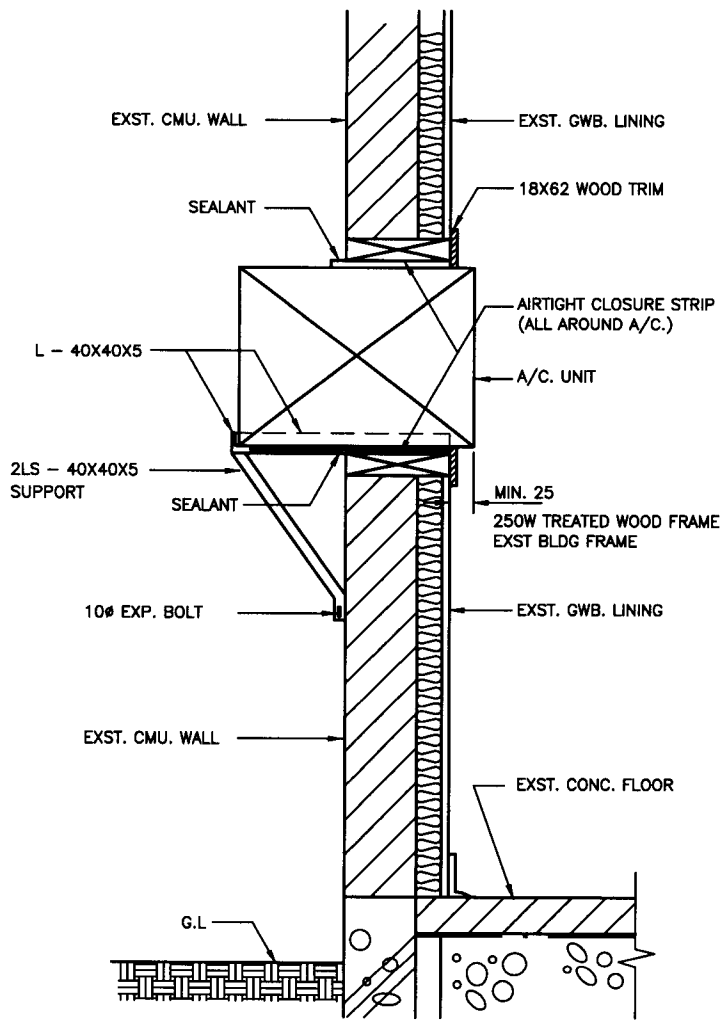


ELEVATION

NOTES

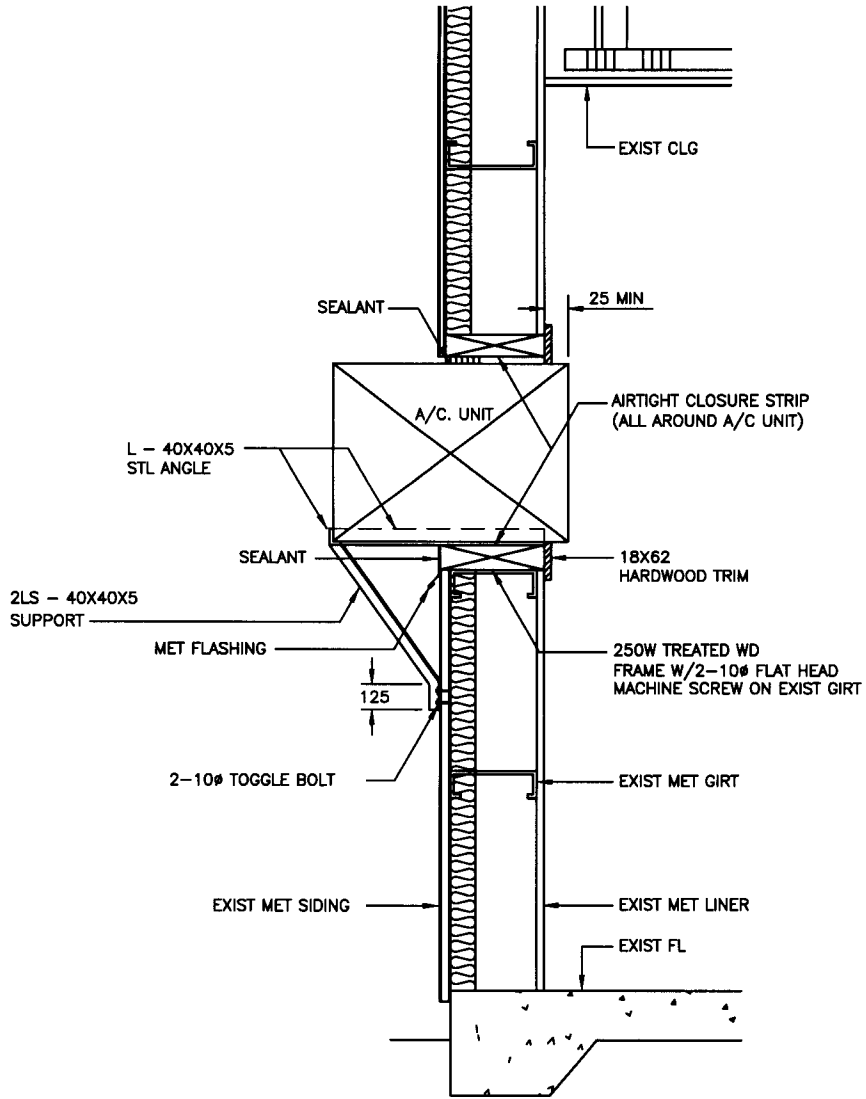
1. Air conditioner must be properly installed in accordance with the manufacturer's installation instructions.
2. Air conditioner must be installed level or tilted slightly to the outside for proper water disposal.

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER			REV DATE	DWG NO.
TITLE	ELEVATION FOR WINDOW TYPE AIR CONDITIONER	SPEC	06100	OCT 2003
				A0401



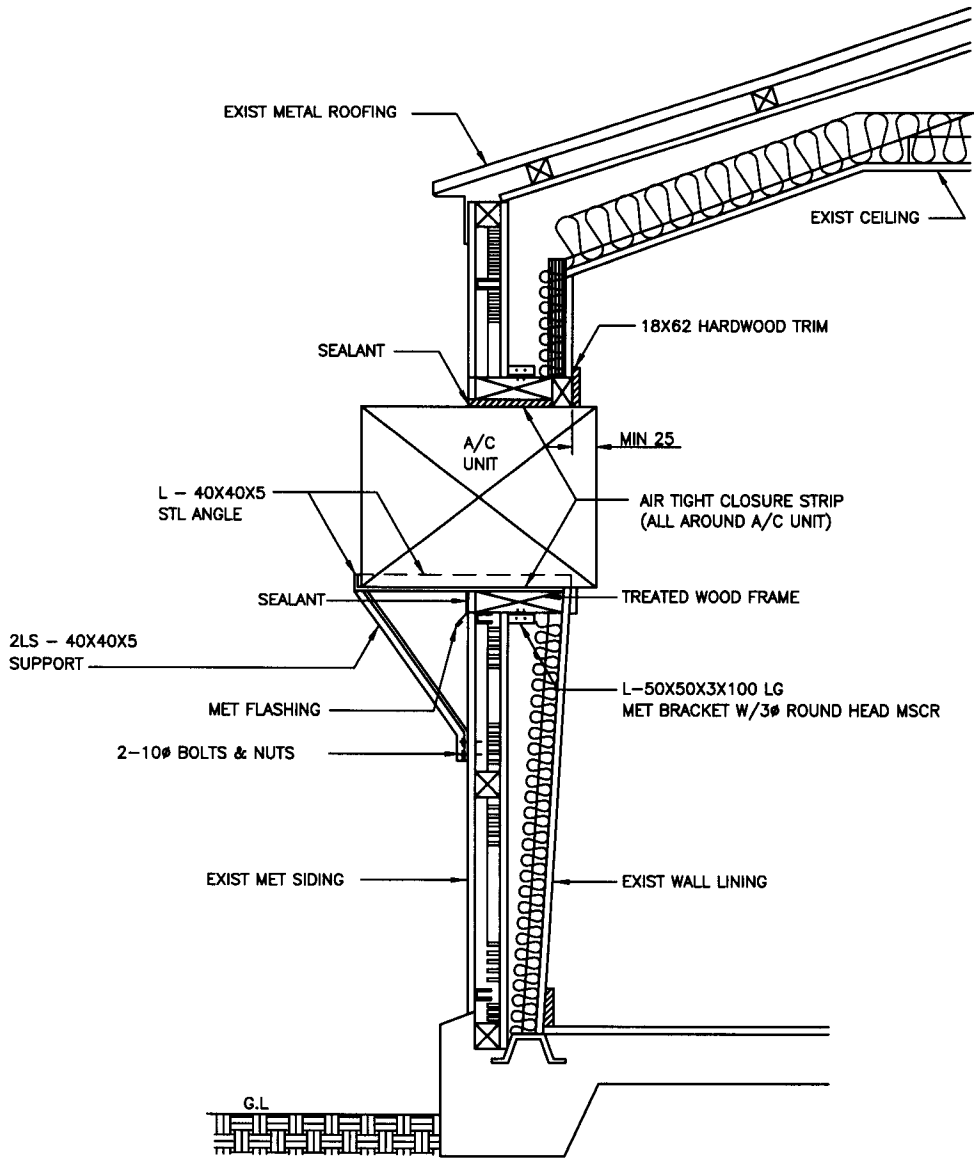
CMU WALL BLDG

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	OPENING DETAIL FOR WINDOW TYPE AIR CONDITIONER	SPEC	06100	OCT 2003	A0402



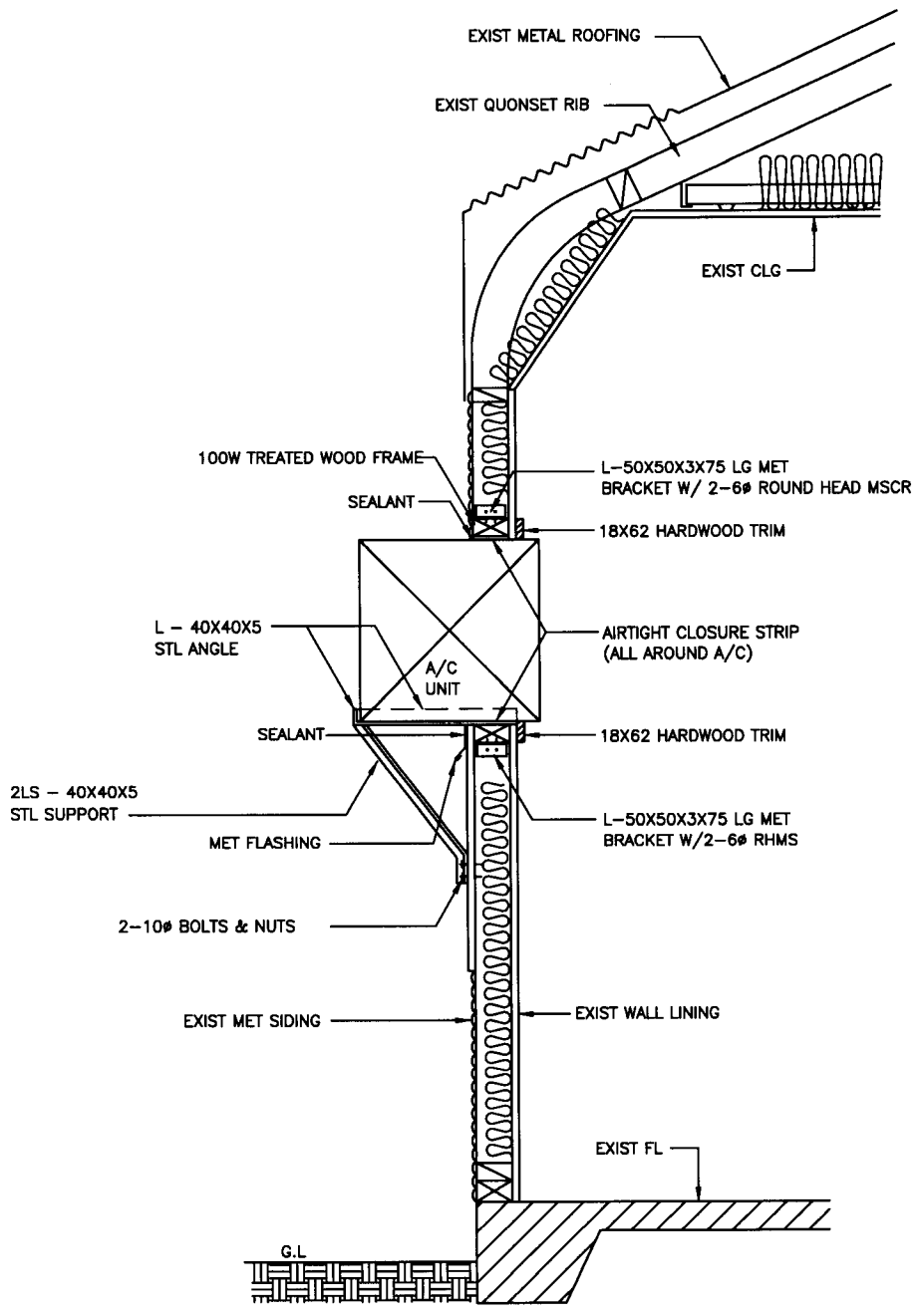
PASCOE TYPE BLDG

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	OPENING DETAIL FOR WINDOW TYPE AIR CONDITIONER	SPEC	06100	OCT 2003	A0403



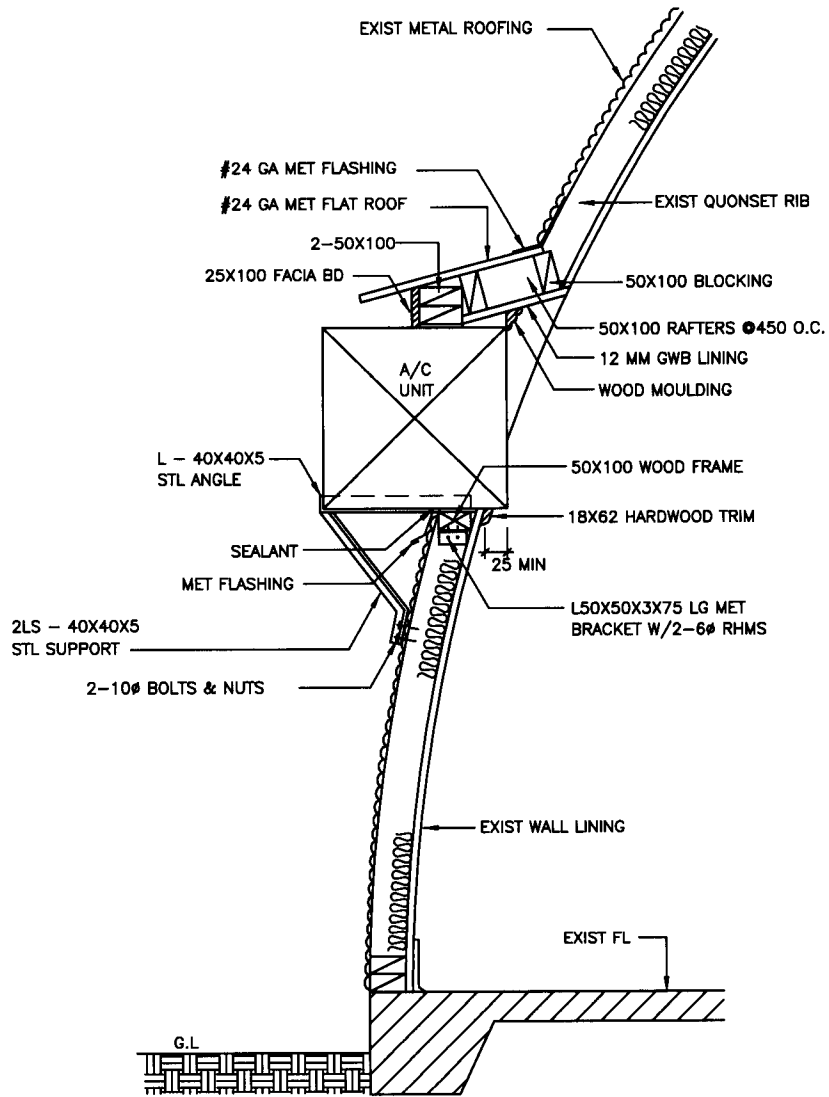
BUTLER TYPE BLDG

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	OPENING DETAIL FOR WINDOW TYPE AIR CONDITIONER	SPEC	06100	OCT 2003	A0404



STRAIGHT WALL QUONSET

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	OPENING DETAIL FOR WINDOW TYPE AIR CONDITIONER	SPEC	06100	OCT 2003	A0405



ROUND WALL QUONSET

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER

REV DATE

DWG NO.

TITLE

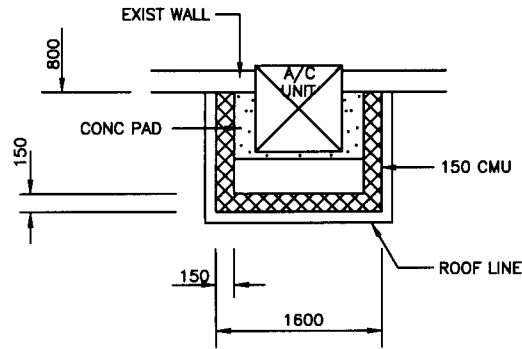
OPENING DETAIL FOR WINDOW TYPE AIR CONDITIONER

SPEC

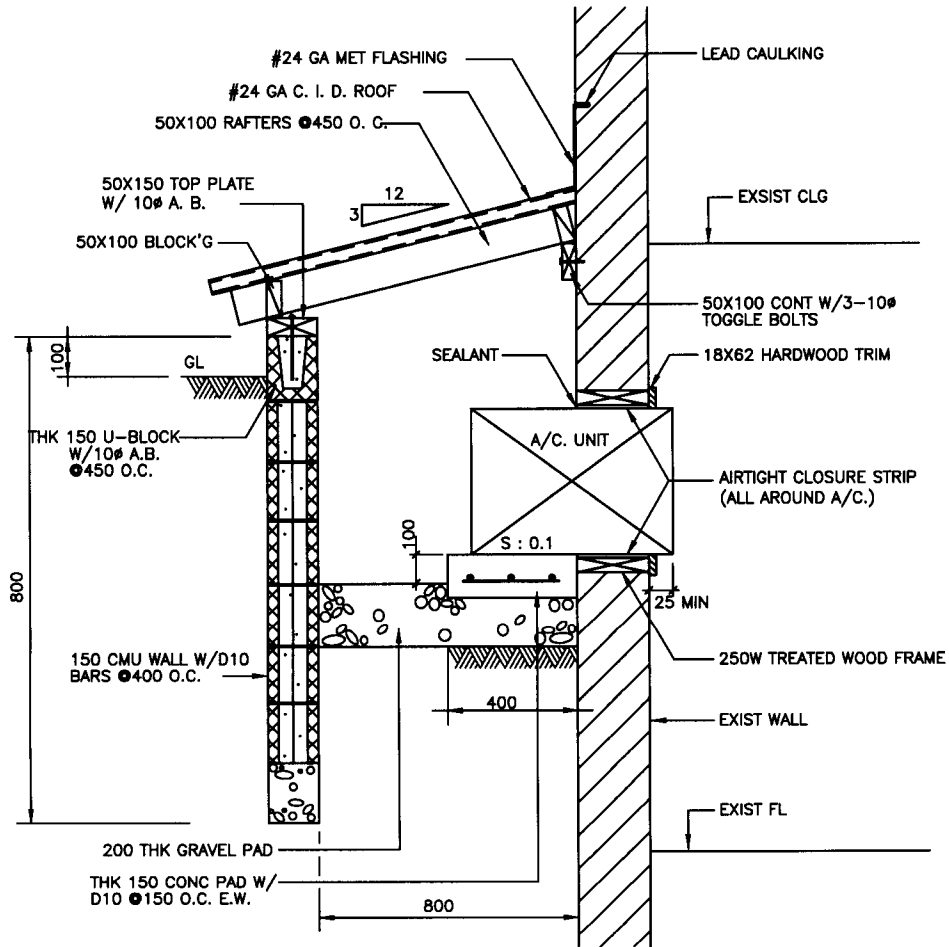
06100

OCT 2003

A0406



PLAN



SECTION

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER

REV DATE

DWG NO.

TITLE

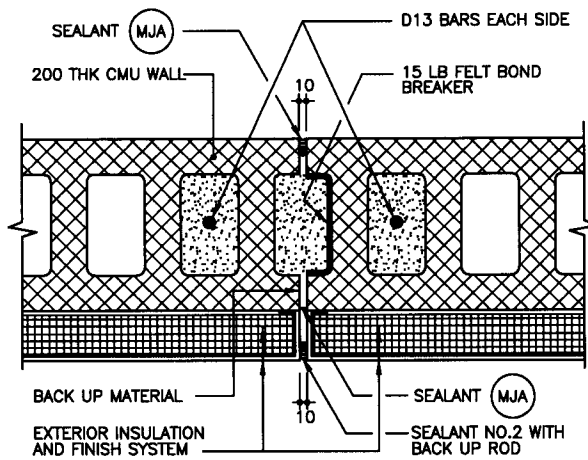
OPENING DET. FOR WINDOW TYPE A/C
(UNDERGROUND BLDG)

SPEC

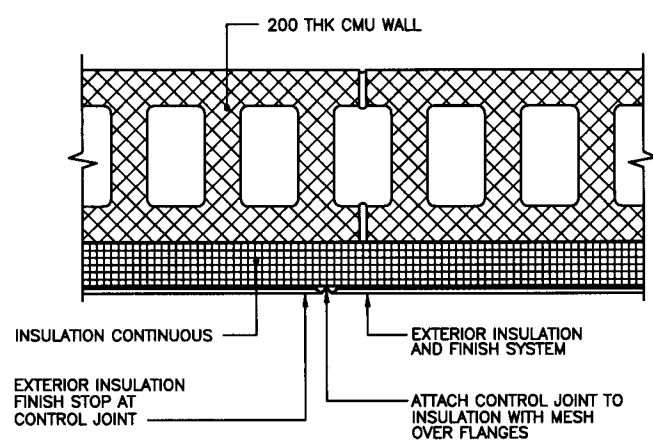
06100

OCT 2003

A0407

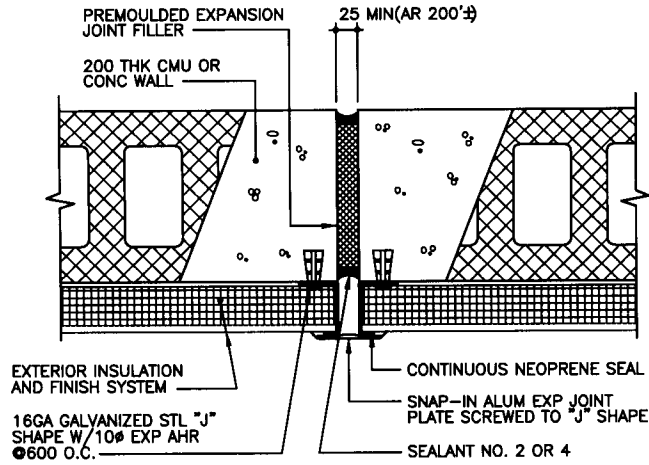


CMU CONTROL JOINT DETAIL(EICJ)

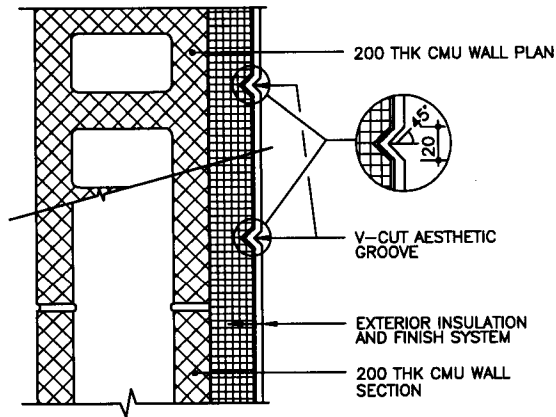


INSUL. CONTROL JOINT DETAIL(EIAJ)

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	EXTERIOR INSULATION & FINISH SYSTEM DETAILS-1	SPEC	07240	OCT 2003	A0501

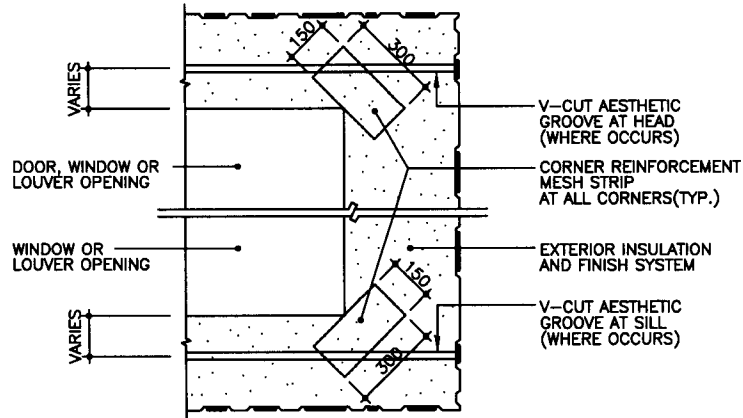


WALL EXP. JOINT DETAIL(EIEX)

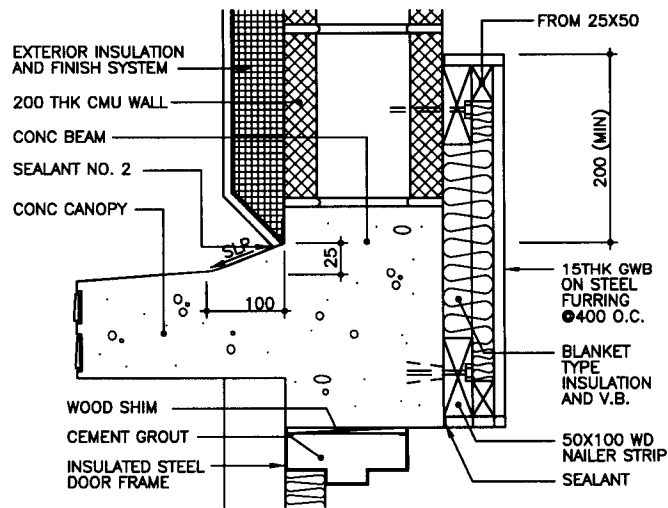


INSUL AESTHETIC JOINT DET(EIAE)

IMA--KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	EXTERIOR INSULATION & FINISH SYSTEM DETAILS-2	SPEC	07240	OCT 2003	A0502



TYP. CORNER REINFORCEMENT DET.



CANOPY DETAIL

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER

REV DATE

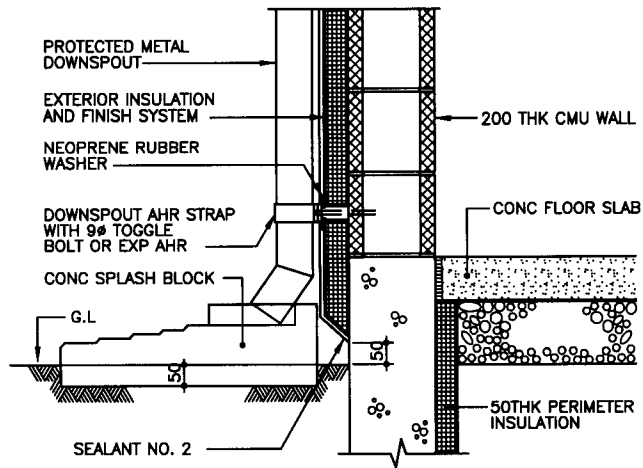
DWG NO.

TITLE EXTERIOR INSULATION & FINISH SYSTEM DETAILS-3

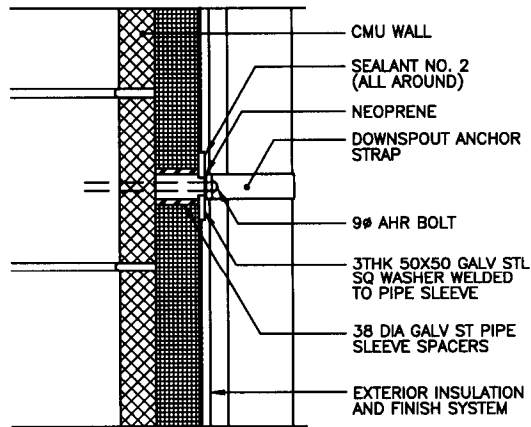
SPEC 07240

OCT 2003

A0503

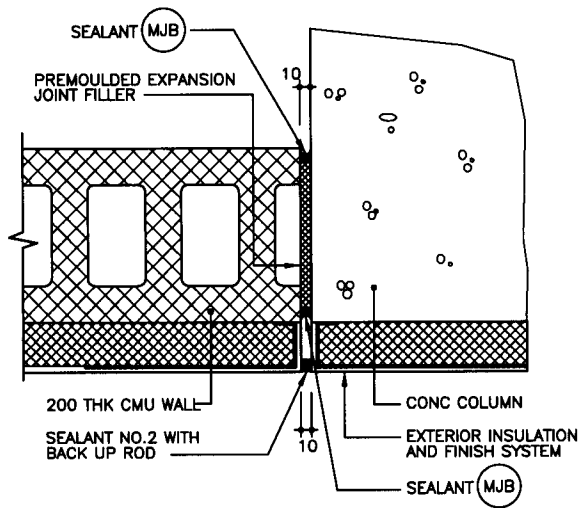


DS & WALL BASE DETAIL

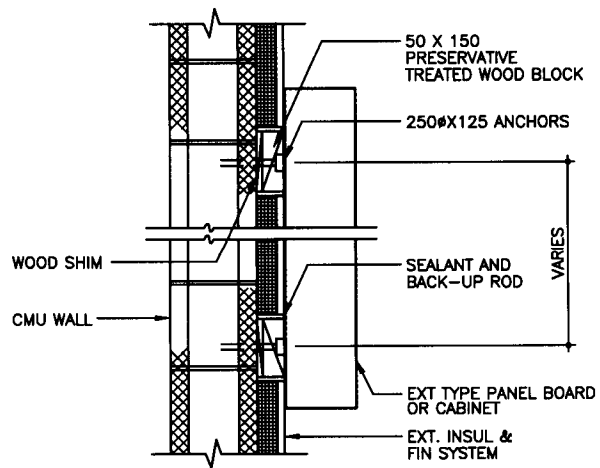


DOWNSPOUT STRAP ANCHOR DET

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER			REV DATE	DWG NO.
TITLE	EXTERIOR INSULATION & FINISH SYSTEM DETAILS-4	SPEC	07240	OCT 2003
				A0504

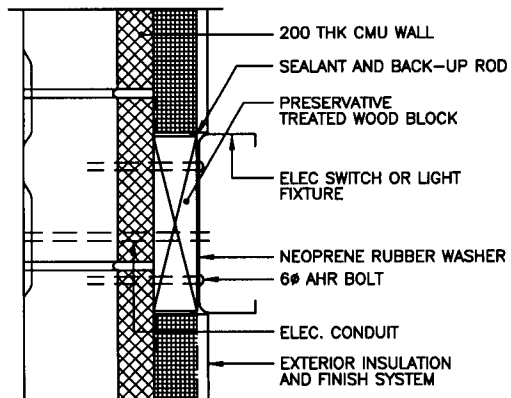


CMU/CONC. JOINT DETAIL

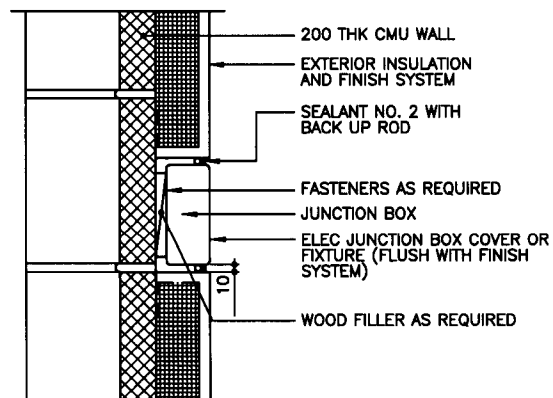


EXTERIOR WALL MOUNTED CABINETS

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	EXTERIOR INSULATION & FINISH SYSTEM DETAILS-5	SPEC	07240	OCT 2003	A0505



SURFACE MOUNTED ELEC. FXTR DET



RECESS MOUNTED ELEC. FXTR DET.

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER

REV DATE

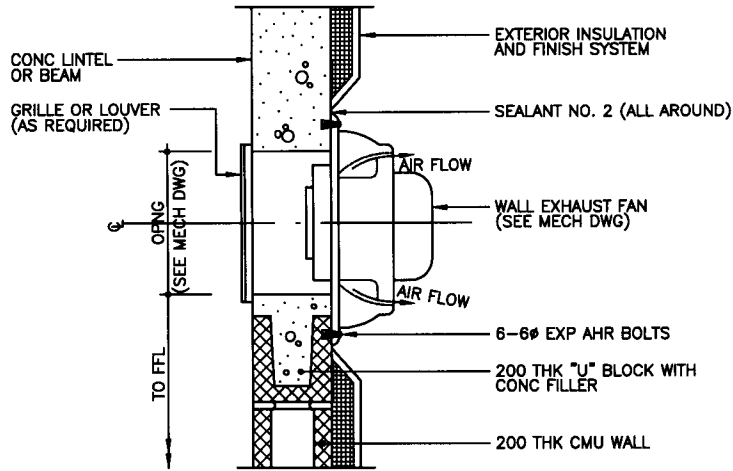
DWG NO.

TITLE EXTERIOR INSULATION & FINISH SYSTEM DETAILS-6

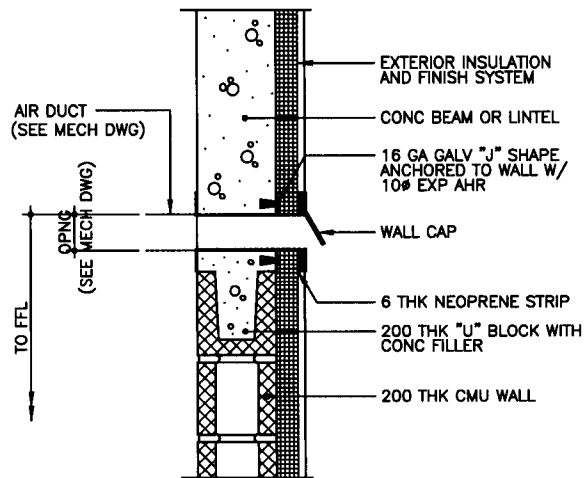
SPEC 07240

OCT 2003

A0506



WALL EXHAUST FAN DETAIL



WALL CAP DETAIL

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER

REV DATE

DWG NO.

TITLE

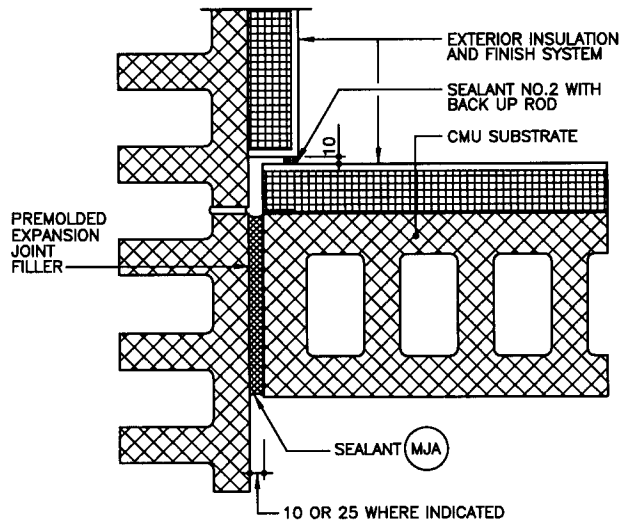
EXTERIOR INSULATION & FINISH SYSTEM DETAILS-7

SPEC

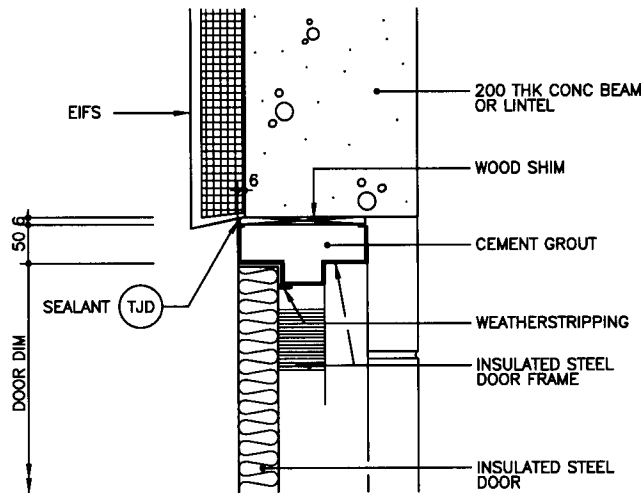
07240

OCT 2003

A0507

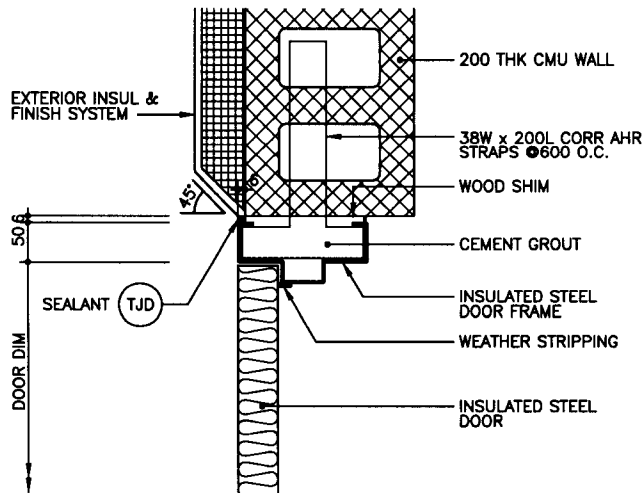


TYP. CORNER DETAIL (INSIDE)

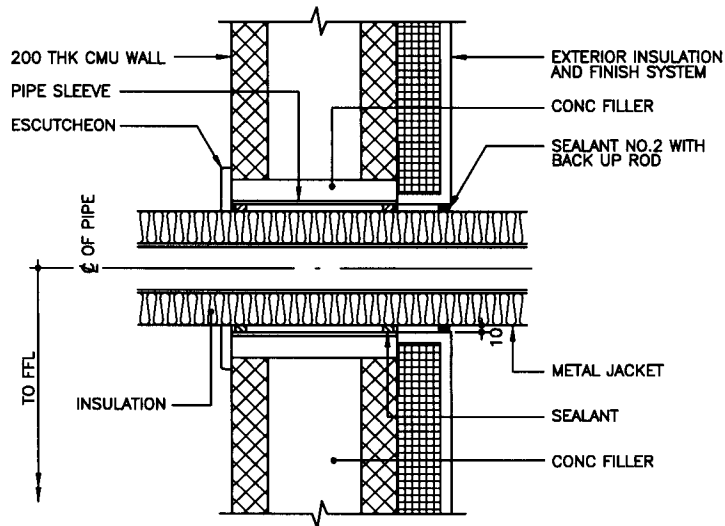


HEAD DETAIL

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	EXTERIOR INSULATION & FINISH SYSTEM DETAILS-8	SPEC	07240	OCT 2003	A0508



JAMB DETAIL



PIPE THRU. WALL DETAIL

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER

REV DATE

DWG NO.

TITLE

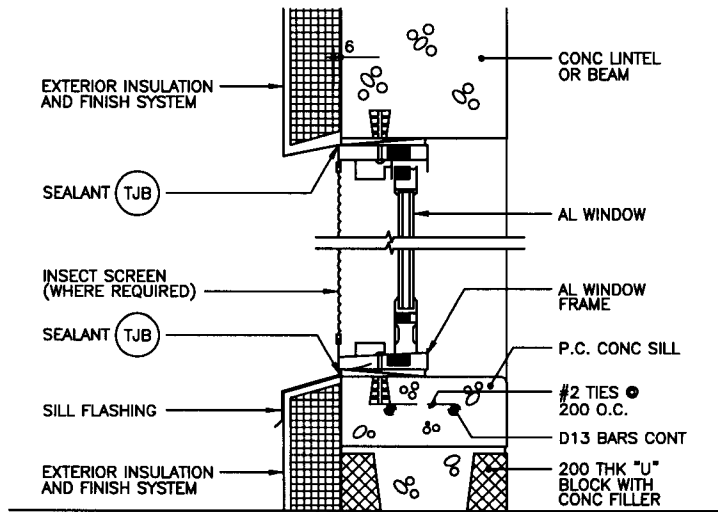
EXTERIOR INSULATION & FINISH SYSTEM DETAILS-9

SPEC

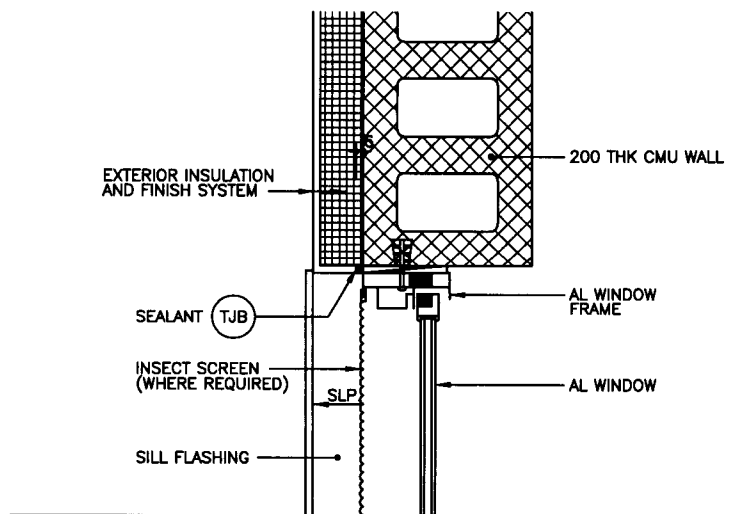
07240

OCT 2003

A0509

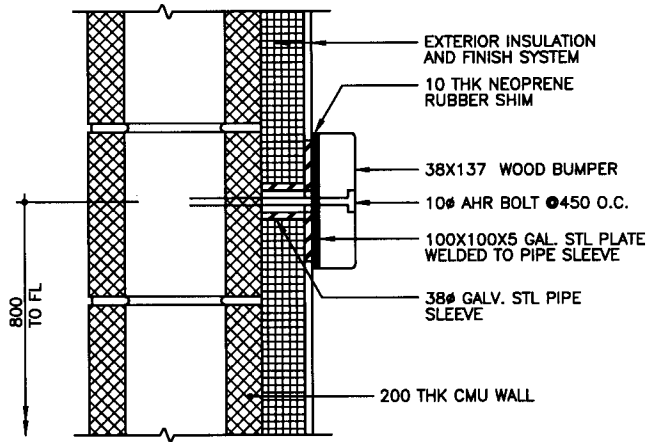


HEAD/SILL (AT WINDOW)

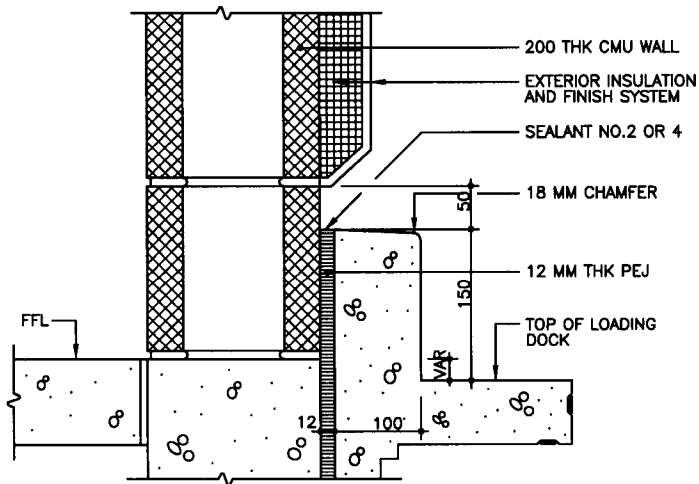


JAMB (AT WINDOW)

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	EXTERIOR INSULATION & FINISH SYSTEM DETAILS-10	SPEC	07240	OCT 2003	A0510

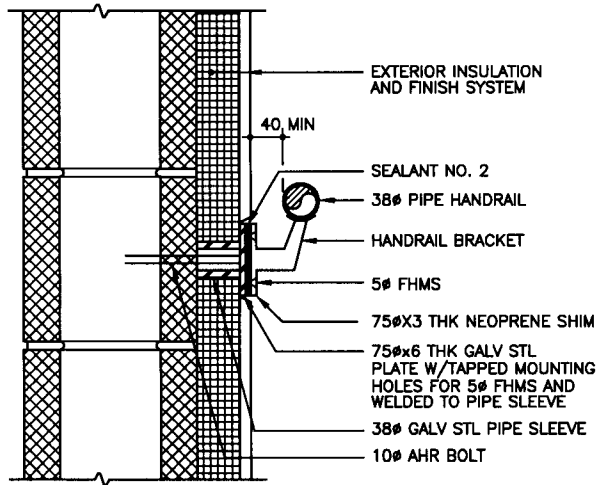


WOOD BUMPER DETAIL

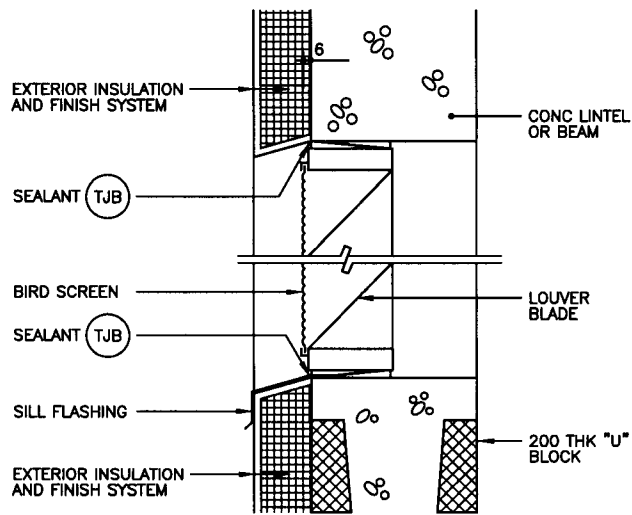


CONC CURB DETAIL

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	EXTERIOR INSULATION & FINISH SYSTEM DETAILS-11	SPEC	07240	OCT 2003	A0511



WOOD BRACKET DETAIL



HEAD/SILL (AT LOUVER)

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER

REV DATE

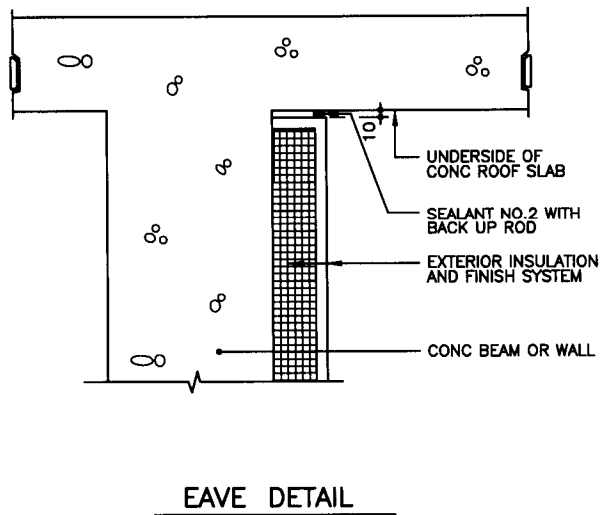
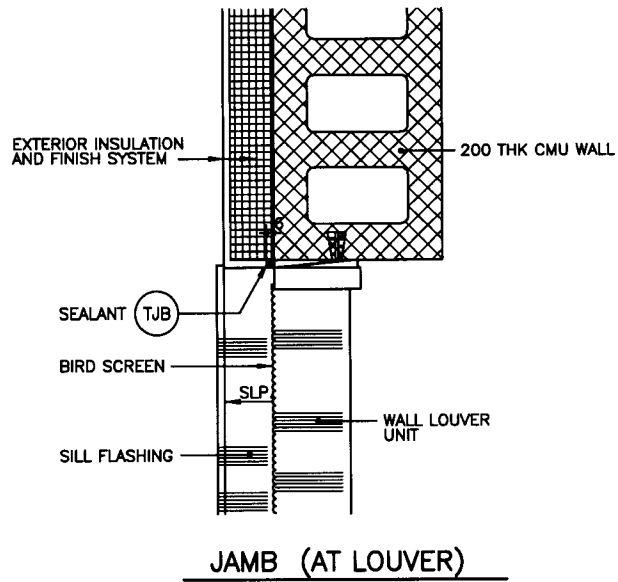
DWG NO.

TITLE EXTERIOR INSULATION & FINISH SYSTEM DETAILS-12

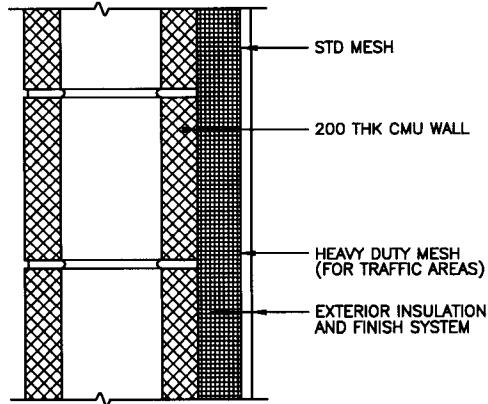
SPEC 07240

OCT 2003

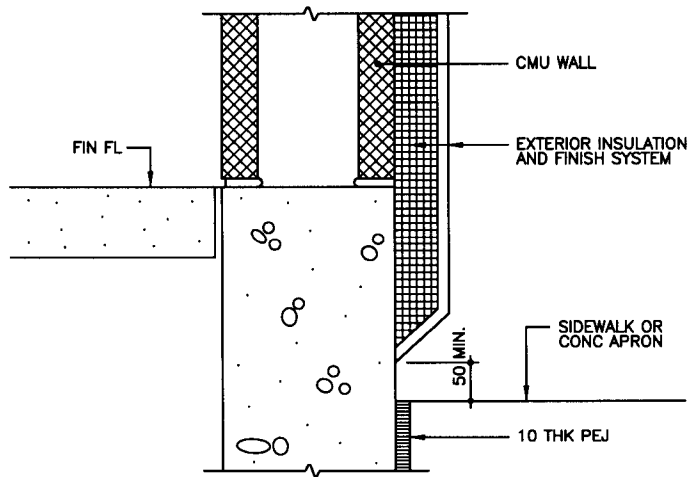
A0512



IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER			REV DATE	DWG NO.
TITLE	EXTERIOR INSULATION & FINISH SYSTEM DETAILS-13	SPEC	07240	OCT 2003
				A0513

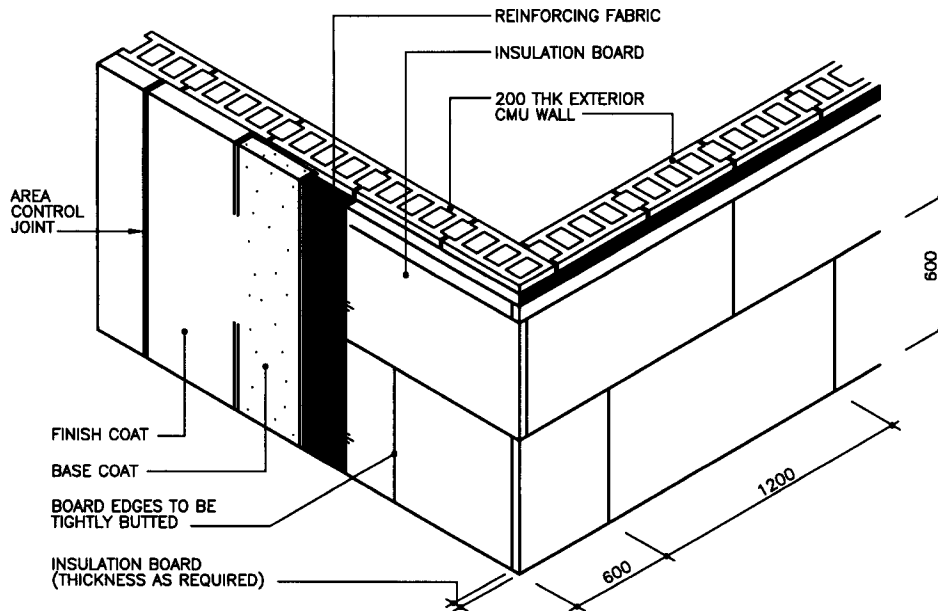


WALL DETAIL (USING STD WEIGHT & HEAVY MESHES APPLICABLE TO EJ SYSTEM 'B')



SIDEWALK AND EJ JOINT DETAIL

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	EXTERIOR INSULATION & FINISH SYSTEM DETAILS-14	SPEC	07240	OCT 2003	A0514

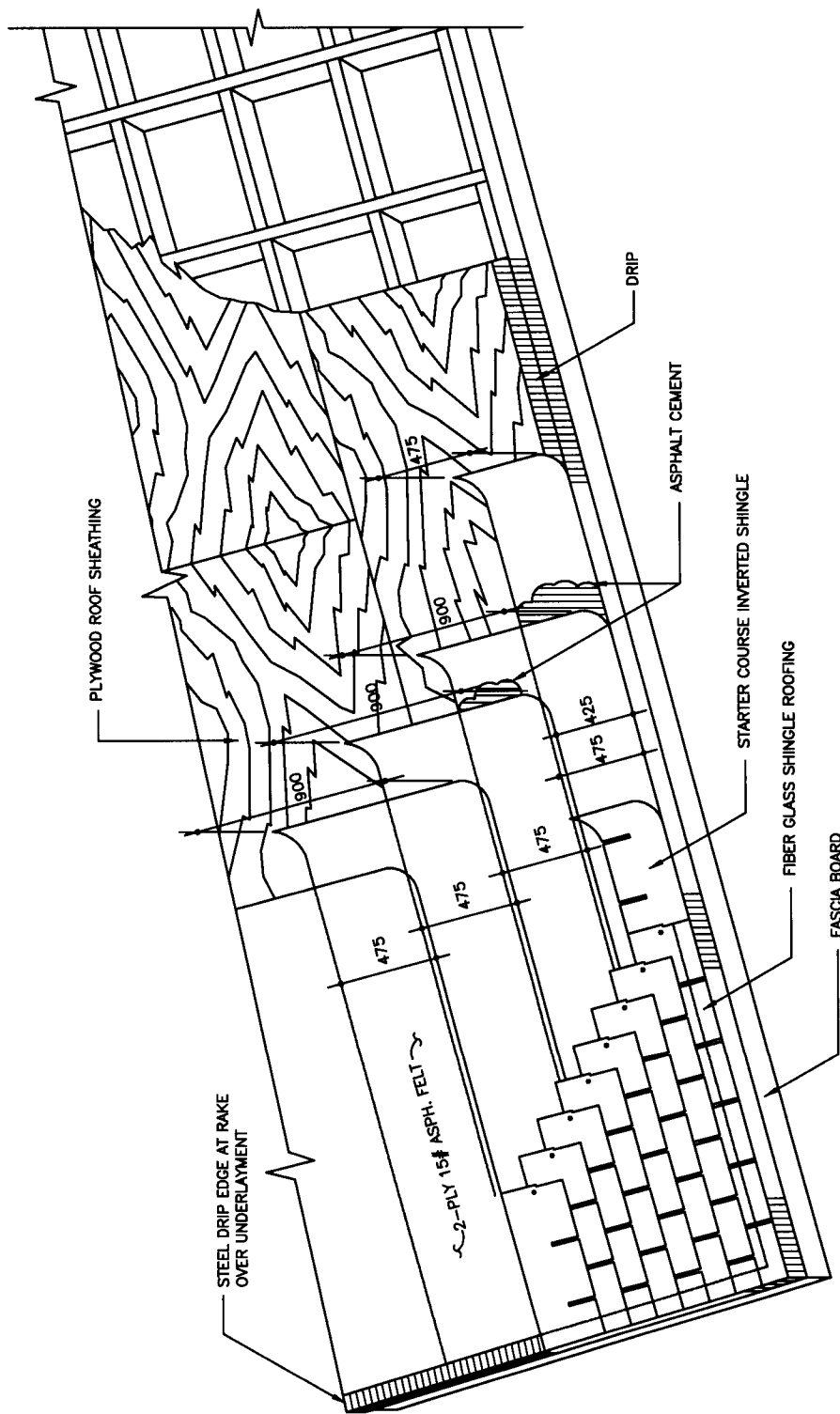


GENERAL NOTES

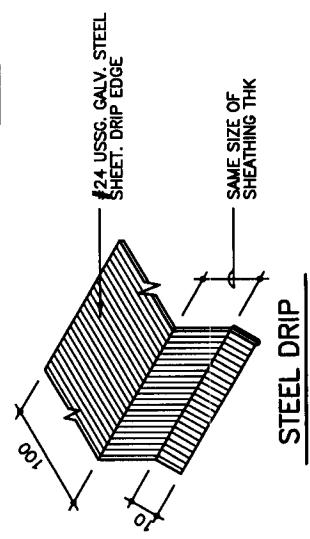
1. THE INSTALLED THICKNESS OF THE INSULATION SHALL PROVIDE AS A MINIMUM THE R-VALUE REQUIREMENTS INDICATED ON THE PROJECT DRAWINGS, AND IAW THE SPECIFICATIONS.
2. DO NOT USE EIFS ON HORIZONTAL SURFACES WITH LESS THAN 45 DEGREE SLOPE.
3. DO NOT CARRY EIFS BELOW GRADE.
4. COLORS OF EIFS ARE IDENTIFIED IN THE GENERAL NOTES OF THE PARTICULAR PROJECT DRAWINGS.
5. SCAFFOLDING FOR EIFS CONSTRUCTION SHALL INCLUDE TOE BOARDS TO MINIMIZE DAMAGE TO EIFS WORK IN PROGRESS, THE INSIDE FACE OF EIFS WORK IN SHALL BE SET BACK 200~250 MM AWAY FROM THE EXTERIOR FINISHED FACE-LINE OF THE EIFS TO ALLOW ADEQUATE SPACE FOR TROWEL FINISH WORK.
6. AREA CONTROL JOINTS SHALL BE LIMITED TO 13.4 SQ METER AREA, WITH NO LARGER DIMENSION GREATER THAN 5.4 METER. COLD JOINT IN THE FINISH COATING APPLICATION ARE TO BE AVOIDED. ALL WORK SHALL BE DONE VERTICALLY WITHIN THE AREAS BOUNDED BY EITHER EXPANSION OR CONTROL JOINTS BEFORE STARTING ANOTHER AREA.
7. THE CONTRACTOR SHALL PROVIDE PROTECTIVE SHELTER, APPROVED HEATING SOURCE AND ARTIFICIAL LIGHT TO HIS WORK SAFE AND DRY DURING PERIODS OF RAIN OR COLD WEATHER IAW THE MANUFACTURERS GUIDELINES, AND WHEN APPROVED BY THE CONTRACTING OFFICER.
8. INSULATION OR FINISHED COATING DAMAGED BY FROST, FREEZING, RAIN OR ABUSE DURING CONSTRUCTION AND BEFORE ACCEPTANCE SHALL BE REPLACED BY THE CONTRACTOR AT NO ADDITIONAL COST TO THE GOVERNMENT.
9. DO NOT APPLY EIFS OVER PAINTED SUBSTRATES EXCEPT AS APPROVED IN WRITING BY THE MANUFACTURER.

TYP. PANEL DETAIL

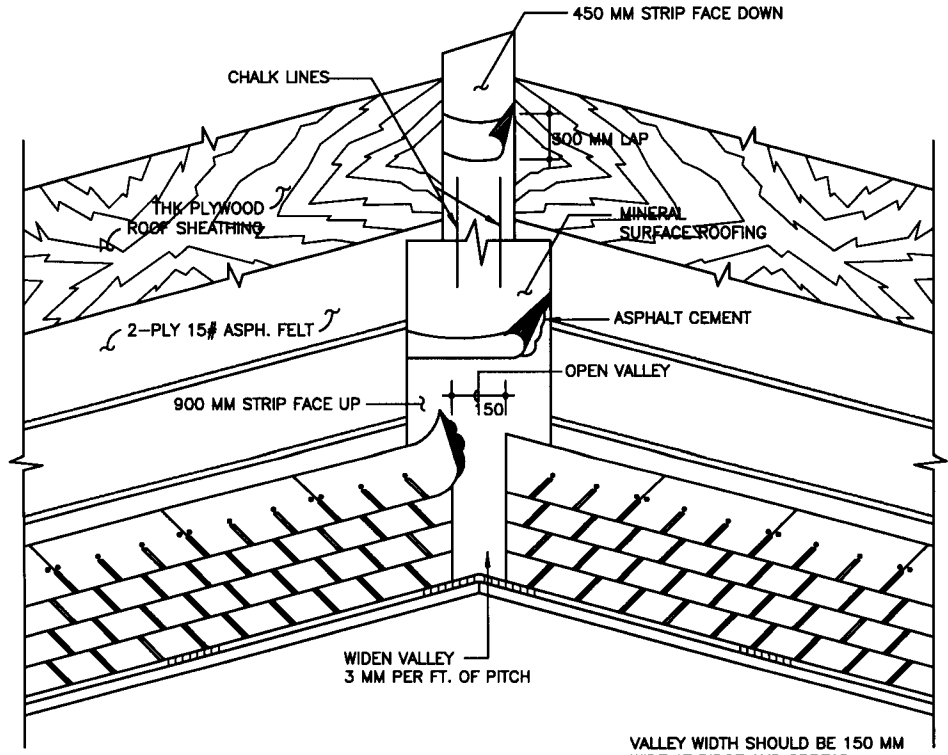
IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	EXTERIOR INSULATION & FINISH SYSTEM DETAILS-15	SPEC	07240	OCT 2003	A0515



DETAIL OF FIBER GLASS SHINGLE ROOF

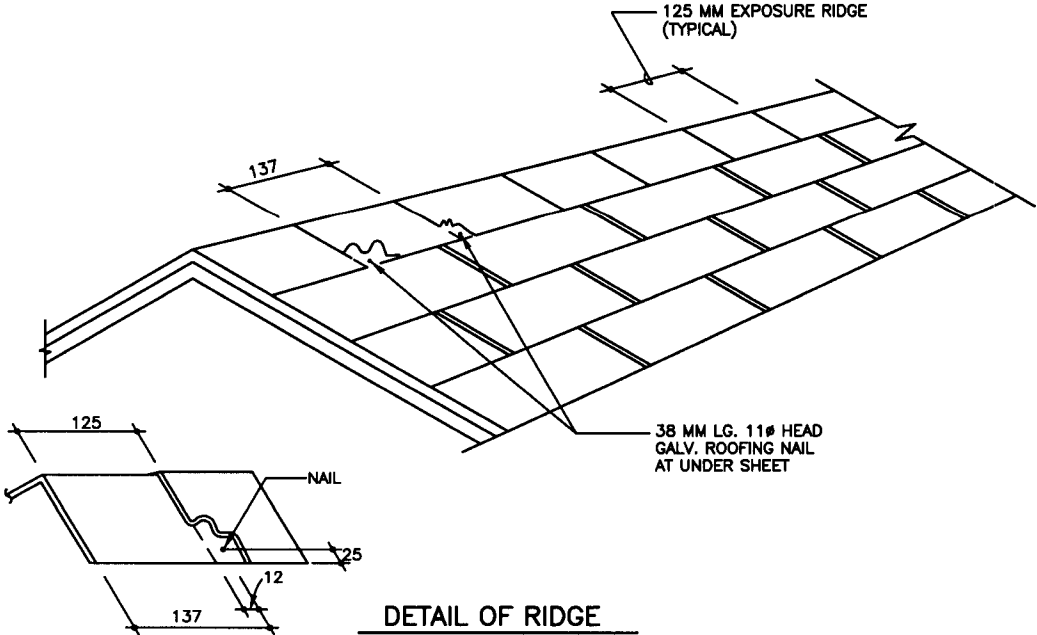


IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER		REV DATE	DWG NO.
TITLE	ASPHALT SHINGLES - 1	SPEC 07311	OCT 2003 A0601



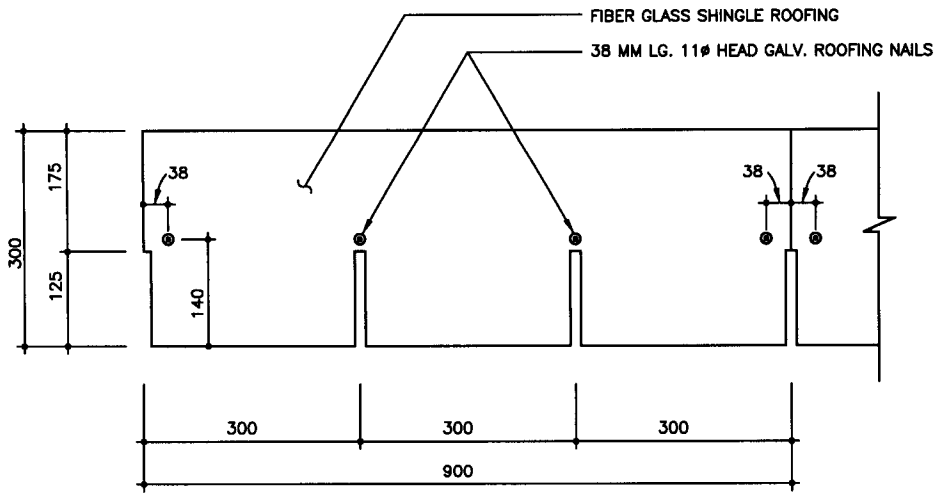
OPEN VALLEY

VALLEY WIDTH SHOULD BE 150 MM WIDE AT RIDGE AND SPREAD WIDER AT THE RATE OF 1 MM PER METER DOWNWARD TO EAVES ESTABLISH VALLEY WIDTH USING CHALK-LINE FROM RIDGE TO CAVE.

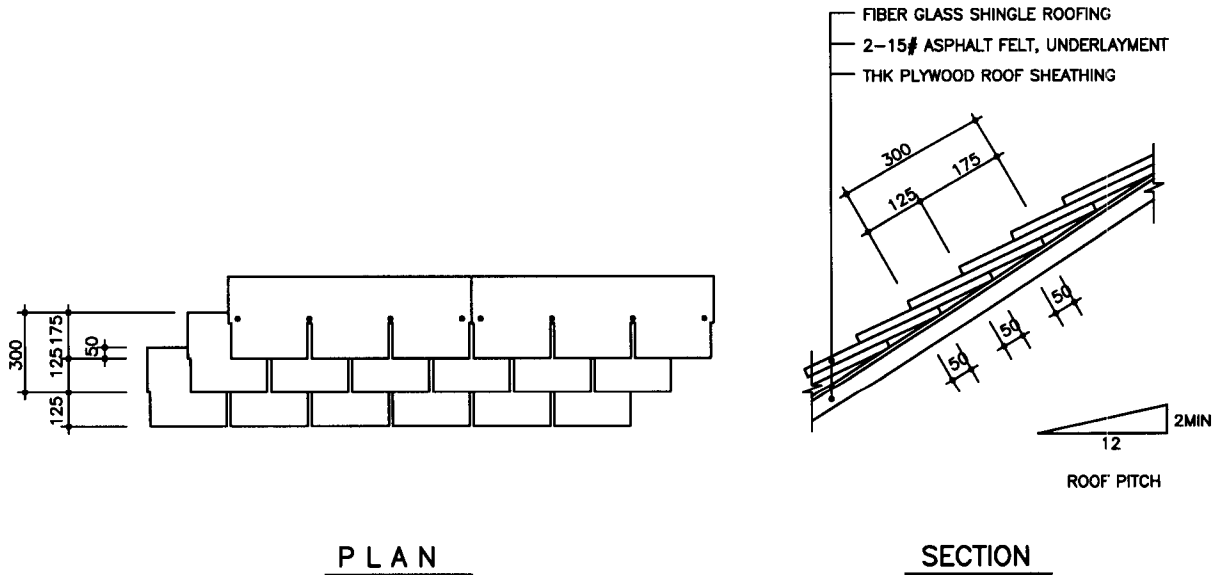


DETAIL OF RIDGE

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	ASPHALT SHINGLES - 2	SPEC	07311	OCT 2003	A0602

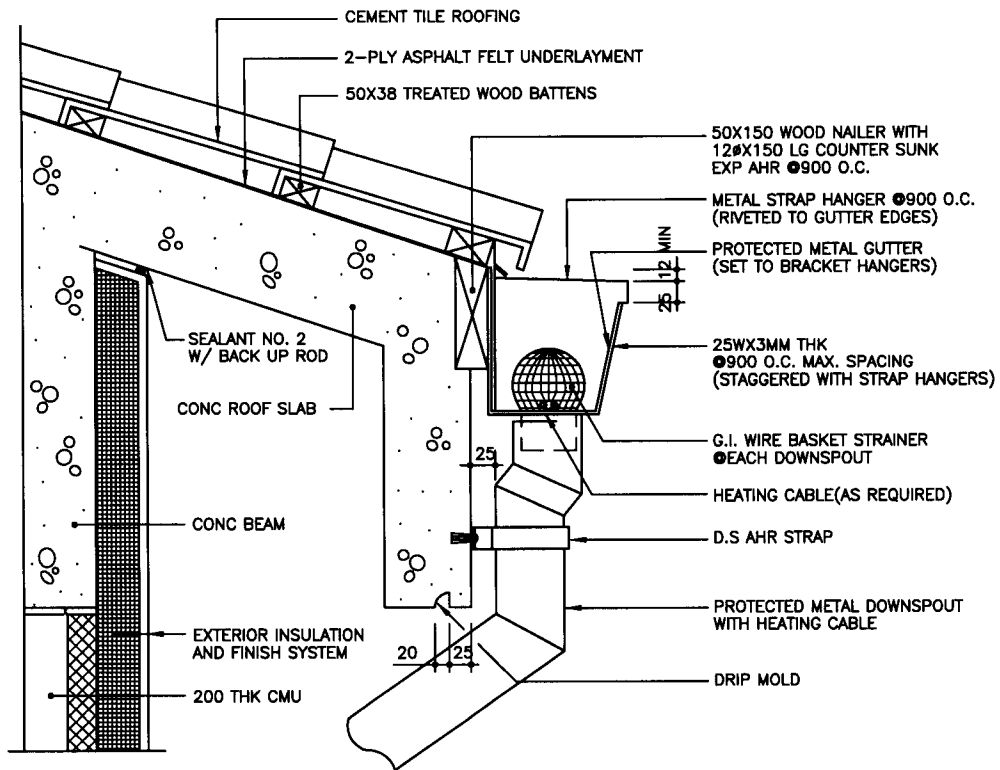


TYPE OF FIBER GLASS SHINGLE



DETAIL OF COMPOSITION

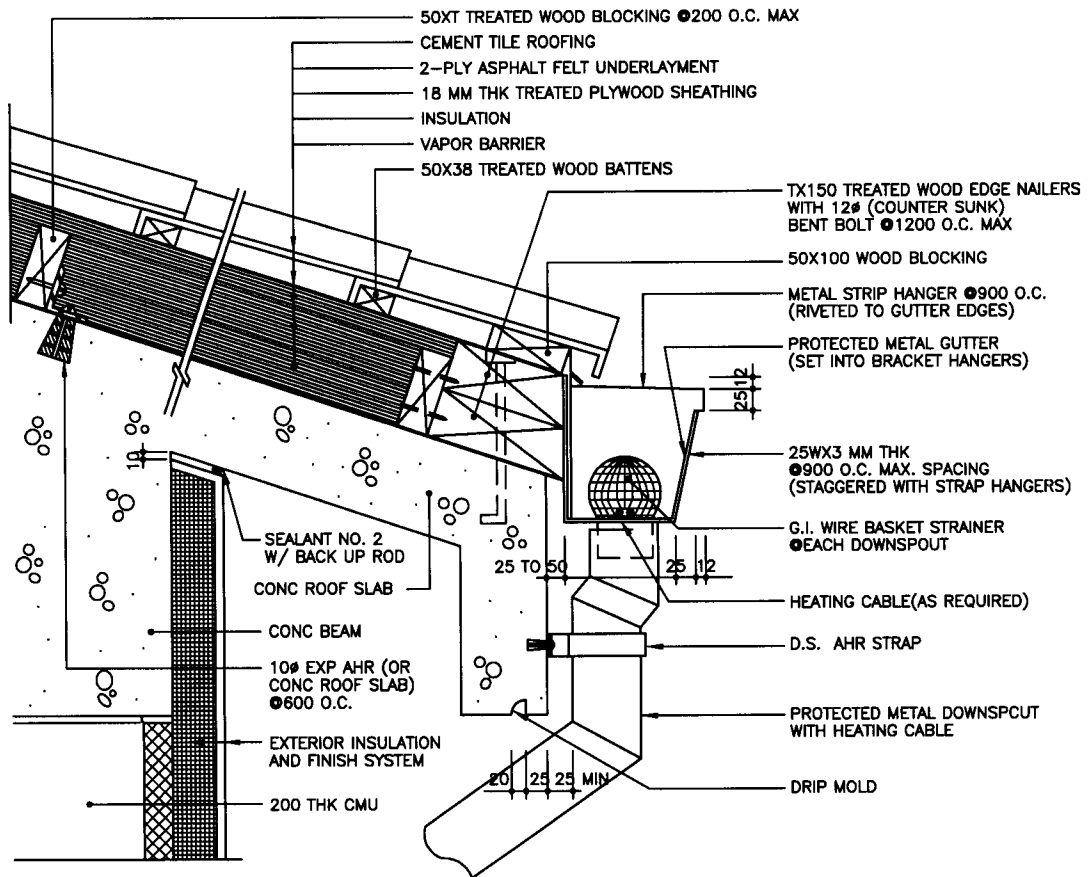
IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	ASPHALT SHINGLES - 3	SPEC	07311	OCT 2003	A0603



EAVE DETAIL (ON CONCRETE)

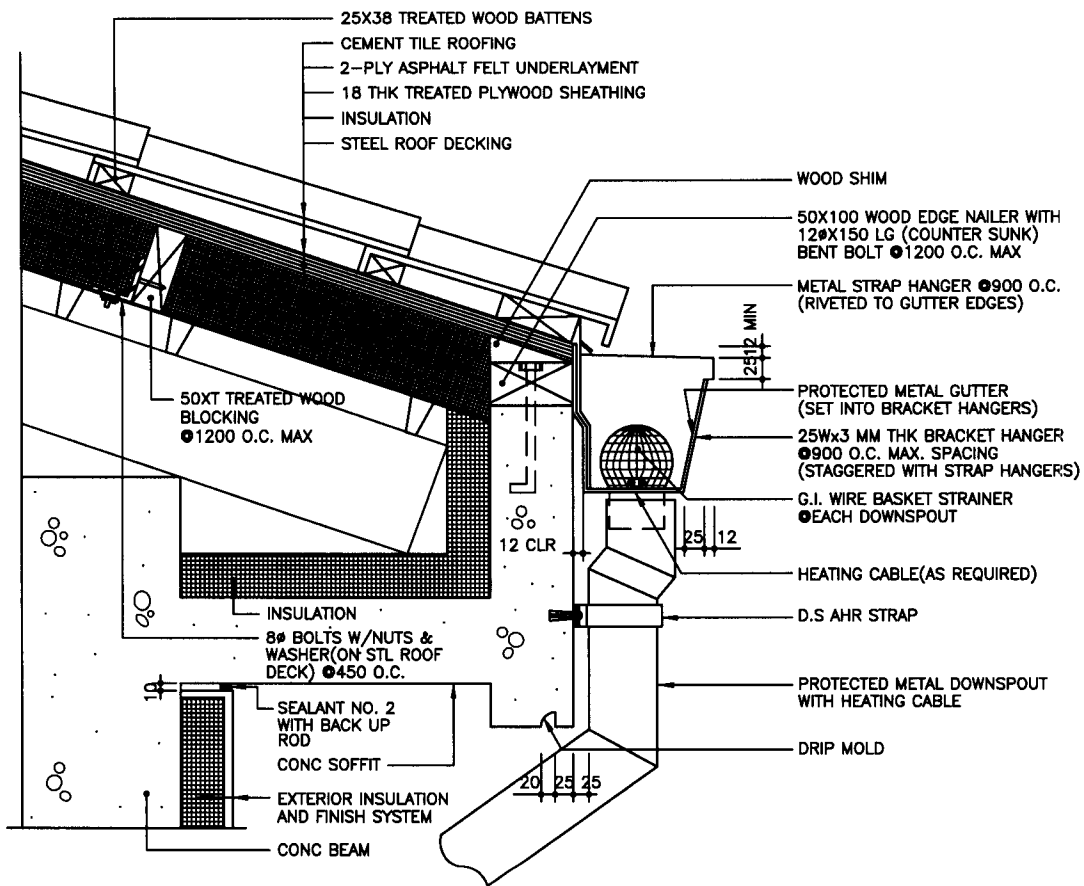
NOTE
INSULATION THICKNESS SHALL BE BASED ON
"R" VALUE SHOWN IN THE PROJECT DRAWING

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER			REV DATE	DWG NO.
TITLE	ROOFING DETAILS, ROOF TILE-1	SPEC	07320	OCT 2003
				A0701



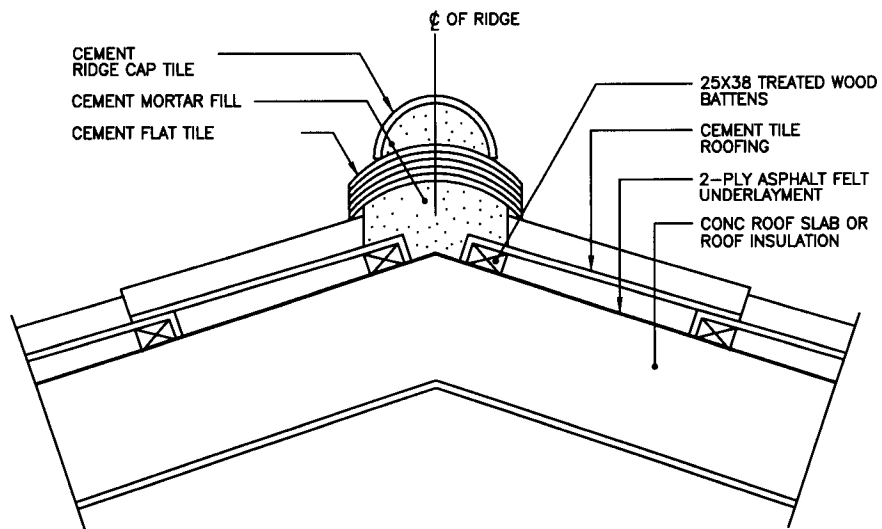
EAVE DETAIL (ON CONCRETE W/INSULATION)

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER			REV DATE	DWG NO.
TITLE	ROOFING DETAILS, ROOF TILE-2	SPEC	07320	OCT 2003
				A0702

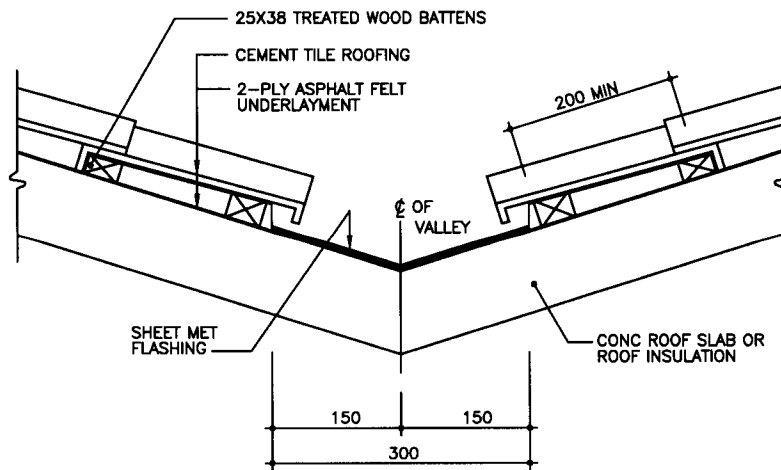


EAVE DETAIL (ON STL DECK W/INSULATION)

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	ROOFING DETAILS, ROOF TILE-3	SPEC	07320	OCT 2003	A0703



RIDGE CAP DETAIL



VALLEY FLASHING DETAIL

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER

REV DATE

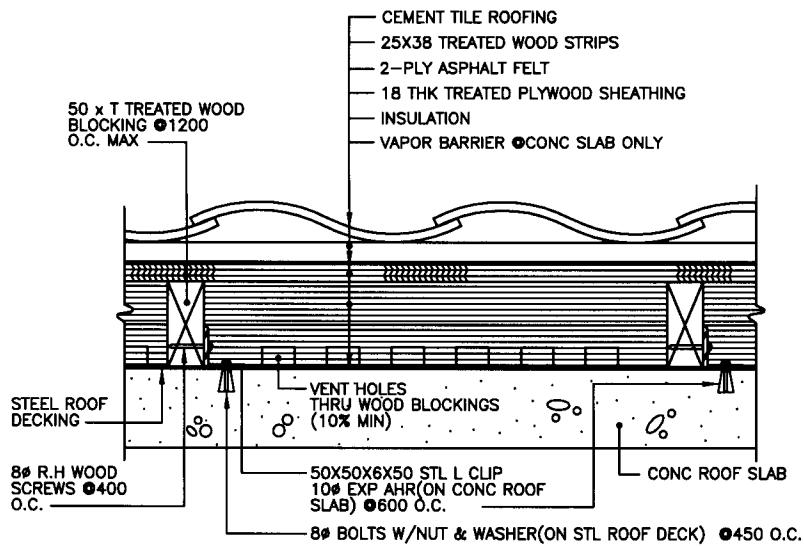
DWG NO.

TITLE ROOFING DETAILS, ROOF TILE-4

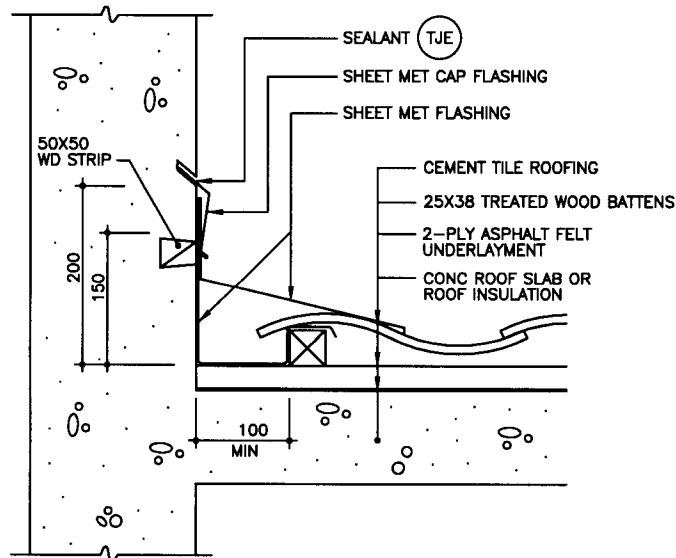
SPEC 07320

OCT 2003

A0704

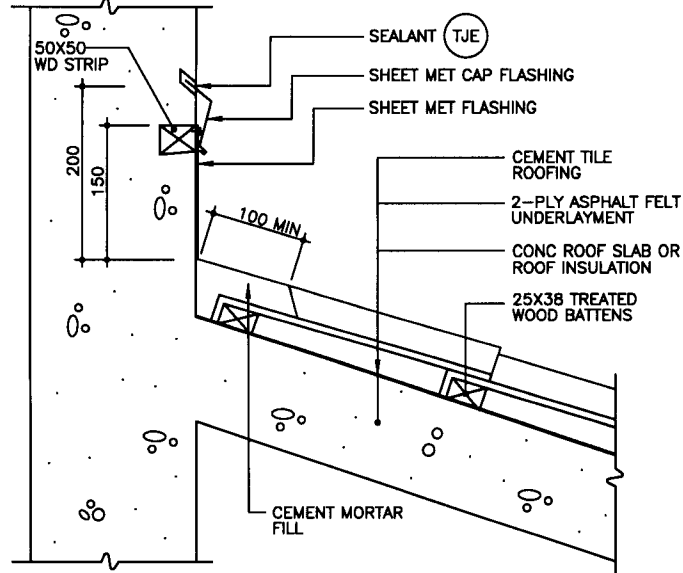


ROOF DETAIL

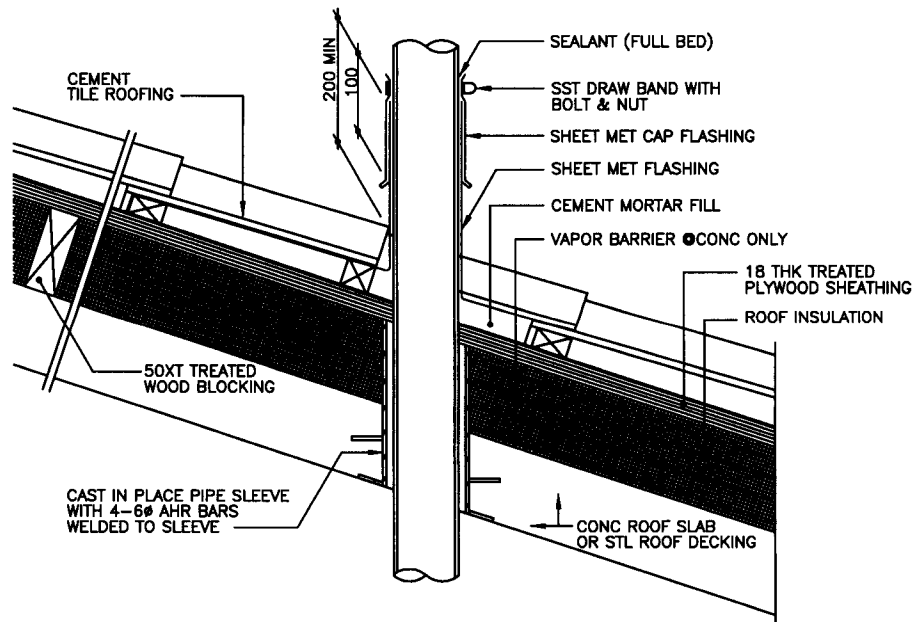


FLASHING DETAIL

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	ROOFING DETAILS, ROOF TILE-5	SPEC	07320	OCT 2003	A0705



FLASHING DETAIL



VENT THRU ROOF DETAIL

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER

REV DATE

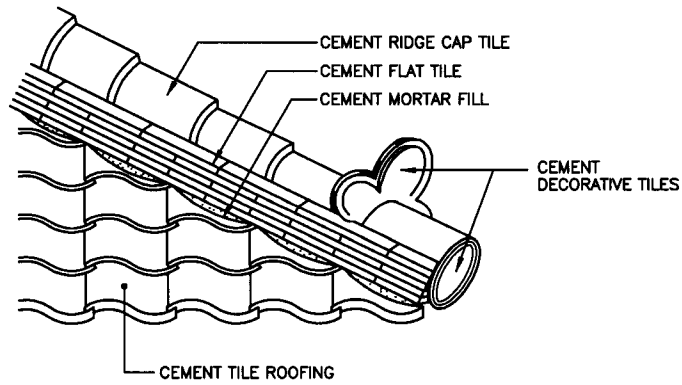
DWG NO.

TITLE ROOFING DETAILS, ROOF TILE-6

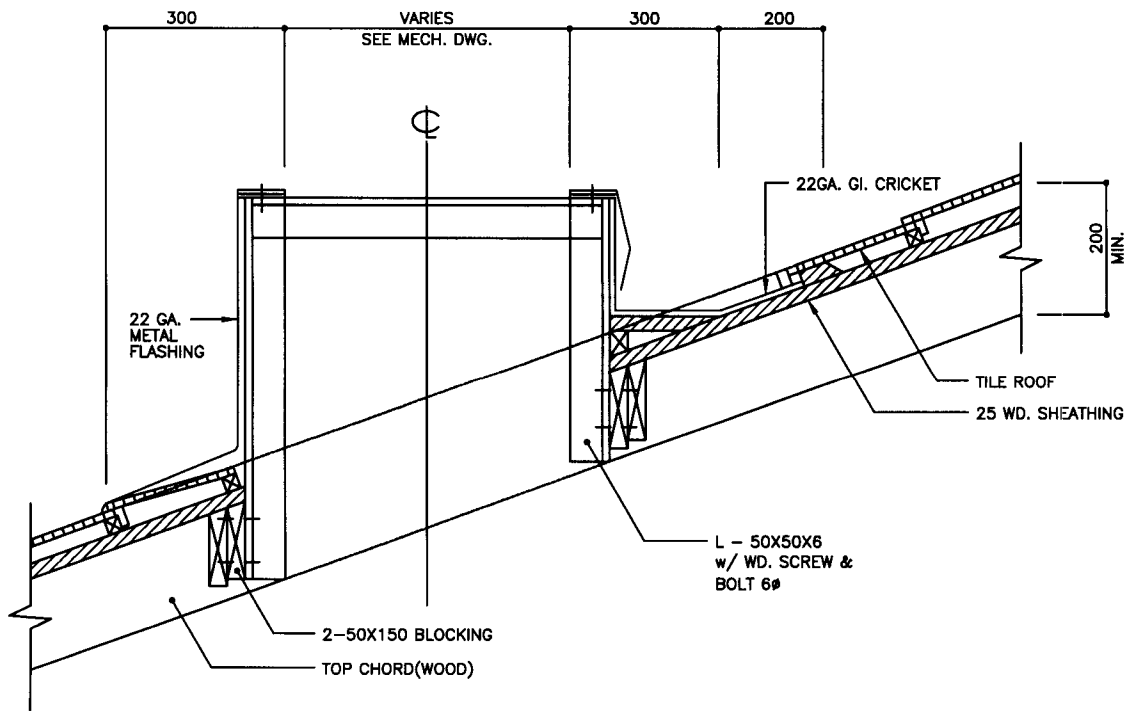
SPEC 07320

OCT 2003

A0706



ROOF EDGE ELEVATION



AT TILE ROOFING

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER

REV DATE

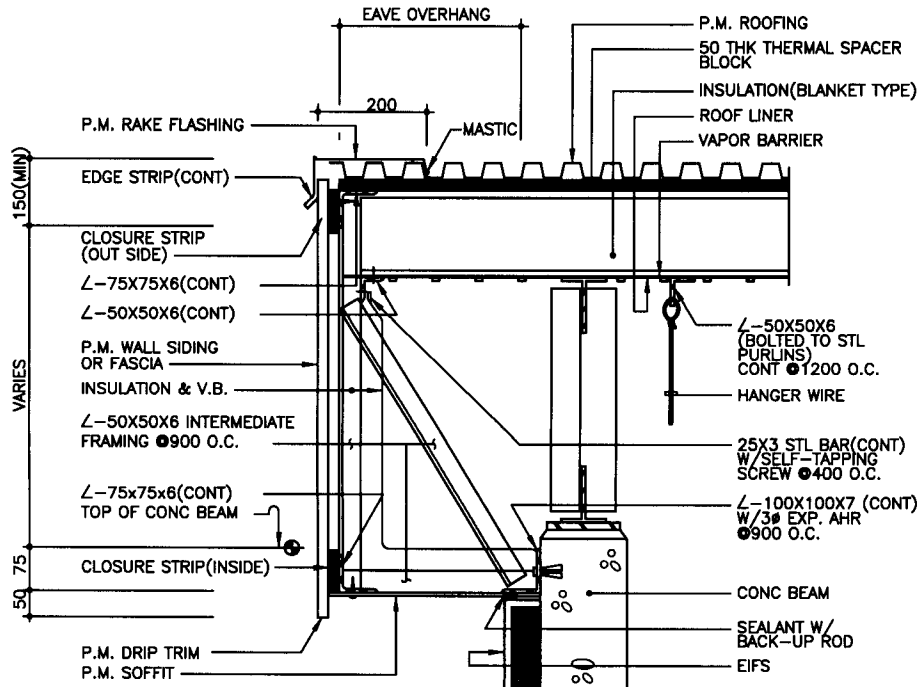
DWG NO.

TITLE ROOFING DETAILS, ROOF TILE-7

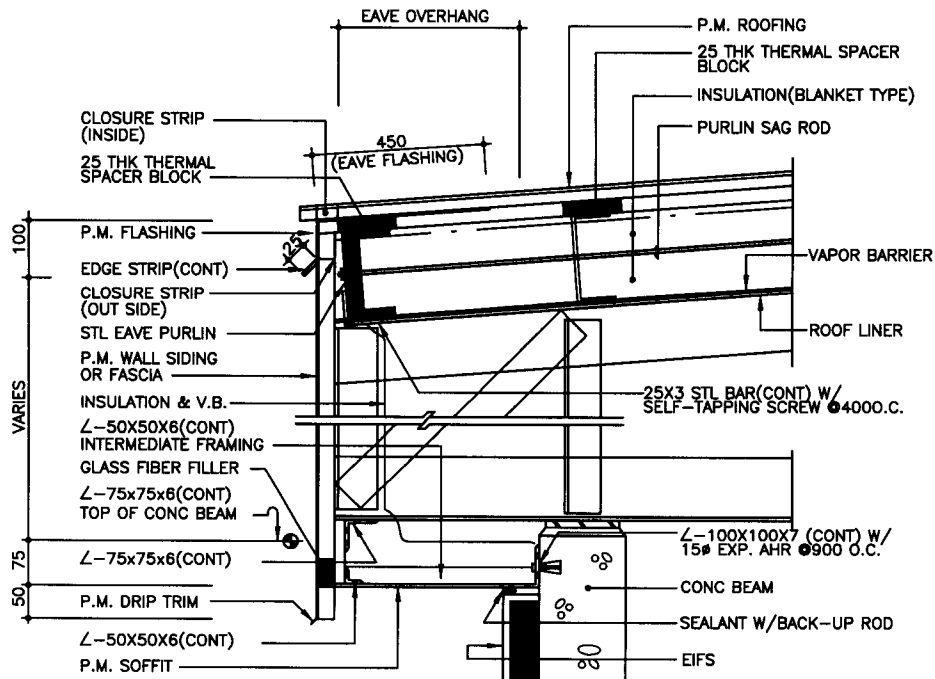
SPEC 07320

OCT 2003

A0707



EAVE DETAIL



EAVE DETAIL

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER

REV DATE

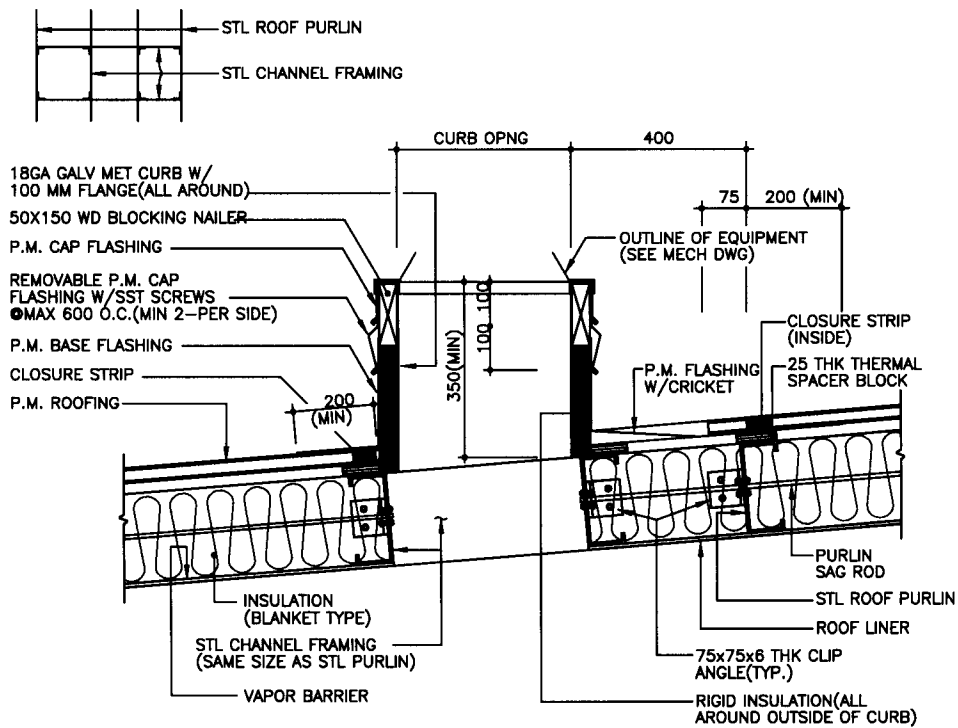
DWG NO.

TITLE ROOFING & SIDING DETAILS, PROTECTED METAL-1

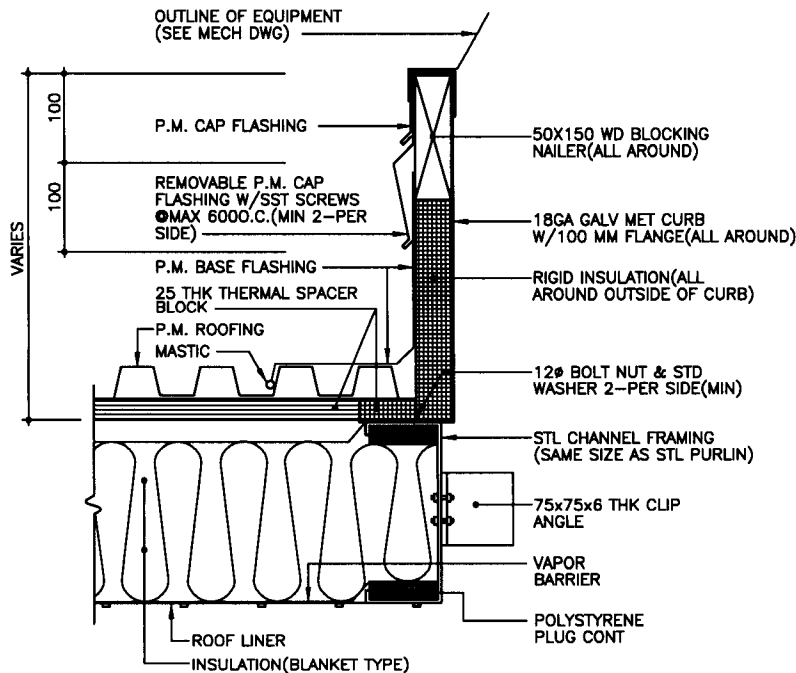
SPEC 07413

OCT 2003

A0801

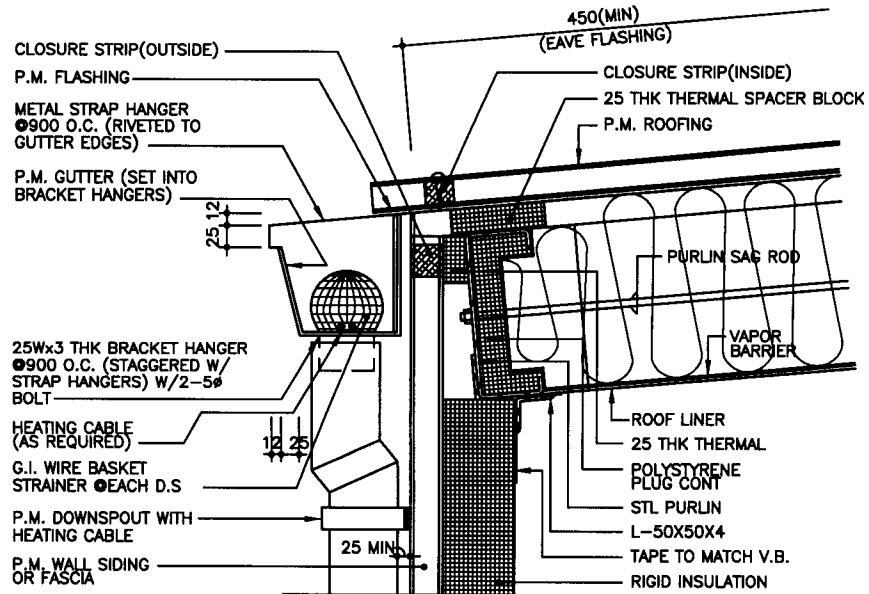


MET. CURB DETAIL

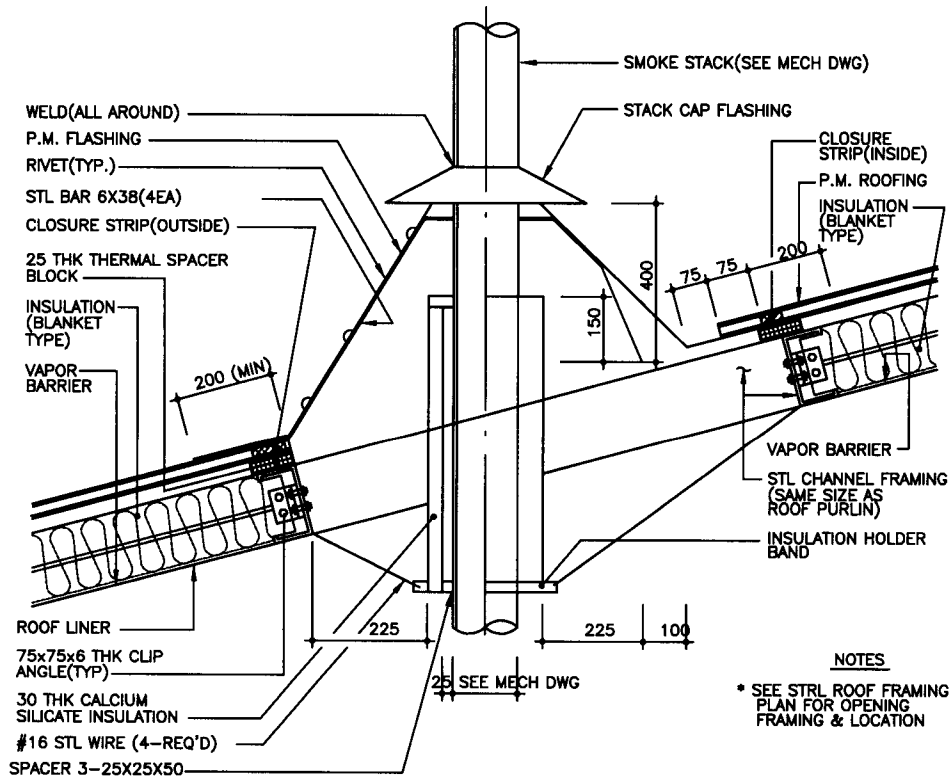


MET. CURB DETAIL

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER			REV DATE	DWG NO.
TITLE	ROOFING & SIDING DETAILS, PROTECTED METAL-2	SPEC	07413	OCT 2003
				A0802



MET GUTTER DETAIL



SMOKE STACK FLASHING DETAIL

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER

REV DATE

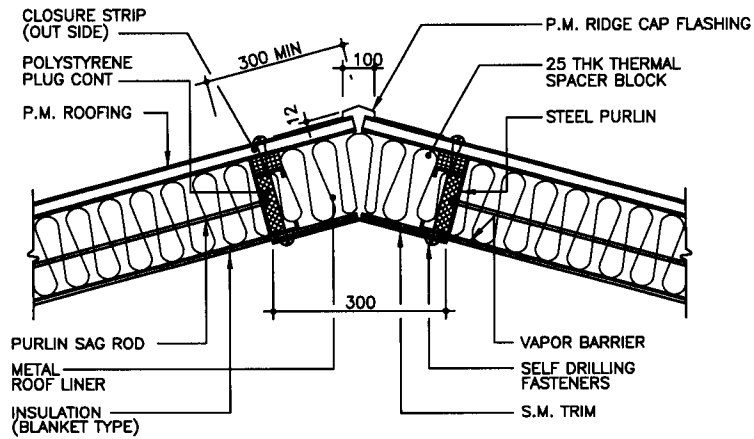
DWG NO.

TITLE ROOFING & SIDING DETAILS, PROTECTED METAL-3

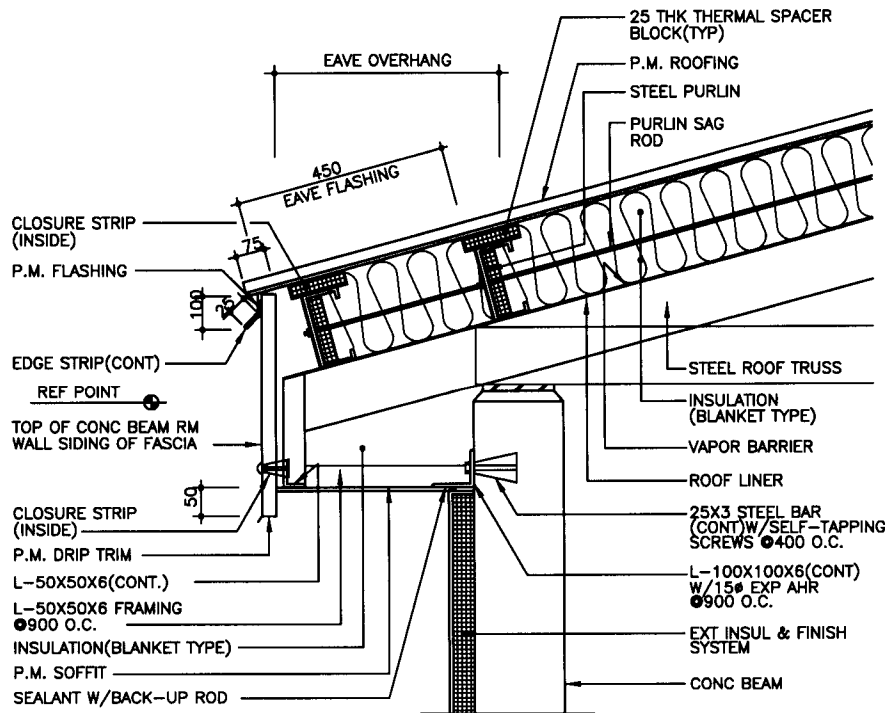
SPEC 07413

OCT 2003

A0803

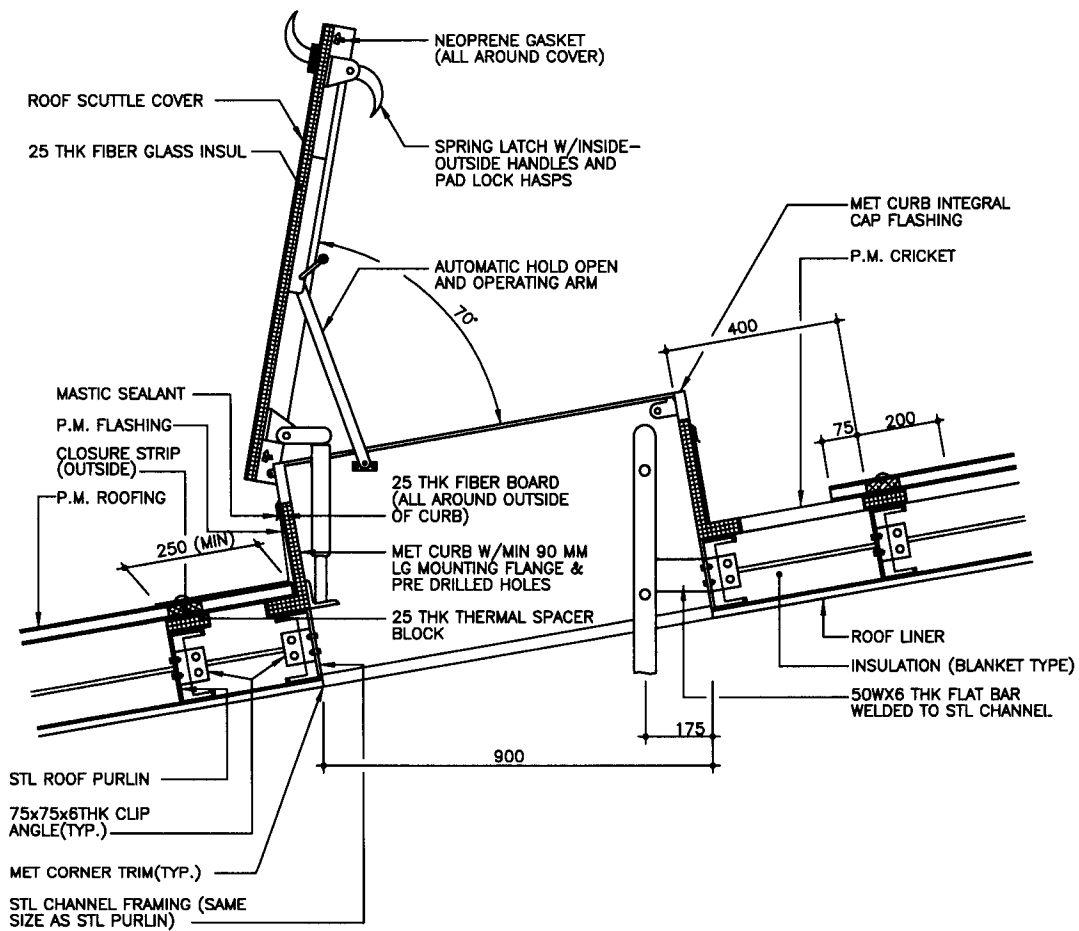


RIDGE CAP DETAIL



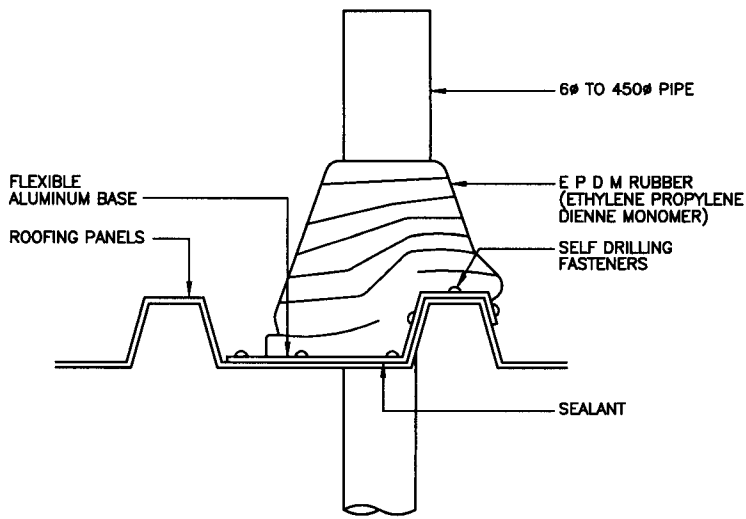
EAVE DETAIL

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER			REV DATE	DWG NO.
TITLE	ROOFING & SIDING DETAILS, PROTECTED METAL-4	SPEC	07413	OCT 2003
				A0804

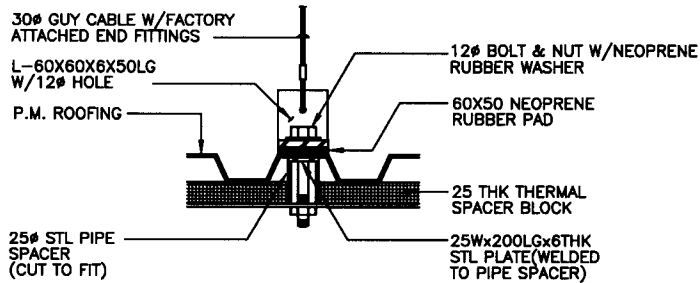
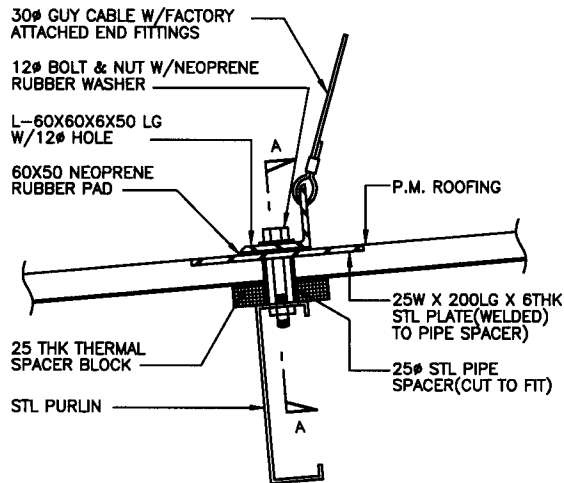


ROOF SCUTTLE SECTION

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER			REV DATE	DWG NO.
TITLE	ROOFING & SIDING DETAILS, PROTECTED METAL-5	SPEC	07413	OCT 2003
			A0805	

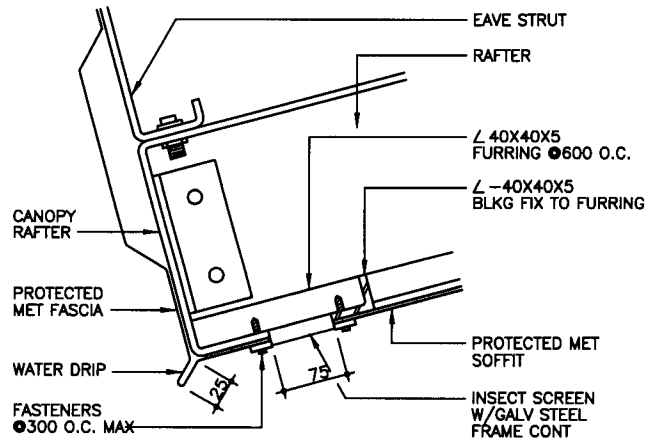


TYPICAL DETAIL OF PIPE ROOF PENETRATION

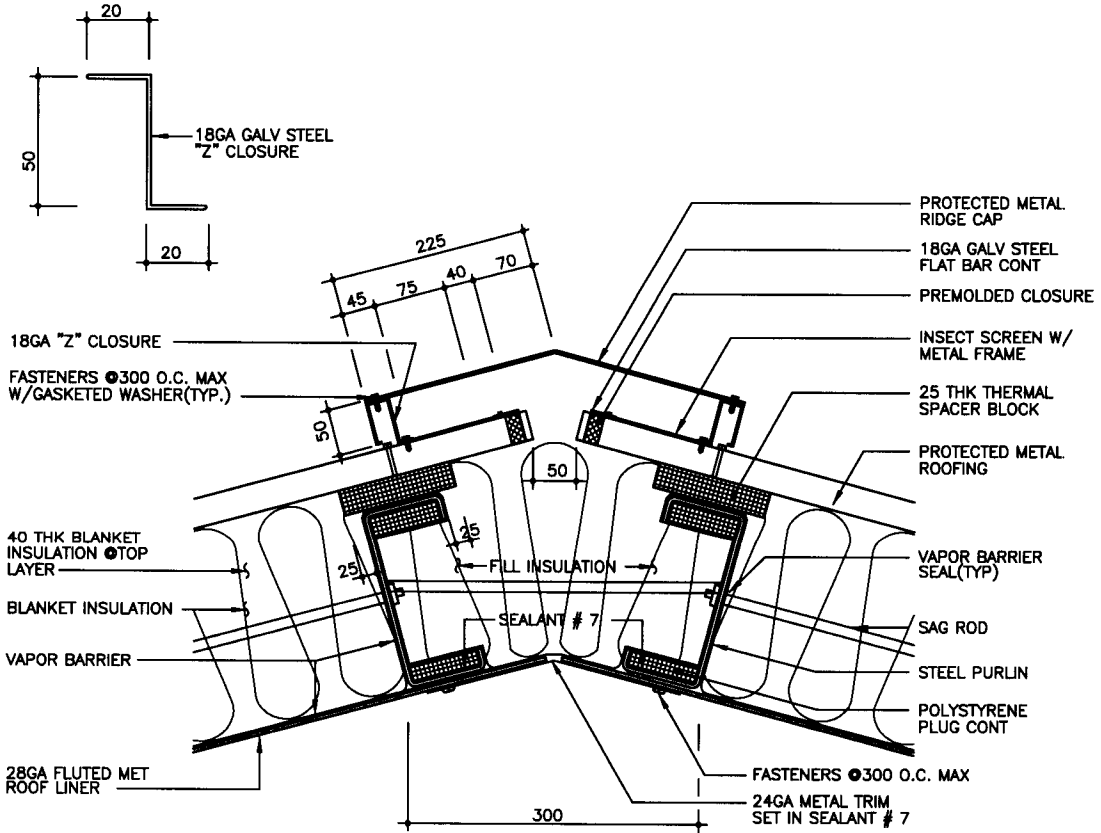


CABLE TIE DOWN ANCHOR

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	ROOFING & SIDING DETAILS, PROTECTED METAL-6	SPEC	07413	OCT 2003	A0806

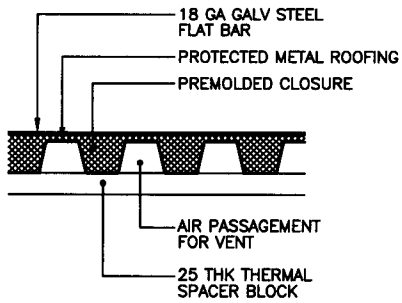


VENTING P. M. AT EAVE

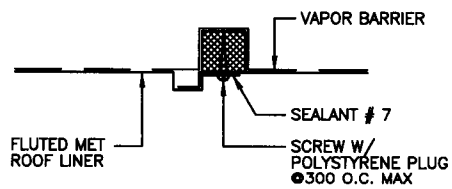


VENTING PROTECTED METAL ROOFING

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	ROOFING & SIDING DETAILS, PROTECTED METAL-7	SPEC	07413	OCT 2003	A0807

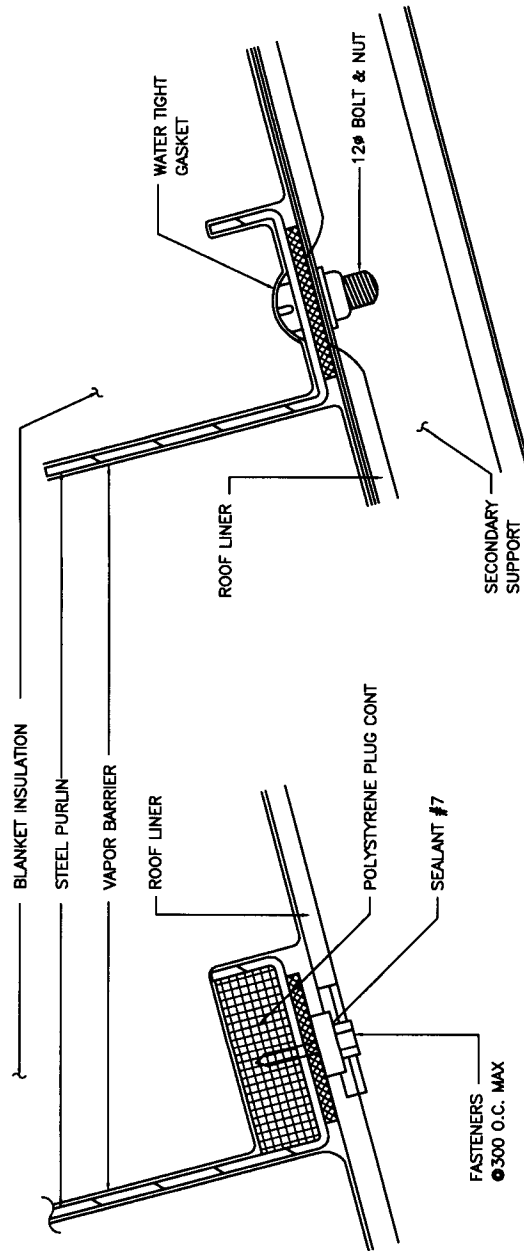


PREMOLDED CLOSURE DETAIL



SIDE LAP W/SCREW DETAIL

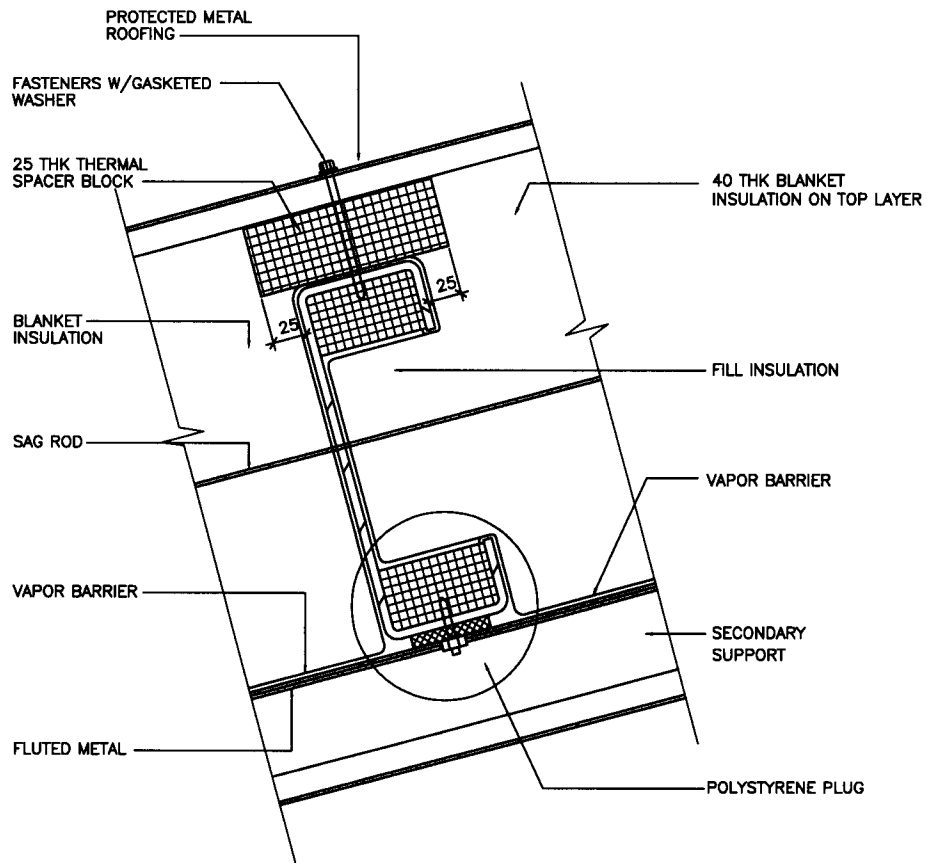
IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	ROOFING & SIDING DETAILS, PROTECTED METAL-8	SPEC	07413	OCT 2003	A0808



AT END LAY JOINT DETAIL

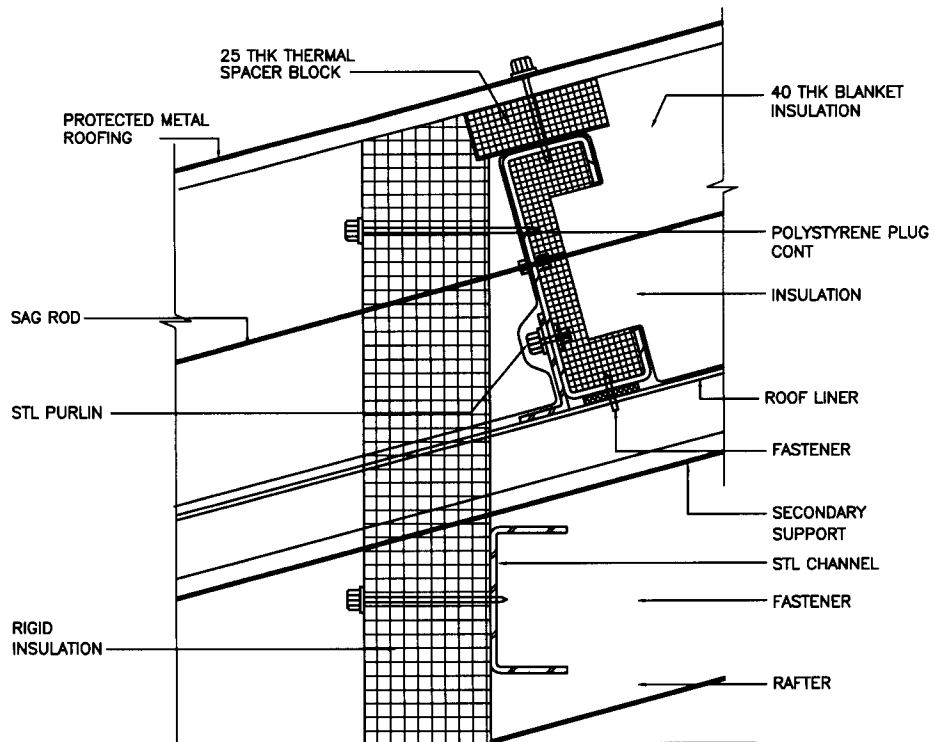
AT SECONDARY SUPPORT DETAIL

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	ROOFING & SIDING DETAILS, PROTECTED METAL - 9	SPEC	07413	OCT 2003	A0809



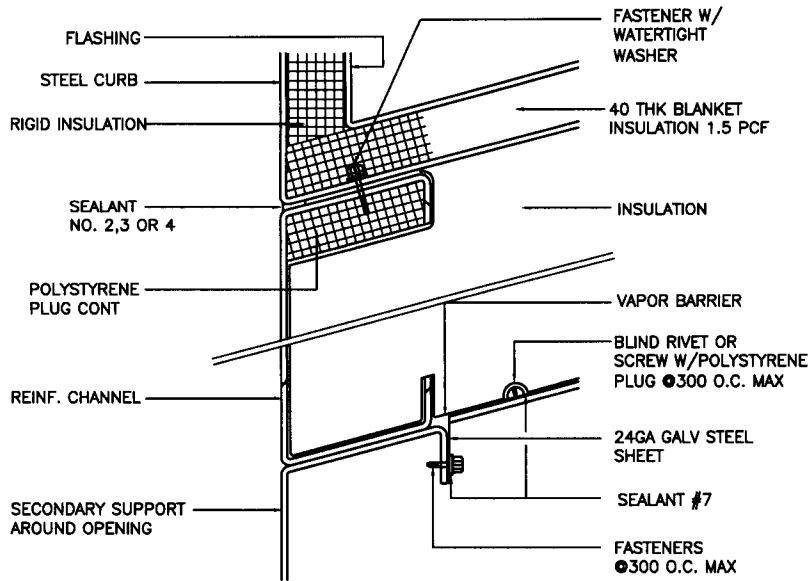
ROOF DETAIL @PURLIN

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	ROOFING & SIDING DETAILS, PROTECTED METAL - 10	SPEC	07413	OCT 2003	A0810

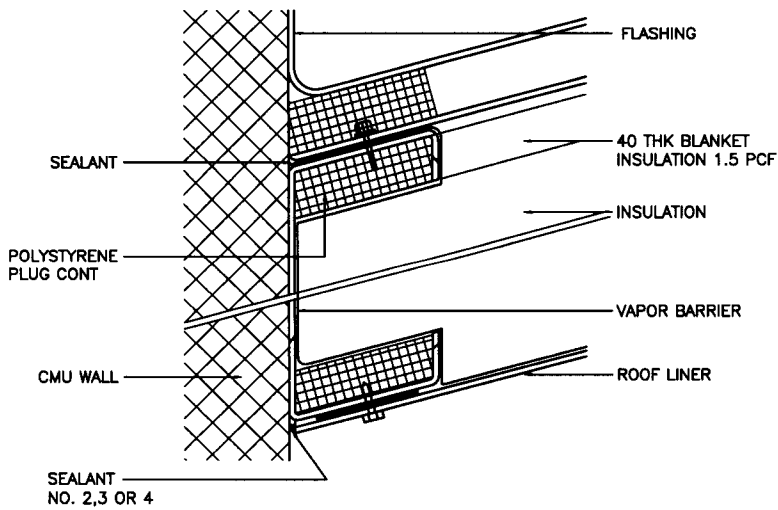


AT EAVE

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	ROOFING & SIDING DETAILS, PROTECTED METAL - 11	SPEC	07413	OCT 2003	A0811



AT ROOF OPENING



AT CHIMNEY

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER

REV DATE

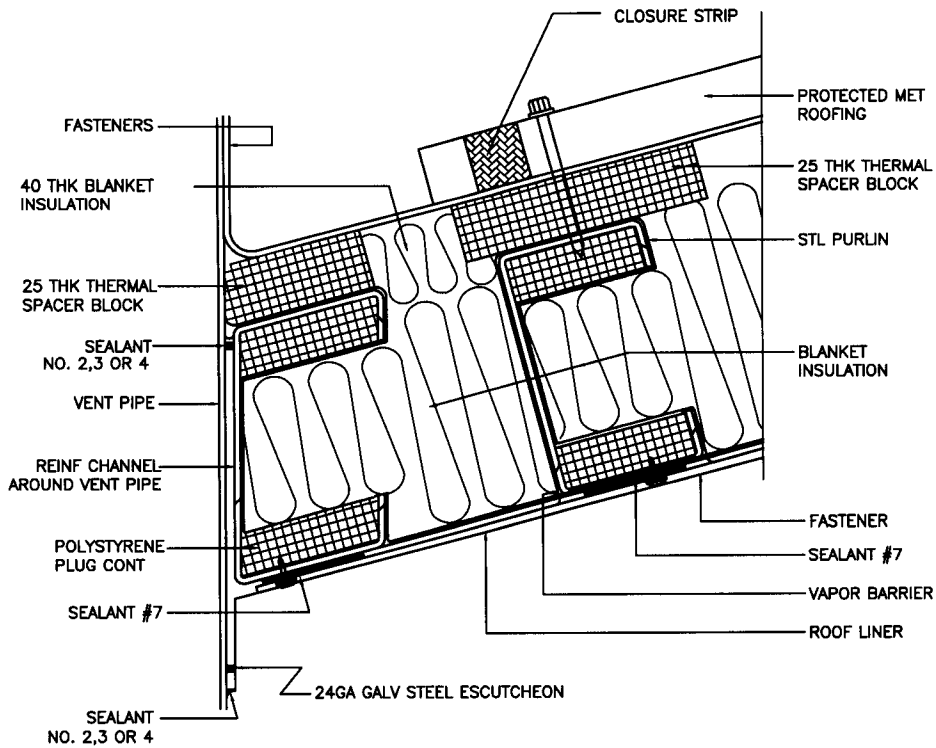
DWG NO.

TITLE ROOFING & SIDING DETAILS, PROTECTED METAL - 12

SPEC 07413

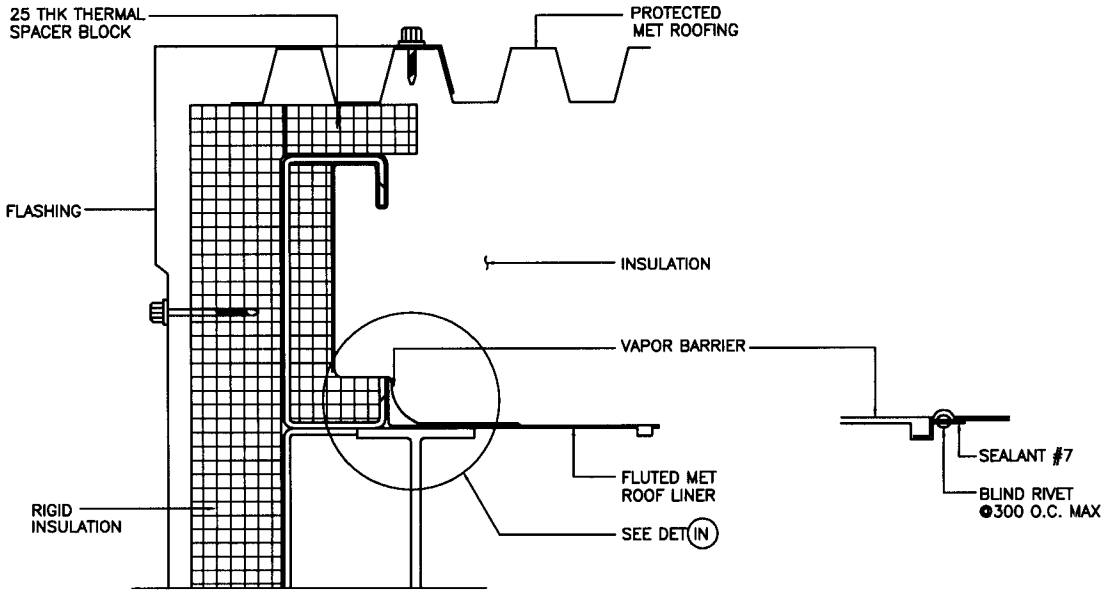
OCT 2003

A0812



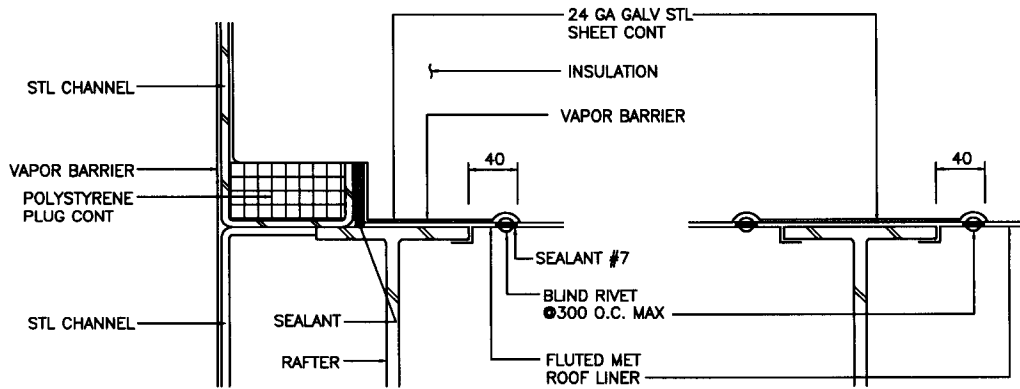
AT VENT PIPE

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	ROOFING & SIDING DETAILS, PROTECTED METAL - 13	SPEC	07413	OCT 2003	A0813



AT EAVE

SIDE LAY W/BLIND RIVET DET



AT RAKE

AT RAFTER

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER

REV DATE

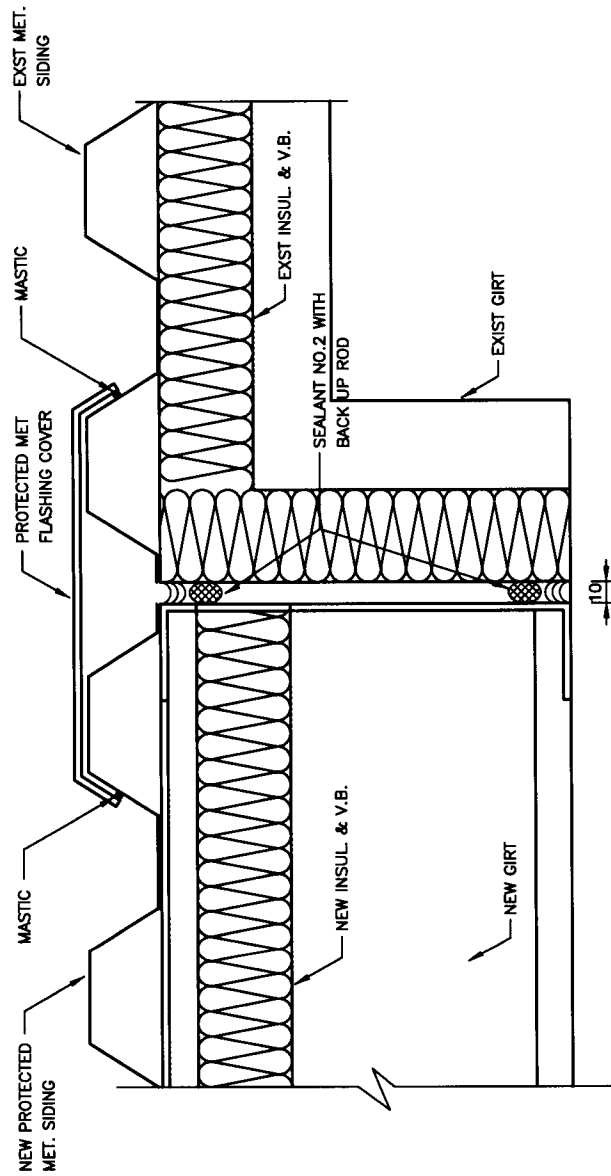
DWG NO.

TITLE ROOFING & SIDING DETAILS, PROTECTED METAL - 14

SPEC 07413

OCT 2003

A0814



WALL EXP. JOINT DETAIL

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER

REV DATE

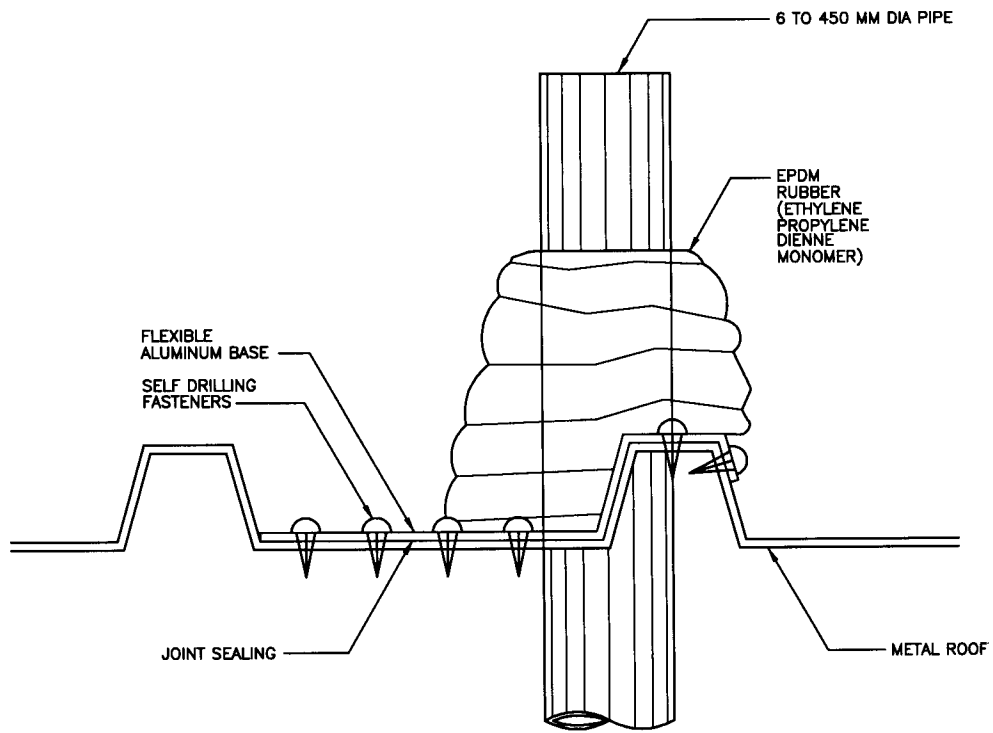
DWG NO.

TITLE WALL EXP. JOINT DETAIL

SPEC 07413

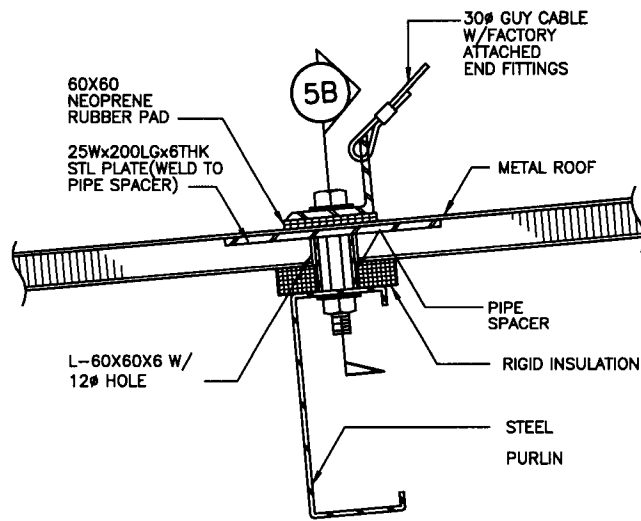
OCT 2003

A0815

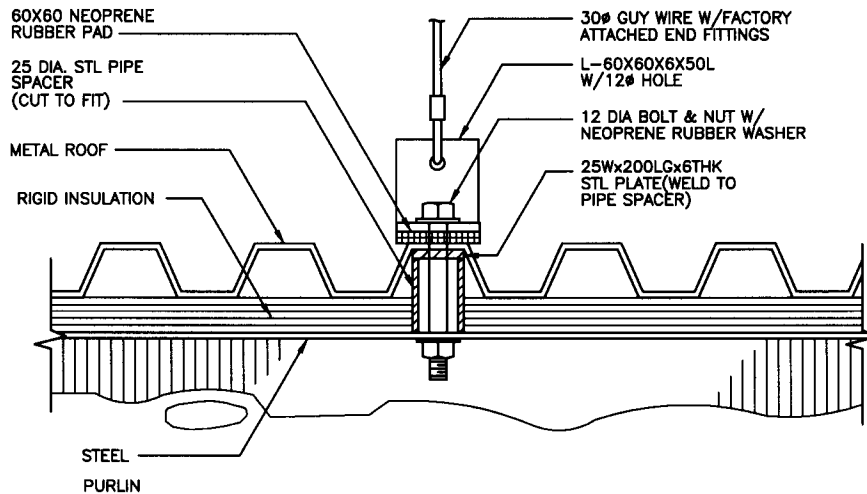


4
1023 PIPE PENETRATION DETAIL

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER			REV DATE	DWG NO.
TITLE	PIPE PENETRATION DETAIL	SPEC	07413	OCT 2003
				A0816



DETAIL



SECTION

CABLE TIE DOWN (GUY WIRE) ANCHOR DETAIL

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER

REV DATE

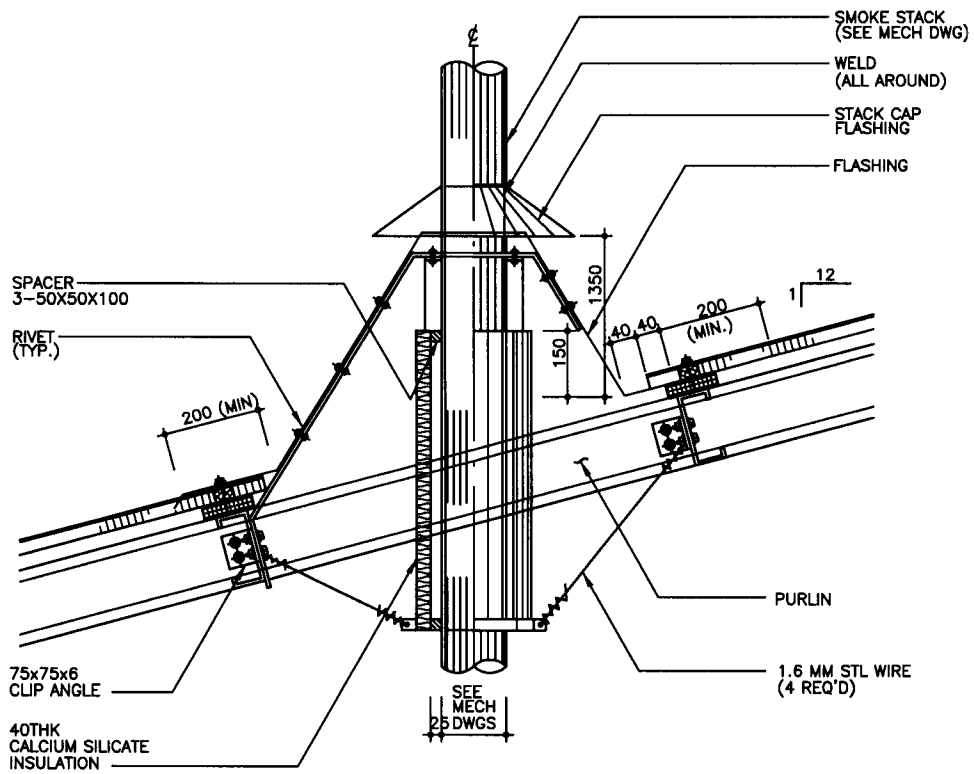
DWG NO.

TITLE CABLE TIE DOWN (GUY WIRE) ANCHOR DETAIL

SPEC 07413

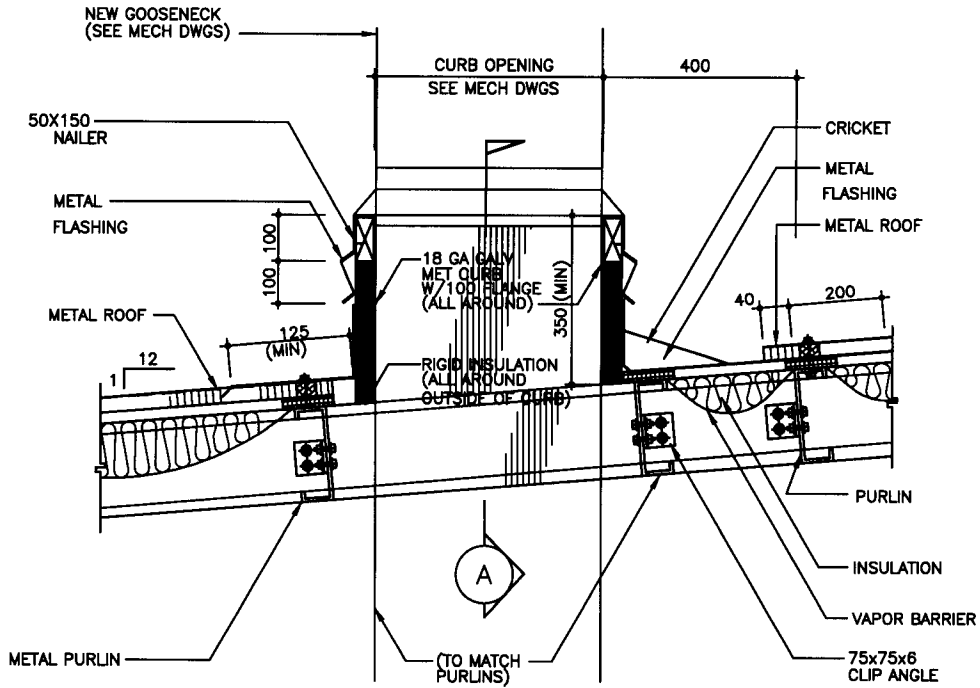
OCT 2003

A0817

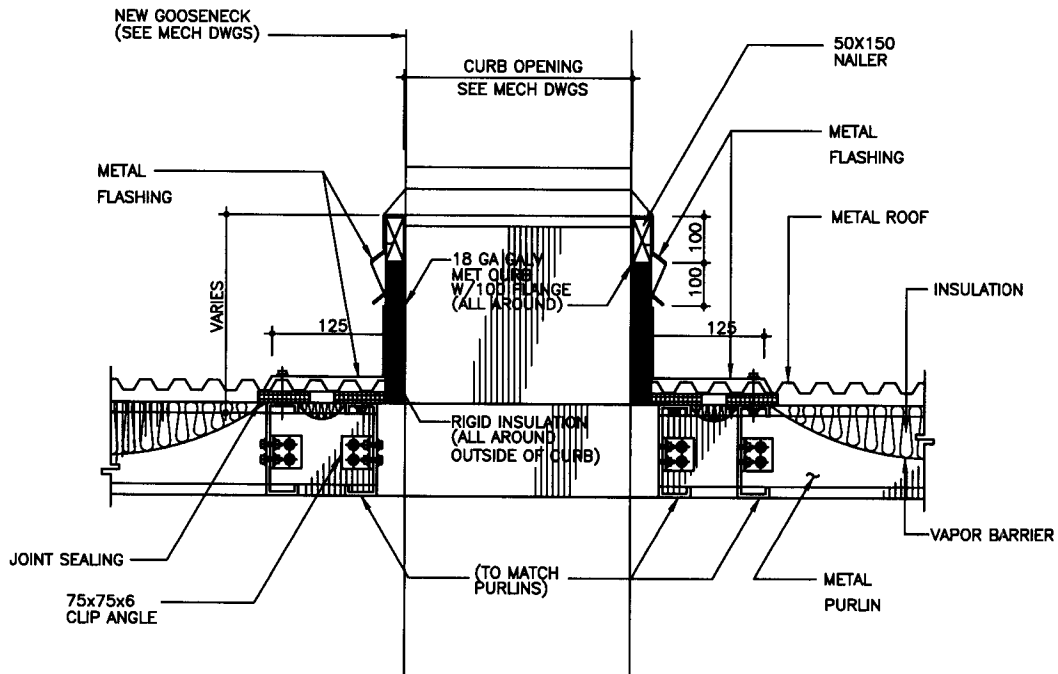


SMOKE STACK DETAIL

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	SMOKE STACK DETAIL	SPEC	07413	OCT 2003	A0818



SECTION



A SECTION

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER

REV DATE

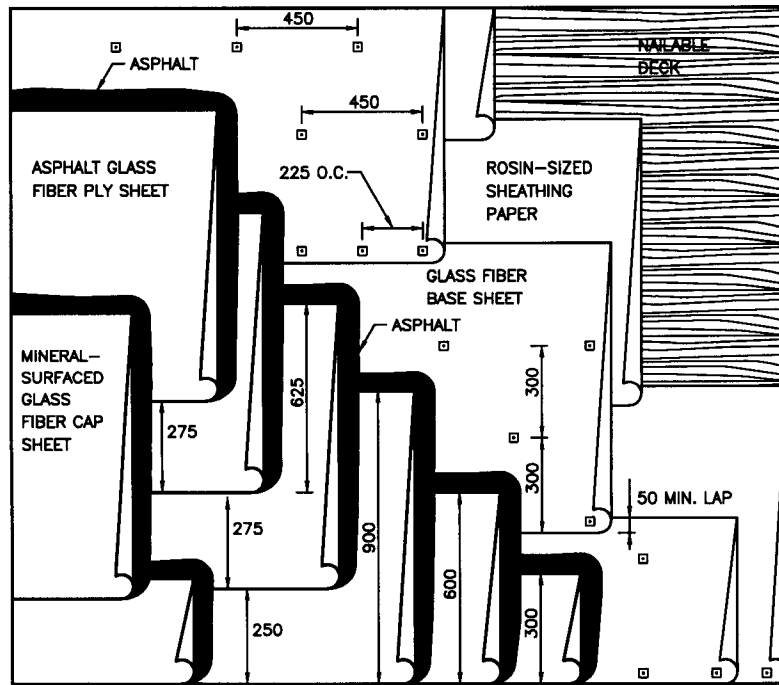
DWG NO.

TITLE GOOSENECK DETAIL

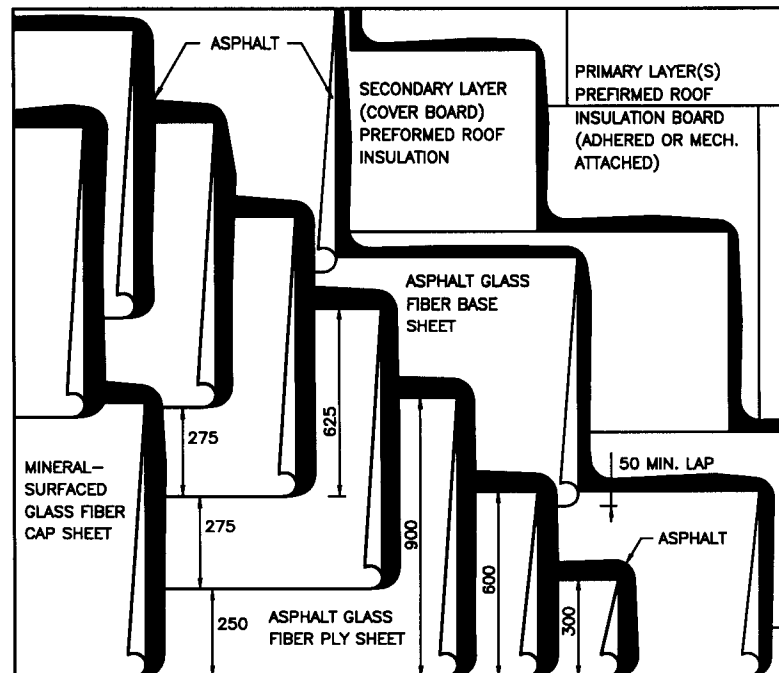
SPEC 07413

OCT 2003

A0819



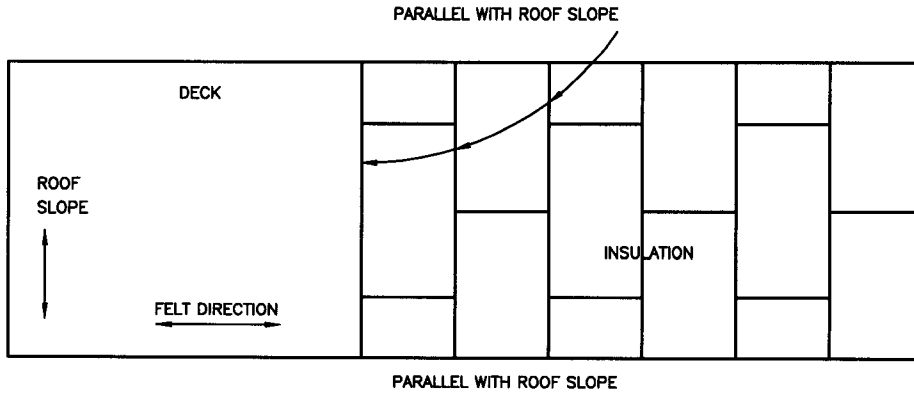
MINERAL SURFACE BUILT-UP ROOF
(NAILABLE DECK)



MINERAL SURFACE BUILT-UP ROOF
(INSULATION SURFACES)

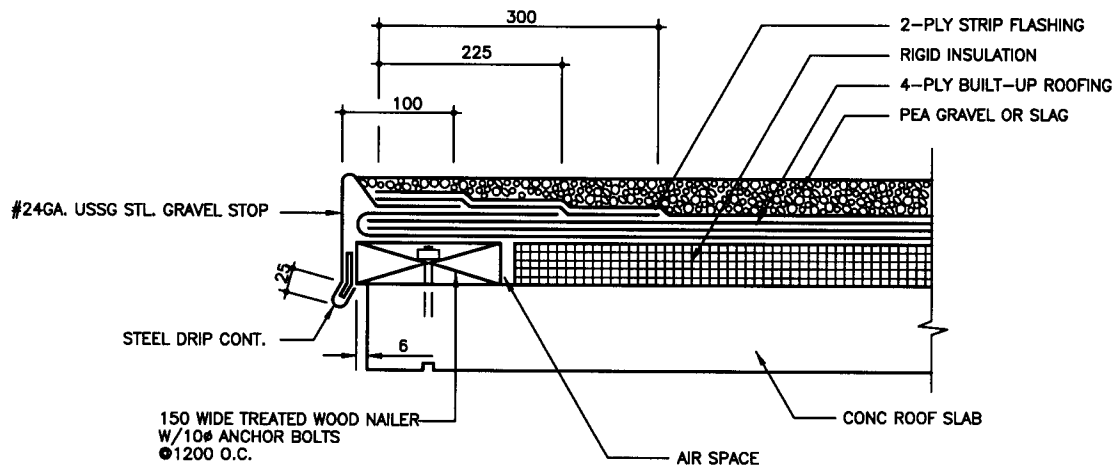
IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER		REV DATE	DWG NO.
TITLE	BUILT-UP ASPHALT ROOFING	SPEC 07511	OCT 2003 A0901

ON DECK TYPES OTHER THAN STEEL
 SET FIRST LAYER OF INSULATION IN AT LEAST
 20# SQ. OF ASPHALT (SOLID MOPPING).
 (USE TYPE III OR IV ASPHALT)



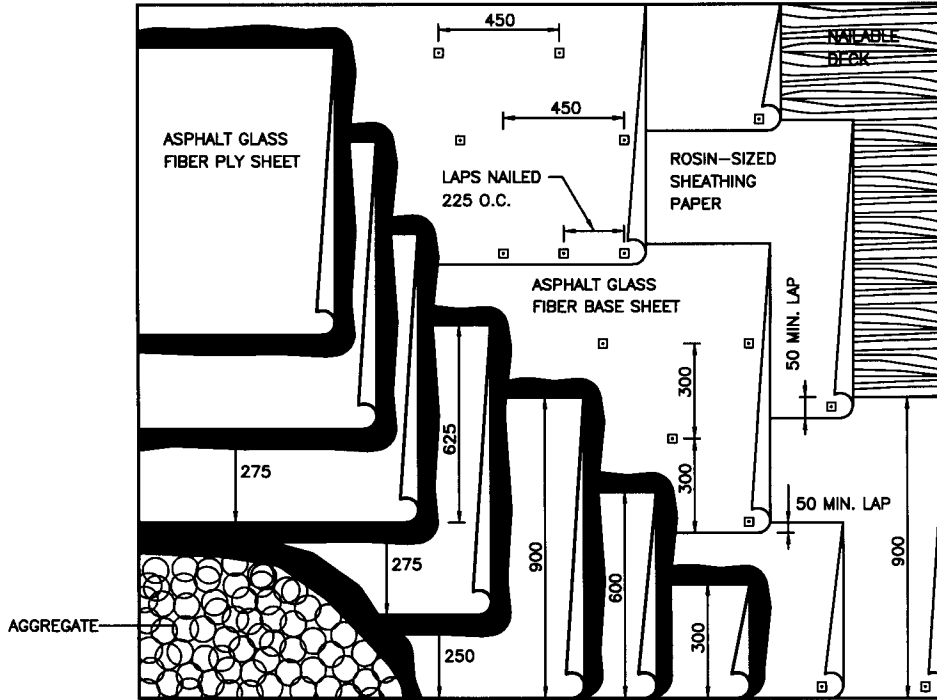
NOTE :
 JOINTS IN ROOF INSULATION SHALL NOT BE LOCATED OVER FLUTES IN STEEL ROOF DECKS.
 JOINTS BETWEEN INSULATION BOARDS SHALL NOT EXCEED 6 MM
 JOINTS IN SUCCESSIVE LAYERS SHALL BE STAGGERED WITH RESPECT TO JOINTS OF PRECEDING LAYER.

LAYER OF ROOF INSULATION

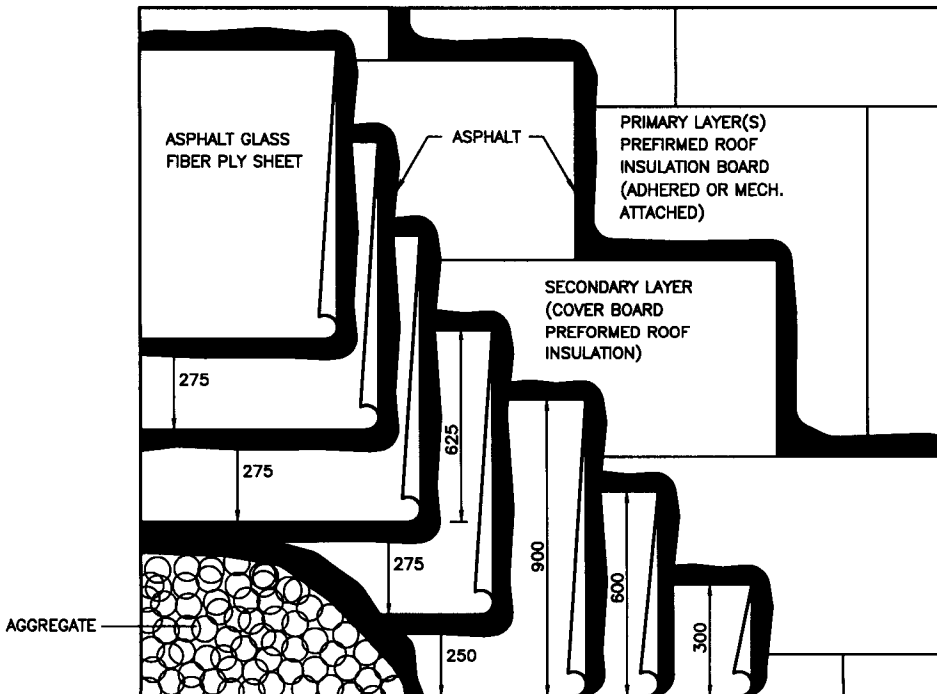


4-PLY BUILT-UP ROOF (FOR USE NON-NAILABLE CONC DECKS)

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	BUILT-UP ASPHALT ROOFING	SPEC	07511	OCT 2003	A0902

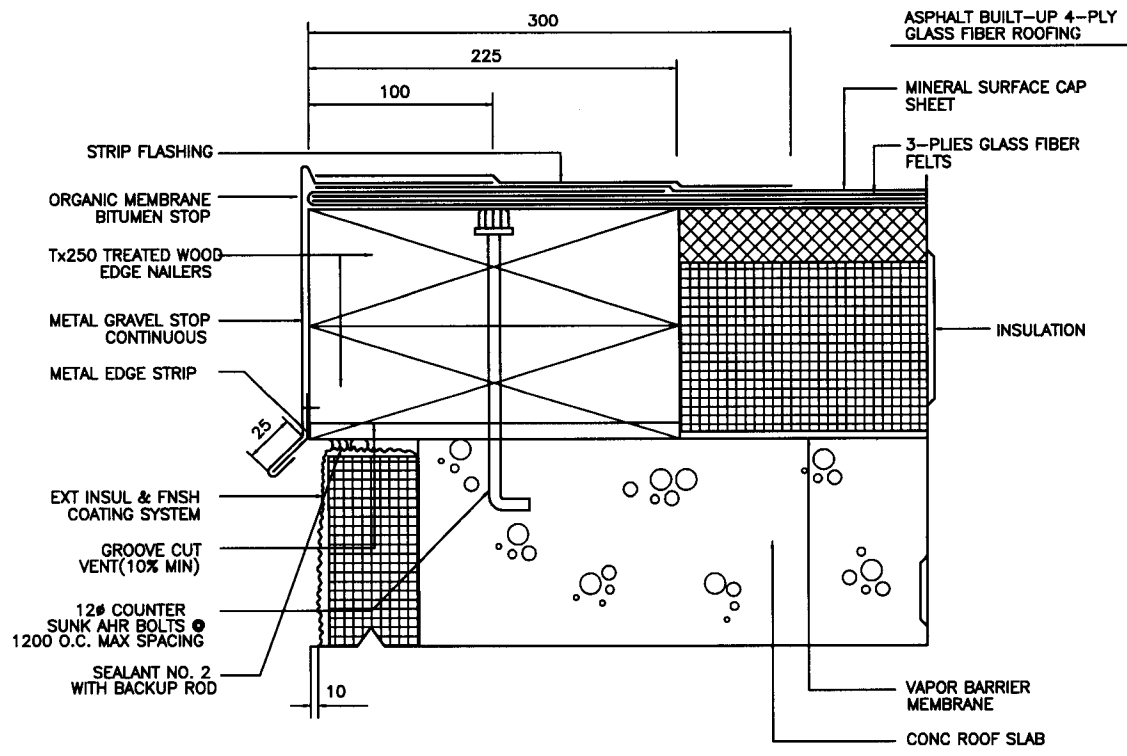


AGGREGATE SURFACE BUILT-UP ROOF
(NAILABLE DECK)

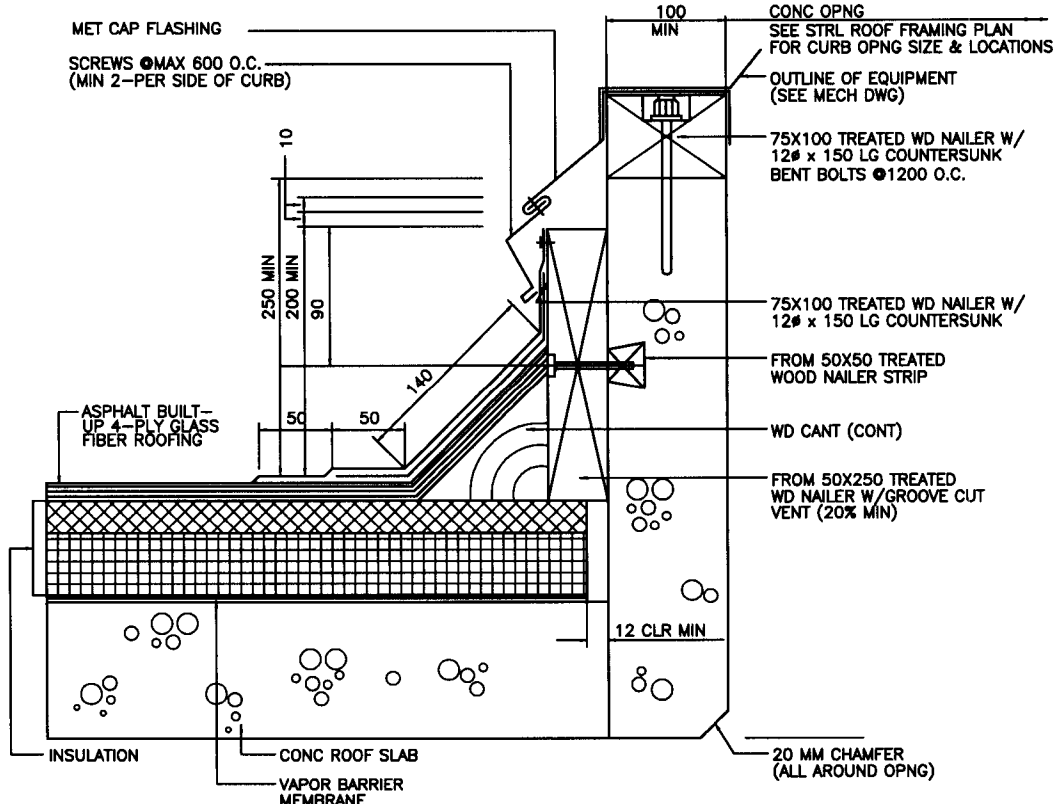


AGGREGATE SURFACE BUILT-UP ROOF
(INSULATION SURFACES)

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	BUILT-UP ASPHALT ROOFING	SPEC	07511	OCT 2003	A0903

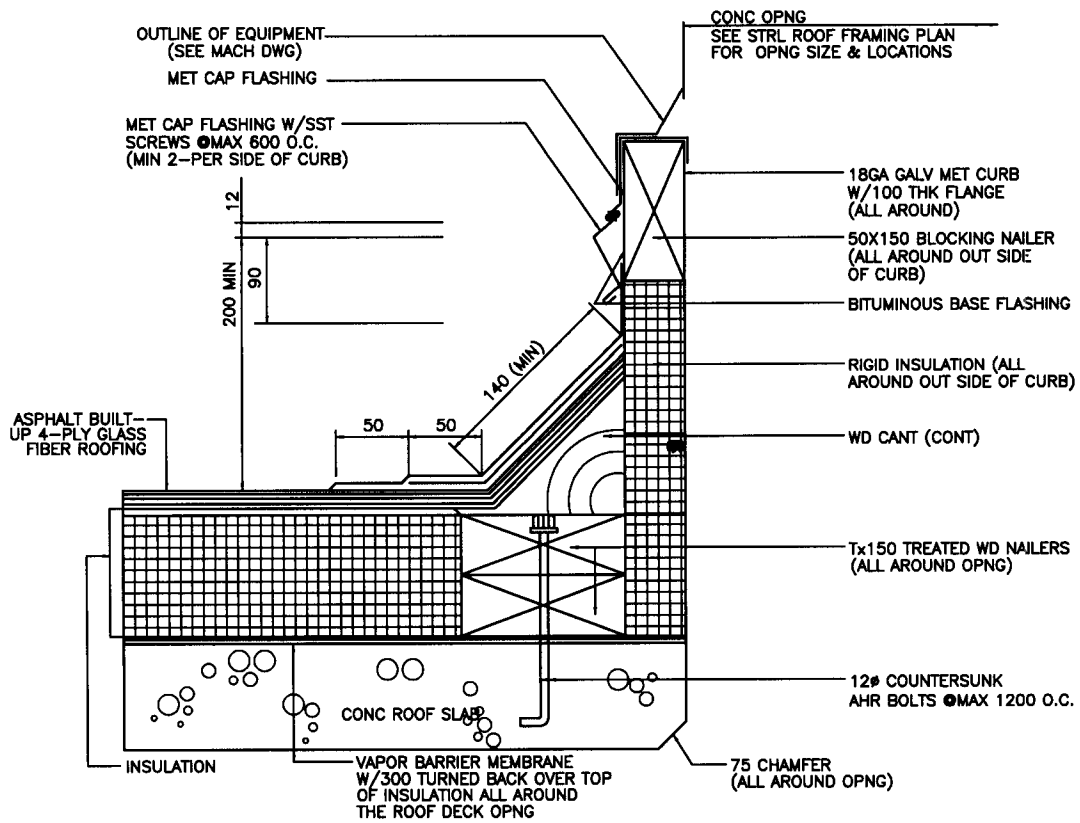


EAVE DETAIL

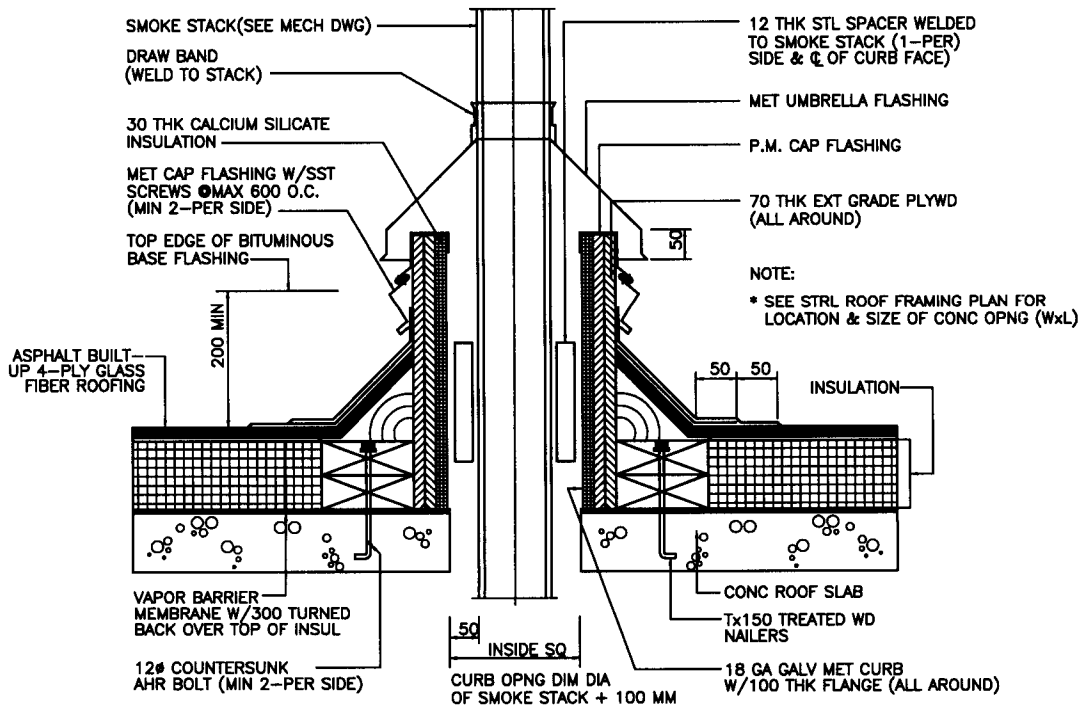


CONC. CURB DETAIL

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER			REV DATE	DWG NO.
TITLE	ROOFING DETAIL-1, BUILT-UP ASPHALT ROOFING	SPEC	07511	OCT 2003
			A0904	

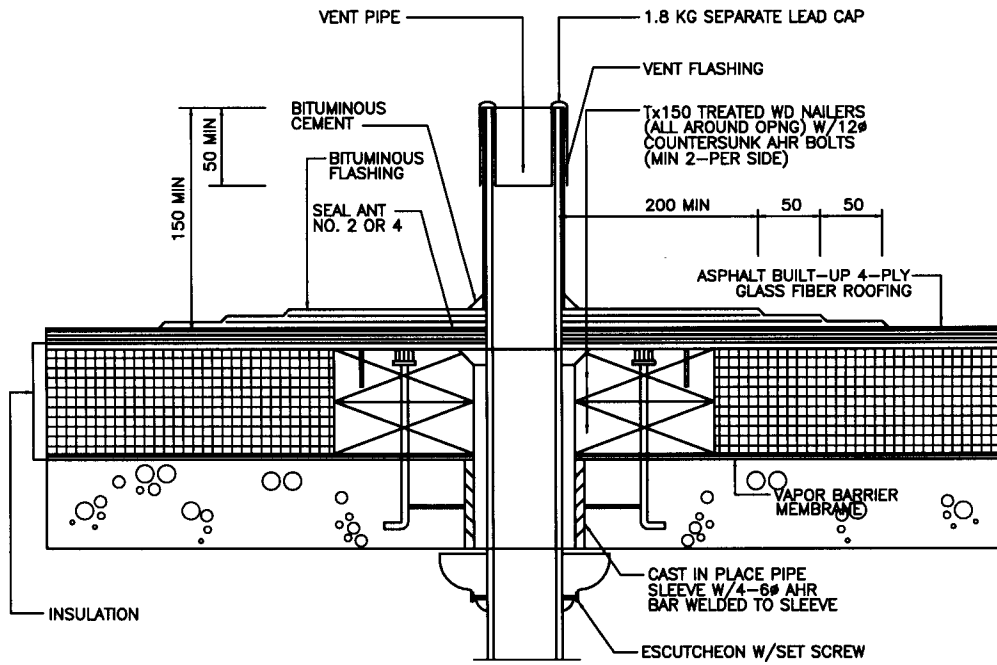


METAL CURB DETAIL

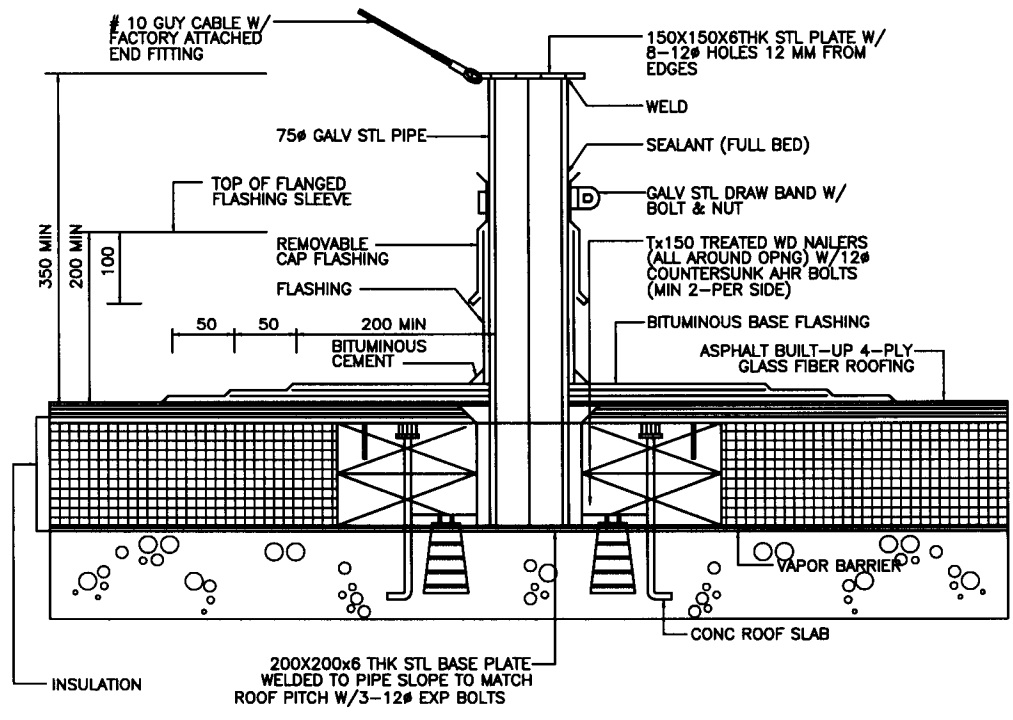


SMOKE STACK OPNG. DETAIL

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER			REV DATE	DWG NO.
TITLE	ROOFING DETAIL-2, BUILT-UP ASPHALT ROOFING	SPEC	07511	OCT 2003
			A0905	

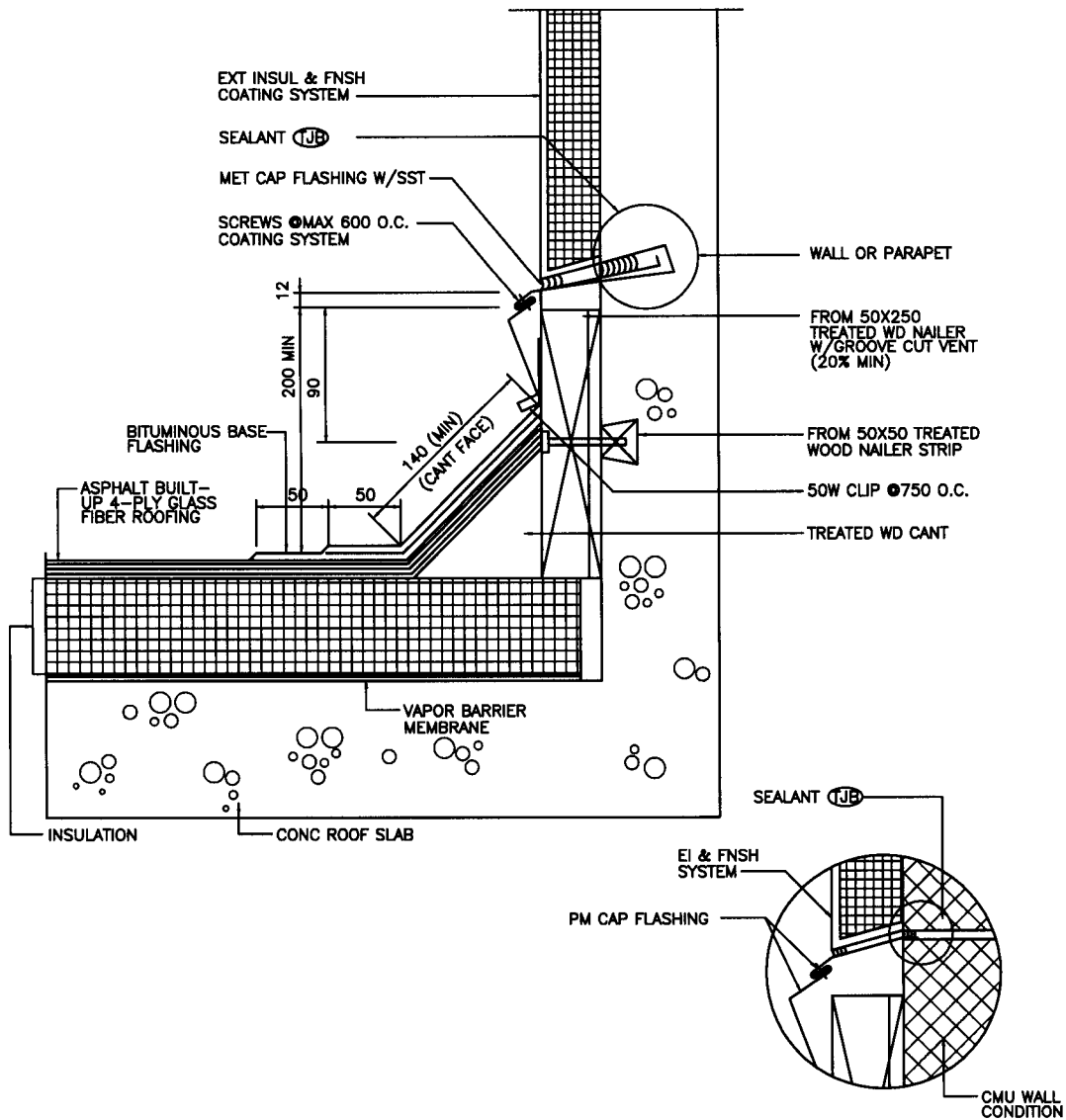


VENT THRU. ROOF DETAIL



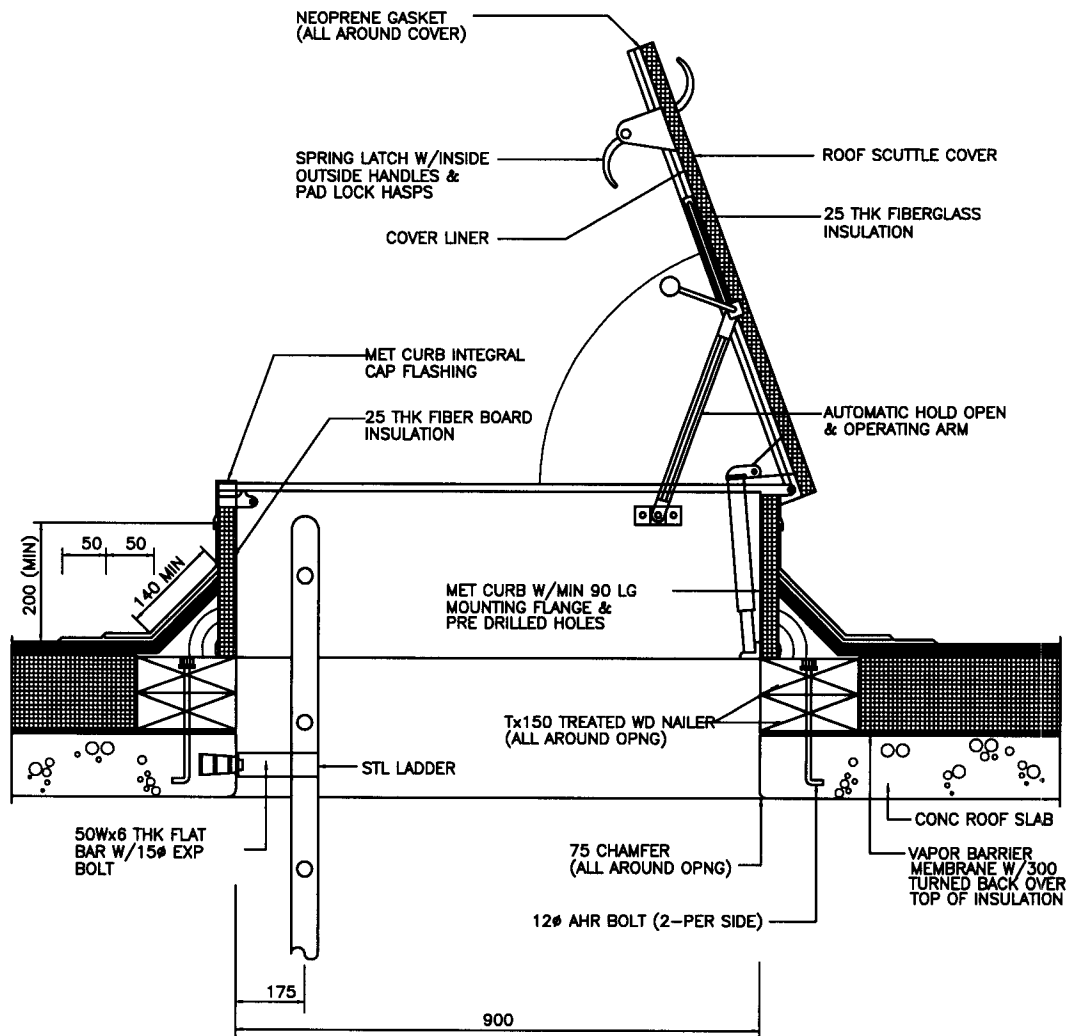
CABLE TIE DOWN ANCHOR DETAIL

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER		REV DATE	DWG NO.
TITLE	ROOFING DETAIL-3, BUILT-UP ASPHALT ROOFING	SPEC 07511	OCT 2003 A0906



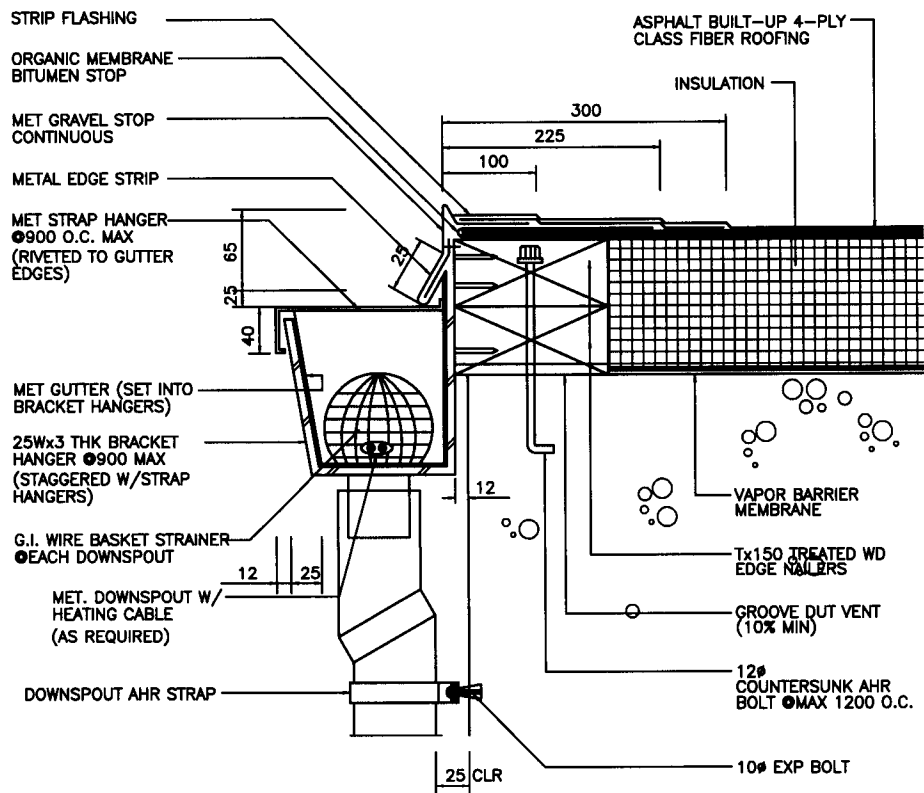
WALL FLASHING DETAIL

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	ROOFING DETAIL-4, BUILT-UP ASPHALT ROOFING	SPEC	07511	OCT 2003	A0907



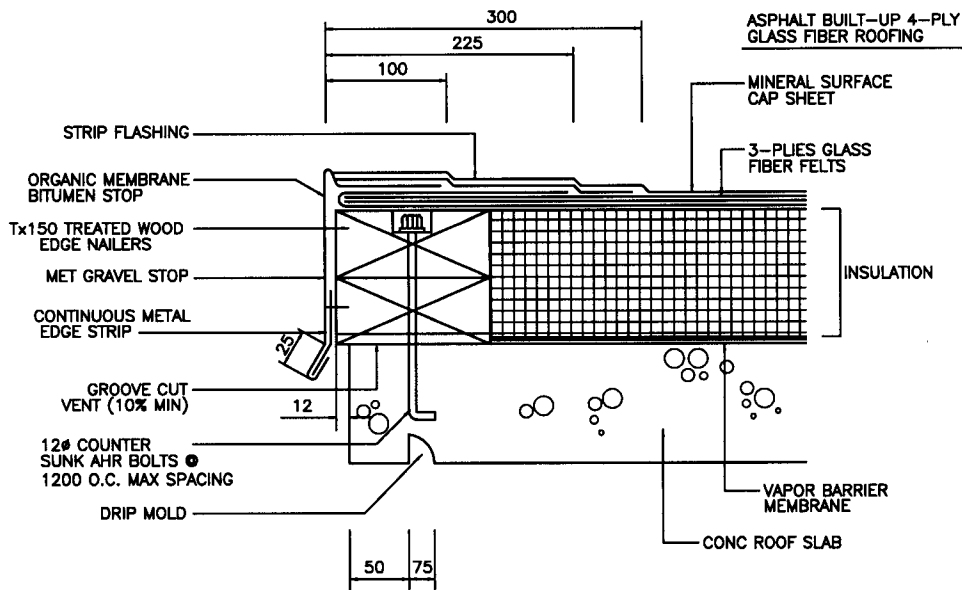
ROOF SCUTTLE DETAIL

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	ROOFING DETAIL-5, BUILT-UP ASPHALT ROOFING	SPEC	07511	OCT 2003	A0908

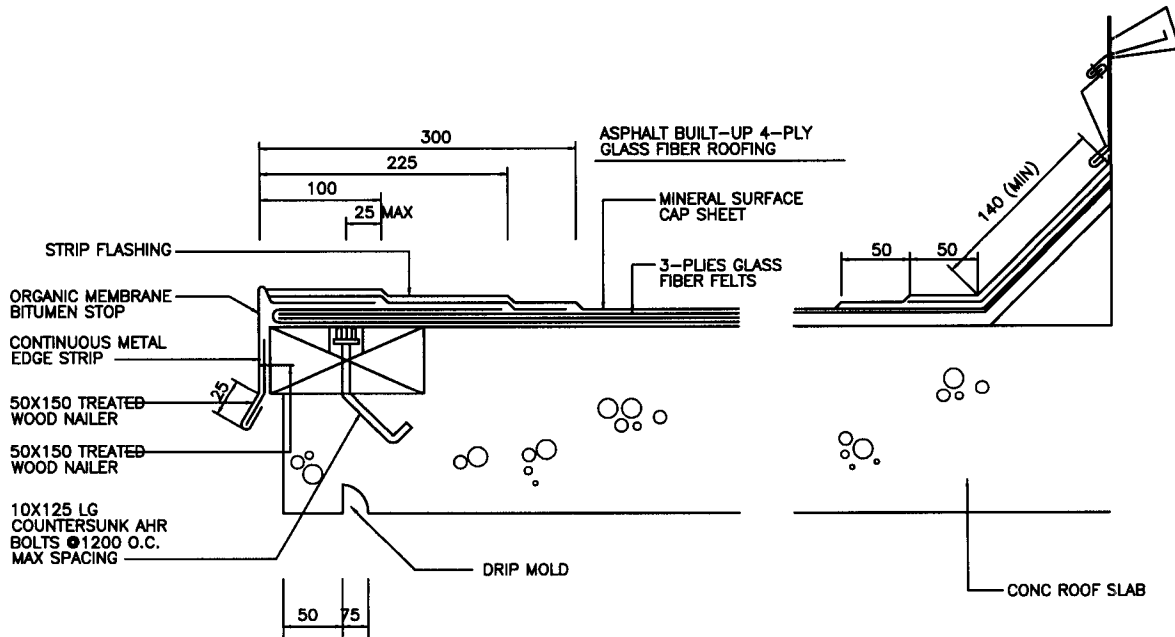


EAVE/METAL GUTTER DETAIL

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER			REV DATE	DWG NO.
TITLE	ROOFING DETAIL-6, BUILT-UP ASPHALT ROOFING	SPEC	07511	OCT 2003
				A0909

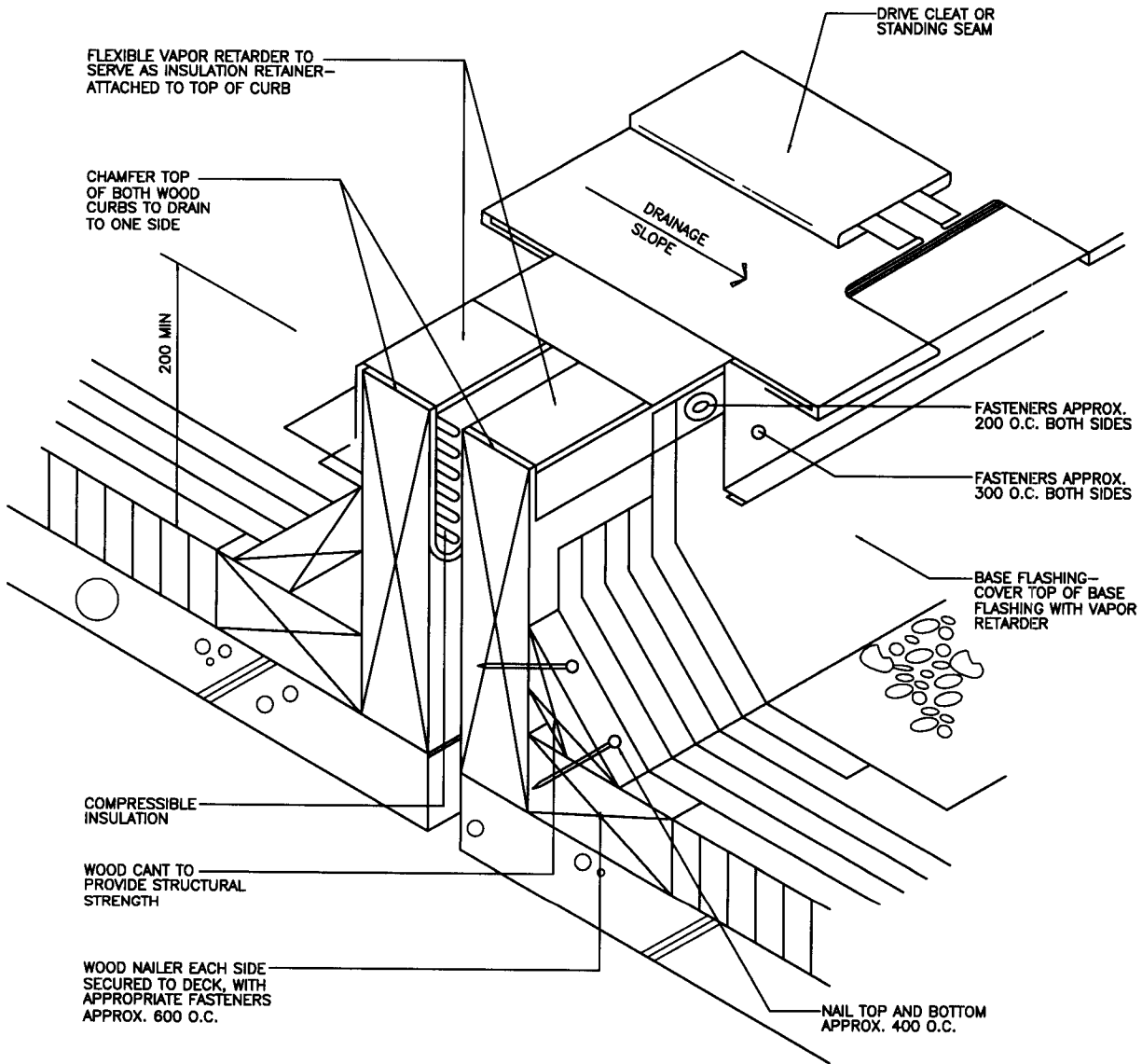


EAVE DETAIL



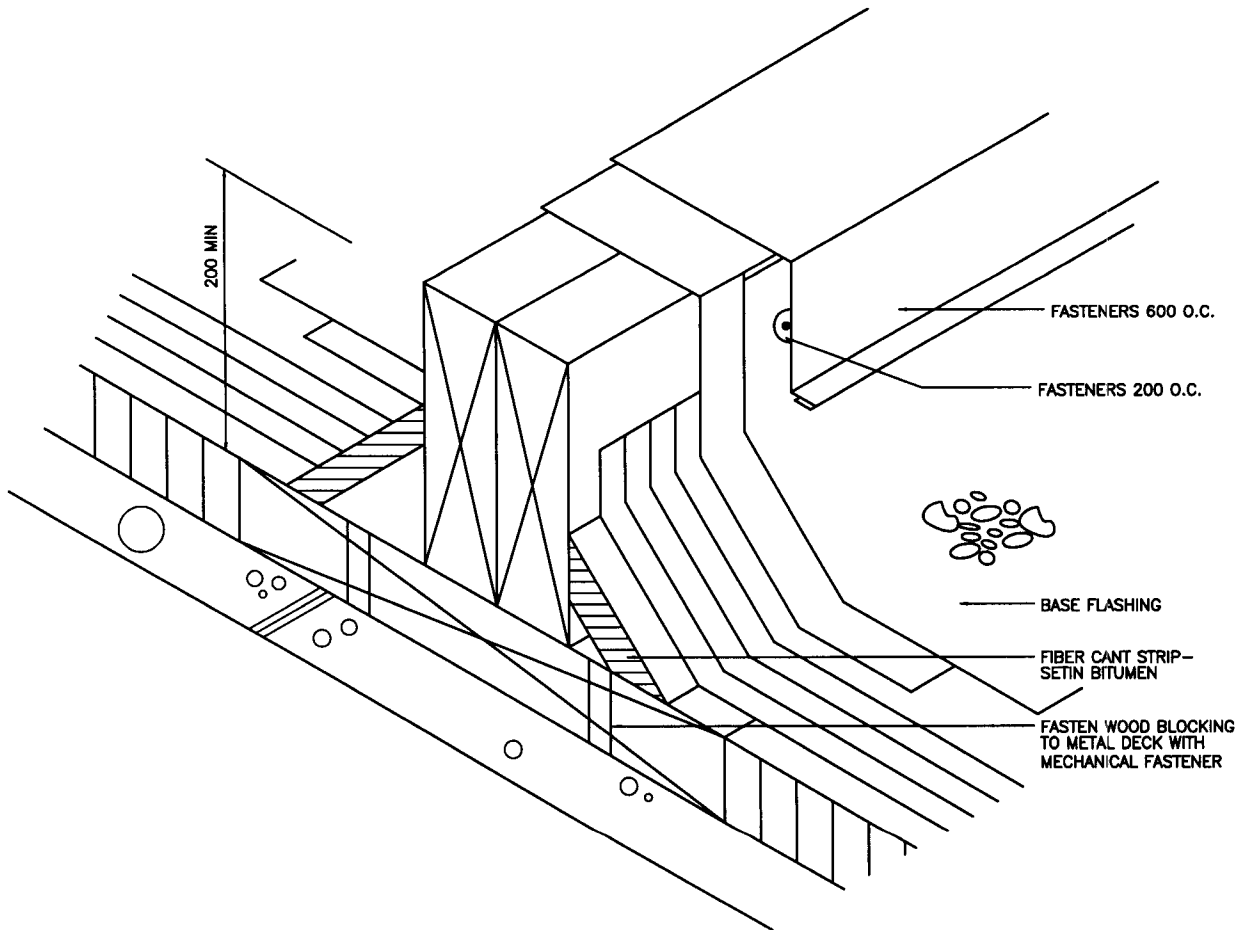
BUILT-UP ROOFING ON CONCRETE

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	ROOFING DETAIL-7, BUILT-UP ASPHALT ROOFING	SPEC	07511	OCT 2003	A0910



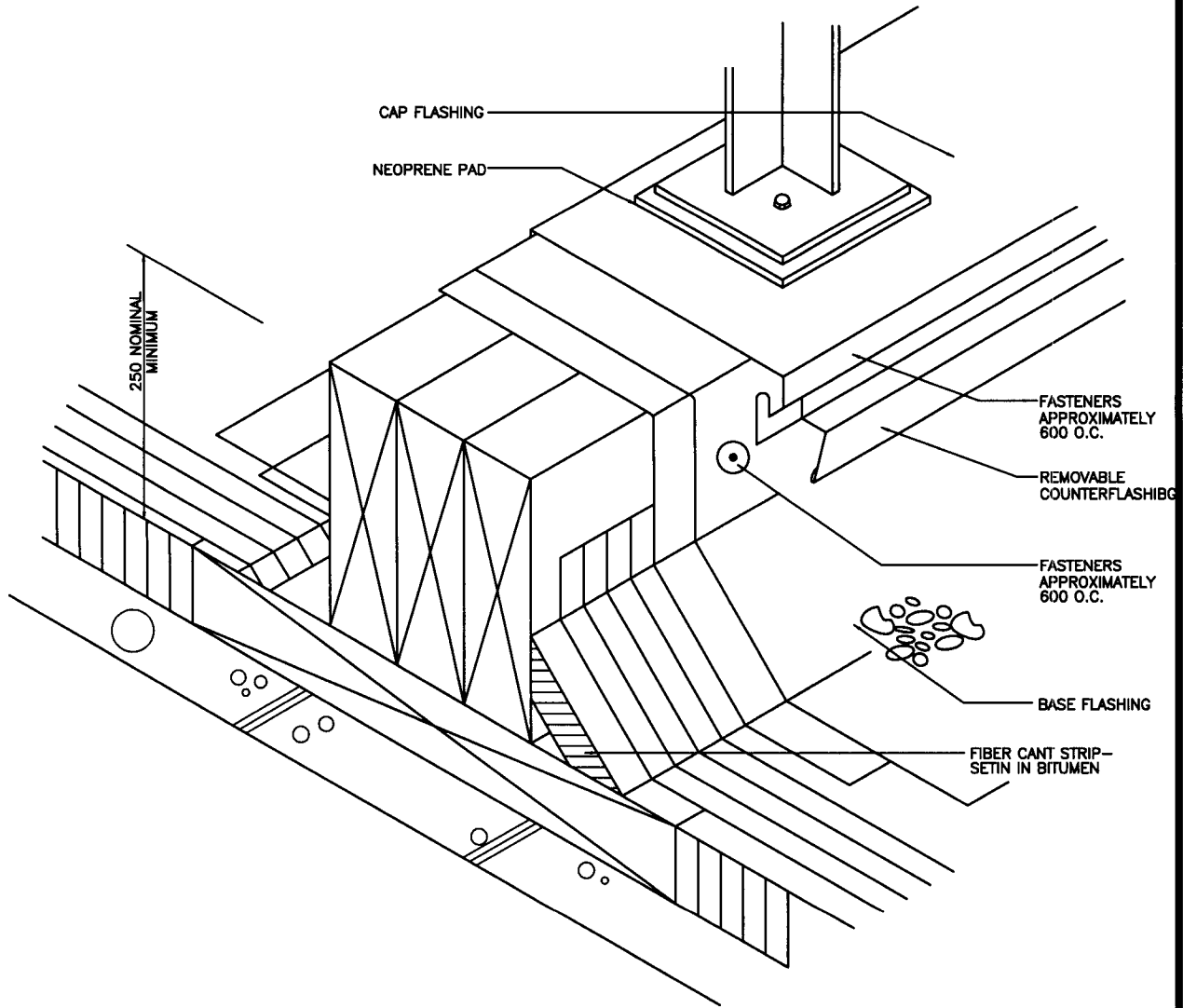
EXPANSION JOINT

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER			REV DATE	DWG NO.
TITLE	ROOFING DETAIL-8, BUILT-UP ASPHALT ROOFING	SPEC	07511	OCT 2003
				A0911



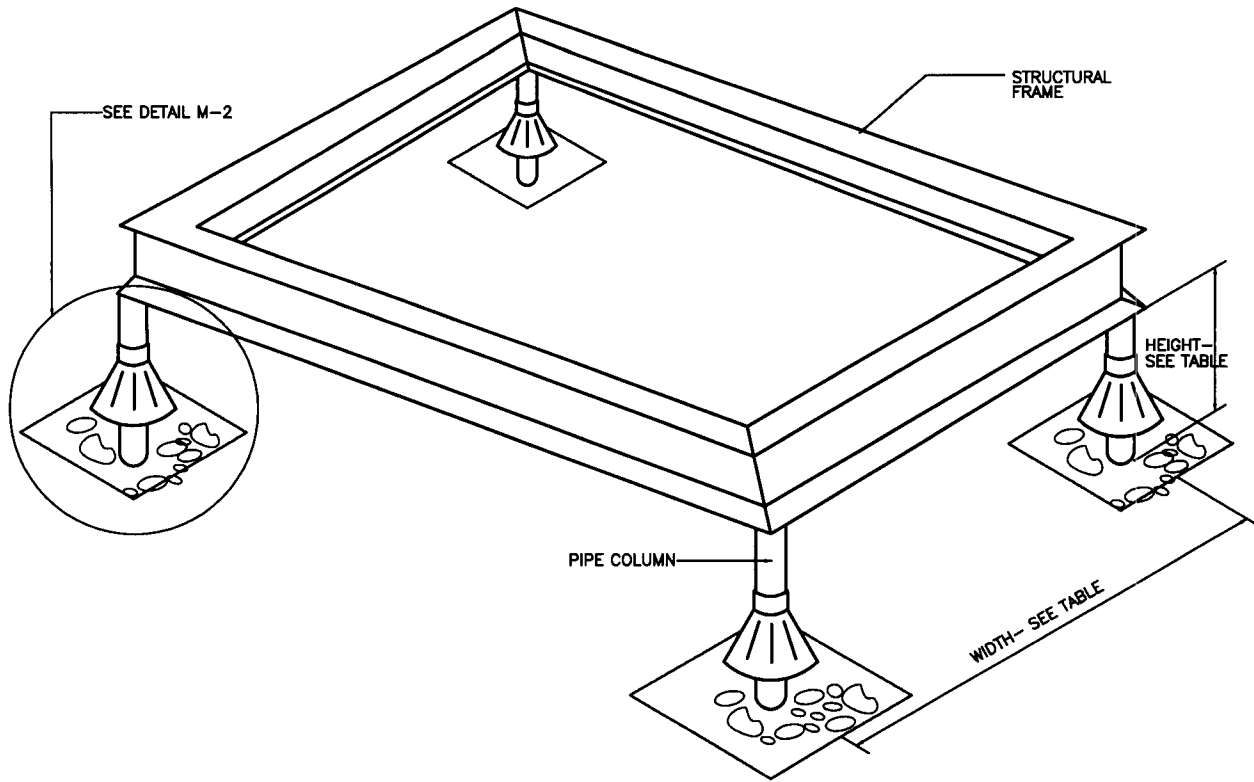
AREA DIVIDER

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	ROOFING DETAIL-9, BUILT-UP ASPHALT ROOFING	SPEC	07511	OCT 2003	A0912



EQUIPMENT OR SING SUPPORT

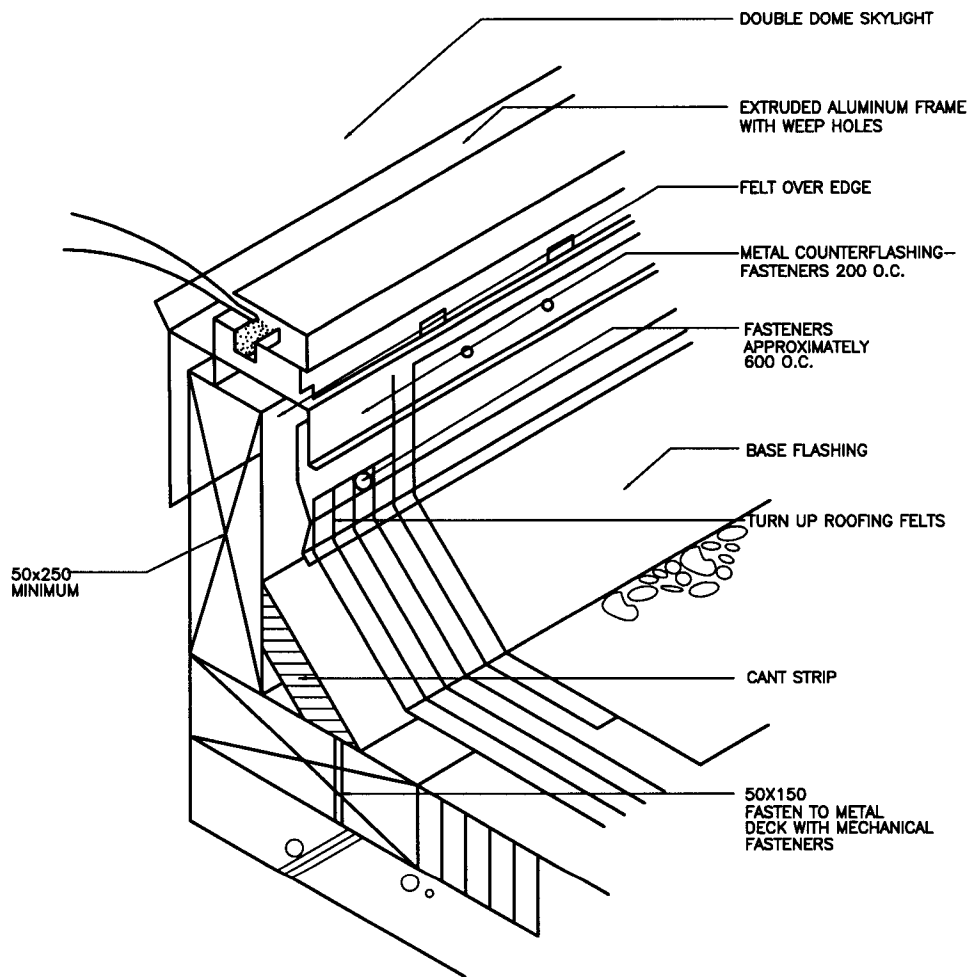
IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	ROOFING DETAIL-10, BUILT-UP ASPHALT ROOFING	SPEC	07511	OCT 2003	A0913



WIDTH OF EQUIPMENT	HEIGHT OF LEGS
UP TO 600	350
625 TO 900	450
925 TO 1200	600
1225 TO 1800	750
1825 AND WIDER	1200

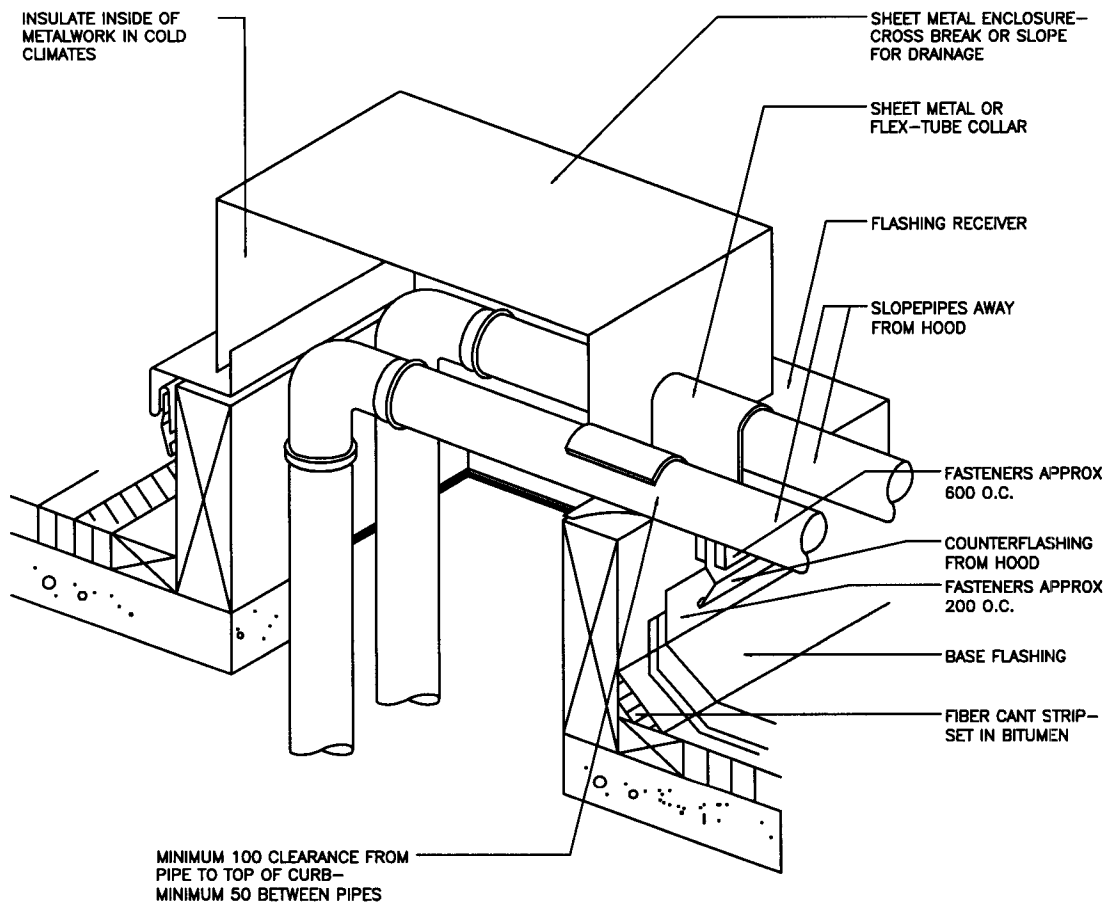
MECHANICAL EQUIPMENT EQUIPMENT STAND

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	ROOFING DETAIL-11, BUILT-UP ASPHALT ROOFING	SPEC	07511	OCT 2003	A0914



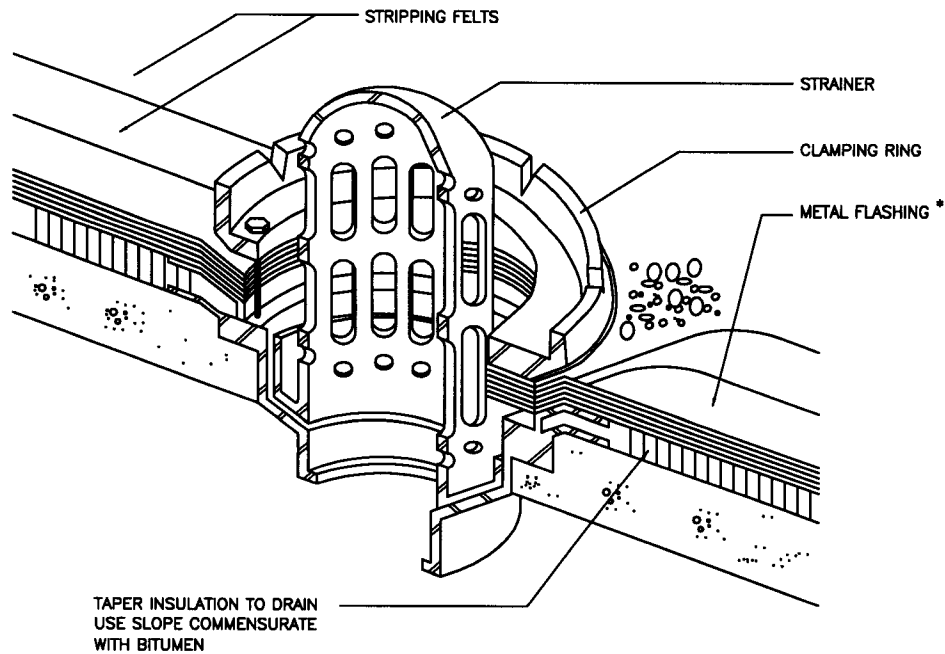
SKYLIGHT, HATCH AND SMOKE VENT

IMA--KORO, REGIONAL ENGINEER SUPPORT CENTER			REV DATE	DWG NO.
TITLE	ROOFING DETAIL-12, BUILT-UP ASPHALT ROOFING	SPEC	07511	OCT 2003
				A0915



PIPING THROUGH ROOF DECK

IMA—KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	ROOFING DETAILS—13, BUILT—UP ASPHALT ROOFING	SPEC	07511	OCT 2003	A0916



NOTE:

* MIN. 750 SQUARE 1.1 KG TO 1.8 KG LEAD OR 0.45 KG SOFT COPPER FLASHING SET ON FINISHED ROOFING FELTS IN MASTIC. PRIME TOP SURFACE BEFORE STRIPPING.

MEMBRANE PLIES, METAL FLASHING, AND FLASH-IN PLIES EXTEND UNDER CLAMPING RING.

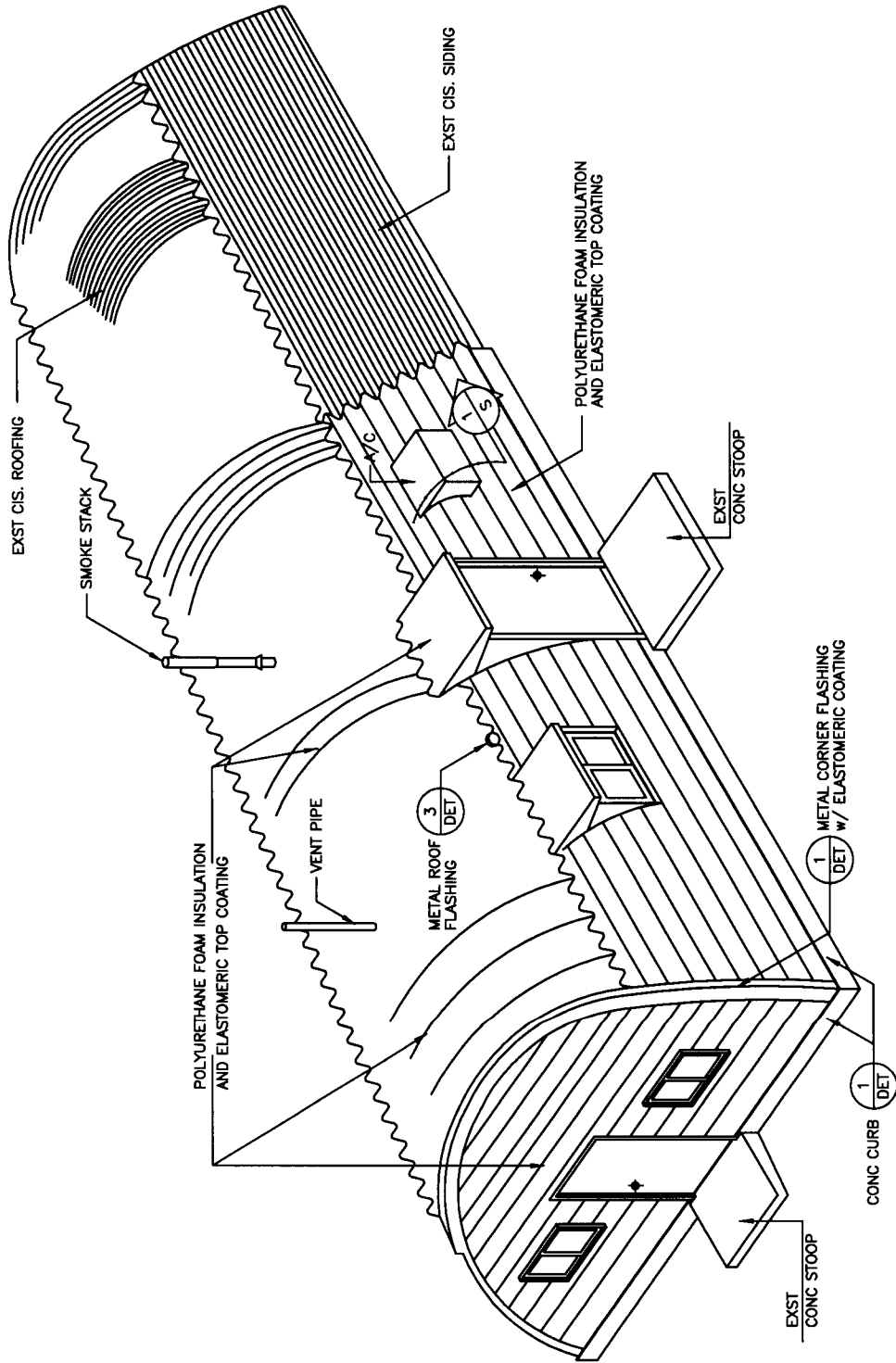
STRIPPING FELTS EXTEND 100 AND 150 BEYOND EDGE OF FLASHING SHEET, BUT NOT BEYOND EDGE OF SUMP.

GENERAL NOTES

1. THE BOTTOM HALF OF THE TREATED WOOD NAILER SHALL BE GROOVE CUT OR HAVE SCAB PIECES OF WOOD BLOCKING SECURED TO THE BOTTOM TO PROVIDE A NET OPEN AREA EQUIVALENT TO 10% OF THE EDGE FACE FOR VENTILATION OF INSULATION.
2. WHEN FASCIA EXCEEDS 6 INCHES IN DEPTH ONE OR MORE HORIZONTAL STEPS NOT LESS THAN 12 MM HIGH SHALL BE FORMED IN THE FASCIA WHEN FASCIA EXCEEDS 175 MM DEPTH.
3. INSULATION SHALL BE LAID IN TWO OR MORE LAYERS.
4. THE INSULATION THICKNESS SHALL BE BASED ON "R" VALUE SHOWN IN THE PROJECT DRAWINGS.
5. ROOF FOR BUILT-UP ROOFING SHALL HAVE A MIN. 1/100 ROOF SLOPE.

ROOF DRAIN

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER			REV DATE	DWG NO.	
TITLE	ROOFING DETAILS-14, BUILT-UP ASPHALT ROOFING	SPEC	07511	OCT 2003	A0917



VIEW OF ROUND WALL QUONSET (TYPICAL)

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER

REV DATE

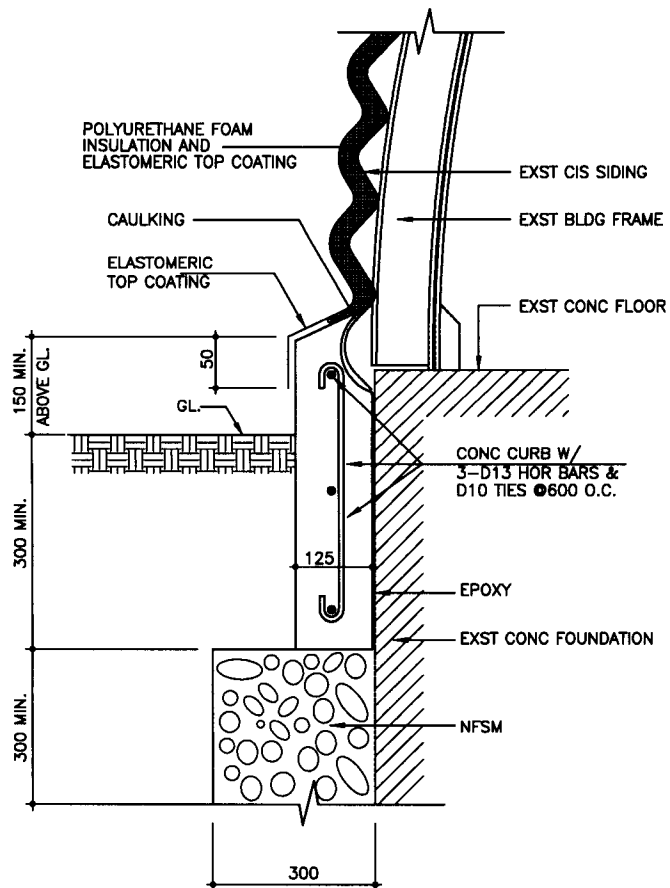
DWG NO.

TITLE SPRAYED POLYURETHANE FOAM (SPF) ROOFING

SPEC 07570

OCT 2003

A1001

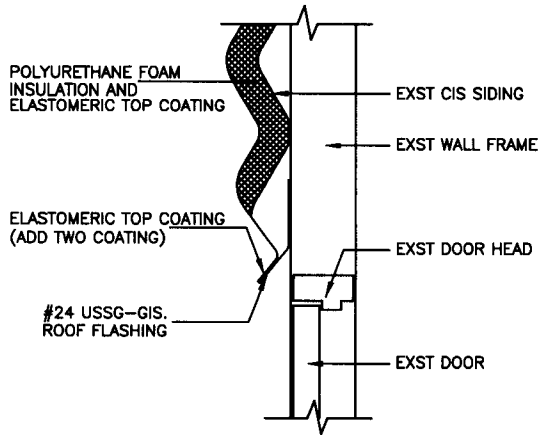


1 CURB DETAIL
DTL

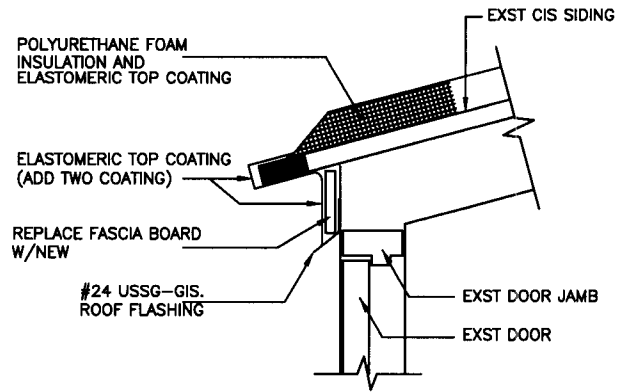
GENERAL NOTE

1. INSTALLATION OF FOAM INSULATION AND SAFETY REQUIREMENTS SHALL BE IN ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS.
2. THE CONTRACTOR SHALL VERIFY ALL DIMENSIONS AND CONDITIONS ON JOB SITE BEFORE START OF WORK.
3. THE CONTRACTOR SHALL PREPARE SHOP DRAWING FOR ANY UNDETAILED PORTION OF THE DRAWING AND FOR ANY PORTION INDICATED BY CONTRACTING OFFICER'S REPRESENTATIVE, AND SHALL SUBMIT THIS DRAWING TO THE CONTRACTING OFFICER'S REPRESENTATIVE. FOR APPROVAL PRIOR TO COMMENCING WORK.
4. THE BUILDING FINISH COLOR SCHEDULE MAY INCLUDE DIFFERENT COLORS FOR THE ROOFS, WALLS AND TRIMS. THE TRIM COLOR MAY BE APPLIED TO THE DOORS, WINDOWS, CORNERS AND FASCIA BOARDS WHEN REQUESTED BY THE CONTRACTING OFFICER'S REPRESENTATIVE.
5. BLASTING OPERATIONS : PROVIDE TARPAULIN DROP CLOTHS AND WINDSCREENS TO ENCLOSE ABRASIVE BLASTING OPERATIONS TO CONFINE AND COLLECT DUST, ABRASIVE, AGENT, PAINT CHIPS, AND OTHER DEBRIS.
6. DISPOSAL REQUIREMENTS : COLLECT DUST, SAND, PAINT, AND OTHER DEBRIS RESULTING FROM ABRASIVE BLASTING OPERATIONS AND STORE IN DRUMS WITH WATERTIGHT LIDS AND REMOVE FROM GOVERNMENT PROPERTY.

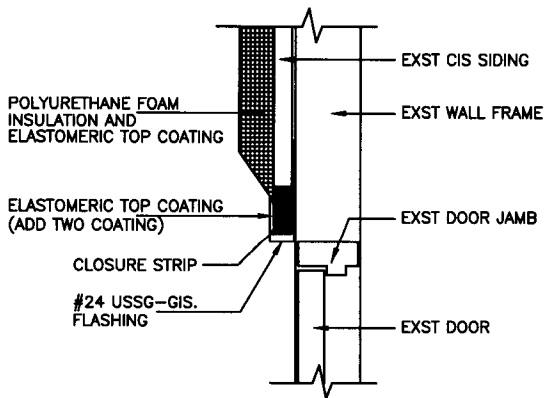
IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER			REV DATE	DWG NO.
TITLE	SPRAYED POLYURETHANE FOAM (SPF) ROOFING	SPEC	07570	OCT 2003
				A1002



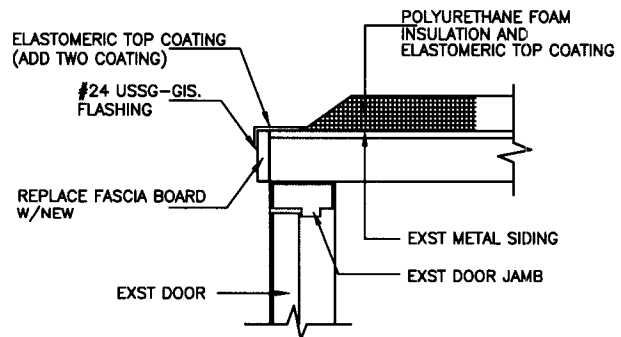
D1 HEAD



D2 HEAD

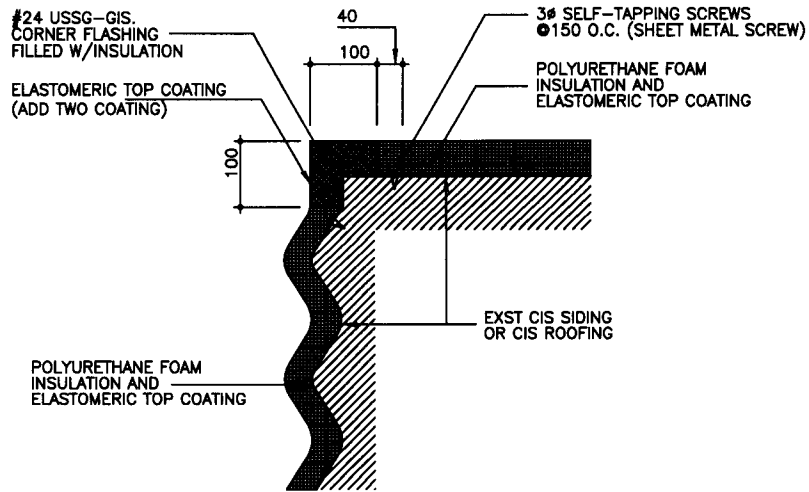


D1 JAMB

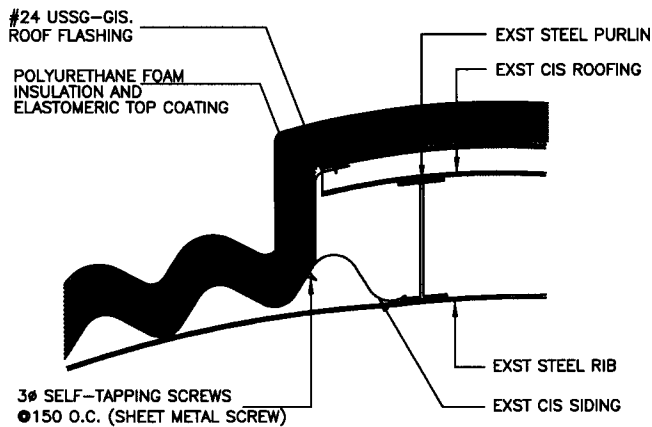


D2 JAMB

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	SPRAYED POLYURETHANE FOAM (SPF) ROOFING	SPEC	07570	OCT 2003	A1003

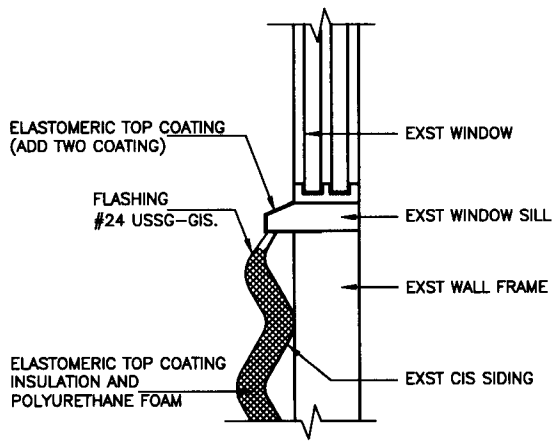


2 CORNER FLASHING DETAIL
DTL

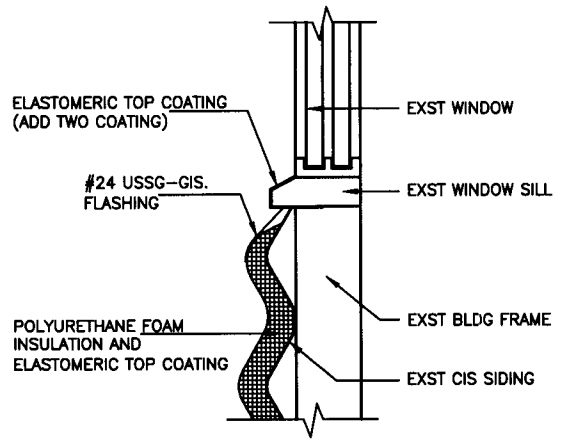


3 ROOF FLASHING DETAIL
DTL

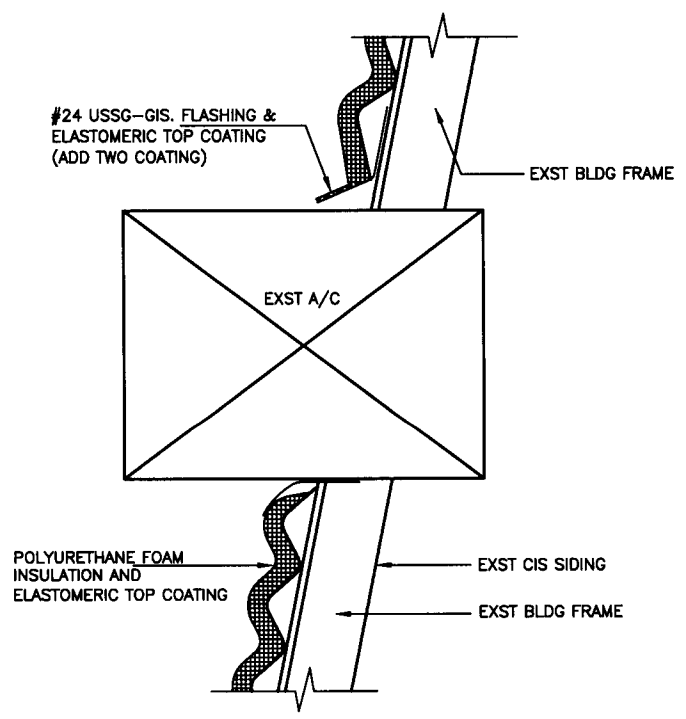
IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	SPRAYED POLYURETHANE FOAM (SPF) ROOFING	SPEC	07570	OCT 2003	A1004



W1 SILL

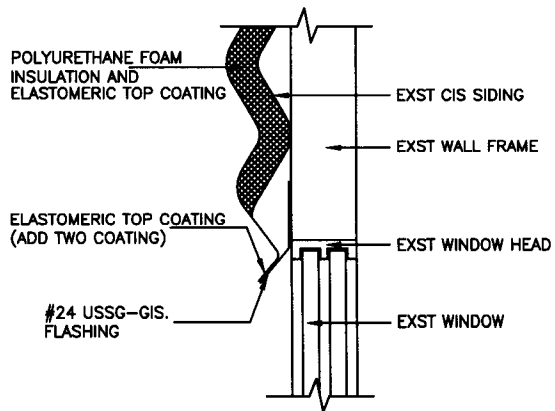


W2 SILL

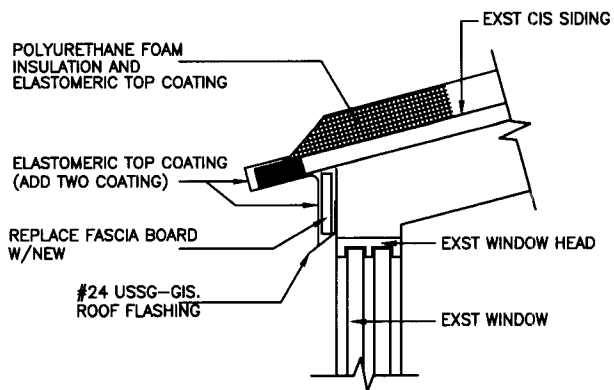


1 SECTION
S

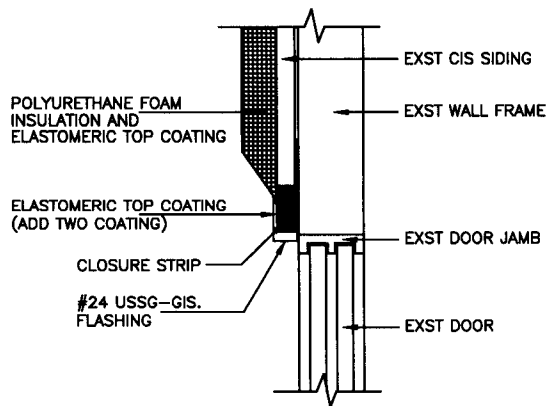
IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	SPRAYED POLYURETHANE FOAM (SPF) ROOFING	SPEC	07570	OCT 2003	A1005



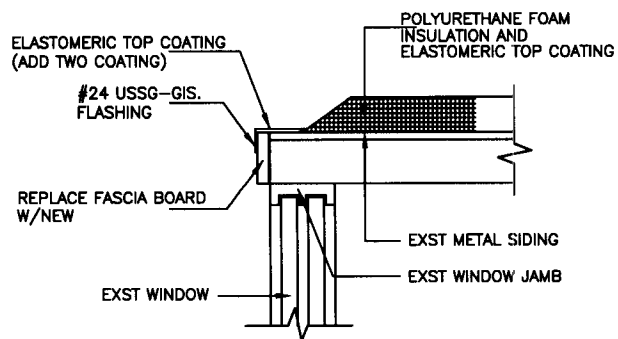
W1 HEAD



W2 HEAD

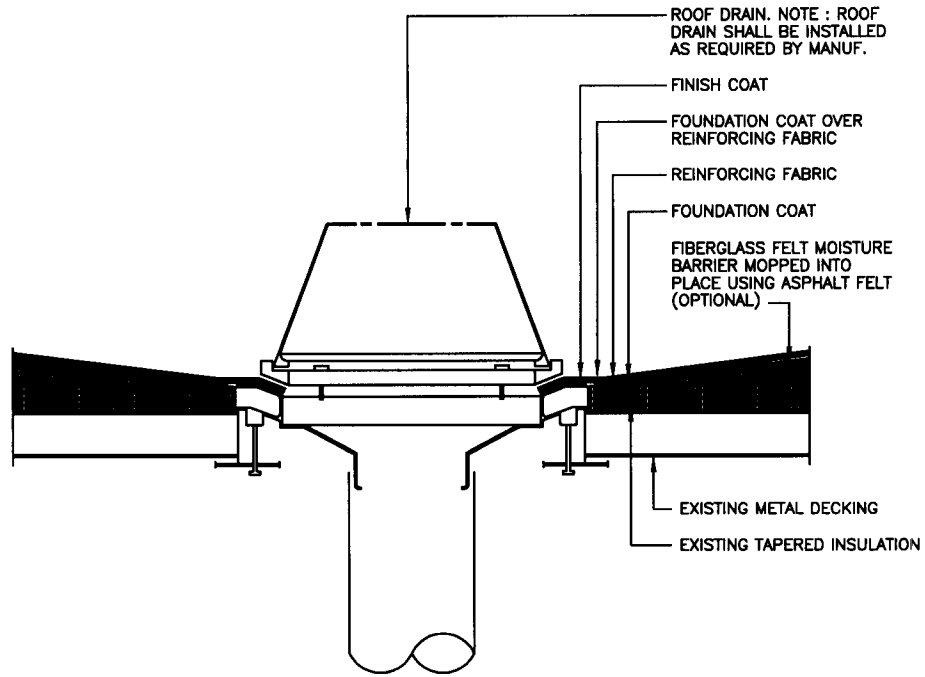


W1 JAMB

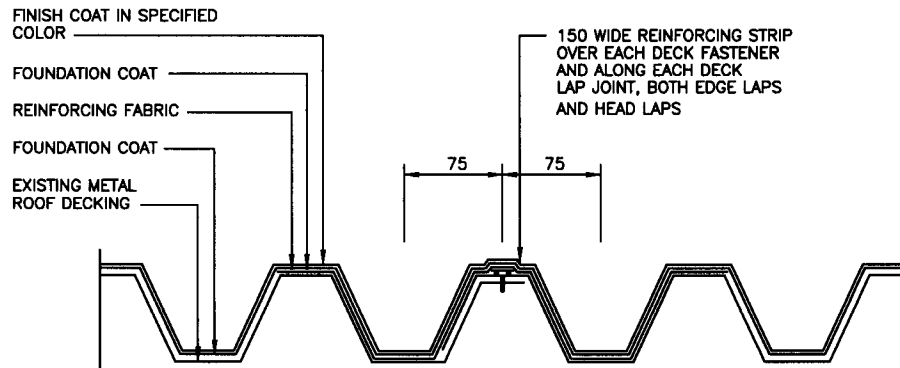


W2 JAMB

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	SPRAYED POLYURETHANE FOAM (SPF) ROOFING	SPEC	07570	OCT 2003	A1006



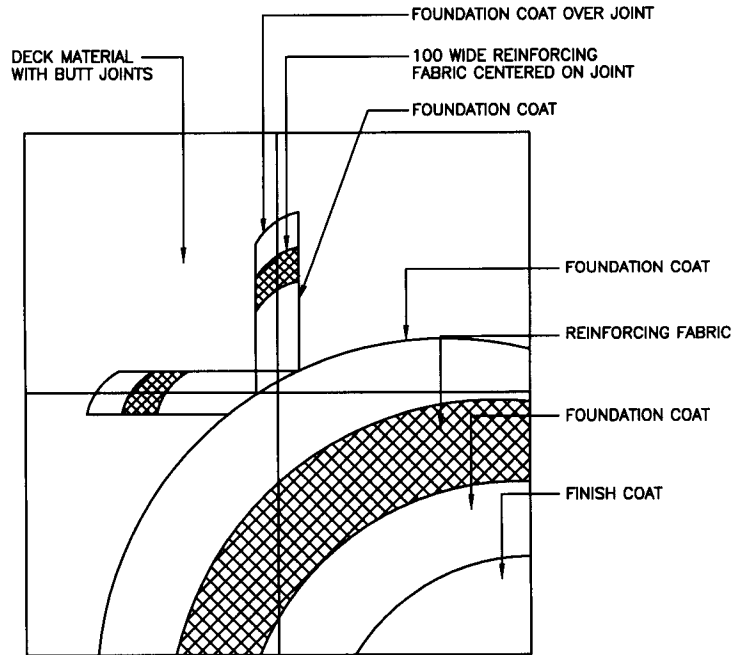
ROOF DRAIN PROTECTION DETAIL



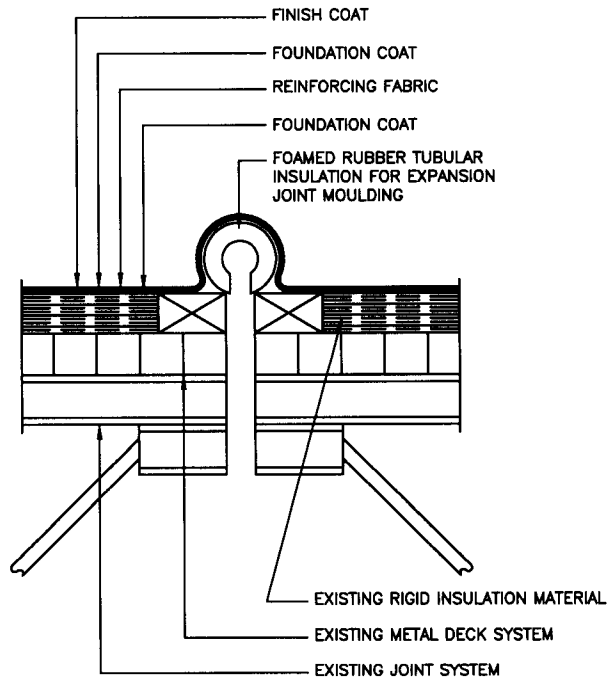
* ALL FASTENERS SHALL BE FLUSHED TO BE APPLIED FLUID ROOFING

TYPICAL METAL ROOF JOINT DETAIL

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	FLUID APPLIED ROOFING	SPEC	07141	OCT 2003	A1101

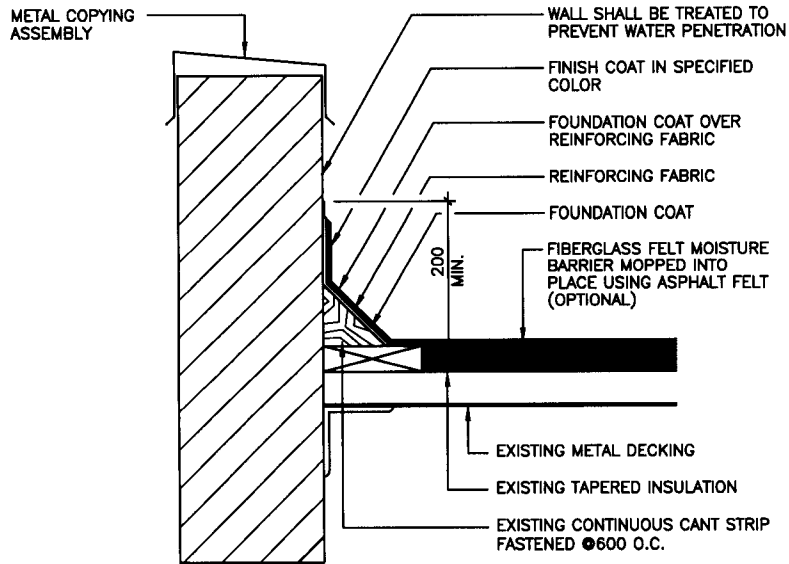


TYPICAL JOINT DETAIL

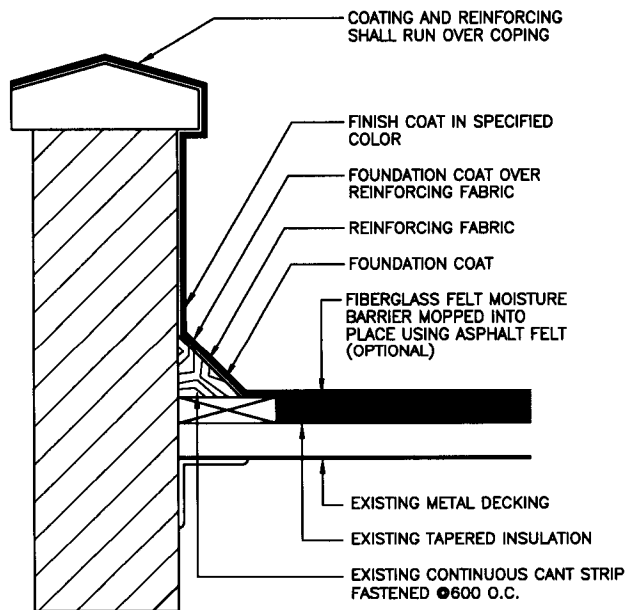


ROOF EXPANSION JOINT DETAIL

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER			REV DATE	DWG NO.
TITLE	FLUID APPLIED ROOFING	SPEC	07141	OCT 2003
				A1102



JOINT WITH PARAPET DETAIL



COATING OVER COPING DETAIL

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER

REV DATE

DWG NO.

TITLE

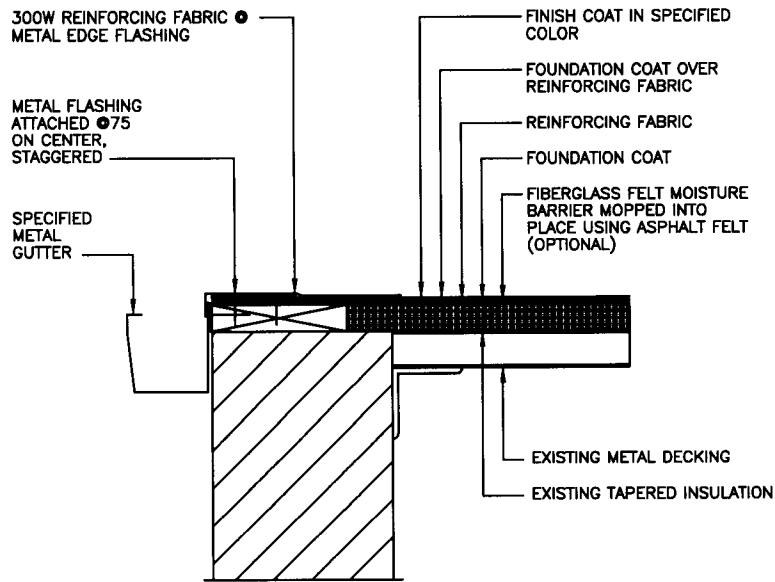
FLUID APPLIED ROOFING

SPEC

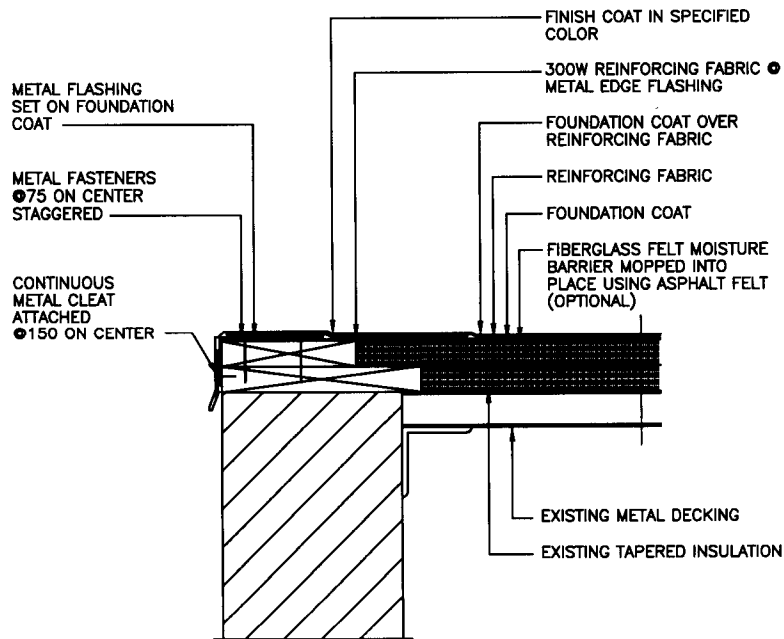
07141

OCT 2003

A1103

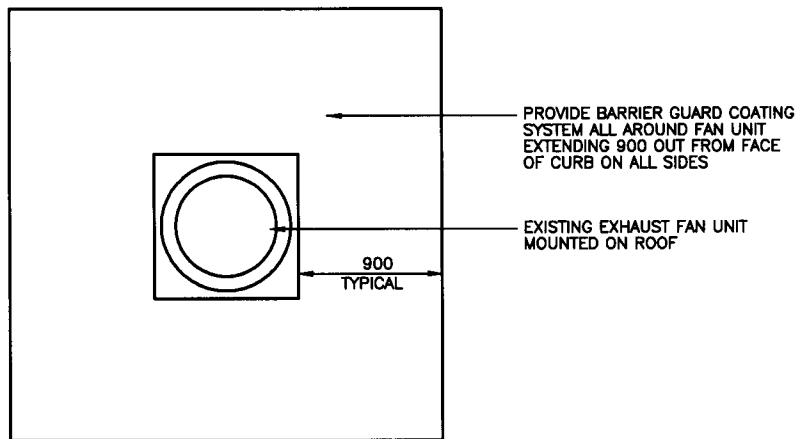
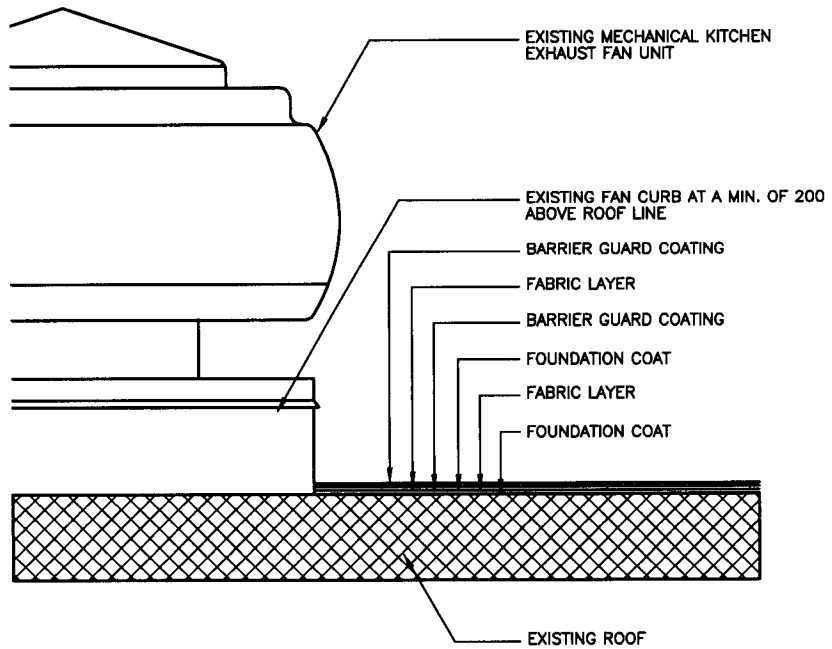


FLASHING WITH GUTTER DETAIL



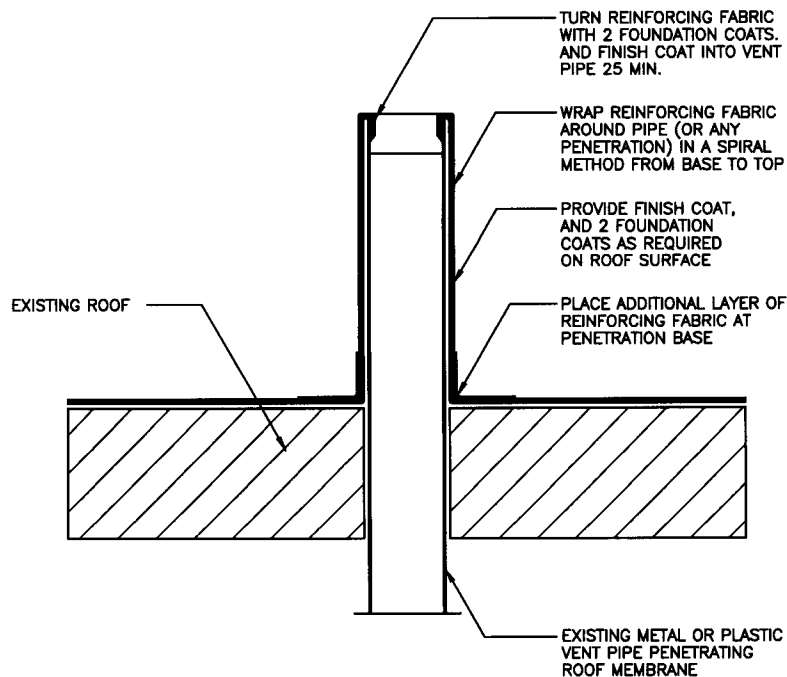
METAL EDGE FLASHING DETAIL

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	FLUID APPLIED ROOFING	SPEC	07141	OCT 2003	A1104



EXHAUST FAN ROOF PROTECTION

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER			REV DATE	DWG NO.
TITLE	FLUID APPLIED ROOFING	SPEC	07141	OCT 2003
				A1105



* SEE NOTE #8 & #9

VENT PIPE PROTECTION DETAIL

NOTES

1. PREPARE ALL SURFACES IN ACCORDANCE WITH THE MANUFACTURER'S REQUIREMENTS.
2. ALL JOINTS SHALL BE TIGHT AND STABLE. ALL FASTENERS SHALL BE FLUSH WITH THE DECK.
3. ALL FLASHING SHALL BE DESIGNED FOR THE APPLICABLE CONDITIONS. METAL THICKNESS, FASTENERS AND LAPPING SHALL BE AS SPECIFIED BY THE DETAIL SPECIFICATION.
4. ROOFING MEMBRANE SHALL EXTEND UNDER THE ROOF DRAIN COMPRESSION CLAMPING RING.
5. ALL DRAIN COMPONENTS SHALL BE MADE OF CAST IRON UNLESS APPROVED BY THE ROOF MEMBRANE MANUFACTURER TO USE ANOTHER MATERIAL.
6. REMOVE RUSTED AND DAMAGED FASTENERS AND REPLACE WITH FASTENERS DESIGNED TO PENETRATE THE DECK AND SUPPORTING MEMBERS WITH NEOPRENE WASHERS AT THE SCREW HEAD.
7. DECK CONFIGURATIONS MAY DIFFER FROM THE DECK PROFILE INDICATED, BUT THE APPLICATION SHALL REMAIN SIMILAR.
8. VENT PIPE PROTECTION DETAIL IS A TYPICAL PENETRATION DETAIL APPLICABLE FOR ALL COLD PIPE PENETRATIONS.
9. FOR PIPE PENETRATIONS THAT EXCEED 450 ABOVE THE ROOF SURFACE A STORM COLLAR SHALL BE USED WITH A DRAW BAND AND CAULKING. THE ROOF COATING SHALL EXTEND 200(MIN.) UP PENETRATION SURFACE AS INDICATED IN THIS DETAIL.

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER

REV DATE

DWG NO.

TITLE

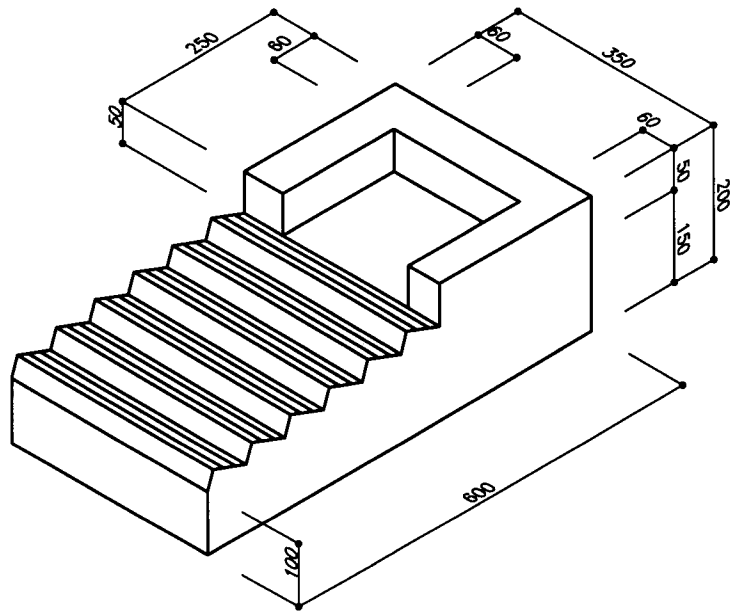
FLUID APPLIED ROOFING

SPEC

07141

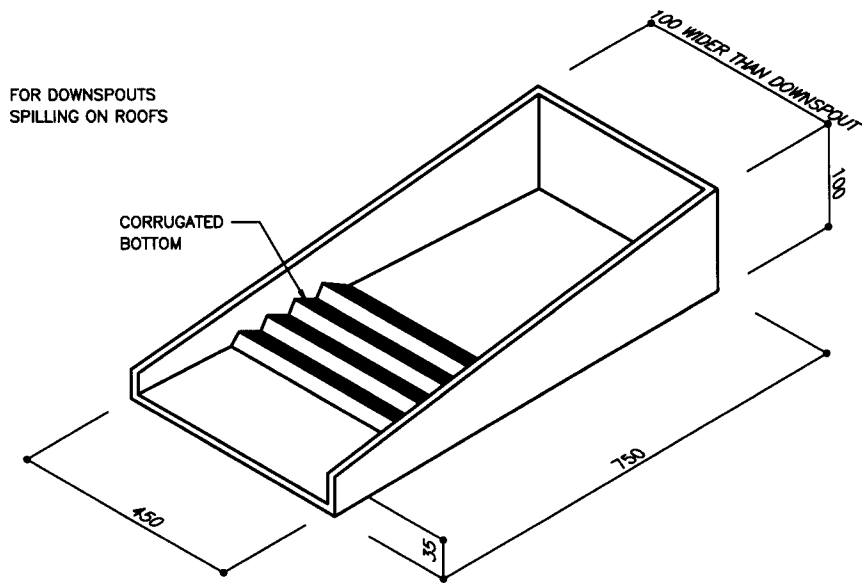
OCT 2003

A1106



CONC. SPLASH BLOCK

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	CONCRETE SPLASH BLOCK DETAILS	SPEC	07600	OCT 2003	A1201



MET. SPLASH PAN

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER

REV DATE

DWG NO.

TITLE

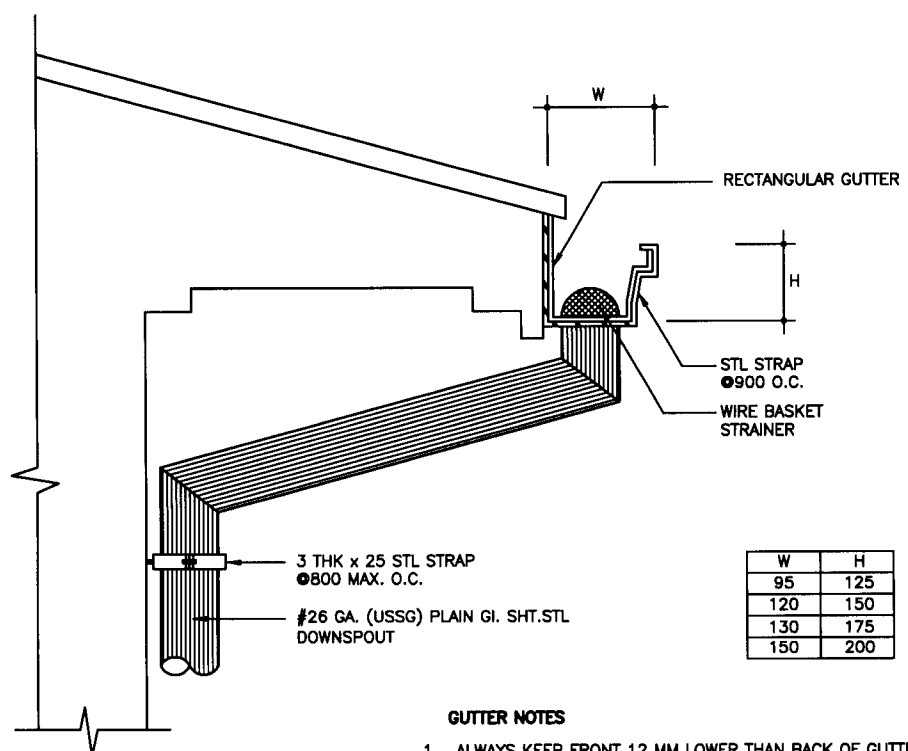
SPLASH BLOCK DETAILS

SPEC

07600

OCT 2003

A1202



GUTTER BRACKET OR STRAP SIZES

GIRTH	GAVE. STEEL	COPPER	ALUM	STAINLESS
UP TO 375	3X25	3X25	5X25	3X25
375 TO 500	5X25	6X25	6X25	3X40
500 TO 600	6X40	6X40	6X50	3X50

GUTTER NOTES

1. ALWAYS KEEP FRONT 12 MM LOWER THAN BACK OF GUTTER.
2. DO NOT USE WIDTH LESS THAN 100 MM EXCEPT FOR CANOPIES AND SMALL PORCHES. MINIMUM RATIO OF DEPTH TO WIDTH SHOULD BE 3 TO 4.

DOWNSPOUTS NOTES

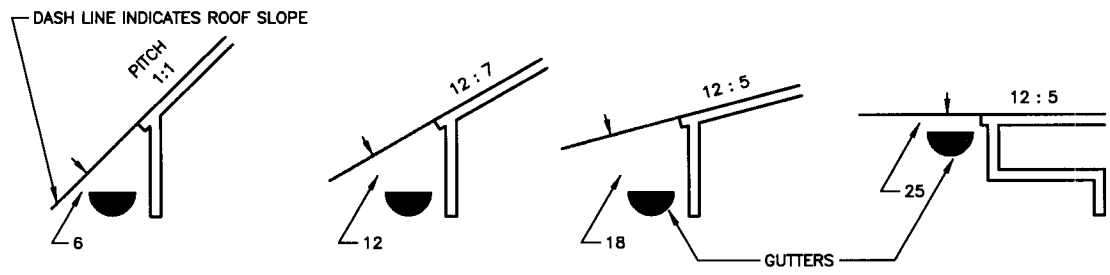
1. SPACE DOWNSPOUTS 6 M MIN. 15 M MAX. GENERALLY. EXTREME MAX. 18 M
2. DO NOT USE SIZE SMALLER THAN 175 IN AREA EXCEPT FOR CANOPIES.
3. CORRUGATED SHAPES RESIST FREEZING BETTER THEN PLAIN SHAPES.
4. ELBOWS AVAILABLE : 45°, 60°, 75°, 90°

EXPANSION JOINTS

EXPANSION JOINTS SHOULD BE USED ON ALL STRAIGHT RUNS OVER 12 M IN A 3 M SECTION OF GUTTER AND A 38 DEGREE C TEMPERATURE CHANGE LINEAR EXPANSION WILL BE :

EXPANSION OF METAL GUTTERS IN 12 M

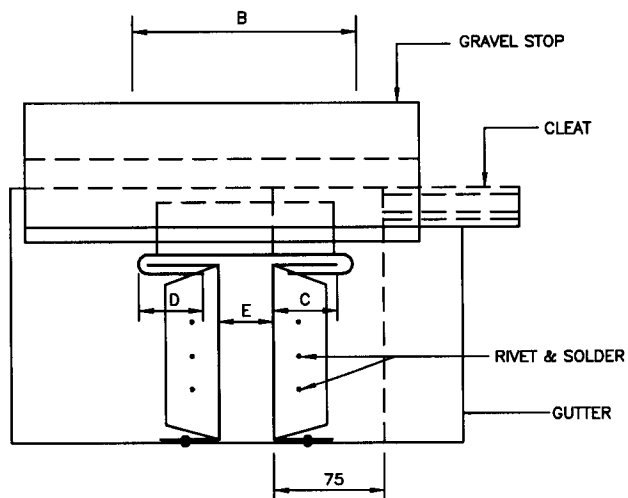
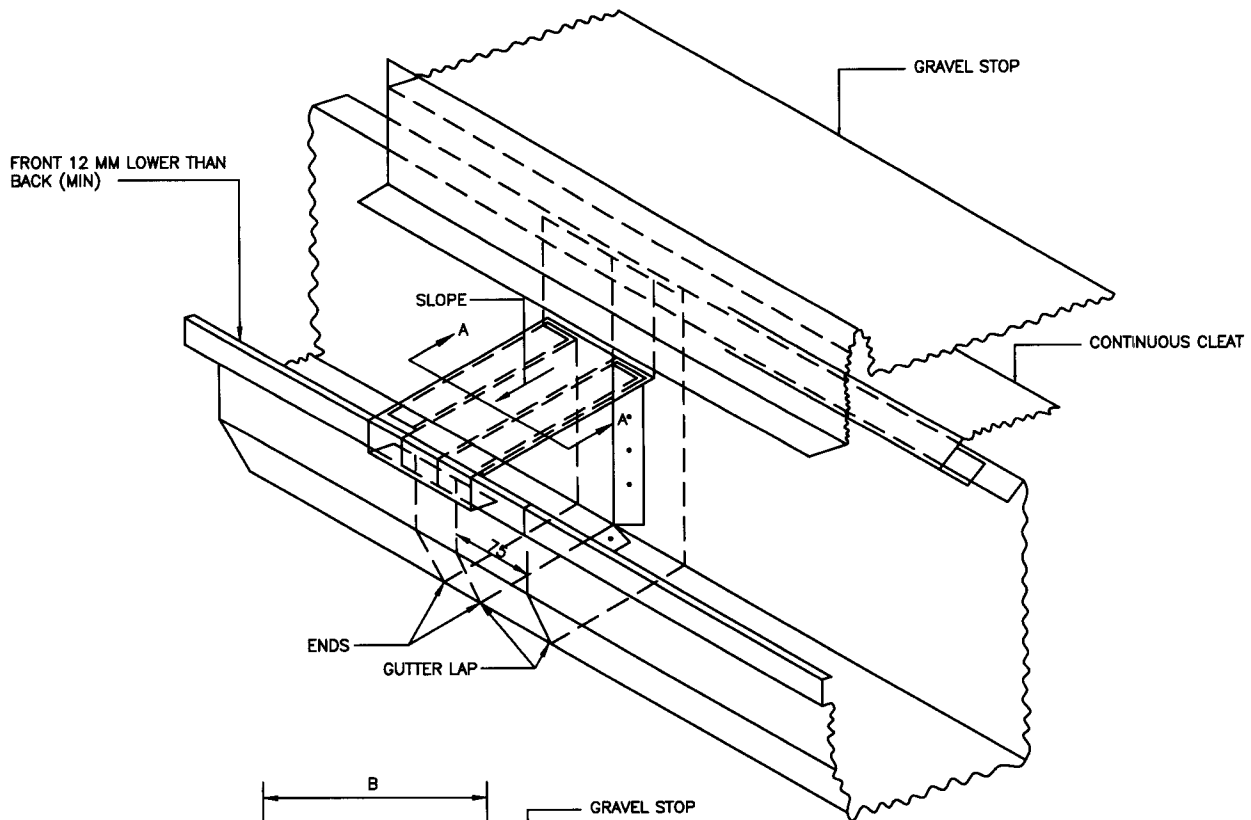
METAL	COEFFICIENT OF EXPANSION	MOVEMENT
ALUMINUM	.00128	3.8 MM
COPPER	.00093	2.8 MM
GALVANIZED STEEL	.0065	2.0 MM



GUTTERS SHOULD BE PLACED BELOW SLOPE LINE SO THAT SNOW AND ICE CAN SLIDE CLEAR. STEEPER REQUIRES LESS CLEARANCE.

PLACING OF GUTTERS

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER			REV DATE	DWG NO.
TITLE	GUTTER AND DOWNSPOUT	SPEC	07600	OCT 2003
				A1203



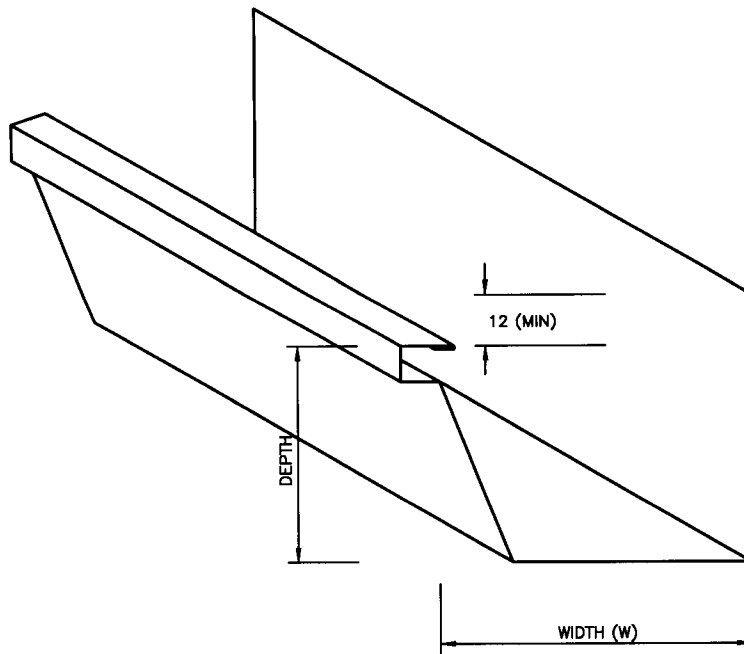
SECTION A-A

NOTES :

1. THE REAR SIDE OF THE GUTTER SHALL NOT BE LESS THAN 12 MM HIGHER THAN THE OPPOSITE SIDE.
2. GUTTERS SHALL BE HUNG WITH HIGH POINTS EQUIDISTANT FROM DOWNSPOUTS AND SHALL HAVE A SLOPE NOT LESS THAN 1/200.

LAP TYPE GUTTER EXPANSION JOINT

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	GUTTER DETAILS -1	SPEC	07600	OCT 2003	A1204



RECTANGULAR GUTTER DESIGN

GALVANIZED STEEL

TEMP C	9 M	18 M
E 38	11.1	15.9
24	12.7	19.0
1.5	14.3	22.2
-18	15.9	25.4
B	44.5	65
C	11.1	15.9
D	11.1	15.9

ALUMINUM

TEMP C	9 M	18 M
E 38	15.9	25.4
24	19.0	31.8
1.5	23.8	41.3
-18	28.6	50.8
B	69.9	114.3
C	17.5	28.6
D	17.5	28.6

STAINLESS STEEL

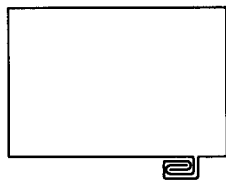
TEMP C	9 M	18 M
E 38	12.7	19.0
24	14.3	22.2
1.5	17.5	28.6
-18	20.6	34.9
B	50.8	82.6
C	12.7	20.6
D	12.7	20.6

INSTALLATION VALUE FOR "E"

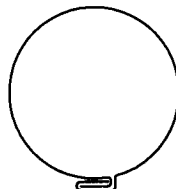
GIRTH (INCHES)	GALVANIZED STEEL (GAGE)	COPPER (OUNCES)	ALUMINUM (MM)	GALVANIZED STEEL (GAGE)
UP TO 375	26	16	0.635	26
375 TO 500	24	16	0.813	26
525 TO 625	22	20	1.295	24
650 TO 750	20	24	1.626	22
775 TO 875	18	24	-	20
OVER 875	16	-	-	18

RECOMMENDED MINIMUM GAGES FOR GUTTER

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	GUTTER DETAILS -2	SPEC	07600	OCT 2003	A1205

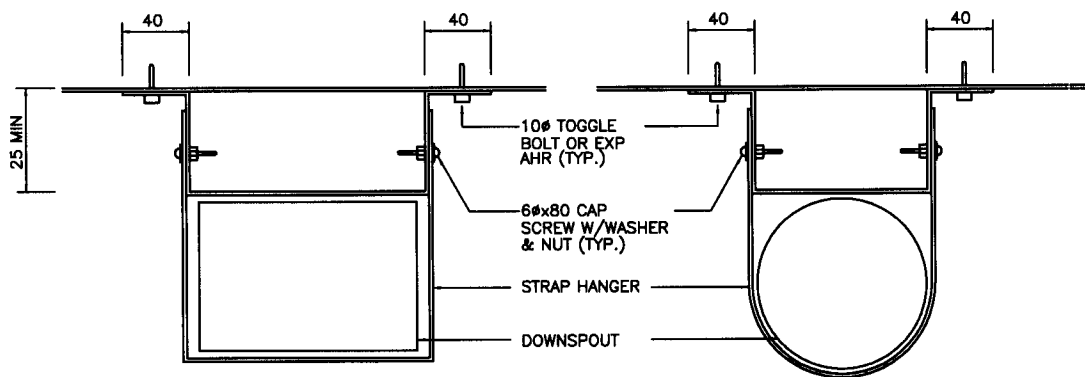


PLAIN
RECTANGULAR



PLAIN
ROUND

DOWNSPOUT SHAPES



DOWNSPOUT HANGER DETAILS

TYPE	AREA (SQ. CM)	NOMINAL SIZE (MM)	ACTUAL SIZE (MM)
PLAIN ROUND	44.18	75	75
	78.54	100	100
	122.72	125	125
	176.72	150	150
PLAIN RECTANGULAR	24.75	50	45X55
	37.50	75	50X75
	75.00	100	75X100
	114.00	125	95X120
	150.00	150	100X150

DIMENSIONS OF STANDARD DOWNSPOUTS

NOTES:

1. SPACE DOWNSPOUTS 6 M MIN, 15 M MAX.
2. DO NOT USE SIZE SMALLER THAN 45 SQ. CM AREA EXCEPT FOR CANOPIES.

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER

REV DATE

DWG NO.

TITLE

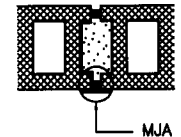
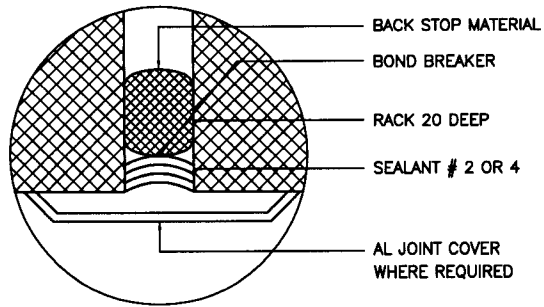
DOWNSPOUT DETAILS

SPEC

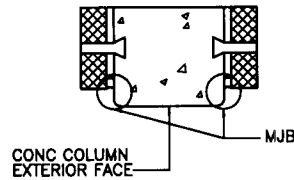
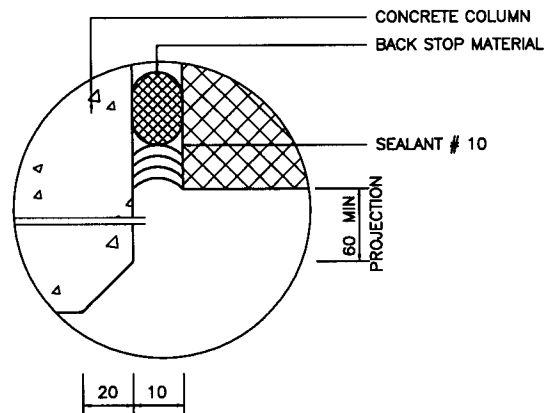
07600

OCT 2003

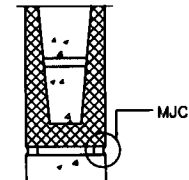
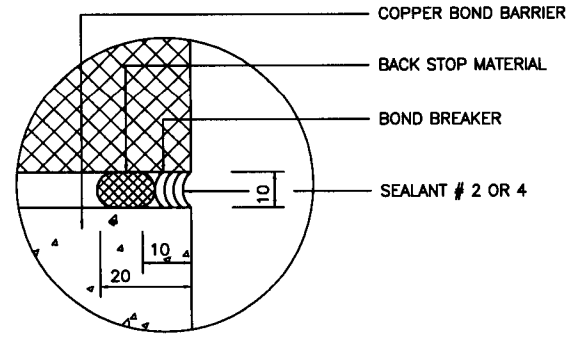
A1206



(MJA) CONTROL JOINT IN MASONRY

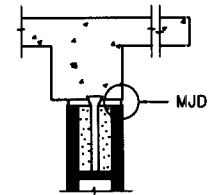
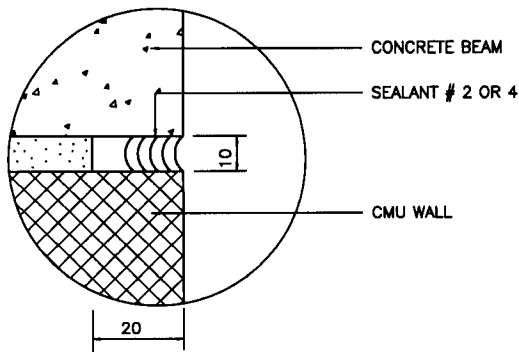


(MJB) CONCRETE COLUMNS IN MASONRY



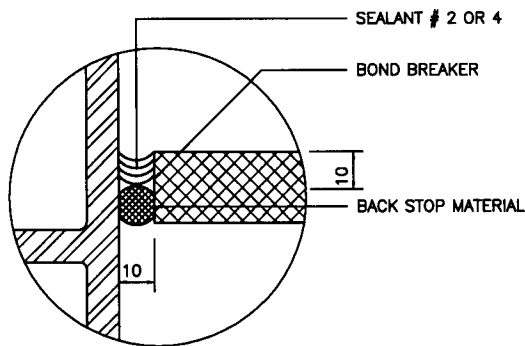
(MJC) SLIP JOINT MASONRY ON CONCRETE BEAM

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER			REV DATE	DWG NO.
TITLE	TYPICAL JOINT DETAILS-1	SPEC	07900	OCT 2003
				A1301



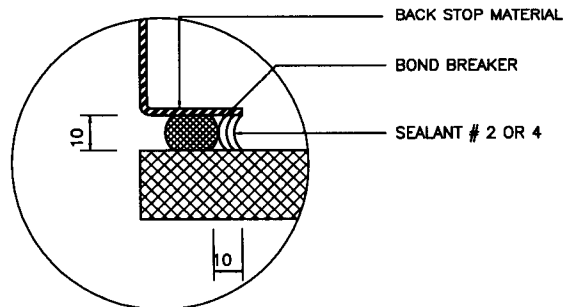
(MJD)

JOINT BETWEEN MASONRY WALL AND CONCRETE BEAM



(MJE)

STEEL COLUMN IN MASONRY WALL



(MJF)

STEEL COLUMN IN MASONRY WALL WITH COVER

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER

REV DATE

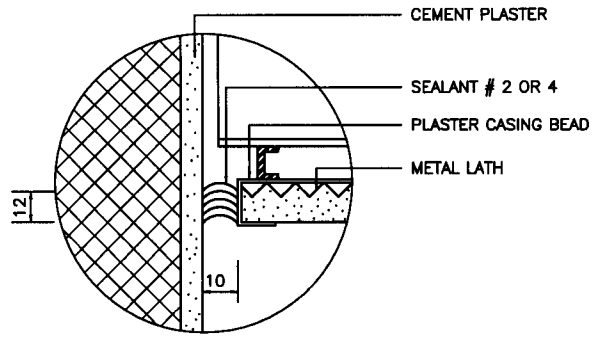
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TITLE TYPICAL JOINT DETAILS-2

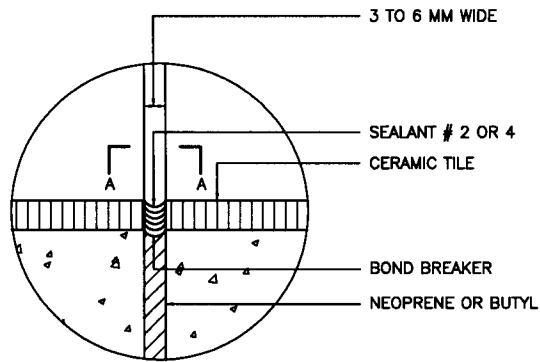
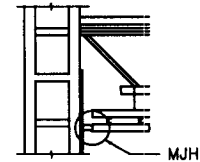
SPEC 07900

OCT 2003

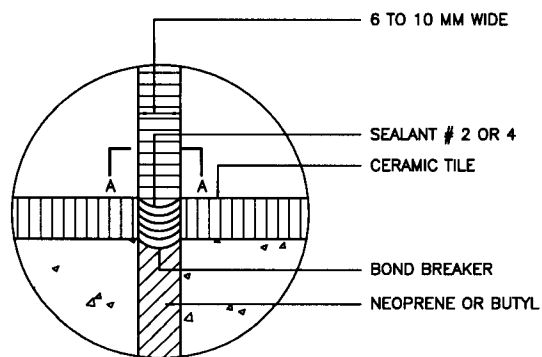
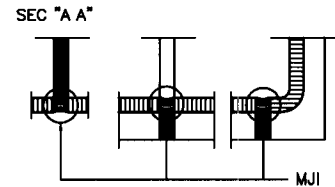
A1302



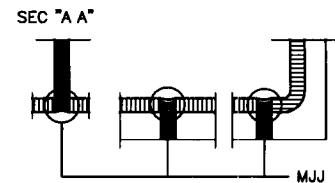
(MJH) PERIMETER SEAL OF CEILING TO PLASTER WALL



(MJI) INTERIOR CONTROL JOINT FOR CERAMIC TILE



(MJJ) EXTERIOR EXPANSION JOINT FOR CERAMIC TILE



IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER

REV DATE

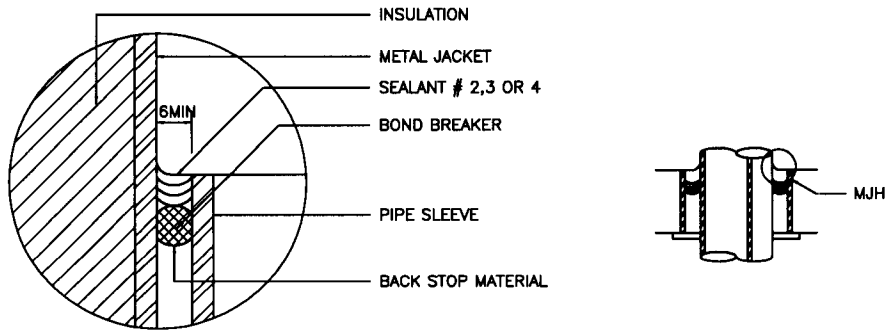
DWG NO.

TITLE TYPICAL JOINT DETAILS-3

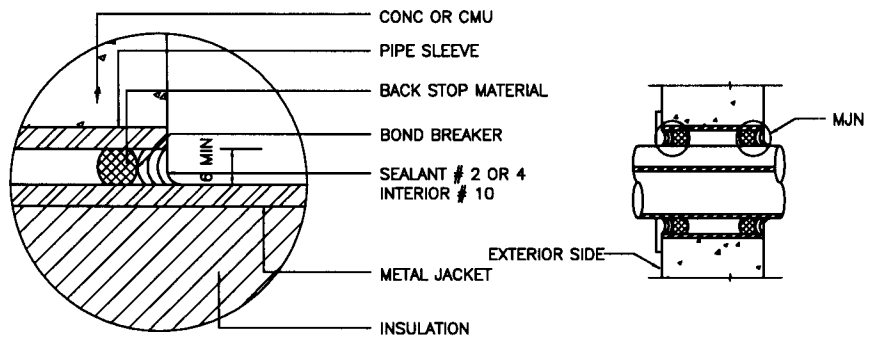
SPEC 07900

OCT 2003

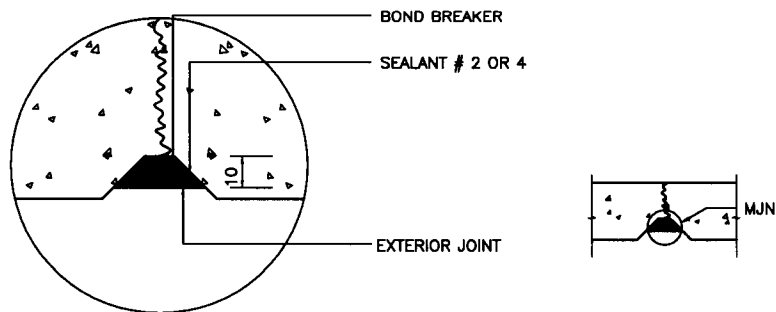
A1303



(MJM) PIPE SLEEVE THROUGH FLOOR

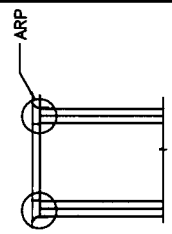
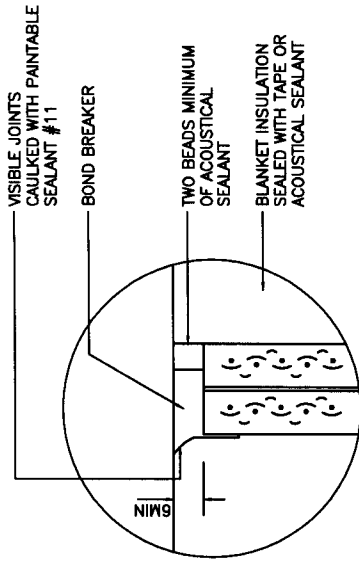


(MJN) PIPE SLEEVE THROUGH EXTERIOR WALL OR FOUNDATION WALL – BELOW GRADE

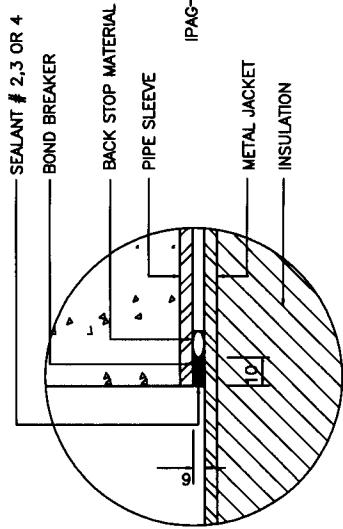


(MJO) CONTROL JOINT IN FOUNDATION WALL

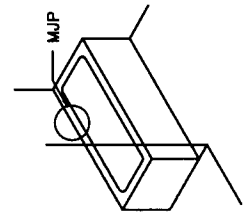
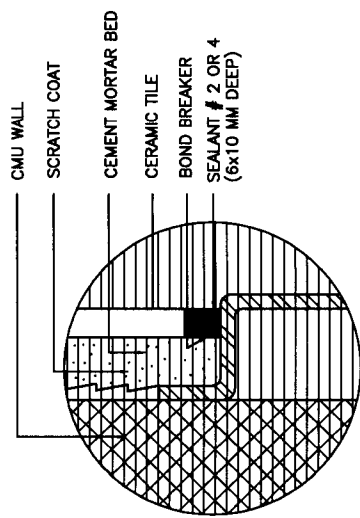
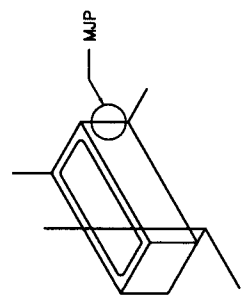
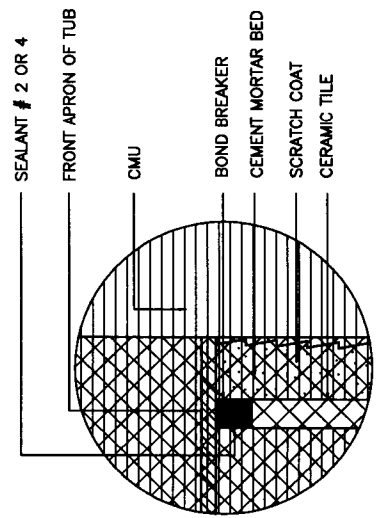
IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER			REV DATE	DWG NO.
TITLE	TYPICAL JOINT DETAILS-4	SPEC	07900	OCT 2003
				A1304



(ARP) SEALING PARTITIONS WITH SPECIFIC SOUND TRANSMISSION REQUIREMENT



(IPAG) PIPE SLEEVE FOR INSULATED PIPE THROUGH WALL—ABOVE GRADE



(MJP) SEALED JOINT BETWEEN CERAMIC TILE WAINSCOT AND BATH TUB

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER

REV DATE

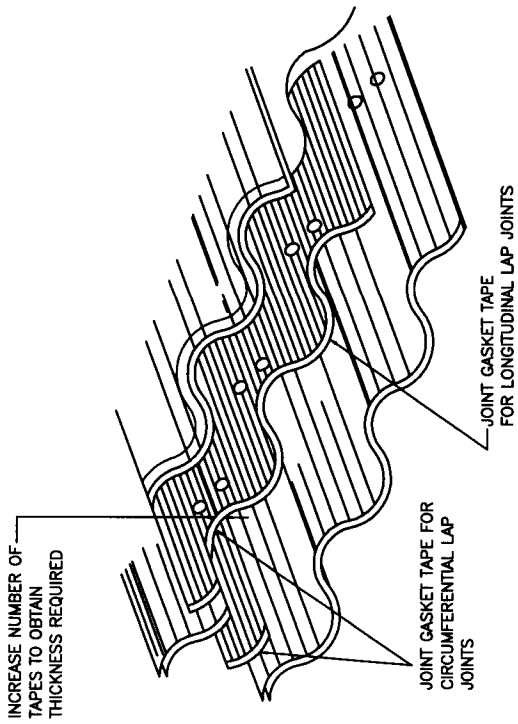
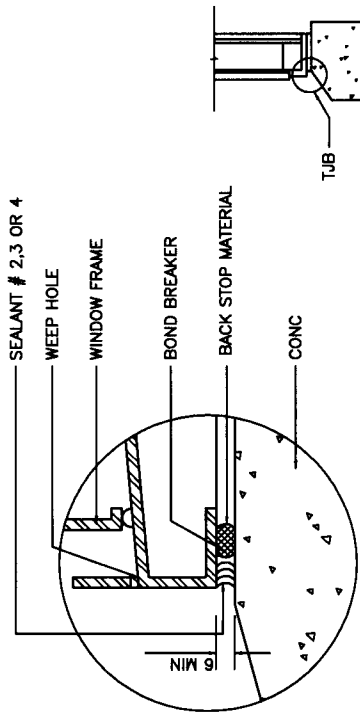
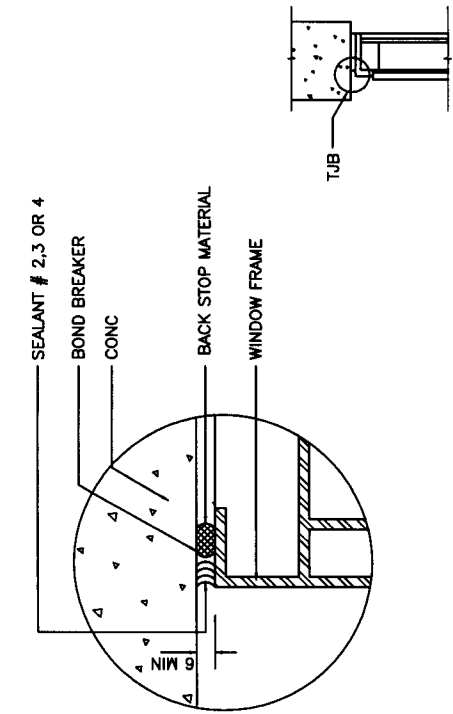
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TITLE TYPICAL JOINT DETAILS-5

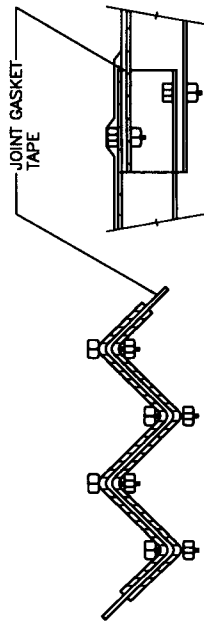
SPEC 07900

OCT 2003

A1305



PERSPECTIVE



SECTION
LONGITUDINAL

SECTION
LONGITUDINAL



METAL ROOFING



METAL WINDOW IN MASONRY

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER

REV DATE

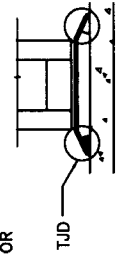
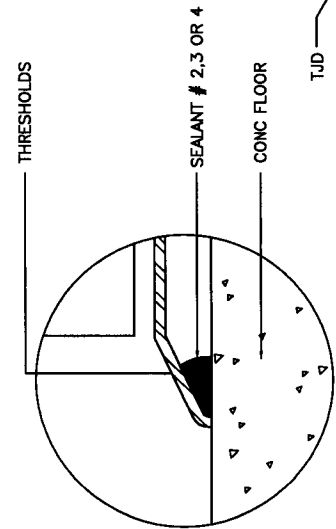
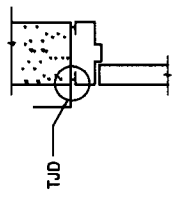
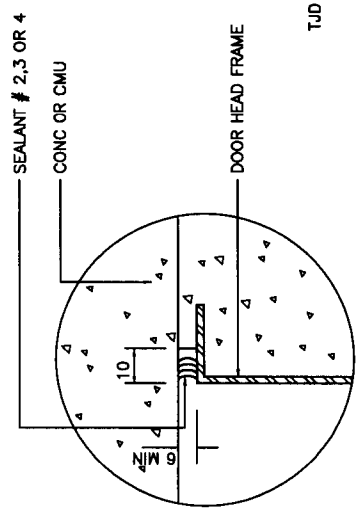
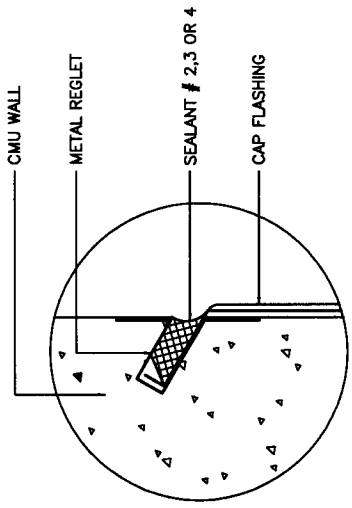
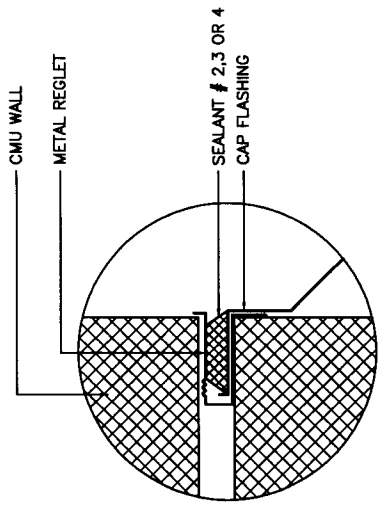
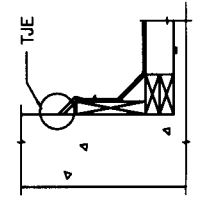
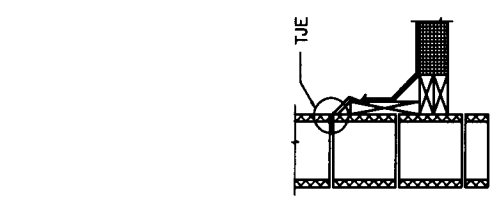
DWG NO.

TITLE TYPICAL JOINT DETAILS-6

SPEC 07900

OCT 2003

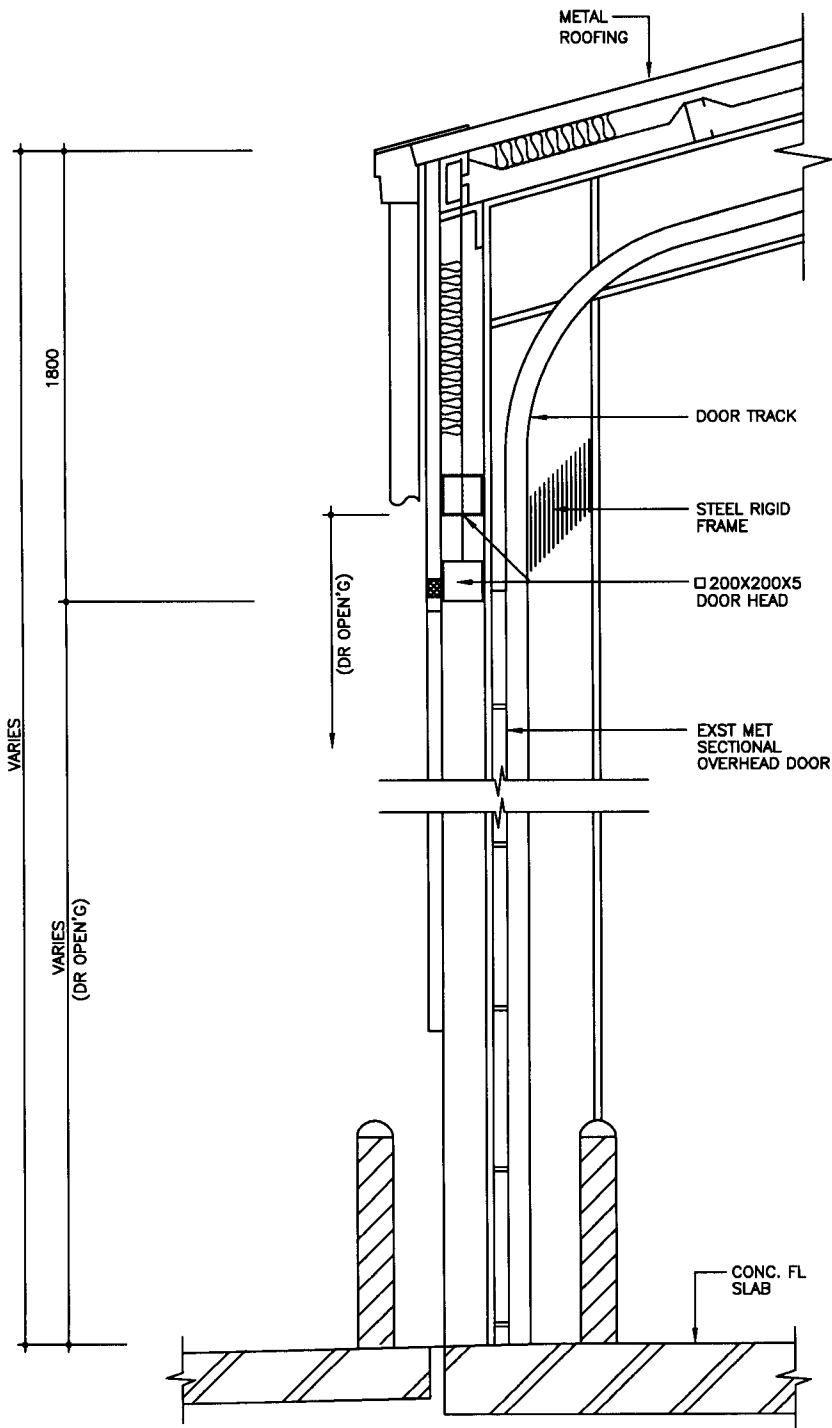
A1306



TJE CAP FLASHING SEAL IN PARAPET WALL

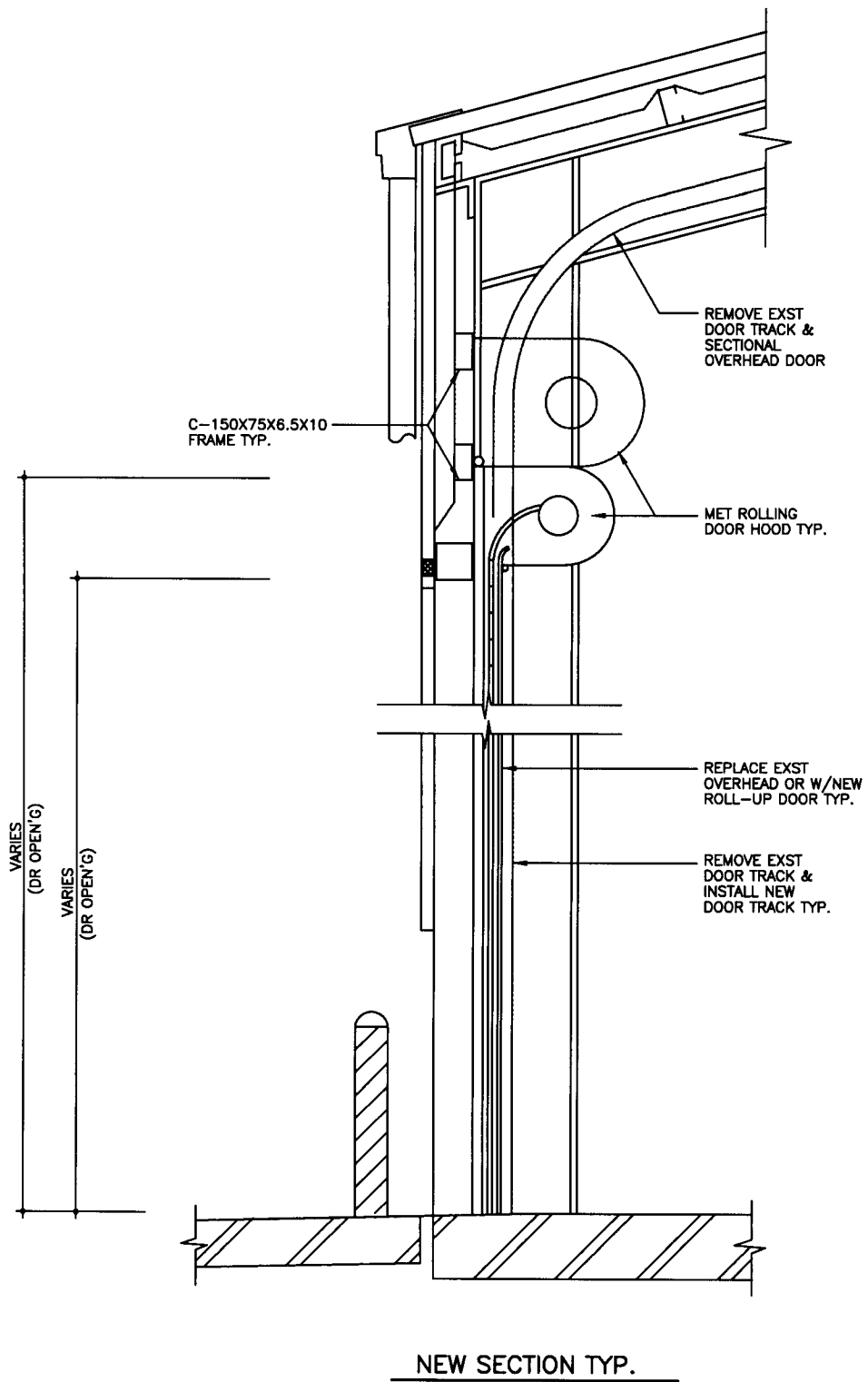
TJD EXTERIOR DOORS AND THRESHOLDS

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER			REV DATE	DWG NO.
TITLE	TYPICAL JOINT DETAILS-7	SPEC	07900	OCT 2003
				A1307

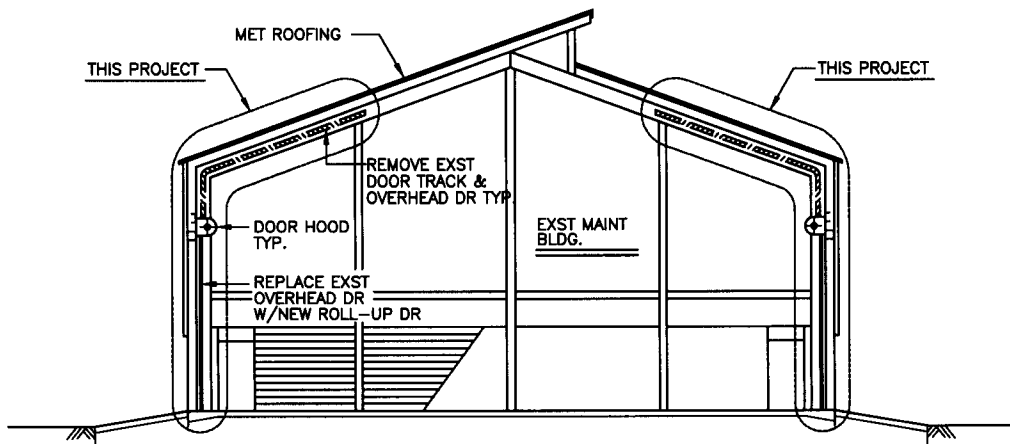


EXST SECTION TYP.

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER			REV DATE	DWG NO.
TITLE	OVERHEAD ROLLING DOOR	SPEC	08330	OCT 2003
				A1401



IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	OVERHEAD ROLLING DOOR	SPEC	08330	OCT 2003	A1402



CROSS SECTION TYP.

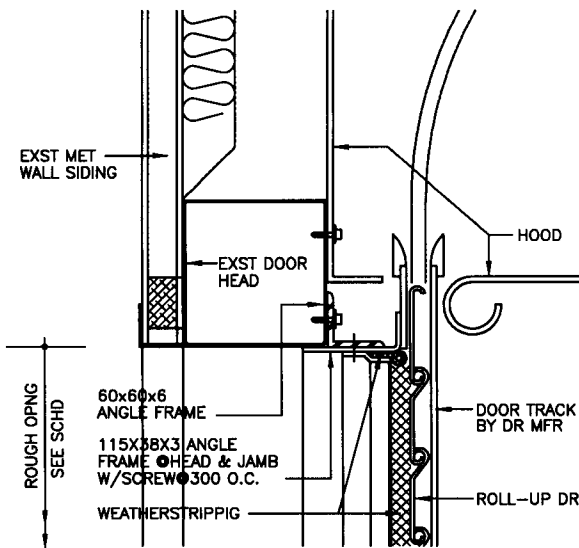
SCOPE OF WORK

1. REPLACE EXISTING DOOR TRACK AND SECTIONAL OVERHEAD DOOR WITH NEW ALUMINUM ROLL-UP DOOR SYSTEM AS PER DRAWING AND SPEC'S.

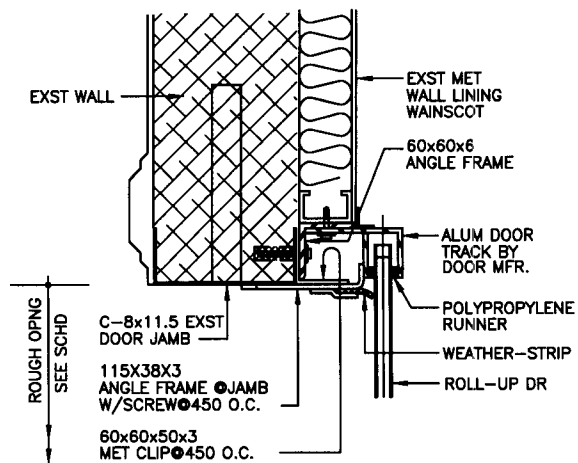
GENERAL NOTES

1. THE CONTRACTOR SHALL VERIFY ALL EXST CONDITIONS AND DIMENSIONS PRIOR TO PREPARATION OF SHOP DRAWINGS OR COMMENCING ANY WORK.
2. CARE SHALL BE TAKEN DURING THE REMOVAL OF THE EXST OVERHEAD DOORS SO AS TO MINIMIZE DAMAGE TO THE OPENING. THE CONTRACTOR SHALL RESTORE ANY AREA DAMAGE BY THIS PROJECT TO ITS ORIGINAL CONDITION AS DIRECTED BY THE CONTRACTING OFFICER.
3. TOUCHUP PAINTING WILL BE ACCOMPLISHED AS NECESSARY TO MATCH ADJACENT AREAS.
4. EACH OPENING IN EACH BUILDING SHALL BE FIELD MEASURED AND THE ROLL-UP DOOR FABRICATED SO AS TO ENSURE A WEATHERPROOF FIT AFTER THE DOOR IS INSTALLED ANY EXST CONDITION NOT COVERED BY THE DRAWING OR SPECIFICATIONS SHALL BE SHOWN ON SHOP DRAWINGS PREPARED BY THE CONTRACTOR AND SUBMITTED TO THE CONTRACTING OFFICER FOR APPROVAL.
5. THE CONTRACTOR SHALL SUBMIT SHOP DRAWINGS FOR APPROVAL BY THE CONTRACTING OFFICER PRIOR TO FABRICATING ANY DOORS. THE SHOP DRAWINGS SHALL SHOWN DETAILS OF FABRICATION AND THE METHOD OF INSTALLATION OF THE ROLL-UP DOOR SYSTEM. METHODS OF SEPARATING DISSIMILAR METALS SHALL ALSO BE SHOWN.
6. THE CONTRACTOR SHALL TURN IN ALL MATERIALS REMOVED FROM THE EXST BUILDINGS TO THE DPW OR DEH IN EACH RESPECTIVE AREA.
7. REFER TO THE SPECIAL CLAUSES OF THE SPECIFICATIONS FOR DETAILED REQUIREMENTS OF THE FIRST ARTICLE APPROVAL GOVERNMENT TESTING.

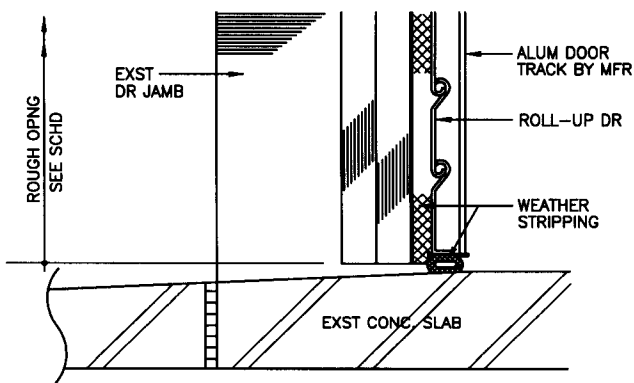
IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER		REV DATE	DWG NO.
TITLE	OVERHEAD ROLLING DOOR	SPEC 08330	OCT 2003 A1403



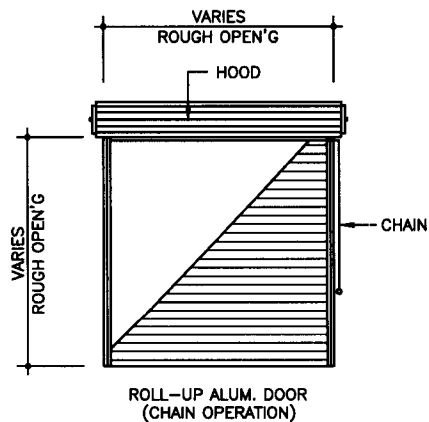
HEAD



JAMB



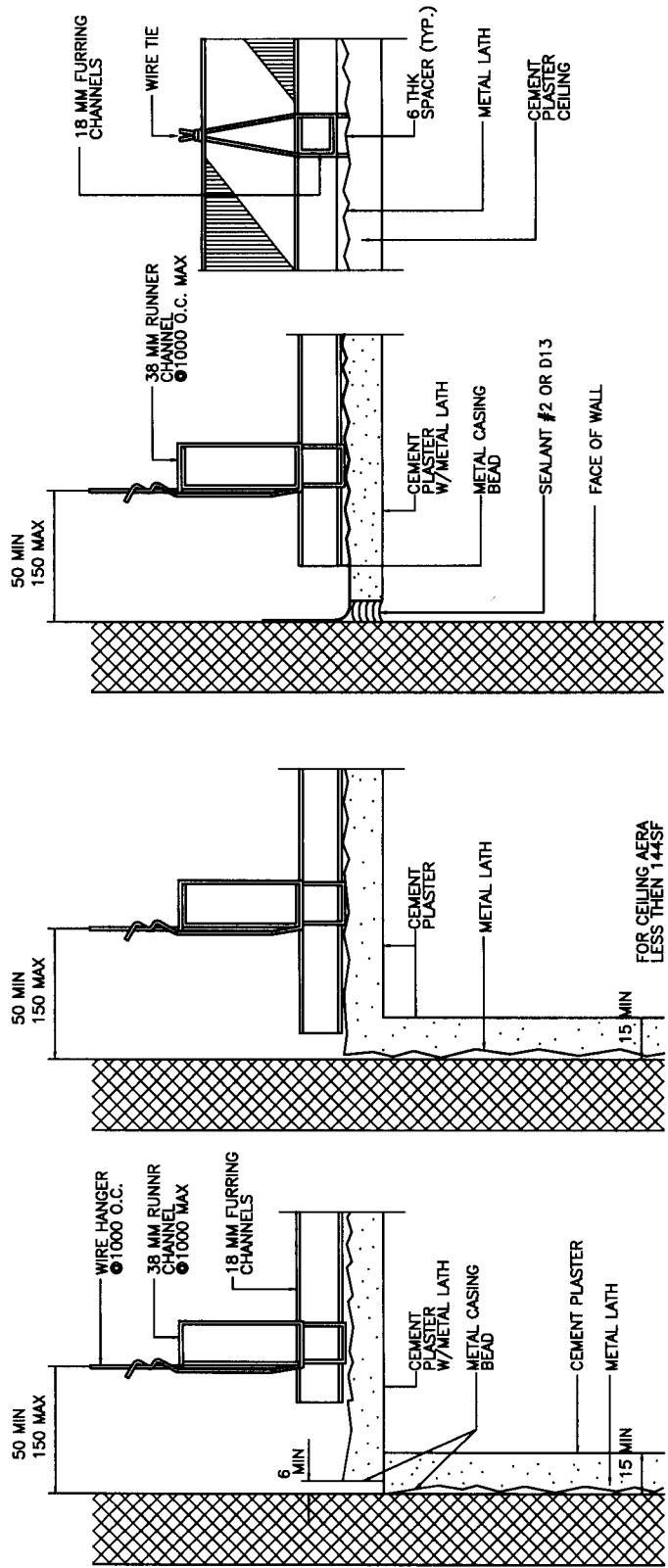
SILL



DOOR ELEVATION

DOOR DET. TYP.

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	OVERHEAD ROLLING DOOR	SPEC	08330	OCT 2003	A1404



AT FURRING

AT WALL
(UNRESTRAINED)

AT WALL
(RESTRAINED)

AT WALL
(UNRESTRAINED)

CEMENT PLASTER CEILING DETAILS

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER

REV DATE

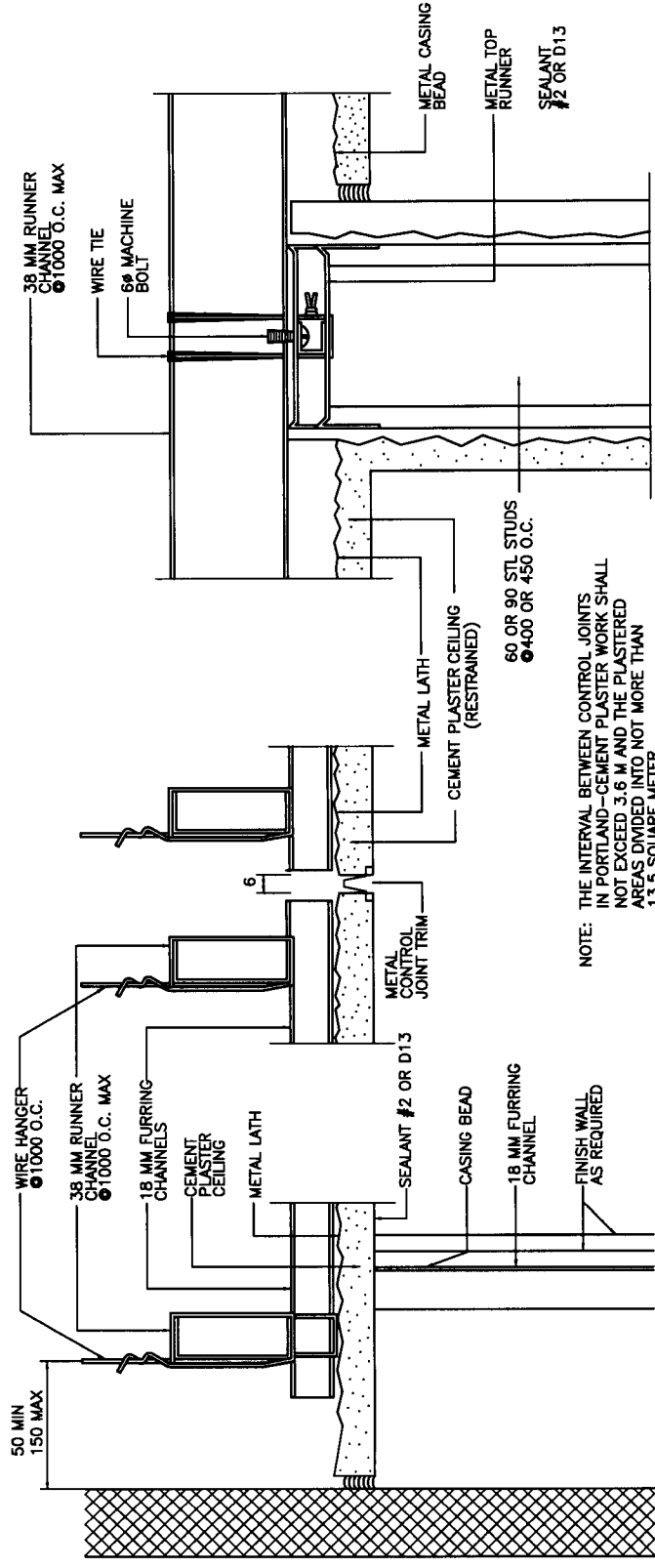
DWG NO.

TITLE CEILING DETAILS, CEMENT PLASTERING - 1

SPEC 09200

OCT 2003

A1501



AT WALL
(UNRESTRAINED)

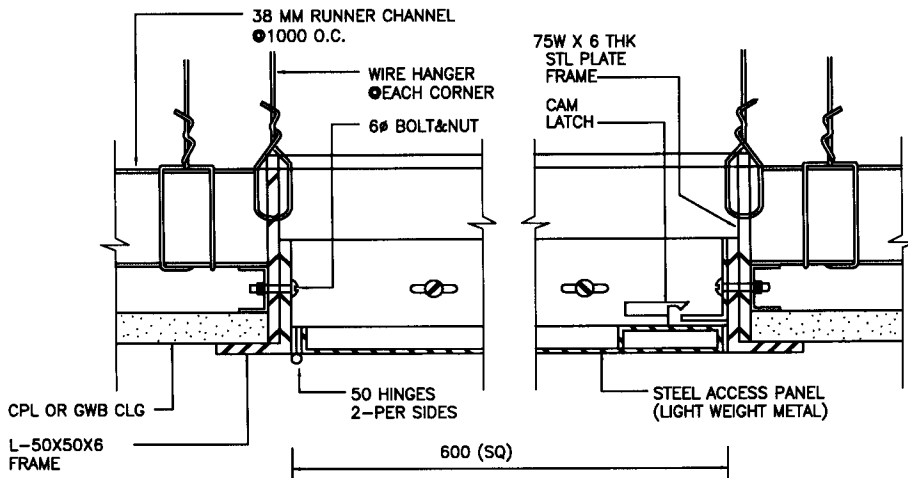
CONTROL JOINT

JOINT AT STUD PARTITION

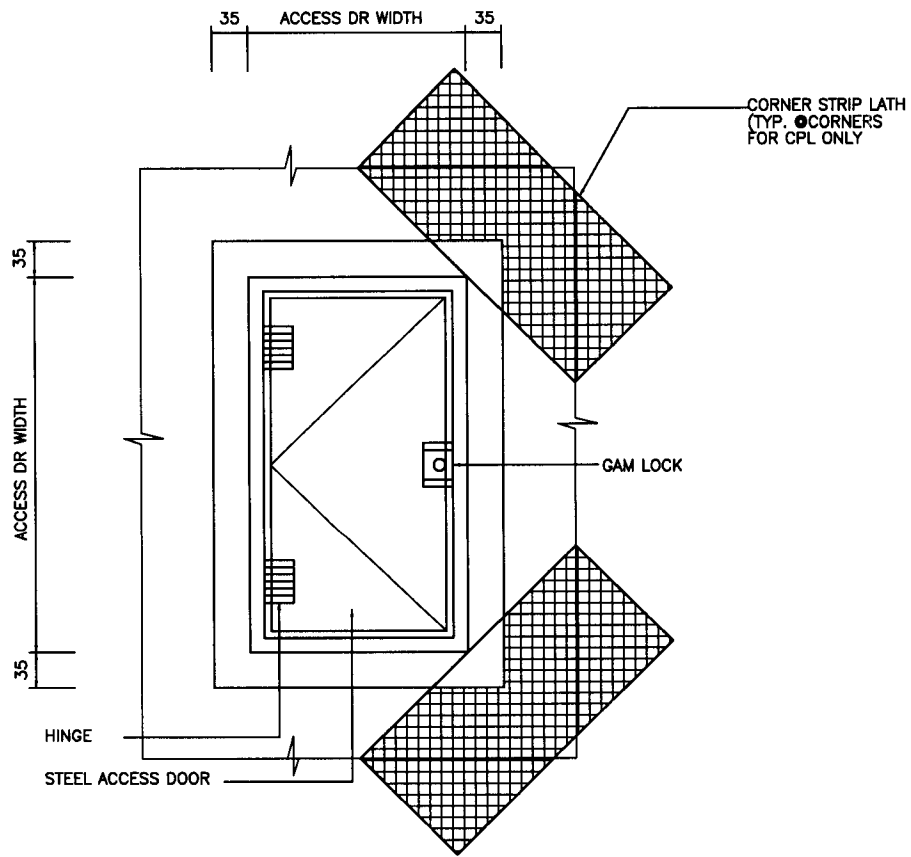
NOTE: THE INTERVAL BETWEEN CONTROL JOINTS IN PORTLAND-CEMENT PLASTER WORK SHALL NOT EXCEED 3.6 M AND THE PLASTERED AREAS DIVIDED INTO NOT MORE THAN 13.5 SQUARE METER

CEMENT PLASTER CEILING DETAILS

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER		REV DATE	DWG NO.
TITLE	CEILING DETAILS, CEMENT PLASTERING - 2	SPEC 09200	OCT 2003 A1502



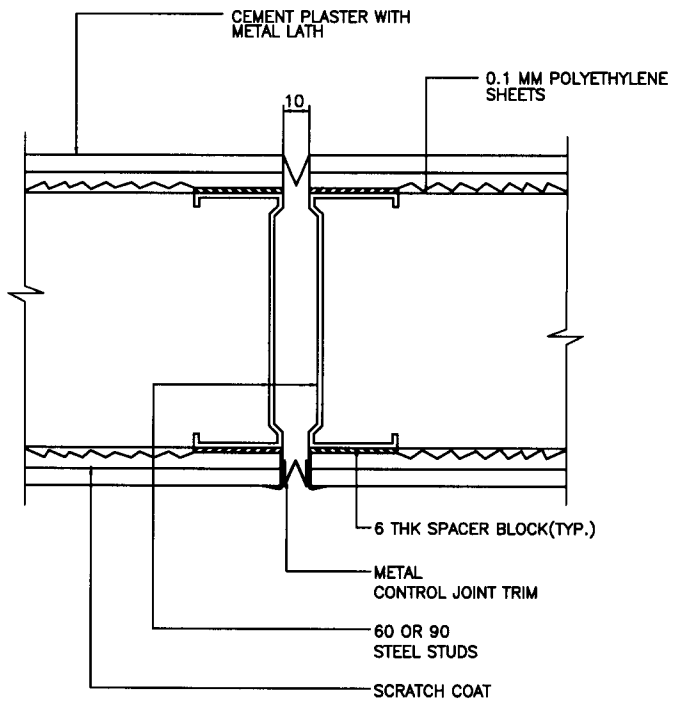
AT CEILING ACCESS



ELEVATION

ACCESS DOOR DETAILS

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER			REV DATE	DWG NO.
TITLE	CEILING DETAILS, CEMENT PLASTERING - 3	SPEC	09200	OCT 2003
				A1503



CONTROL JOINT (AT CPL)

CPL CONTROL JOINT DETAIL

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER

REV DATE

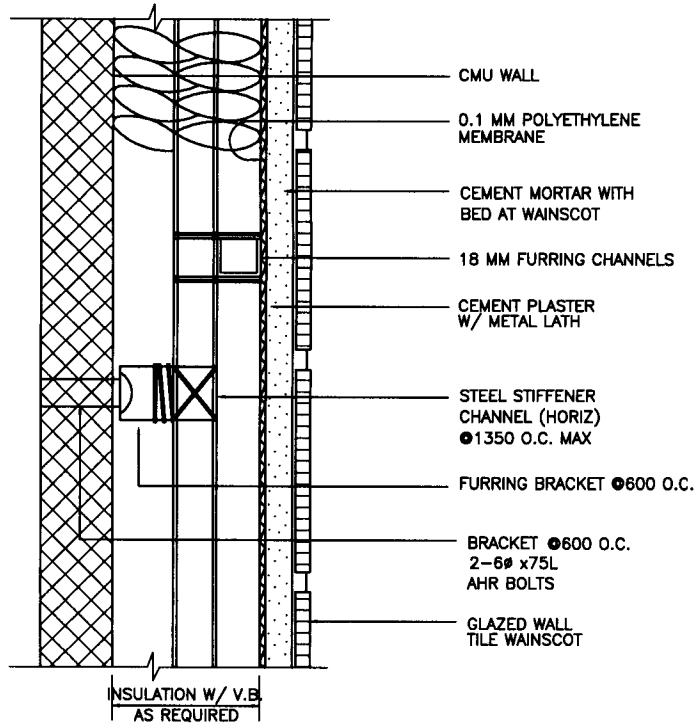
DWG NO.

TITLE CEILING & WALL DETAILS, CEMENT PLASTERING

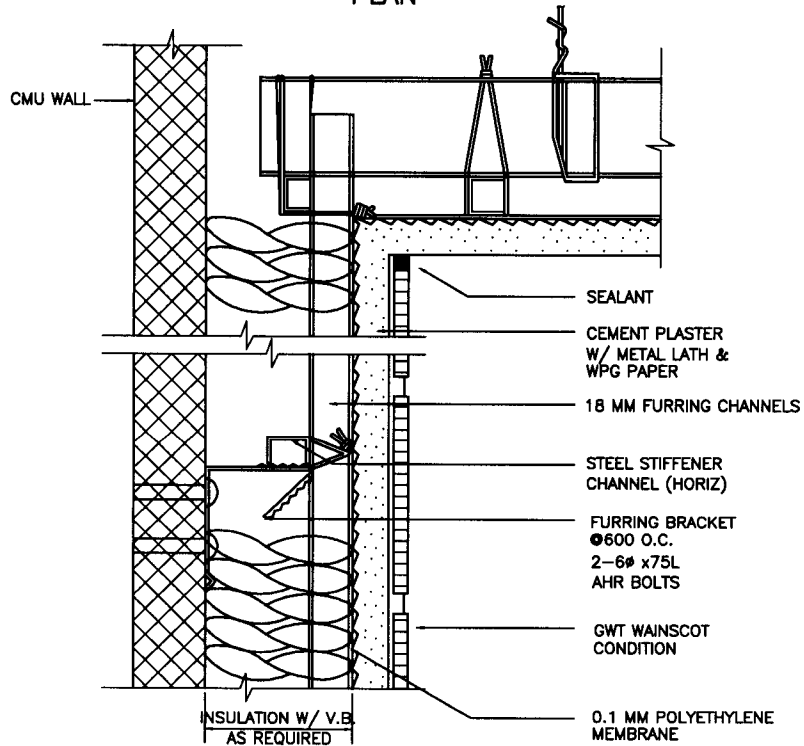
SPEC 09200

OCT 2003

A1504



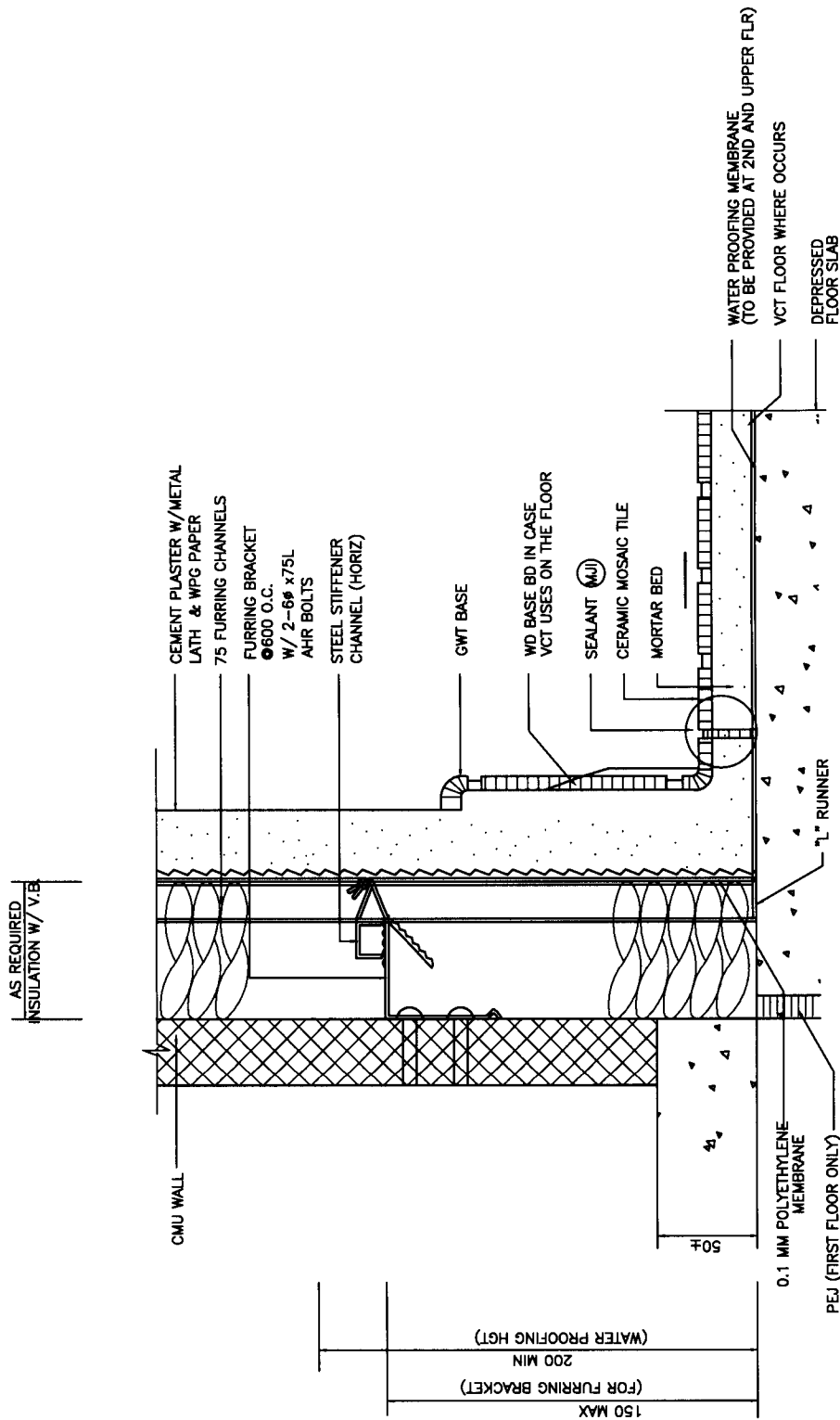
PLAN



AT TOP

TYPICAL PLASTER EXTERIOR WALL FURRING DETAILS

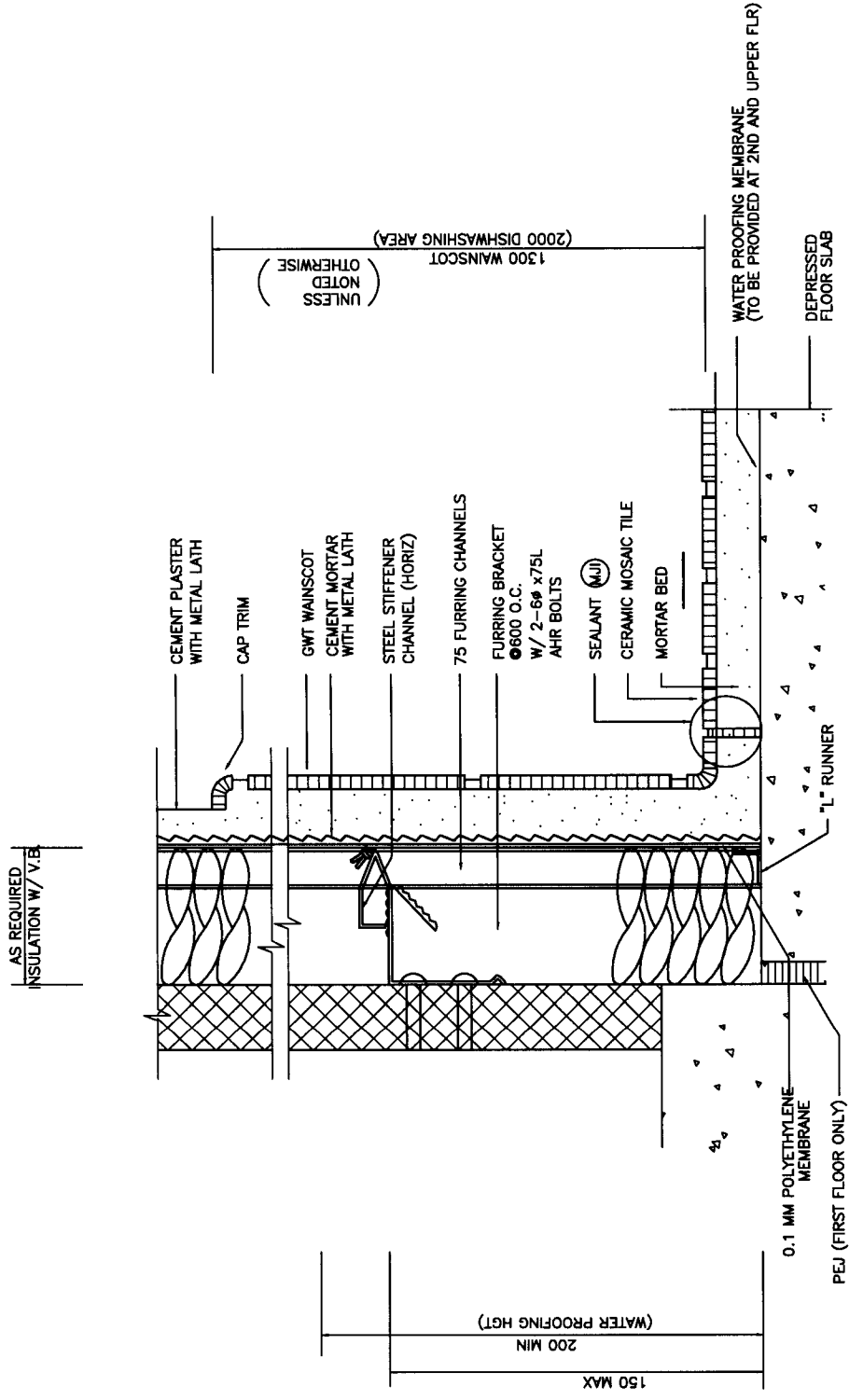
IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	WALL DETAILS, CEMENT PLASTERING - 1	SPEC	09200	OCT 2003	A1505



AT BASE

TYPICAL PLASTER EXTERIOR WALL FURRING DETAILS

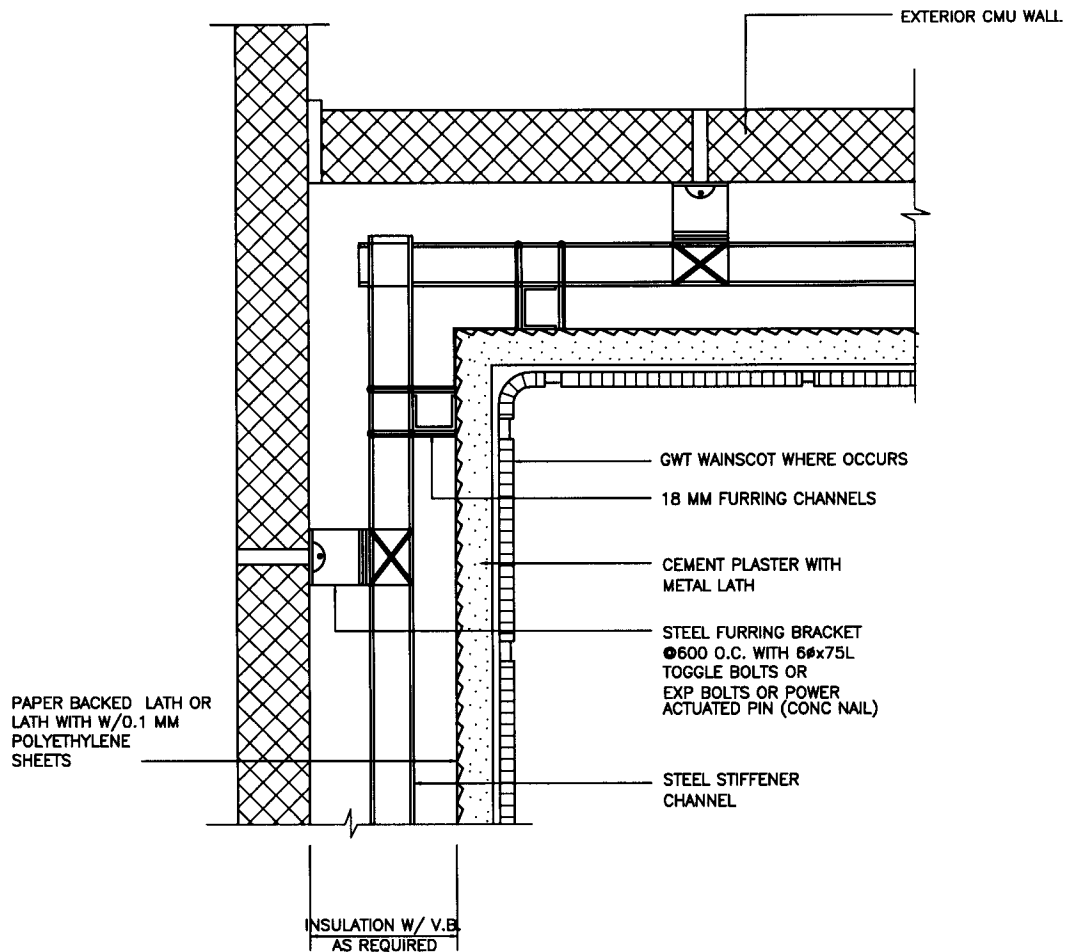
IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER			REV DATE	DWG NO.
TITLE	WALL DETAILS, CEMENT PLASTERING -2	SPEC	09200	OCT 2003
				A1506



AT WAINSCOT

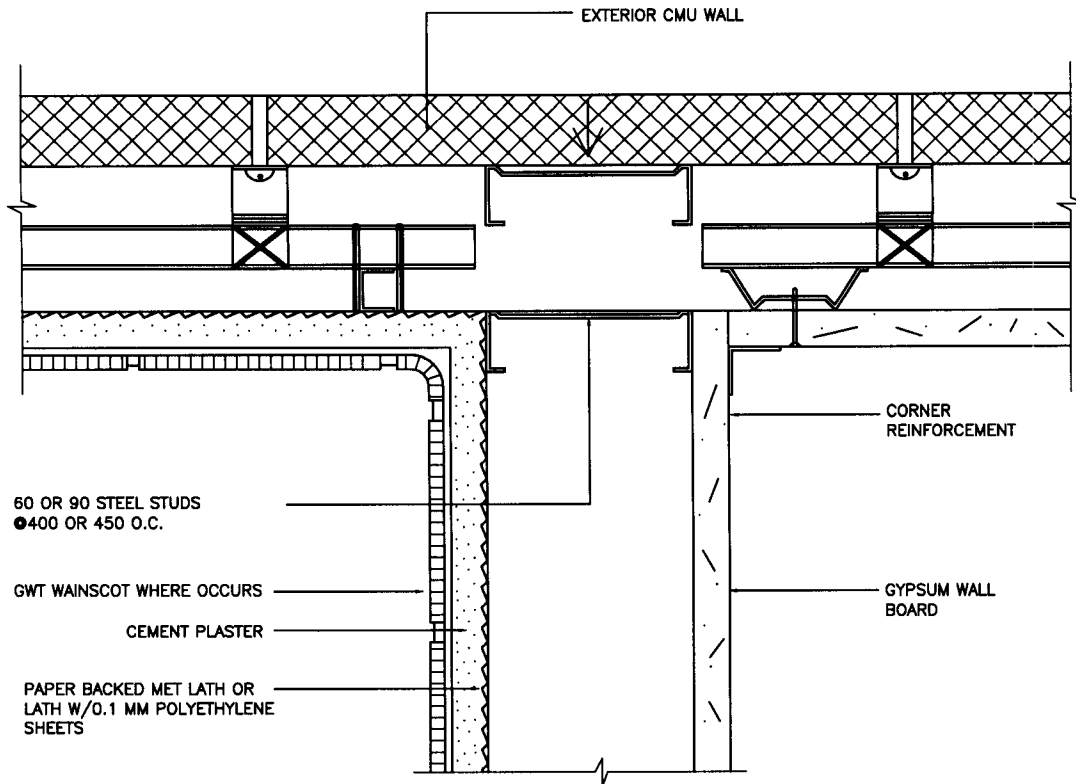
TYPICAL PLASTER EXTERIOR WALL FURRING DETAILS

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER		REV DATE	DWG NO.
TITLE	WALL DETAILS, CEMENT PLASTERING -3	SPEC 09200	OCT 2003 A1507



MISCELLANEOUS WALL DETAILS

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER			REV DATE	DWG NO.	
TITLE	WALL DETAILS, CEMENT PLASTERING -4	SPEC	09200	OCT 2003	A1508



WALL INTERSECTION

MISCELLANEOUS WALL DETAILS

IMA--KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	WALL DETAILS, CEMENT PLASTERING -5	SPEC	09200	OCT 2003	A1509

200 THK FIBER GLASS
BLANKET INSULATION

12 MM GWB CEILING

90 MM STEEL
RUNNER CHANNEL

12 MM GWB LINING

90 MM STEEL STUD
●1200 O.C.

12 MM GWB LINING

100 WALL BASE
VCT FIN.
CONC FLOOR

90 MM STEEL
BASE CHANNEL

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER

REV DATE

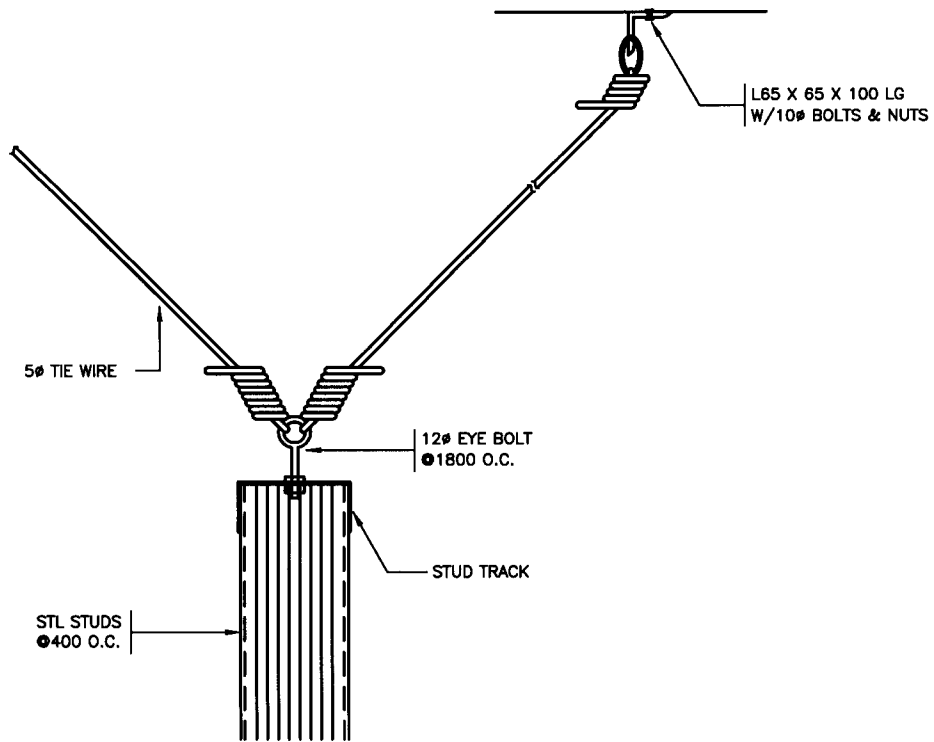
DWG NO.

TITLE GYPSUM BOARD

SPEC 09250

OCT 2003

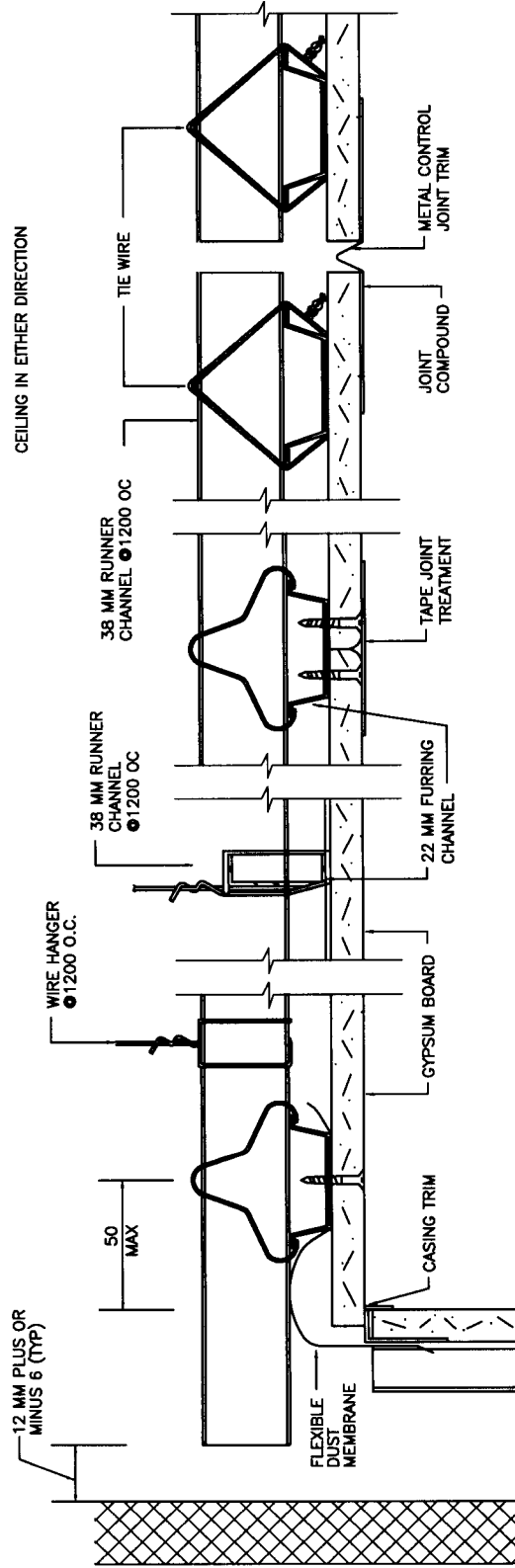
A1601



TYP. STUD PARTITION TOP BRACE

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER			REV DATE	DWG NO.
TITLE	TYP. STUD PARTITION TOP BRACE	SPEC	09250	OCT 2003
				A1602

NOTE: CONTROL JOINT SHALL BE PROVIDED WHERE CEILING FRAMING OR FURRING CHANGES DIRECTION EXPANSION AND CONTRACTION JOINTS SHALL BE INSTALLED IN CEILING EXCEEDING 240 SQ. METER INTERVAL BETWEEN CEILING CONTROL JOINTS SHALL NOT EXCEED 9 M IN CASES WHERE PERIMETER BREAK EXIST AND 12 M WHERE PERIMETER BREAK DOES NOT EXIST AROUND CEILING IN EITHER DIRECTION



AT WALL

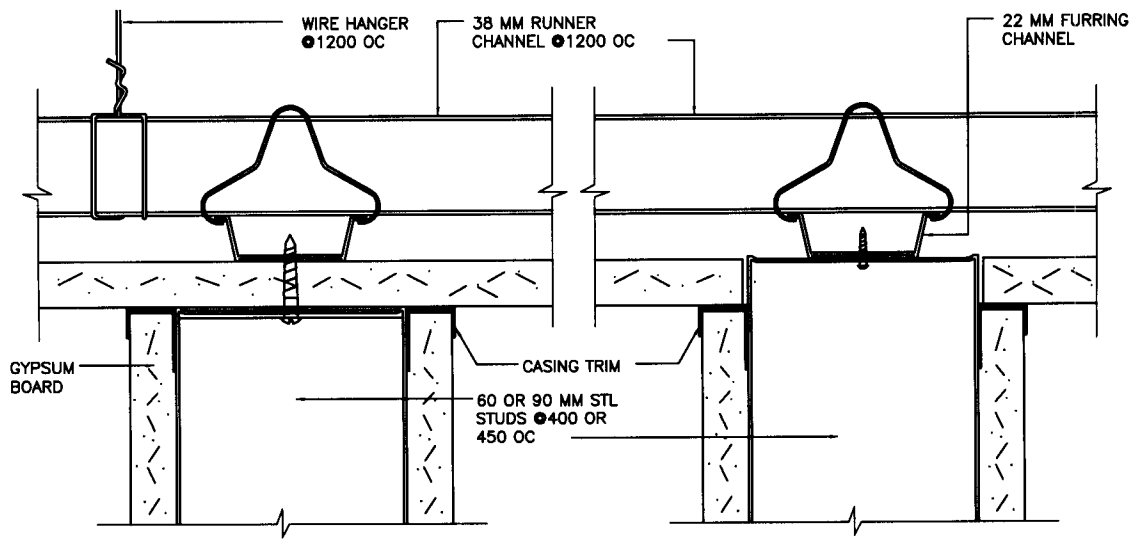
AT FURRING

AT FURRING

AT CONTROL JOINT

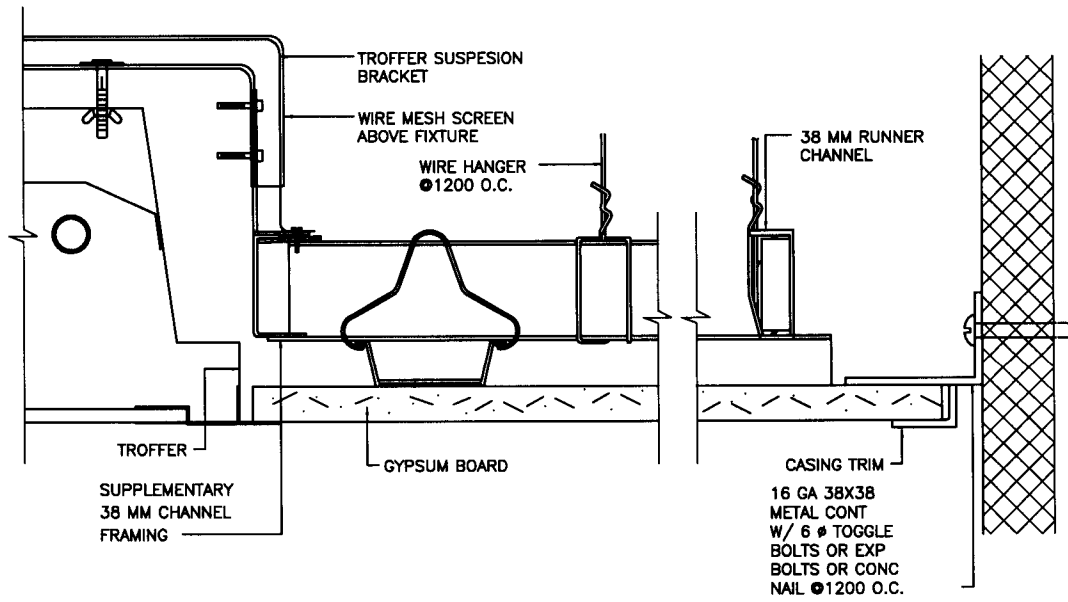
GYPSUM BOARD CEILING DETAILS

TITLE		CEILING DETAILS-1, GYPSUM BOARD		SPEC		09250		REV DATE		OCT 2003		DWG NO.		A1603	
IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER															



AT GWB PARTITION

AT GWB PARTITION

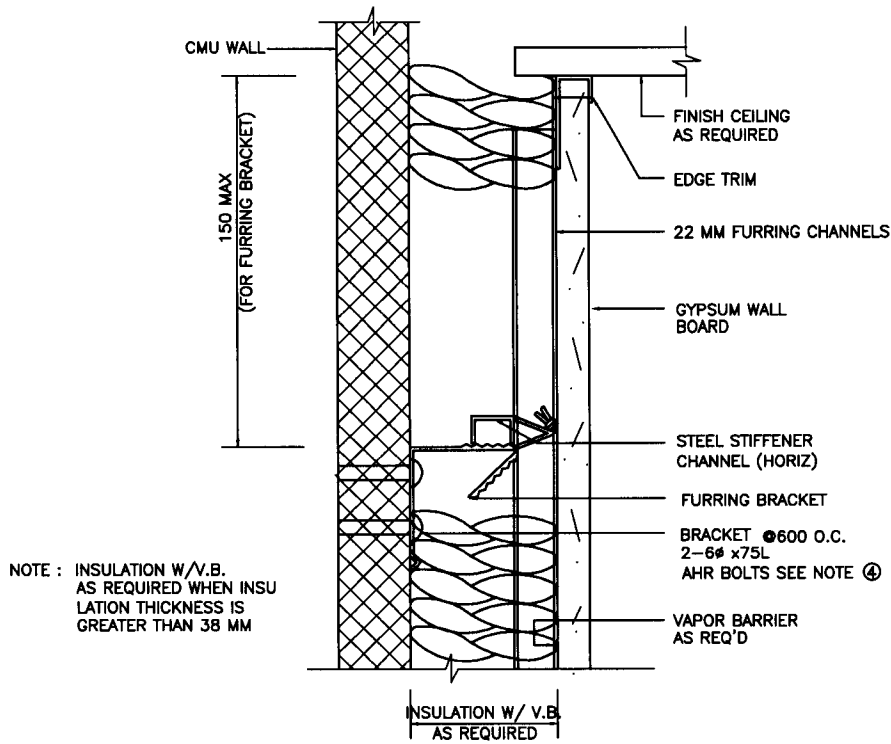


AT LIGHTING FIXTURE

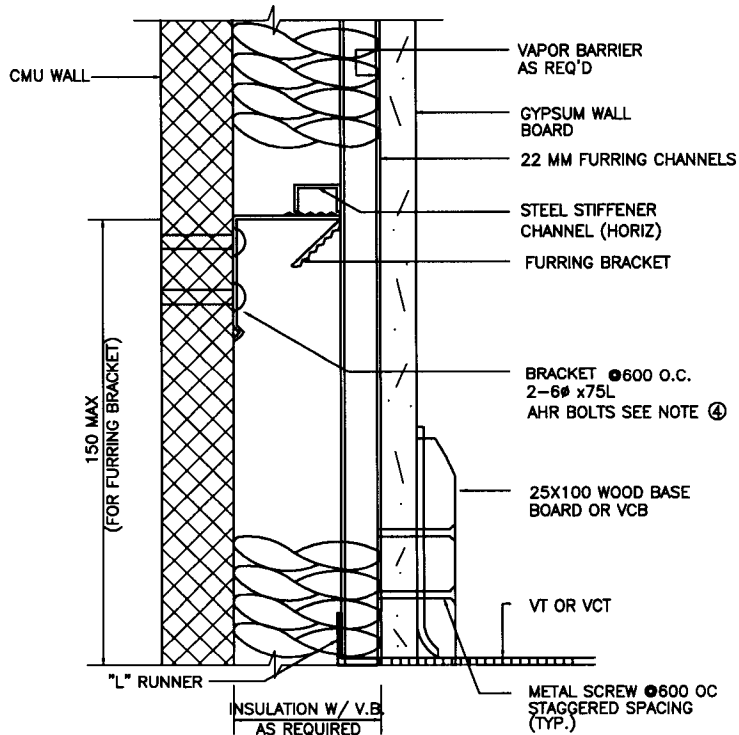
AT WALL (PLASTER, CMU)

GYPSUM BOARD CEILING DETAILS

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	CEILING DETAILS-2, GYPSUM BOARD	SPEC	09250	OCT 2003	A1604



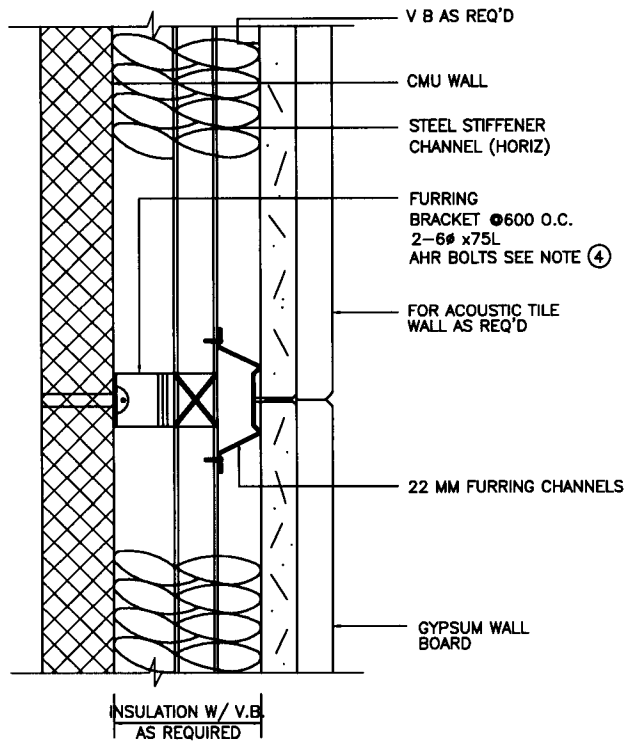
AT TOP



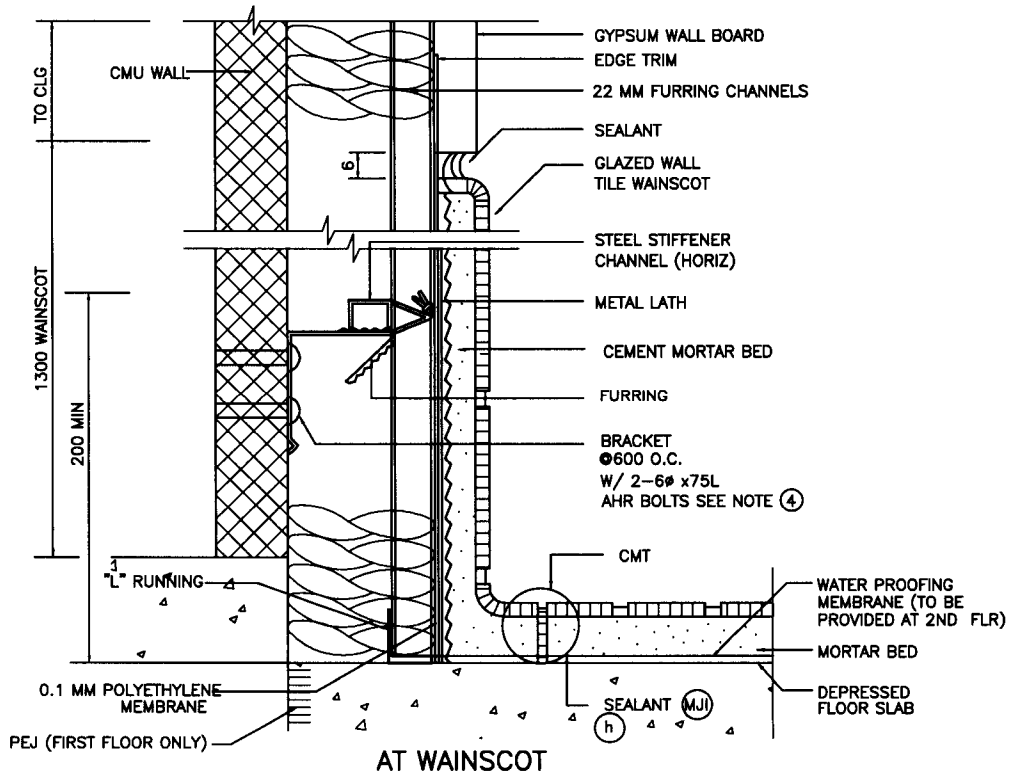
AT BASE

TYPICAL GYPSUM WALL BOARD EXTERIOR WALL FURRING DETAILS

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER		REV DATE	DWG NO.
TITLE	WALL DETAILS-1, GYPSUM BOARD	SPEC 09250	OCT 2003 A1605



PLAN



TYPICAL PLASTER EXTERIOR WALL FURRING DETAILS

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER

REV DATE

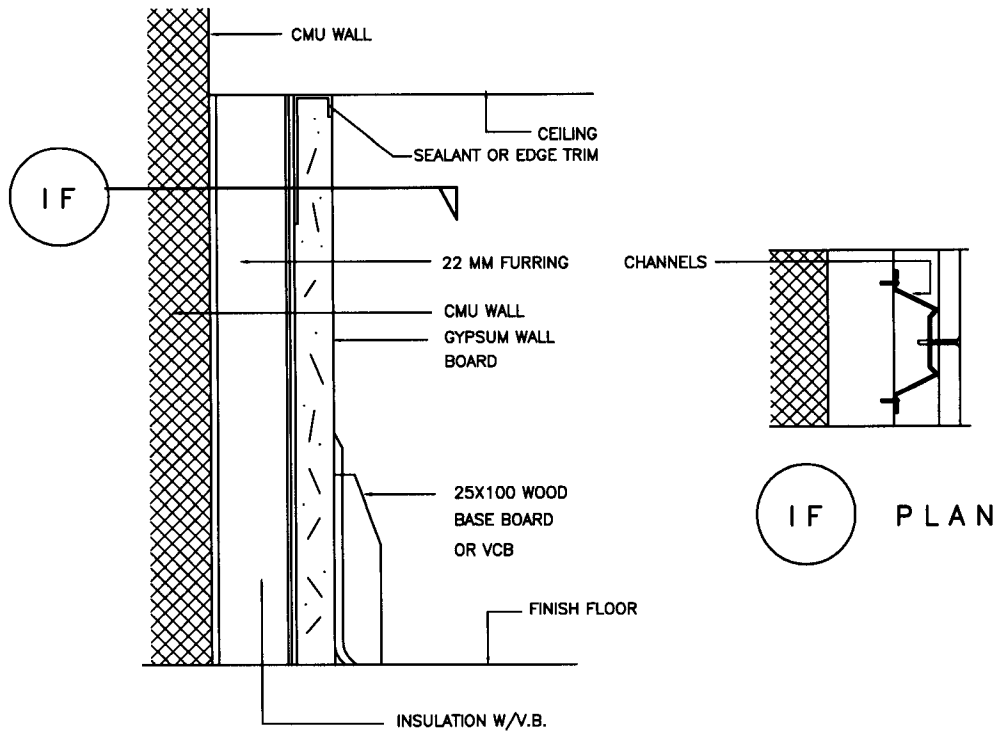
DWG NO.

TITLE WALL DETAILS-2, GYPSUM BOARD

SPEC 09250

OCT 2003

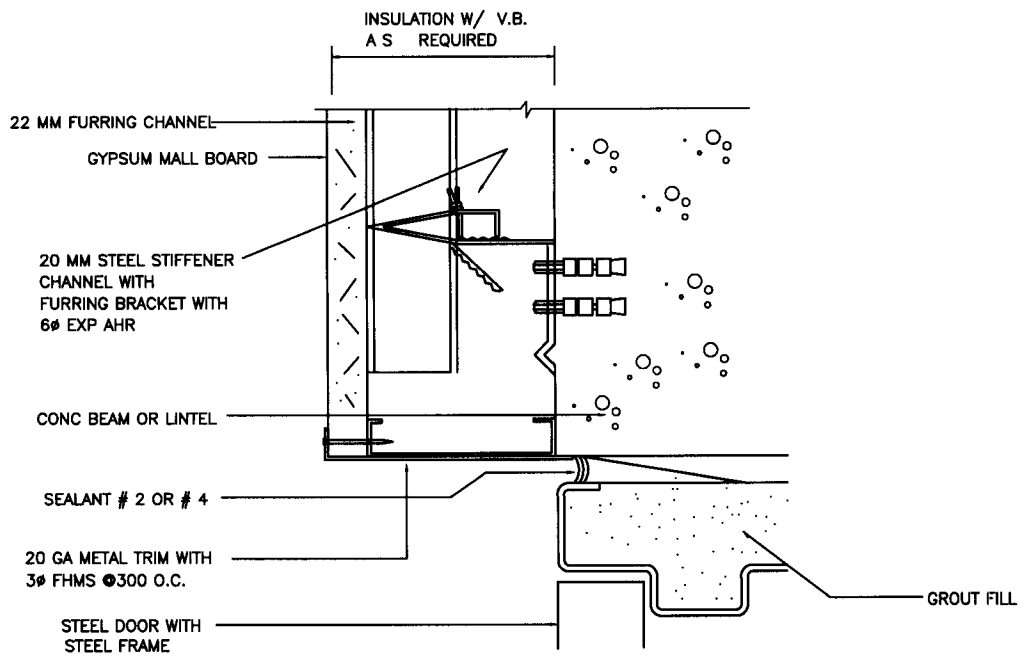
A1606



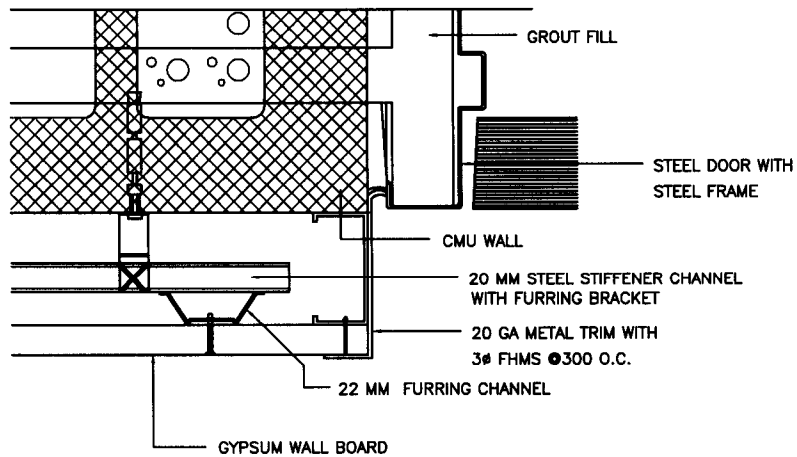
TYPICAL GYPSUM WALL BOARD EXTERIOR WALL FURRING DETAILS

MET FURRING ATTACHED DIRECTLY TO WALL

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER			REV DATE	DWG NO.	
TITLE	WALL DETAILS-3, GYPSUM BOARD	SPEC	09250	OCT 2003	A1607



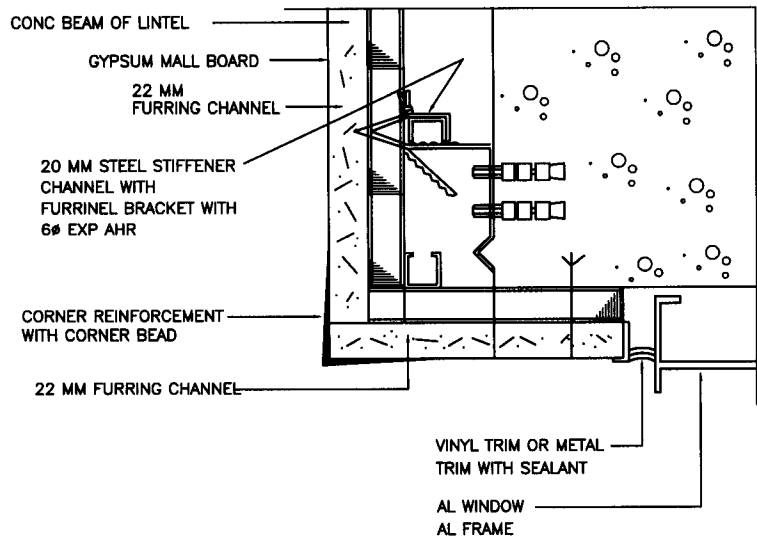
AT DOOR HEAD



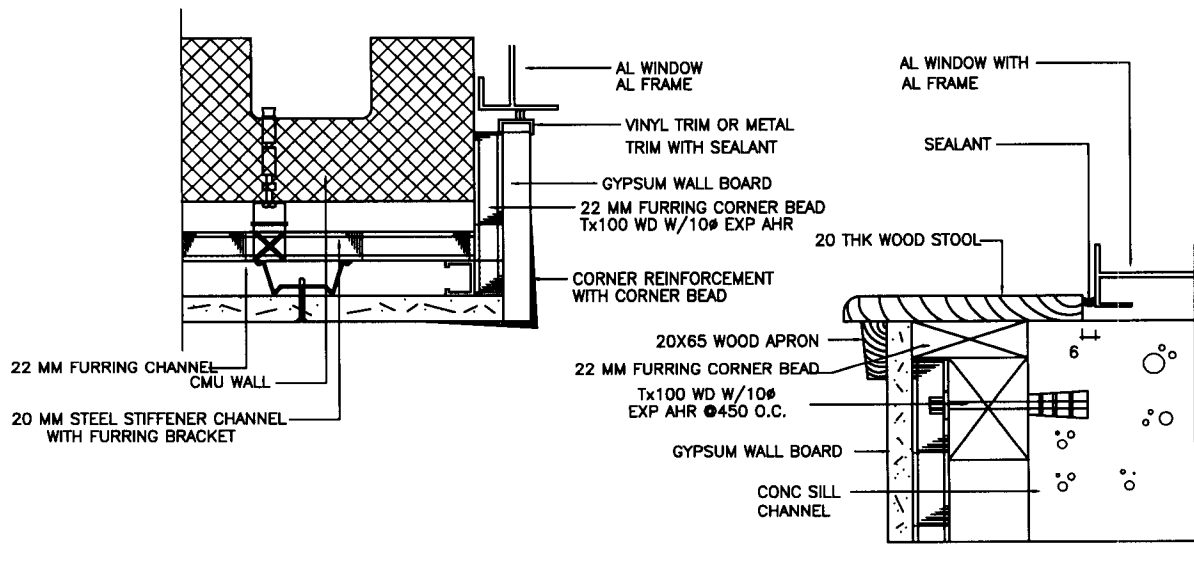
AT DOOR HEAD

EXTERIOR WALL DETAILS AT DOOR AND WINDOW

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	WALL DETAILS-4, GYPSUM BOARD	SPEC	09250	OCT 2003	A1608



AT WINDOW HEAD

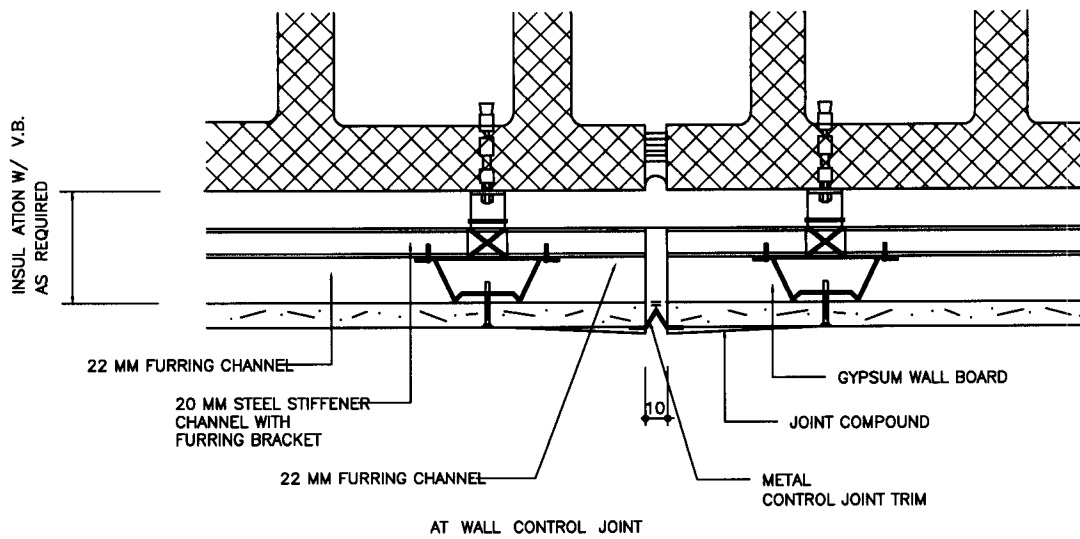


AT WINDOW JAMB

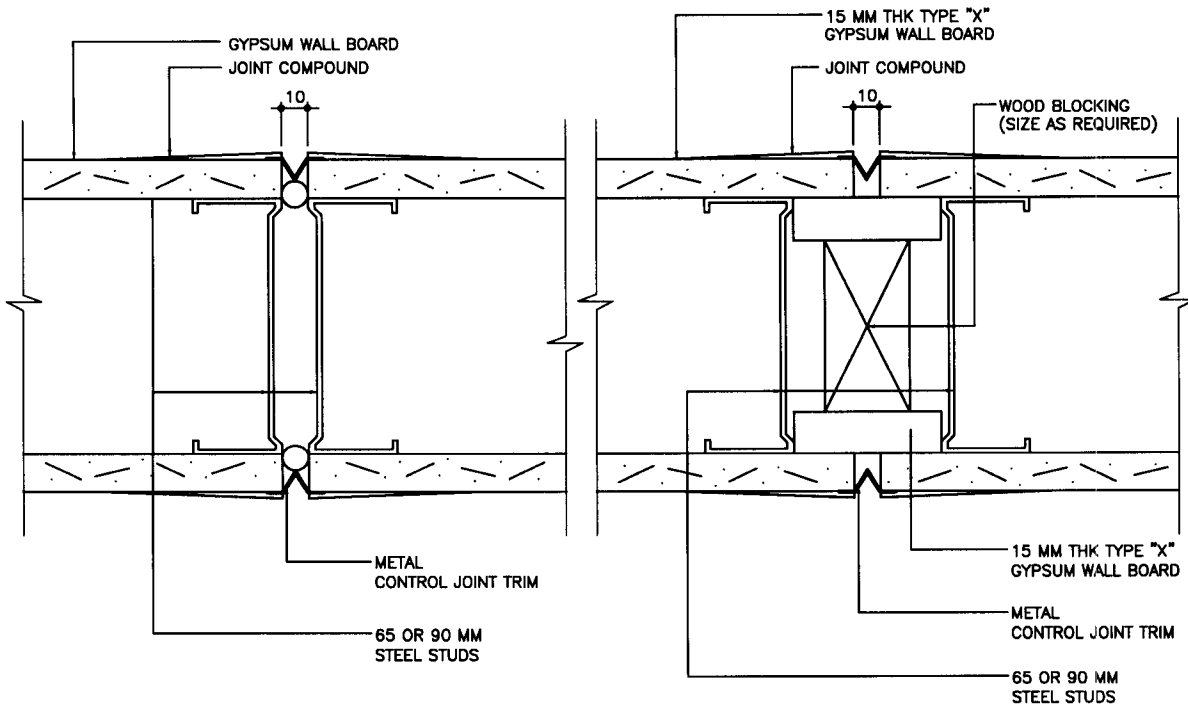
AT WINDOW SILL

EXTERIOR WALL DETAILS AT DOOR AND WINDOW

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	WALL DETAILS-5, GYPSUM BOARD	SPEC	09250	OCT 2003	A1609



GWB CONTROL JOINT DETAIL

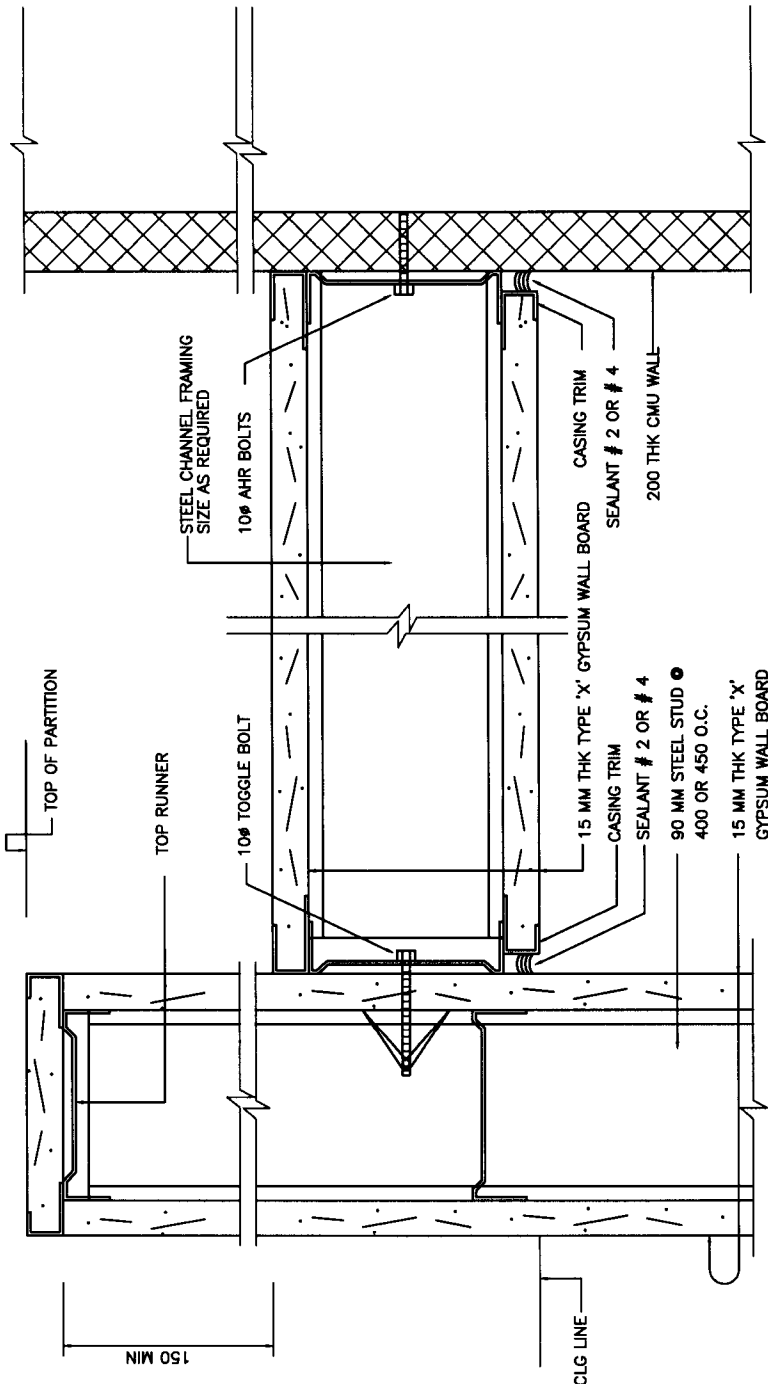


CONTROL JOINT (AT GWB)

CONTROL JOINT (AT FIRE RATED GWB)
(ONE HOUR)

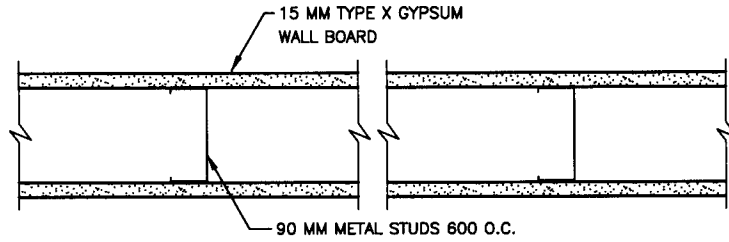
GWB CONTROL JOINT DETAIL

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER		REV DATE	DWG NO.
TITLE	WALL DETAILS-6, GYPSUM BOARD	SPEC 09250	OCT 2003 A1610



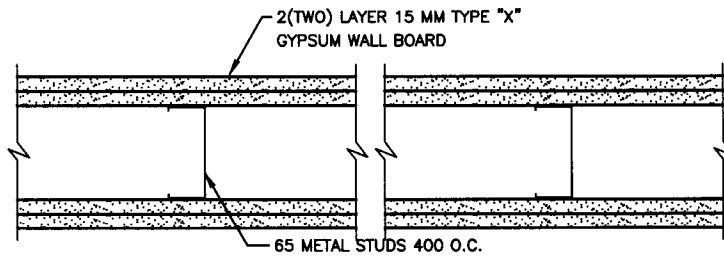
FIRE RATED CEILING AND WALL DETAILS

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER		REV DATE	DWG NO.
TITLE	CEILING & WALL DETAILS-1, GYPSUM BOARD	SPEC 09250	OCT 2003 A1611



THICKNESS : 120 MM
 LIMITING HEIGHT : 4100 MM
 STC : 40 TO 44

1 HR FIRE RATING DRYWALL

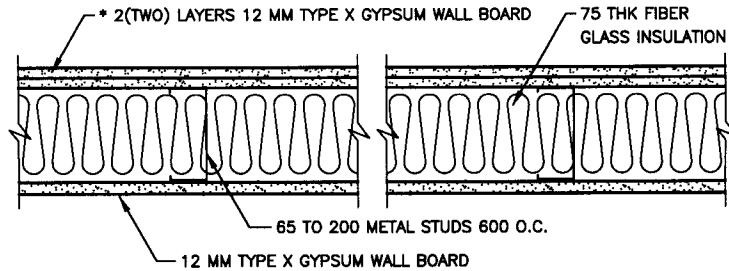


THICKNESS : 125 MM
 LIMITING HEIGHT : 3400
 STC : 40 TO 44

2 HR FIRE RATING DRYWALL

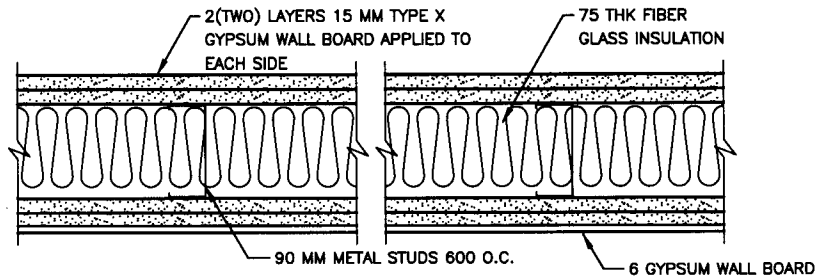
FIRE RATED WALL DETAILS

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	CEILING & WALL DETAILS-2, GYPSUM BOARD	SPEC	09250	OCT 2003	A1612



THICKNESS : 100 MM
STC : 50 TO 54

1 HR FIRE RATING DRYWALL

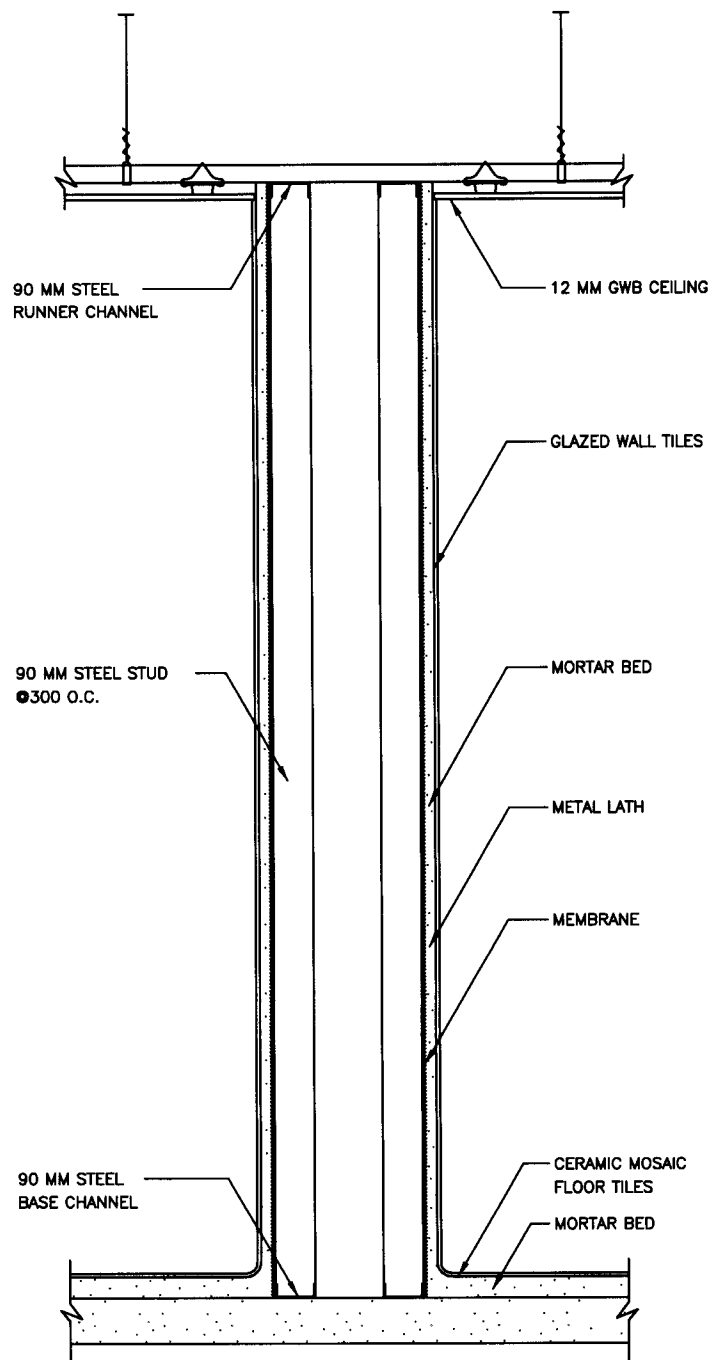


THICKNESS : 156 MM
STC : 55 TO 59

2 HR FIRE RATING DRYWALL

FIRE RATED WALL DETAILS

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	CEILING & WALL DETAILS-3, GYPSUM BOARD	SPEC	09250	OCT 2003	A1613



IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER

REV DATE

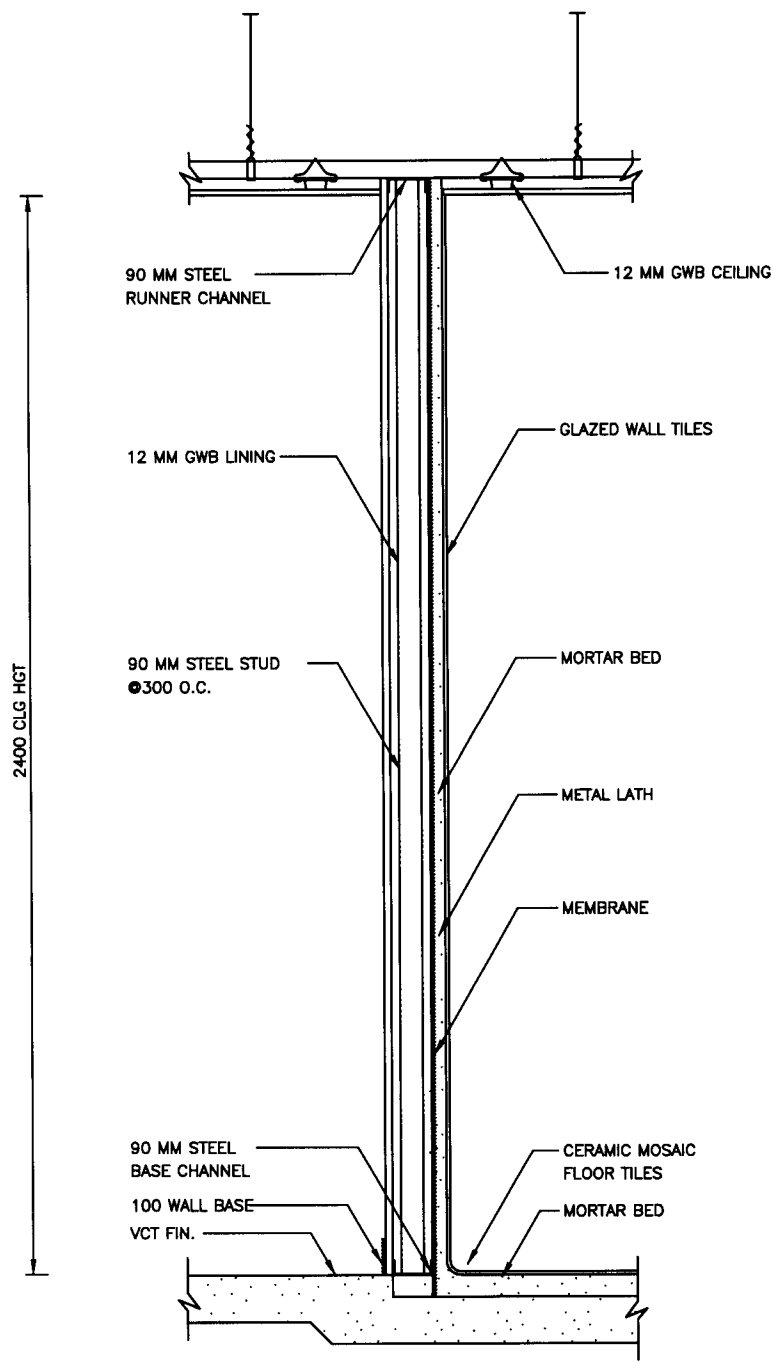
DWG NO.

TITLE CERAMIC TILE

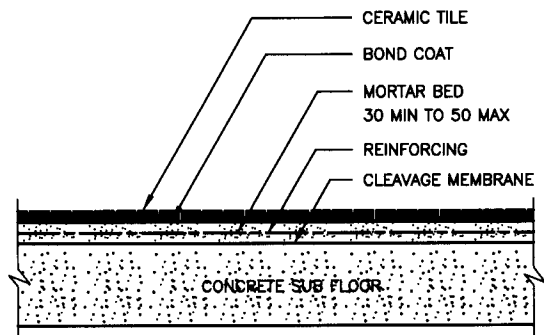
SPEC 09310

OCT 2003

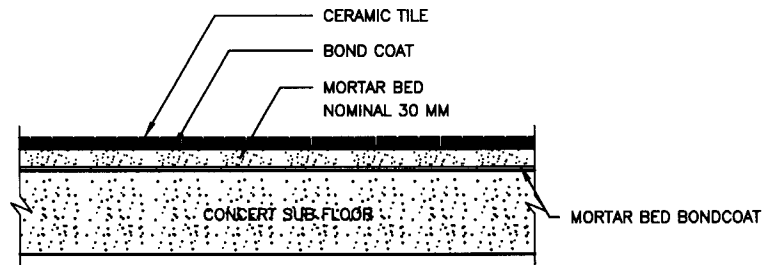
A1701



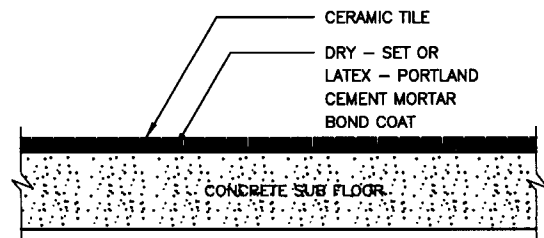
IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER			REV DATE	DWG NO.
TITLE	CERAMIC TILE	SPEC	09310	OCT 2003
				A1702



TCA - 01, F111 CEMENT MORTAR
 CLEAVAGE MEMBRANE



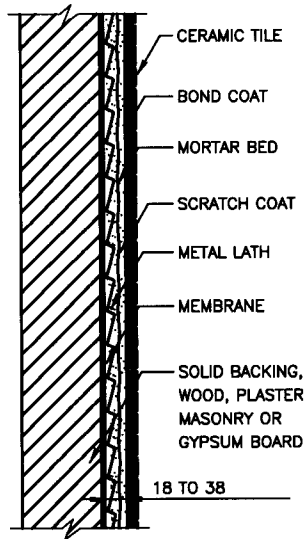
TCA - 01, F112 CEMENT MORTAR
 BONDED



TCA - 01, F113 DRY - SET MORTAR OR
 LATEX - PORTLAND CEMENT MORTAR

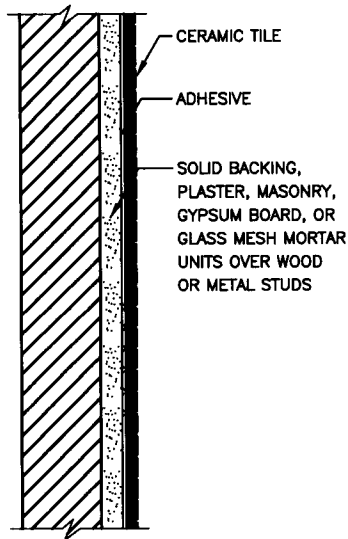
CERAMIC TILE OVER CONCRETE SUBFLOOR

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER			REV DATE	DWG NO.
TITLE	CERAMIC TILE INSTALLATION FOR WALL & FLOOR - 1	SPEC	09310	OCT 2003
				A1703



CEMENT MORTAR

TCA - 01, W221

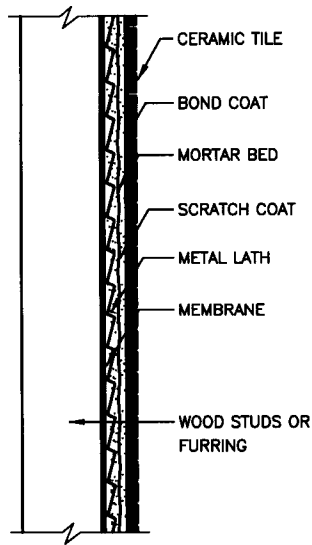


ORGANIC ADHESIVE

TCA - 01, W223

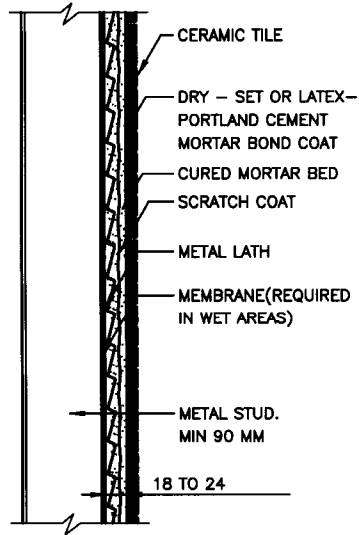
CERAMIC TILE : WALL

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER			REV DATE	DWG NO.	
TITLE	CERAMIC TILE INSTALLATION FOR WALL & FLOOR - 2	SPEC	09310	OCT 2003	A1704



CEMENT MORTAR

TCA - 01, W231

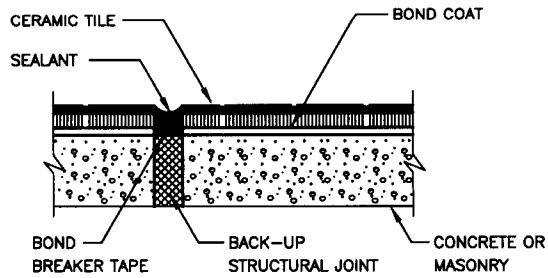
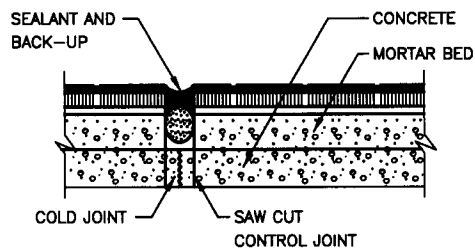
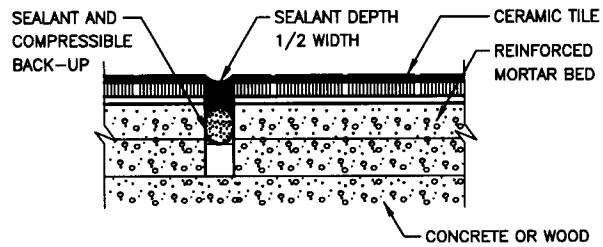


CEMENT MORTAR

TCA - 01, W241

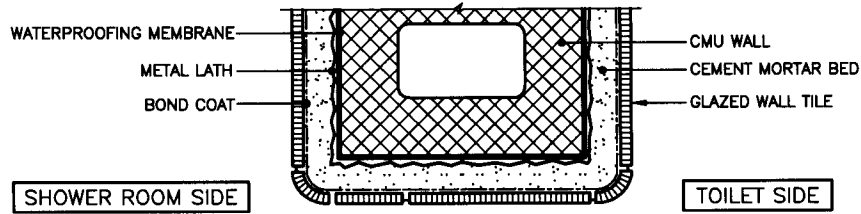
CERAMIC TILE : WALL

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	CERAMIC TILE INSTALLATION FOR WALL & FLOOR - 3	SPEC	09310	OCT 2003	A1705

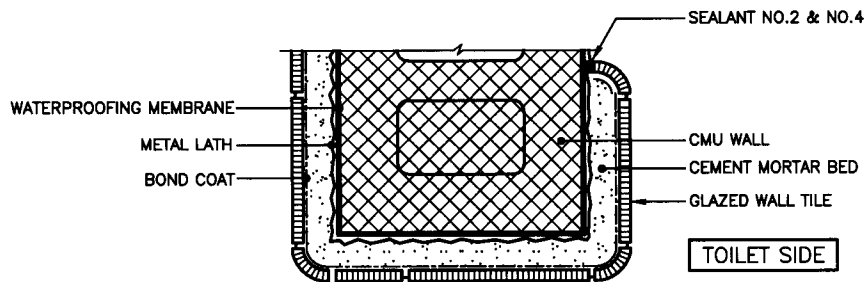


EXPANSION JOINTS
VERTICAL & HORIZONTAL

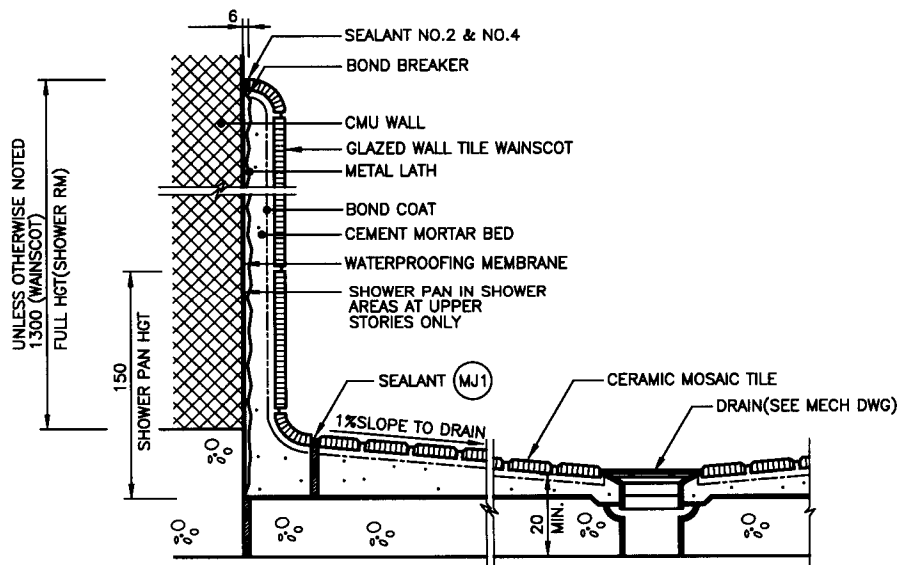
IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER			REV DATE	DWG NO.	
TITLE	CERAMIC TILE INSTALLATION FOR WALL & FLOOR - 4	SPEC	09310	OCT 2003	A1706



IC JAMB AT GWT WAINSCOT



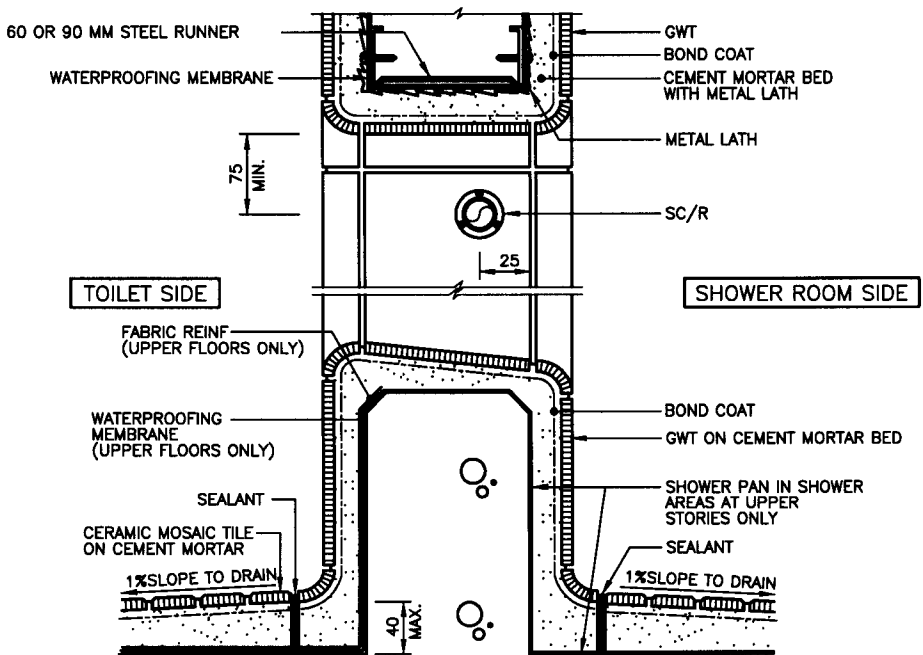
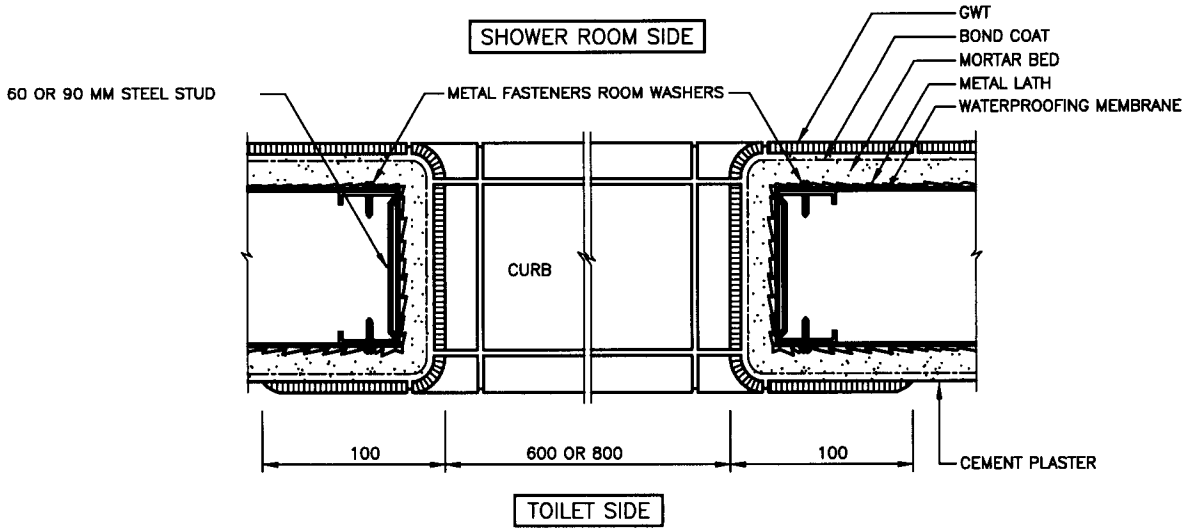
ID JAMB ABOVE GWT WAINSCOT



IA WAINSCOT

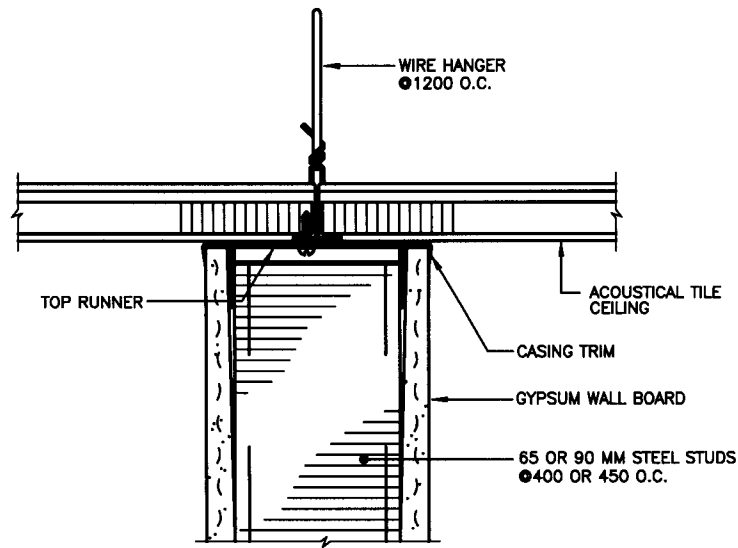
INTERIOR WALL SECTION AND CURB DETAILS

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER			REV DATE	DWG NO.
TITLE	INTERIOR WALL SECTION AND CURB DETAILS	SPEC	09310	OCT 2003
				A1707

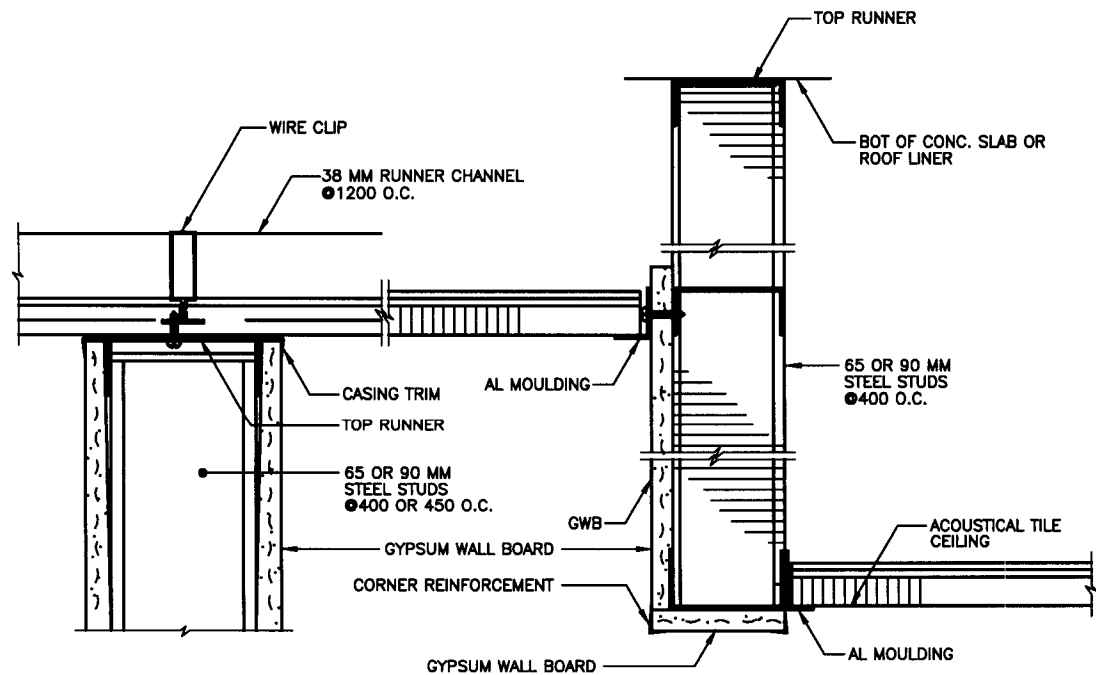


INTERIOR WALL SECTION AND CURB DETAILS

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	INTERIOR WALL SECTION AND CURB DETAILS	SPEC	09310	OCT 2003	A1709



GWB PTN (EXPOSED GRID)



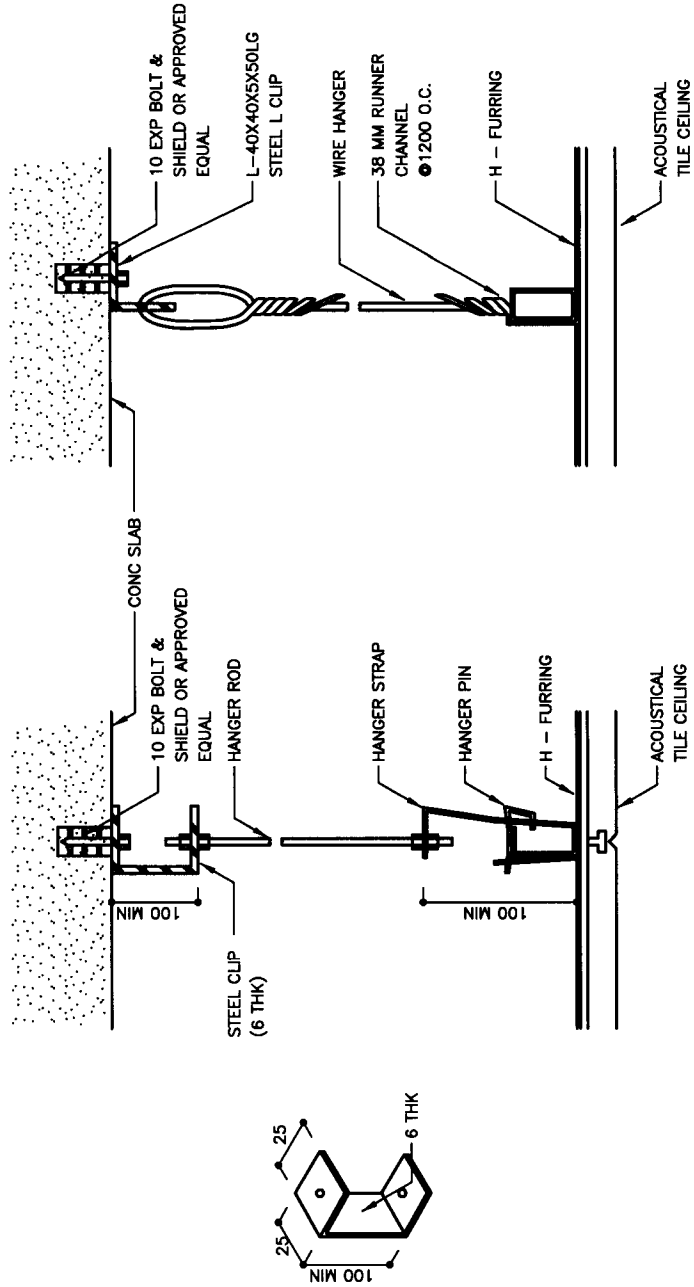
AT GWB PTN (CONCEALED GRID)

AT STEP CEILING

MISCELLANEOUS ACOUSTICAL TILE CEILING DETAILS

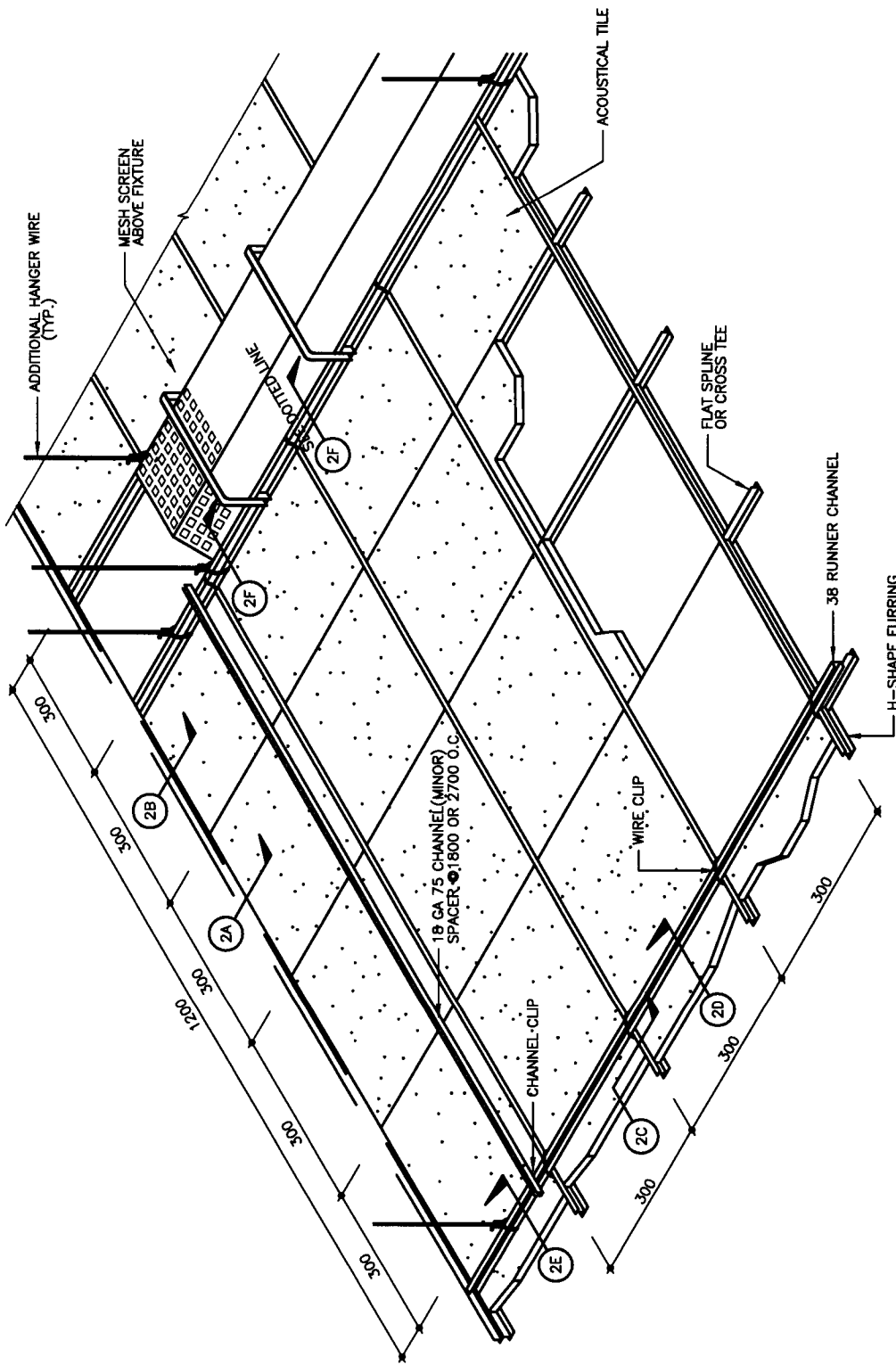
IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER			REV DATE	DWG NO.
TITLE	CEILING DETAILS-1, ACOUSTICAL	SPEC	09510	OCT 2003
				A1801

NOTE : HANGER ROD IS MORE PREFERABLE
FOR CEMENT PLASTER CEILING



HANGER DETAILS

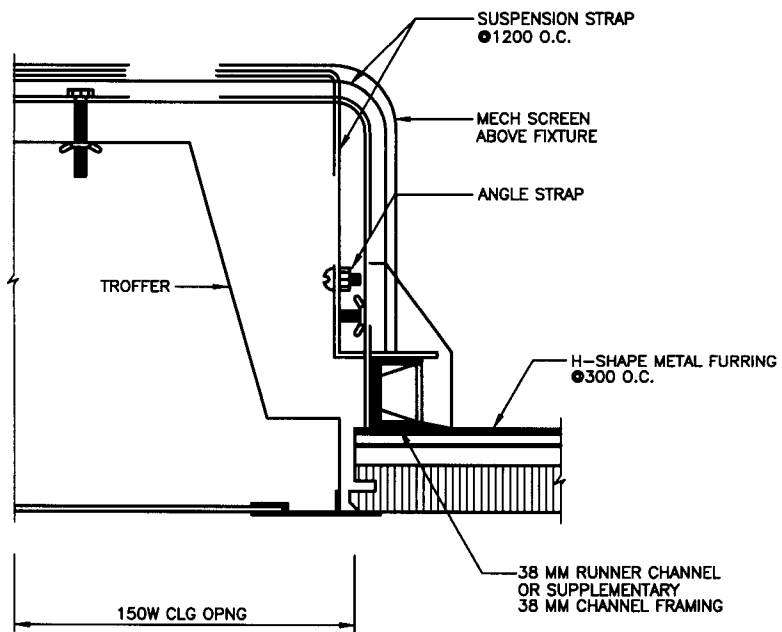
IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER		REV DATE	DWG NO.
TITLE	CEILING DETAILS-2, ACOUSTICAL	SPEC 09510	OCT 2003 A1802



ISOMETRIC

CONCEALED GRID ACOUSTICAL TILE CEILING DETAILS

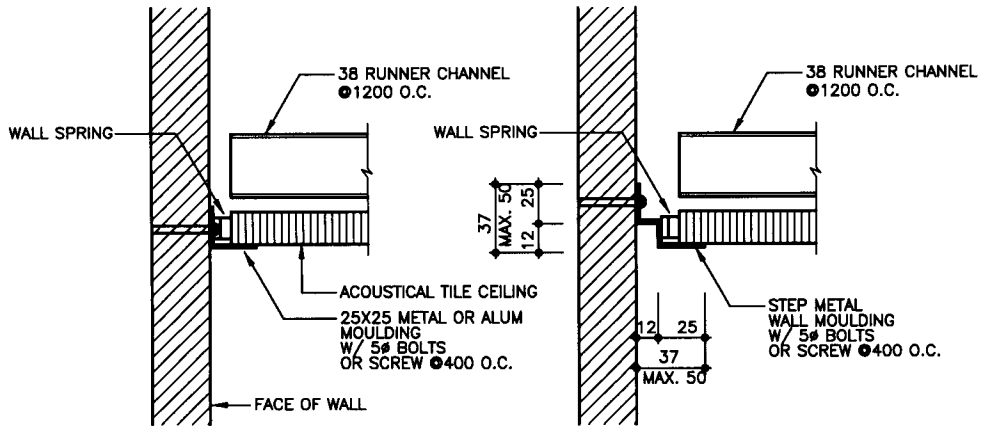
IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER		REV DATE	DWG NO.
TITLE	CONCEALED GRID ACOUSTICAL TILE CEILING DETAILS	SPEC 09510	OCT 2003 A1803



AT LIGHTING FIXTURE

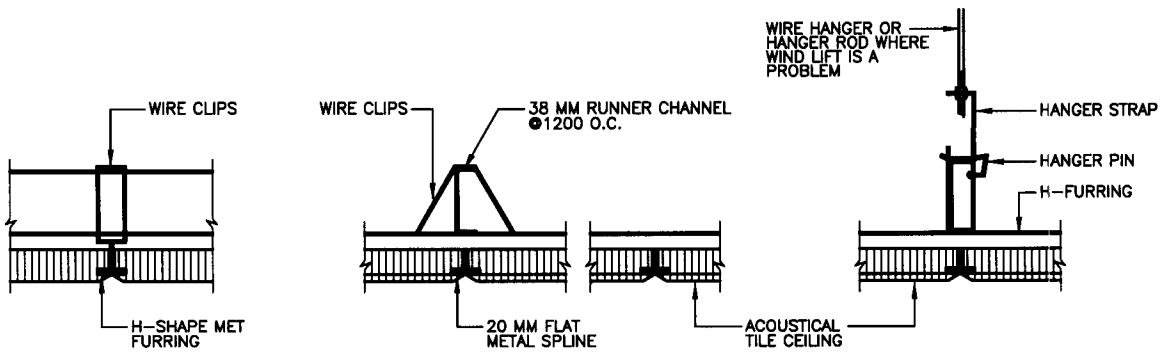
CONCEALED GRID ACOUSTICAL TILE CEILING DETAILS

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	CONCEALED GRID ACOUSTICAL TILE CEILING DETAILS	SPEC	09510	OCT 2003	A1804



AT WALL

AT WALL



AT H-FURRING

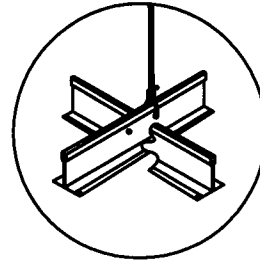
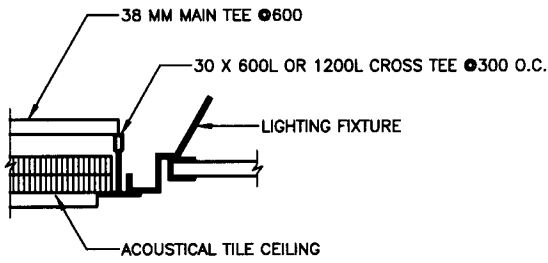
AT FLAT SPLINE OR CROSS TEE

AT HANGER

NOTE : USE HANGER ROD IN LIEU
OF WIRE HANGER WHERE WIND
LIFT IS A PROBLEM.

CONCEALED GRID ACOUSTICAL TILE CEILING DETAILS

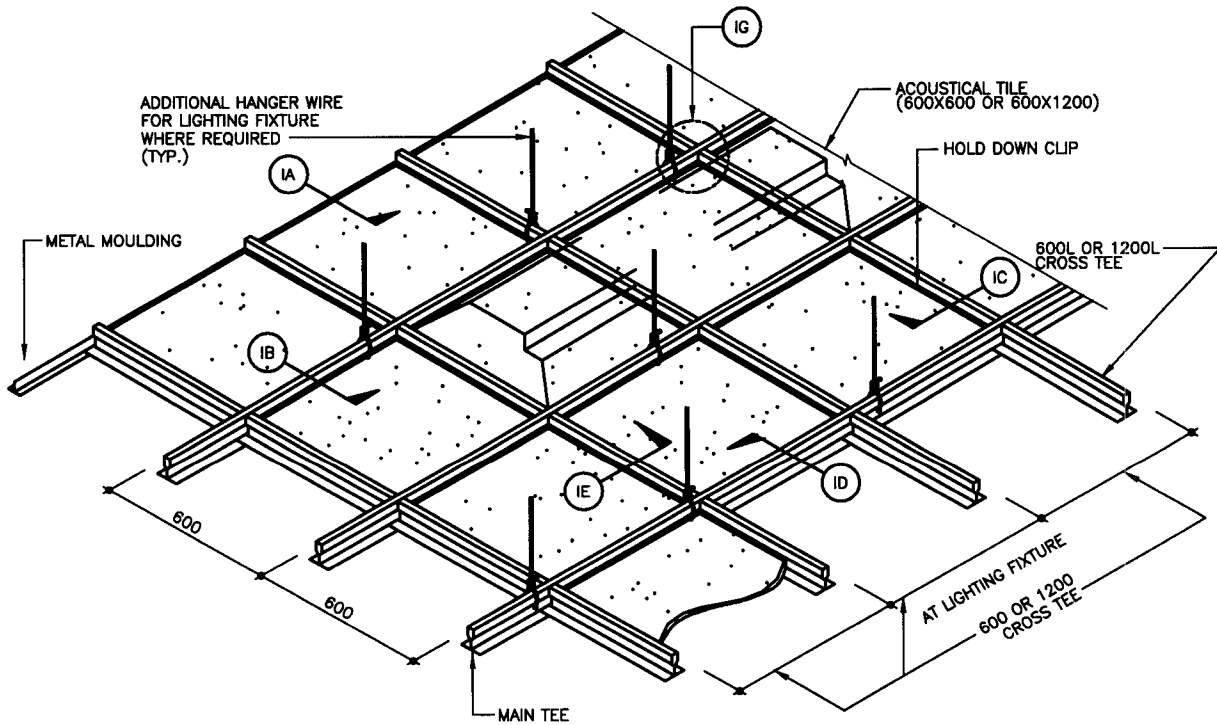
IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER			REV DATE	DWG NO.
TITLE	CONCEALED GRID ACOUSTICAL TILE CEILING DETAILS	SPEC	09510	OCT 2003
				A1805



NOTE : QTY OF HOLD DOWN CLIPS REQUIRED PER PANEL
 a) FOR 600X600 PANEL 1 EA PER EDGE (TOTAL 4EA)
 a) FOR 600X1200 PANEL 1 EA PER 600 LONG EDGE AND 2EA PER 1200 LONG EDGE (TOTAL 6EA)

AT LIGHTING FURRING

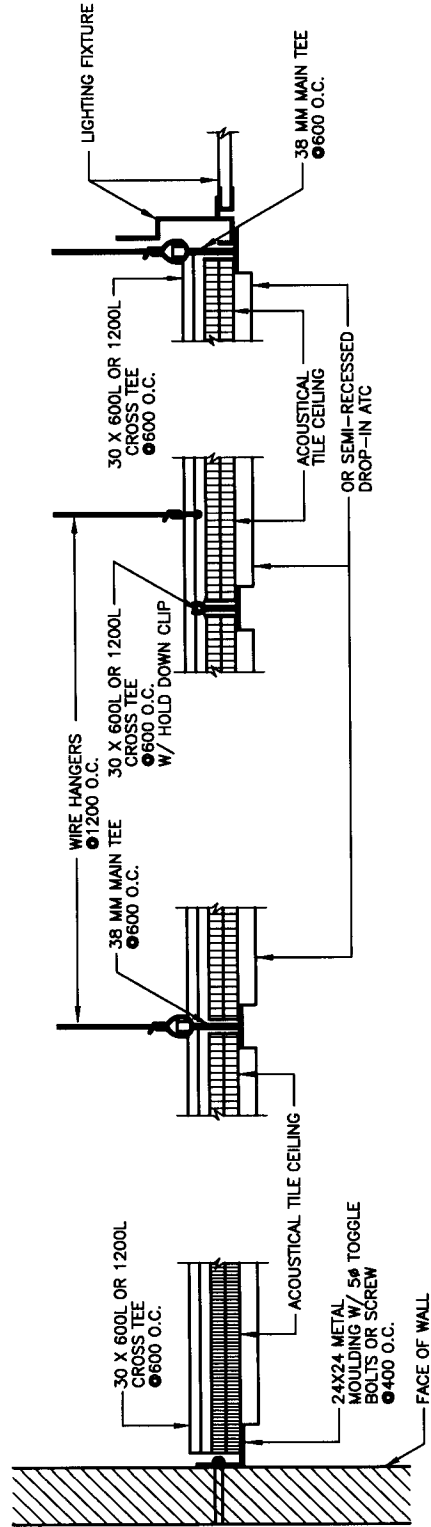
MAIN TEE & CROSS TEE ISOMETRIC



ISOMETRIC

EXPOSED GRID ACOUSTICAL TILE CEILING DETAILS

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER			REV DATE	DWG NO.
TITLE	EXPOSED GRID ACOUSTICAL TILE CEILING DETAILS	SPEC	09510	OCT 2003
				A1806



AT LIGHTING FIXTURE

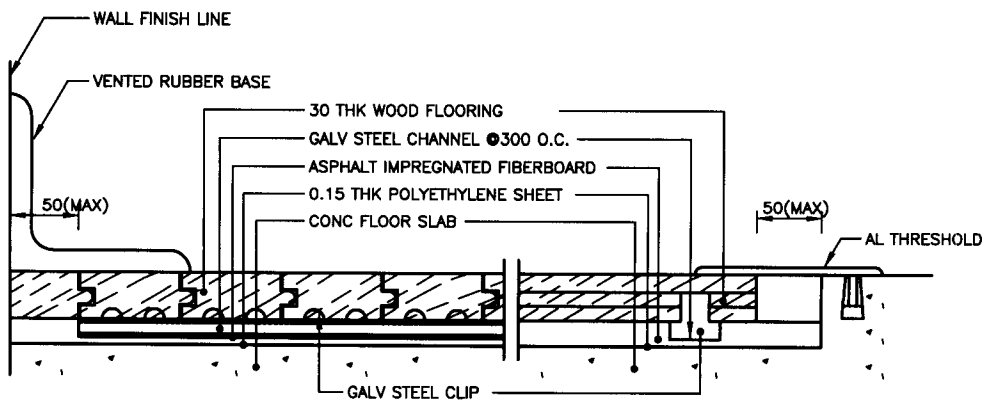
AT CROSS TEE

AT MAIN TEE

AT WALL

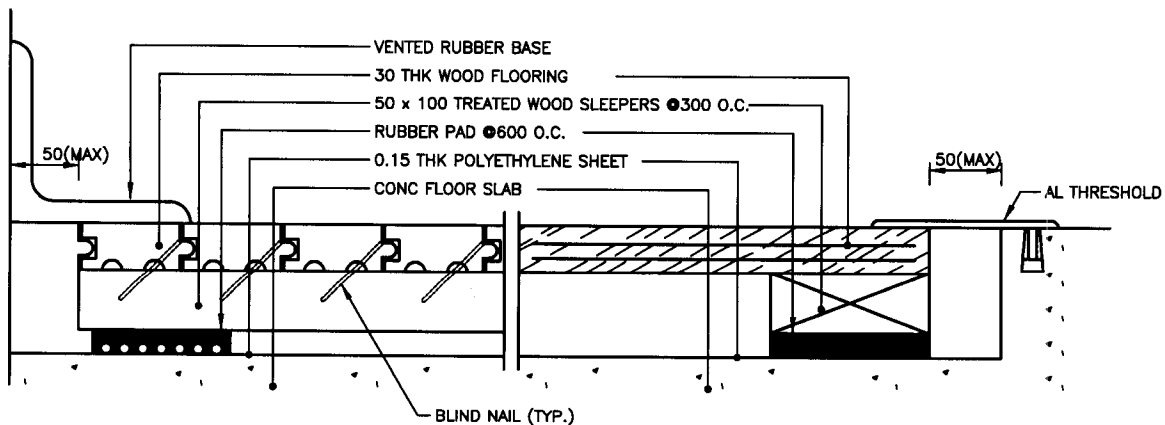
EXPOSED GRID ACOUSTICAL TILE CEILING DETAILS

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER		REV DATE	DWG NO.
TITLE	EXPOSED GRID ACOUSTICAL TILE CEILING DETAILS	SPEC 09510	OCT 2003 A1807



TYPE 1

NOTE :
 LARGE GYMNASIUM, HIGH SCHOOL
 SQUASH RACQUET BALL COURTS, LARGE
 STORAGES, SCHOOL SHOPS & BALLROOM

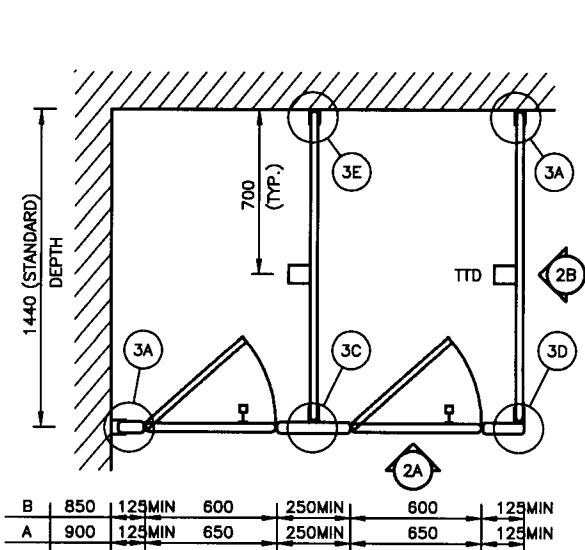


TYPE 2

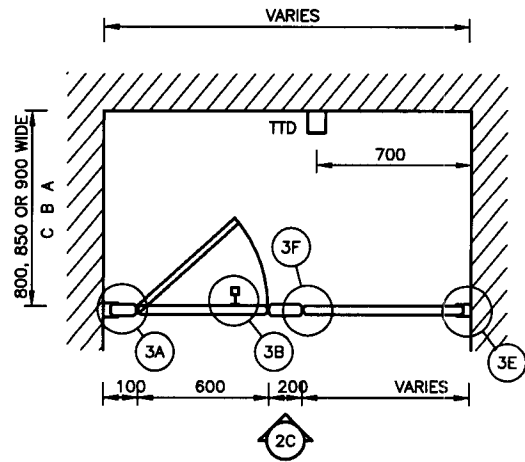
NOTE :
 FOR GYMNASIUM, PARTICULARLY ELEMENTARY
 SCHOOL, JUNIOR HIGH SCHOOL & PLAYROOMS

WOOD STRIP FLOORING DETAILS (AT GYMNASIUM)

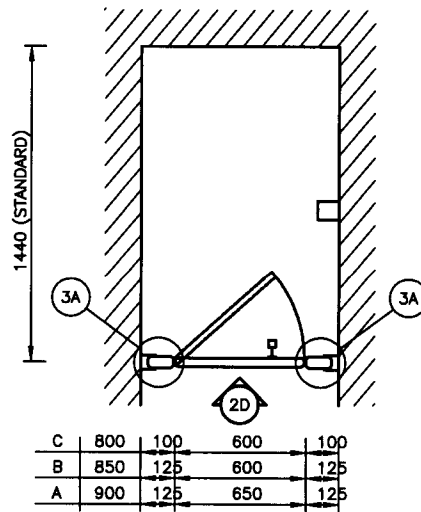
IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	WOOD STRIP FLOORING DETAILS	SPEC	09640	OCT 2003	A1901



TYPE I



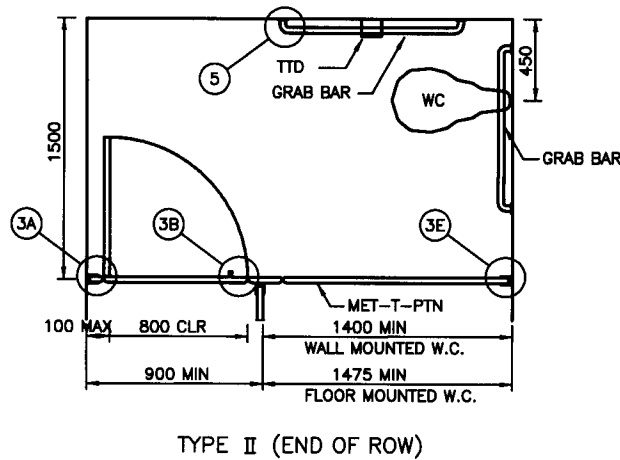
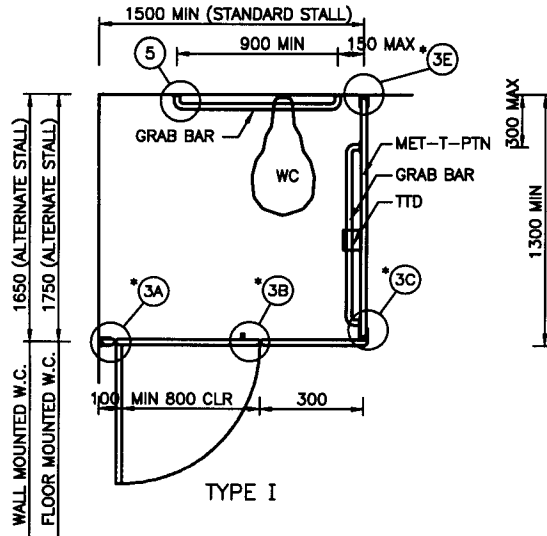
TYPE II



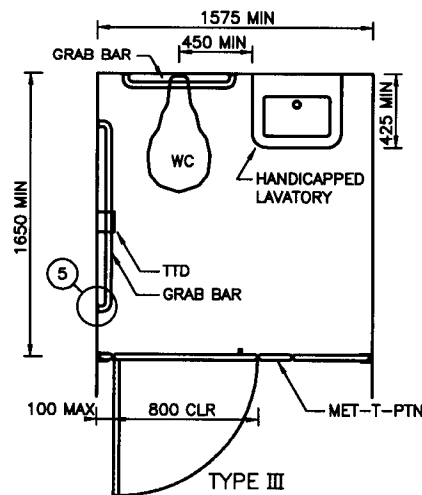
TYPE III

TYPICAL TOILET PARTITION FLOOR PLANS

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	TOILET PARTITIONS - 1	SPEC	10153	OCT 2003	A2001



TYPE II (END OF ROW)



IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER

REV DATE

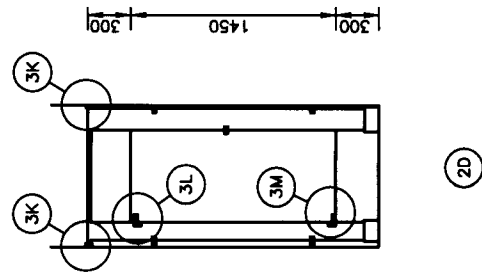
DWG NO.

TITLE TOILET PARTITIONS - 2, (HANDICAPPED)

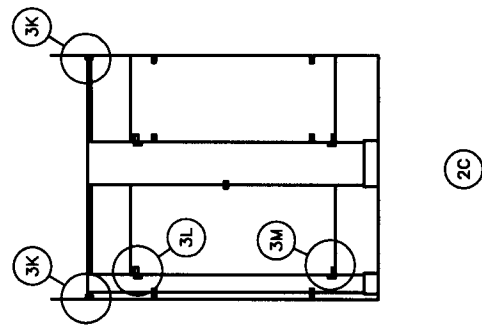
SPEC 10153

OCT 2003

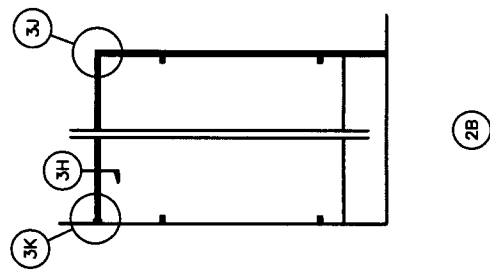
A2002



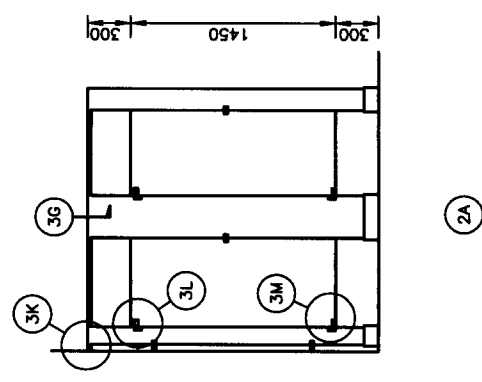
2D



2C



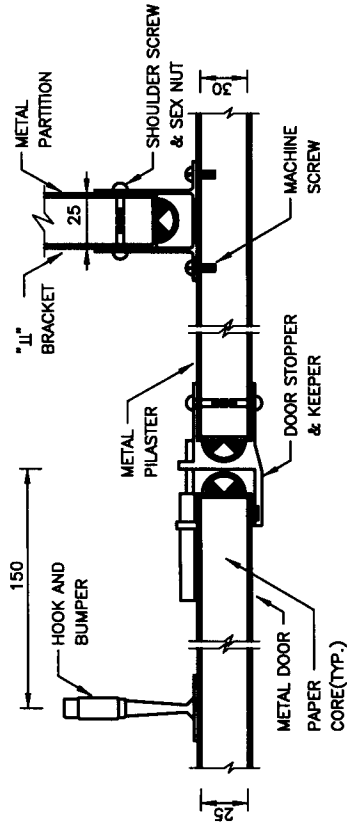
2B



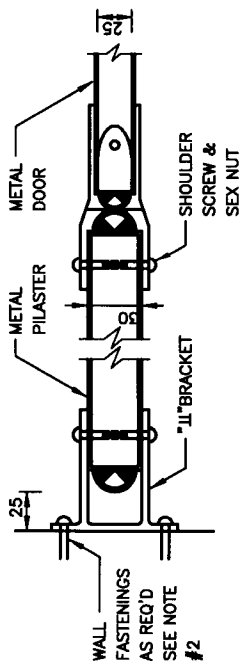
2A

TYPICAL TOILET PARTITION ELEVATIONS

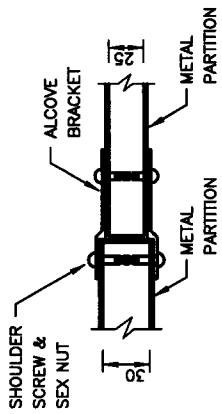
IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	TOILET PARTITIONS - 3	SPEC	10153	OCT 2003	A2003



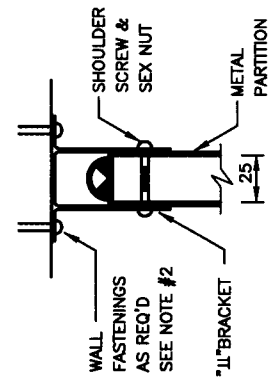
3B



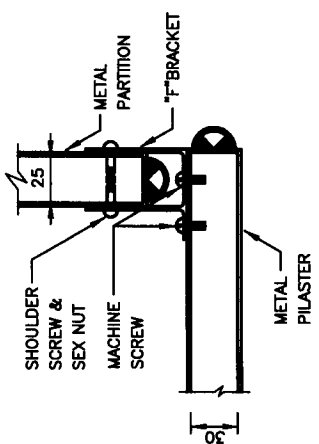
3A



3E



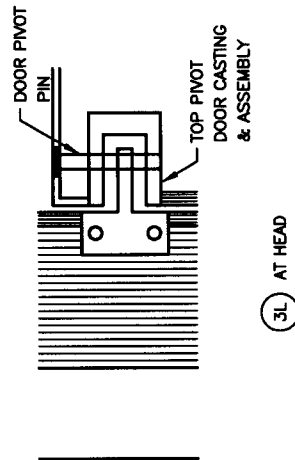
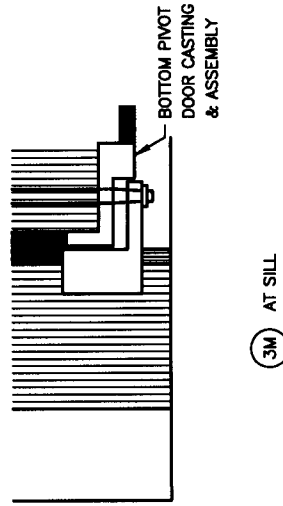
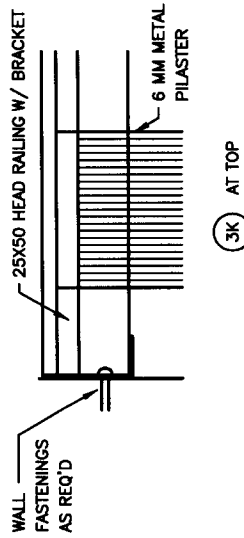
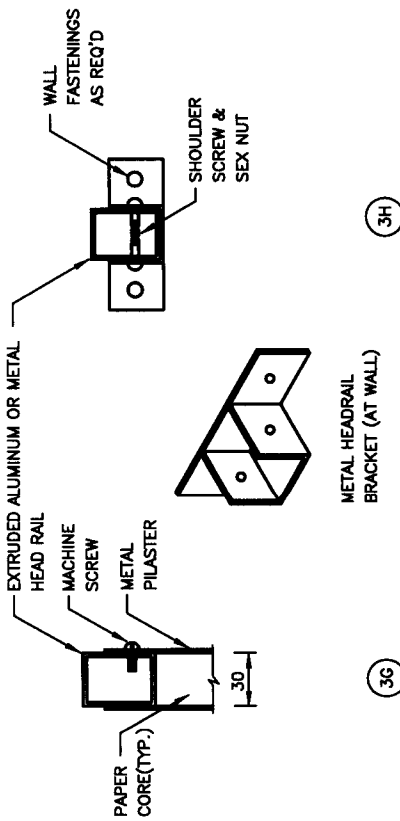
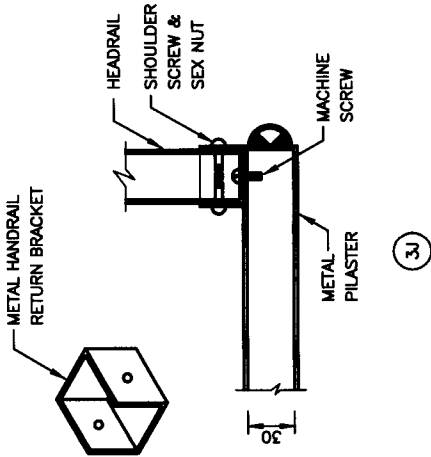
3D



3C

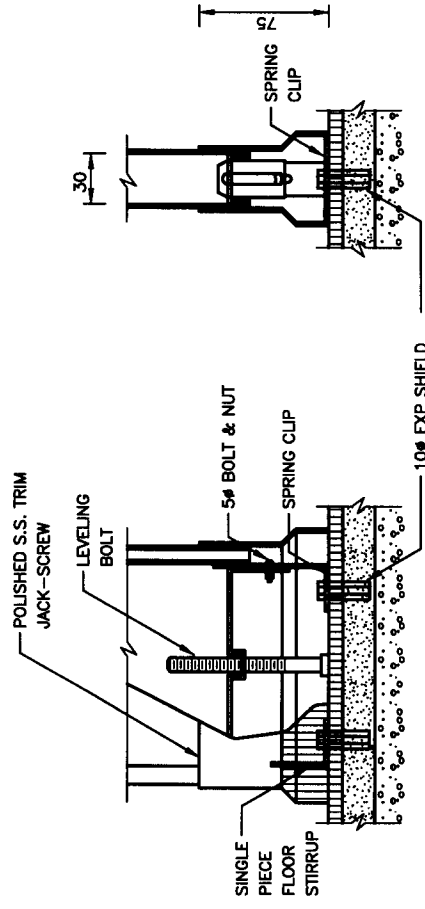
TOILET PARTITION DETAILS

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	TOILET PARTITIONS - 4	SPEC	10153	OCT 2003	A2004



TOILET PARTITION DETAILS

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	TOILET PARTITIONS - 3	SPEC	10153	OCT 2003	A2005

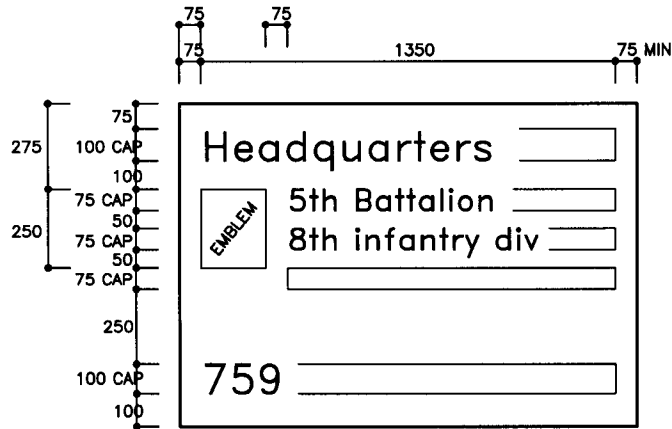


(3N) TYP PILASTER SECTION

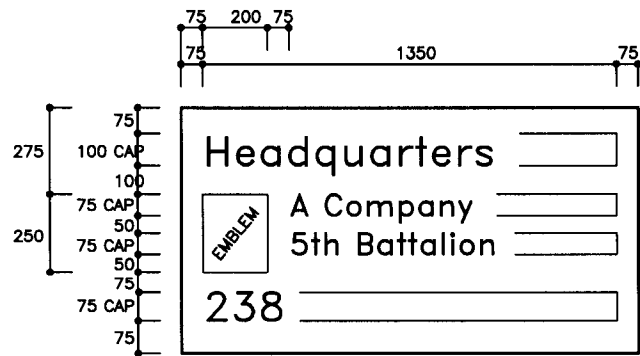
(3N) TYP PILASTER

TOILET PARTITION DETAILS

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER		REV DATE	DWG NO.
TITLE	TOILET PARTITIONS - 7	SPEC 10153	OCT 2003 A2006



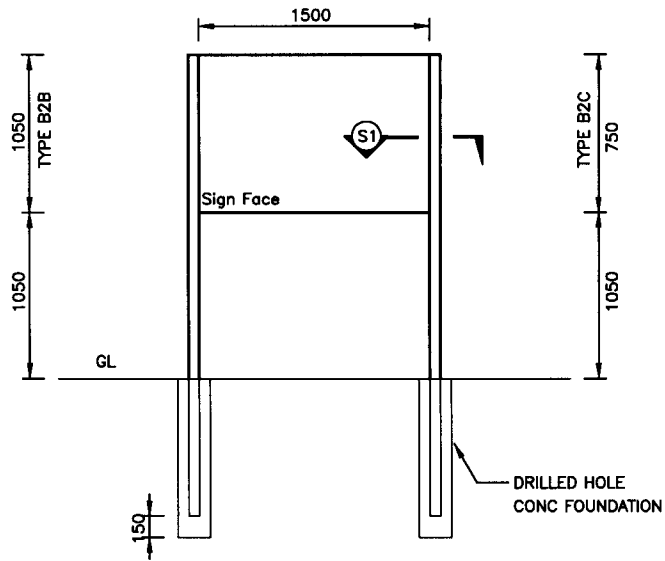
SIGN GRID, TYPE B2B



SIGN GRID, TYPE B2C

BATTALION HEADQUARTERS AND COMPANY UNIT, SIGN TYPE B2

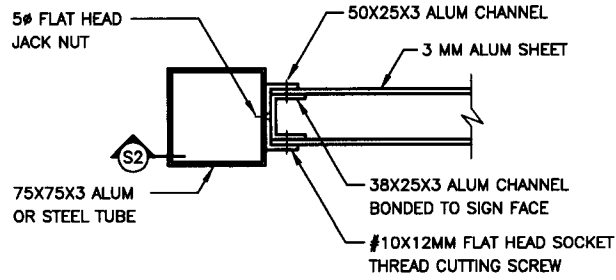
IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	EXTERIOR SIGN TYPE B2	SPEC	10430	OCT 2003	A2101



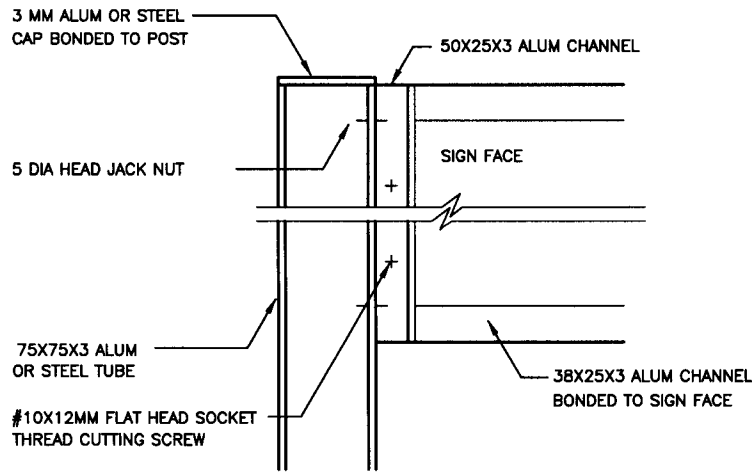
SIGN GRID, TYPE B2B

COLORS, WHITE LETTERS & NUMBERS ON A STANDARD BROWN BACKGROUND
 MESSAGE. UNIT NAME IN UPPERCASE AND LOWERCASE HELVETICA MEDIUM
 HEADQUARTERS. UPPERCASE AND LOWERCASE HELVETICA REGULAR
 BUILDING NUMBER. HELVETICA MEDIUM
 EMBLEM. AUTHORIZED ORGANIZATIONAL EMBLEM, FULL COLOR

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	EXTERIOR SIGN TYPE B2	SPEC	10430	OCT 2003	A2102

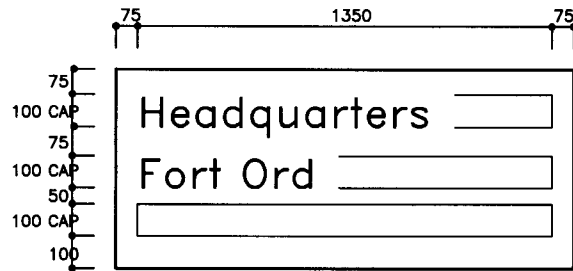


S1 HORIZONTAL SECTION

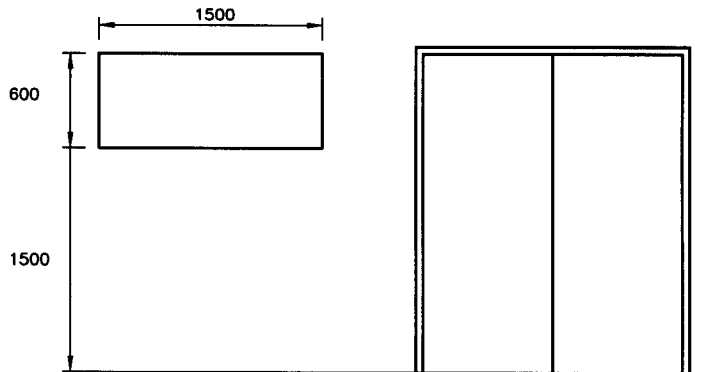


S2 VERTICAL SECTION

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	EXTERIOR SIGN TYPE B2	SPEC	10430	OCT 2003	A2103



SIGN GRID



ELEVATION

* SECTION : SEE SIGN TYPE B4

COLORS. WHITE LETTERS & NUMBERS ON A STANDARD BROWN

MESSAGE. INSTALLATION NAME IN UPPERCASE & LOWERCASE HELVETICA MEDIUM

HEADQUARTERS. UPPERCASE & LOWERCASE HELVETICA REGULAR

MILITARY BUILDING ENTRY, SIGN TYPE B3

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER

REV DATE

DWG NO.

TITLE

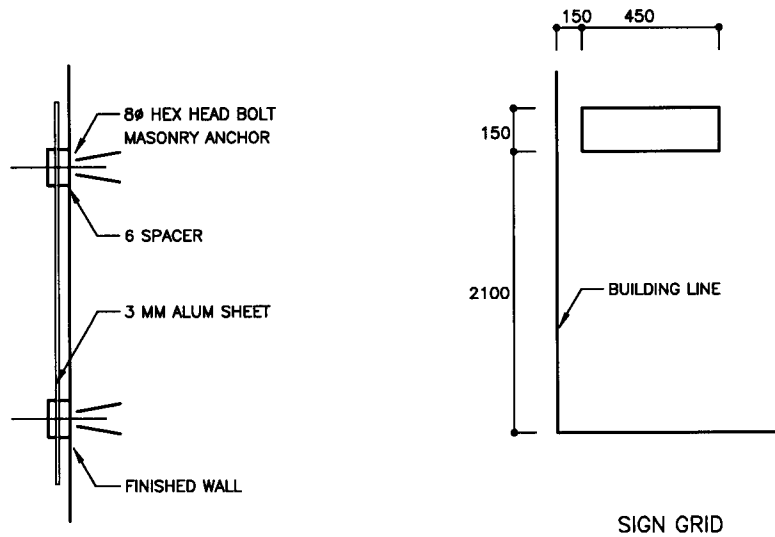
EXTERIOR SIGN TYPE B3

SPEC

10430

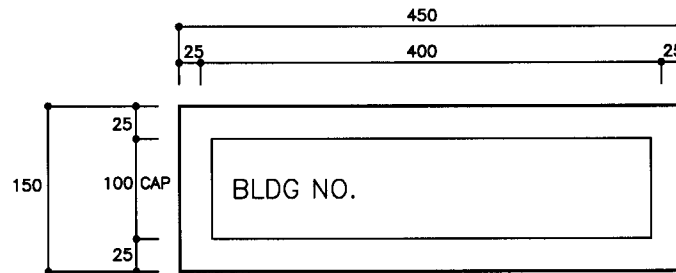
OCT 2003

A2104



REFLECTIVE SHEETING IS REQUIRED

SECTION

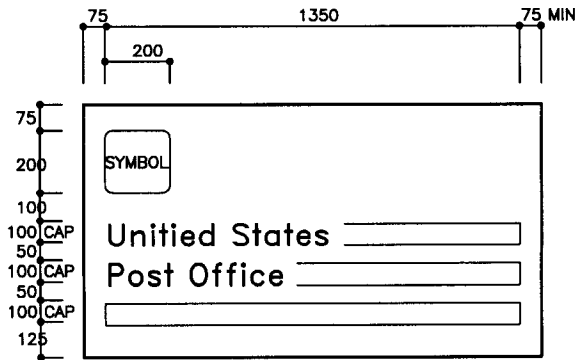


COLORS – WHITE NUMBERS ON
STANDARD BROWN
BACKGROUND

BUILDING NUMBER – HELVETICA MEDIUM

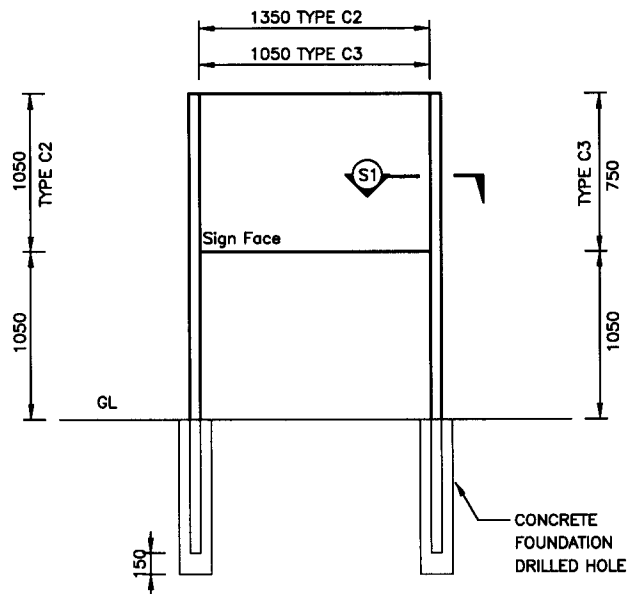
BUILDING NO. SIGN, TYPE B4

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	EXTERIOR SIGN TYPE B4	SPEC	10430	OCT 2003	A2105



SIGN GRID

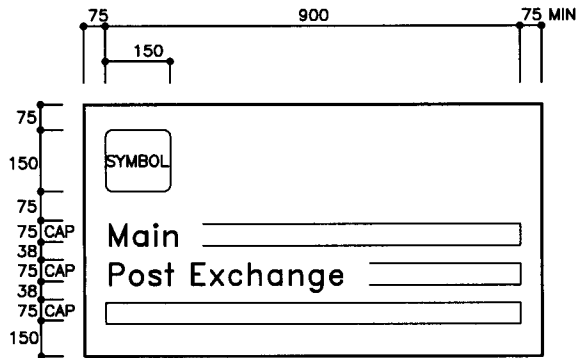
* SECTION : SEE SIGN TYPE B2



COLORS, WHITE LETTERS ON STANDARD BROWN BACKGROUND
 MESSAGE. FACILITY NAME IN UPPERCASE & LOWER CASE HELVETICA MEDIUM
 SECONDARY INFORMATION. UPPERCASE & LOWERCASE HELVETICA REGULAR
 SYMBOL. EIGHT INCHES SQUARE, FULL COLOR

COMMUNITY FACILITY, SIGN TYPE C2

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	EXTERIOR SIGN TYPE C2	SPEC	10430	OCT 2003	A2106



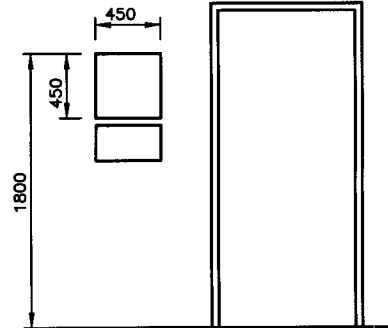
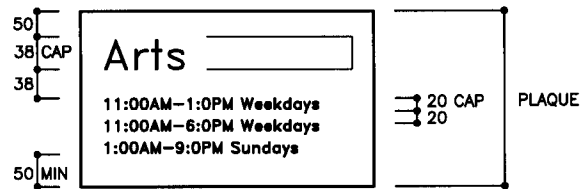
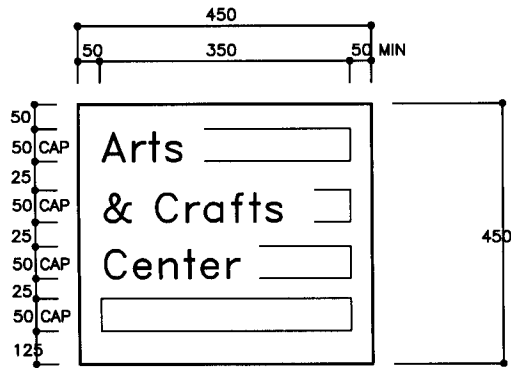
SIGN GRID

* SECTION : SEE SIGN TYPE B2
 ELEVATION : SEE SIGN TYPE C2

COLORS, WHITE LETTERS ON STANDARD BROWN BACKGROUND
 MESSAGE. FACILITY NAME IN UPPERCASE & LOWER CASE HELVETICA MEDIUM
 SYMBOL. SIX INCHES SQUARE, FULL COLOR

COMMUNITY FACILITY, SIGN TYPE C3

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	EXTERIOR SIGN TYPE C3	SPEC	10430	OCT 2003	A2107



ELEVATION

* SECTION : SEE SIGN TYPE B4

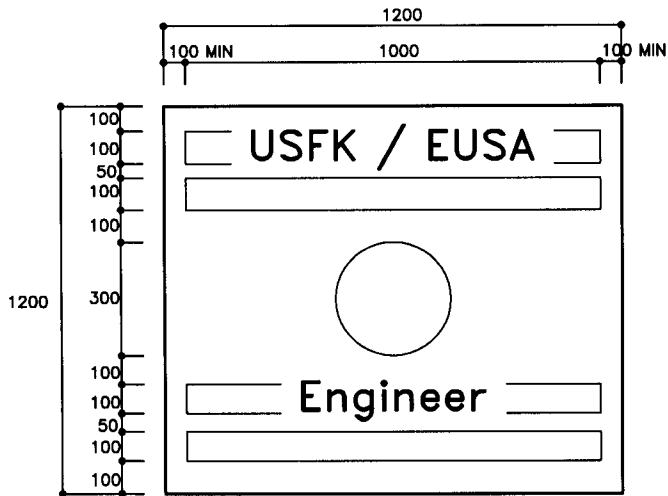
SIGN GRID

COLORS. WHITE LETTERS ON A STANDARD BROWN BACKGROUND

MESSAGE. FACILITY NAME IN UPPERCASE AND LOWERCASE
 HELVETICA MEDIUM, THE PLAQUE ALSO USES
 HELVETICA MEDIUM LETTERING.

COMMUNITY BUILDING ENTRY, TYPE C4

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	EXTERIOR SIGN TYPE C4	SPEC	10430	OCT 2003	A2108



SIGN GRID, TYPE 01

COLORS. WHITE LETTERS ON A STANDARD BROWN BACKGROUND :
SYMBOL IN FULL COLOR.

MESSAGE. "EUSA/USFK" IN UPPERCASE AND LOWERCASE HELVETICA
MEDIUM, CENTERED

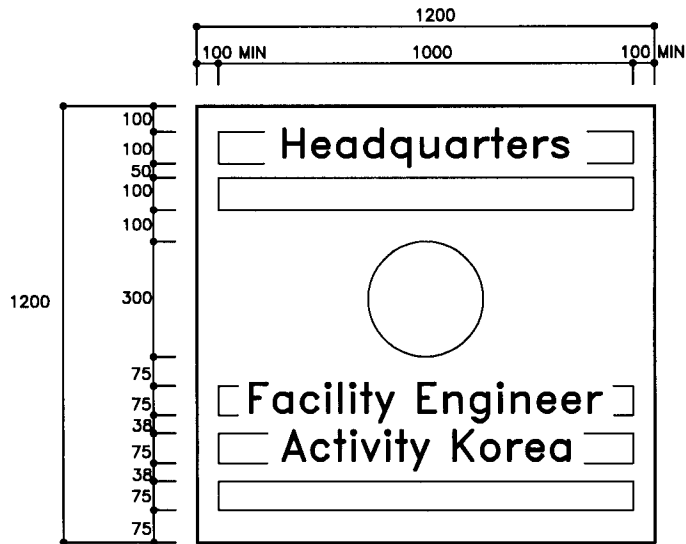
SECONDARY INFORMATION. OFFICE NAME IN UPPERCASE AND
LOWERCASE HELVETICA MEDIUM, CENTERED

EMBLEM. AUTHORIZED ORGANIZATIONAL EMBLEM : 300 HIGH BY 200 WIDE :
CENTERED. WHITE PERIMETER RING, 6 WIDE. BORDER RING, 25 WIDE,
IN SECONDARY BRANCH COLOR

* SECTION & ELEVATION : SEE SIGN TYPE B2

OFFICE IDENTIFICATION SIGN, TYPE 01

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	EXTERIOR SIGN TYPE 01	SPEC	10430	OCT 2003	A2109



SIGN GRID, TYPE O2

COLORS. WHITE LETTERS ON A STANDARD BROWN BACKGROUND :
SYMBOL IN FULL COLOR.

MESSAGE. COMMAND NAME IN UPPERCASE AND LOWERCASE HELVETICA
MEDIUM, CENTERED

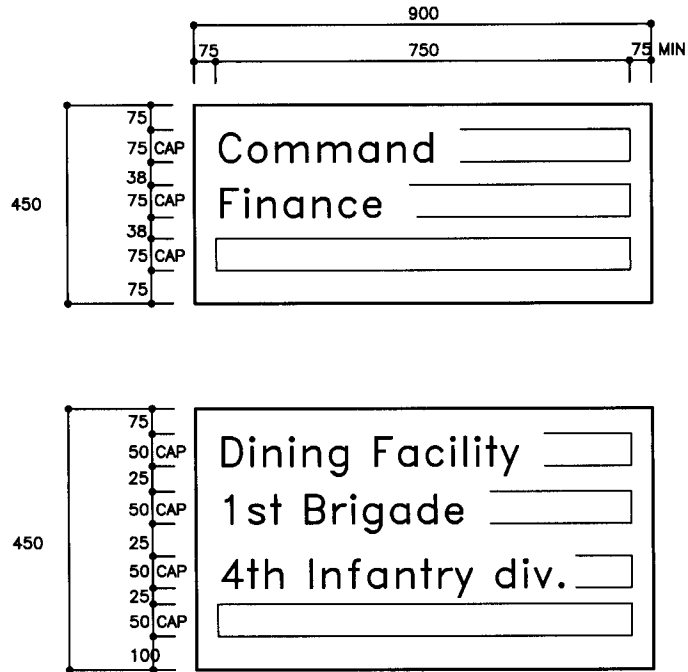
SECONDARY INFORMATION. OFFICE NAME IN UPPERCASE AND
LOWERCASE HELVETICA MEDIUM, CENTERED

EMBLEM. AUTHORIZED ORGANIZATIONAL EMBLEM : 300 HIGH BY 200 WIDE :
CENTERED. WHITE PERIMETER RING, 6 WIDE. BORDER RING, 25 WIDE,
IN SECONDARY BRANCH COLOR

* SECTION & ELEVATION : SEE SIGN TYPE B2

OFFICE IDENTIFICATION SIGN, TYPE O2

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER			REV DATE	DWG NO.	
TITLE	EXTERIOR SIGN TYPE O2	SPEC	10430	OCT 2003	A2110



COLORS. WHITE LETTERS ON A STANDARD BROWN; SYMBOL
IN FULL COLOR.

MESSAGE. UNIT NAME IN UPPER AND LOWER CASE HELVETICA MEDIUM

SIGN GRID

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER

REV DATE

DWG NO.

TITLE

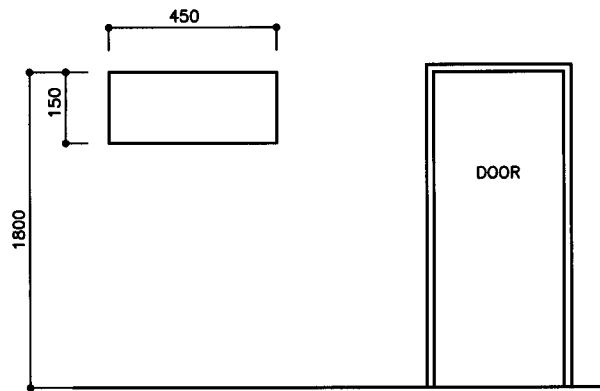
EXTERIOR SIGN TYPE 03

SPEC

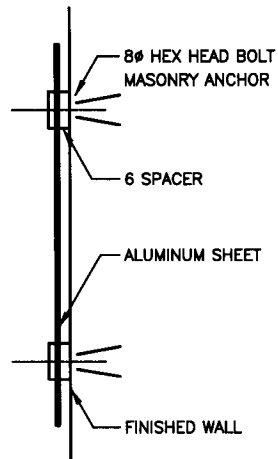
10430

OCT 2003

A2111



ELEVATION

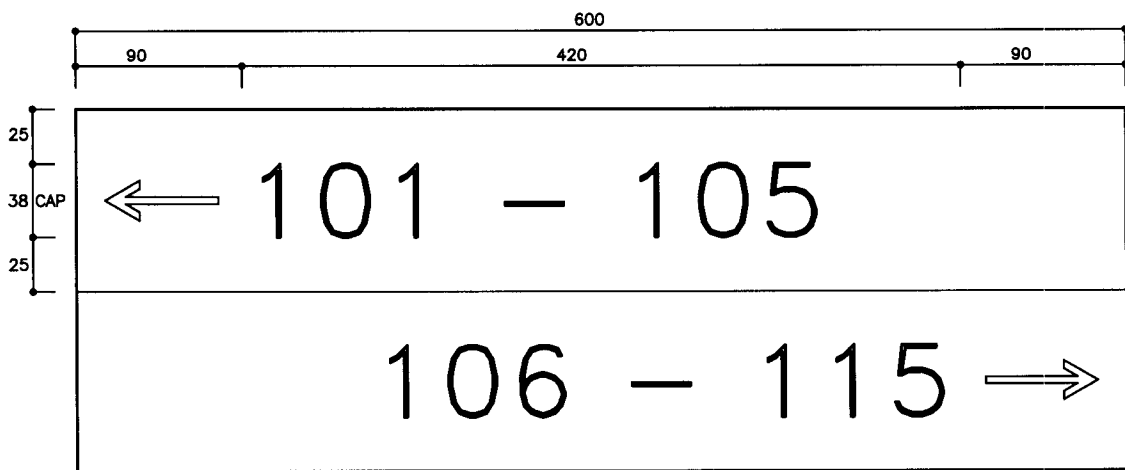


REFLECTIVE SHEETING IS REQUIRED

SECTION

OFFICE IDENTIFICATION SIGN, TYPE 03

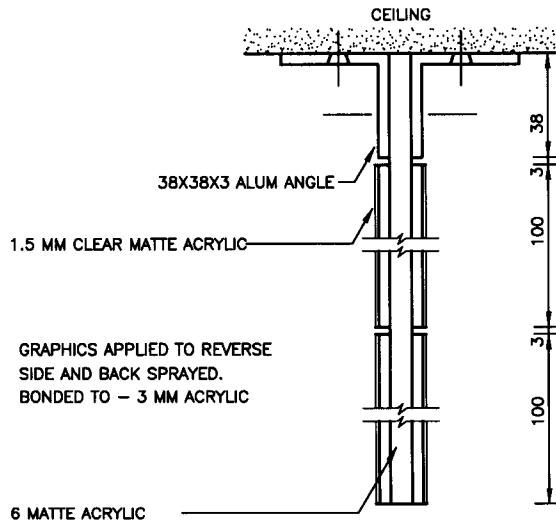
IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER			REV DATE	DWG NO.	
TITLE	EXTERIOR SIGN TYPE 04	SPEC	10430	OCT 2003	A2112



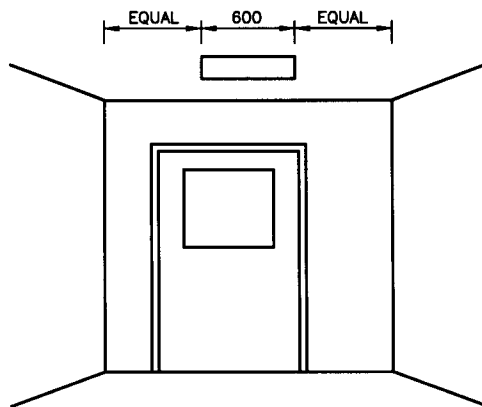
COLORS. WHITE LETTERS, NUMBERS, AND ARROWS ON BLACK BACKGROUND :
 MESSAGE, DESTINATION NUMBER – UPPER AND LOWER CASE HELVETICA MEDIUM

SIGN GRID

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER			REV DATE	DWG NO.	
TITLE	INTERIOR SIGN TYPE AA6	SPEC	10440	OCT 2003	A2201

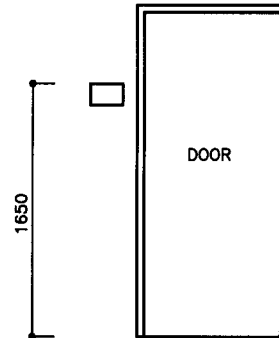
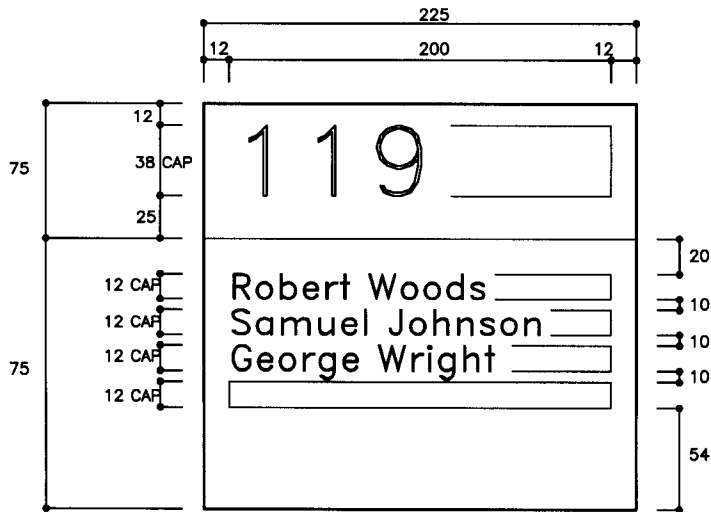


SECTION

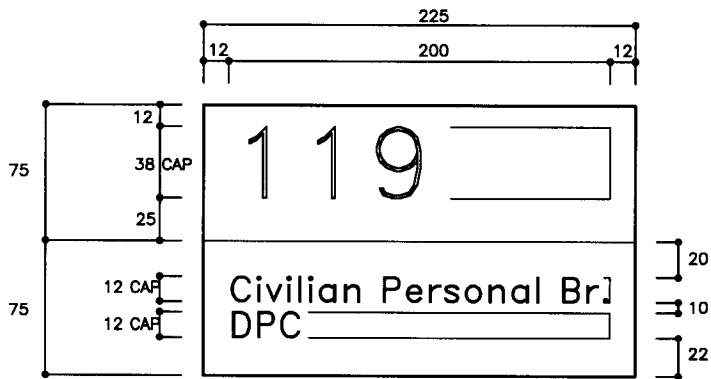


INTERIOR GUIDE SIGN TYPE AA6

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	INTERIOR SIGN TYPE AA6	SPEC	10440	OCT 2003	A2202

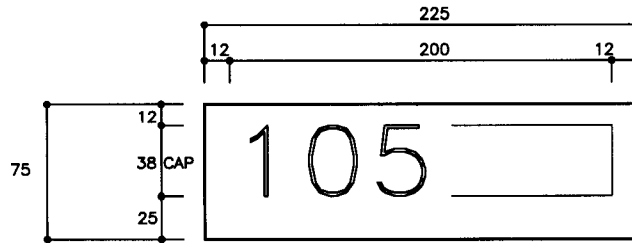


ELEVATION



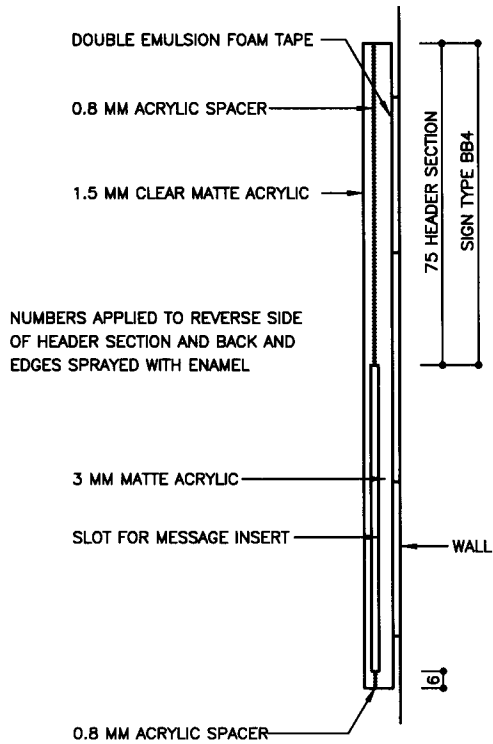
COLORS. HEADER – WHITE LETTERS & NUMBERS IN BLACK BACKGROUND
 INSERT CARD – BLACK LETTERS ON WHITE BACKGROUND
 HEADER MESSAGE. ROOM NUMBER – HELVETICA MEDIUM
 INSERT CARD MESSAGE – UPPER AND LOWER CASE HELVETICA MEDIUM

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	INTERIOR SIGN TYPE BB2	SPEC	10440	OCT 2003	A2203



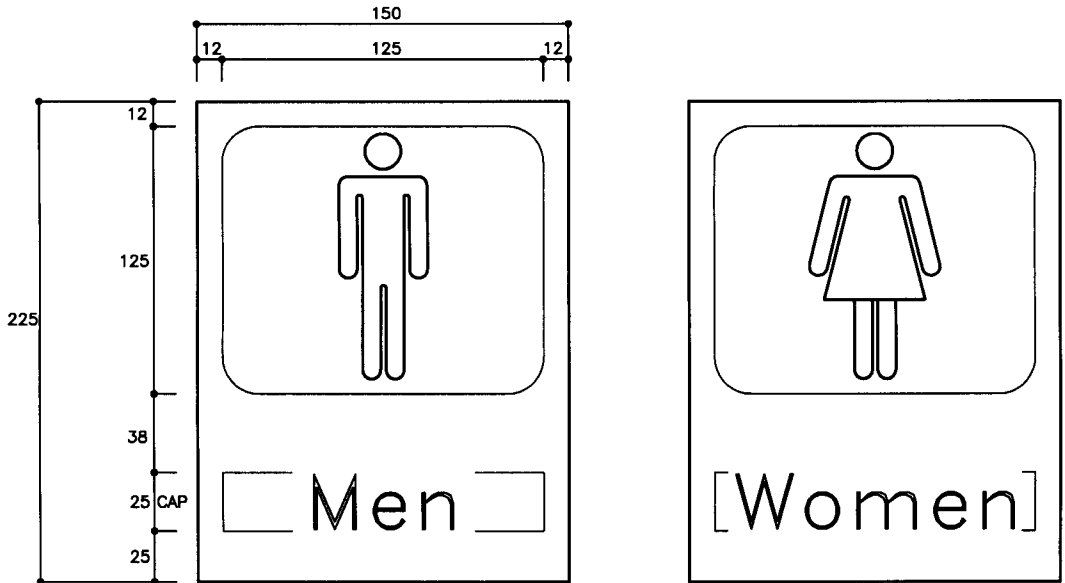
COLORS – WHITE NUMBERS ON BLACK BACKGROUND
 HEADER MESSAGE. ROOM NUMBER – HELVETICA MEDIUM

INTERIOR IDENTIFICATION SIGN TYPE BB4



SECTION BB2 & BB4

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	INTERIOR SIGN TYPE BB2/BB4	SPEC	10440	OCT 2003	A2204

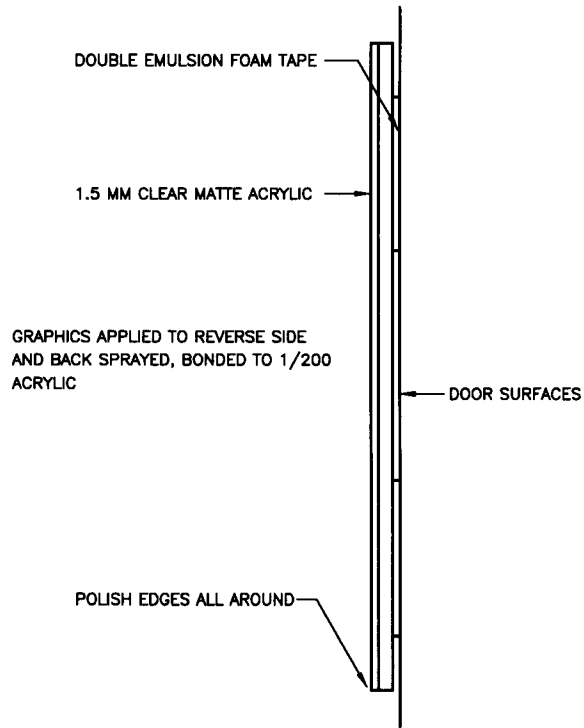


COLORS. WHITE LETTERS ON BLACK BACKGROUND.

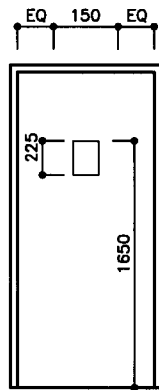
PICTOGRAPH. BLACK AGAINST A WHITE BACKGROUND

MESSAGE. SERVICE NAME – UPPER & LOWER CASE HELVETICA MEDIUM

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER			REV DATE	DWG NO.
TITLE	INTERIOR SIGN TYPE BB7	SPEC	10440	OCT 2003
				A2205

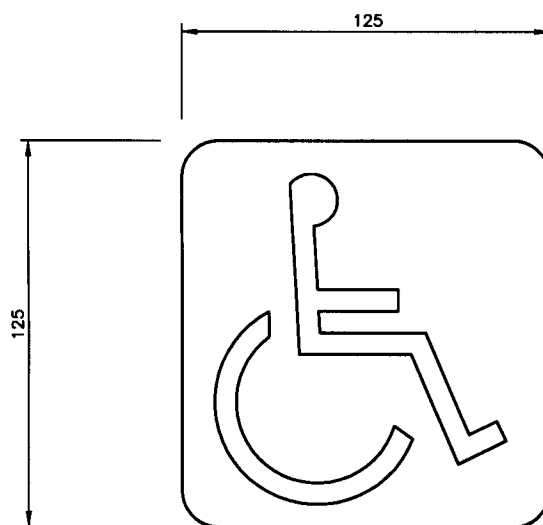


SECTION



ELEVATION

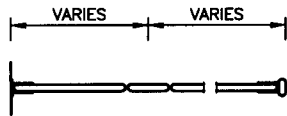
IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER			REV DATE	DWG NO.
TITLE	INTERIOR SIGN TYPE BB7	SPEC	10440	OCT 2003
				A2206



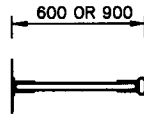
Interior Handicapped Sign

Section : See Sign Type BB7

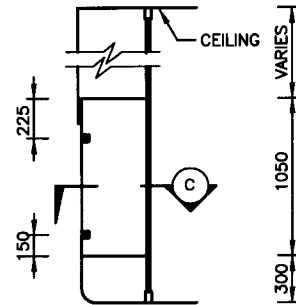
IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER			REV DATE	DWG NO.	
TITLE	INTERIOR HANDICAPPED SIGN	SPEC	10440	OCT 2003	A2207



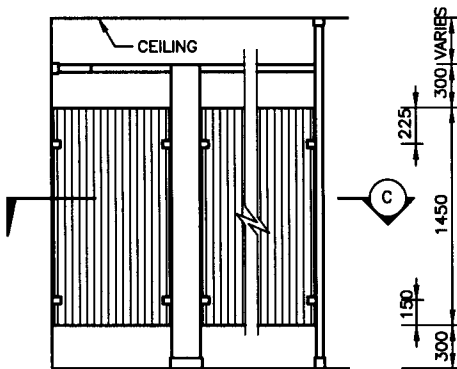
(A) PLAN



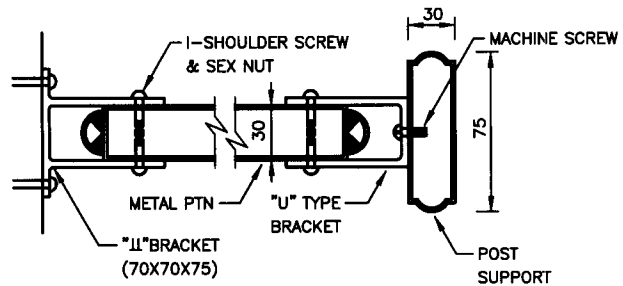
(A) PLAN



(B) ELEVATION



(B) ELEVATION

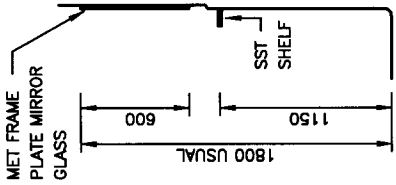


(C) DETAIL

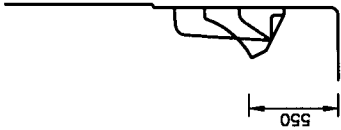
ROOM ENTRANCE
SCREEN

URINAL SCREEN DETAILS

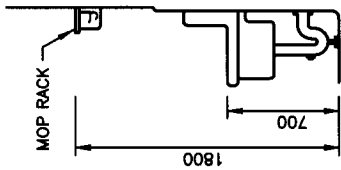
IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	TOILET ACCESSORIES - 1	SPEC	10800	OCT 2003	A2301



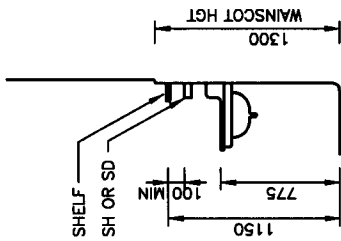
MIRROR & SHELF



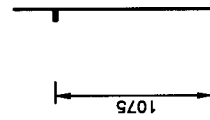
URINAL



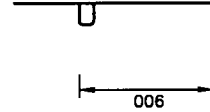
SERVICE SINK



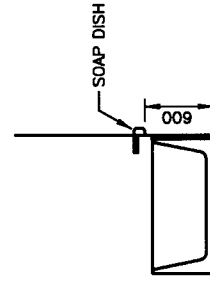
LAVATORY



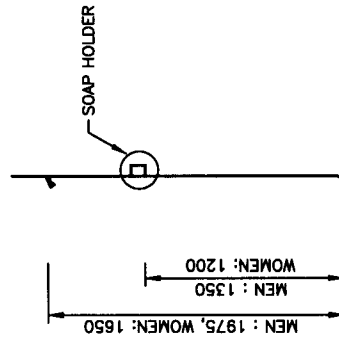
TOWEL BAR



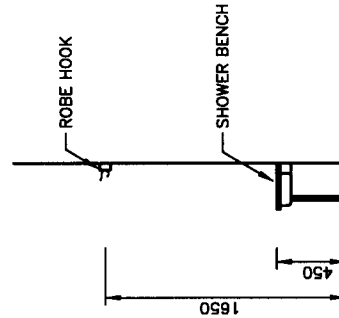
TTD



AT BATH



AT SHOWER



ROBE HOOK & SHOWER BENCH

LATRINE ACCESSORIES INSTALLATION ELEVATION

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER

REV DATE

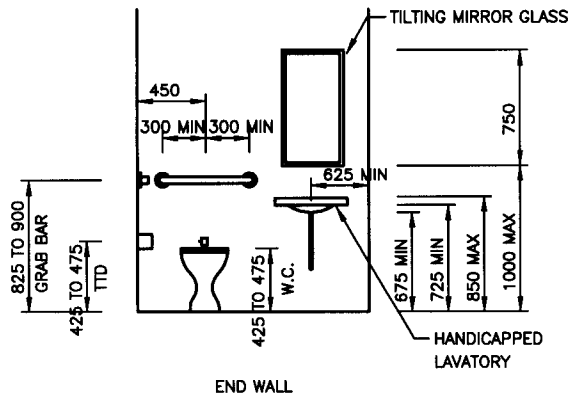
DWG NO.

TITLE TOILET ACCESSORIES - 2

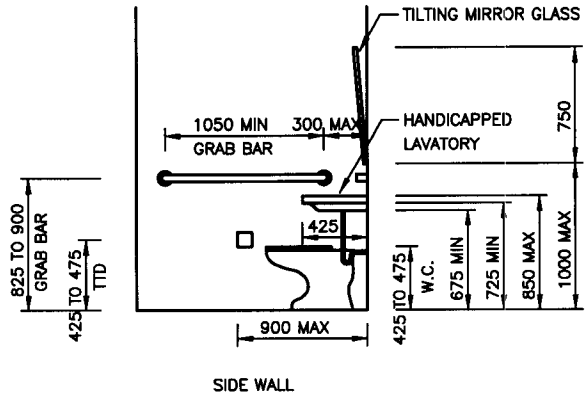
SPEC 10800

OCT 2003

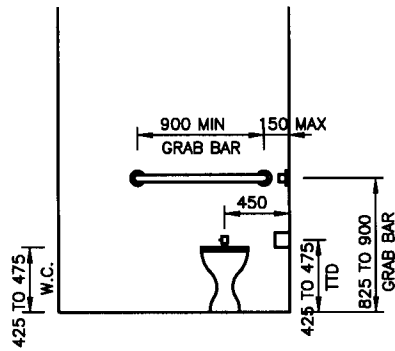
A2302



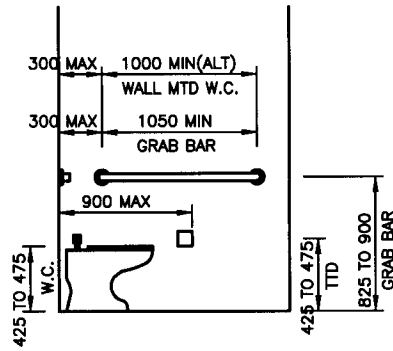
END WALL



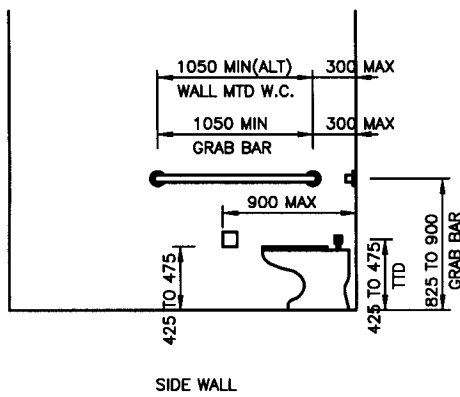
SIDE WALL



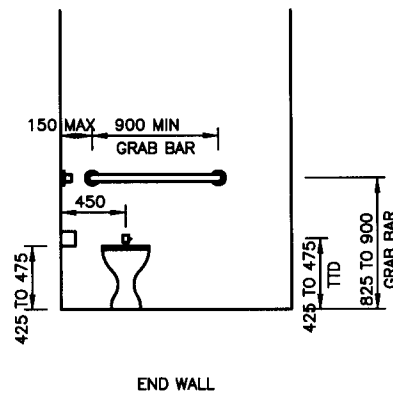
REAR WALL OF
STANDARD STALL



SIDE WALLS



SIDE WALL



END WALL

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER

REV DATE

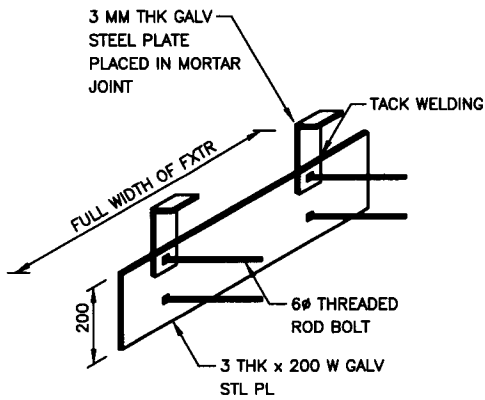
DWG NO.

TITLE TOILET ACCESSORIES(HANDICAPPED) - 3

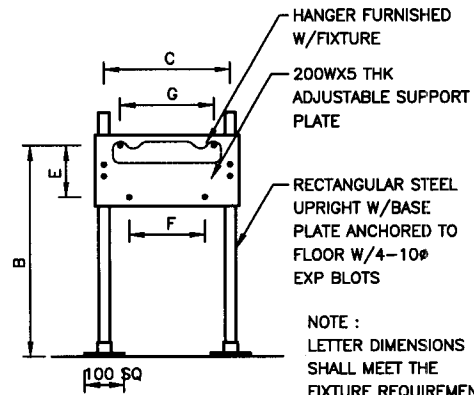
SPEC 10800

OCT 2003

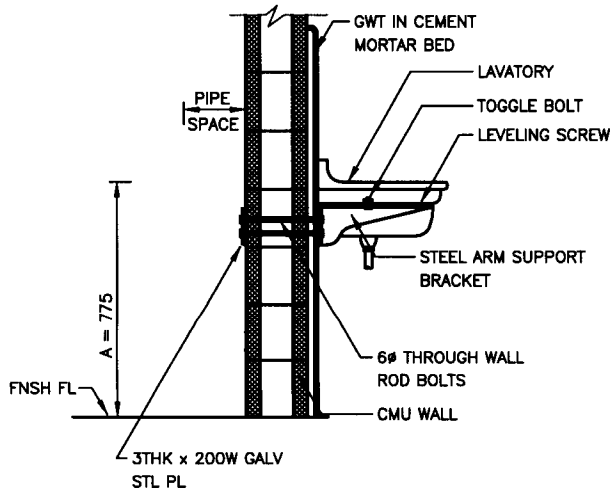
A2303



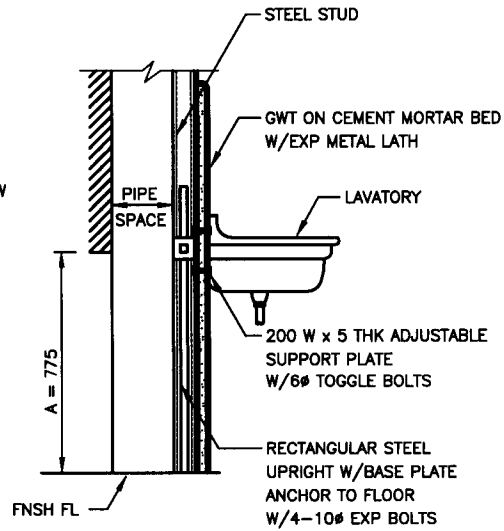
ISOMETRIC



ELEVATION @ DRY WALL



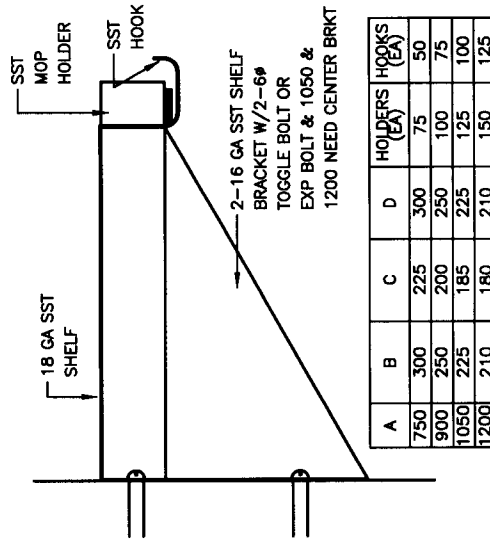
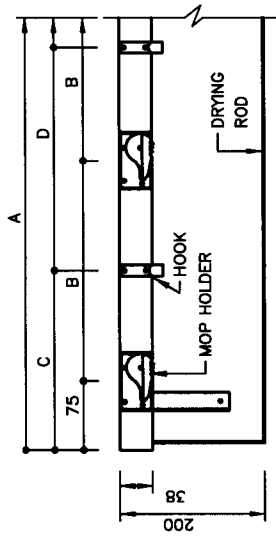
WALL SECTION
(FLOOR MOUNTED CARRIER)



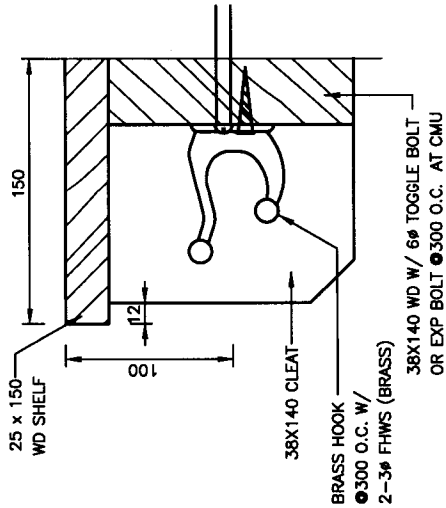
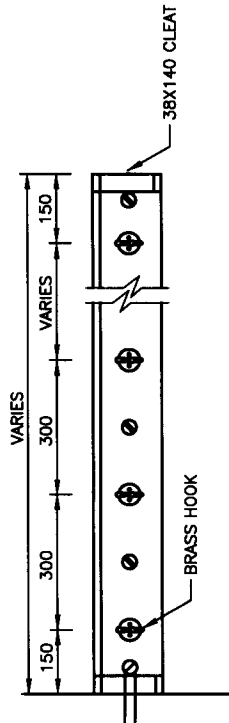
WALL SECTION
(FLOOR MOUNTED CHAIR CARRIER)

LAVATORY SUPPORT DETAILS

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	TOILET ACCESSORIES - 4	SPEC	10800	OCT 2003	A2304



A	B	C	D	HOLDERS (EA)	HOOKS (EA)
750	300	225	300	75	50
900	250	200	250	100	75
1050	225	185	225	125	100
1200	210	180	210	150	125



MOP RACK DETAILS

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER

REV DATE

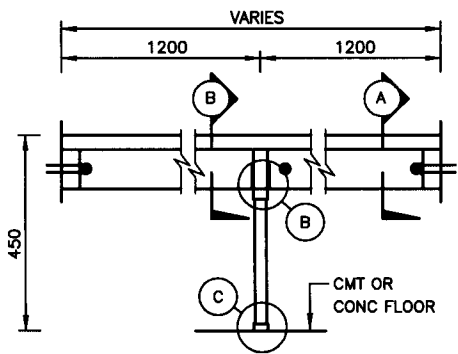
DWG NO.

TITLE TOILET ACCESSORIES - 5

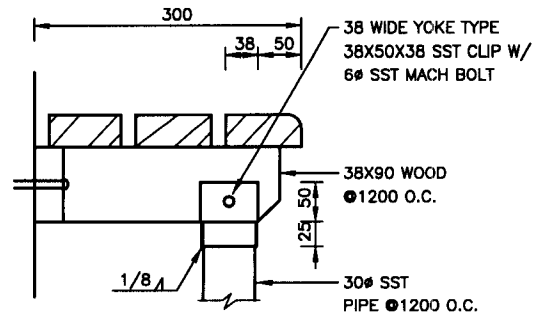
SPEC 10800

OCT 2003

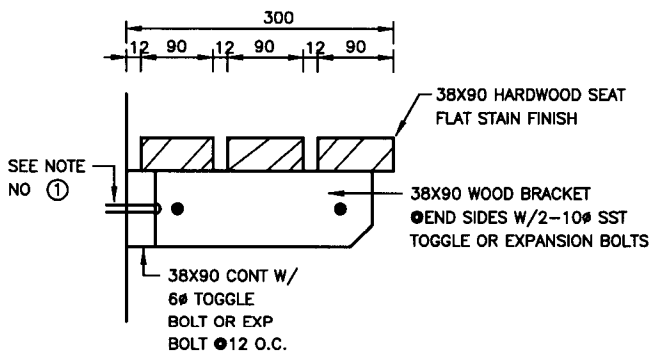
A2305



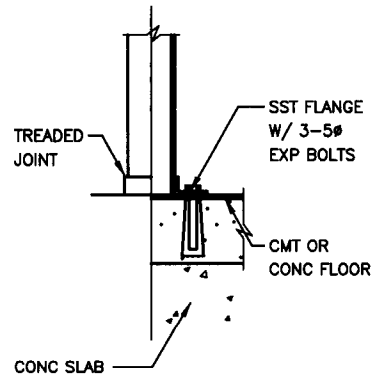
ELEVATION



B PIPE SUPPORT



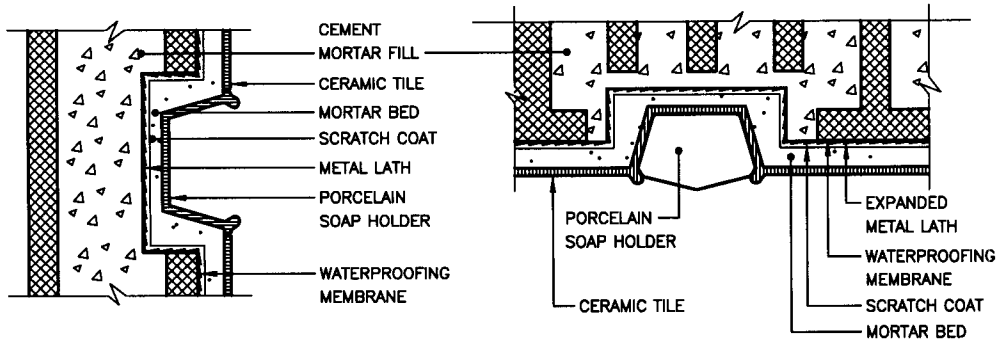
A SECTION



C AT FLOOR

SHOWER BENCH DETAILS

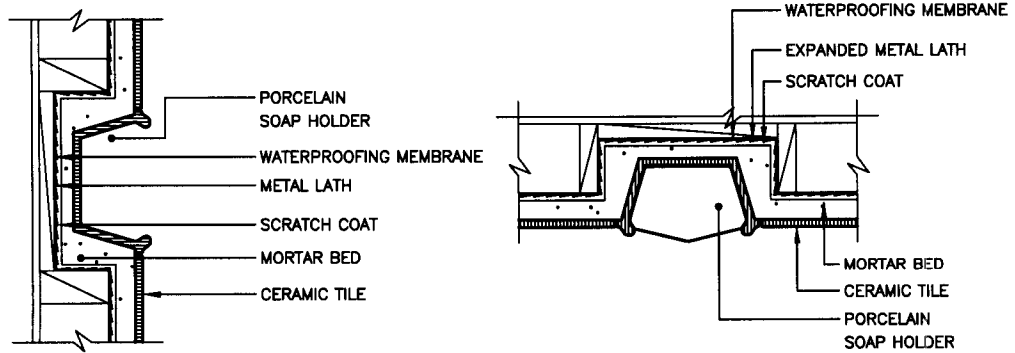
IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	TOILET ACCESSORIES - 6	SPEC	10800	OCT 2003	A2306



SECTION

SECTION

AT BATH ROOM MOUNTED ON CMU WALL



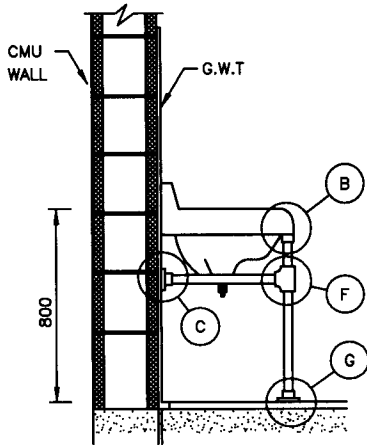
SECTION

PLAN - SECTION

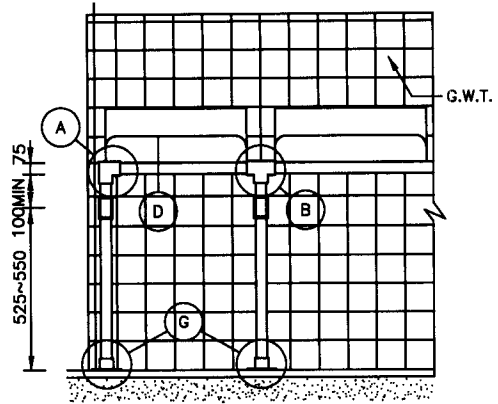
AT SHOWER ROOM MOUNTED ON CPL WALL

RECESSED SOAP HOLDER DETAILS

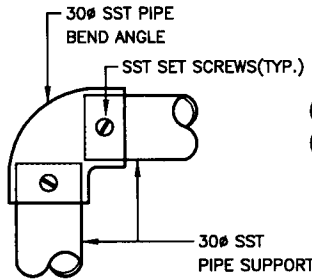
IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	TOILET ACCESSORIES - 7	SPEC	10800	OCT 2003	A2307



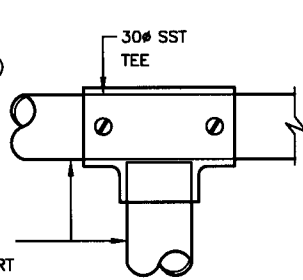
SECTION



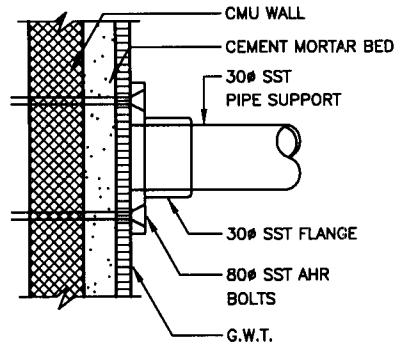
ELEVATION



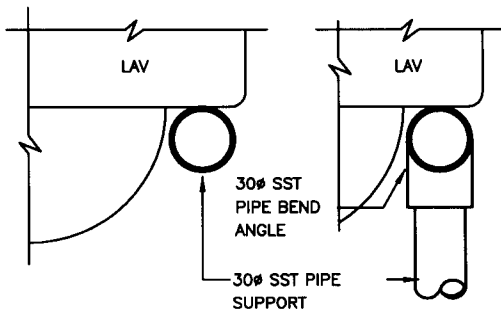
A AT BEND



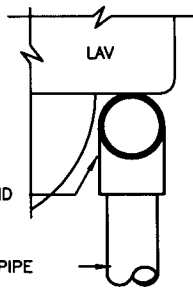
B



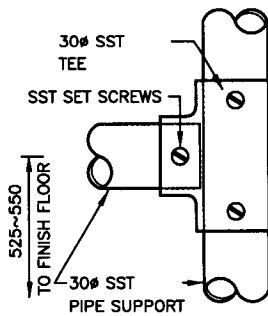
C AT WALL



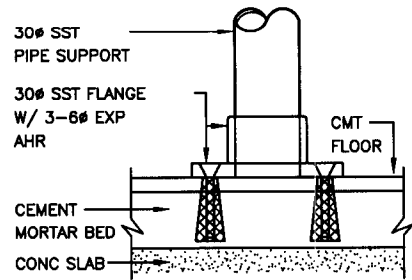
D



B



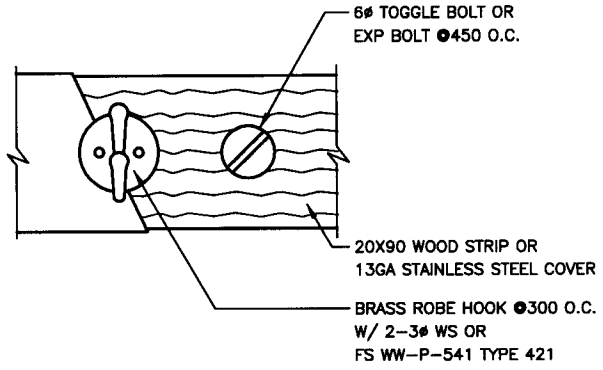
F



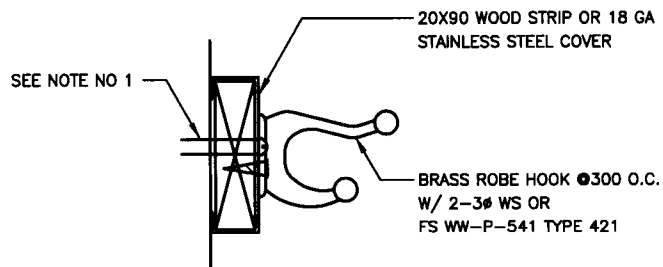
G AT FLOOR

LAVATORY SUPPORT DETAILS

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	TOILET ACCESSORIES - 8	SPEC	10800	OCT 2003	A2308



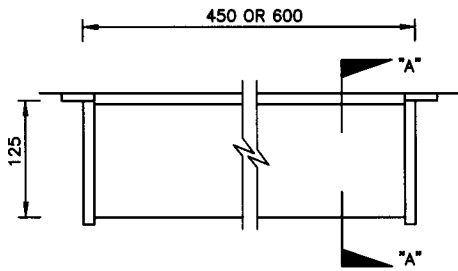
ELEVATION



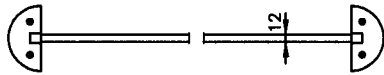
SECTION

ROBE HOOK DETAILS

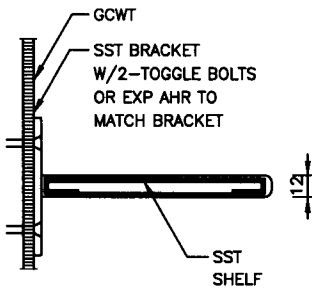
IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	TOILET ACCESSORIES - 9	SPEC	10800	OCT 2003	A2309



PLAN

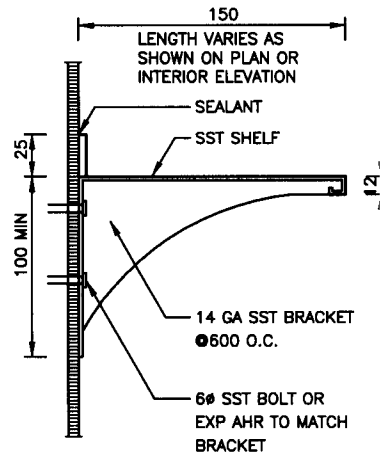


ELEVATION



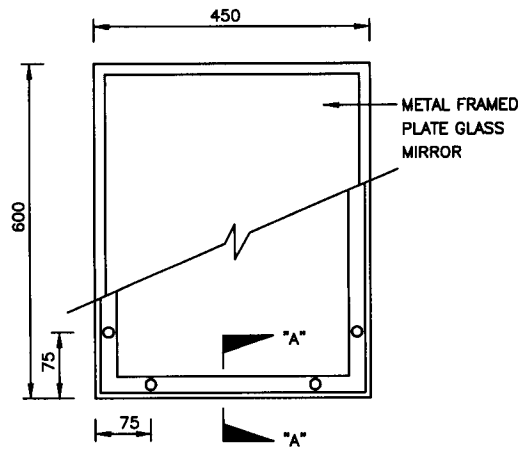
SECTION "A-A"

SHELF METAL LIGHT
DUTY DETAILS(SMLD)

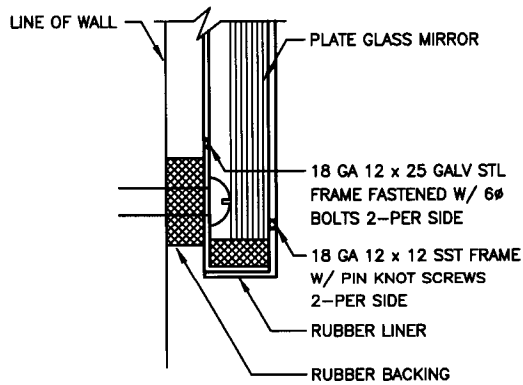


SHELF METAL HEAVY
DUTY DETAILS(SMHD)

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	TOILET ACCESSORIES - 10	SPEC	10800	OCT 2003	A2310



ELEVATION

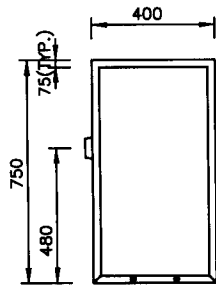


SECTION "A" - "A"

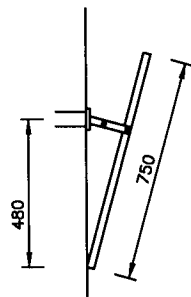
MIRROR DETAILS

AS SHOWN

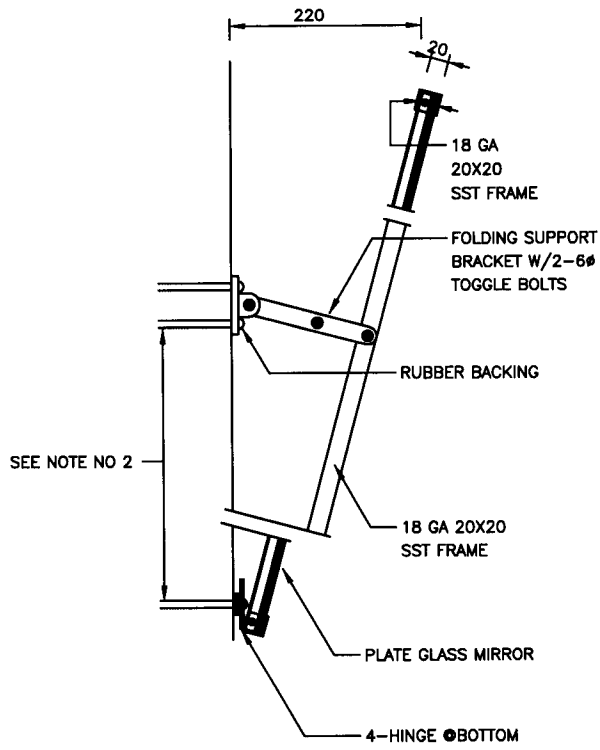
IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	TOILET ACCESSORIES - 11	SPEC	10800	OCT 2003	A2311



FRONT ELEV



SIDE ELEV



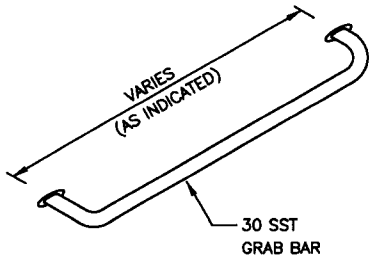
DETAILS

TILTING MIRROR GLASS DETAILS

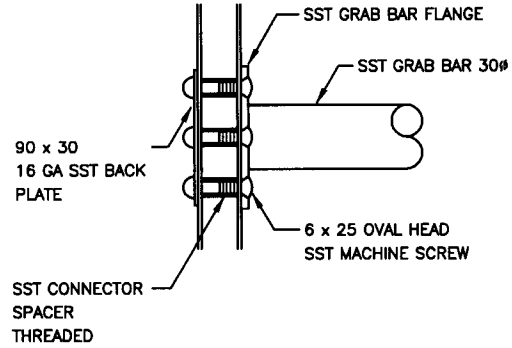
IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	TOILET ACCESSORIES - 12	SPEC	10800	OCT 2003	A2312

NOTES :

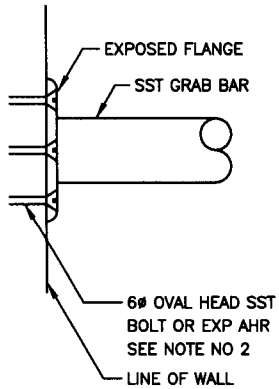
- ② FOR METHOD OF WALL FASTENING SEE
GENERAL NOTE ON DWG NO 40 - 05 - 3139 - 0004



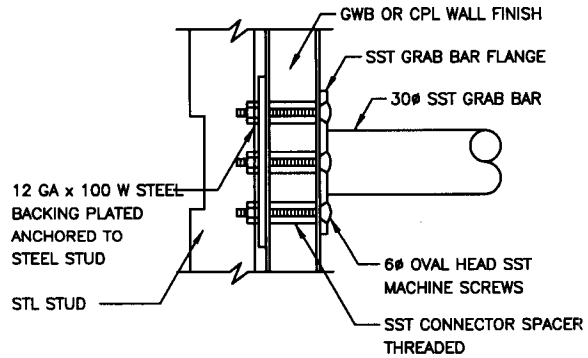
GRAB BAR ISOMETRIC



METAL TOILET PANEL MOUNTING



CMU OR CONC WALL MOUNTING



GWB OR CPL WALL MOUNTING

SIZE

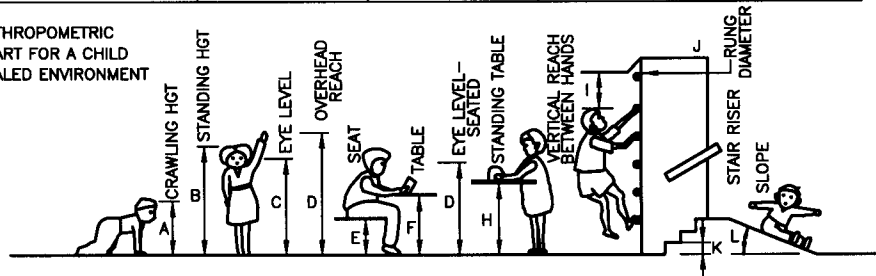
GRAB BAR DETAILS

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	TOILET ACCESSORIES(HANDICAPPED) - 13	SPEC	10800	OCT 2003	A2313

WORKING HEIGHTS FOR CHILDREN

	KINDERGARTEN	ELEMENTARY	JUNIOR HIGH	HIGH SCHOOL
LAVATORY & SINK	600	675	775	775
MIRROR UPPER EDGE(MIN)	1175	1600	1750	1750
MIRROR LOWER EDGE(MAX)	875	925	1175	1275
SOAP DISPENSER	700	850	1000	1000
TOWEL DISPENSER	750	900	1000	1075
DRINK FOUNTAIN	600	700	900	1000
W C	250	300	STD HGT	STD HGT
TOILET STALL TOP OF PARTITION	1100	STD HGT	STD HGT	STD HGT
CHALKBOARD				
(a) BOTTOM	550	675	775	825
(b) OVERALL HEIGHT	1175	1175	1175	1175
COAT HOOKS	875	1175	1325	1375
COUNTERTOP (CLASSROOM WORK STANDING)	600	700	825	875

ANTHROPOMETRIC
CHART FOR A CHILD
SCALED ENVIRONMENT



CHILDREN'S DIMENSIONS AGE	INFANTS 1	TODDLERS 2	PRESCHOOL AGE 4	SCHOOL AGE 6	SCHOOL AGE 10
A. CRAWLING HEIGHT	350	406	495	546	622
B. STANDING HEIGHT	737	857	1041	1168	1384
C. EYE LEVEL	660	521	902	1054	1238
D. OVERHEAD REACH	965	1130	1257	1359	1676
E. SEAT HEIGHT	508	191	254	279	330
F. TABLE HGT(SEATED)	686	356	445	470	559
G. EYE LEVEL SEATED	838	635	749	876	953
H. TABLE HGT(STANDING)	*	432	508	607	737
I. VERTICAL REACH BETWEEN HANDS	*	38	419	622	584
J. RUNG DIAMETER	**	38	38	44	64
K. STAIR RISE	33	76	102	127	152
L. SLOPE	14%	14%	19%	25%	35%

* INFANT FEEDING CHAIR SEAT HEIGHT

** NO LOOSE ITEMS IN INFANT AREAS
SHOULD BE LESS THAN 38 MM IN
DIAMETER

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER

REV DATE

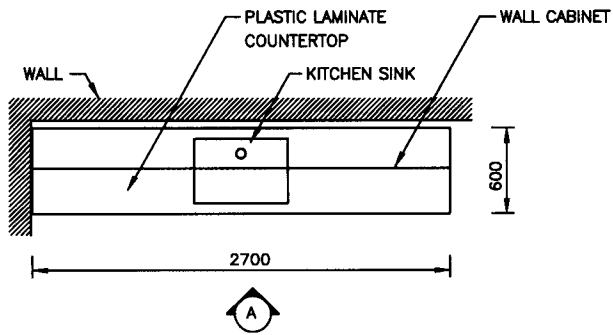
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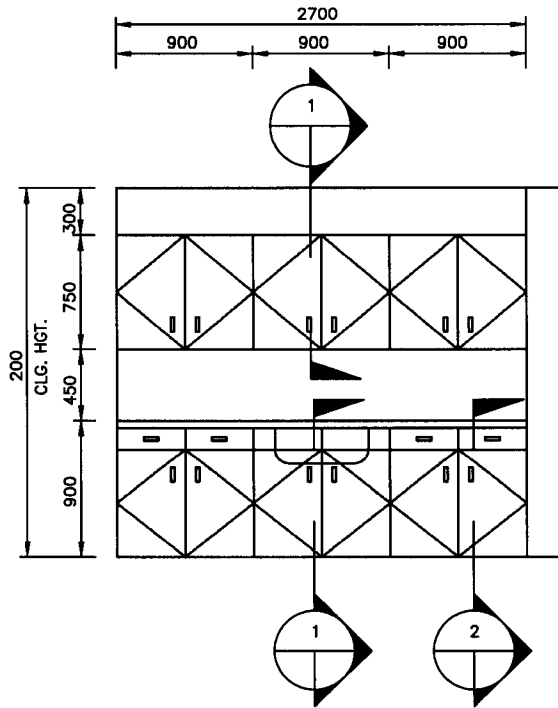
SPEC 10800

OCT 2003

A2314



PLAN



A ELEVATION

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER

REV DATE

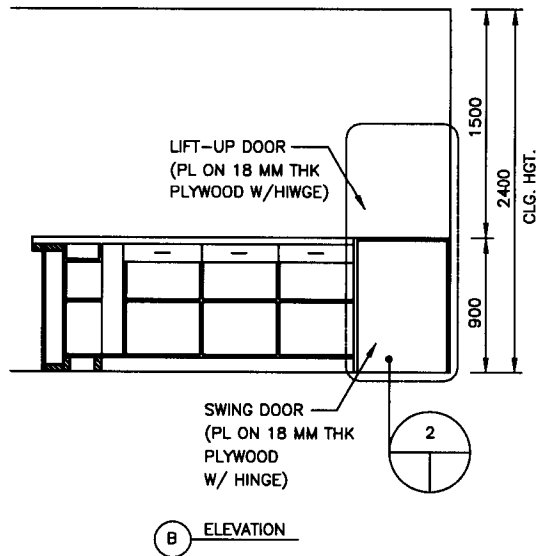
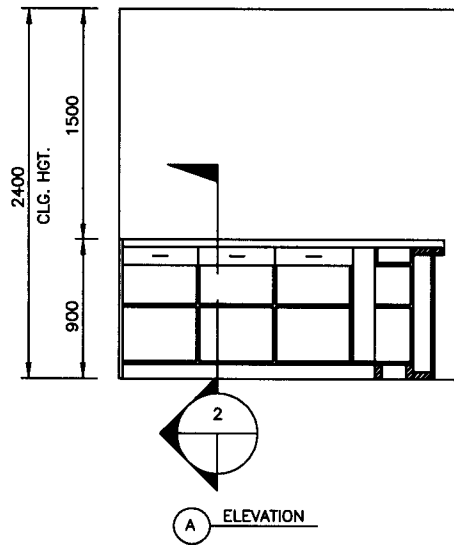
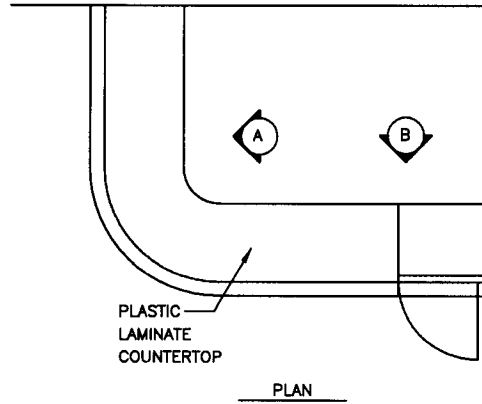
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TITLE COUNTER PLAN & ELEVATIONS

SPEC 12320

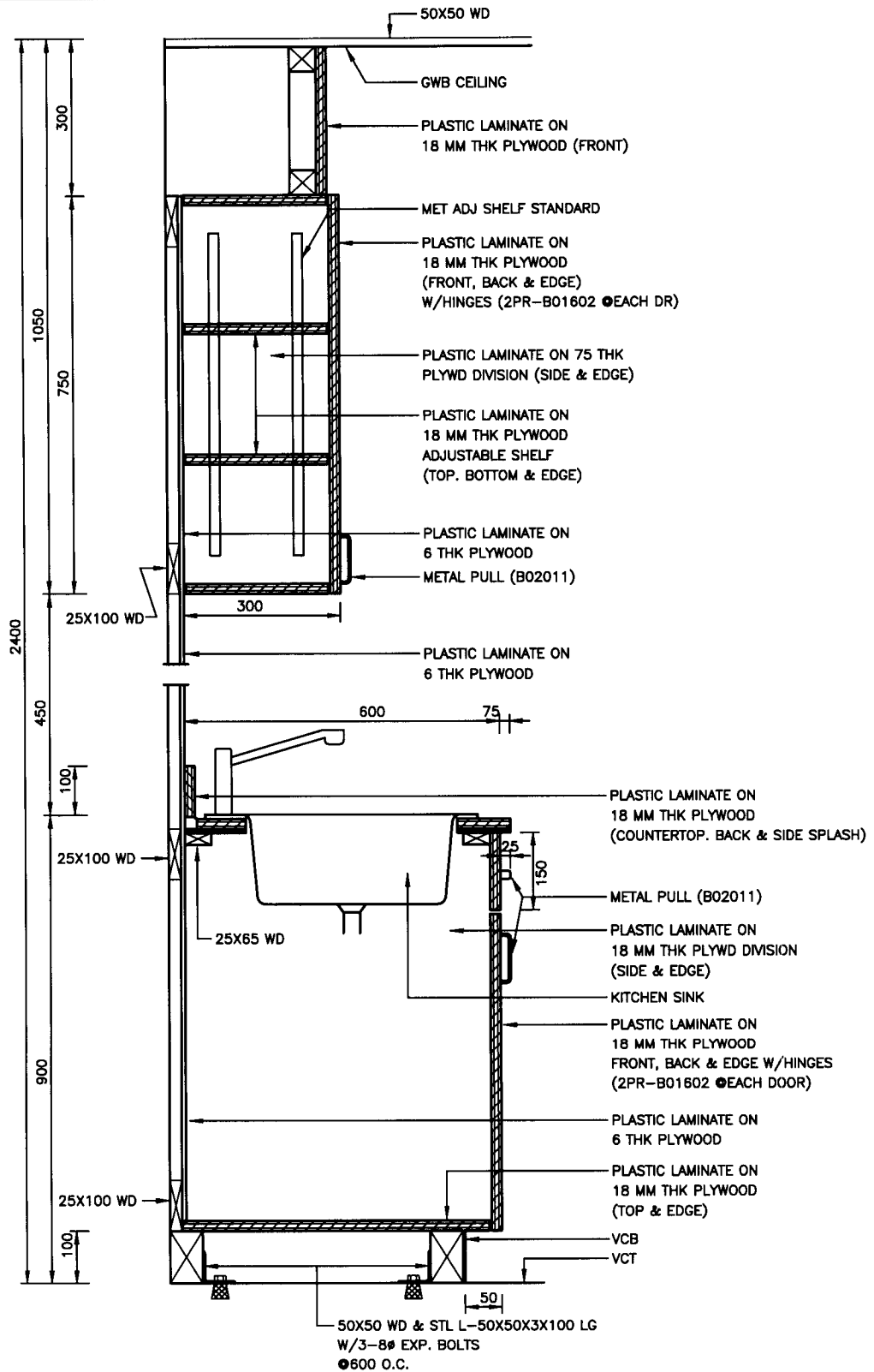
OCT 2003

A2401



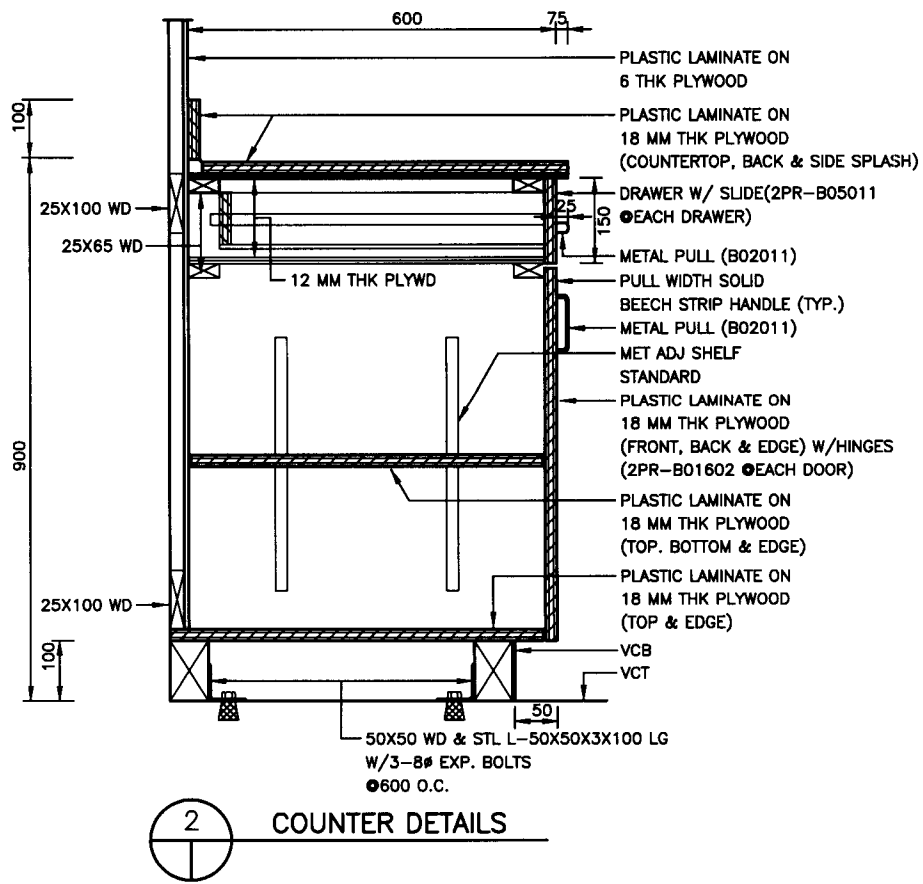
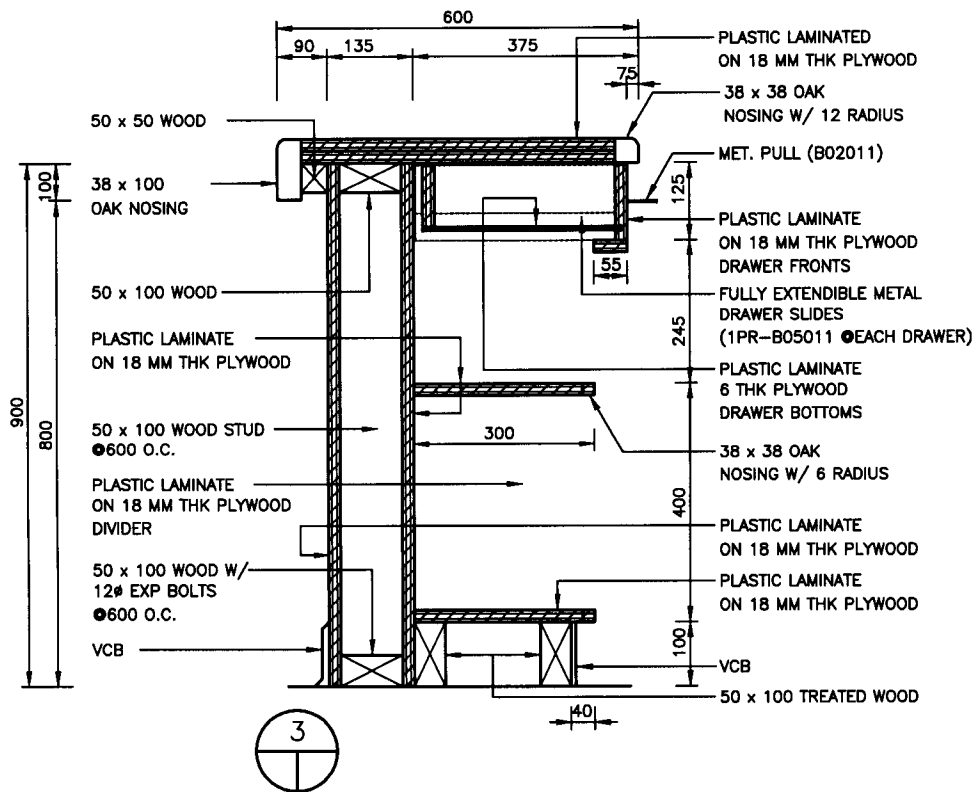
COUNTER PLANS & ELEVATIONS

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	COUNTER PLANS & ELEVATIONS	SPEC	12320	OCT 2003	A2402



1 COUNTER DETAILS

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER		REV DATE	DWG NO.
TITLE	COUNTER DETAILS	SPEC 12320	OCT 2003 A2403



IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER

REV DATE

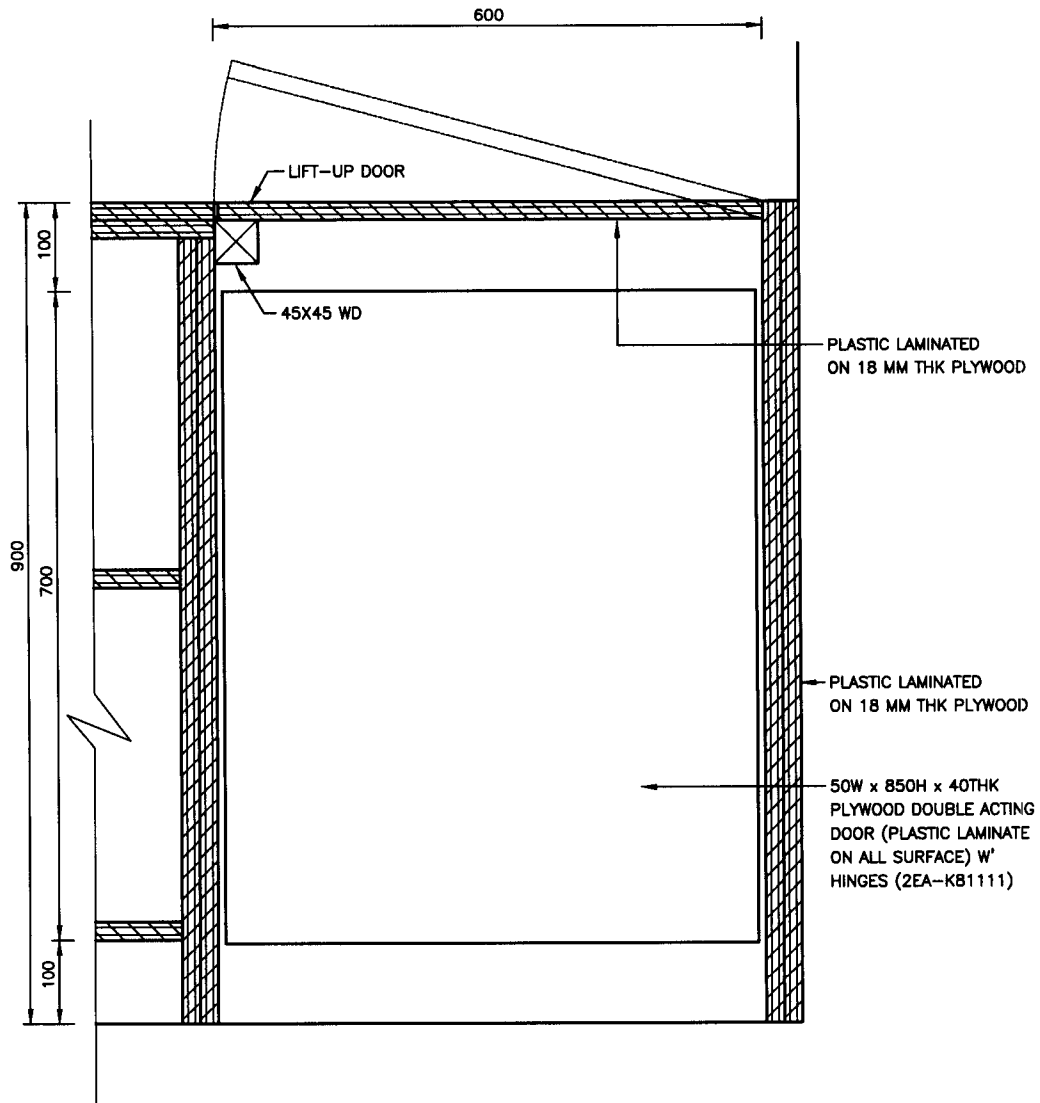
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TITLE COUNTER DETAILS

SPEC 12320

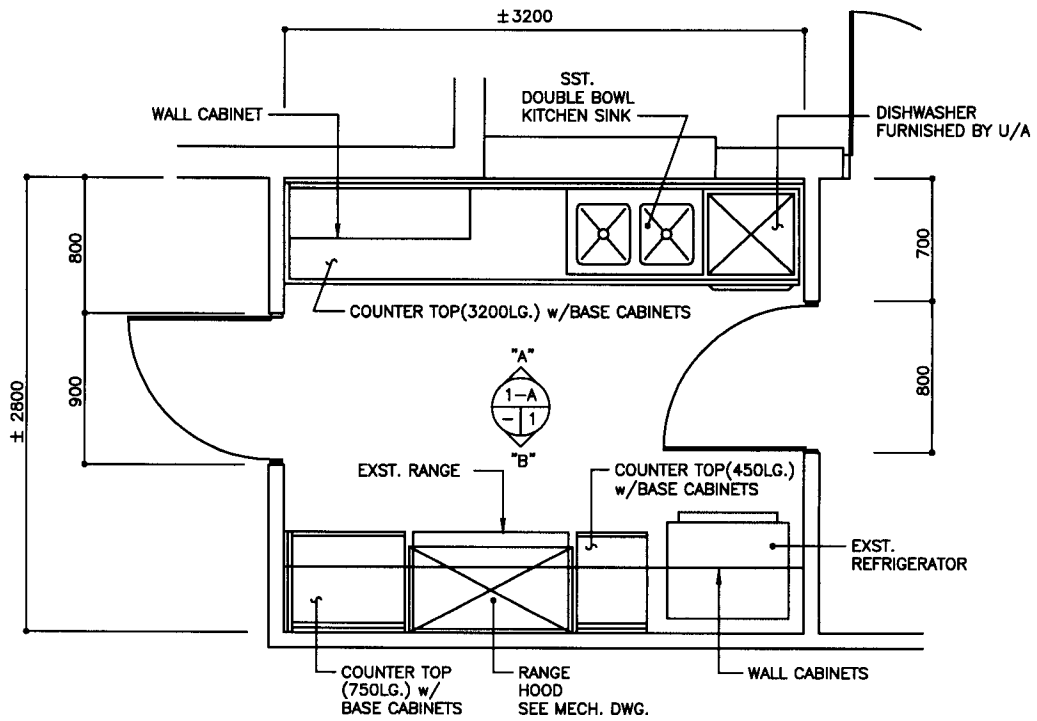
OCT 2003

A2404

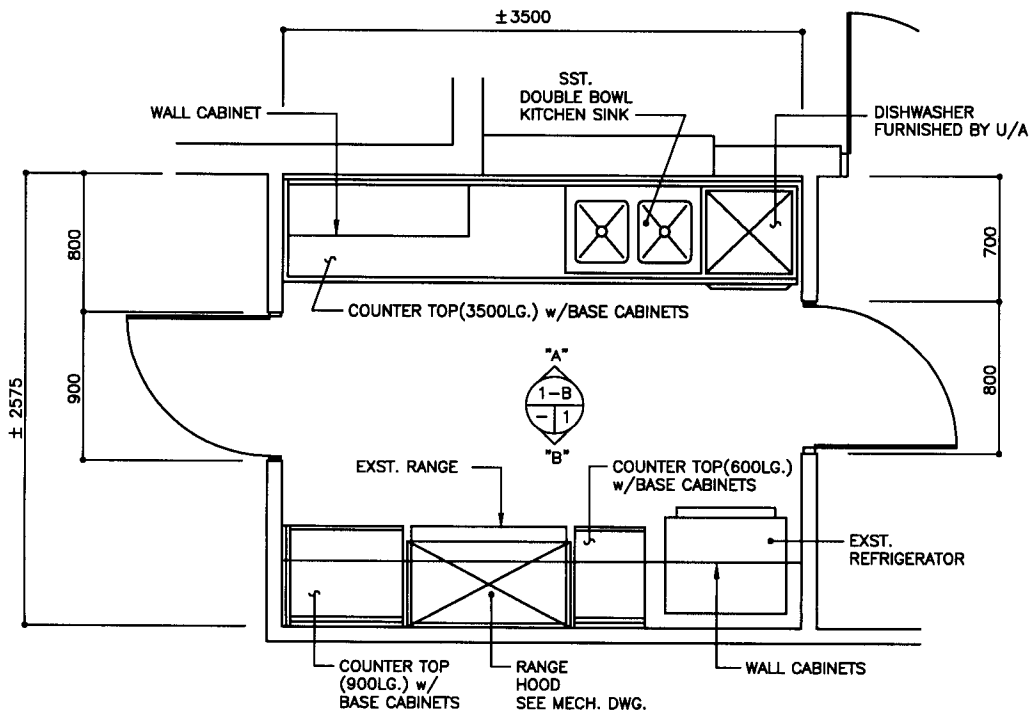


4 COUNTER DETAILS

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	COUNTER DETAILS	SPEC	12320	OCT 2003	A2405



PARTIAL PLAN(2-BED RM. DUPLEX)



PARTIAL PLAN(3-BED RM. DUPLEX TYPE "A")

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER

REV DATE

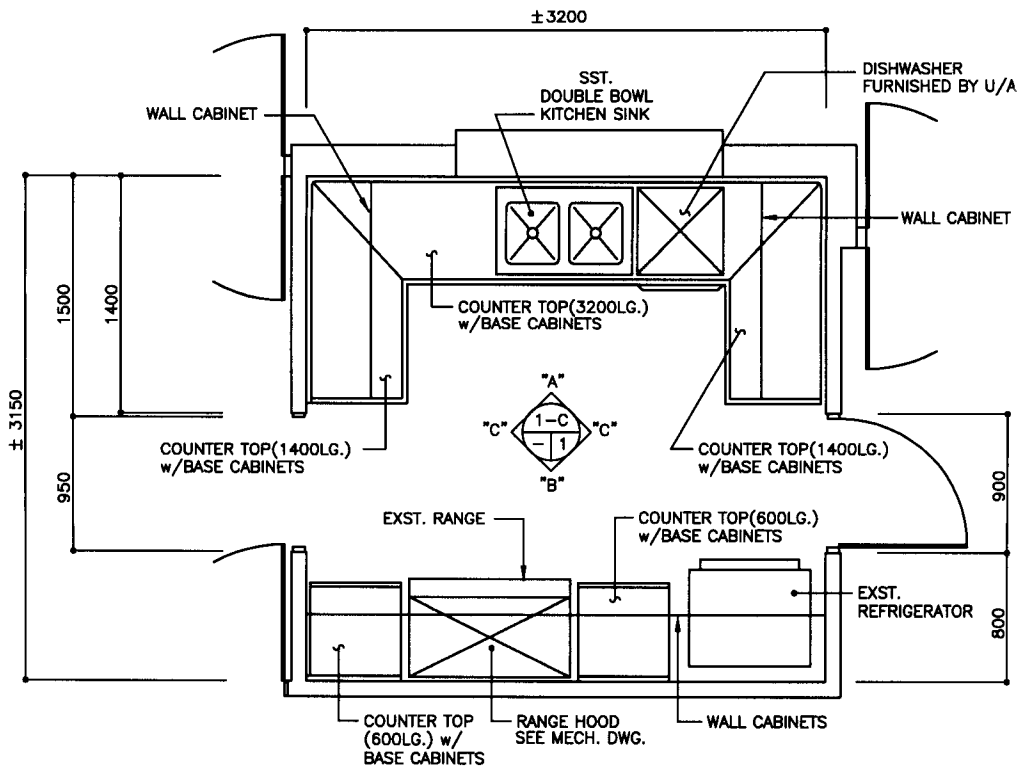
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TITLE KITCHEN CABINETS FOR FAMILY HOUSING

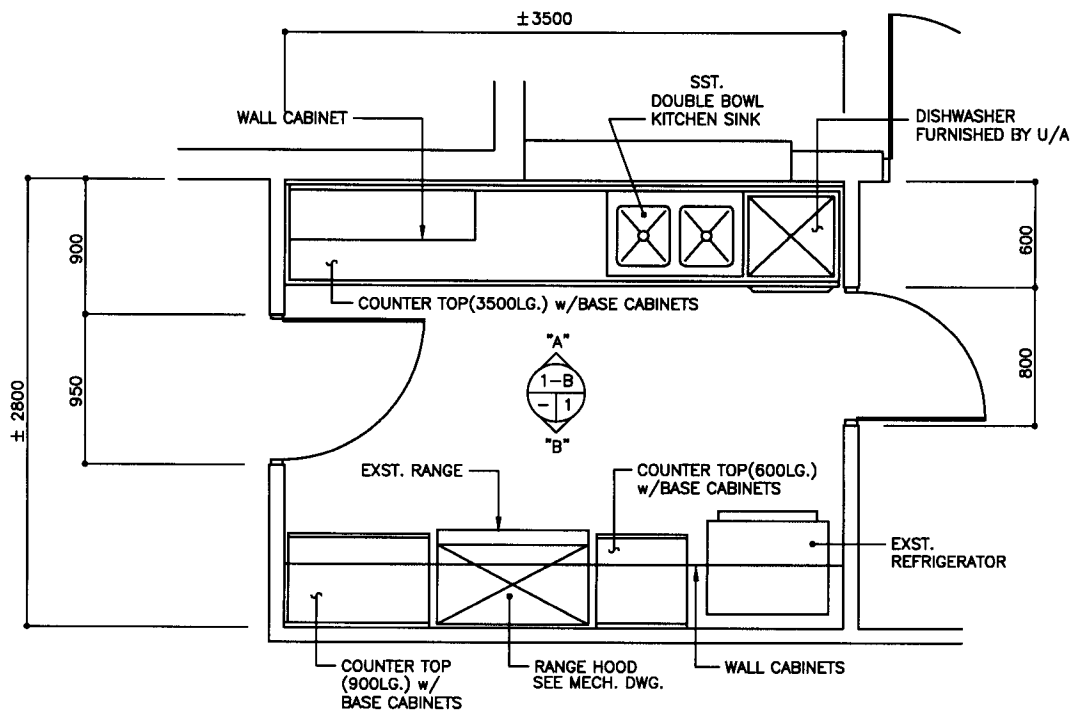
SPEC 12320

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A2406



PARTIAL PLAN(3-BED RM. DUPLEX TYPE "B")



PARTIAL PLAN(4-BED RM. DUPLEX)

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER

REV DATE

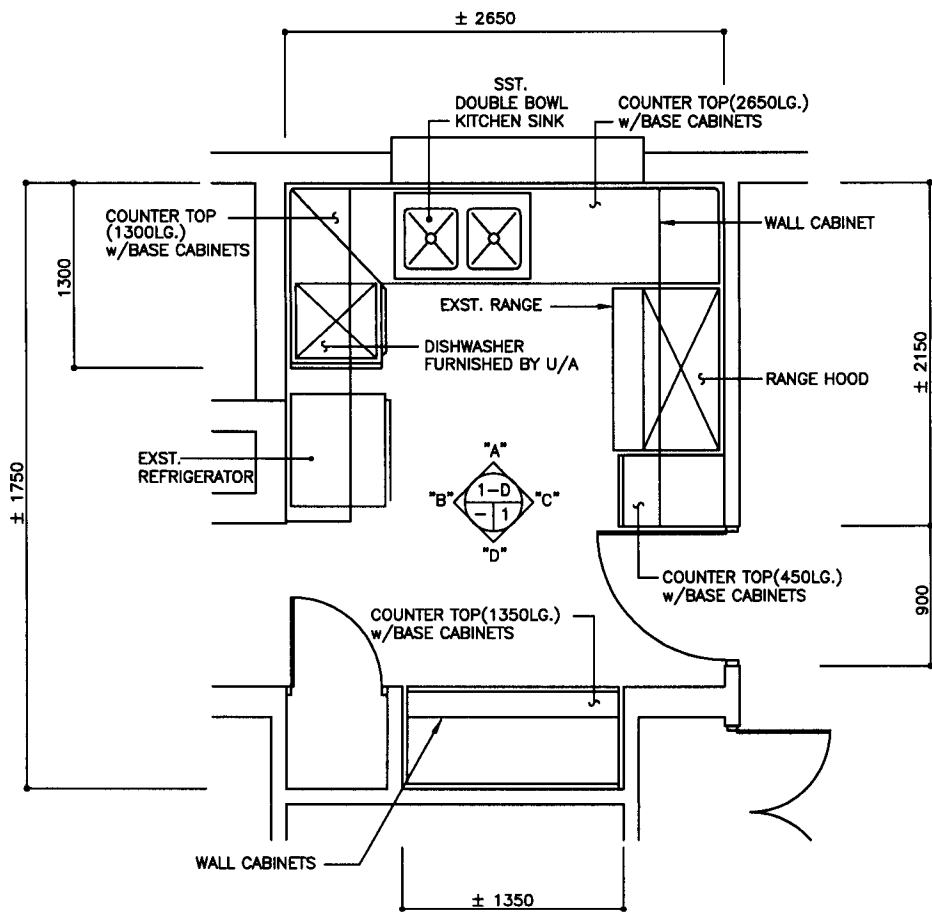
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TITLE KITCHEN CABINETS FOR FAMILY HOUSING

SPEC 12320

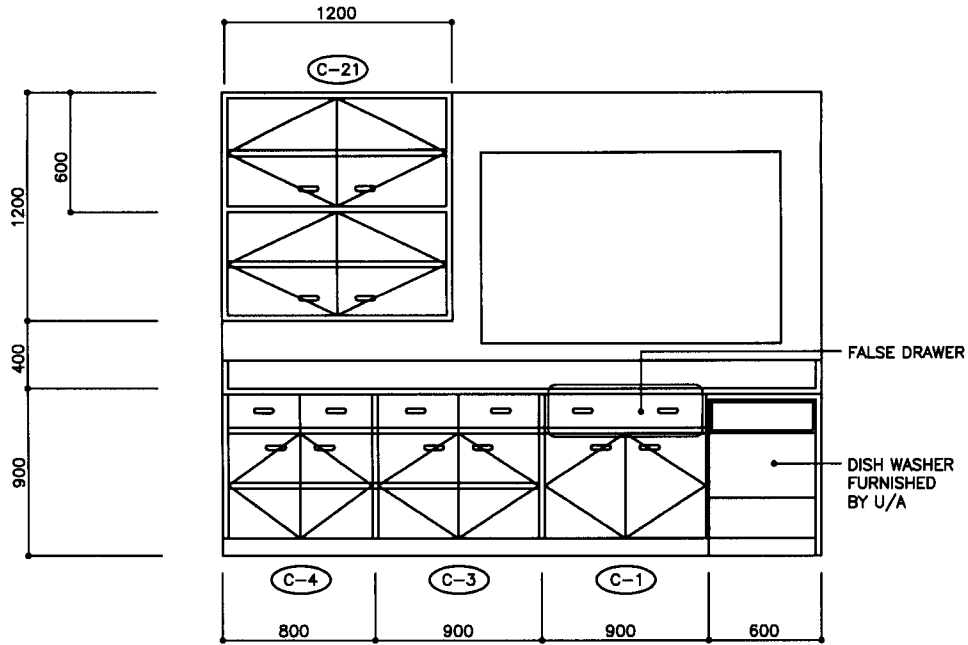
OCT 2003

A2407



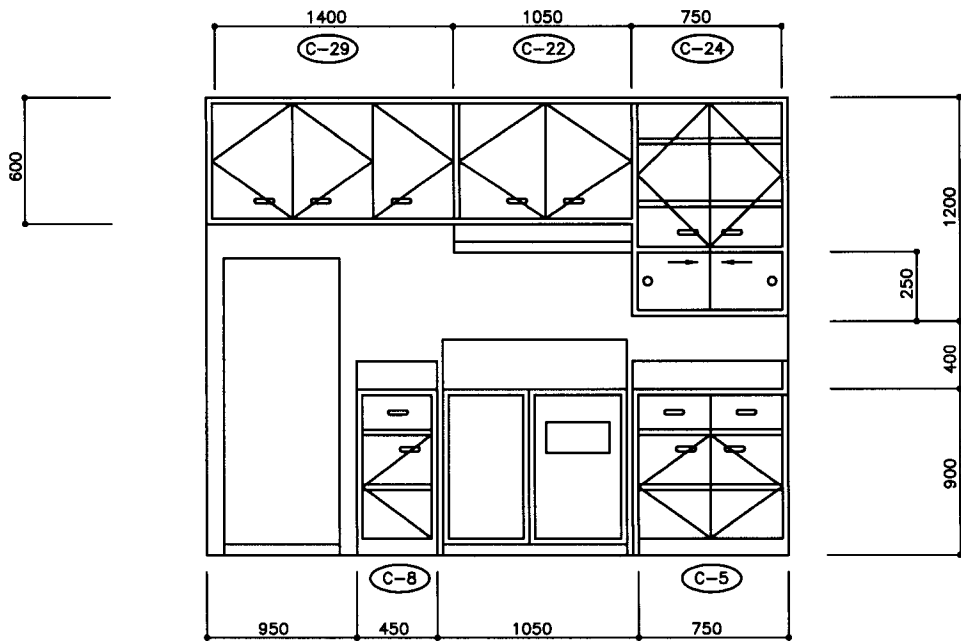
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(2 STORY 2-BED RM.)

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	KITCHEN CABINETS FOR FAMILY HOUSING	SPEC	12320	OCT 2003	A2408



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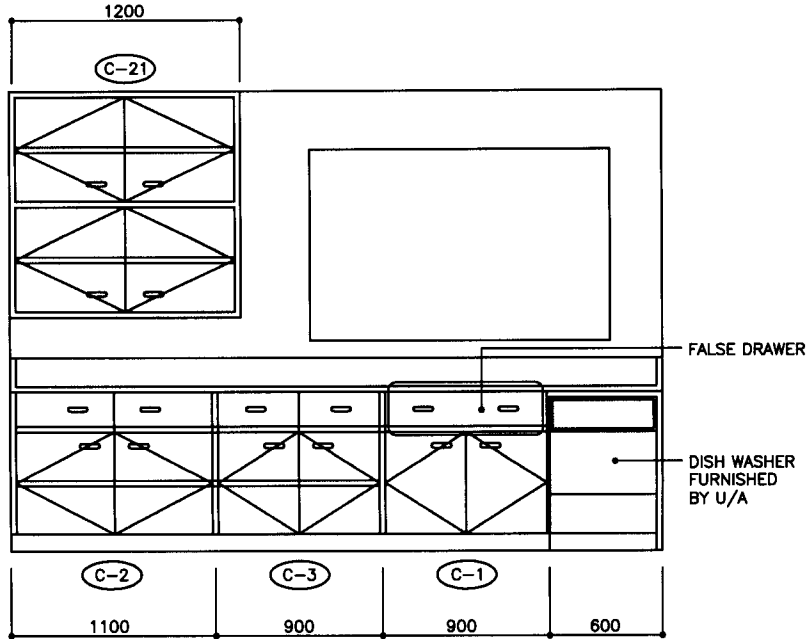
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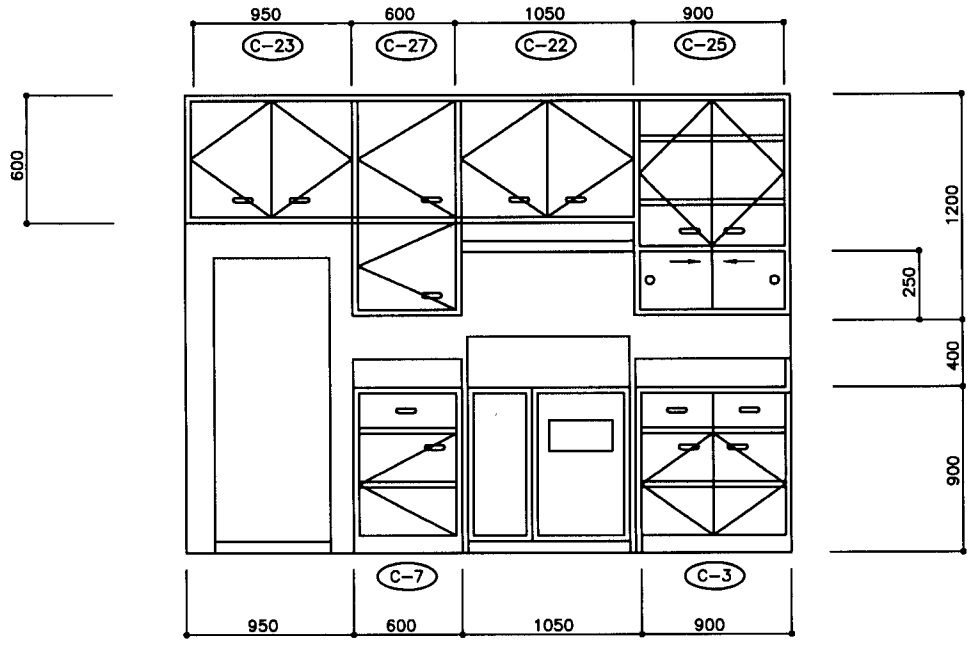
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-1

ELEVATION "B"

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
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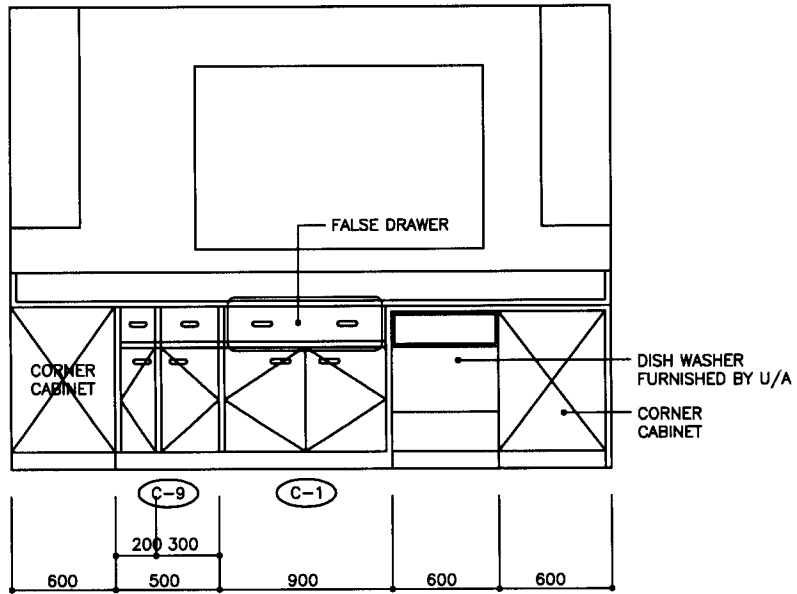


1-B
-1 ELEVATION "A"

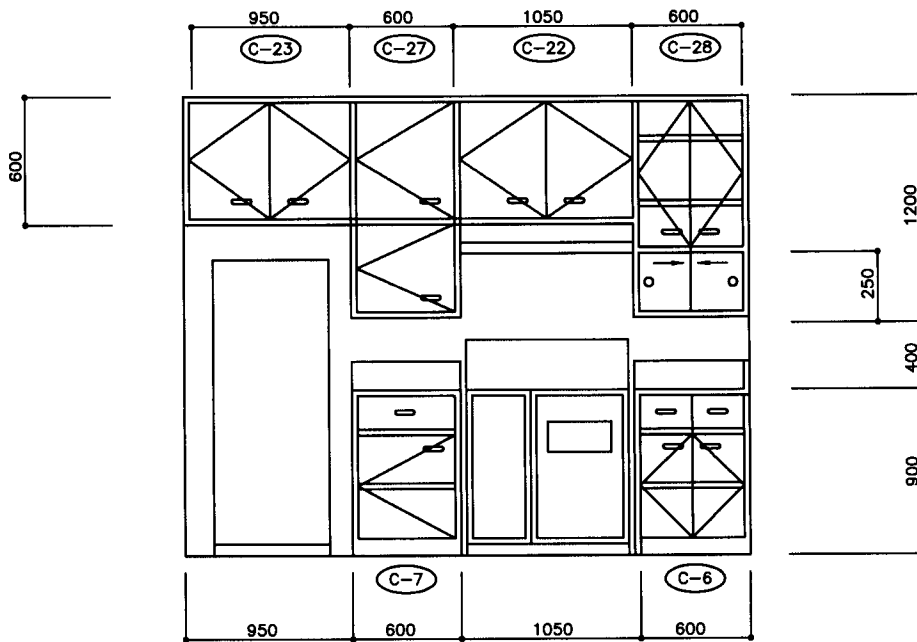


1-B
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TITLE	KITCHEN CABINETS	SPEC	12320	OCT 2003	A2410

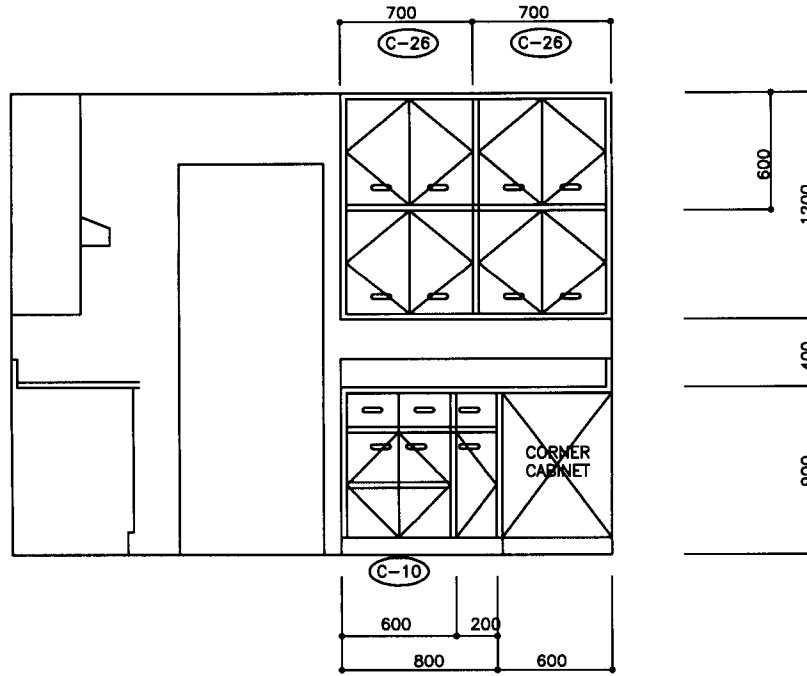


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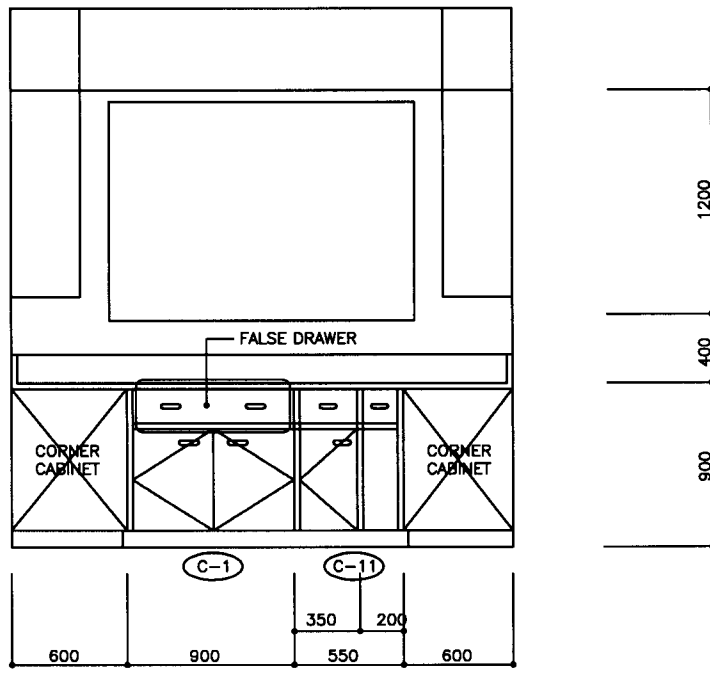


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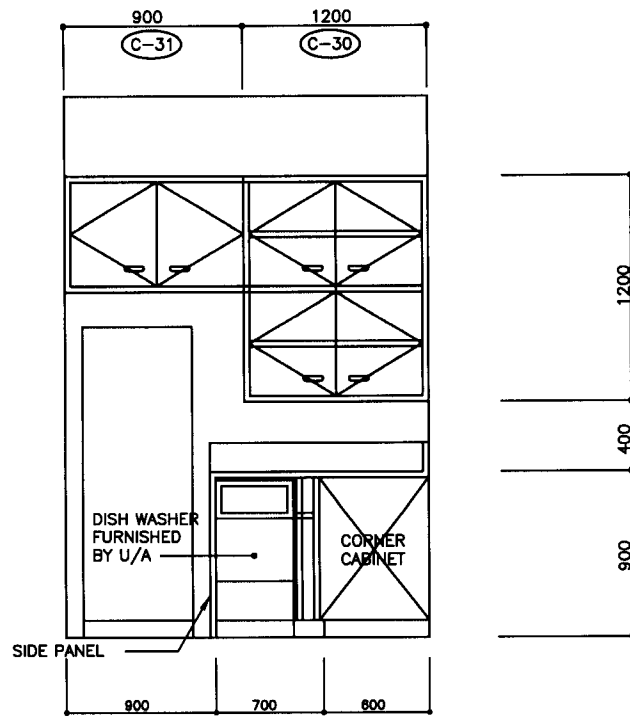


1-C
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ELEVATION "C"



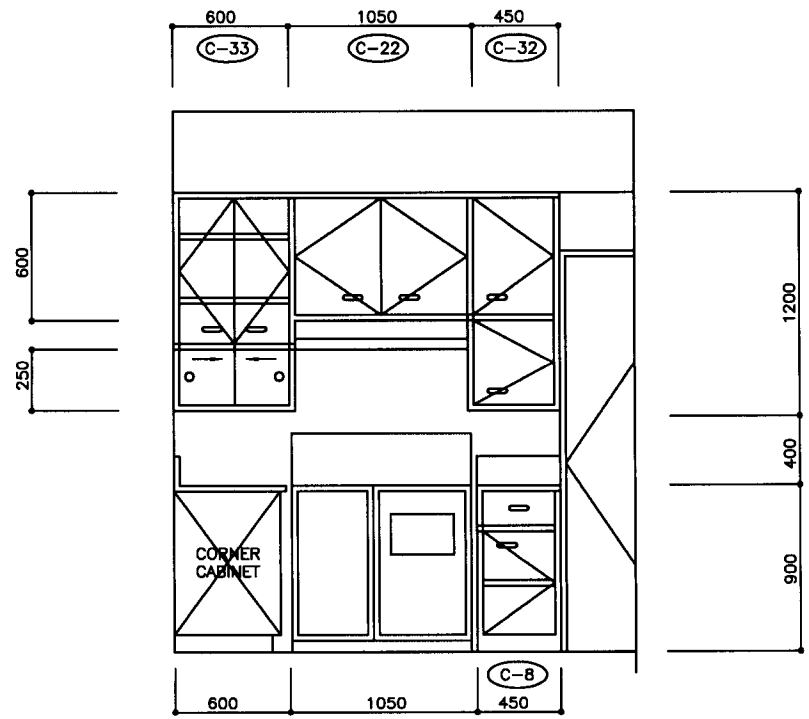
1-D
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ELEVATION "A"

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	KITCHEN CABINETS	SPEC	12320	OCT 2003	A2412



1-D
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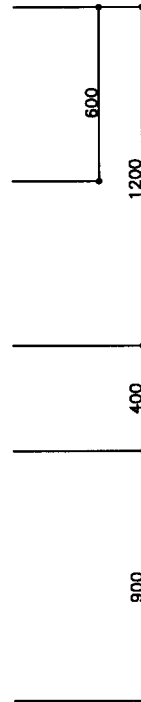
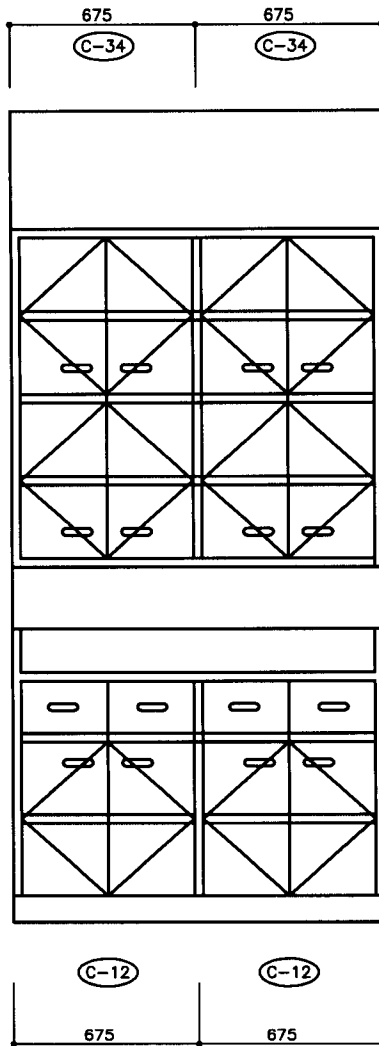
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1-D
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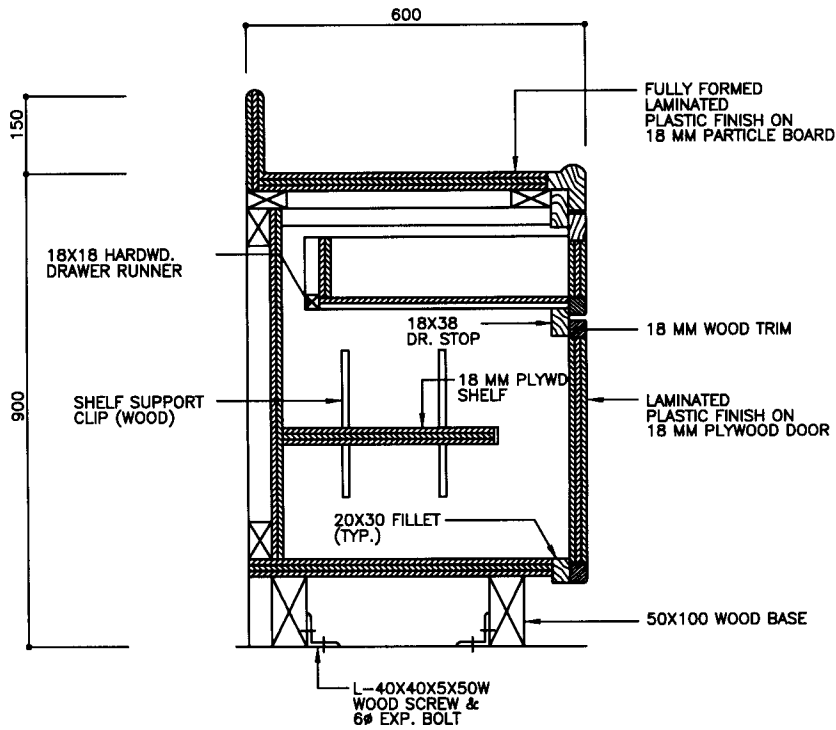
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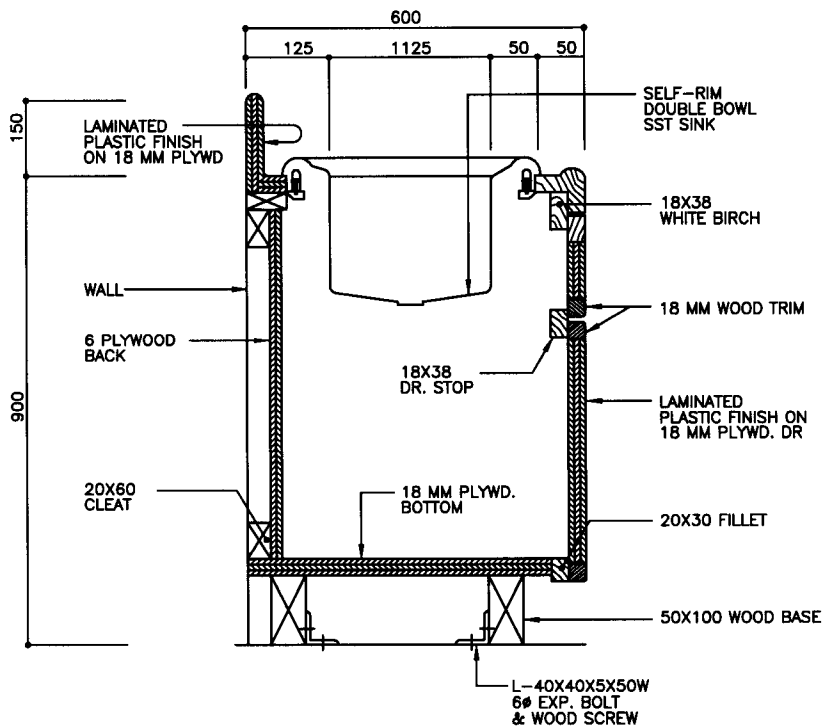


1-D
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ELEVATION "D"

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	KITCHEN CABINETS	SPEC	12320	OCT 2003	A2414



BASE CABINET W / DRAWER



BASE CABINET w/SINK

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER

REV DATE

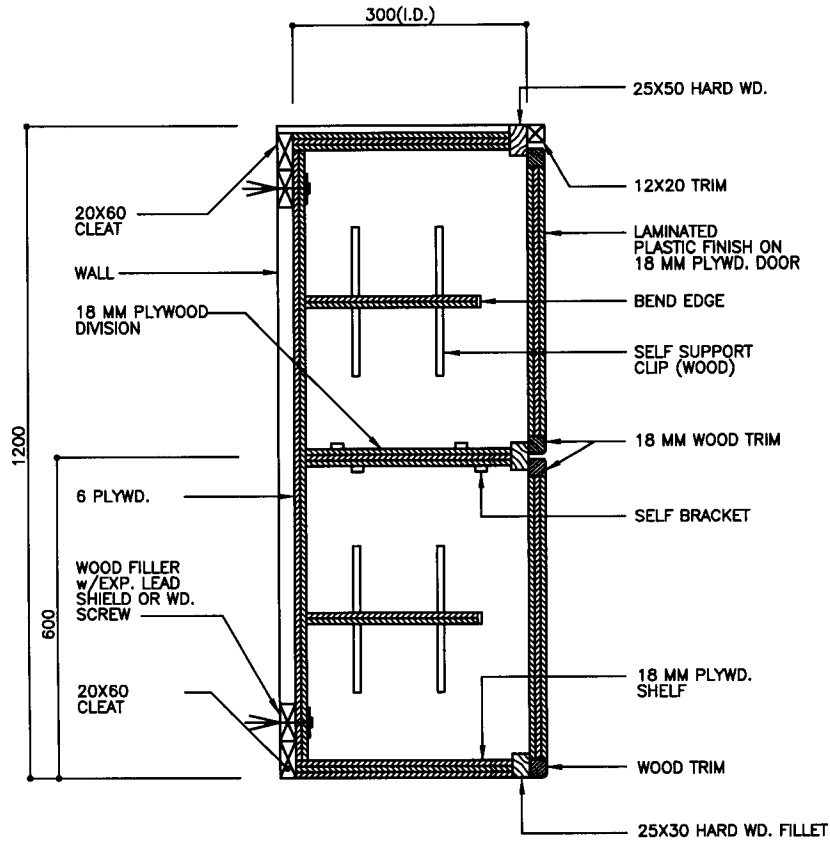
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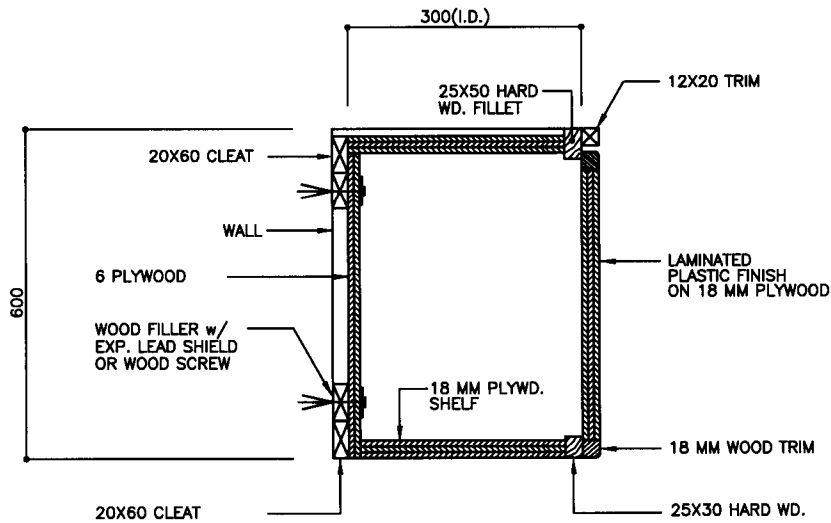
SPEC 12320

OCT 2003

A2415



WALL HUNG CABINET



WALL HUNG CABINET

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER

REV DATE

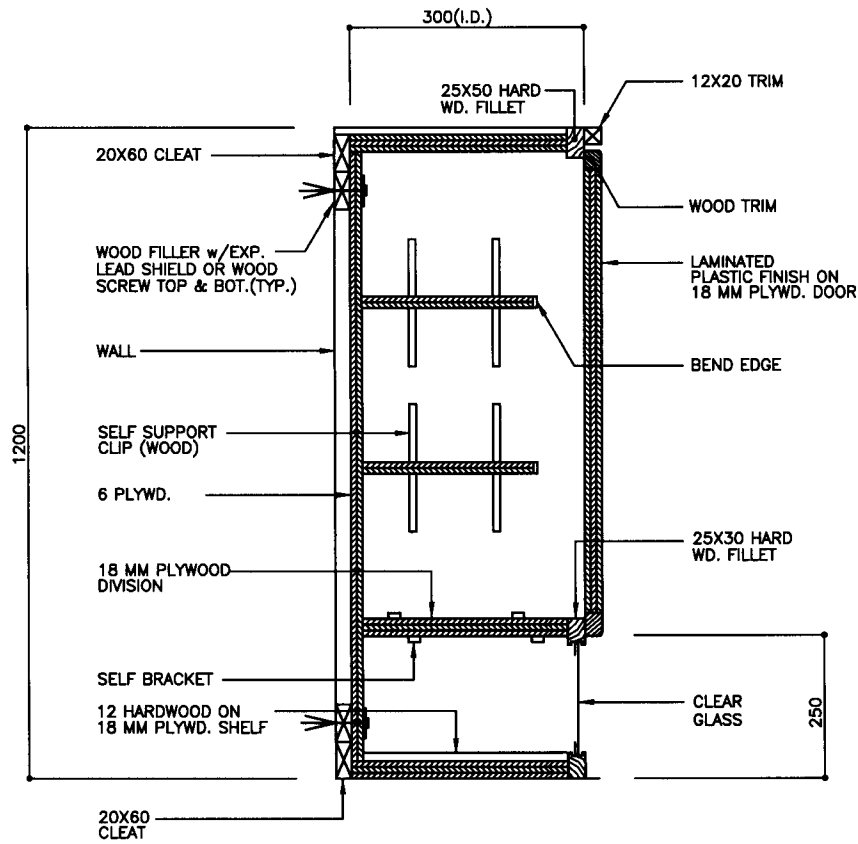
DWG NO.

TITLE KITCHEN CABINETS

SPEC 12320

OCT 2003

A2416



WALL HUNG CABINET

HARDWARE SETS

BASE CABINETS AND WALL CABINETS

WOOD DOORS

- 2-PIVOT HINGES (KNIFE) TYPE B 81461 (EACH DOOR LEAF)
- 1-CABINET PULL, TYPE B 52012 (EACH DOOR LEAF)
- 1-DOOR CATCH, MAGNETIC, TYPE B43171 (EACH DOOR LEAF)

GLASS DOORS, SLIDING

- 1-TRACK AND GUIDES, PLASTIC, TYPE B 07061
- 1-KNOB, 1-INCH DIAMETER, TYPE B 52132

DRAWERS

- 1-SET, SIDE MOUNT DRAWER SLIDE, TYPE B 85071 (STEEL ROLLER BALL BEARING)
- 1-CABINET PULL, TYPE B 52012

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER

REV DATE

DWG NO.

TITLE KITCHEN CABINETS

SPEC 12320

OCT 2003

A2417

MECHANICAL STANDARD DETAILS

OCTOBER 2003

**IMA-KORO
REGIONAL ENGINEER SUPPORT CENTER**

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A B B R E V I A T I O N S

ACCU	AIR COOLED CONDENSING UNIT	FHC	FIRE HOSE CABINET
ACLD	AIR COOLED	FHY	FIRE HYDRANT
ACU	AIR CONDITION UNIT (S)	FO	FUEL OIL
ACV	ALARM CHECK VALVE	FPM	FEET PER MINUTE
ADP	APPARATUS DEW POINT	FPS	FEET PER SECOND
AHU	AIR HANDLING UNIT	FPT	FEMALE PIPE THREAD
AIR COND	AIR CONDITION (-ING, -ED)	FREQ (HZ)	FREQUENCY, HERTZ
AL	ALUMINUM	FRP	FIBERGLASS REINFORCED PLASTIC
ALT	ALTITUDE	FT	FOOT OR FEET
AMB	AMBIENT	FT. LB	FOOT POUND
AMP	AMPERE (AMP, AMPS)	FV	FLUSH VALVE
APPROX	APPROXIMATE	FVEL	FACE VELOCITY
AVG	AVERAGE	FWP	FEED WATER PUMP
AWG	AMERICAN WIRE GAUGE	FXTR	FIXTURE
		GA	GAGE OR GAUGE
BARO	BAROMETER (-TRIC)	GAL	GALLONS
BARO PR	PRESSURE, BAROMETRIC	GALVS	GALVANIZED STEEL
BBL	BARREL	GPD	GALLONS PER DAY
BHP	BRAKE HORSEPOWER	GPH	GALLONS PER HOUR
BP	BOILING POINT	GPM	GALLONS PER MINUTE
BTU	BRITISH THERMAL UNIT		
		HB	HOSE BIBB
CAP	CAPACITY	HD	HEAD
CCW	COUNTER CLOCKWISE	HG	MERCURY
CFM	CUBIC FEET PER MINUTE	HP	HORSEPOWER
CHW	CHILLED WATER	HR	HOUR (S)
CIP	CAST IRON PIPE	HW	HOT WATER
CKT	CIRCUIT	HWH	HOT WATER HEATER
CLASS	CLASSIFICATION	HORIZ	HORIZONTAL
CLG LOAD	COOLING LOAD		
COEF	COEFFICIENT	IPS	INTERNATIONAL PIPE STD.
CONN.	CONNECTION	IPS	IRON PIPE SIZE
CONT	CONTINUE	ISO	ISOMETRIC
CPRSE	COMPRESSOR	ID	DIAMETER, INSIDE
CU FT	CUBIC FOOT	K	THERMAL CONDUCTIVITY
CU IN	CUBIC INCH	KW	KILOWATT
Cv	COEFFICIENT, VALVE FLOW	KWH	KILOWATT HOUR
CW	CLOCKWISE OR COLD WATER		
CWP	CIRCULATING WATER PUMP	LAV	LAVATORY
		LAT	LEAVING AIR TEMPERATURE
DB	DECIBEL OR DRY-BULB	LBS	POUNDS
DBT	DRY-BULB TEMPERATURE	LF	LINEAR FEET
DEG or °	DEGREE	LG	LENGTH
DIA	DIAMETER	LH	LATENT HEAT
DIAG	DIAGRAM	LT	LAUNDRY TRAY
DIFF	DIFFERENCE	LWT	LEAVING WATER TEMPERATURE
DIV	DIVISION		
DO	DIESEL OIL	MAX	MAXIMUM
DPT	DEWPOINT TEMPERATURE	MBH	BTU PER HOUSE (THOUSAND)
DPDT	DOUBLE POLE DOUBLE THROW	MBTU	BTU PER HOUSE (MEGA)
DPV	DRY PIPE VALVE	MIN	MINIMUM OR MINUTE
DX	DIRECT EXPANSION	MPH	MILES PER HOUR
EAT	ENTERING AIR TEMPERATURE	NA	NOT APPLICABLE
ECC	ECCENTRIC	NC	NOISE CRITERIA
ECON	ECONOMIZER	NC	NORMALLY CLOSED
EDR	EQUIVALENT DIRECT RADIATION	NIC	NOT IN CONTRACT
EFF	EFFICIENCY	NO	NORMALLY OPEN
ENT	ENTERING	NO	NUMBER
EQPT	EQUIPMENT	NPT	NATIONAL TAPER PIPE (THREAD)
EP	EXPLOSION PROOF	NTS	NOT TO SCALE
ESP	EXTERNAL STATIC PRESSURE		
EVAP	ETERNAL (-E, -ING, -ED, -OR)	OA	OUTSIDE AIR
EWT	ENTERING WATER TEMP	OAIL	OUTSIDE AIR INTAKE LOUVER
EXPJT	EXPANSION JOINT	OD	DIAMETER, OUTSIDE
		OS & Y	OUTSIDE SCREW AND YORK
F	FAHRENHEIT	OXY	OXYGEN
FA	FACE AREA OR FRESH AIR	OZ	OUNCE

IMA - KORO, REGIONAL ENGINEER SUPPORT CENTER

REV DATE

DWG NO.

TITLE

MECHANICAL ABBREVIATIONS - 1

SPEC

00000

OCT 2003

M0001

P	POLE	VAV	VARIABLE AIR VOLUME
PD	PRESSURE DROP OR DIFFERENT	VEL	VELOCITY
PG	PRESSURE GAGE	VENT	VENTILATION
PH	PHASE (ELECTRIC)	VERT	VERTICAL
PLMB	PLUMBING	VISC	VISCOSITY
POC	POINT OF CONNECTION	VOL	VOLUME
POL	PETROLEUM, OILS AND LUBRICANTS	VP	PRESSURE, DYNAMIC (VELOCITY)
PPM	PARTS PER MILLION		
PRV	PRESSURE REDUCING VALVE	W	WATT
PSI	POUNDS PER SQUARE INCH	WB	WET-BULB
PSIA	PSI ABSOLUTE	WBT	WET BULB TEMPERATURE
PSIG	PSI GAUGE	WC	WATER CLOSET
PSF	POUND PER SQUARE FOOT	WCCLD	WATER-COOLED
PSFG	PSF GAUGE	WD	WIDTH
%	PERCENT	WH	WATTHOUR OR WATER HEATER
		W'	WITH
QT	QUART	WSHR	WASHER
QTY	QUANTITY	WT	WEIGHT
		WTRPRF	WATER PROOF
R12, R22	REFRIGERANT (12, 22, ETC)		
R	THERMAL RESISTANCE	YD	YARD
RA	RETURN AIR		
RDTR	RADIATOR		
RM	RELATIVE HUMIDITY		
RPM	REVOLUTIONS PER MINUTE		
RT	REFRIGERATION TON		
SA	SUPPLY AIR		
SAN	SANITARY		
SBM	SUBMERSIBLE		
SCFM	CFM, STANDARD CONDITIONS		
SCFS	CU FT PER SEC, STANDARD		
SCH	SCHEDULE		
SEC	SECOND		
SF	SAFETY FACTOR		
SG	SPECIFIC GRAVITY		
SGPH	GPH, STANDARD		
SH	SENSIBLE HEAT		
SP	STATIC PRESSURE		
SPDT	SINGLE POLE DOUBLE THROW		
SPEC	SPECIFICATION		
SPR	SPRINKLER		
SQ	SQUARE		
SSF	SAYBOLT SECONDS FUROL		
SST	STAINLESS STEEL		
SSU	SAYBOLT SECONDS UNIVERSAL		
ST	STEAM		
STD	STANDARD		
STL	STEEL		
STOR	STORAGE		
SUCT	SUCTION		
SYM	SYMBOL		
TD	TEMPERATURE DIFFERENCE		
TEMP	TEMPERATURE		
THERM	THERMOMETER		
THK	THICK (-NESS)		
TONS	TONS OF REFRIGERATION		
T STAT	THERMOSTAT		
TYP	TYPICAL		
U	HEAT TRANSFER COEFFICIENT		
UH	UNIT HEATER		
UR	URINAL		
V	VALVE		
V	VOLT		
VAC	VACUUM		

IMA - KORO, REGIONAL ENGINEER SUPPORT CENTER

REV DATE DWG NO.

TITLE MECHANICAL ABBREVIATIONS - 2

SPEC 00000

OCT 2003

M0002

PIPING

heating

—— HPS ——	HIGH PRESSURE STEAM
—— HPC ——	HIGH PRESSURE CONDENSATE
—— MPS ——	MEDIUM PRESSURE STEAM
—— MPC ——	MEDIUM PRESSURE CONDENSATE
—— LPS ——	LOW PRESSURE STEAM
—— LPC ——	LOW PRESSURE CONDENSATE
—— BBD ——	BOILER BLOW DOWN
—— PC ——	PUMPED CONDENSATE
—— VPD ——	VACUUM PUMP DISCHARGE
—— MU ——	MAKEUP WATER
—— FOD ——	FUEL OIL DISCHARGE
—— FOV ——	FUEL OIL TANK VENT
—— FOG ——	FUEL OIL GAUGE
—— FOS ——	FUEL OIL SUPPLY
—— FOR ——	FUEL OIL RETURN
—— MTWS ——	HIGH TEMPERATURE HOT WATER SUPPLY
—— MTWR ——	HIGH TEMPERATURE HOT WATER RETURN
—— MTWS ——	MEDIUM TEMPERATURE HOT WATER SUPPLY
—— MTWR ——	MEDIUM TEMPERATURE HOT WATER RETURN
—— HWS ——	LOW TEMPERATURE HOT WATER SUPPLY
—— HWR ——	LOW TEMPERATURE HOT WATER RETURN
—— A ——	COMPRESSED AIR
—— VAC ——	VACUUM (AIR)
—— (NAME)E ——	EXISTING PIPING
— / (NAME) — /	PIPE TO BE REMOVE

















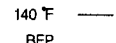
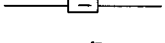


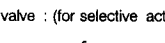
air conditioning and refrigeration

—— RD ——	REFRIGERANT DISCHARGE
—— RS ——	REFRIGERANT SUCTION
—— RL ——	REFRIGERANT LIQUID
—— D ——	DRAIN
—— CHWS ——	CHILLED WATER SUPPLY
—— CHWR ——	CHILLED WATER RETURN
—— HCS ——	HOT /CHILLED WATER SUPPLY
—— HCR ——	HOT /CHILLED WATER RETURN











LEGEND

IMA – KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	MECHANICAL INDICATIONS & SYMBOLS – PIPING (1)	SPEC	00000	OCT 2003	M0003




plumbing

	COLD WATER
	HOT WATER
	HOT WATER RETURN
	VENT
	SANITARY DRAIN
	CONDENSATE DRAIN ABOVE FLOOR OR GRADE
	CONDENSATE DRAIN BELOW FLOOR OR GRADE
	GAS
	ACID WASTE
	CHEMICAL SUPPLY PIPES
	FLOOR DRAIN
	FLOOR CLEANOUT
	SURFACE CLEANOUT
	FUNNEL DRAIN, OPEN
	FLOOR SINK (8"x8")
	VENT THRU ROOF
	PITCH OF PIPE, UP(U), DOWN(D)
	HOT WATER (140 F)
	BACKFLOW PREVENTER
	HOT WATER (180 F)
	HOSE BIBB





valve : (for selective actuators)

	AIR LINE
	BALL
	BUTTERFLY
	DIAPHRAGM
	GATE
	GATE, ANGLE
	GLOBE
	ANGLE, GLOBE
	PLUG VALVE
	THREE WAY

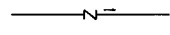
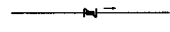
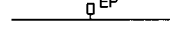
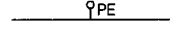
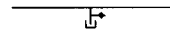
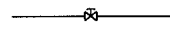
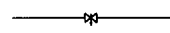
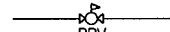
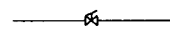
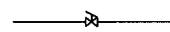
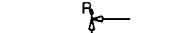

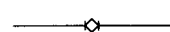
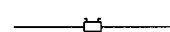








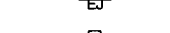


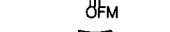
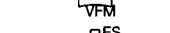
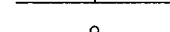
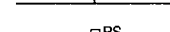
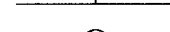

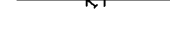
(valve actuators)

	NON-RISING STEM
	OUTSIDE STEAM AND YOKE
	LEVER

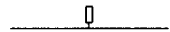


IMA - KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	MECHANICAL INDICATIONS & SYMBOLS - PIPING (2)	SPEC	00000	OCT 2003	M0004

	MOTOR (ELECTRIC)
	SOLENOID
	DIAPHRAGM
	PNEUMATIC







valves, special duct :

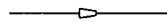
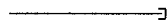
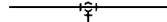
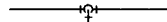














	CHECK, SWING
	CHECK, SPRING
	CONTROL, ELECTRIC-PNEUMATIC
	CONTROL, PNEUMATIC-ELECTRIC
	HOSE END DRAIN
	LOCK SHIELD
	NEEDLE
	PRESSURE REDUCING
	QUICK OPENING
	QUICK CLOSING, FUSIBLE LINK
	RELIEF
	SAFETY
	SQUARE HEAD BALANCING COCK
	SQUARE HEAD BALANCING COCK WITH MEASURING TAP
	AIR VENT, AUTOMATIC
	AIR VENT, MANUAL
	AIR SEPARATOR
	ALIGNMENT GUIDE
	ANCHOR, INTERMEDIATE
	ANCHOR, MAIN
	BALL JOINT
	EXPANSION JOINT
	EXPANSION LOOP
	FLEXIBLE CONNECTOR
	FLOWMETER, ORIFICE
	FLOWMETER, VENTURI
	FLOW SWITCH
	PRESSURE GAUGE AND COCK
	PRESSURE SWITCH
	PUMP (INDICATE USE)
	STRAINER
	STRAINER, BLOW OFF

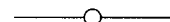
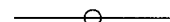
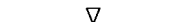



IMA - KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	MECHANICAL INDICATIONS & SYMBOLS - PIPING (3)	SPEC	00000	OCT 2003	M0005

-  THERMOMETER
-  THERMOSTAT, ELECTRIC
-  TRAP, STEAM (INDICATE TYPE)

fitting :

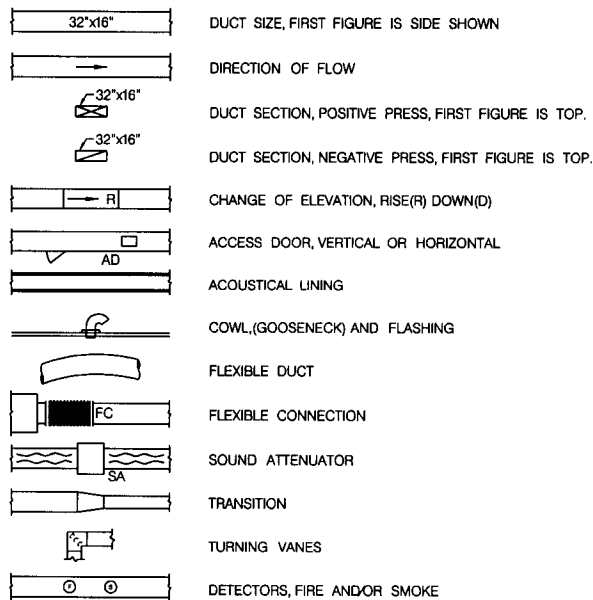
-  FLANGED
-  SCREWED
-  BELL AND SPIGOT
-  WELDED
-  SOLDERED
-  SOLVENT CEMENT

-  BUSHING
-  CAP
-  CONNECTION, BOTTOM
-  CONNECTION, TOP
-  ELBOW, 90 °
-  ELBOW, 45 °
-  ELBOW, TURNED UP
-  ELBOW, TURNED DOWN
-  LATERAL
-  REDUCER, CONCENTRIC
-  REDUCER, ECCENTRIC (STRAIGHT INVERT)
-  REDUCER, ECCENTRIC (STRAIGHT CROWN)
-  TEE
-  TEE, OUTLET UP
-  TEE, OUTLET DOWN
-  TEE, SINGLE SWEEP
-  UNION, SCREWED
-  UNION, FLANGED

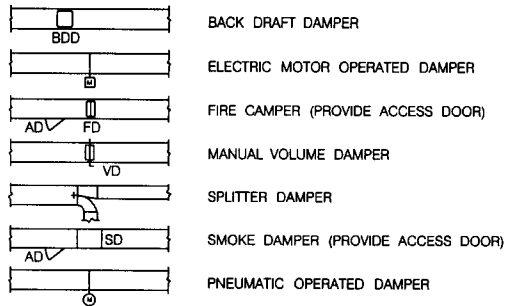
- sprinkler
-  UPRIGHT SPRINKLER
 -  PENDENT SPRINKLER
 -  SIDEWALK SPRINKLER
 -  ALARM CHECK VALVE
 -  DRY-PIPE VALVE
 -  TWO-WAY FIRE DEPARTMENT CONNECTION

IMA - KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	MECHANICAL INDICATIONS & SYMBOLS - PIPING (4)	SPEC	00000	OCT 2003	M0006

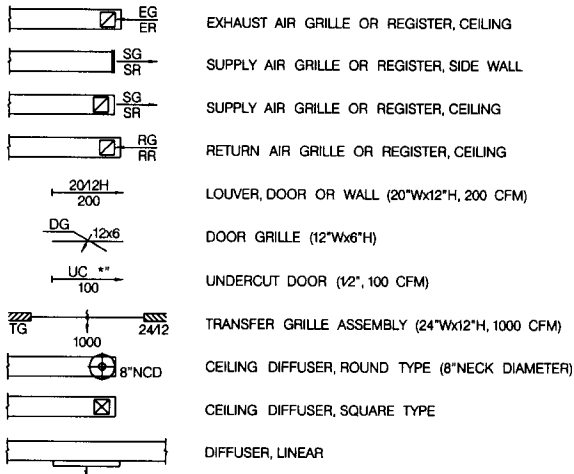
DUCT WORK



dampers :



grilles, register and diffusers :



IMA - KORO, REGIONAL ENGINEER SUPPORT CENTER

REV DATE

DWG NO.

TITLE

MECHANICAL INDICATIONS & SYMBOLS - DUCTWORK

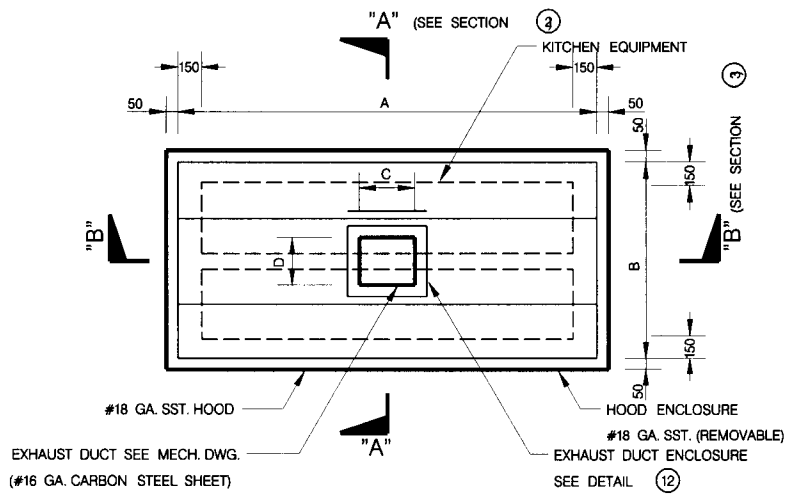
SPEC

00000

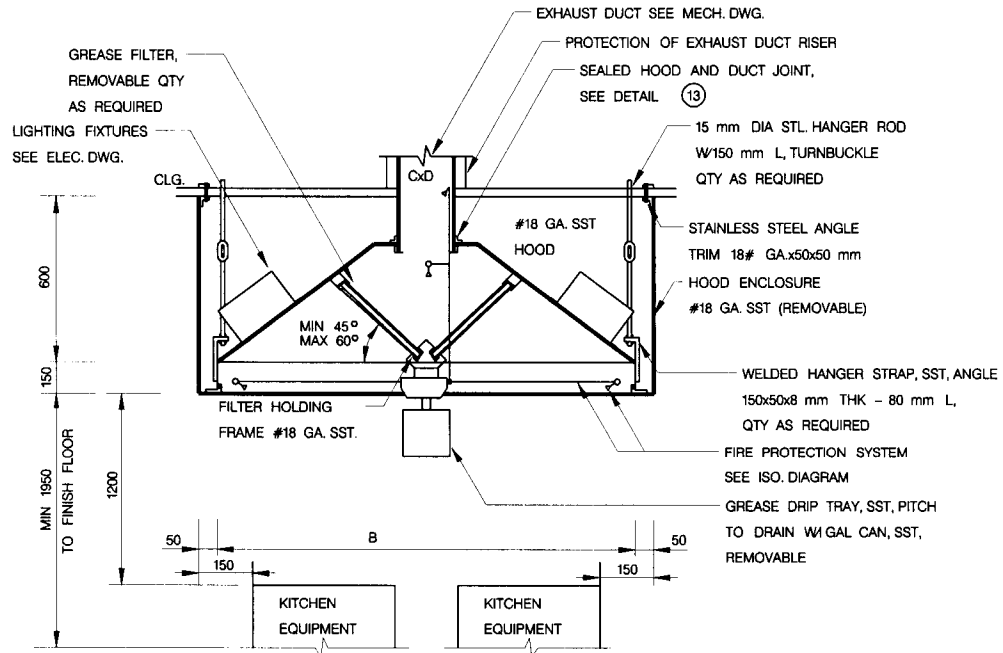
OCT 2003

M0007

CANOPY HOOD DETAILS



1 HOOD PLAN : KITCHEN EQUIPMENT LOCATED ON DOUBLE BANK AT CENTRAL LOCATION

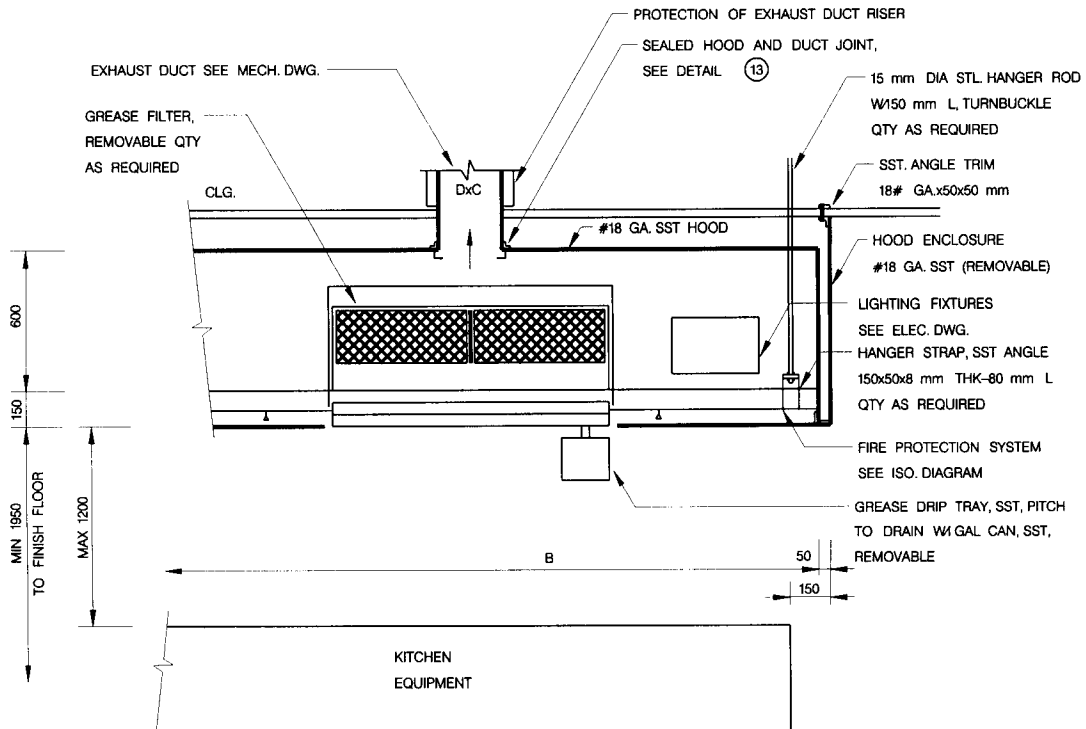


2 SECTION, "A-A"

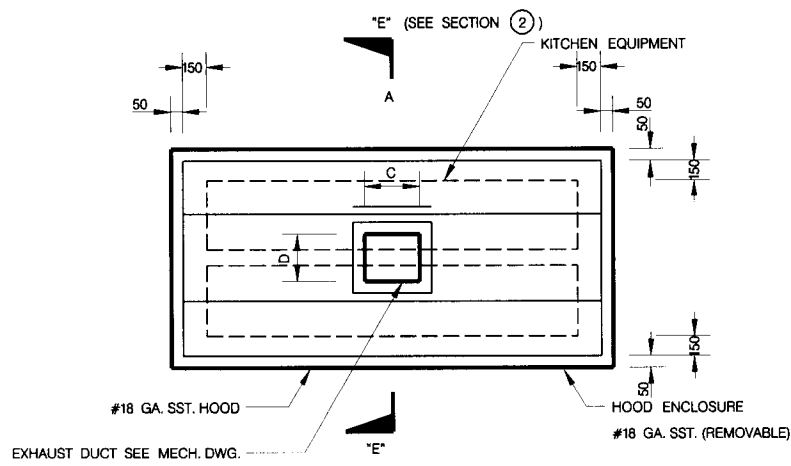
NOTES :

1. FACE VELOCITY OF GREASE FILTERS SHOULD NOT EXCEED 75 FPM.
2. KITCHEN HOOD VENTILATION SYSTEM CONFORM TO NFPA 96.

IMA - KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	KITCHEN HOOD DETAILS - CANOPY HOOD (1)	SPEC	11400	OCT 2003	M0101

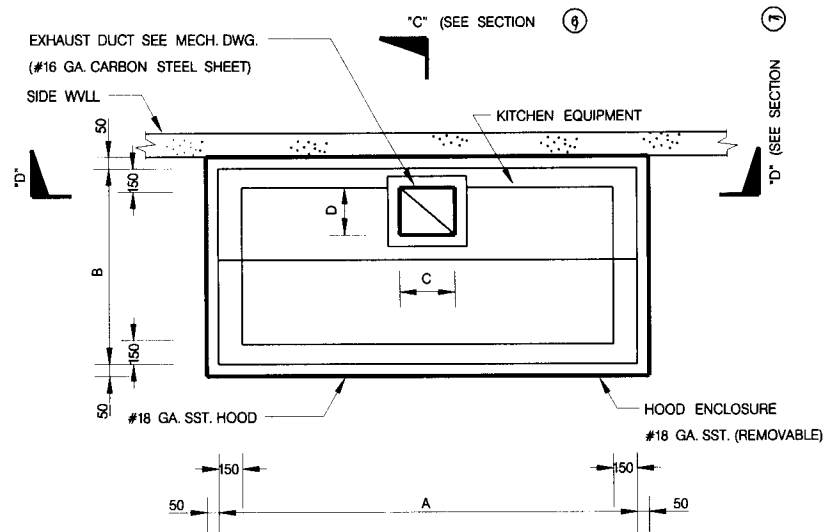


3 SECTION, "B-B"

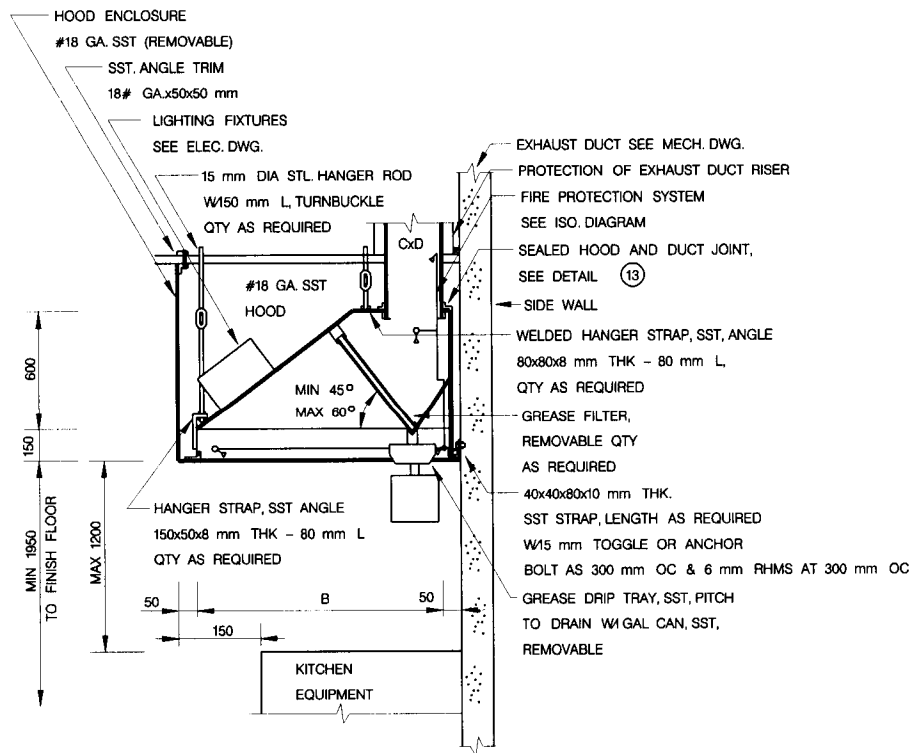


4 HOOD PLAN : STEAM TABLE, STEAM KETTLE
COFFEE URN, POT & PAN SINK

IMA - KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	KITCHEN HOOD DETAILS - CANOPY HOOD (2)	SPEC	11400	OCT 2003	M0102

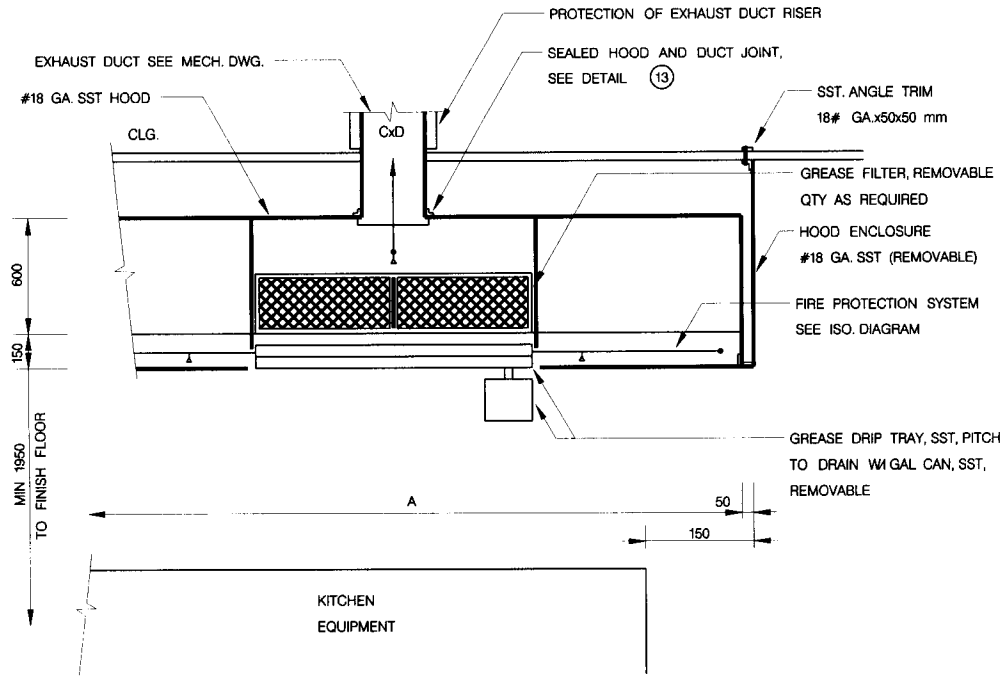


5 HOOD PLAN : KITCHEN EQUIPMENT LOCATED ON AGAINST WALL

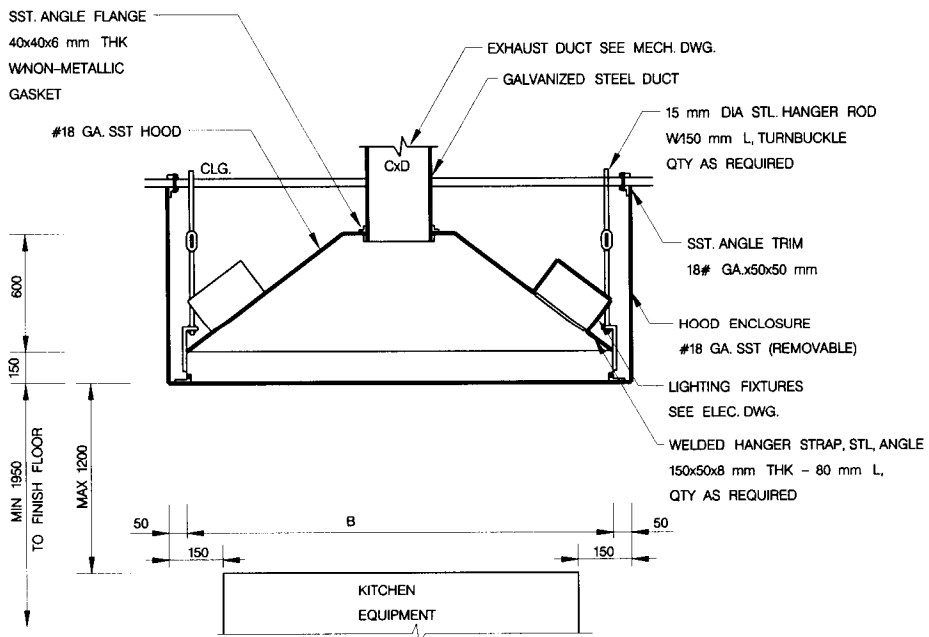


6 SECTION, "C-C"

IMA - KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	KITCHEN HOOD DETAILS - CANOPY HOOD (3)	SPEC	11400	OCT 2003	M0103

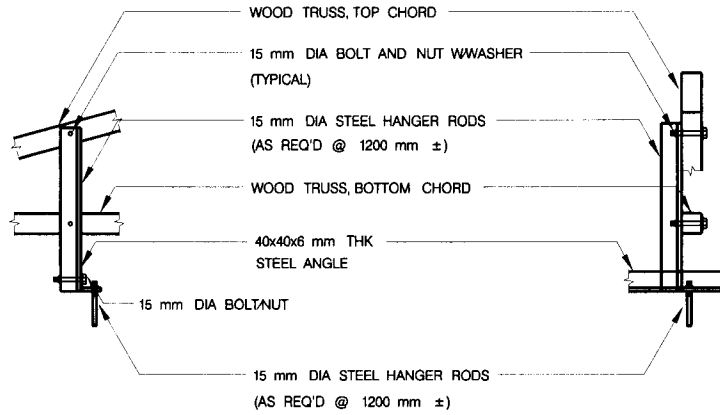


7 SECTION, "D-D"

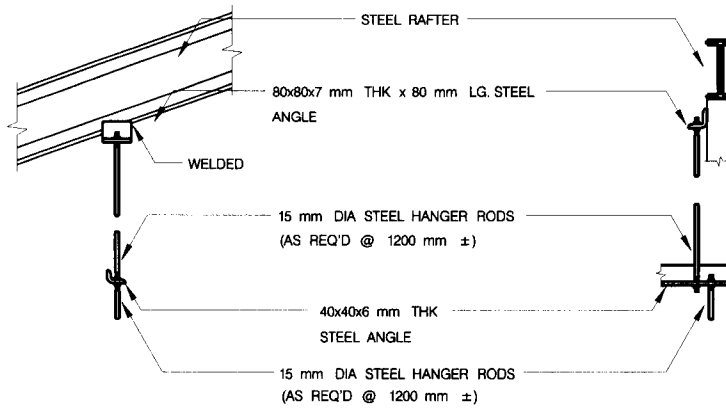


8 SECTION, "A-A"

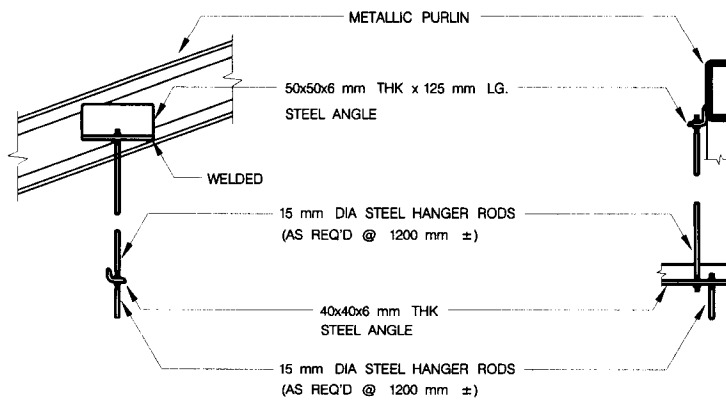
IMA - KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	KITCHEN HOOD DETAILS - CANOPY HOOD (4)	SPEC	11400	OCT 2003	M0104



9 HOOD HAGER FOR WOOD TRUSS

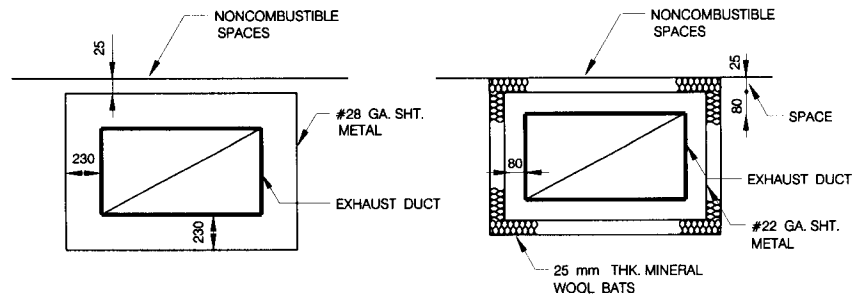


10 HOOD HAGER FOR STEEL RAFTER



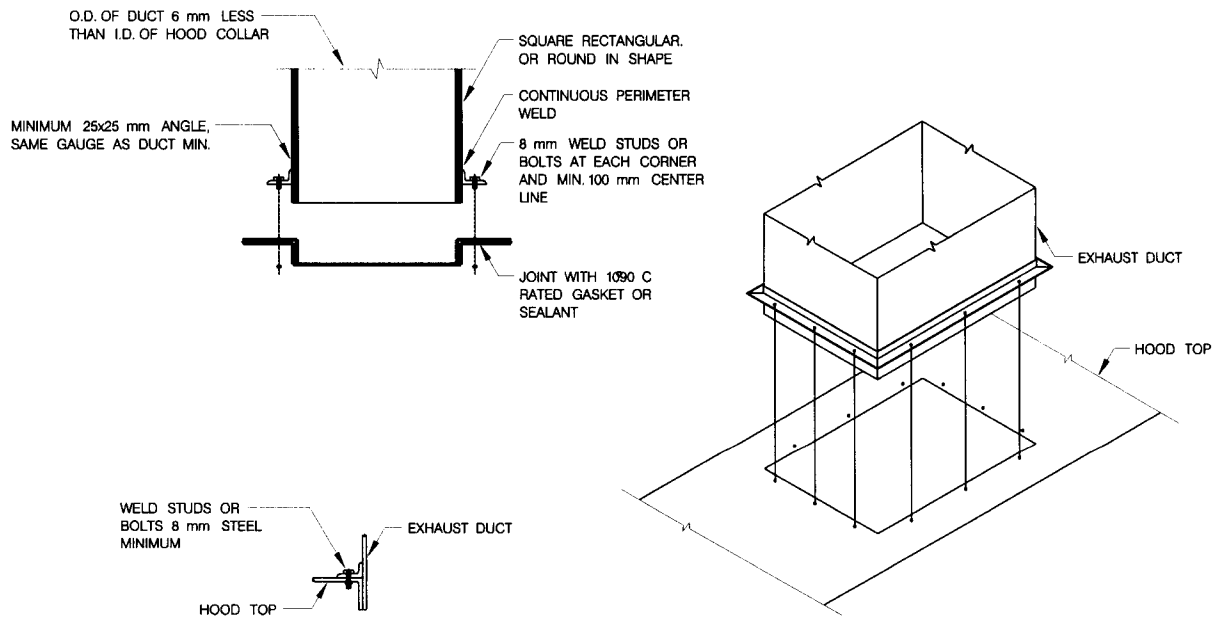
11 HOOD HAGER FOR METALLIC PURLIN

IMA - KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	KITCHEN HOOD DETAILS - CANOPY HOOD (5)	SPEC	11400	OCT 2003	M0105



12

PROTECTION DETAIL OF EXHAUST DUCT RISER

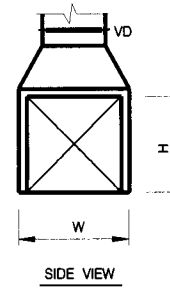
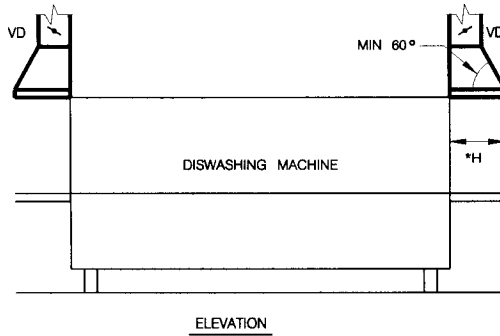
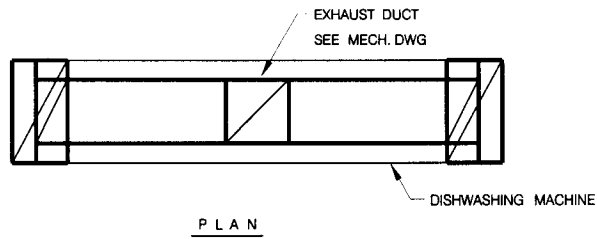


13

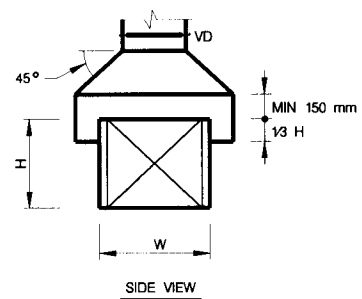
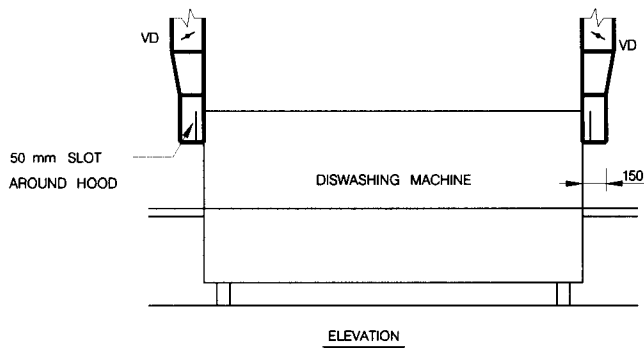
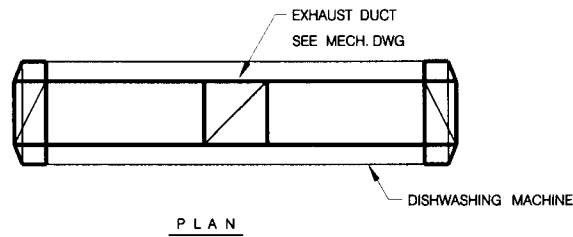
DETAIL OF SEALED HOOD/DUCT JOINT

IMA - KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	KITCHEN HOOD DETAILS - CANOPY HOOD (6)	SPEC	11400	MAY 2003	M0106

DISHWASHING VENTILATION HOOD/DUCT DETAILS



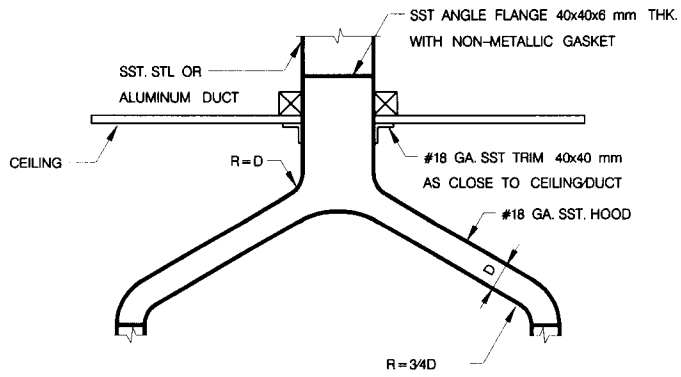
CANOPY HOOD TYPE



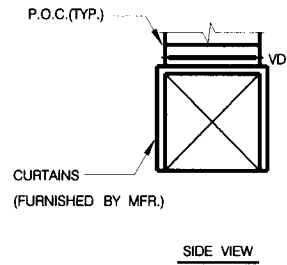
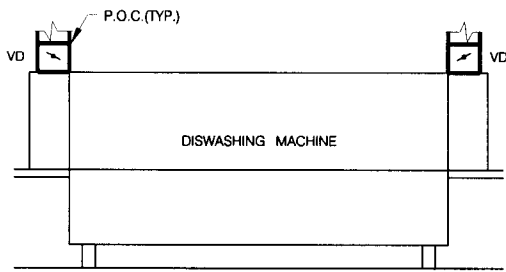
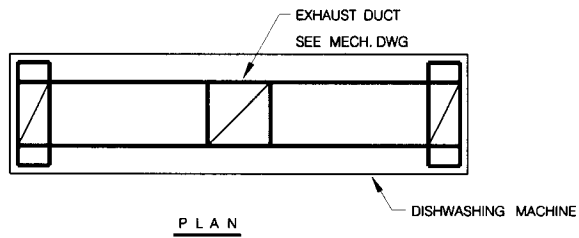
SLOT HOOD TYPE

NOTE : ALL DIMENSIONS FOR DUCT AND HOOD SHALL BE REFERED AS SPECIFIED IN THE INSTRUCTION OF DISHWASHER MANUFACTURER.

IMA – KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	KITCHEN HOOD DETAILS – DISHWASHING VENTILATOR (1)	SPEC	11400	OCT 2003	M0107



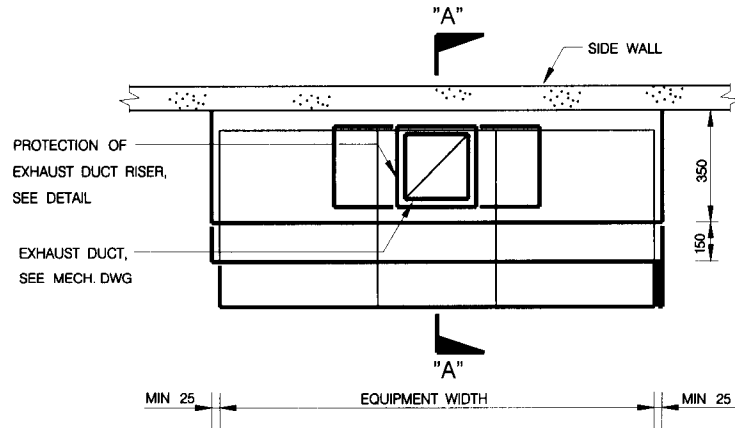
ELEVATION (GENERAL)



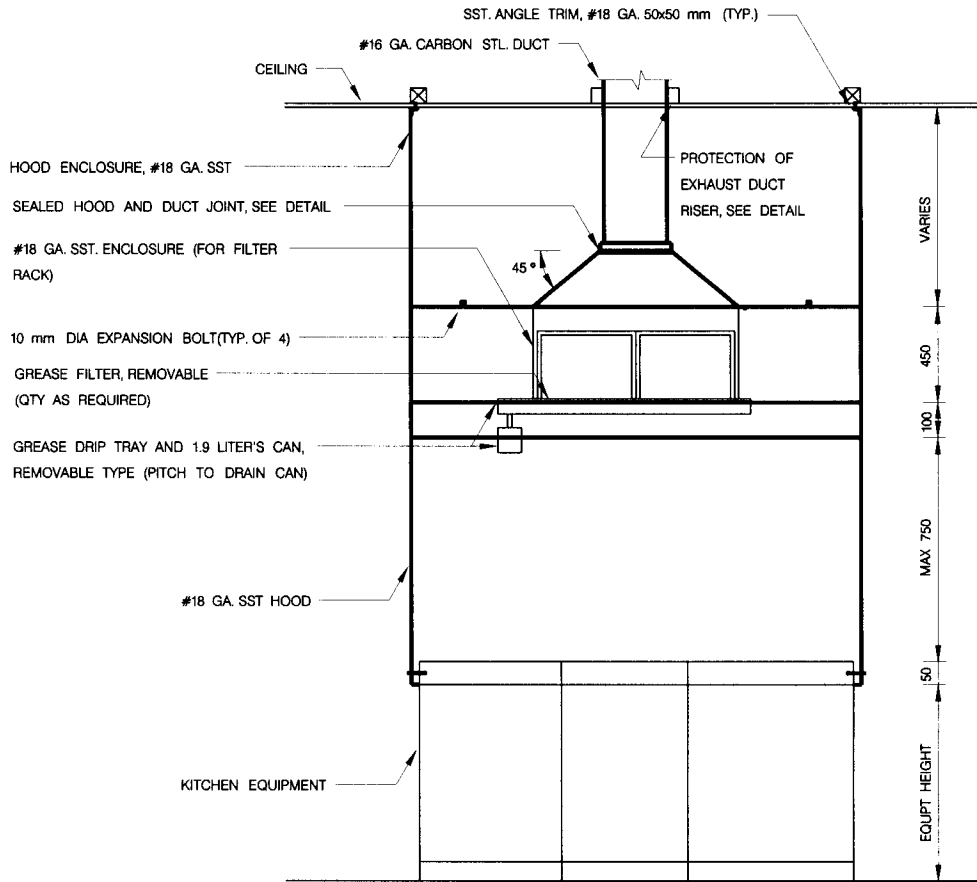
EXHAUST VESTIBLE TYPE

IMA - KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	KITCHEN HOOD DETAILS - DISHWASHING VENTILATOR (2)	SPEC	11400	OCT 2003	M0108

LOW SIDE WALL HOOD DETAILS

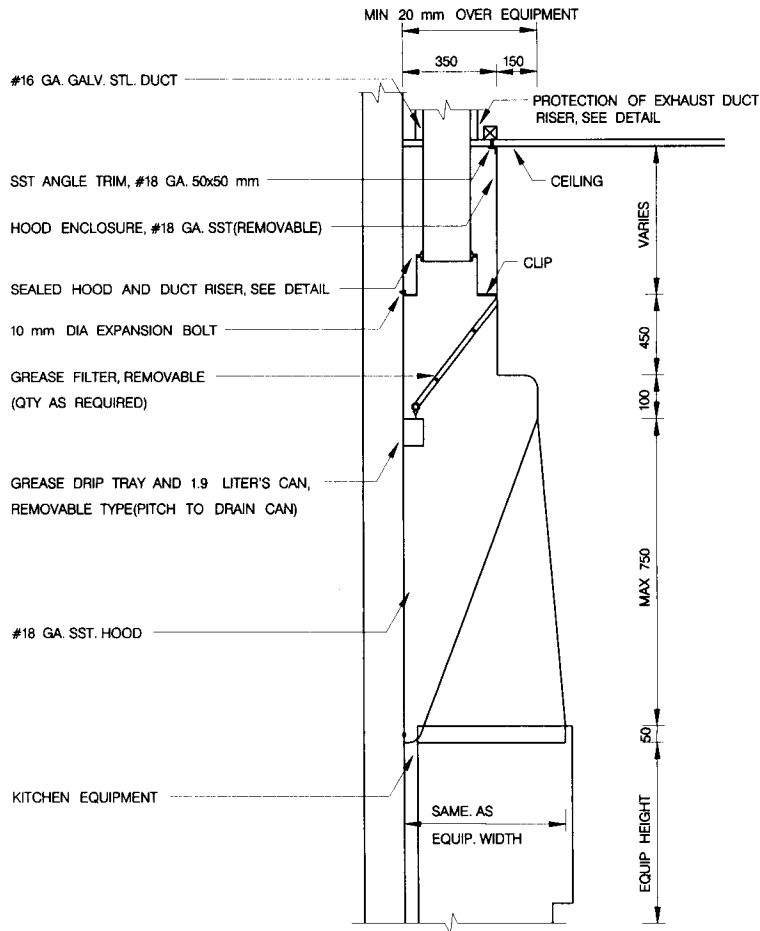


P L A N

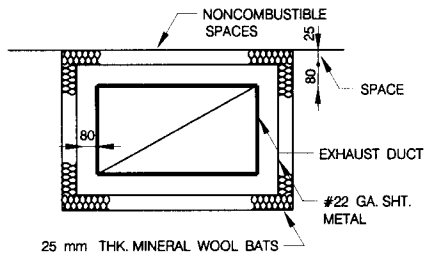
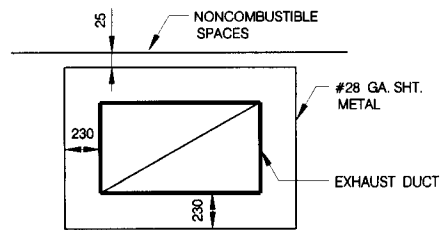


FRONT ELEVATION

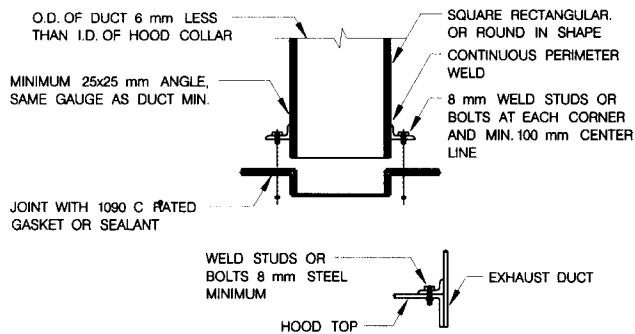
IMA - KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	KITCHEN HOOD DETAILS - LOW SIDE WALL (1)	SPEC	11400	OCT 2003	M0109



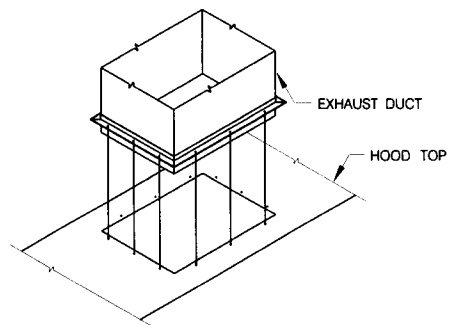
SECTION, "A-A"



PROTECTION DETAIL OF EXHAUST DUCT RISER



DETAIL OF SEALED HOOD/DUCT JOINT



IMA - KORO, REGIONAL ENGINEER SUPPORT CENTER

REV DATE

DWG NO.

TITLE

KITCHEN HOOD DETAILS - LOW SIDE WALL (2)

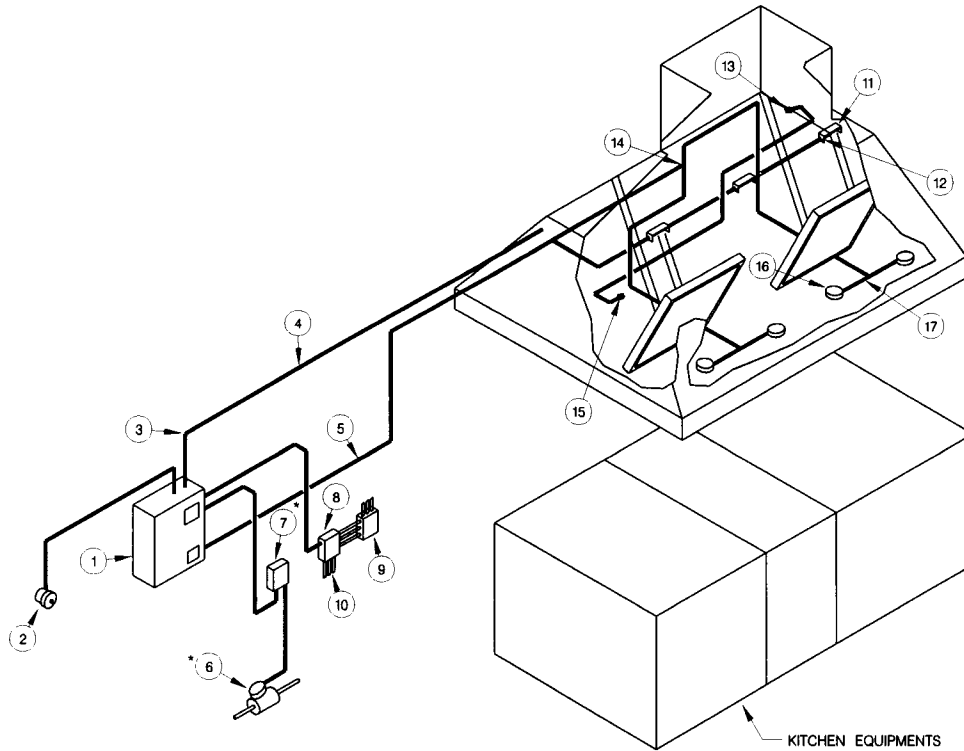
SPEC

11400

OCT 2003

M0110

DRY CHEMICAL FIRE EXTINGUISHING SYSTEM



REMARK : * ITEM USE ONLY GAS APPLIANCE EQUIPMENTS.

ITEM NO	I T E M
1	AUTOMATIC RELEASE ASSEMBLY AND DRY CHEMICAL CONTAINER
2	REMOTE MANUAL PULL STATION
3	PULLEY ELBOW
4	DETECTION LINE IN CONDUIT PIPE
5	DRY-CHEMICAL SUPPLY PIPE
6	ELECTRICAL GAS VALVE
7	CUT-OFF RELAY (MANUAL RESET RELAY)
8	CONTACTOR FOR ELECTRICAL APPLIANCES
9	POWER INPUT
10	POWER TO APPLIANCES
11	TERMINAL DETECTOR
12	FUSIBLE LINK, 360 F RATING
13	DUCT NOZZLE
14	DISTRIBUTION TEE
15	PLENUM NOZZLE
16	COOKING APPLIANCE NOZZLE
17	TEE

NOTES :

1. PIPING SHOWN ARE FOR GUIDANCE ONLY, CONTRACTOR SHALL MAKE NECESSARY ADJUSTMENT/REROUTING AS SPECIFIED BY THE EXHAUST HOOD MANUFACTURER.
2. DRY CHEMICAL FIRE EXTINGUISHING SYSTEM SHALL CONFORM TO NFPA 17.

IMA - KORO, REGIONAL ENGINEER SUPPORT CENTER

REV DATE

DWG NO.

TITLE KITCHEN HOOD DETAILS - DRY CHEMICAL FIRE EXTINGUISHING

SPEC

11400

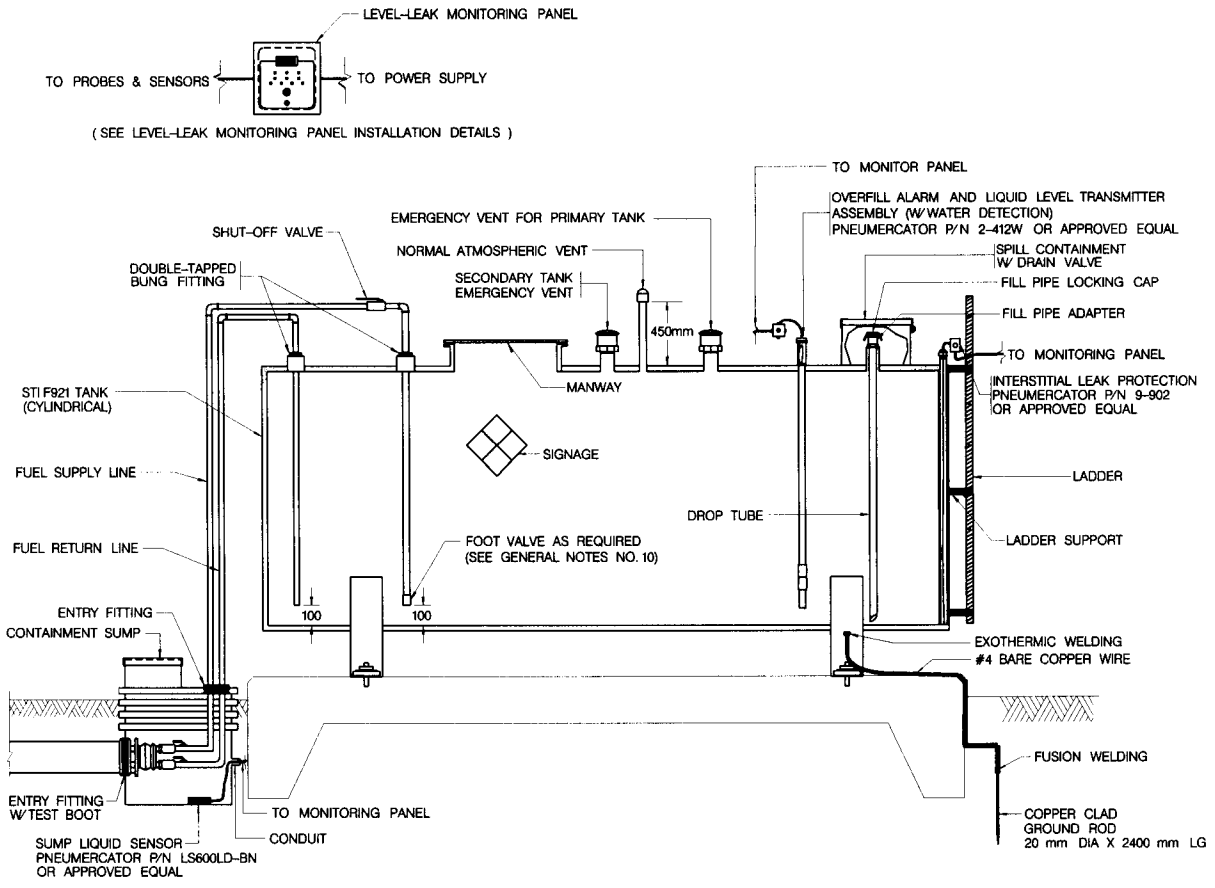
OCT 2003

M0111

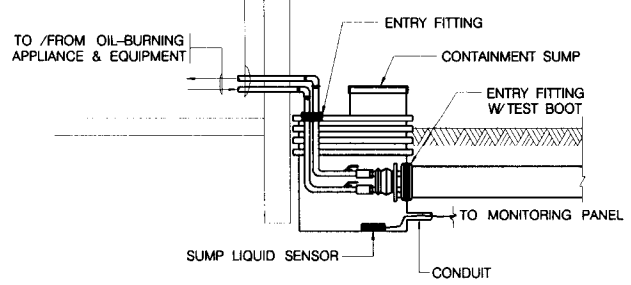
GENERAL NOTES FOR FUEL OIL SYSTEM

1. THE FUEL OIL SYSTEM SHALL BE DESIGNED, INSTALLED, TESTED AND CLEANED IN ACCORDANCE WITH THE REQUIREMENTS OF THE NFPA 30 & 31, O&MA STANDARD SPECIFICATIONS AND MANUFACTURER'S WRITTEN INSTRUCTIONS. THE CONTRACTOR SHALL PROVIDE SHOP DRAWINGS OF THE FUEL OIL SYSTEM FOR APPROVAL BEFORE COMMENCING CONSTRUCTION.
2. THE BARRIERS SHALL BE PROVIDED, AS INDICATED OR REQUIRED, AROUND TANKS TO PROTECT THE TANK AGAINST VEHICULAR COLLISION IN ACCORDANCE WITH PARA, 4.3.7.2 OF NFPA 30A (2000 EDITION)
3. TANKS SHALL BE CYLINDRICAL DOUBLE-WALL CONSTRUCTION. THE PRIMARY AND SECONDARY TANK SHALL BE MANUFACTURED IN ACCORDANCE WITH STEEL TANK INSTITUTE PUBLICATION NO. F-921. THE STORAGE TANKS AND SUPPORTS SHALL BE DELIVERED AS A COMPLETE UL LISTED UNIT. A LEGIBLE UL 142 AND STI F921 LABELS SHALL BE AFFIXED TO THE TANKS.
4. PROVIDE ONE (1) TANK MANWAY FOR TANKS, 3,785 LITERS AND LARGER AND TWO (2) TANK MANWAYS FOR TANKS LARGER THAN 18,927 LITERS. TANK MANWAY SHALL BE PROVIDED WITH A MANWAY COVER AND AN INTERIOR TANK LADDER.
5. AN EXTERNAL LADDER SHALL BE PROVIDED TO ALLOW ACCESS TO TOP OF TANK FOR FILLING AND MAINTENANCE THAT COMPLIES WITH APPLICABLE OSHA STANDARD AND BUILDING CODES.
6. ABOVEGROUND PIPING SHALL BE STEEL. UNDERGROUND PIPING SHALL BE OF FLEXIBLE, SECONDARILY CONTAINED THAT IS DESIGNED AND LISTED IN COMPLIANCE WITH UL 971 AND NFPA 30. INSTALLATION SHALL BE PERFORMED BY INDIVIDUALS TRAINED BY THE MANUFACTURER.
7. DETECTABLE ALUMINUM FOIL PLASTIC-BAKCED TAPE OR DETECTABLE MAGNETIC PLASTIC TAPE SHALL BE PROVIDED FOR WARNING AND IDENTIFICATION OF BURIED PIPING.
8. THE PRESSURE AT THE OIL SUPPLY INLET TO BURNER OIL PUMPS SHALL NOT BE GREATER THAN 20 kPa, UNLESS THE PUMPS ARE APPROVED FOR A HIGHER INLET PRESSURE. THE VACUUM READING ON THE FUEL UNITS SHALL BE NO MORE THAN 34 kPa (10" HG) FOR SINGLE-STAGE PUMP AND 50 kPa (15" HG) FOR TWO-STAGE PUMP.
9. WHEN THE BOTTOM OF OIL TANK IS ABOVE THE BURNER LEVEL, SIGNLE SUPPLY AND RETURN LINE SHALL BE PROVIDED FOR SINGLE OR MORE BURNER(S). (SEE BURNER PIPING DETAIL #1 IN M0204)
10. WHEN THE BOTTOM OF OIL TANK IS BELOW THE BURNER LEVEL, A SEPARATE SUPPLY AND RETURN LINE SHALL BE PROVIDED. FOR TWO OR MORE BURNERS, INDIVIDUAL SUCTION LINES WITH A COMMON RETURN LINE SHALL BE PROVIDED. (SEE BURNER PIPING DETAIL #2 IN M0204) FOOT VALVE(S) SHALL BE PROVIDED AT THE TERMINATION OF THE SUCTION LINE(S) WITHIN A STORAGE TANK
11. PROVIDE ALL ASSOCIATED CONDUITS AND WIRING TIED INTO THE LEVEL-LEAK MONITORING PANEL. THE MONITORING PANEL SHALL BE LOCATED SO THAT THE PERSON FILLING THE TANK CAN HEAR THE ALARM AND HALT THE TANK FILLING PROCEDURE.
12. THE TANKS SHALL BE SEPARATED FROM THE NEAREST LINE OF ADJOINING PROPERTY BY THE MINIMUM DISTANCE OF 3 METERS.

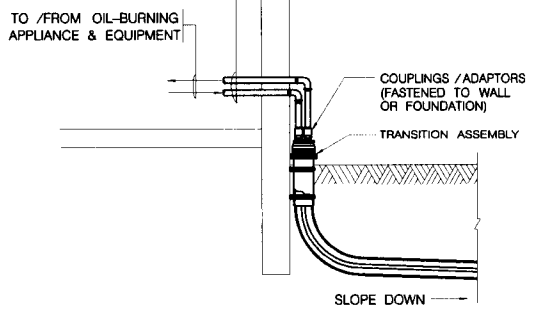
IMA - KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	FUEL STORAGE SYSTEM - GENERAL NOTES	SPEC	13202	OCT 2003	M0201



NOTE
UNLESS OTHERWISE INDICATED, ROUTE FUEL OIL LINE(S) INSIDE THE MECHANICAL ROOM ALONG THE INTERIOR WALLS TO AVOID OBSTRUCTIONS CAUSED BY PIPE LINE(S) FOR SAFETY PURPOSES.



OPTION "A"

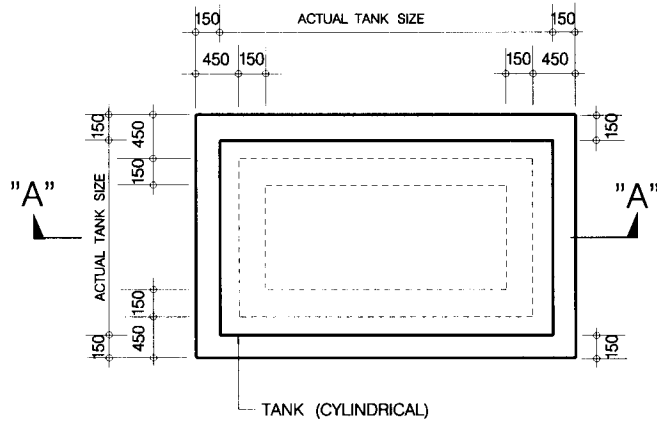


OPTION "B"

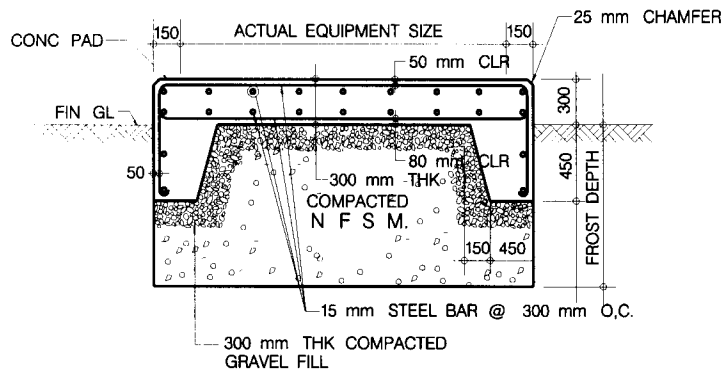
- NOTES :**
1. ALL UNDERGROUND PIPING SHALL BE CONTINUOUSLY SLOPED TO SUMPS.
 2. SUMPS SHALL BE PROVIDED AT ALL LOW POINTS, ALL JOINTS AND CONNECTIONS OF UNDERGROUND PIPING.

FUEL OIL SYSTEM INSTALLATION DETAIL

IMA - KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	FUEL STORAGE SYSTEM - TANK & UNDERGROUND PIPING	SPEC	13202	OCT 2003	M0202



P L A N



S E C T I O N "A" - "A"

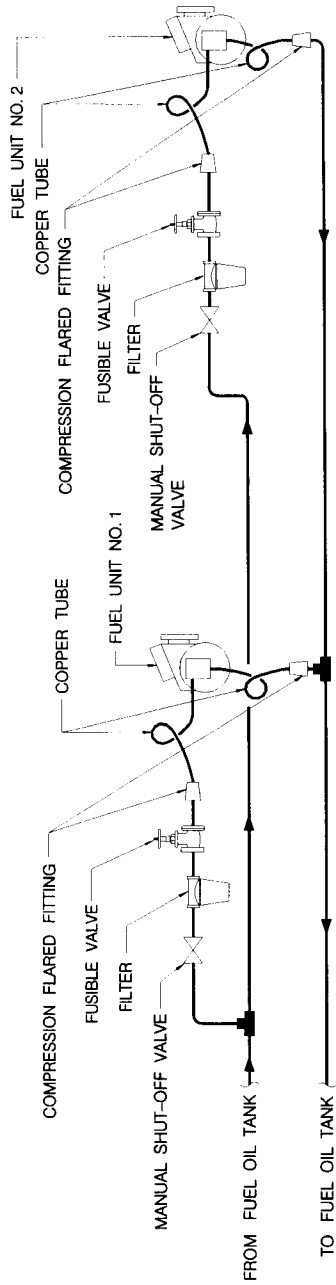
LOCATION	FROST DEPTH (mm)
TONGDUCHON (CP CASEY)	1,200
MUNSAN (CP GIANT)	1,200
UIJONGBU (CP RED CLOUD)	1,200
CHUNCHON (CP PAGE)	1,200
YONGSAN	1,200
PYONGTAEK (CP HUMPHREYS)	1,050
WONJU (CP LONG)	1,050
TAEGU	900
WAEGWAN	900
PUSAN	600

NOTES :

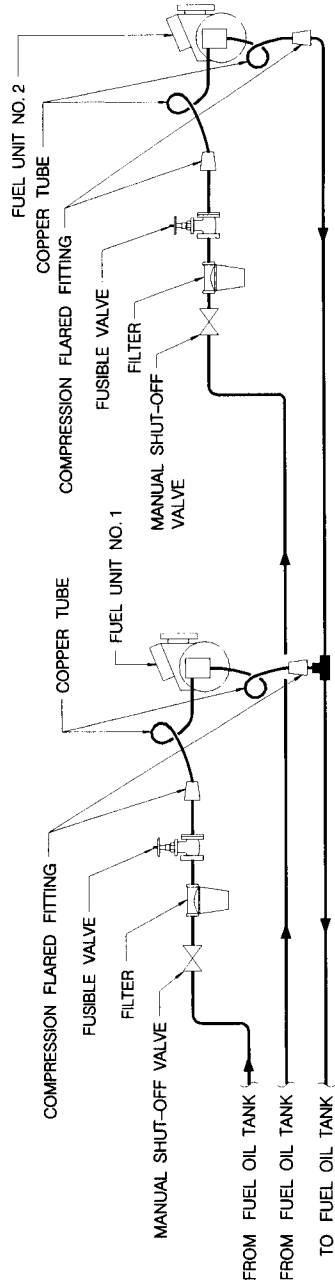
1. THE FOUNDATION SHALL BE SUITABLE TO SUPPORT THE TANK PLUS 100% OF ITS CONTENTS WHEN FULL.
2. CONCRETE COMPRESSIVE STRENGTH (@ 28 DAYS) SHALL BE NOT LESS THAN 210 kg/cm².
3. REINFORCING BARS SHALL CONFORM TO ASTM A 615, GRADE 40 OR KS D 3504, CLASS 3.
4. ANCHOR BOLTS SHALL CONFORM TO ASTM A 325, A 490 OR KS B 1010 INCLUDING NUTS & WASHERS.

CONCRETE FOUNDATION DETAIL

IMA - KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	FUEL STORAGE SYSTEM - CONCRETE FOUNDATION	SPEC	13202	MAY 2003	M0203



BURNER PIPING DETAIL #1



BURNER PIPING DETAIL #2

BURNER PIPING DETAIL

IMA - KORO, REGIONAL ENGINEER SUPPORT CENTER

REV DATE

DWG NO.

TITLE

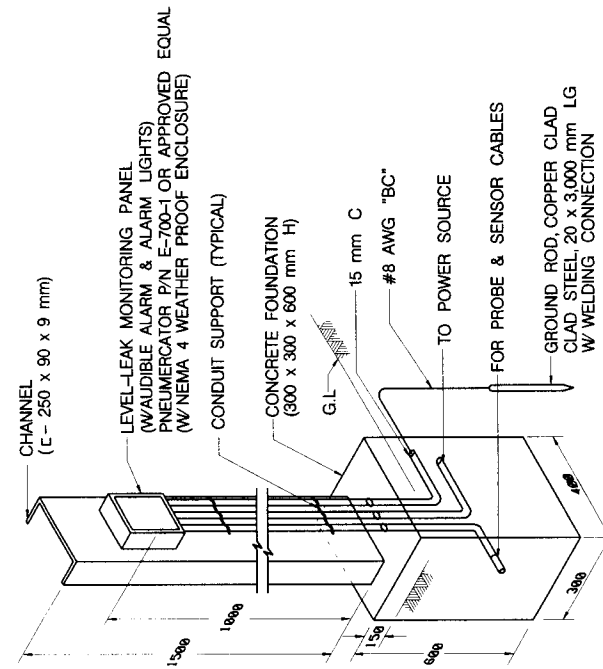
FUEL STORAGE SYSTEM - BURNER PIPING

SPEC

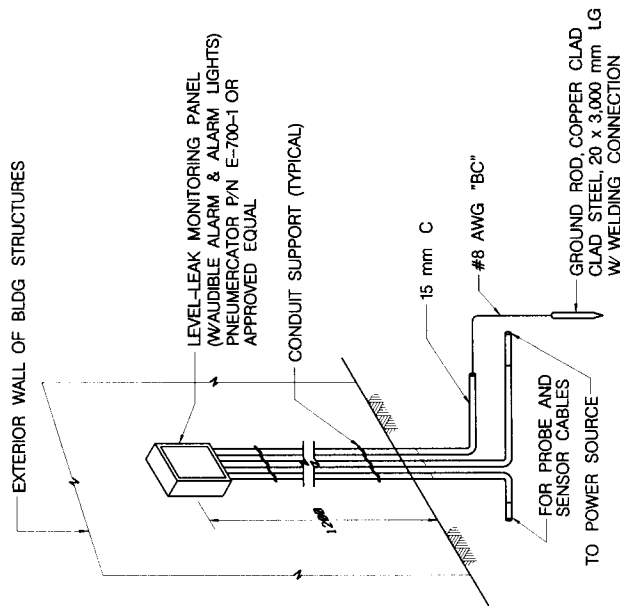
13202

MAY 2003

M0204



CHANNEL MOUNTED TYPE



WALL MOUNTED TYPE

LEVEL-LEAK MONITORING PANEL INSTALLATION DETAIL

IMA - KORO, REGIONAL ENGINEER SUPPORT CENTER

REV DATE

DWG NO.

TITLE

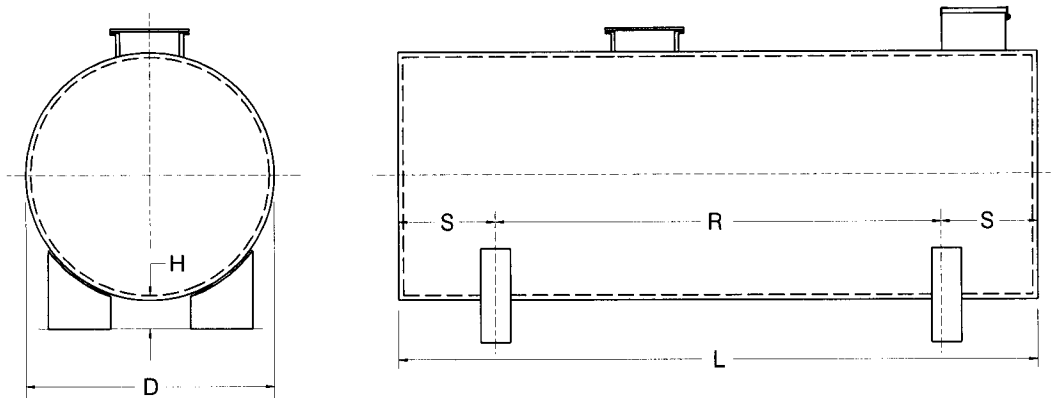
FUEL STORAGE SYSTEM - OIL LEVEL / LEAK MONITORING

SPEC

13202

MAY 2003

M0205



STANDARD DOUBLE-WALL HORIZONTAL TANK SPECIFYING SCHEDULE (mm)

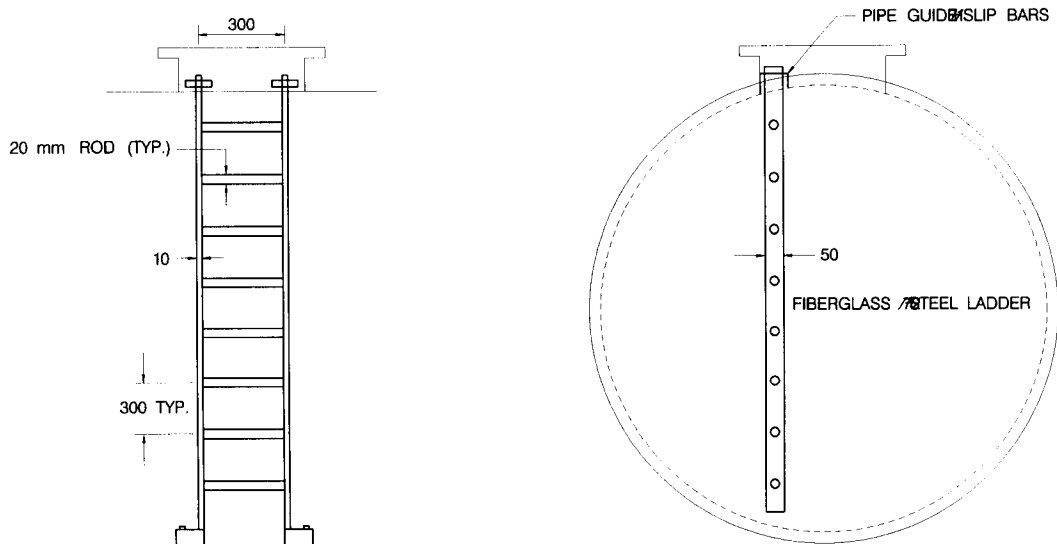
CAPACITY LITER (GAL)	DIAMETER (D)	LENGTH (L)	GAUGE / THICKNESS				SADDLE INFORMATION			INNER TANK E-VENT	OUTER TANK E-VENT	
			INNER SHELL	INNER HEADS	OUTER SHELL	OUTER HEADS	NO. REQ.	S	R			H
2,000 (550)	1,200	1,800	12 GA.	12 GA.	12 GA.	12 GA.	2	300	1,200	80	100 N.P.T	100 N.P.T
3,700 (1,000)	1,600	1,800	10 GA.	10 GA.	10 GA.	10 GA.	2	400	1,000	100	100 N.P.T	100 N.P.T
5,600 (1,500)	1,600	2,700	7 GA.	7 GA.	7 GA.	7 GA.	2	400	1,900	100	150 N.P.T	150 N.P.T
7,500 (2,000)	1,600	3,600	7 GA.	7 GA.	7 GA.	7 GA.	2	400	2,800	100	150 N.P.T	150 N.P.T
9,400 (2,500)	1,600	4,500	7 GA.	7 GA.	7 GA.	7 GA.	2	400	3,700	100	150 N.P.T	150 N.P.T
11,300 (3,000)	1,600	5,400	7 GA.	7 GA.	7 GA.	7 GA.	2	400	4,600	100	150 N.P.T	150 N.P.T
15,100 (4,000)	2,100	4,200	7 GA.	7 GA.	7 GA.	7 GA.	2	525	3,150	150	150 N.P.T	150 N.P.T
19,600 (5,200)	2,400	4,200	100	100	7 GA.	100	2	600	3,000	150	150 N.P.T	150 N.P.T
22,700 (6,000)	2,400	4,800	100	100	7 GA.	100	2	600	3,600	150	200 N.P.T	200 N.P.T
30,200 (8,000)	2,400	6,450	100	100	7 GA.	100	2	600	5,250	150	200 N.P.T	200 N.P.T
37,800 (10,000)	2,400	8,100	100	100	7 GA.	100	2	600	6,900	150	200 N.P.T	200 N.P.T
45,400 (12,000)	2,400	9,600	100	100	7 GA.	100	2	600	8,400	150	200 N.P.T	200 N.P.T

NOTES :

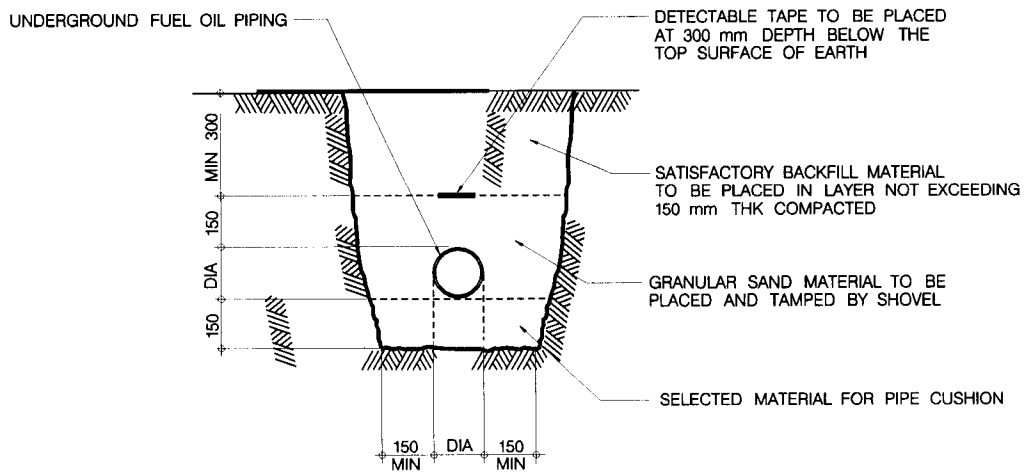
1. ALL SIZES AND DIMENSIONS ARE NOMINAL, DEPENDING ON MANUFACTURER'S RECOMMENDATIONS.
2. TANK ANCHORING SHALL BE IN ACCORDANCE WITH MANUFACTURER'S RECOMMENDATIONS.

FUEL OIL TANK SPECIFYING SCHEDULE

IMA - KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	FUEL STORAGE SYSTEM - TANK SPECIFYING SCHEDULE	SPEC	13202	MAY 2003	M0206



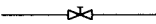
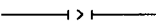















INTERIOR TANK LADDER DETAIL



PIPING TRENCH DETAIL (TYP.)

IMA - KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	FUEL STORAGE SYSTEM - INTERIOR TANK LADDER & PIPING TRENCH	SPEC	13202	MAY 2003	M0207

TYPICAL LEGEND FOR FIRE PROTECTION SYSTEM

	GATE, GLOBE OR BALL VALVE
	CHECK VALVE (FLOW)
	ANGLE VALVE
	STRAINER
	DRIP CHECK VALVE
	RESTRICTED ORIFICE
	FILL CUP
	PRESSURE GAUGE
	SOLENOID VALVE
	ECCENTRIC REDUCER
	CONCENTRIC REDUCER
	FLEXIBLE PIPE CONNECTION
	RELAY
	HOSE VALVE
	TEST HEADER
	SMOKE DAMPER
	WATER MOTOR GONG

IMA - KORO, REGIONAL ENGINEER SUPPORT CENTER

REV DATE

DWG NO.

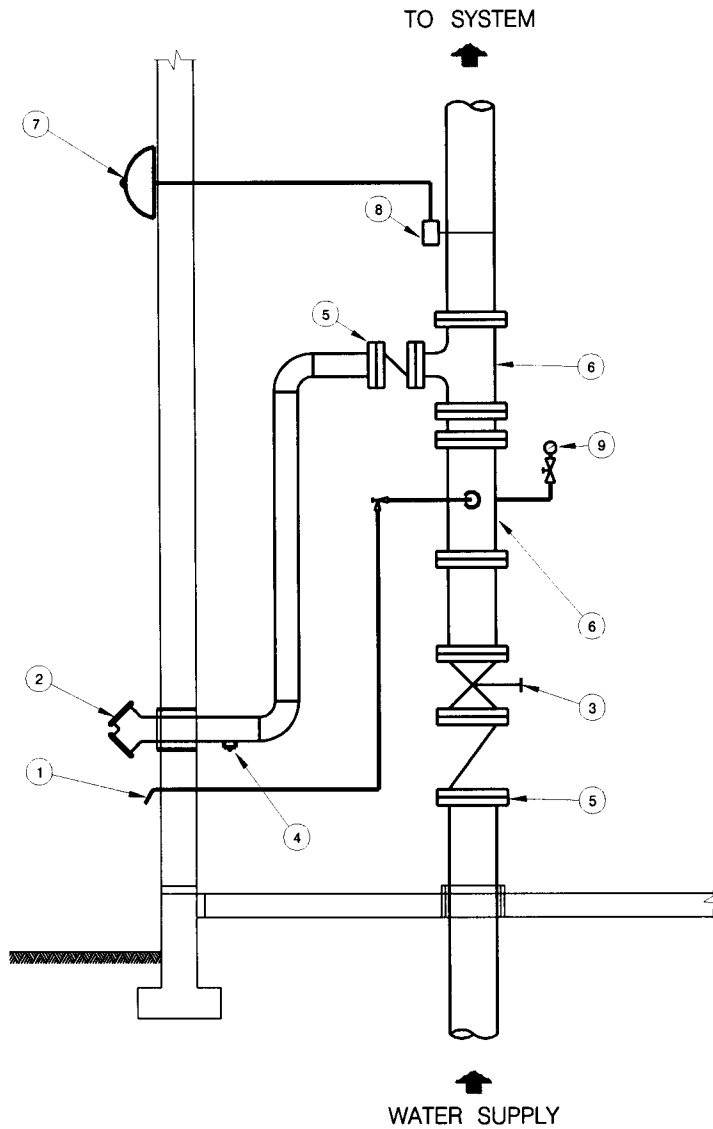
TITLE FIRE SPRINKLER DETAILS - TYPICAL LEGEND

SPEC

139XX

OCT 2003

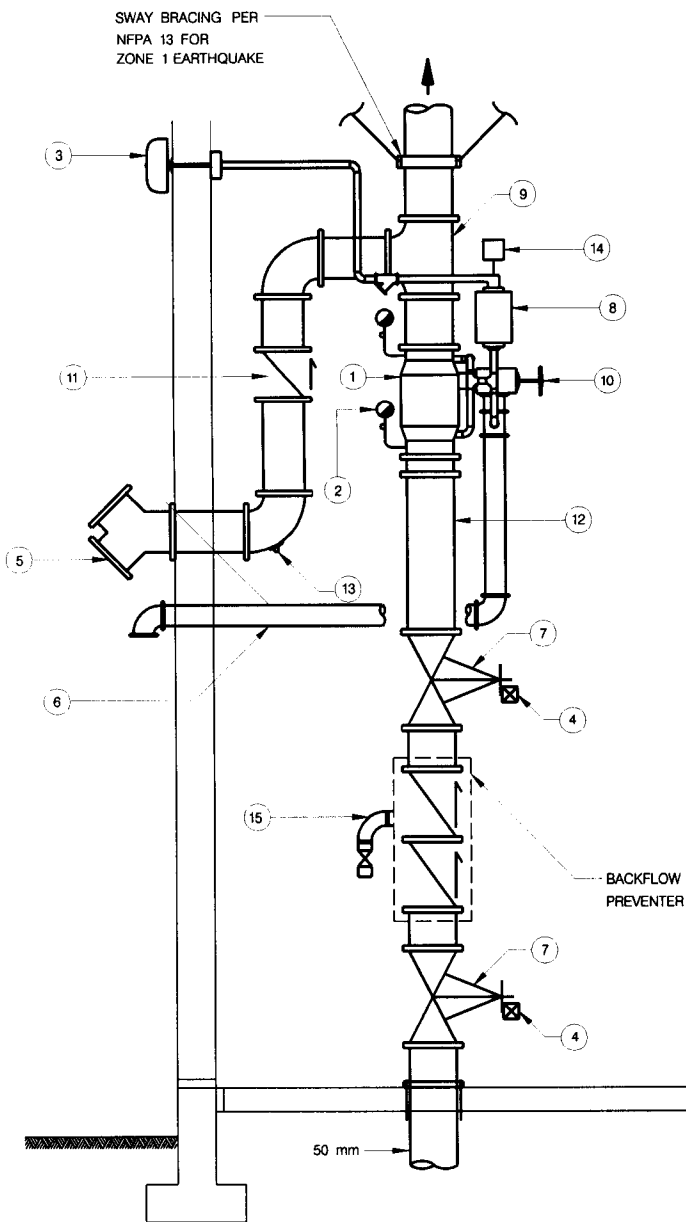
M0301



RING NO.	D E S C R I P T I O N
1	MAIN DRAIN
2	FIRE DEPARTMENT CONNECTION
3	O.S. & Y VALVE (WITH MONITOR SWITCH)
4	BALL DRIP
5	CHECK VALVE
6	TEE CONNECTION
7	ELECTRIC ALARM VALVE
8	WATER FLOW INDICATOR
9	WATER GAUGE

WET PIPE SPRINKLER SYSTEM (FLOW INDICATOR)

IMA - KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	FIRE SPRINKLER DETAILS - WET PIPE SPRINKLER (FLOW INDICATOR)	SPEC	139XX	OCT 2003	M0302



ITEM	DESCRIPTION
①	ALARM CHECK VALVE
②	PRESSURE GAGE (2-REQUIRED)
③	WATER MOTOR ALARM GONG
④	TAMPER SWITCH
⑤	FIRE DEPARTMENT CONNECTION
⑥	MAIN DRAIN
⑦	OS & Y GATE VALVE (WITH MONITOR SWITCH)
⑧	RETARDING CHAMBER
⑨	TEE CONNECTION
⑩	MAIN DRAIN VALVE
⑪	CHECK VALVE
⑫	RISER TO SPRINKLER SYSTEM
⑬	BALL DRIP
⑭	PRESSURE SWITCH
⑮	20 mm DRAIN

WET PIPE SPRINKLER SYSTEM (ALARM VALVE)

IMA - KORO, REGIONAL ENGINEER SUPPORT CENTER

REV DATE

DWG NO.

TITLE

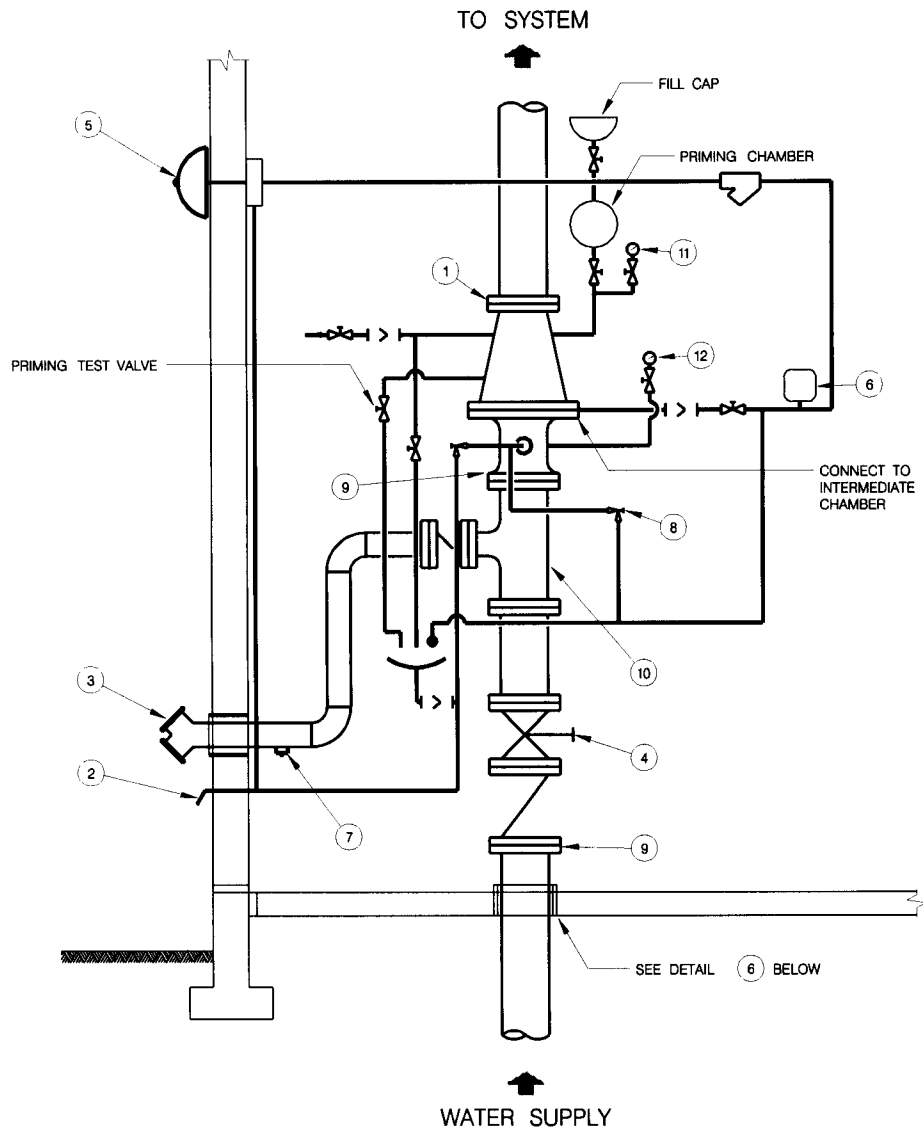
FIRE SPRINKLER DETAILS - WET PIPE SPRINKLER (ALARM VALVE)

SPEC

139XX

OCT 2003

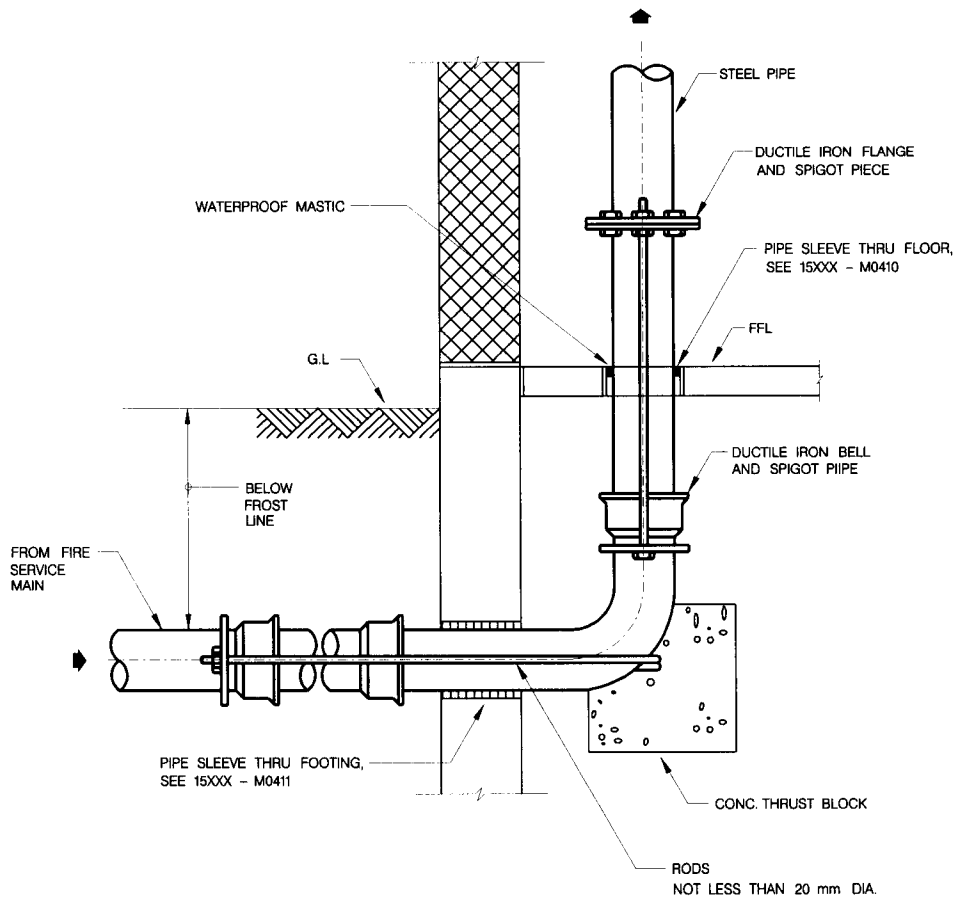
M0303



RING NO.	DESCRIPTION
1	DRY PIPE VALVE
2	MAIN DRAIN
3	FIRE DEPARTMENT CONNECTION
4	O.S. & Y VALVE (WITH MONITOR SWITCH)
5	WATER MOTOR ALARM
6	PRESSURE SWITCH
7	BALL DRIP
8	ALARM TEST VALVE
9	CHECK VALVE
10	TEE CONNECTION
11	AIR GAUGE
12	WATER GAUGE

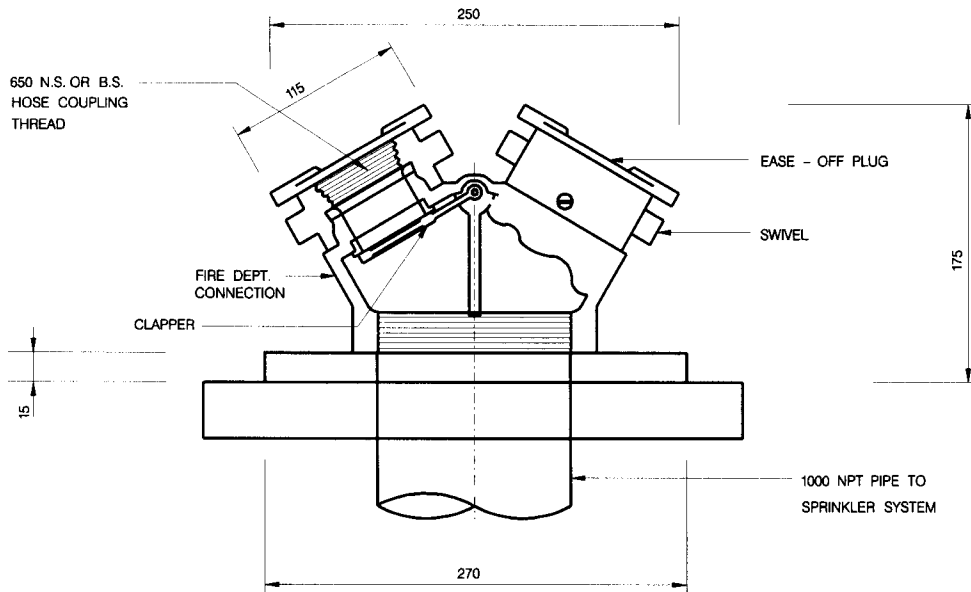
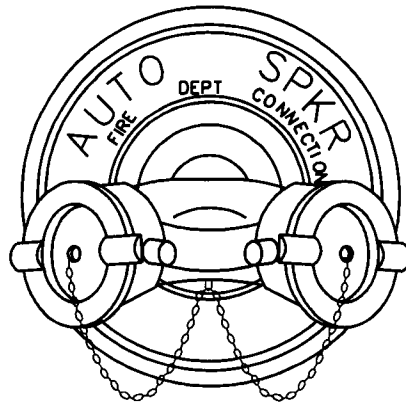
DRY PIPE SPRINKLER SYSTEM

IMA - KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	FIRE SPRINKLER DETAILS - DRY PIPE SPRINKLER	SPEC	139XX	OCT 2003	M0304



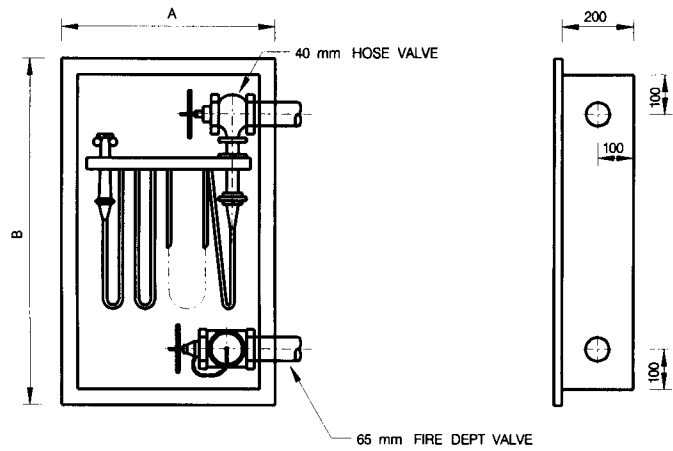
MAIN RISER CONNECTION

IMA - KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	FIRE SPRINKLER DETAILS - MAIN RISER CONNECTION	SPEC	139XX	OCT 2003	M0305



FIRE DEPT SIAMESE CONNECTION

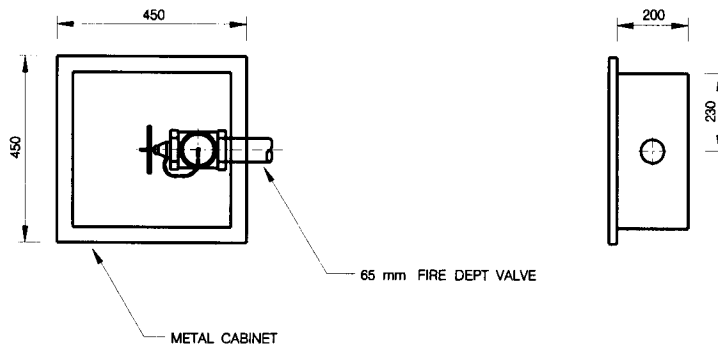
IMA - KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	FIRE SPRINKLER DETAILS - FIRE DEPARTMENT CONNECTION	SPEC	139XX	OCT 2003	M0306



CLASS	DIM.	
	A (mm)	B (mm)
22.5 m HOSE	600	965
30.0 m HOSE	660	965

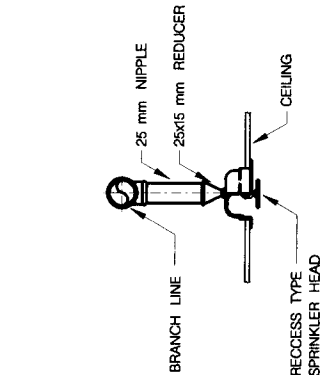
NOTE : UNIT CONSISTS OF ONE HOSE RACK WITH HOSE
AND A 65 mm FIRE SEPT VALVE

FIRE HOSE CABINET W FIRE DEPT VALVE

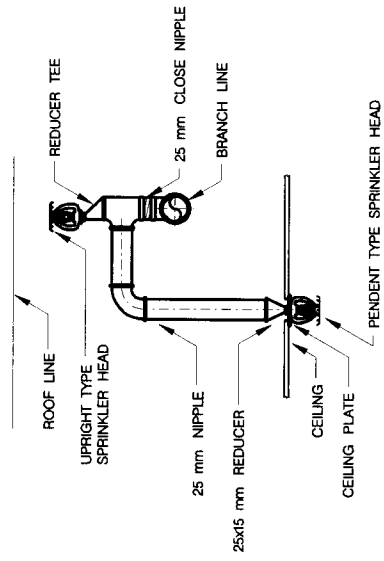


FIRE DEPT VALVE IN STAIRWELL

IMA - KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	FIRE SPRINKLER DETAILS - FIRE HOSE CABINET & FIRE DEPARTMENT VALVE	SPEC	139XX	OCT 2003	M0307

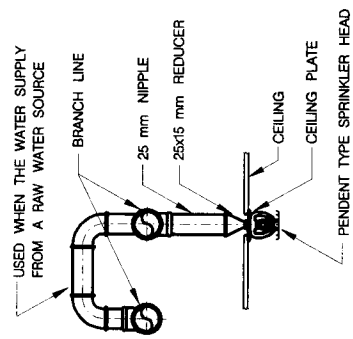


CEILING RECESSED



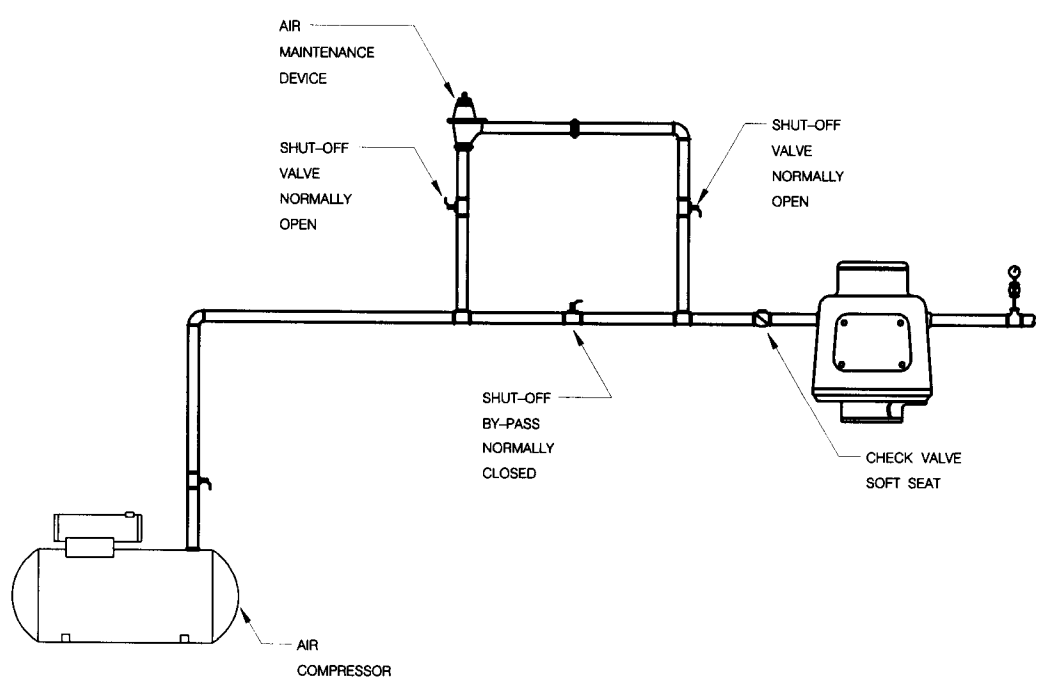
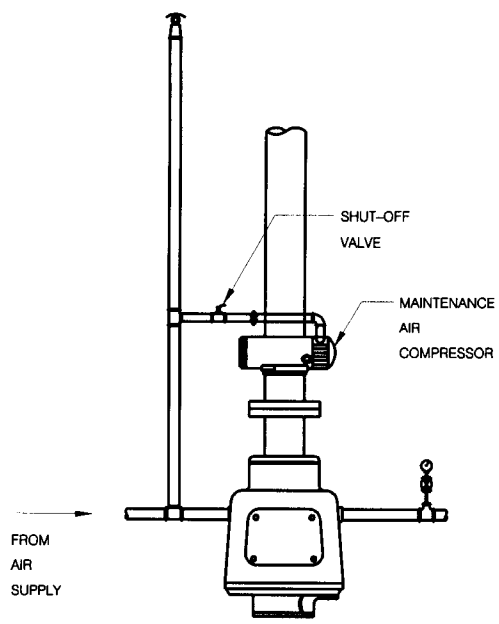
CONCEALED SPACE/BELOW CLG.

INSTALL OF SPRINKLER HEAD



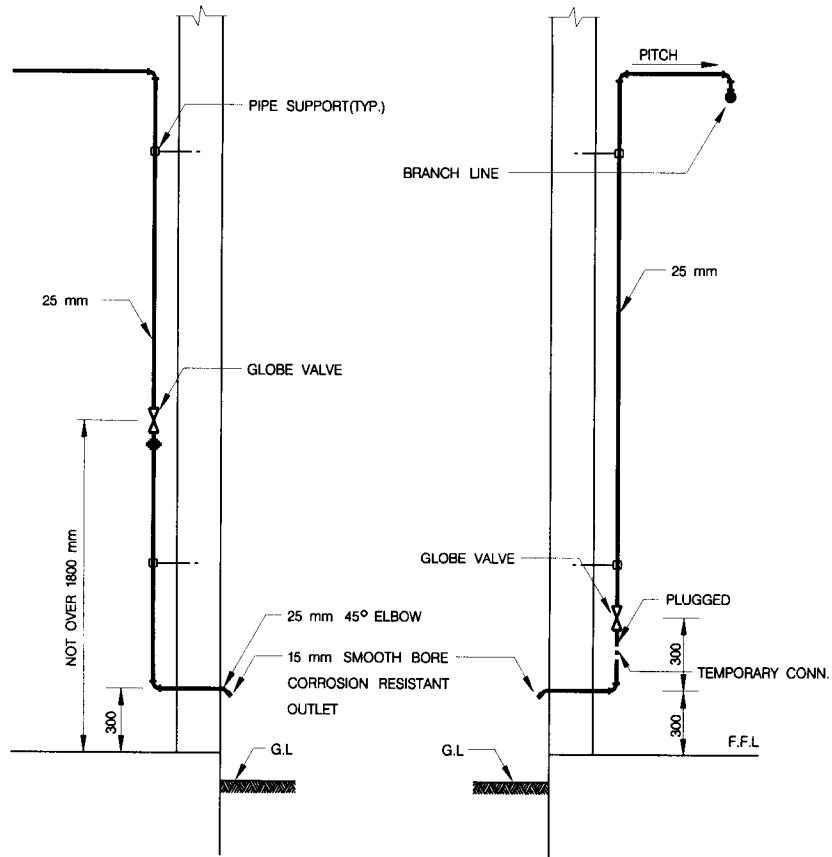
BELOW CEILING

IMA - KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	FIRE SPRINKLER DETAILS - SPRINKLER HEADS INSTALLATION	SPEC	139XX	OCT 2003	M0308



AIR SUPPLY FOR DRY SYSTEM

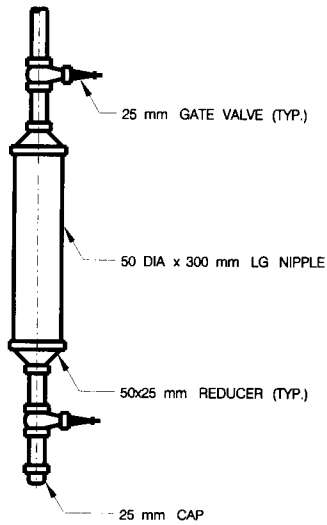
IMA - KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	FIRE SPRINKLER DETAILS - AIR SUPPLY FOR DRY SYSTEM	SPEC	139XX	OCT 2003	M0309



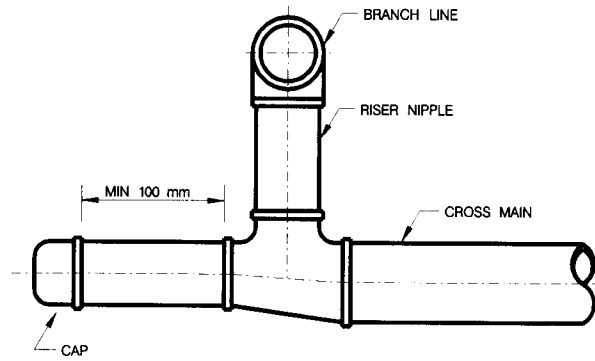
FOR WET SYSTEM

FOR DRY SYSTEM

INSPECTION TEST PIPE

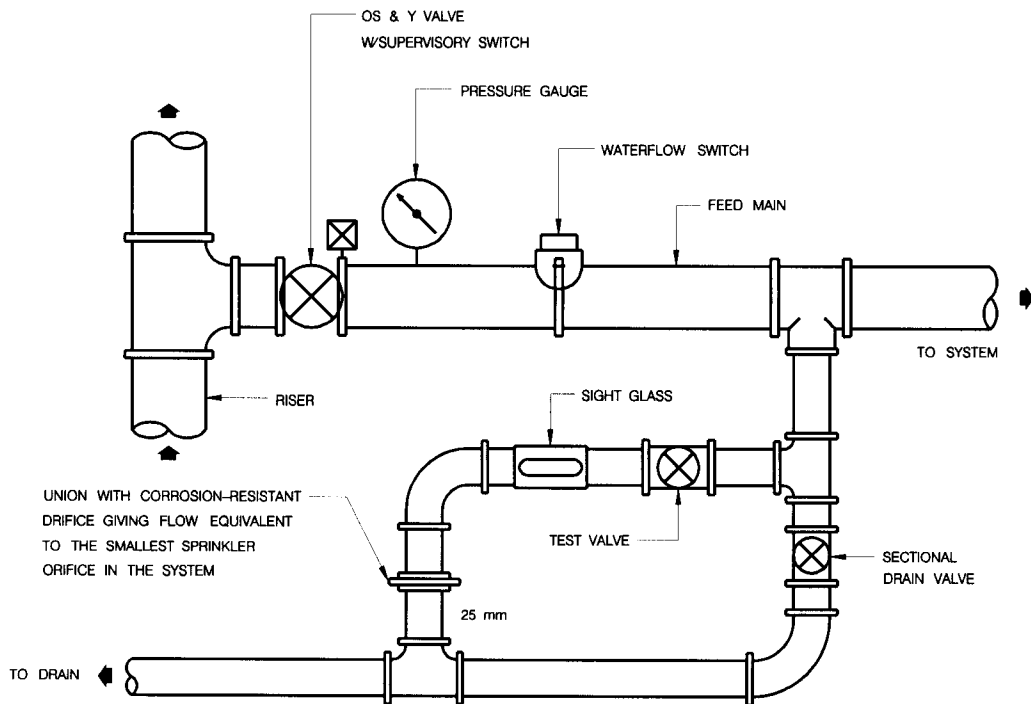


AUXILIARY DRAIN



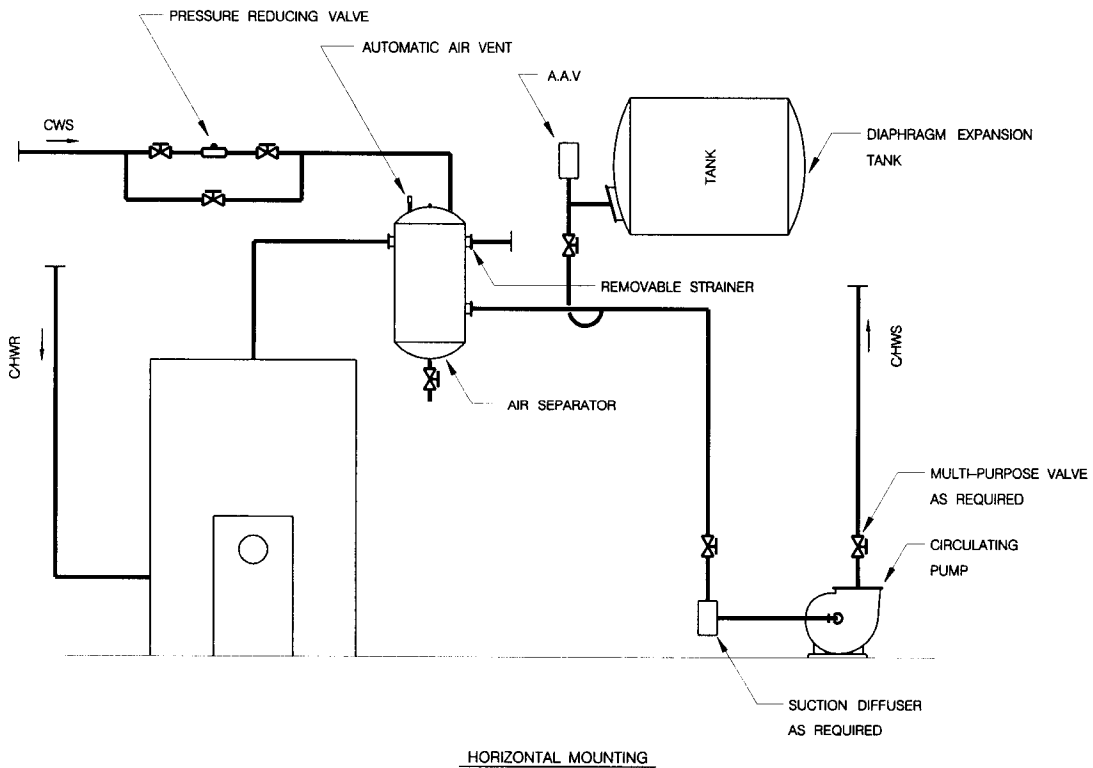
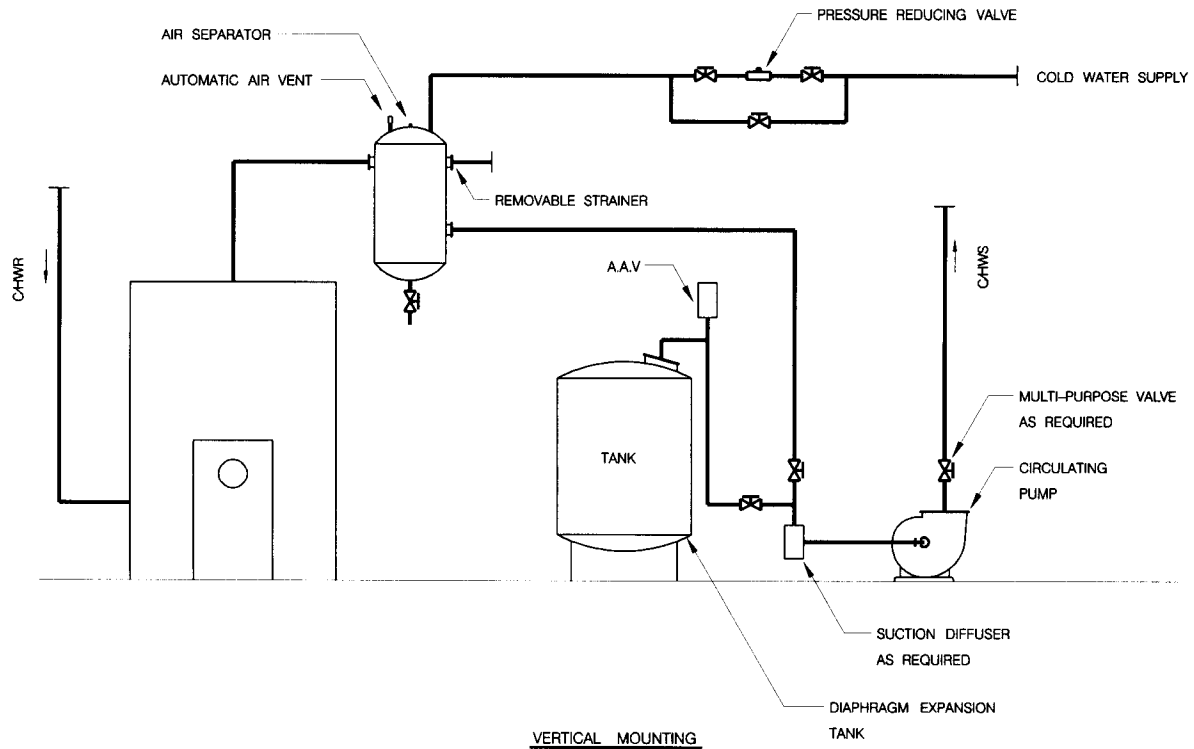
FLUSHING CONNECTION

IMA - KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	FIRE SPRINKLER DETAILS - INSPECTION TEST, AUXILIARY DRAIN & FLUSHING CONNECTION	SPEC	139XX	OCT 2003	M0310



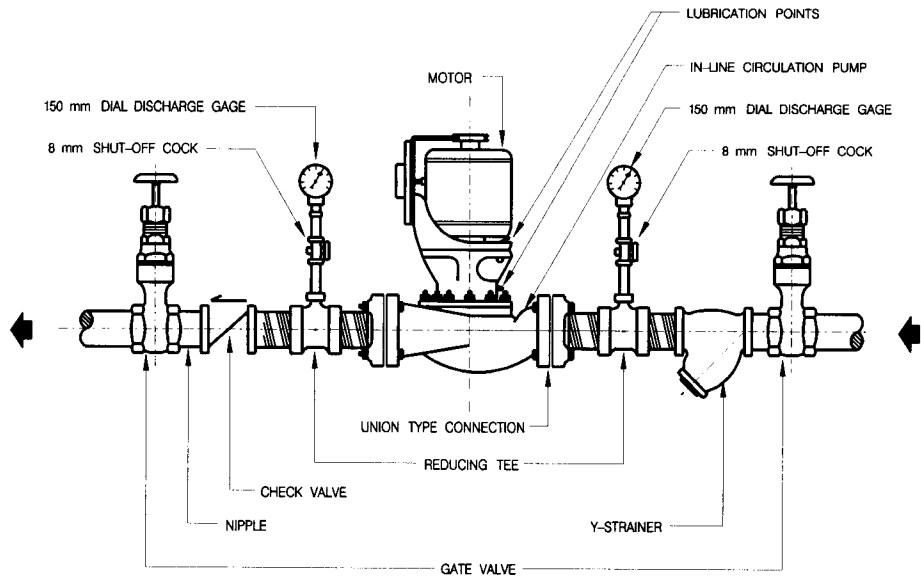
FLOOR CONTROL VALVE

IMA - KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	FIRE SPRINKLER DETAILS - FLOOR CONTROL VALVE	SPEC	139XX	OCT 2003	M0311



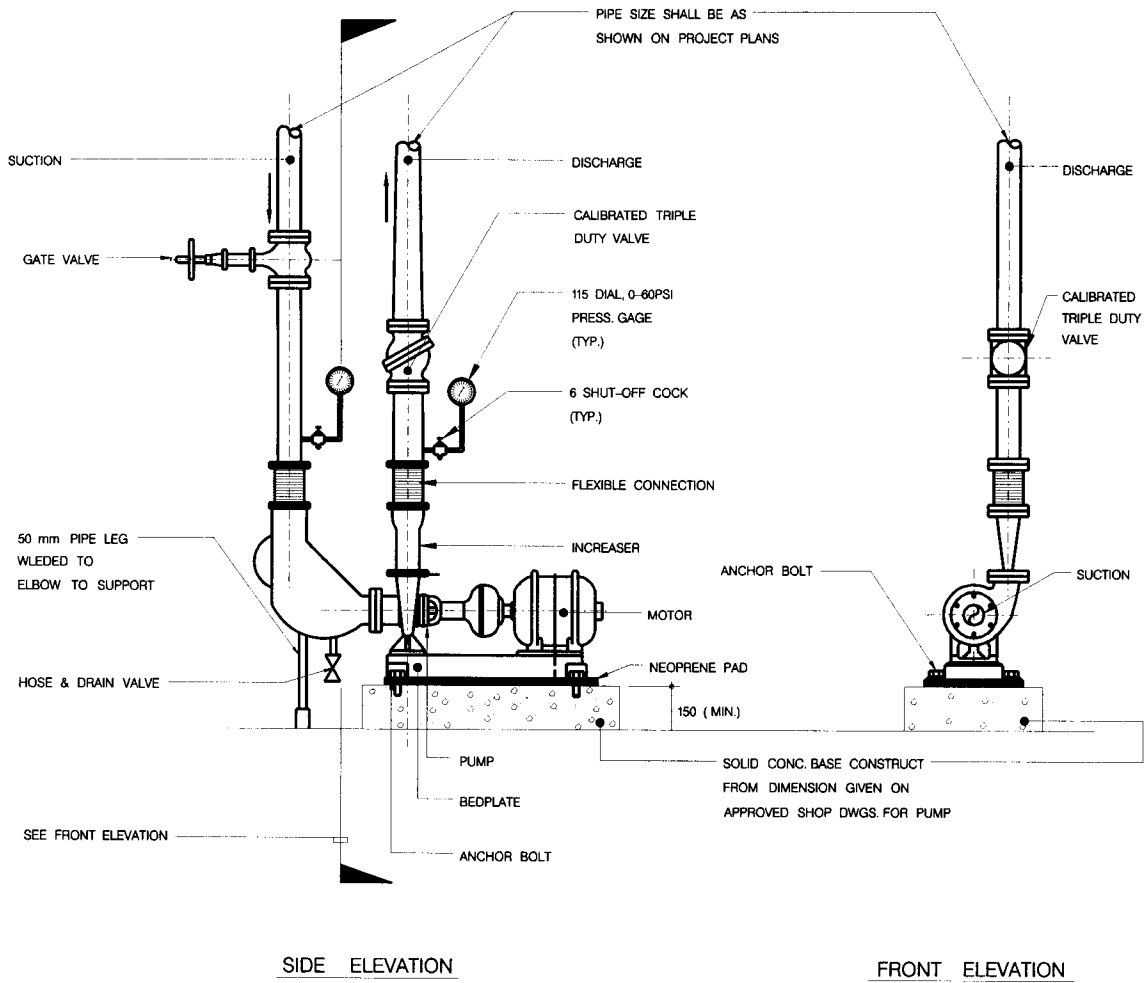
DIAPHRAGM EXPANSION TANK

IMA - KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	H / C WATER PIPING DETAILS - DIAPHRAGM EXPANSION TANK	SPEC	15XXX	OCT 2003	M0401



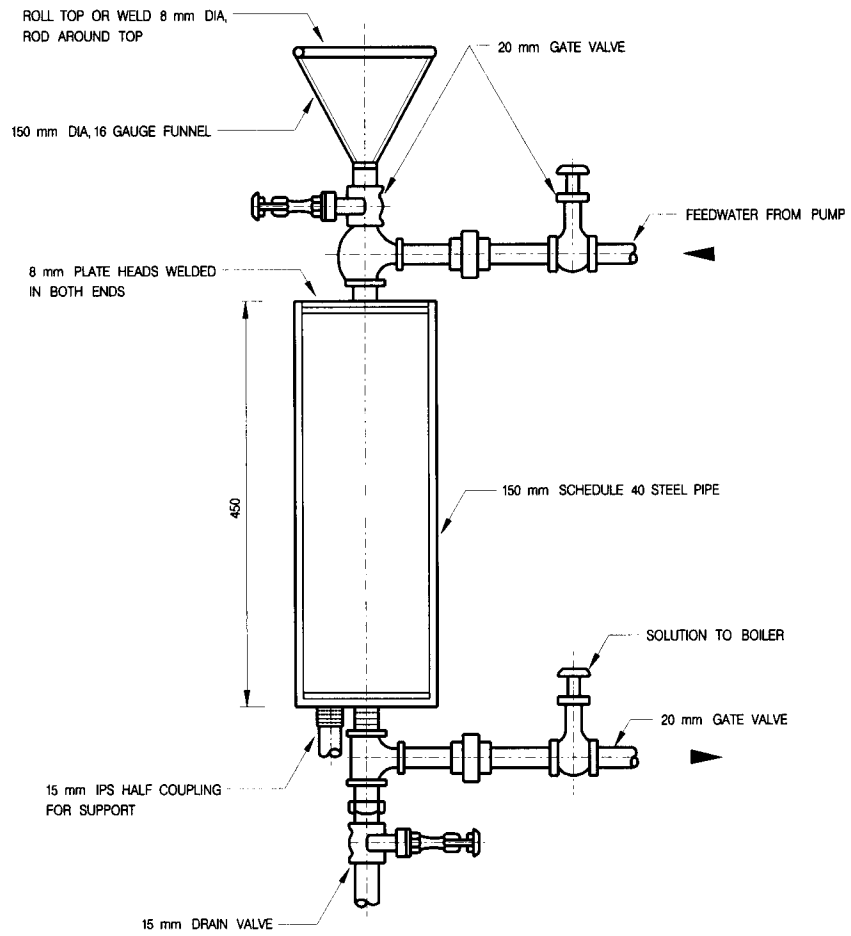
IN-LINE CIRC. PUMP PIPING

IMA - KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	H / C WATER PIPING DETAILS - IN-LINE PUMP	SPEC	15XXX	OCT 2003	M0402



BASE-MOUNTED CIRC. PUMP PIPING

IMA - KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	H / C WATER PIPING DETAILS - BASE-MOUNTED PUMP	SPEC	15XXX	OCT 2003	M0403

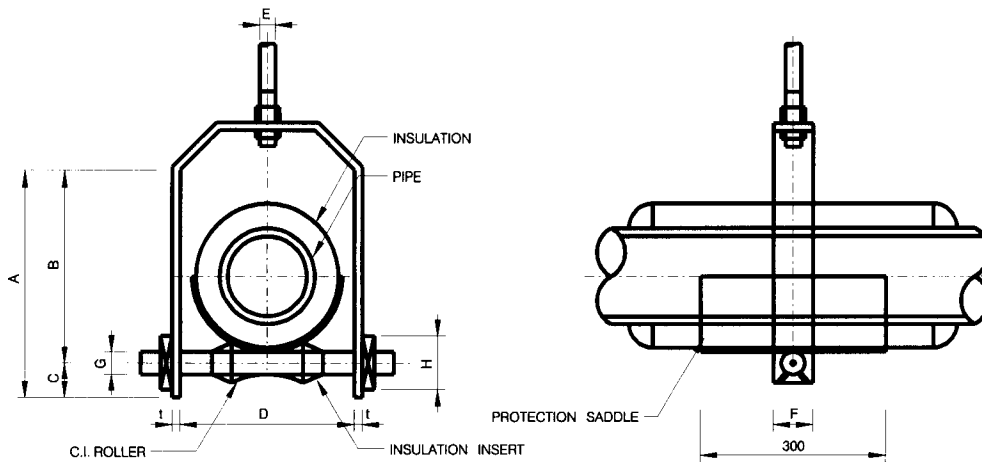


NOTES :

1. FEEDWATER TREATMENT POT TO BE MOUNTED 1200 mm \pm ABOVE THE FLOOR.
2. A COMMERCIALY AVAILABLE FEEDWATER TREATMENT POT MAY BE SUBSTITUTED,
PROVIDED IT MEETS THE DETAILED REQUIREMENTS.

FEEDWATER TREATMENT POT

IMA – KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	H / C WATER PIPING DETAILS – CHEMICAL SHOT FEEDER	SPEC	15XXX	OCT 2003	M0404



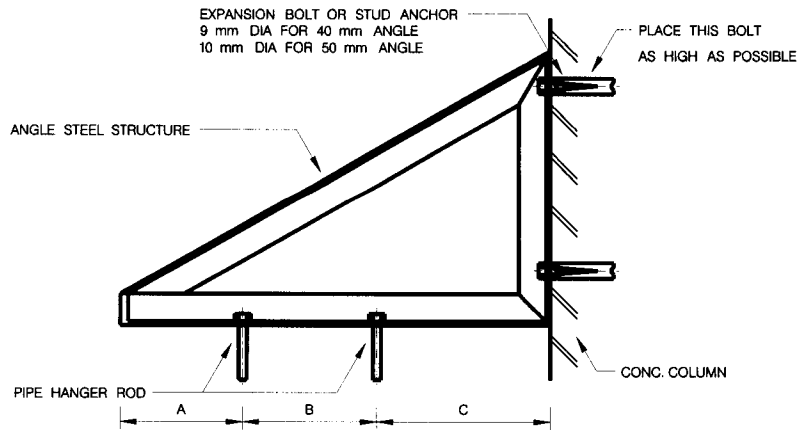
PIPE SIZE	A	B	C	D	E	F	G	t	H DIA
20	165	140	25	115	10	40	10	7	20
25	165	140	25	115	10	40	10	7	20
32	175	150	25	125	10	40	15	7	25
40	200	175	25	150	10	40	15	7	25
50	225	200	25	165	15	40	15	7	25
65	240	215	25	175	15	40	15	8	25
80	258	225	32	190	15	50	15	8	25
100	270	265	32	215	18	50	15	8	25
125	340	300	40	250	18	65	18	8	32
150	365	325	40	275	20	65	18	8	32

(UNIT : mm)

NOTE :

SPACING OF PIPE HANGERS AND SUPPORTS SHALL CONFORM TO THE REQUIREMENTS OF MSS SP-69 OR CONTRACT SPECIFICATION.

PIPE HANGER

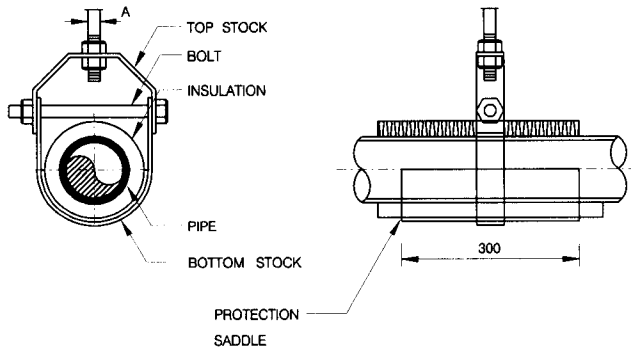


PIPE SIZE	ANGLE STEEL SIZE	A	B	C
50 mm OR SMALLER	40 x 40 x 6	100	125	100
65 mm TO 150 mm	50 x 50 x 8	125	250	125

(UNIT : mm)

BRACKET FOR PIPE HANGER

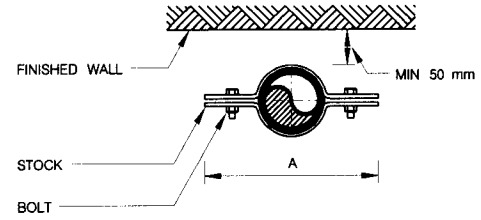
IMA - KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	H / C WATER PIPING DETAILS - PIPE HANGER	SPEC	15XXX	OCT 2003	M0405



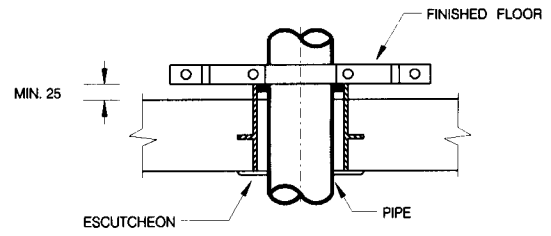
PIPE SIZE	A	BOLT SIZE	TOP STOCK	BOTTOM STOCK
15	10	8	6 x 25	6 x 25
20	10	8	6 x 25	6 x 25
25	10	8	6 x 25	6 x 25
32	10	8	6 x 25	6 x 25
40	10	8	6 x 25	6 x 25
50	10	8	6 x 25	6 x 25
65	15	10	7 x 33	7 x 33
80	15	10	7 x 33	7 x 33

(UNIT : mm)

PIPE HANGER



PLAN



ELEVATION

PIPE SIZE	A	STOCK SIZE	BOLT SIZE
15	240	7 x 32	10
20	240	7 x 32	10
25	250	7 x 32	10
32	268	8 x 32	10
40	273	8 x 32	10
50	285	8 x 32	10
65	292	8 x 32	10
80	318	8 x 32	10
100	342	8 x 32	15
125	370	8 x 50	15
150	401	8 x 50	15

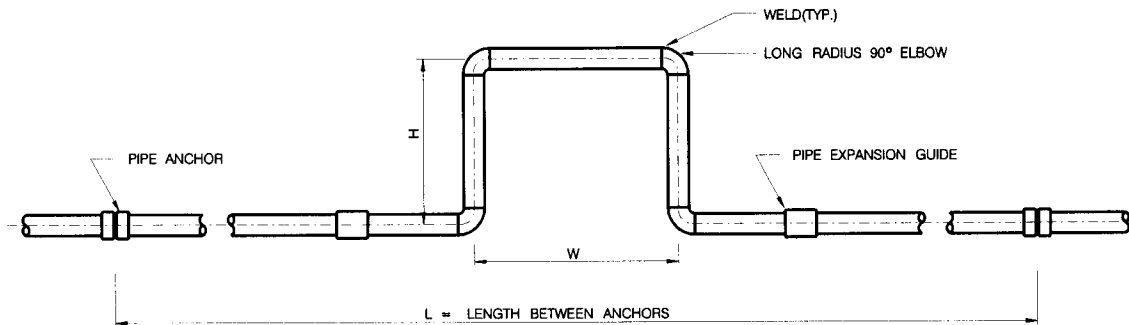
(UNIT : mm)

PIPE SUPPORT

NOTE :

SPACING OF PIPE HANGERS AND SUPPORTS SHALL CONFORM TO THE REQUIREMENTS OF MSS SP-69 OR CONTRACT SPECIFICATION.

IMA - KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	H / C WATER PIPING DETAILS - PIPE HANGER & SUPPORT	SPEC	15XXX	OCT 2003	M0406



EXPANSION LOOP SCHEDULE

PIPE SIZE	DIMENSIONS		PIPE SIZE	DIMENSIONS	
	W	H		W	H
25	500	990	80	860	1,725
32	580	1,165	90	900	1,800
40	660	1,295	100	990	1,955
50	750	1,520	150	1,190	2,385
65	750	1,520	200	1,295	2,565

(UNIT : mm)

NOTE :

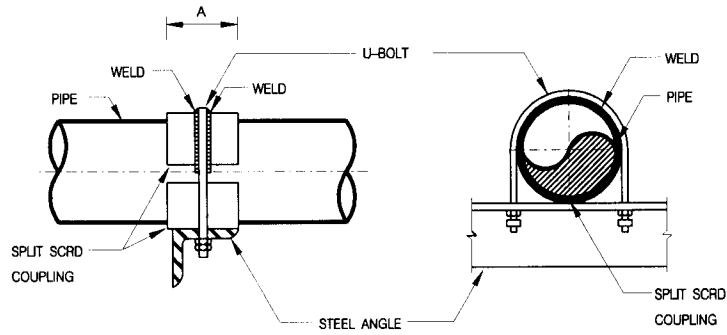
TABLE ABOVE IS BASED ON 93° C AND 1,034 kPa
 MAX PER 30 m FOR STEEL PIPE (A-53, GRADE A)

EXPANSION LOOP

IMA - KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	H / C WATER PIPING DETAILS - EXPANSION LOOP	SPEC	15XXX	OCT 2003	M0407

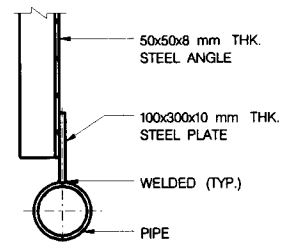
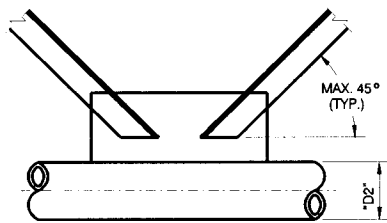
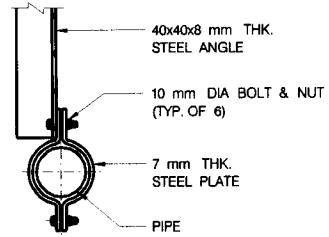
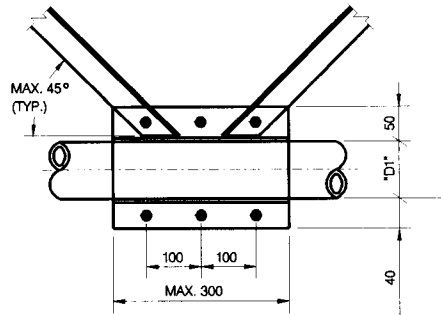
PIPE ANCHOR SCHEDULE

PIPE	U-BOLT	ANGLE SIZE	" A "
32	10	50 x 50 x 8	50
40	10	50 x 50 x 8	50
50	15	65 x 65 x 8	50
65	15	65 x 58 x 10	80
80	18	65 x 65 x 10	90
90	18	80 x 80 x 10	100



PIPE ANCHOR

IMA - KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	H / C WATER PIPING DETAILS - PIPE ANCHOR (1)	SPEC	15XXX	OCT 2003	M0408

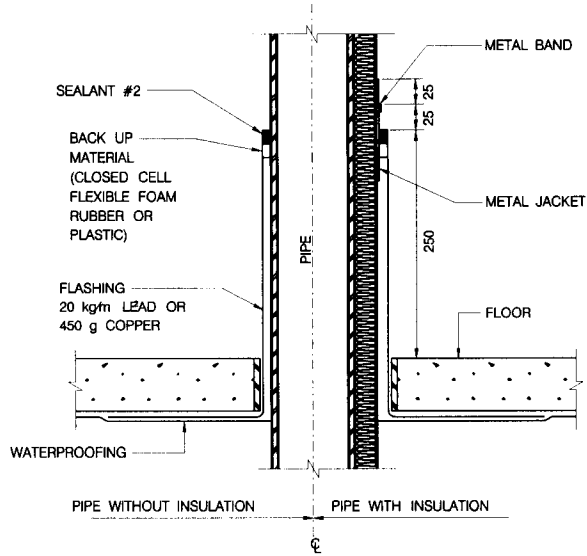


NOTES :

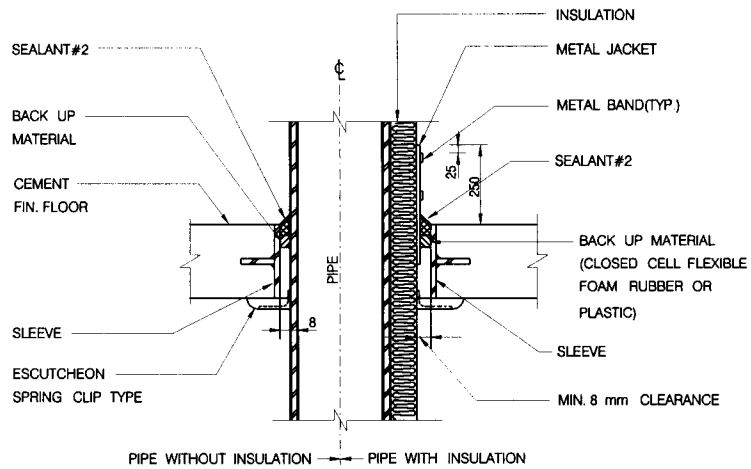
1. "D1" IS NOMINAL PIPE SIZE FOR 50 mm AND SMALLER.
2. "D2" IS NOMINAL PIPE SIZE FOR 65 AND LARGER.

PIPE ANCHOR

IMA – KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	H / C WATER PIPING DETAILS – PIPE ANCHOR (2)	SPEC	15XXX	OCT 2003	M0409



PIPE SLEEVE-THRU FLOOR WITH WATERPROOFING

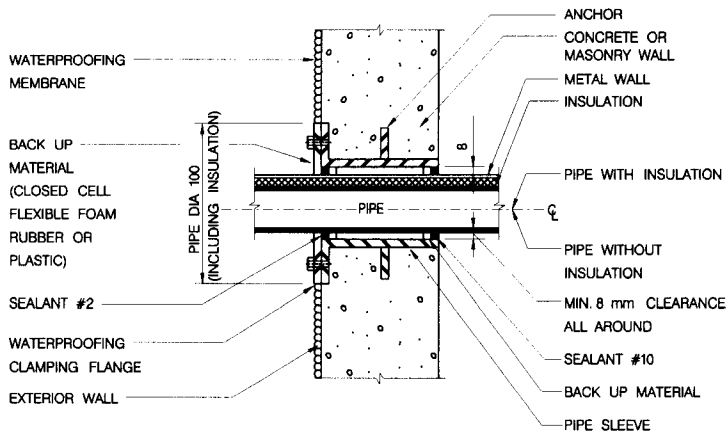


NOTES :

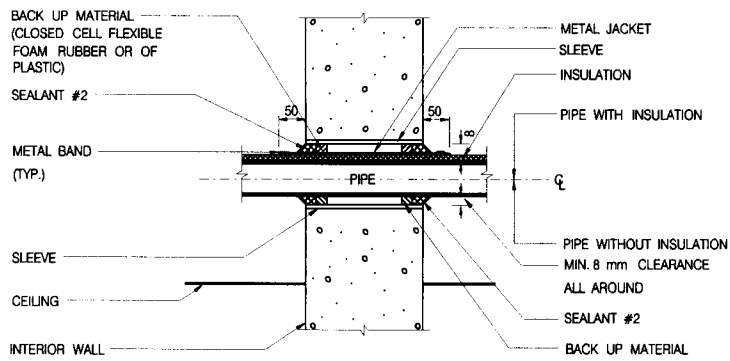
1. ESCUTCHEONS SHALL BE PROVIDE AT ALL FINISHED SURFACES WHERE EXPOSED PIPING, BARE OR INSULATED PASSES THROUGH FLOORS OR CEILINGS, EXCEPT IN BOILER, UTILITY OR EQUIPMENT ROOMS.
2. FIRESTOPPING SHALL BE PROVIDED AND SHALL BE INSTALLED IN ACCORDANCE WITH MANUFACTURER'S LISTED INSTALLATION INSTRUCTIONS.

PIPE SLEEVE-THRU FLOOR

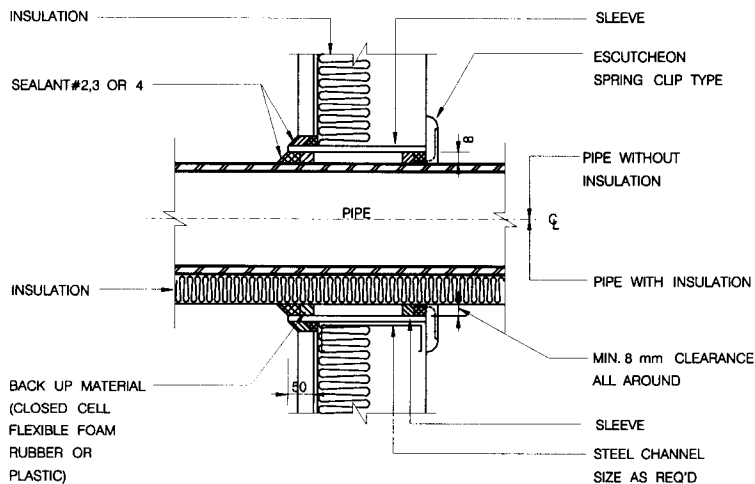
IMA - KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	H / C WATER PIPING DETAILS - PIPE SLEEVES (1)	SPEC	15XXX	OCT 2003	M0410



PIPE SLEEVE-THRU FOOTING

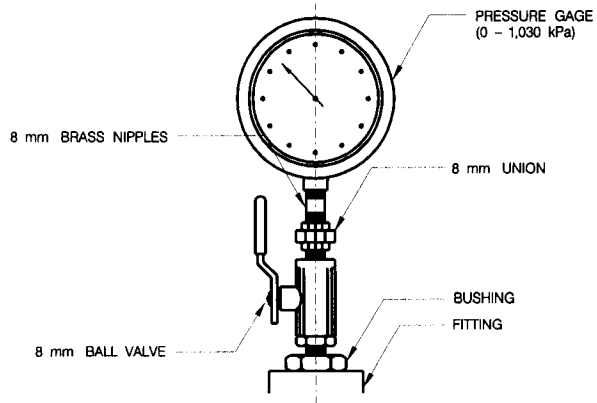


PIPE SLEEVE-THRU INTERIOR WALL



PIPE SLEEVE-THRU METAL WALL

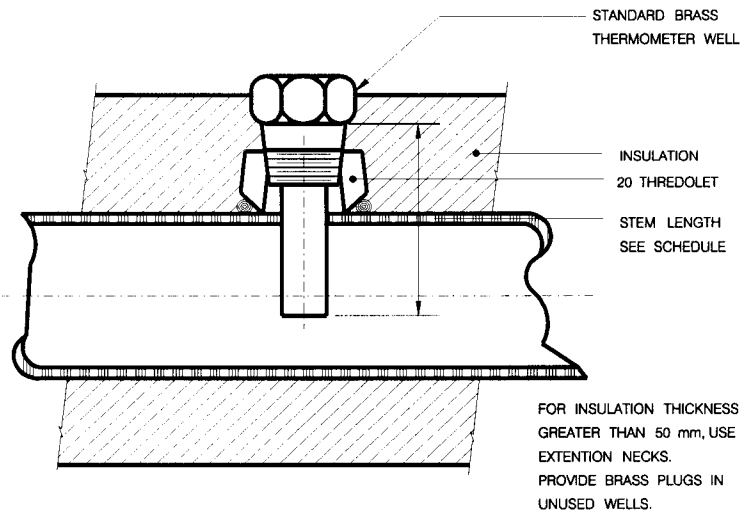
IMA - KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	H / C WATER PIPING DETAILS - PIPE SLEEVES (2)	SPEC	15XXX	OCT 2003	M0411



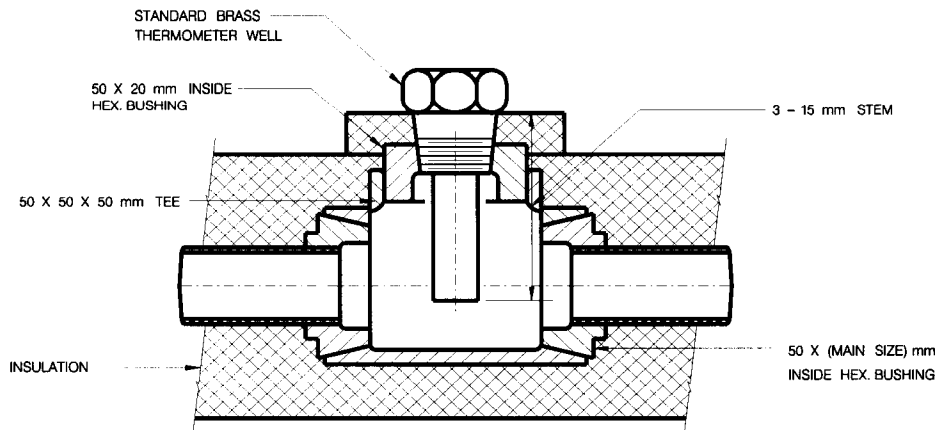
PRESSURE GAGE

PIPE SIZE	STEM LENGTH
250 - 800	3 - 15
1,000	5 - 60
1,250 - 1,500	150
2,000	200
2,500 - UP	300

(UNIT : mm)



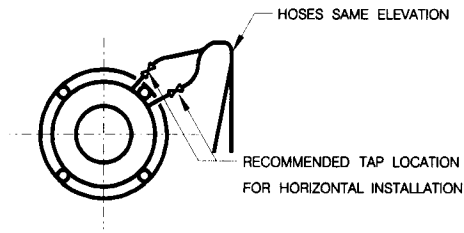
DETAIL OF THERMOMETER WELLS FOR PIPES 650 & LARGER



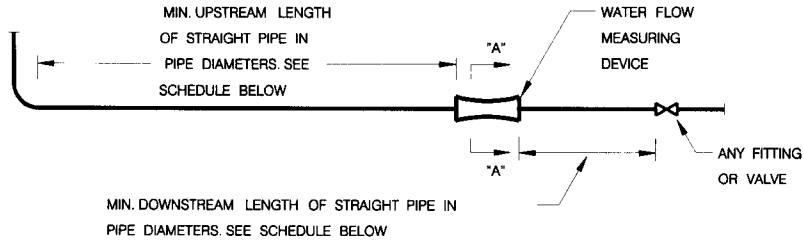
DETAIL OF THERMOMETER WELLS FOR PIPES 250 mm THRU 500 mm SIZE

THERMOMETER WELLS DETAIL

IMA - KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	H / C WATER PIPING DETAILS - PRESSURE GAGE & THERMOMETER WELLS	SPEC	15XXX	OCT 2003	M0412



SECTION "A - A"



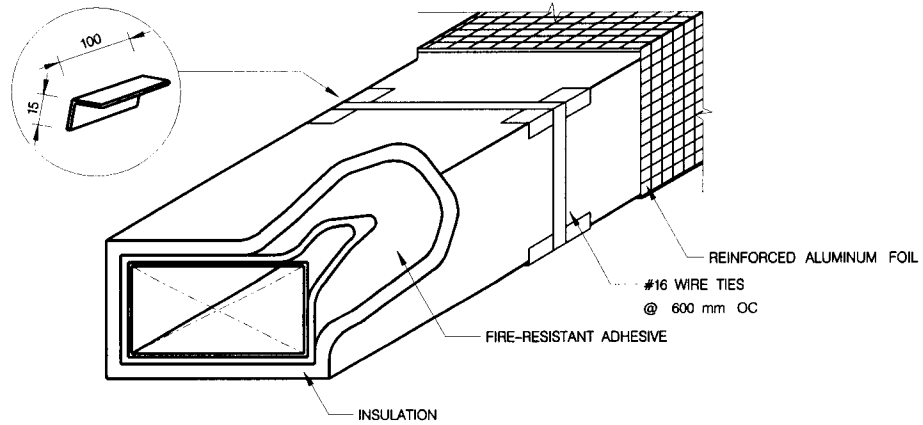
WATER FLOW MEASURING DEVICE INSTALLATION SCHEDULE			
TYPE	MIN. UPSTREAM LENGTH OF STRAIGHT PIPE IN PIPE DIAMETERS		MIN. DOWNSTREAM LENGTH OF STRAIGHT PIPE IN PIPE DIAMETERS
	FOR SIDE TEE	FOR VALVE OR OTHER FITTING	
ORIFICE FLANGE OR FLOATING BALL WITH IMPACT TUBE.	20	10	5
VENTURI, AUTOMATIC BALANCING CONTROL VALVE, OR INSERTION VELOCITY AVERAGING AND MEASURING TUBE	10	5	2

NOTES :

- DIMENSIONS SHOWN IN SCHEDULE ARE MINIMUM REQUIRED IF MANUFACTURER OF FURNISHED WATER FLOW MEASURING DEVICE RECOMMENDS A GREATER DIMENSION, USE THEIR RECOMMENDATION.
- INSTALL THE WATER FLOW MEASURING DEVICE SO THE FLOW ARROW IS IN THE SAME DIRECTION AS THE FLOW.
- THE WATER FLOW MEASURING DEVICE MAY BE INSTALLED IN EITHER HORIZONTAL OR VERTICAL PIPE. UNITS REQUIRING REMOTE METERS SHALL HAVE THE METER CONNECTIONS LOCATED ON OR NEAR THE SIDE WHEN INSTALLED IN HORIZONTAL PIPE. SEE SECTION "A-A". THE METER CONNECTIONS CAN BE INSTALLED IN ANY POSITION WHEN INSTALLED IN VERTICAL PIPE.

WATER FLOW MEASURING DEVICE INSTALLATION DETAIL

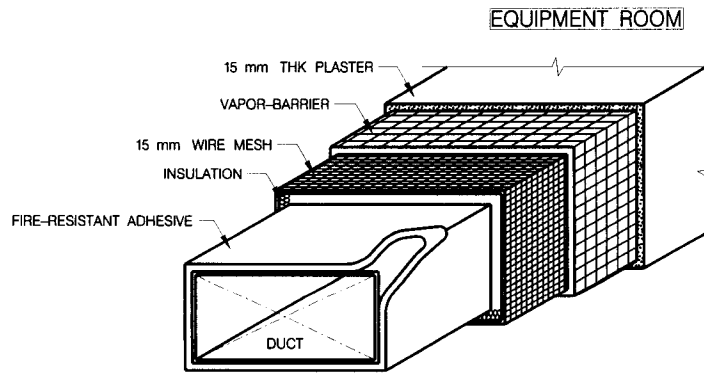
IMA - KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	H / C WATER PIPING DETAILS - WATER FLOW MEASURING DEVICE	SPEC	15XXX	OCT 2003	M0413



NOTES

A. JOINT

1. FOR FLEXIBLE INSULATION (WHERE CONCEALED) MIN. 50 mm OVERLAP CEMENTED W/ NON CORROSIVE OUTWARD CLINCHING STAPLES 100 mm O.C. STAPLES SHALL BE COATED W/ FIRE-RESISTANT VAPOR-BARRIER COATING.
 2. FOR RIGID INSULATION (WHERE EXPOSED) JOINT SHALL BE BUTTED TIGHTLY & SEALED W/ 100 mm WIDE VAPOR-BARRIER TAPE.
- B. DUCTS OVER 30° WIDTH AND/OR DEPTH SHALL BE ADDITIONALLY SECURED AT THE SIDES AND/OR BOTTOM SURFACE OF THE DUCT W/ WELDED PINS OR ADHERED ANCHOR CLIPS. METAL NYLON OR HIGH IMPACT & SPEED WASHERS OR CUPHEAD PINS ON MAX 300 mm O.C.
- C. DUCT EXPOSED TO WEATHER SHALL BE FINISHED WITH TWO COATS OF WEATHER PROOF COATING COMPOUND WITH GLASS CLOTH EMBEDDED BETWEEN COATS DRY FILM THICKNESS OF COATING SHALL BE 6 mm MIN.



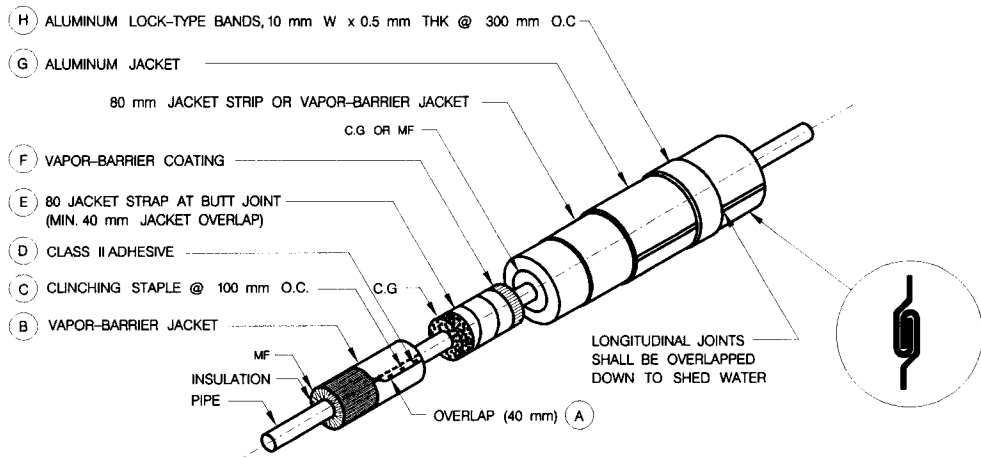
NOTES

A. JOINT

1. FOR FLEXIBLE INSULATION 50 mm OVERLAP CEMENTED WITH NONCORROSIVE OUTWARD CLINCHING STAPLES 100 mm O.C. STAPLES SHALL BE COATED WITH FIRE-RESISTANT VAPOR-BARRIER COATING.
 2. FOR RIGID INSULATION JOINTS SHALL BE BUTTED TIGHTLY & SEALED WITH 100 mm WIDE VAPOR-BARRIER TAPE.
- B. DUCTS OVER 30° WIDTH AND/OR DEPTH SHALL BE ADDITIONALLY SECURED AT THE SIDES AND/OR BOTTOM ANCHOR CLIPS. METAL NYLON OR HIGH IMPACT PLASTIC AND SPEED WASHERS OR CURHEAD PINS ON MAX. 300 mm O.C.

DUCT INSULATION

IMA - KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	THERMAL INSULATION DETAILS - DUCT INSULATION	SPEC	15080	OCT 2003	M0501

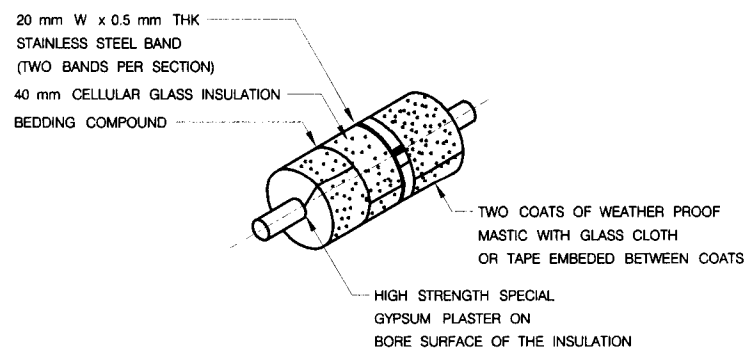


CG - CELLULAR GLASS
MF - MINERAL FIBER

AREA	CONCEALED								EXPOSED								EXPOSED WEATHER							
	A	B	C	D	E	F	G	H	A	B	C	D	E	F	G	H	A	B	C	D	E	F	G	H
COLD PIPELINE	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•
HOT PIPELINE	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•

COLD PIPELINE : MAKE-UP WATER
DUAL WATER TEMPERATURE
HOT PIPELINE : HOT WATER HEATING
HEATED OIL PIPELINE

ABOVEGROUND

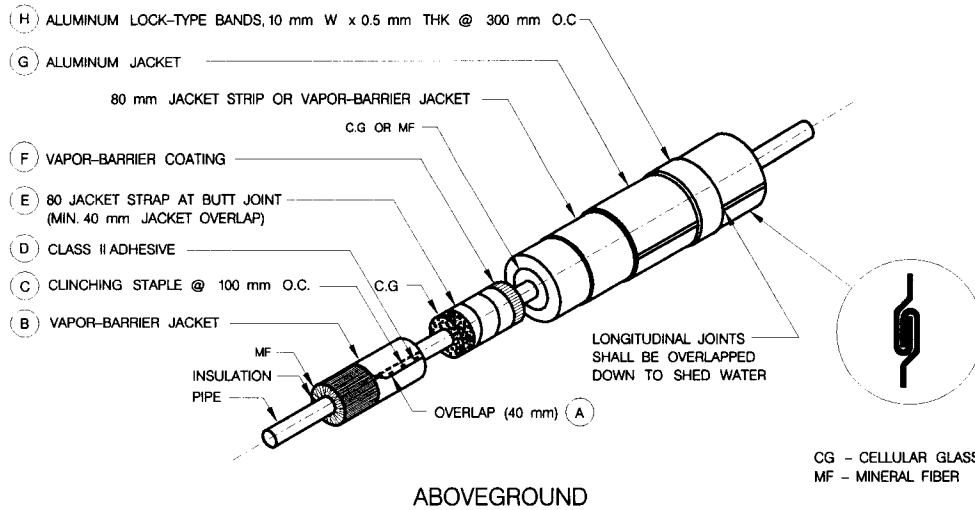


NOTE : THE DETAIL IS NOT APPLICABLE FOR DIRECT BURIAL INSTALLATION.

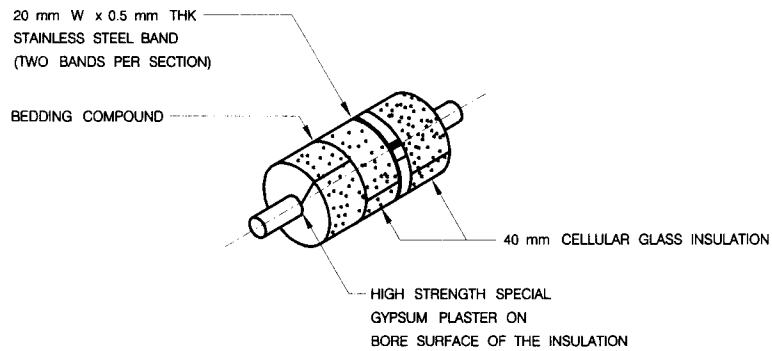
UNDERGROUND

H / C WATER PIPE INSULATION

IMA - KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	THERMAL INSULATION DETAILS - H / C WATER PIPE INSULATION	SPEC	15080	OCT 2003	M0502



ABOVEGROUND



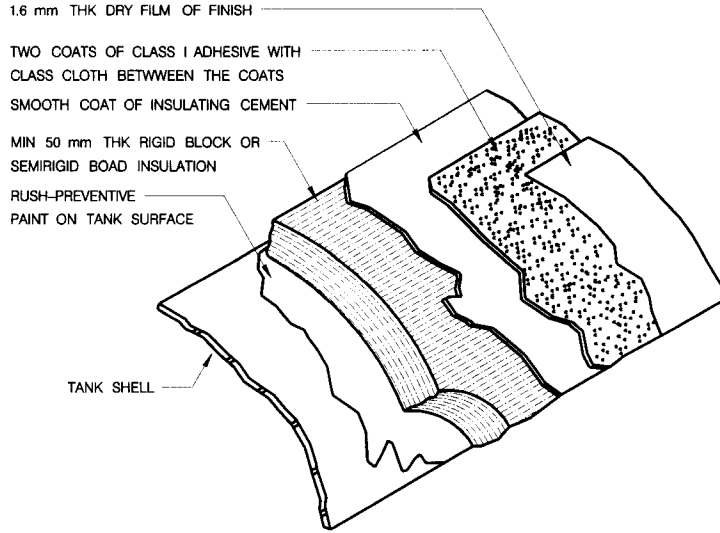
NOTE : THE DETAIL IS NOT APPLICABLE FOR DERECT BURIAL INSTALLATION

UNDERGROUND

AREA	CONCEALED								EXPOSED								EXPOSED WEATHER							
	A	B	C	D	E	F	G	H	A	B	C	D	E	F	G	H	A	B	C	D	E	F	G	H
PIPING																								
STEAM	•	•	•	•					•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•

STEAM PIPE INSULATION

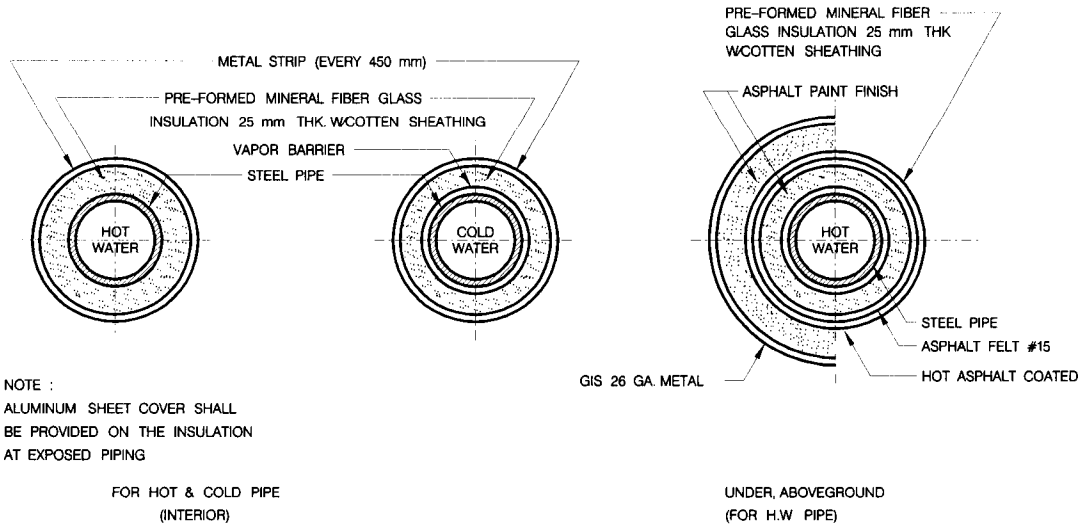
IMA - KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	THERMAL INSULATION DETAILS - STEAM PIPE INSULATION	SPEC	15080	OCT 2003	M0503



H.W. STORAGE TANK INSULATION

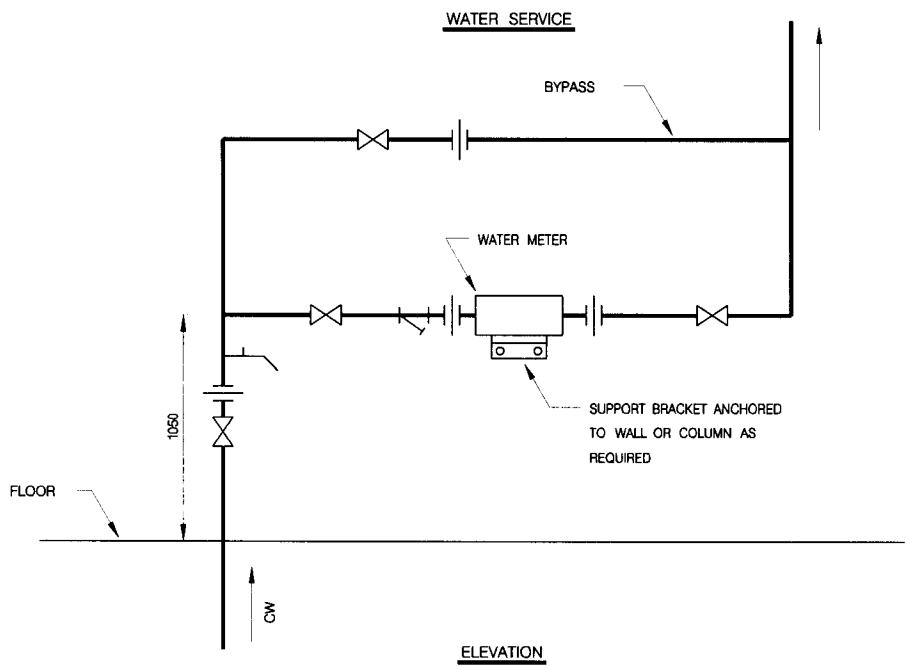
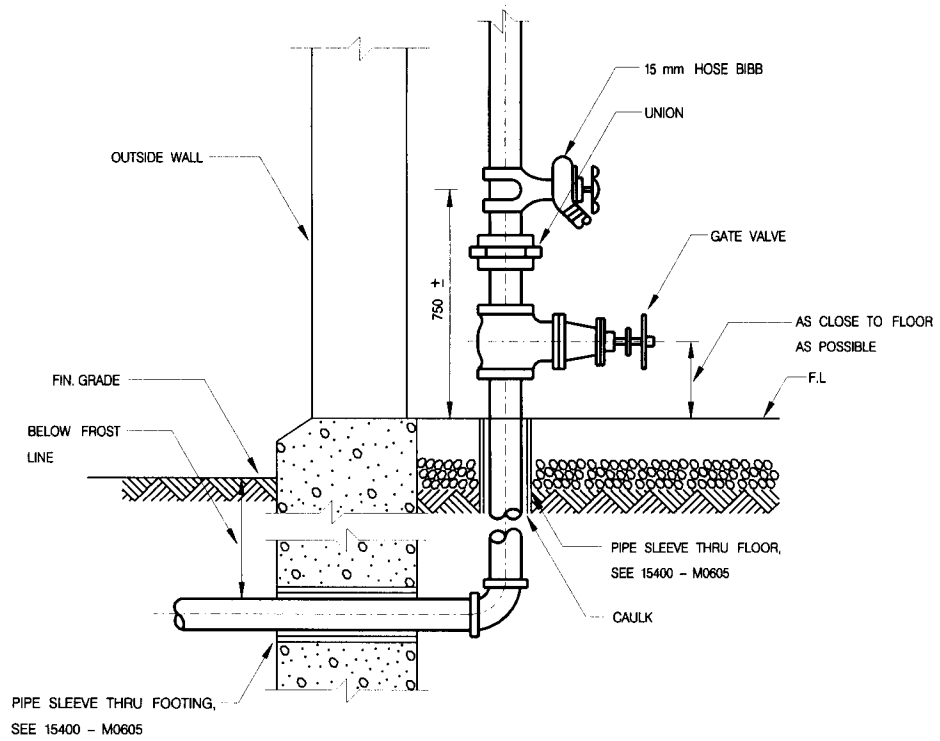
RECOMMENDED PIPE INSULATION THICKNESS					
SERVICE OR RANGE OF TEMPERATURE (°C)	INSULATION MATERIAL	PIPE DIAMETER (mm)			
		15 TO 32	40 TO 80	100 TO 125	150 TO 250
15 TO 93	CG	40	40	50	50
	MF	25	25	25	25
DOMESTIC COLD WATER	CG	25	25	40	40
	MF	25	25	15	25

NOTE : MF - MINERAL FIBER
CG - CELLULAR GLASS



DOM. HOT & COLD PIPE INSULATION

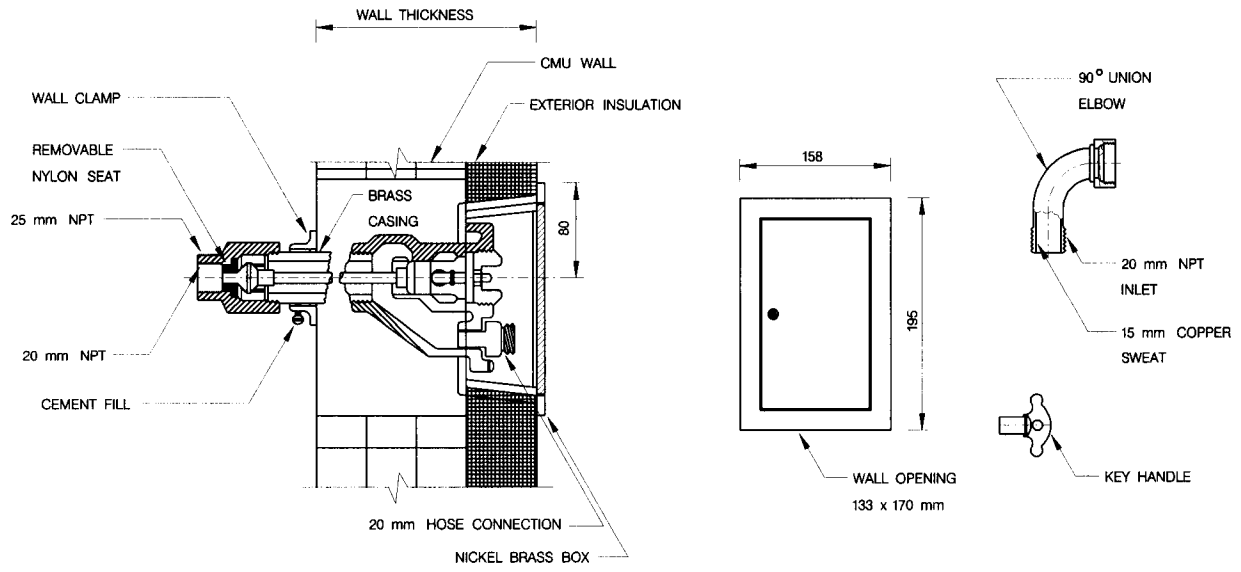
IMA - KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	THERMAL INSULATION DETAILS - DOM. HOT/COLD PIPE INSULATION	SPEC	15080	OCT 2003	M0504



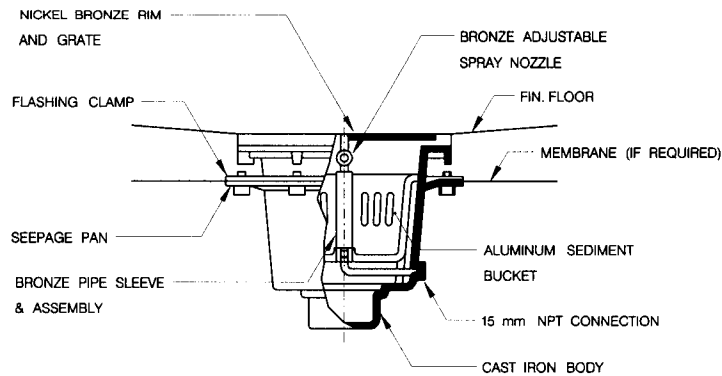
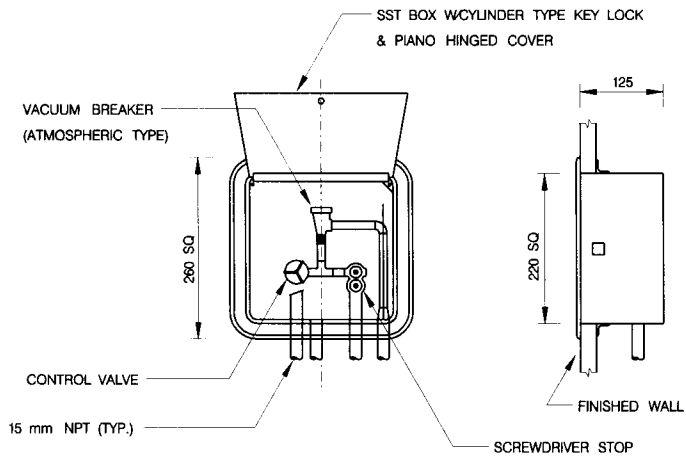
WATER METER

NOTE : UNLESS OTHERWISE SPECIFIED, WATER METERS SHALL BE PROVIDED IN ALL BUILDINGS EXCEPT ADMINISTRATIVE AND WAREHOUSE BUILDINGS.

IMA - KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	PLUMBING DETAILS - WATER SERVICE & WATER METER	SPEC	15400	OCT 2003	M0601

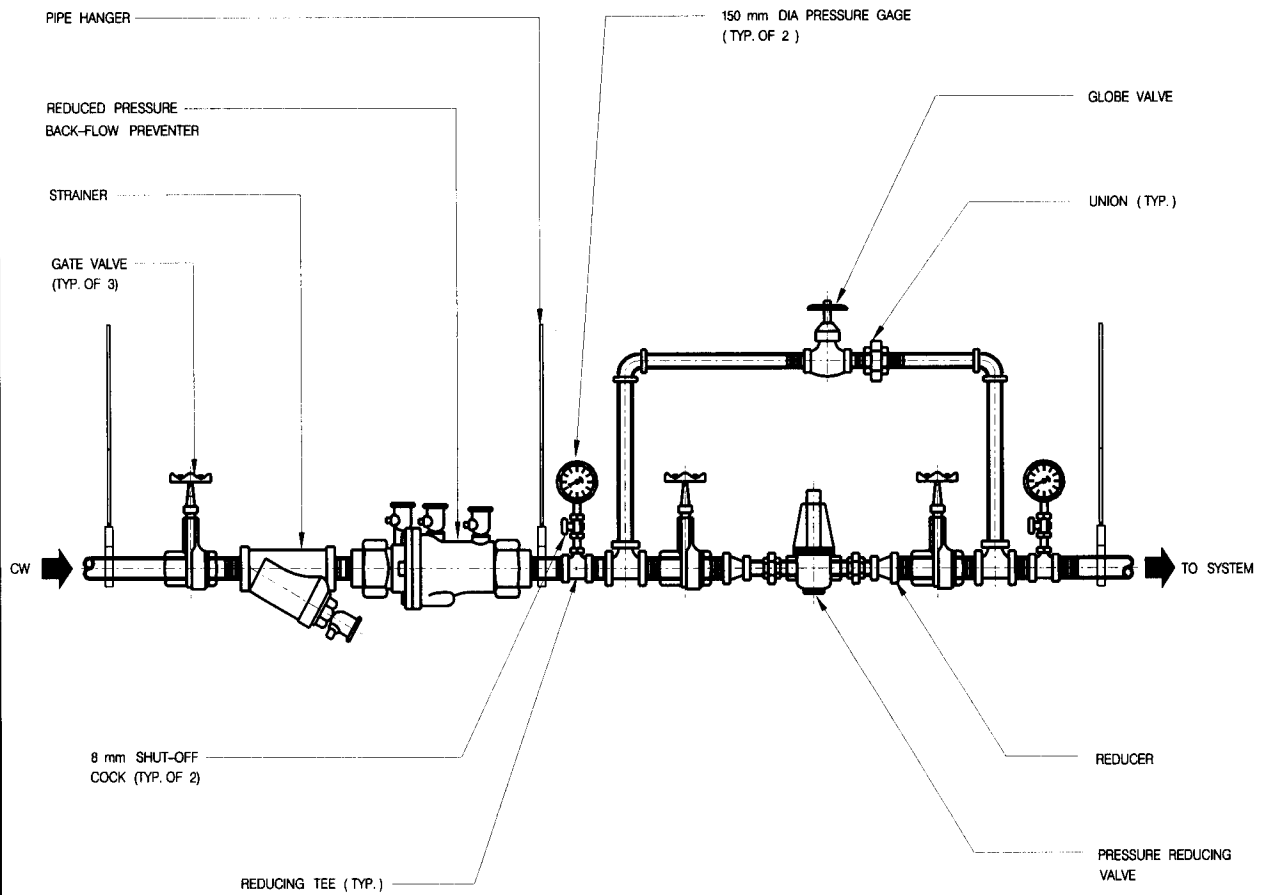


WALL HYDRANT



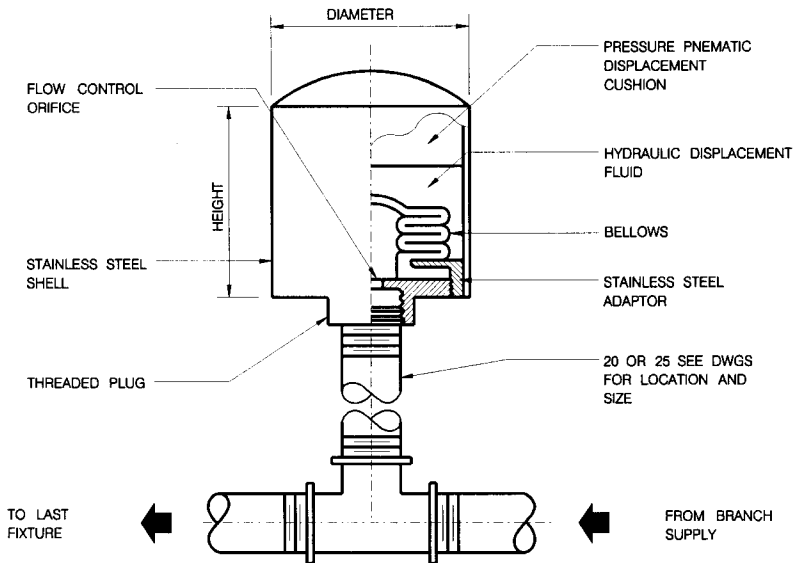
WATER SUPPLY CONTROL BOX & CAN WASHING FLOOR DRAIN

IMA - KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	PLUMBING DETAILS - WALL HYDRANT & CAN WASHING	SPEC	15400	OCT 2003	M0602



BACK FLOW PREVENTER AND PRESSURE REDUCING STATION

IMA - KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	PLUMBING DETAILS - MAKE-UP WATER PIPING	SPEC	15400	OCT 2003	M0603



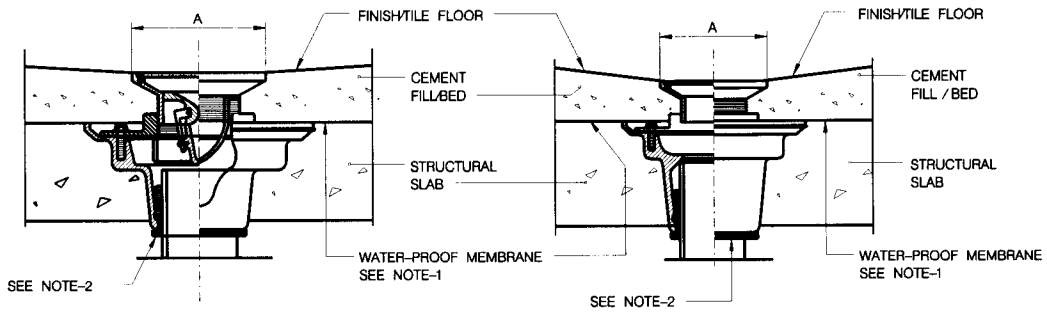
PDI SYMBOL	F.U. RATING	CONN. SIZE (mm)	REMARKS
⬡	1 - 11	20	PRESSURIZED COMPRESSION CHAMBER WITH EXPANSION, CONFORMING TO PDIWH 201
⬢	12 - 32	25	
⬤	33 - 60	25	

NOTE :

1. WATER HAMMER ARRESTORS, WHERE CONCEALED, SHALL BE ACCESSIBLE BY MEANS OF ACCESS DOORS OR REMOVABLE PANELS.

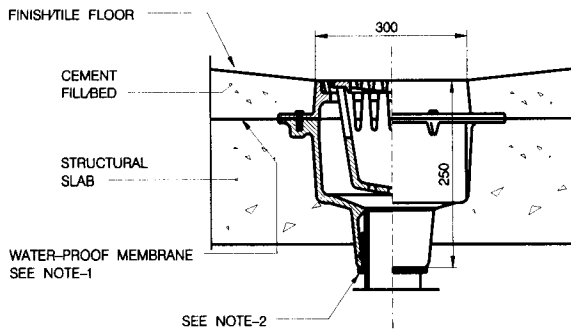
WATER HAMMER ARRESTOR

IMA - KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	PLUMBING DETAILS - WATER HAMMER ARRESTOR	SPEC	15400	OCT 2003	M0604



DRAIN / BACKWATER VALVE

FLOOR/SHOWER DRAIN



AREA / PIT DRAIN

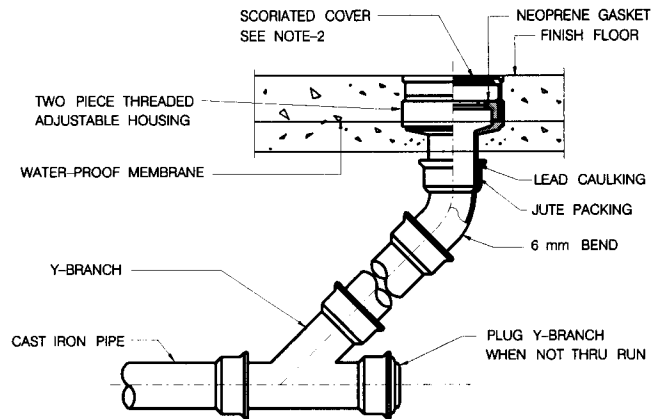
OUTLET SIZE	A
50 mm	125 mm
80 mm	200 mm
100 mm	250 mm

NOTES :

1. WATER-PROOF MEMBRANE IS NOT REQUIRED IN SLAB ON GRADE.
2. NEOPRENE RUBBER GASKET COMPRESSION TYPE JOINT.
3. DRAINS SHALL BE CONNECTED TO CAST IRON P-TRAP.
4. DRAINS SHALL HAVE A CAST IRON BODY AND SEEPAGE PAN AND A CHROMIUM PLATED BRONZE, NICKEL BRONZE OR NICKEL BRASS STRAINER.

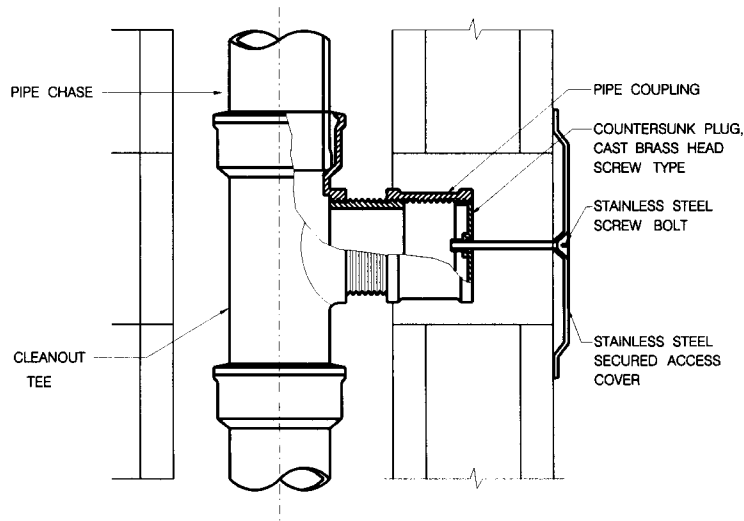
D R A I N S

IMA - KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	PLUMBING DETAILS - DRAINS	SPEC	15400	OCT 2003	M0605



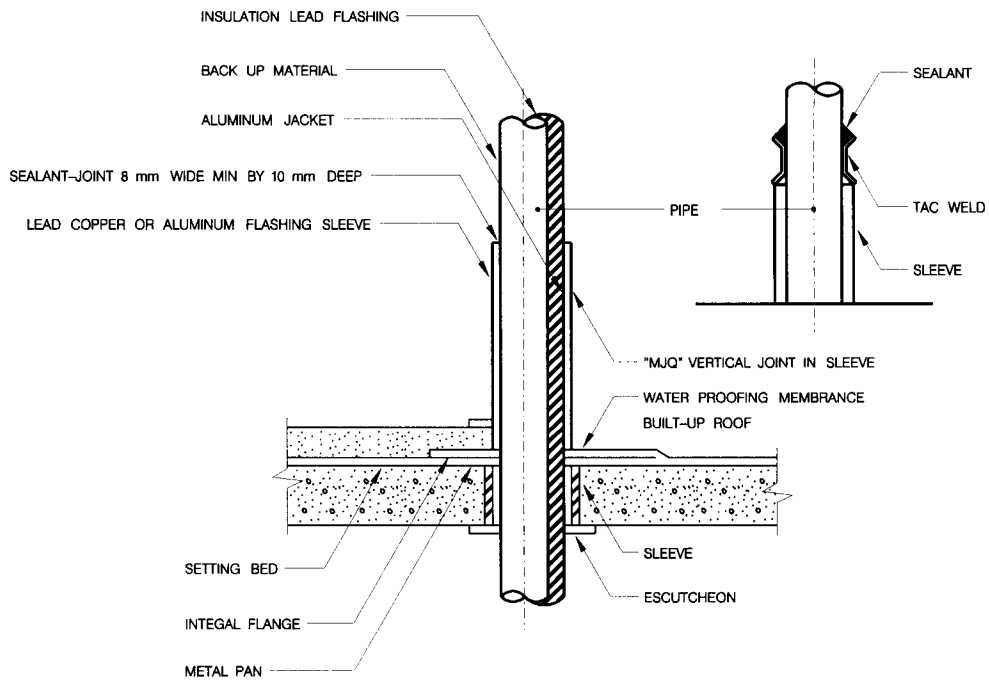
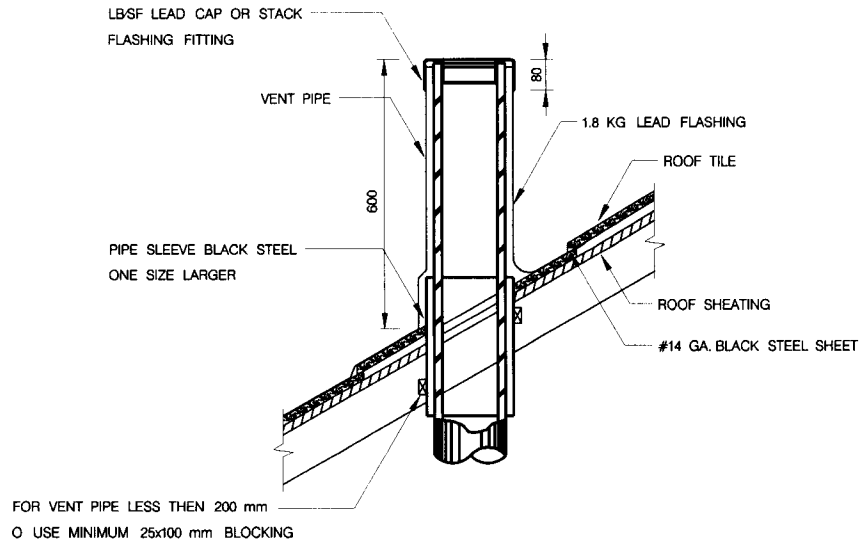
- NOTES :
1. WATER-PROOF MEMBRANE IS NOT REQUIRED IN SLAB ON GRADE.
 2. CHROMIUM-PLATED BRONZE, NICKEL BRONZE, NICKEL BRASS OR STAINLESS STEEL FLUSH TYPE ACCESS COVER PLATE

FLOOR CLEANOUT



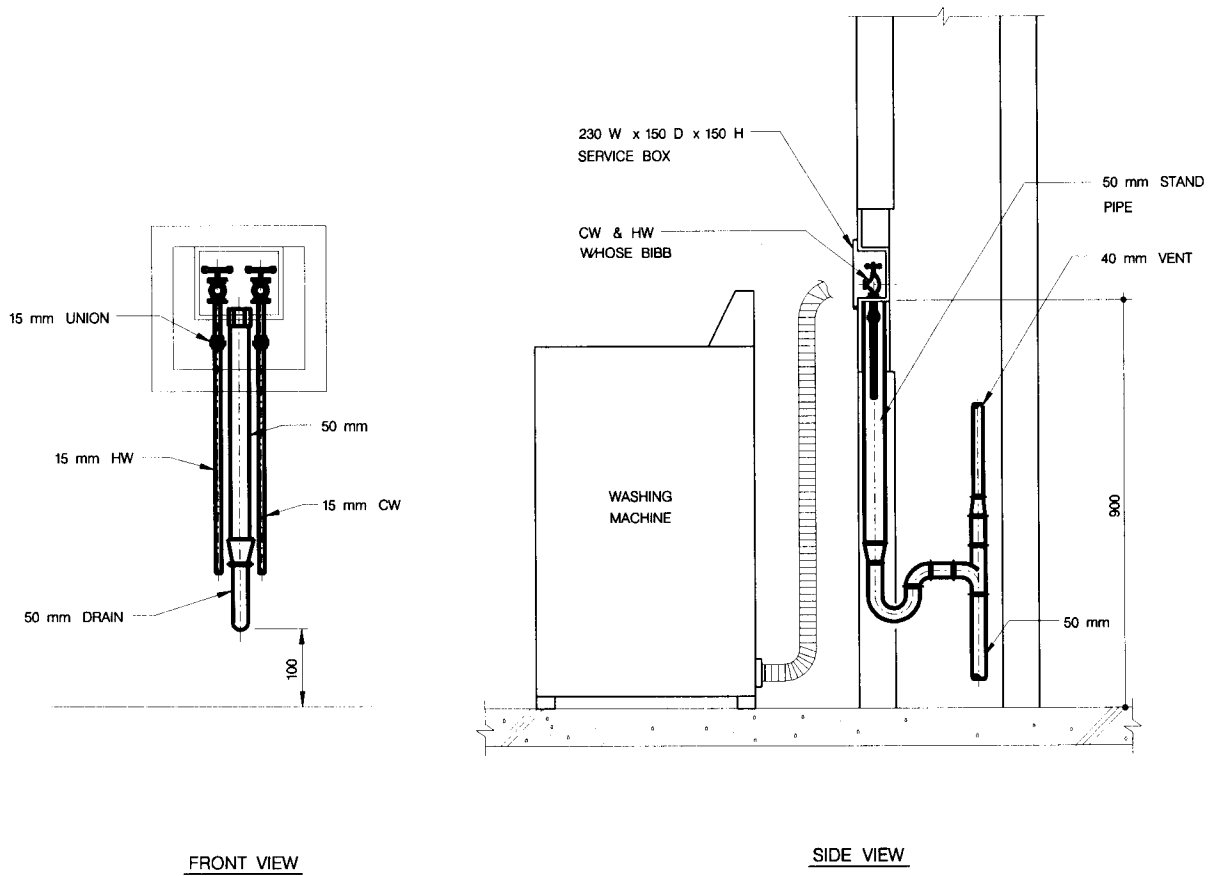
WALL CLEANOUT

IMA - KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	PLUMBING DETAILS - WALL CLEANOUTS	SPEC	15400	OCT 2003	M0606



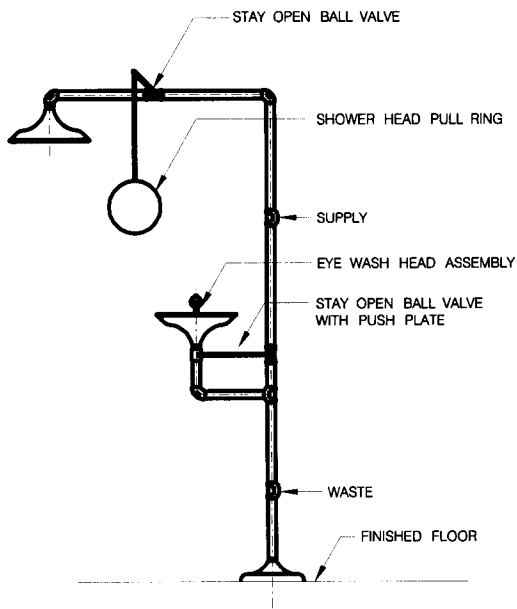
TYPICAL VENT FLASHING

IMA - KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	PLUMBING DETAILS - TYPICAL VENT FLASHING	SPEC	15400	OCT 2003	M0607

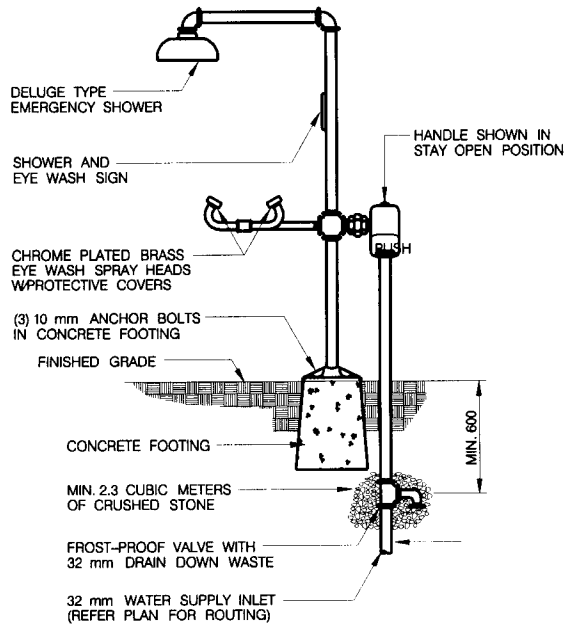


WASHER DRAIN STAND PIPE

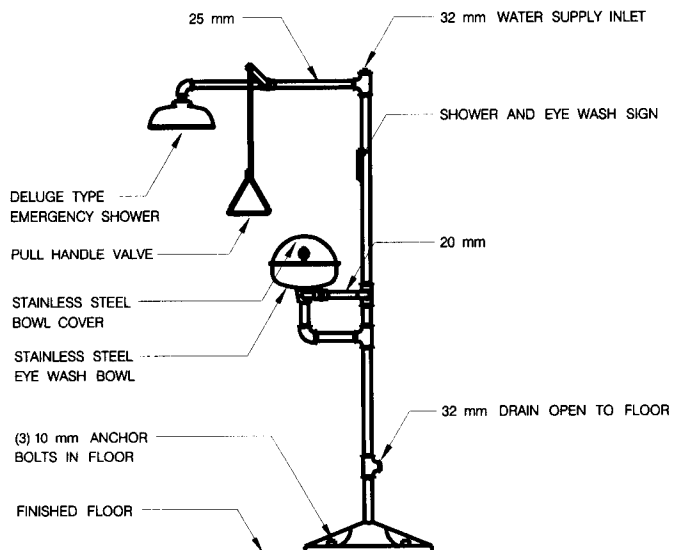
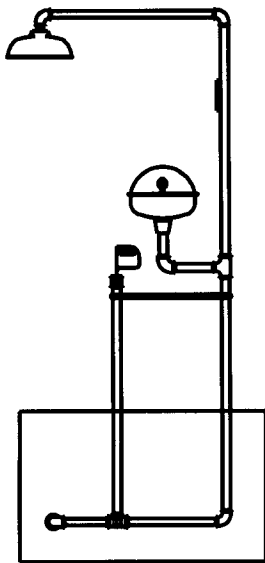
IMA - KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	PLUMBING DETAILS - WASHER DRAIN STAND PIPE	SPEC	15400	OCT 2003	M0608



EMERGENCY SHOWER WITH EYE WASH

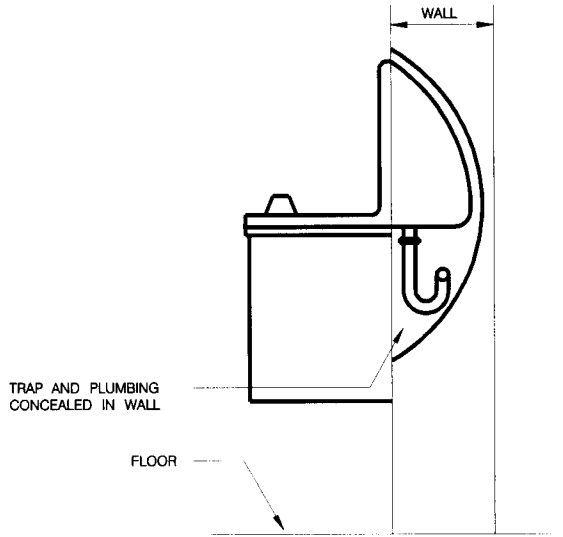


FROST-PROOF COMBINATION DRENCH SHOWER/EYE WASH UNIT



COMBINATION DRENCH SHOWER/EYE WASH UNIT DETAIL

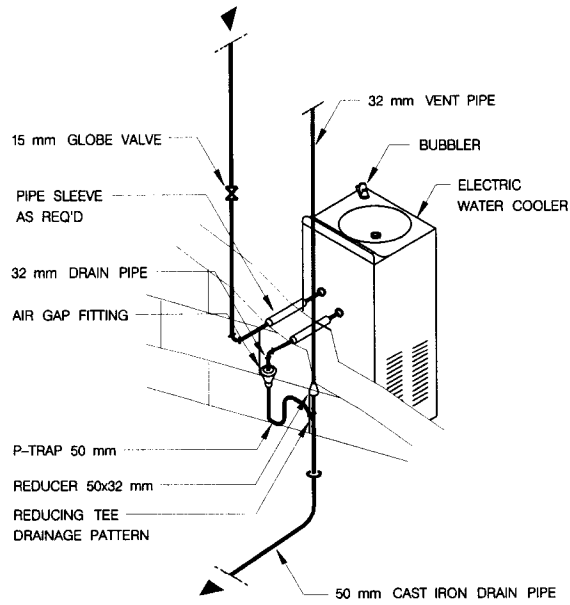
IMA - KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	PLUMBING DETAILS - EMERGENCY SHOWER / EYE WASH	SPEC	15400	OCT 2003	M0609



NOTE :

INSTALL ACCORDING TO MANUFACTURER'S INSTRUCTIONS.

SEMI-RECESSED DRINKING WATER COOLER



NOTE :

WATER COOLER SHALL BE FREE STANDING TYPE.

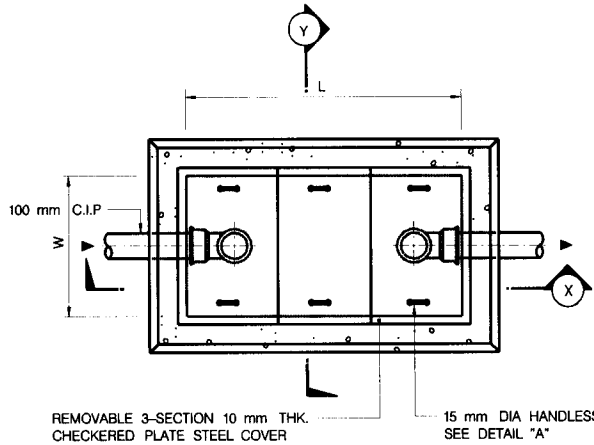
ELECTRIC WATER COOLER

IMA - KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	PLUMBING DETAILS - WATER COOLER	SPEC	15400	OCT 2003	M0610

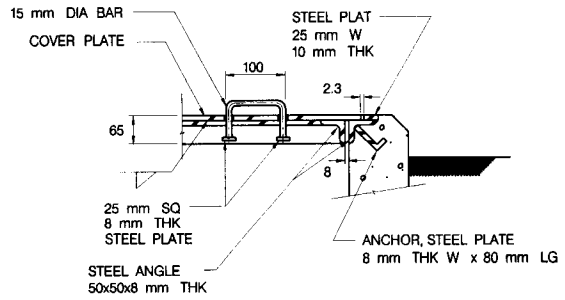
SYMBOLS	FIXTURES	PIPE CONNECTION SIZES (mm)				MOUNTING HEIGHTS FROM FINISH FLOOR
		C.W.	H.W.	WASTE	VENT	
P-1	WATER CLOSET, FLUSH VALVE	25	-	100	-	350 TO 375
	WATER CLOSET, FLUSH TANK	15	-	100	-	350 TO 375
P-2	URINAL STALL, FLUSH VALVE	20	-	50	40	600
P-3	BATHTUB	15	15	50	32	-
P-4	LAVATORY	15	15	50	40	775
P-5	SINK, KITCHEN	15	15	50	40	850 TO 900
P-6	SERVICE SINK	15	15	80	40	650
P-10	LAUNDRY SINK	15	15	50	40	850
P-11	SHOWER	15	15	-	-	VALVE:1350, HEAD:1800

PIPE CONN. SIZES & FIXTURE MOUNTING HEIGHT

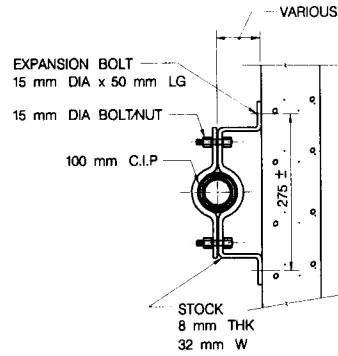
IMA - KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	PLUMBING DETAILS - FIXTURE MOUNTING & CONNECTION	SPEC	15400	OCT 2003	M0611



PLAN

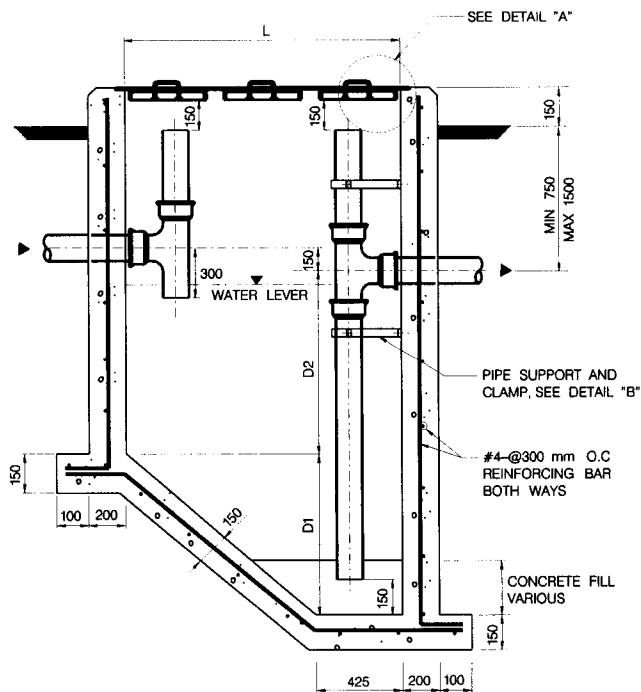


DETAIL-"A"

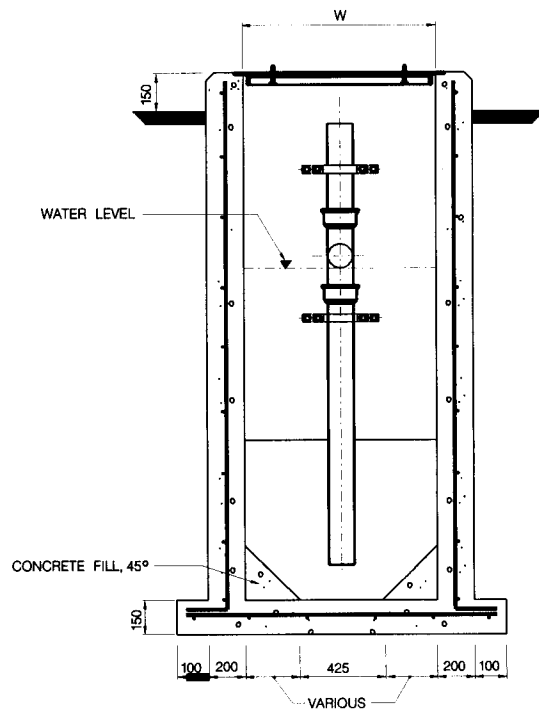


DETAIL-"B"

GREASE TRAP SCHEDULE (mm)				
CAPACITY, MEN	LENGTH "L"	WIDTH "W"	D1	D2
1 TO 150	1,280	825	700	350
151 TO 250	1,280	825	700	600
251 TO 500	1,350	980	800	800
501 TO 1,000	1,800	1,200	950	900
1,001 TO 1,500	2,400	1,350	1,050	900



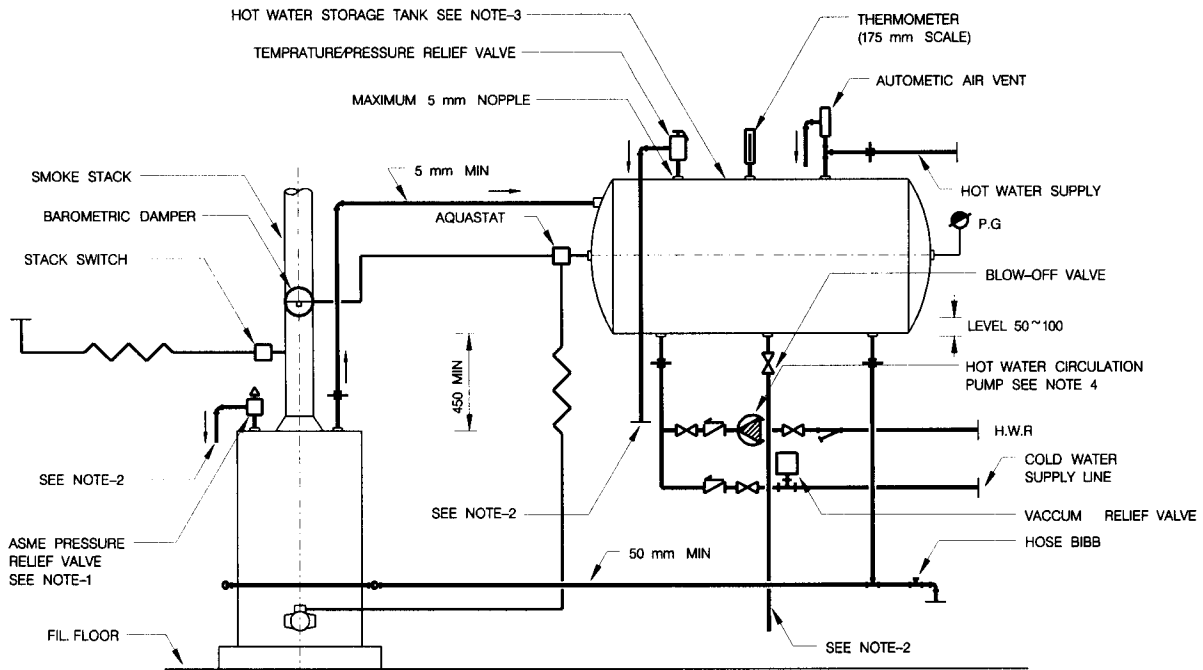
SECTION - X



SECTION - Y

GREASE TRAP

IMA - KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	PLUMBING DETAILS - GREASE TRAP	SPEC	15400	OCT 2003	M0612

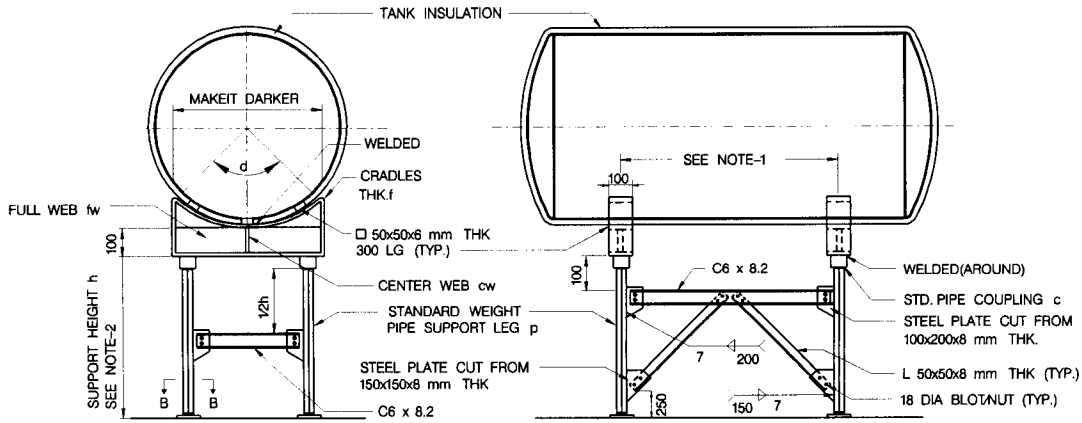


NOTES :

1. COMB. TEMPERATURE AND PRESSURE RELIEF VALVE MAY BE PROVIDED INSTEAD OF SEPARATE VALVES WHEN THE HEAT INPUT IS LESS THAN 58 KW-H OR LESS AND THE STORAGE TANK CAPACITY IS 450 LITERS OR LESS.
2. RELIEF DRAIN AND BLOW-OFF DRAIN EXTEND TO NEAREST FLOOR DRAIN.
3. HOT WATER STORAGE TANK SHALL BE GLASS LINING TYPE FOR STORAGE CAPACITIES OF 370 LITERS OR LESS AND CEMENT OR SILICEOUS LINING TYPE FOR OVER 370 LITERS CAPACITIES.
4. NO CIRCULATING PUMP AND PIPING WILL BE INSTALLED IN SMALL ONE STORY BUILDINGS, EXCEPT WHERE A HORIZONTAL RUN EXCEEDS 30 METERS IN LENGTH FOR SUCH CASES, A LOOP RETURN OF AT LEAST ONE-HALF THE SIZE OF THE HOT WATER MAIN WILL BE PROVIDED.

OIL - FIRED HOT WATER AND STORAGE TANK

IMA - KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	PLUMBING DETAILS - DHW HEATER & STORAGE TANK	SPEC	15400	OCT 2003	M0613



- WELDED (AROUND)
- BASE PLATE bpt
- 15 mm DIA x 100 mm LG
- ANCHOR BOLT/NUT

TANK DIA	BASE PLATE bpt	CRADLES THK.t	c & p	j	d	cw	fw
600	125 x 100 x 9	8	50	400	2,000 ~ 2,250	NOT REQ'D	PART WEB
750	150 x 125 x 10	8	65	500	2,000 ~ 2,250		
900	150 x 125 x 10	8	65	580	2,000 ~ 2,250		
1,050	150 x 125 x 15	8	80	690	2,000 ~ 2,250		
1,200	150 x 125 x 15	9	80	790	2,000 ~ 2,250		
1,350	150 x 125 x 15	9	80	895	2,000 ~ 2,250		
1,500	150 x 125 x 15	10	80	995	2,000 ~ 2,250		
1,800	150 x 125 x 15	10	80	1,205	2,000 ~ 2,250		
2,100	150 x 125 x 15	10	80	1,635	2,500		
2,400	150 x 125 x 15	10	80	1,875	2,500		

(UNIT : mm)

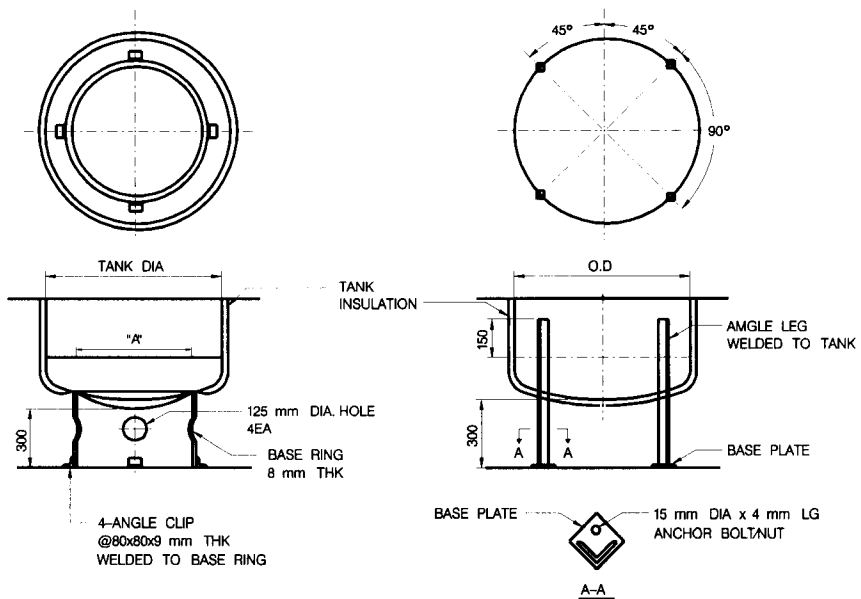
NOTES :

1. SUPPORT CRADLES(2) SHALL BE LOCATED AT APPROXIMATELY 1/4 POINTS OF TANK OVERALL LENGTH.
2. ELEVATION BETWEEN BOTTOM OF HOT WATER STORAGE TANK AND TOP OF HOT WATER HEATER SHALL BE KEPT MIN. 123 mm UNLESS A FORCED CIRCULATING PUMP IS PROVIDED.

HORIZONTAL TANK

TANK SUPPORTS - DOMESTIC HOT WATER

IMA - KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	PLUMBING DETAILS - DHW TANK SUPPORT (1)	SPEC	15400	OCT 2003	M0614



BASE RING	
TANK DIA.	DIMENSION "A"
600	500
750	600
900~1,050	750
1,200	900
1,350	1,050
1,500	1,200
1,650	1,350
1,800	1,500
2,100	1,800
2,400	2,100

(UNIT : mm)

ANGLE LEG		
TANK DIA.	BASE PLATE	ANGLE LEG
600	100 x 100 x 9	50 x 50 x 8
750~900	125 x 125 x 10	65 x 65 x 8
1,050~1,350		80 x 80 x 10
1,500	150 x 150 x 15	100 x 100 x 15
1,800	200 x 200 x 15	
2,100~2,400	200 x 200 x 15	150 x 150 x 15

(UNIT : mm)

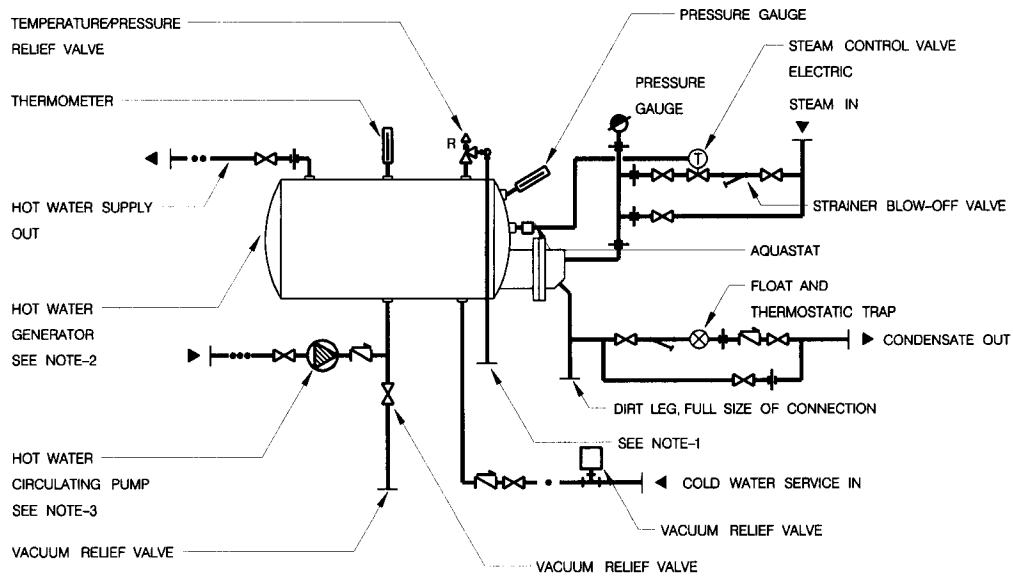
NOTE :

BASE PLATES OF 4 LEGS ARE NOT FACTORY DRILLED FOR ANCHOR BOLTS, THEY ARE LEFT FOR FIELD DRILLING TO SUIT ACTUAL ANCHOR BOLT MEASUREMENTS.

VERTICAL TANK

TANK SUPPORTS - DOMESTIC HOT WATER

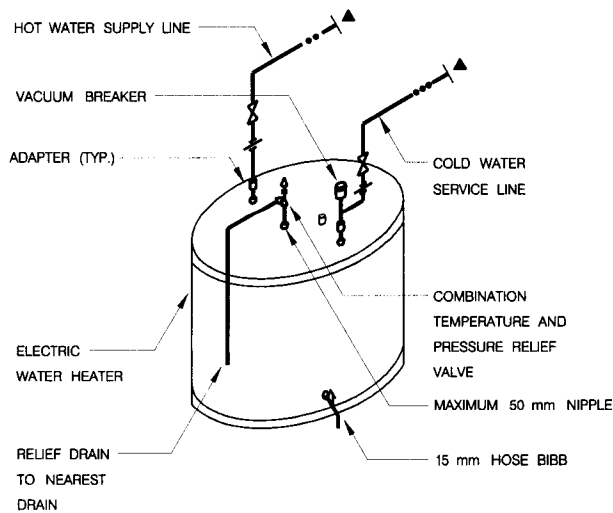
IMA - KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	PLUMBING DETAILS - DHW TANK SUPPORT (2)	SPEC	15400	OCT 2003	M0615



NOTES :

1. RELIEF DRAIN AND BLOW-OFF DRAIN SHALL BE EXTENDED TO NEAREST FLOOR DRAIN.
2. HOT WATER STORAGE TANK SHALL BE GLASS LINING TYPE FOR STORAGE CAPACITIES OF 370 LITERS OR LESS AND CEMENT OR SILICEOUS LINING TYPE FOR OVER 100 GALLONS CAPACITIES.
3. NO CIRCULATING PUMP AND PIPING WILL BE INSTALLED IN SMALL ONE STORY BUILDINGS EXCEPT WHERE A HORIZONTAL RUN EXCEED 30 METERS IN LENGTH FOR SUCH CASES, A LOOP RETURN OF AT LEAST ONE-HALF THE SIZE OF THE HOT WATER MAIN WILL BE PROVIDED.

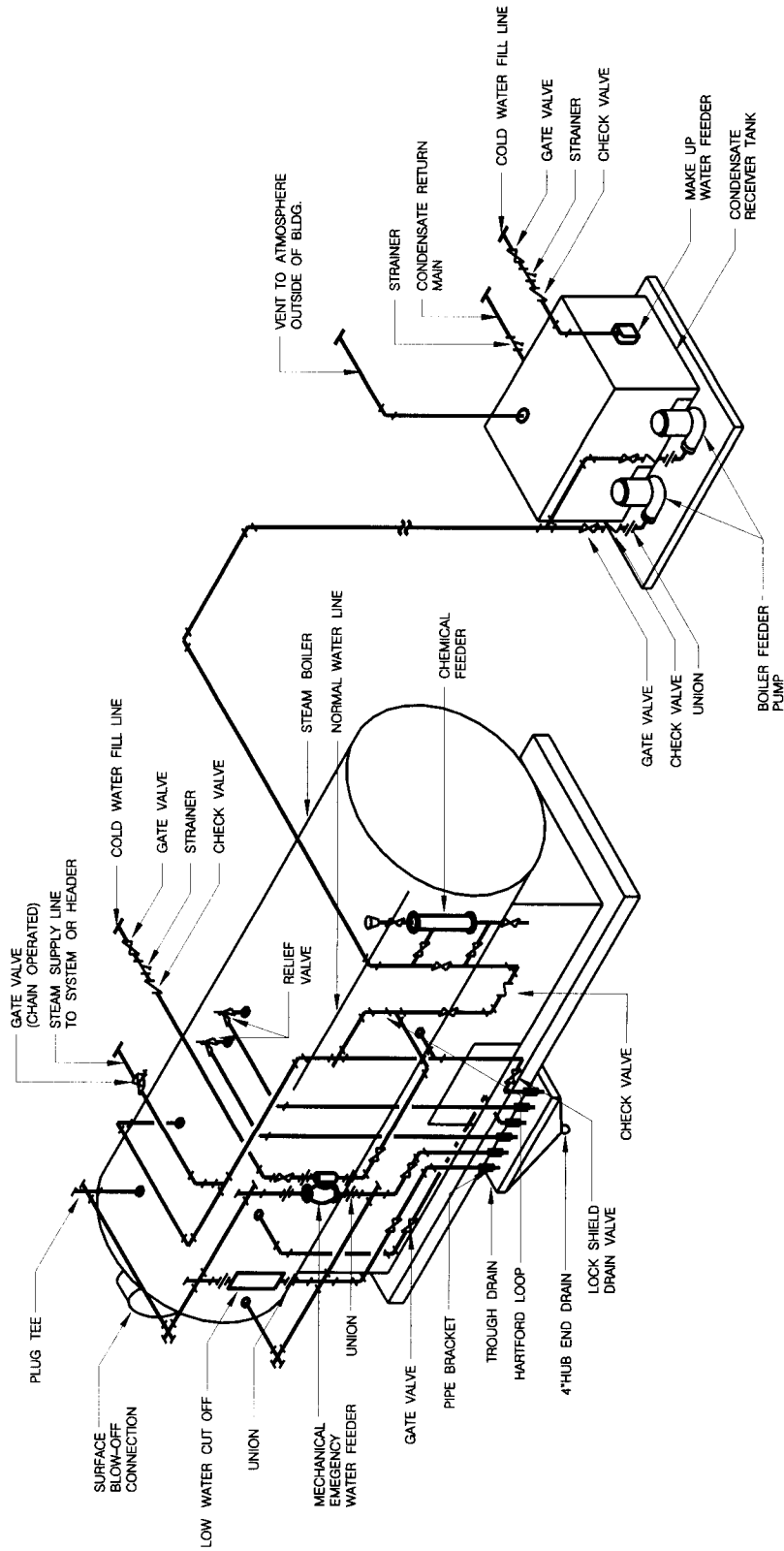
HOT WATER GENERATOR



NOTE : HEATER SHALL BE PROPPED UP MIN. 20 mm CLEARANCE FROM THE FLOOR (OR PAD)

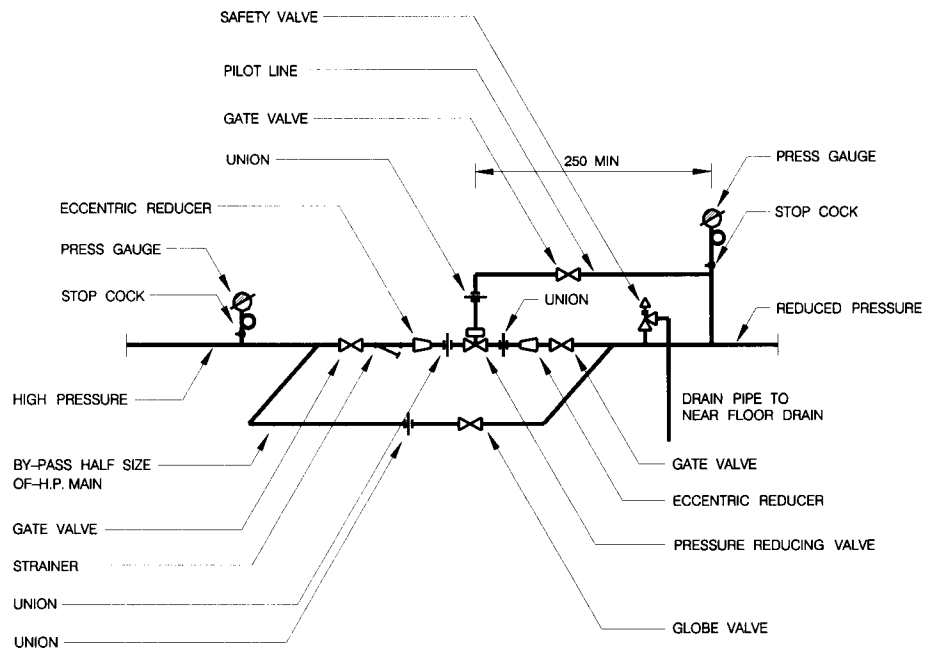
ELECTRIC WATER HEATER

IMA – KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	PLUMBING DETAILS – HW GENERATOR & ELECTRIC WATER HEATER	SPEC	15400	OCT 2003	M0616



STEAM BOILER PIPING - LOW PRESSURE

IMA - KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	STEAM HEATING DETAILS - STEAM BOILER	SPEC	15569	OCT 2003	M0701



STEAM PRESSURE REDUCING PIPING

IMA - KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	STEAM HEATING DETAILS - STEAM PRESSURE REDUCING	SPEC	15569	OCT 2003	M0702

APPLICATION	SELECTION
DRIP OF PROCESS LINE, HEATING COIL	IVT
RADIATOR, CONVECTOR, STEAM KETTLE OR PAN (SLOW BOILING)	T.T
UNIT HEATER (LARGE CAPACITY), TUMBLER, HOT WATER GENERATOR, FLAT WORK IRONERS, EVAPORATOR	F & T
UNIT HEATER (SMALL CAPACITY), LOW PRESSURE STEAM MAIN LINE AND DRIP TRAP OF VERTICAL RISER PIPE (50 mm LESS) DRYER (COIL TYPE)	F & T
LOW PRESSURE STEAM MAIN LINE AND DRIP TRAP OF VERTICAL RISER PIPE (50 mm & OVER)	F & T
STEAM HEADER (LOW PRESSURE), HEATING COIL	F.T
LARGE VOLUME OF CONDENSATE	F.T

F.T : FLOAT TRAP, T.T : THERMOSTATIC TRAP (RECOMMENDED UP TO MAX 103 kPa)

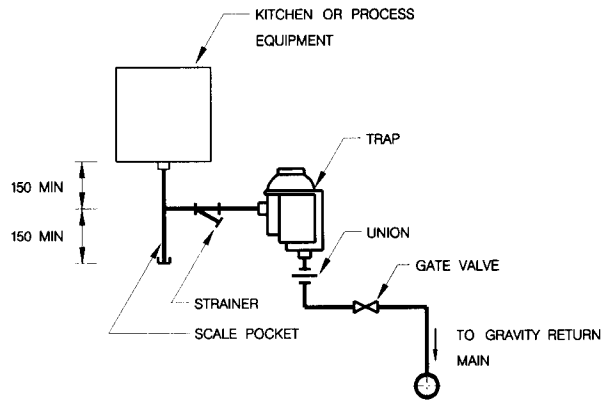
F.&T : FLOAT AND THERMOSTATIC TRAP (RECOMMENDED UP TO MAX 103 kPa)

IVT : INVERTED BUCKET TRAP

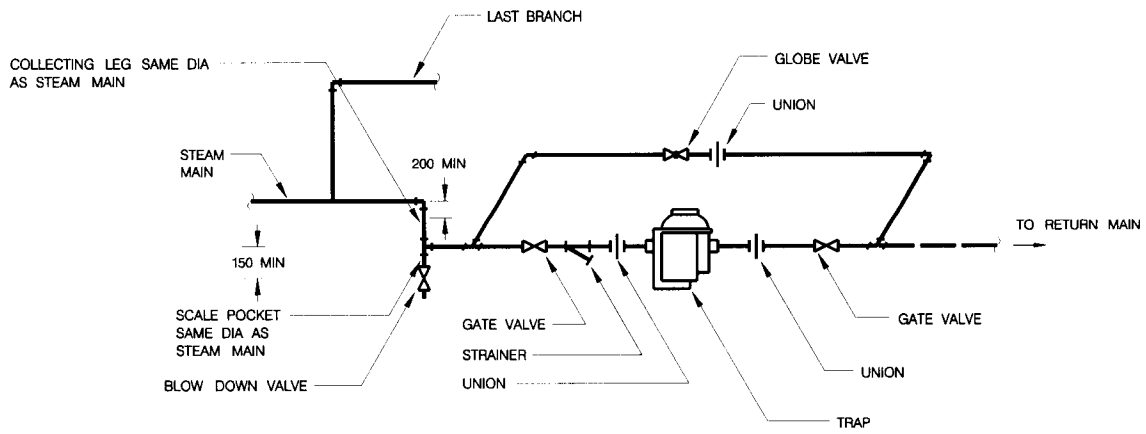
NOTE : THIS TABLE SHALL BE USED ONLY WHEN THE TYPE OF ANY SYSTEM TRAP IS NOT INDICATED/SPECIFIED IN THE CONTRACT DOCUMENT.

STEAM TRAP APPLICATION TABLE

IMA - KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	STEAM HEATING DETAILS - STEAM TRAP APPLICATION TABLE	SPEC	15569	OCT 2003	M0703



STEAM TRAP PIPING

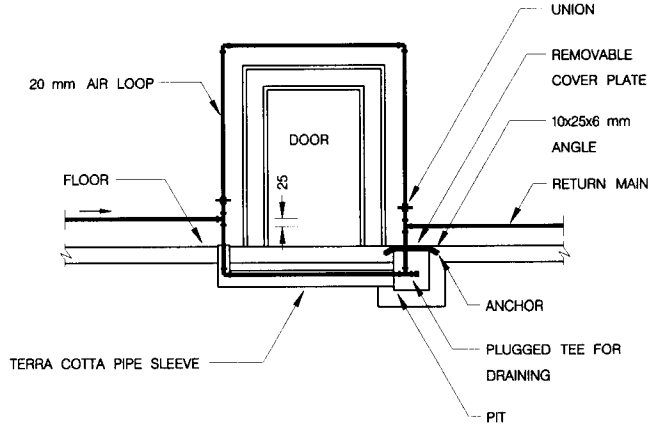


TERMINAL STEAM TRAP PIPING

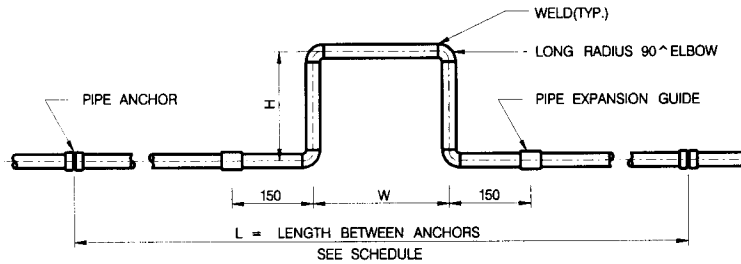
IMA - KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	STEAM HEATING DETAILS - STEAM TRAPS	SPEC	15569	OCT 2003	M0704

NOTE :

THE AIR LOOP SHALL HAVE A MIN 450 mm CLEARANCE BETWEEN THE DOOR FRAME AND AIR LOOP WHERE THE PIPE IS EXPOSED IN THE SPACE.



AIR LOOPS CONDENSATE RETURN AROUND OPENINGS



EXPANSION LOOP SCHEDULE

PIPE SIZE	DIMENSIONS		PIPE SIZE	DIMENSIONS	
	W	H		W	H
25	580	1,165	80	1,000	2,080
32	700	1,420	90	1,140	2,285
40	750	1,500	100	1,190	2,385
50	900	1,800	150	1,400	2,870
65	900	1,800	200	1,600	3,175

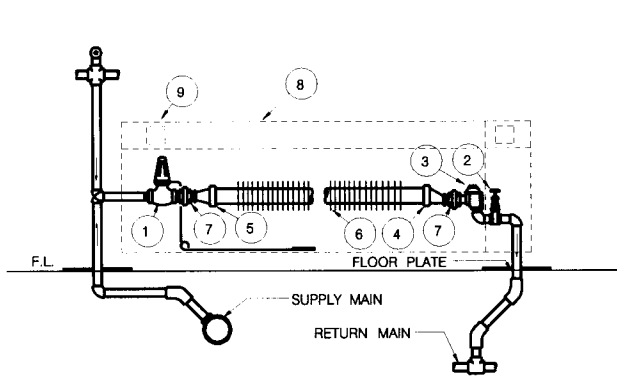
(UNIT : mm)

NOTE :

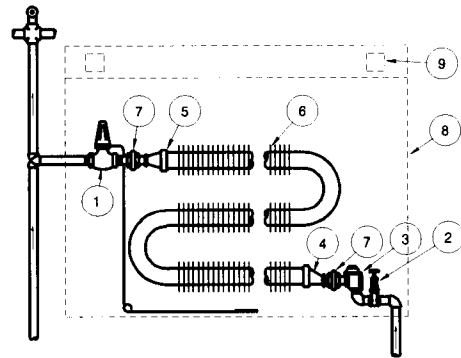
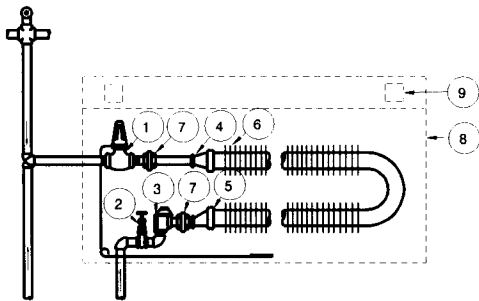
TABLE ABOVE IS BASED ON 93 C AND 1,034 kPa MAX PER 30 METER FOR STEEL PIPE (A-53 GRADE A).

EXPANSION LOOP

IMA - KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	STEAM HEATING DETAILS - AIR LOOPS CONDENSATE RETURN & EXPANSION LOOP	SPEC	15569	OCT 2003	M0705

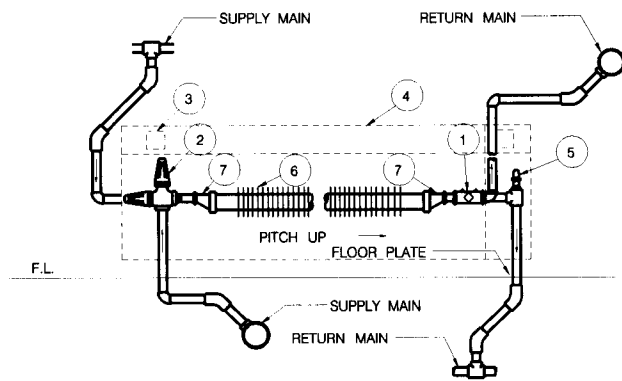


- ① NON-ELECTRONIC THERMOSTATIC RADIATOR VALVE (NETRV)
- ② GATE VALVE
- ③ THERMOSTATIC TRAP
- ④ ECCENTRIC REDUCER
- ⑤ CONCENTRIC REDUCER
- ⑥ FINNED TUBE CONVECTOR
- ⑦ UNION
- ⑧ RADIATOR COVER
- ⑨ ACCESS DOOR

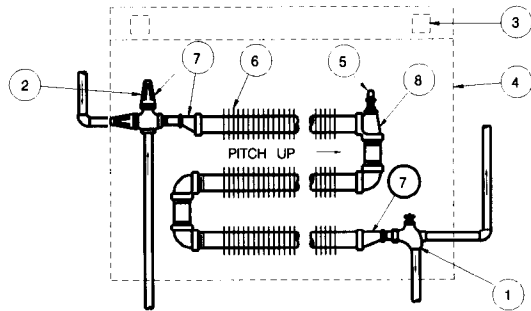
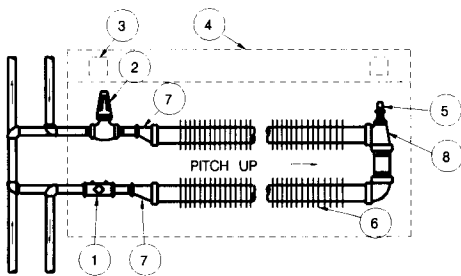


STEAM PIPING FOR FINNED TUBE RADIATOR

IMA - KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	STEAM HEATING DETAILS - FINNED TUBE RADIATOR	SPEC	15569	OCT 2003	M0706



- ① BALANCING COCK
- ② NON-ELECTRONIC THERMOSTATIC RADIATOR VALVE (NETRV)
ANGLE TYPE : UP FEED
STRAIGHT TYPE : DOWN FEED
- ③ ACCESS DOOR
- ④ RADIATOR COVER
- ⑤ AUTO AIR VENT (UP FEED PIPING ONLY)
- ⑥ FINNED TUBE RADIATOR
- ⑦ ECCENTRIC REDUCER
- ⑧ REDUCING TEE (UP FEED PIPING ONLY)



HOT WATER PIPING FOR FINNED TUBE RADIATOR

IMA - KORO, REGIONAL ENGINEER SUPPORT CENTER

REV DATE

DWG NO.

TITLE WATER HEATING DETAILS - FINNED TUBE RADIATOR

SPEC

15569

OCT 2003

M0707

GENERAL NOTES FOR DUCTWORKS

1. REDUCTION IN DUCT DEPTH SHALL BE MADE BY KEEPING THE DUCT FLAT ON BOTTOM UNLESS OTHERWISE INDICATED ON DRAWINGS.

2. WHERE DUCTS ARE INSTALLED ABOVE CEILING, ACCESS PANELS SHALL BE PROVIDED IN CEILING FOR DUCT ACCESS DOORS, DAMPERS, ETC.

3. ALL DUCTS SHALL BE SECURELY ANCHORED TO BUILDINGS & SHALL BE INSTALLED AS TO BE COMPLETELY FREE FROM VIBRATION UNDER ALL CONDITIONS OF OPERATIONS.

4. UNLESS OTHERWISE SPECIFIED ROOM THERMOSTAT SHALL BE INSTALLED AS INDICATED ON THE DRAWING 1,500 mm ABOVE FINISH FLOOR.

5. WHEN A DIFFUSER IS LOCATED AT THE END OF THE DUCT. IT SHALL BE EXTENDED 0 TO 300 mm BEYOND THE OPENING FOR THE DIFFUSER.

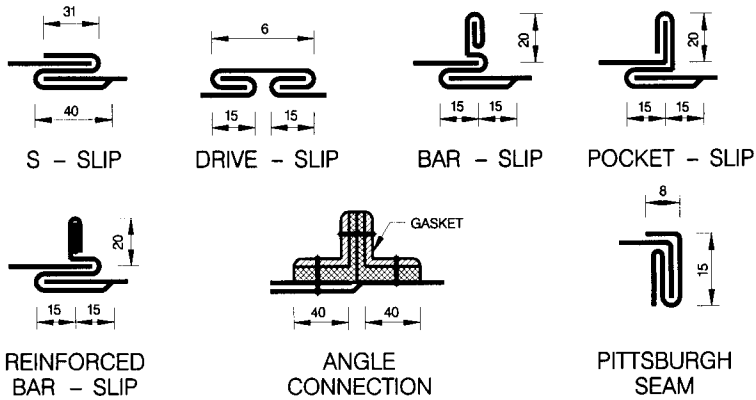
6. FRESH AIR INTAKE DUCT SHALL BE INSULATED TO 40 mm THK.

7. DETAILS SHOWN MAY BE MODIFIED TO SUIT ACTUAL CONDITIONS SUBJECT TO APPROVAL BY THE CONTRACTING OFFICER.

8. ONLY DETAILS APPLICABLE TO THE PROJECT SHALL BE USED.

9. ALL UNINSULATED DUCTS 18" AND LARGER SHALL BE CROSS - BROKEN.

IMA - KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	DUCTWORK DETAILS - GENERAL NOTES	SPEC	15895	OCT 2003	M0801



NOTES :

1. UNLESS HEAVY INSULATION IS USED DUCTS 250 mm AND LARGER SHOULD BE CROSS BROKEN. CROSS BREAKING MAY BE OMITTED IF THE ALUMINUM SHEET THICKNESS IS INCREASED BY ABOUT TWO GAUGE NUMBERS.
2. BRACING ANGLE MAY BE OMITTED ON DUCT SIZE 635 TO 1,520 mm INCLUSIVE (MAX SIZE) IF 1,140 mm SECTION LENGTH ARE USED.

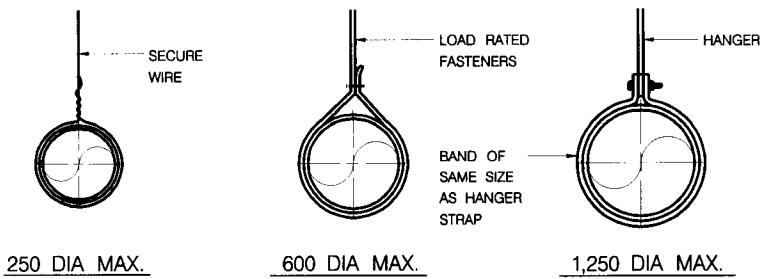
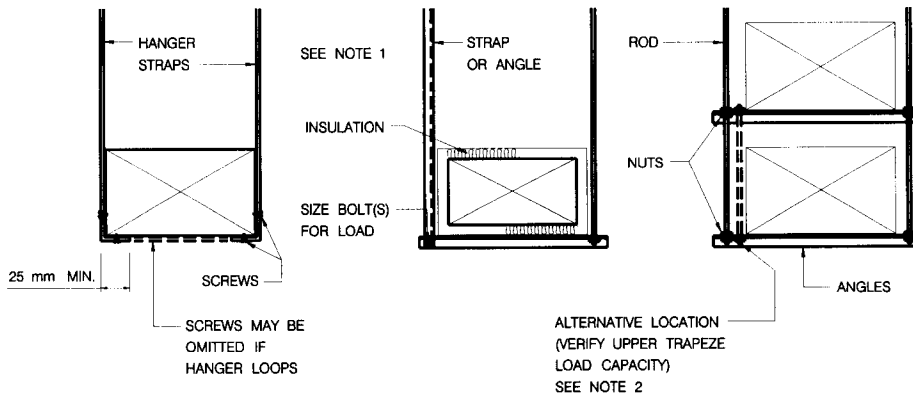
MAXIMUM SIDE SIZE (mm)	ALUMINUM B & SSA	STL. US STD. GA	WEIGHT # 10		TYPE OF TRANSVERSE JOINT CONNECTION	B R A C I N G
			ALUMINUM	STEEL		
UP TO 300	24	26	0.262	0.906	S - DRIVE & POCKET OR BAR SLIPS ON 2,385 mm CENTER	N O N E
325 TO 600	22	24	0.338	1.156	S - DRIVE & POCKET OR BAR SLIPS ON 2,385 mm CENTER	N O N E
625 TO 750	22	24	0.338	1.156	DRIVE 25 mm POCKET OR BAR SLIPS ON 2,385 mm CENTER	6 x 25 x 25 mm L 1,220 mm FROM JOINT
775 TO 1,000	20	22	0.452	1.406	DRIVE 25 mm POCKET OR BAR SLIPS ON 2,385 mm CENTER	6 x 25 x 25 mm L 1,220 mm FROM JOINT
1,025 TO 1,500	20	22	0.452	1.406	40 mm ANGLE CONNECTIONS OR 40 mm POCKET OR 40 mm BAR SLIPS WITH 10 x 6 mm BAR REINFORCING 2,360 mm O.C	6 x 40 x 40 mm L 1,220 mm FROM JOINT
1,525 TO 2,250	18	20	0.563	1.658	40 mm ANGLE CONNECTIONS OR 40 mm POCKET OR 40 mm BAR SLIPS 1,140 mm MAX CENTERS	40 x 40 x 6 mm DIA L"
2,500 TO UP	16	18	0.720	2.156	50 mm ANGLE CONNECTIONS OR 40 mm POCKET OR 40 mm BAR SLIPS 1,140 mm MAX CENTERS W/10 mm BAR REINFORCING	40 x 40 x 6 mm 610 mm FROM JOINT

DUCT CONSTRUCTION SCHEDULE

IMA - KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	DUCTWORK DETAILS - DUCT CONSTRUCTION SCHEDULE	SPEC	15895	OCT 2003	M0802

STRAP HANGERS

TRAPEZE HANGERS



HANGER SIZES FOR RECTANGULAR DUCT				
LONGEST DIMENSION OF DUCT	HANGER RODS	STRAP HANGERS	TRAPEZE SHELF ANGLES	MAXIMUM SPACING
UP THRU 450	-	25 x 22 GA	25 x 25 x 3	3,000
475 THRU 750	-	25 x 22 GA	25 x 25 x 3	3,000
775 THRU 1,050	10 DIA	25 x 18 GA	40 x 40 x 3	3,000
1,075 THRU 1,500	10 DIA	25 x 18 GA	40 x 40 x 3	3,000
1,525 THRU 2,100	10 DIA	25 x 16 GA	50 x 50 x 3	2,400
2,125 THRU 2,400	10 DIA	25 x 16 GA	50 x 50 x 5	2,400
OVER 2425	15 DIA	40 x 16 GA	50 x 50 x 6	2,400

(UNIT : mm)

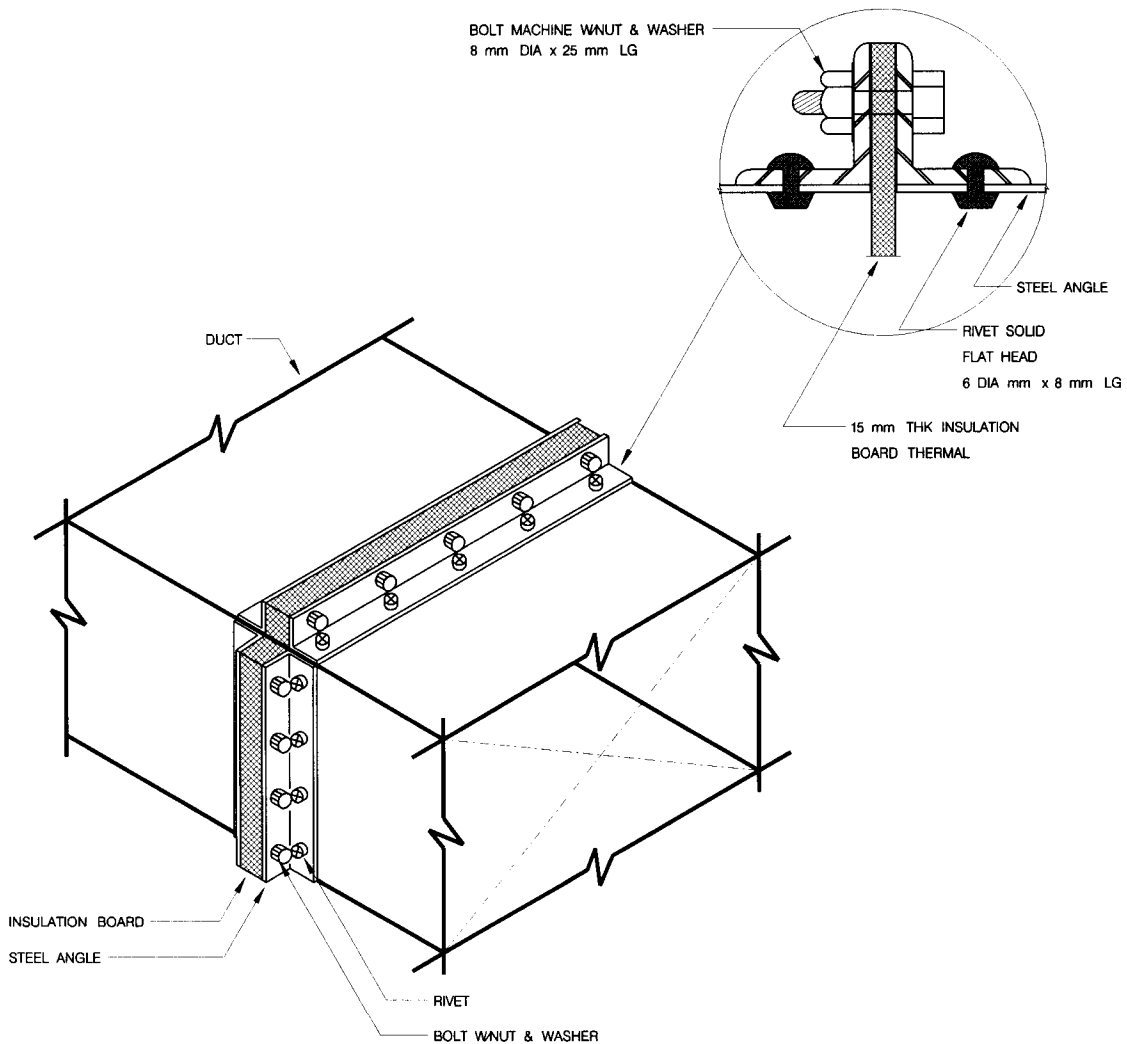
HANGER SIZES FOR ROUND DUCT					
DUCT DIAMETER	HANGER RODS	STRAP HANGERS	MAXIMUM SPACING	NUMBER OF HANGERS	REMARKS
UP THRU 450	6 DIA OR 8 GA WIRE	25 x 22 GA	3,000	1	
475 THRU 900	10 DIA	25 x 20 GA	3,000	1	
925 THRU 1,250	10 DIA	25 x 20 GA	3,000	2	
1275 THRU 2,100	10 DIA	25 x 16 GA	3,000	2	

(UNIT : mm)

- NOTES :**
- DISTANCE IS NOT EXCEED 1,500 UNLESS FOOT OF STRAP IS PLACED UNDER A BOTTOM REINFORCEMENT.
 - REINFORCEMENT MAY BE USED FOR ATTACHMENT IF IT QUALIFIES FOR BOTH DUTIES. DO NOT EXCEED ALLOWABLE LOAD LIMITS.

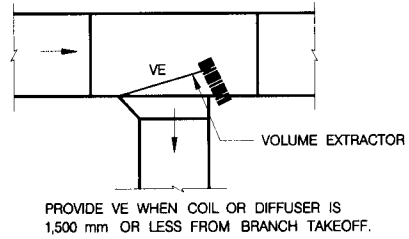
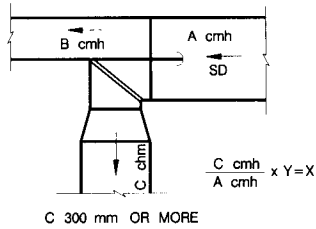
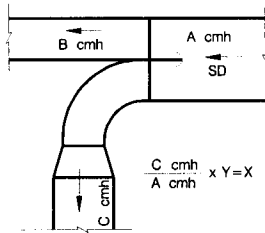
DUCT HANGERS

IMA - KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	DUCTWORK DETAILS - DUCT HANGERS	SPEC	15895	OCT 2003	M0803

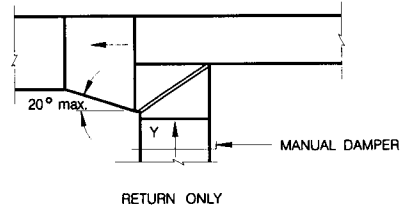
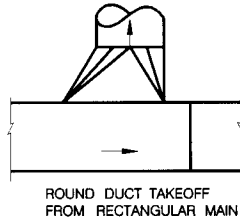


ANGLE FLANGE CONNECTION

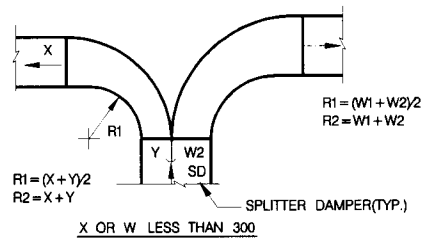
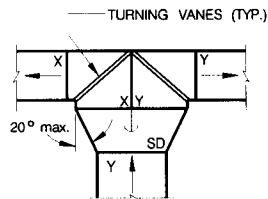
IMA - KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	DUCTWORK DETAILS - ANGLE FLANGE CONNECTION	SPEC	15895	OCT 2003	M0804



C LESS THAN 300 mm
NOTE : SEE SMACNA DUCT MANUAL
(1985) FIGS. 2-7

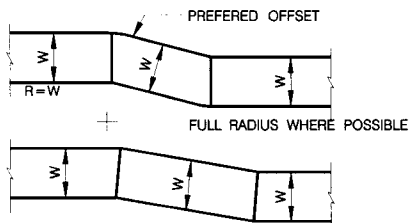


BRANCH TAKE-OFFS

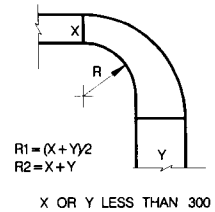
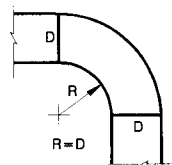


90° TEES

NOTE: ABOVE APPLY TO SUPPLY AND RETURN



OFFSETS



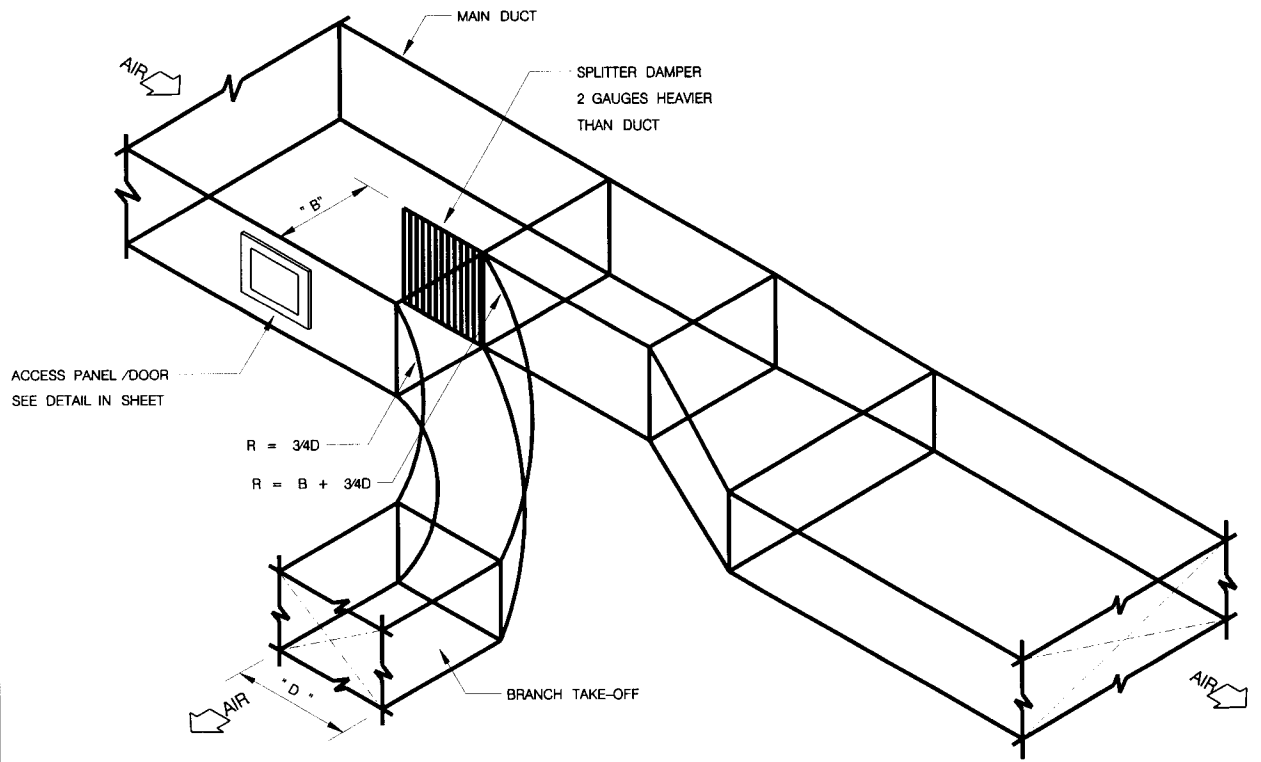
D LESS THAN 300 mm
FOR D OF 300 mm OR MORE
USE VANED ELBOW

NOTES :

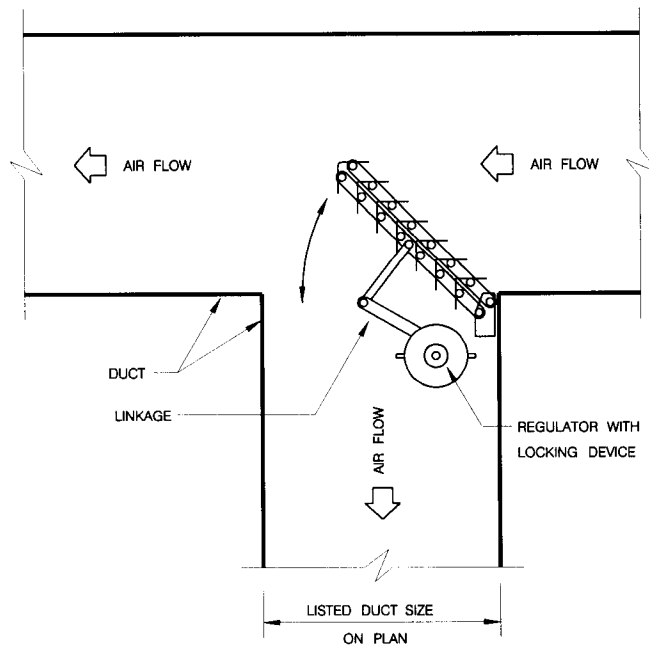
1. THE INTERIOR SURFACE OF ALL RADIUS ELBOWS SHALL BE MADE ROUND.
2. ALL STANDARD RADIUS ELBOWS SHOWN ON PLANS MAY BE MADE SHORT RADIUS ELBOWS. ALL SHORT RADIUS ELBOWS SHALL HAVE VANES. VANES SHALL BE CONSTRUCTED, SUPPORTED AND FASTENED AS RECOMMENDED BY SMACNA.

90° RADIUS ELBOWS

IMA - KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	DUCTWORK DETAILS - BRANCH TAKE-OFFS, TEES, OFFSETS & ELBOWS	SPEC	15895	OCT 2003	M0805

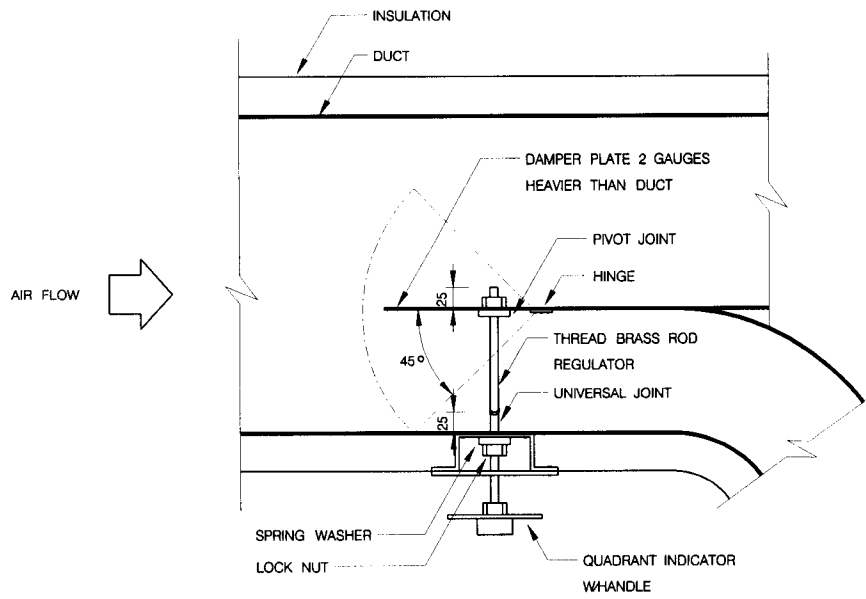


BRANCH TAKE-OFF

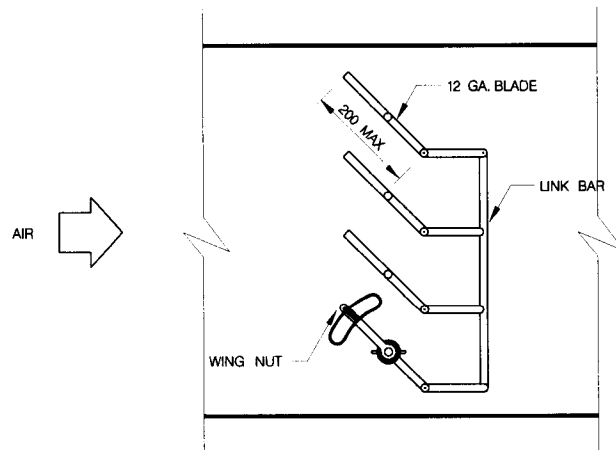


AIR EXTRACTOR

IMA - KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	DUCTWORK DETAILS - BRANCH TAKE-OFF & AIR EXTRACTOR	SPEC	15895	OCT 2003	M0806



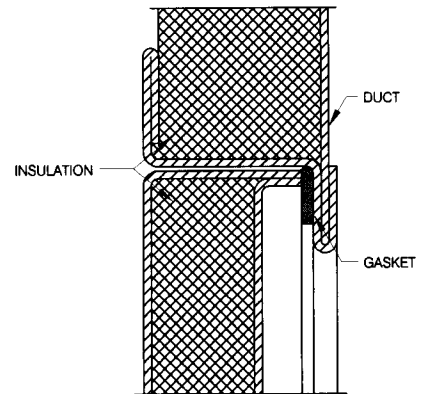
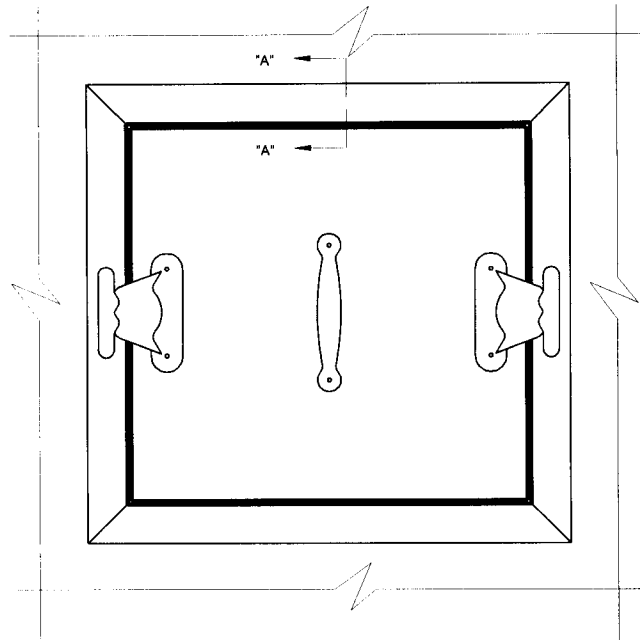
SPLITTER DAMPER



REGULATOR WITH QUADRANT LOCKING DEVICE
 "YOUNG" CAT. NO. 403 LEVER TYPE VARCALOX
 OR APPROVED EQUAL

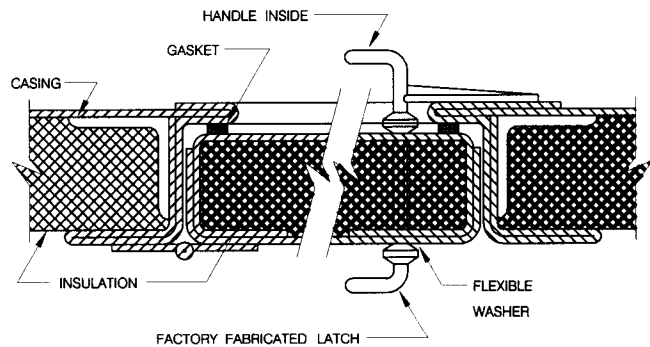
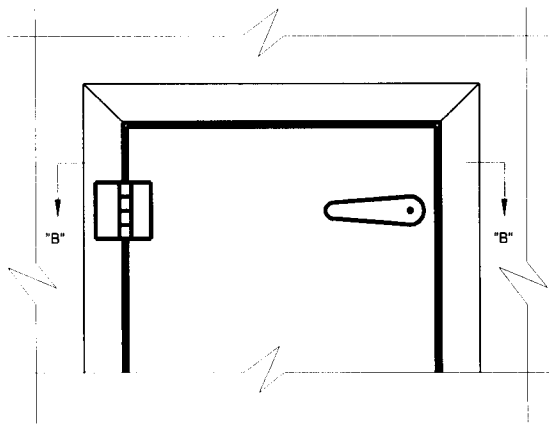
VOLUME DAMPER

IMA - KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	DUCTWORK DETAILS - SPLITTER DAMPER & VOLUME DAMPER	SPEC	15895	OCT 2003	M0807



SECTION "A-A"

ACCESS PANEL



SECTION "B-B"

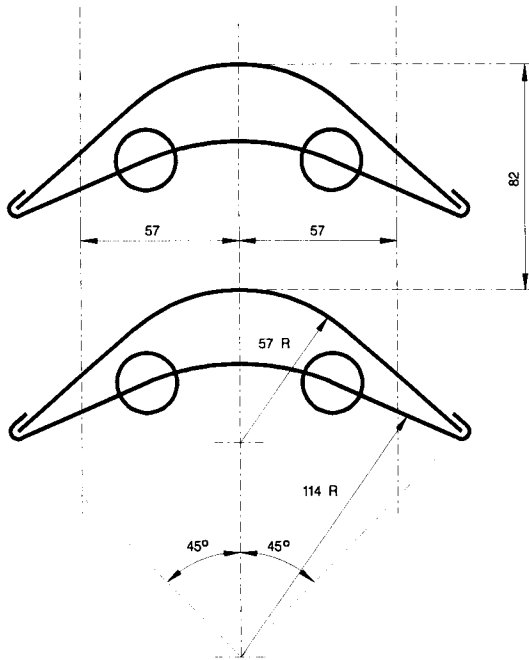
ACCESS DOOR

NOTES :

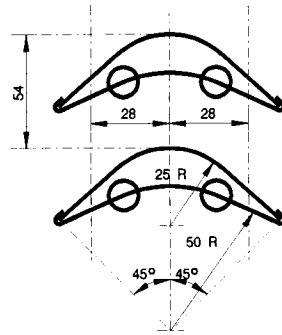
1. LATCHES SHALL BE OF THE WEDGE TYPE TO CLOSE DOORS TIGHTLY.
2. HINGES ON THE ACCESS DOORS SHALL HAVE NON - CORROSIVE PINS.

NOTE : USE ACCESS DOORS ON AIR HANDLING UNITE AND DUCTWORK INSTALLED IN EQUIPMENT ROOMS. USE ACCESS PANELS ON ALL EQUIPMENT AND DUCTWORK INSTALLED ABOVE FINISHED CEILINGS.

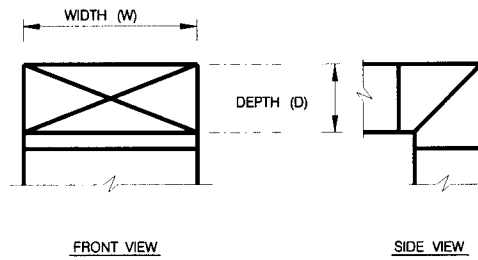
IMA - KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	DUCTWORK DETAILS - ACCESS PANEL / DOOR	SPEC	15895	OCT 2003	M0808



LARGE DOUBLE VANE ELBOW
USE FOR ELBOWS 900 mm OR
WIDER AND ANY DEPTH



SMALL DOUBLE VANE ELBOW
USE FOR ELBOWS UP TO 900 mm
IN WIDER AND /OR DEPTH



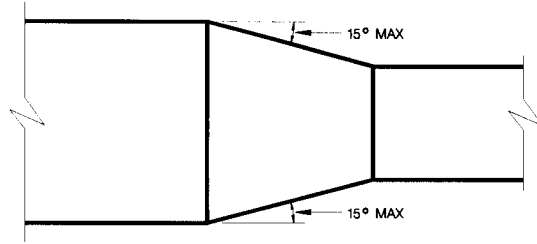
TYPICAL ELBOW

SQUARE / RECTANGULAR ELBOWS

NOTES :

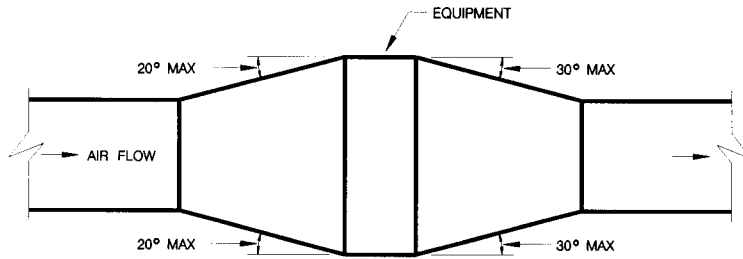
1. ALL SQUARE OR RECTANGULAR ELBOWS SHALL HAVE ONE OF THE TWO TYPES OF TURNING VANES SHOWN ABOVE. SINGLE VANE ELBOWS WILL NOT BE PERMITTED.
2. VANES SHALL BE CONSTRUCTED, SUPPORTED AND FASTEND AS RECOMMENDED BY SMACNA.
3. ALL SQUARE OR RECTANGULAR ELBOWS SHOWN ON PLANS FOR EXHAUST OR RETURN DUCT MAY BE MADE RADIUS ELBOWS PROVIDED SPACE PERMITS RADIUS INSTALLATION.
4. ALL SQUARE OR RECTANGULAR ELBOWS SHOWN ON PLANS FOR SUPPLY DUCT MAY BE MADE RADIUS ELBOWS PROVIDED SPACE PERMITS RADIUS INSTALLATION AND /OR THERE INST AN OUTLET OR TAKE-OFF WITHIN 50 ON THE DOWNSTREAM SIDE OF THE ELBOW.

IMA - KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	DUCTWORK DETAILS - SQUARE / RECTANGULAR ELBOWS	SPEC	15895	OCT 2003	M0809



PLAN OR SIDE VIEW

DUCT TRANSITION

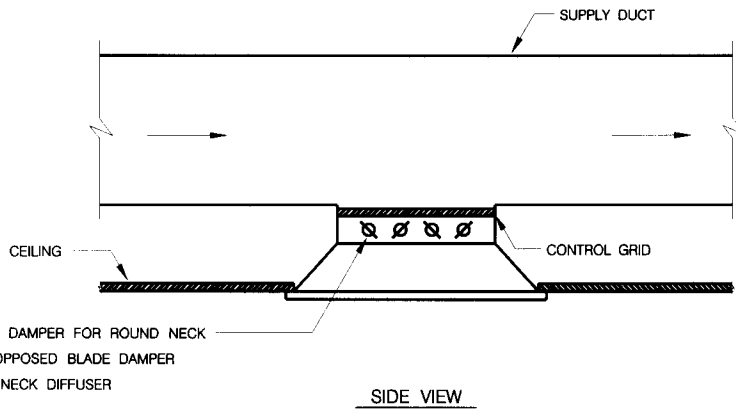


PLAN OR SIDE VIEW

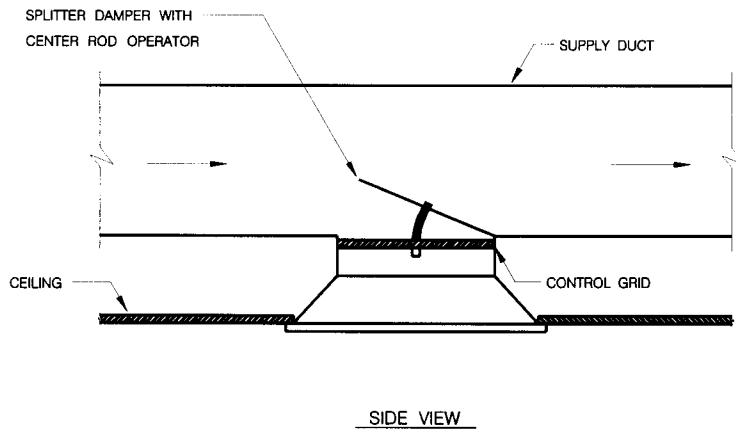
DUCT TRANSFORMATION WITH EQUIPMENT IN DUCT

NOTE : UNLESS OTHERWISE INDICATED ON PLANS, MAXIMUM ANGLES SHOWN SHALL APPLY.

IMA - KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	DUCTWORK DETAILS - DUCT TRANSITION / TRANSFORMATION	SPEC	15895	OCT 2003	M0810



ROUND AND /OR SQUARE NECK CEILING DIFFUSER TAKE-OFF

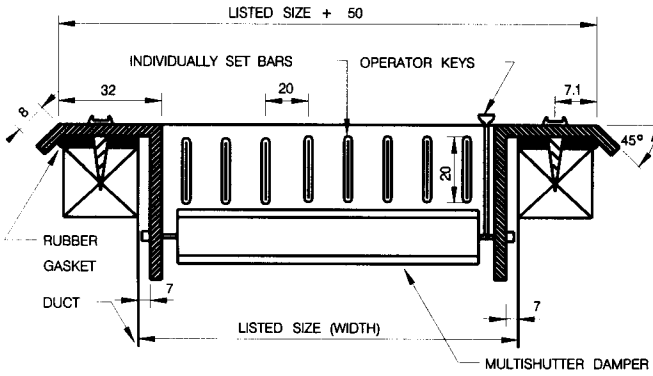


ROUND NECK CEILING DIFFUSER TAKE-OFF

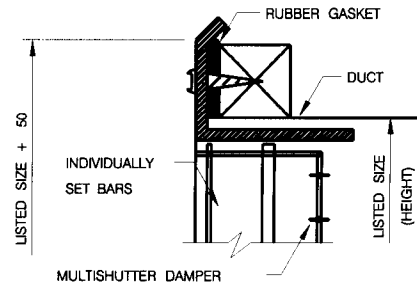
NOTE : FOR ROUND NECK CEILING DIFFUSERS, USE SPLITTER DAMPER ONLY WHEN SPACE BETWEEN BOTTOM OF DUCT AND CEILING DOES NOT PERMIT INSTALLATION OF MULTL - BLADE VOLUME DAMPER.

CEILING DIFFUSER TAKE-OFFS

IMA - KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	DUCTWORK DETAILS - CEILING DIFFUSER TAKE-OFFS	SPEC	15895	OCT 2003	M0811

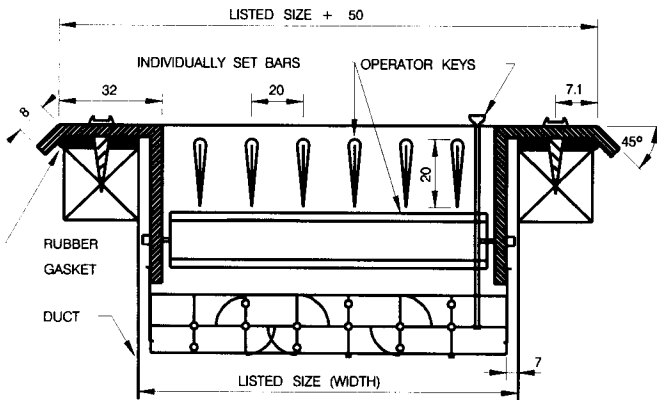


HORIZ. CROSS SECTION

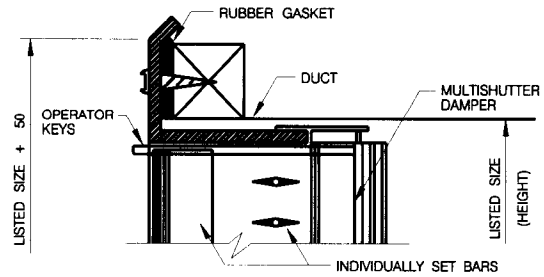


VERT. CROSS SECTION

RETURN AIR GRILLE



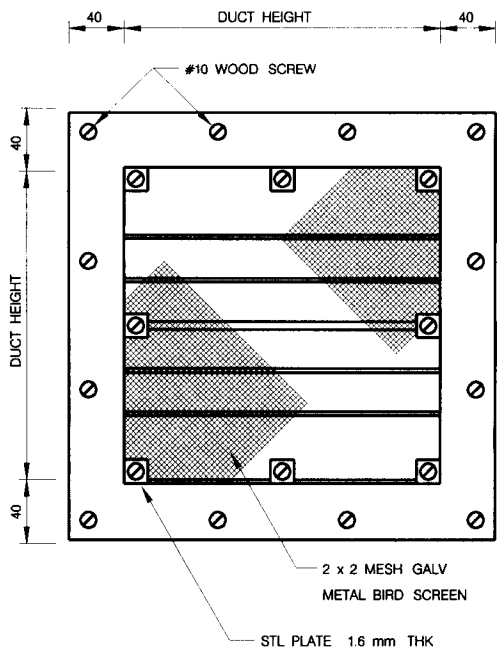
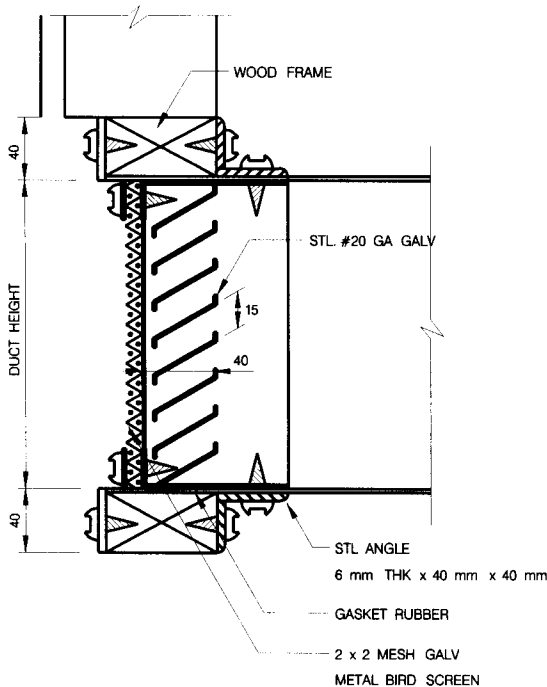
HORIZ. CROSS SECTION



VERT. CROSS SECTION

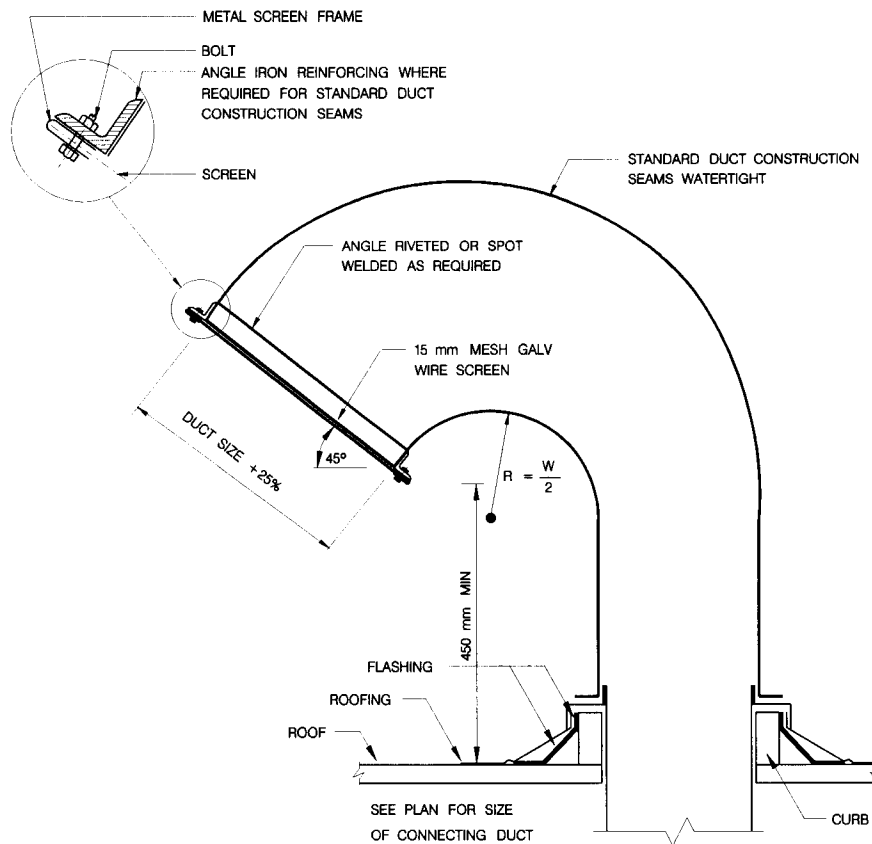
SUPPLY AIR REGISTER

IMA - KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	DUCTWORK DETAILS - RETURN AIR GRILLE & SUPPLY AIR REGISTER	SPEC	15895	OCT 2003	M0812



FRESH AIR INTAKE LOUVER

IMA - KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	DUCTWORK DETAILS - FRESH AIR INTAKE LOUVER	SPEC	15895	OCT 2003	M0813



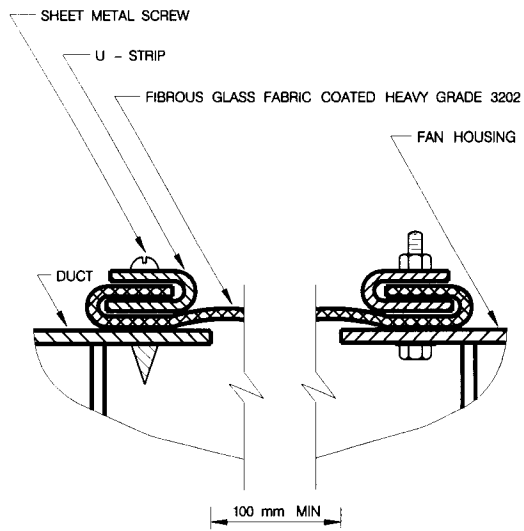
RECTANGULAR GOOSENECK

NOTES :

1. SEE ARCHITECTURAL DRAWINGS AND /OR SPECIFICATIONS FOR CURB, FLASHING & ROOFING.
2. WHEN WOOD PLATE IS PROVIDED AROUND TOP OF CURB, SECURE FLASHING & GOOSE MECCA TO WOOD PLATE WITH 10 mm CADMIUM PLATED LAG BOLTS NOT OVER 300 mm ON CENTERS.

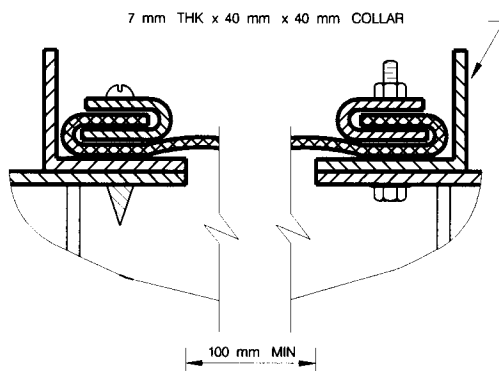
WHEN PREFAB. METAL CURB IS USED, SECURE FLASHING & GOOSENECK WITH SHEET METAL SCREWS AS REQUIRED FOR TIGHT JOINTS & RIGID INSTALLATION.

IMA - KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	DUCTWORK DETAILS - RECTANGULAR GOOSENECK	SPEC	15895	OCT 2003	M0814



INLET & OUTLET CONNECTION

SMALL UTILITY FANS



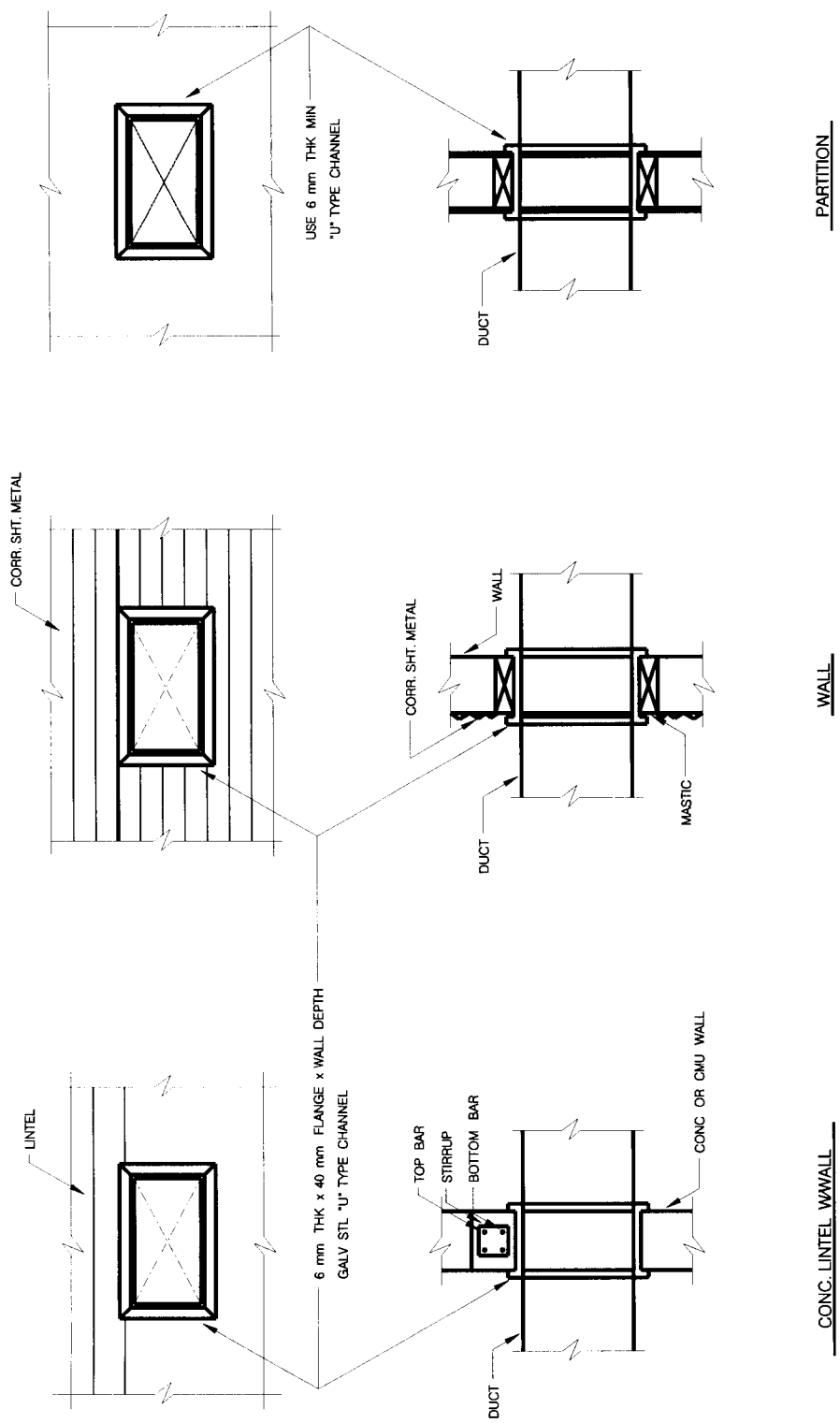
INLET & OUTLET CONNECTION

LARGE UTILITY FANS

NOTE : WHERE DUCTWORK IS CONNECTED TO A FAN,
 A FLEXIBLE CONNECTION SHALL BE USED.

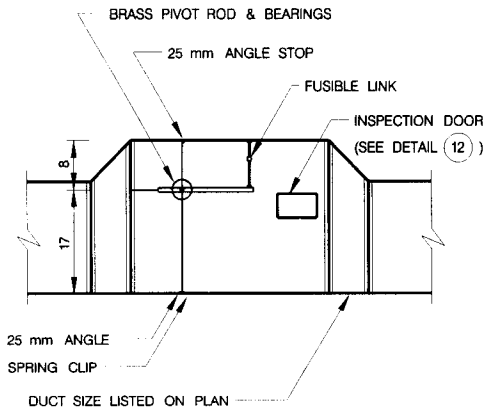
FLEXIBLE CONNECTION

IMA - KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	DUCTWORK DETAILS - FLEXIBLE CONNECTION	SPEC	15895	OCT 2003	M0815



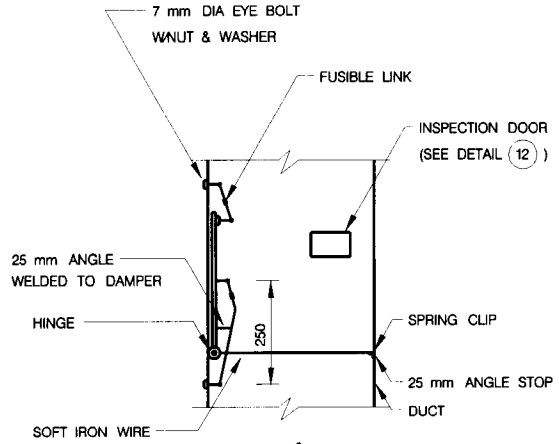
DUCT THROUGH THE WALL

IMA - KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	DUCTWORK DETAILS - DUCT THROUGH THE WALL	SPEC	15895	OCT 2003	M0816



DUCT WIDTH (mm)	DAMPER U.S. STD. GA.
UP TO 450	16
450 TO 900	12
900 & LARGER	7

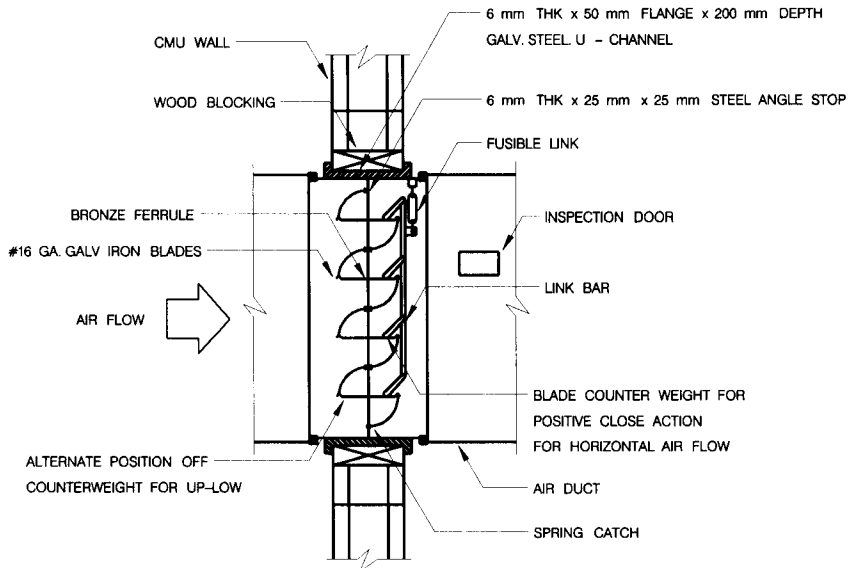
TYPE "A"



AIR FLOW

VERTICAL

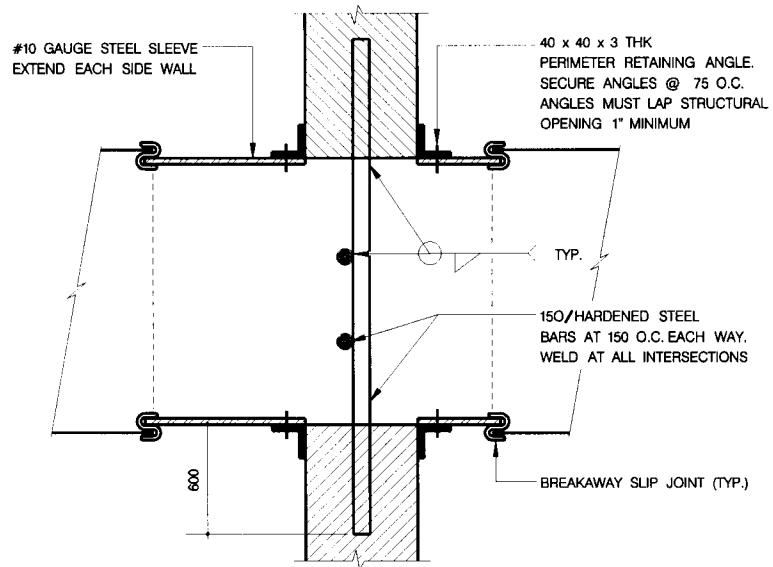
SET @ FUSIBLE LINK
 SUPPLY : 100°C
 RETURN : 71°C



TYPE "B"

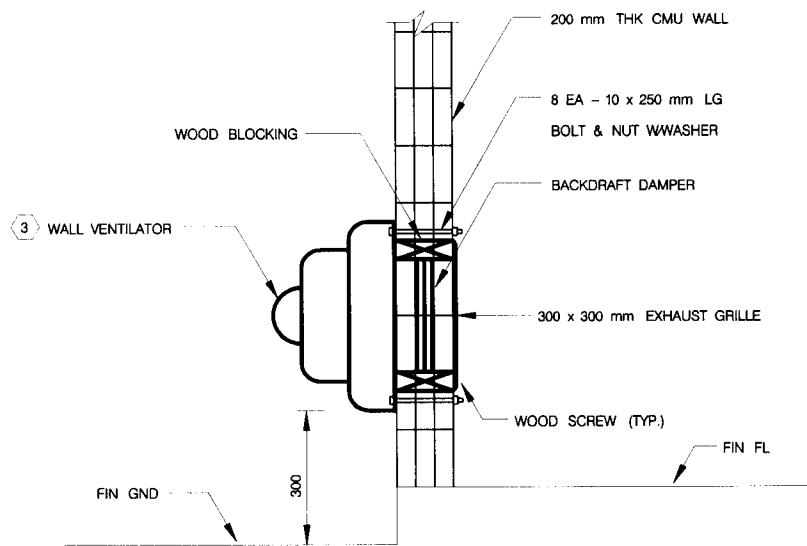
FIRE DAMPER

IMA - KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	DUCTWORK DETAILS - FIRE DAMPER	SPEC	15895	OCT 2003	M0817



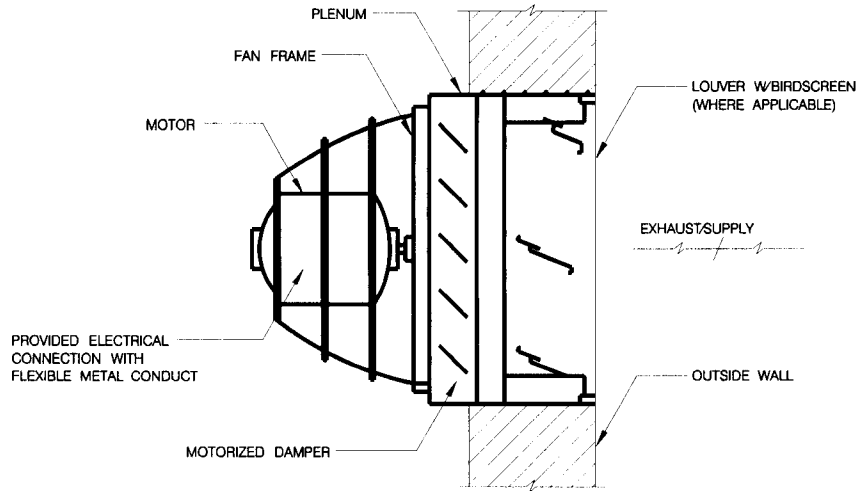
SECURE AREA DUCT PENETRATION

IMA - KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	DUCTWORK DETAILS - SECURE AREA DUCT PENETRATION	SPEC	15895	OCT 2003	M0818

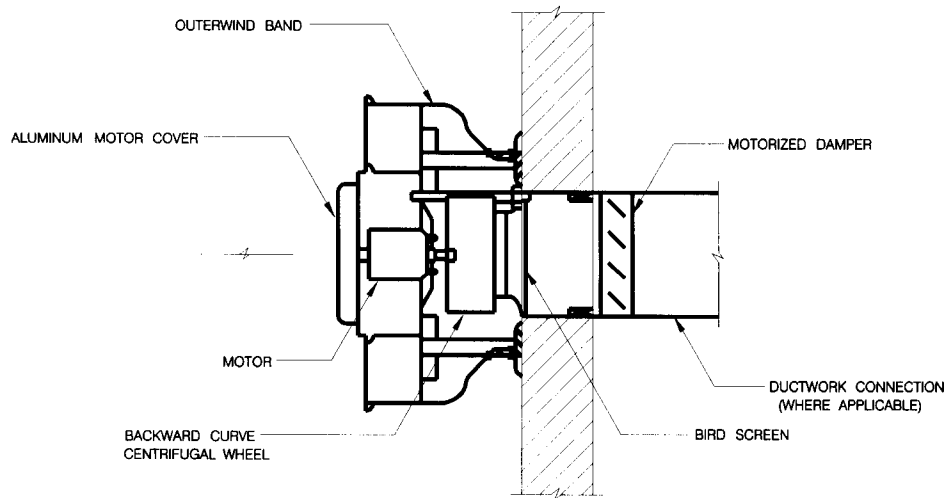


WALL VENTILATOR INSTALLATION DETAIL

IMA - KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	VENTILATION DETAILS - WALL VENTILATOR INSTALLATION	SPEC	15985	OCT 2003	M0819

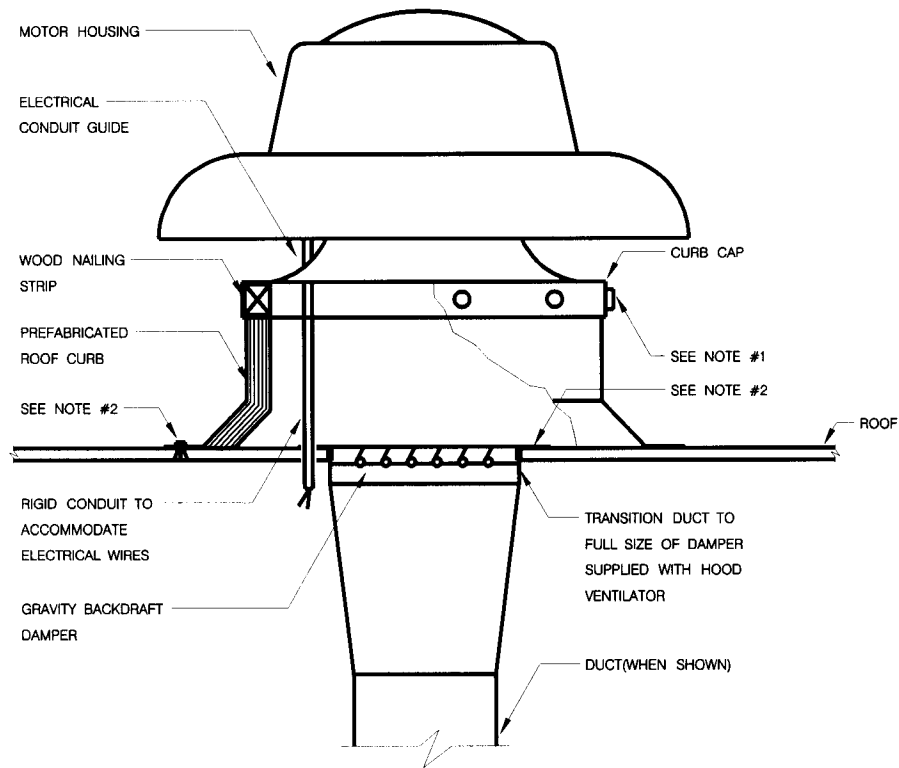


PROPELLER EXHAUST/SUPPLY FAN DETAIL



CENTRIFUGAL WALL EXHAUST FAN DETAIL

IMA - KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	VENTILATION DETAILS - PROPELLER & CENTRIFUGAL EXHAUST FAN	SPEC	15895	OCT 2003	M0820

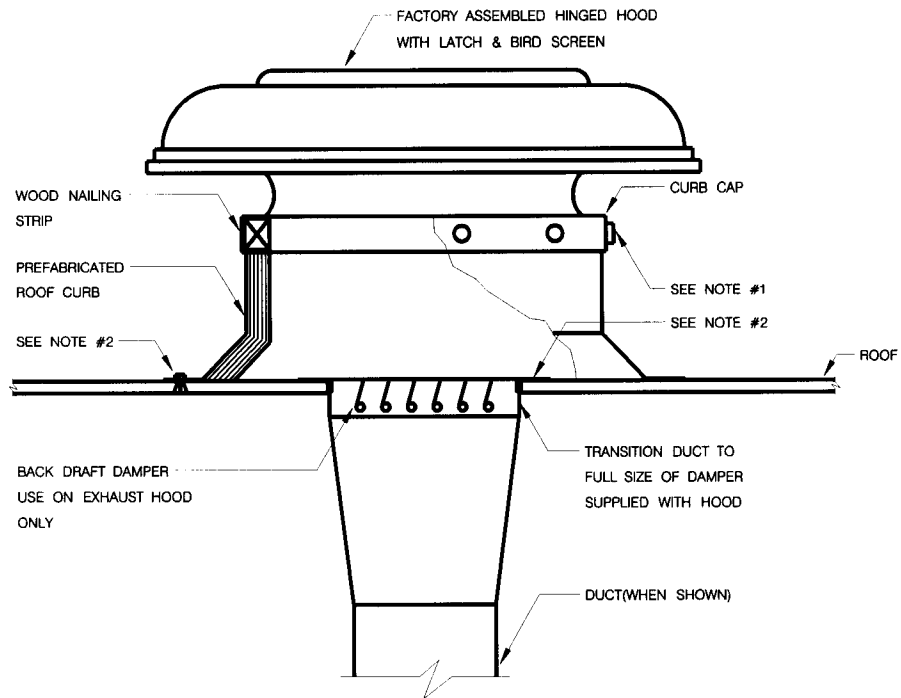


TYPICAL POWER TYPE ROOF VENTILATOR

NOTES :

1. SECURE CURB CAP TO WOOD NAILING STRIP WITH 10 mm CADMIUM PLATED LAG BOLTS NOT OVER 300 mm ON CENTER.
2. SECURE ROOF CURB, DUCTWORK AND DAMPER TO ROOF WITH EXPANSION BOLTS. (CONCRETE ROOF) OR RUST RESISTANT BOLTS (METAL DECK AND BAR JOIST ROOF).
3. SIZE OF DUCT THROUGH ROOF SHALL NOT BE LARGER THAN CURB SUPPLIED WITH ROOF VENTILATOR
4. RUN ELECTRIC LINES THROUGH CLEARANCE HOLE PROVIDED IN GRAVITY DAMPER, THEN THROUGH VENTILATOR ELECTRICAL CONDUIT GUIDE.

IMA - KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	VENTILATION DETAILS - TYPICAL POWER TYPE ROOF VENTILATOR	SPEC	15935	OCT 2003	M0821

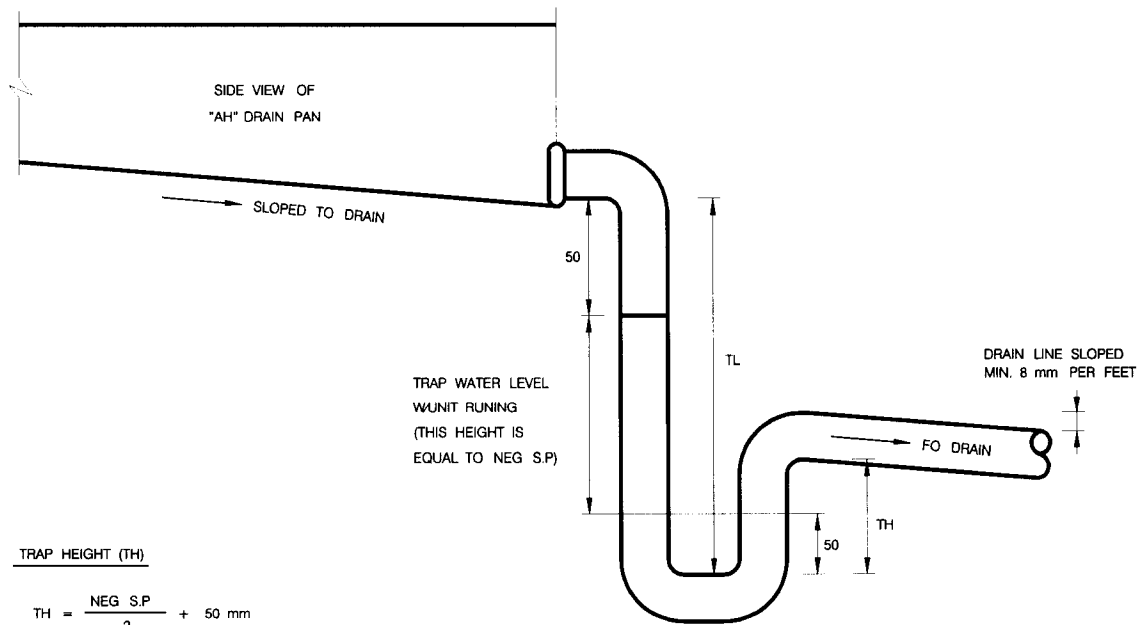
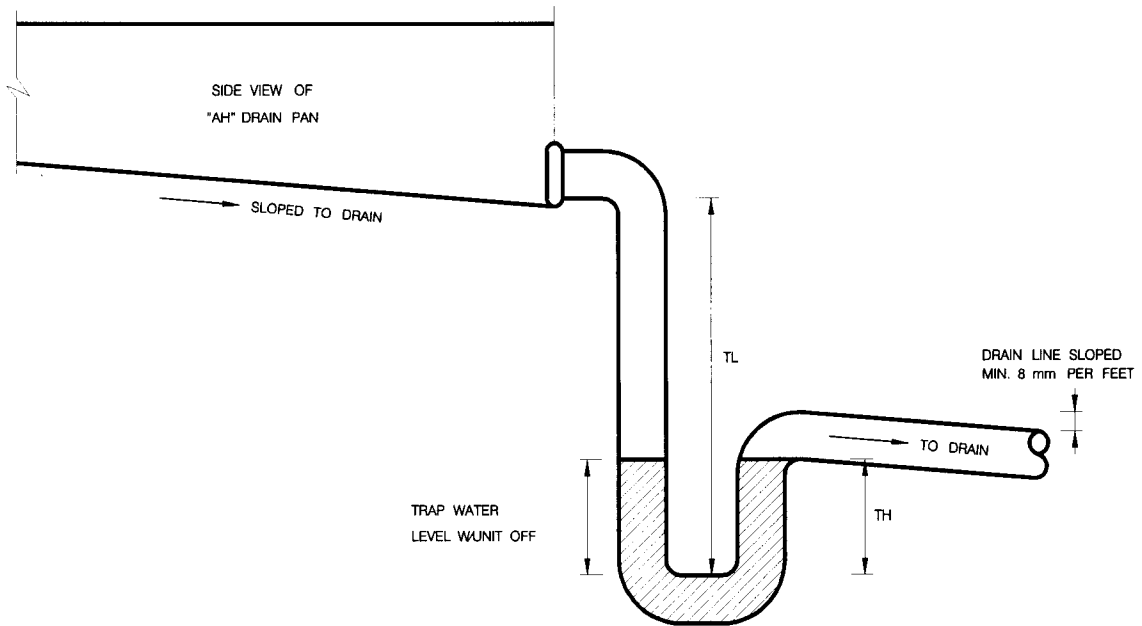


LOW-SILHOUETTE EXHAUST / INTAKE HOOD

NOTES :

1. SECURE HOOD TO WOOD NAILING STRIP WITH 10 mm CADMIUM PLATED LAG BOLTS NOT OVER 300 mm ON CENTER.
2. SECURE ROOF CURB, DUCTWORK AND DAMPER TO ROOF WITH EXPANSION BOLTS (CONCRETE ROOF) OR RUST RESISTANT BOLTS (METAL DECK & BAR JOINT ROOF).
3. SIZE OF DUCT THROUGH ROOF SHALL NOT BE LARGER THAN CURB SUPPLIED WITH HOOD.

IMA - KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	VENTILATION DETAILS - LOW-SILHOUETTE EXHAUST / INTAKE HOOD	SPEC	15895	OCT 2003	M0822



TRAP HEIGHT (TH)

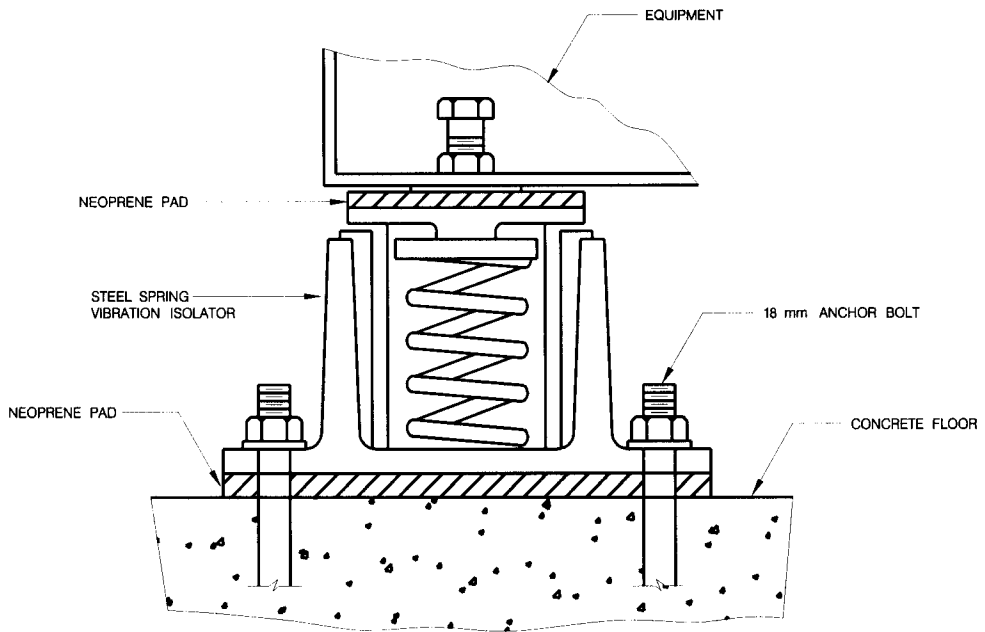
$$TH = \frac{NEG\ S.P.}{2} + 50\ mm$$

TRAP LEG HEIGHT (TL)

$$TL = (NEG\ S.P.) + 100\ mm\ (OR\ LOUNGES)$$

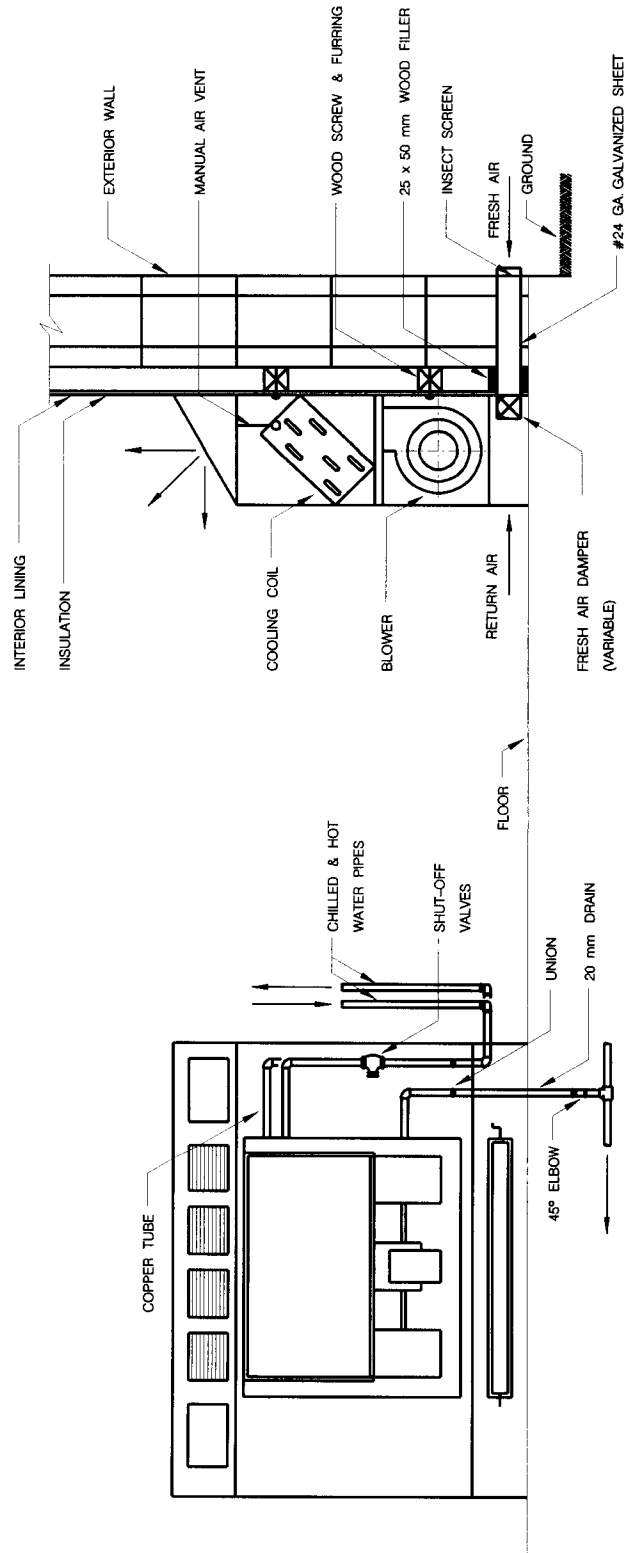
NEG S.P. = NEGATIVE STATIC PRESSURE (IN WON OF THE SYSTEM FAN)

IMA - KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	AHU DETAILS - CONDENSATE DRAIN TRAP (SUCTION)	SPEC	15895	OCT 2003	M0823



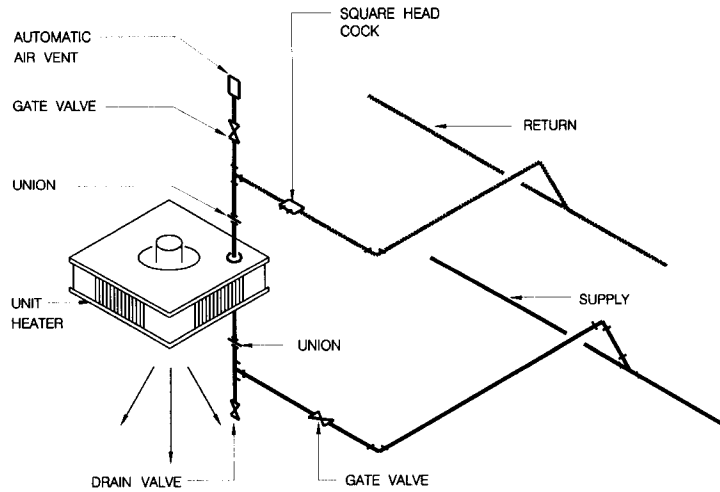
VIBRATION ISOLATOR DETAIL

IMA – KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	AHU DETAILS – VIBRATION ISOLATOR	SPEC	15895	OCT 2003	M0824

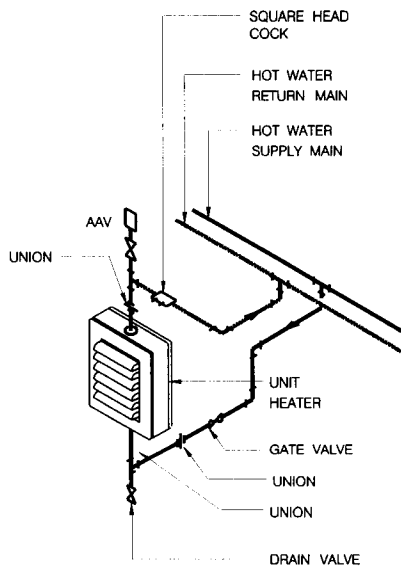


FAN COIL UNIT INSTALLATION DETAIL

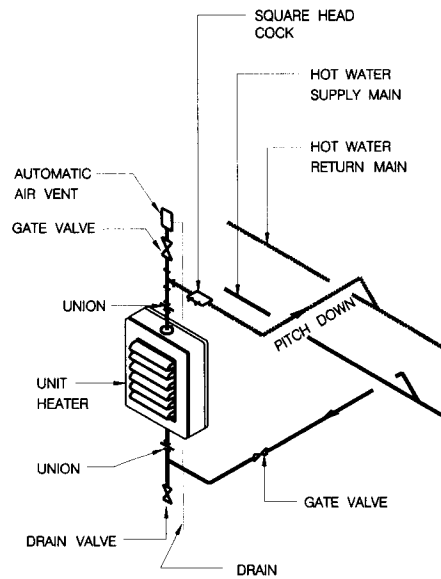
IMA - KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	TERMINAL UNIT DETAILS - FAN COIL UNIT INSTALLATION	SPEC	15895	OCT 2003	M0825



(VERTICAL DISCHARGE TYPE)



TYPE-1

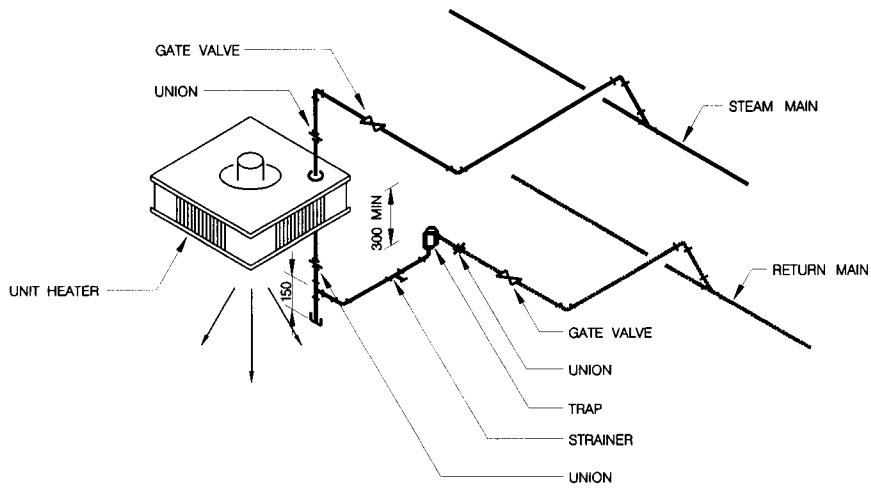


TYPE-2

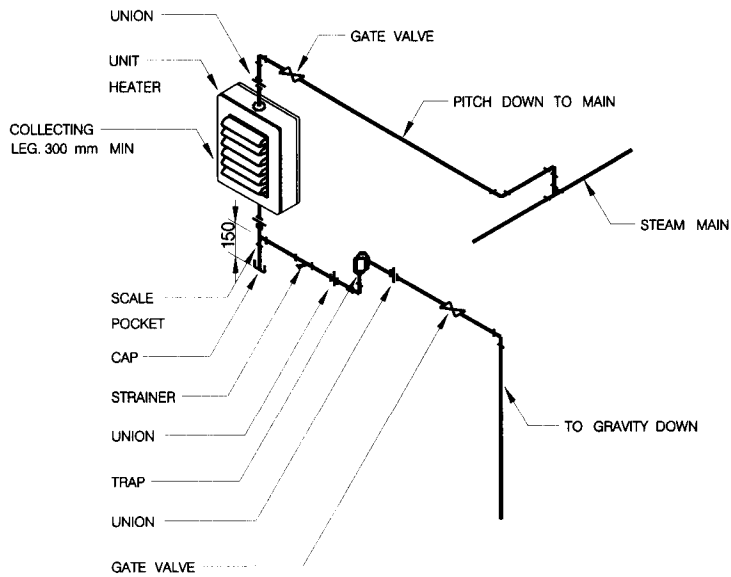
(HORIZONTAL DISCHARGE TYPE)

HOT WATER PIPING TO UNIT HEATER

IMA - KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	TERMINAL UNIT DETAILS - HOT WATER PIPING TO UNIT HEATER	SPEC	15895	OCT 2003	M0826



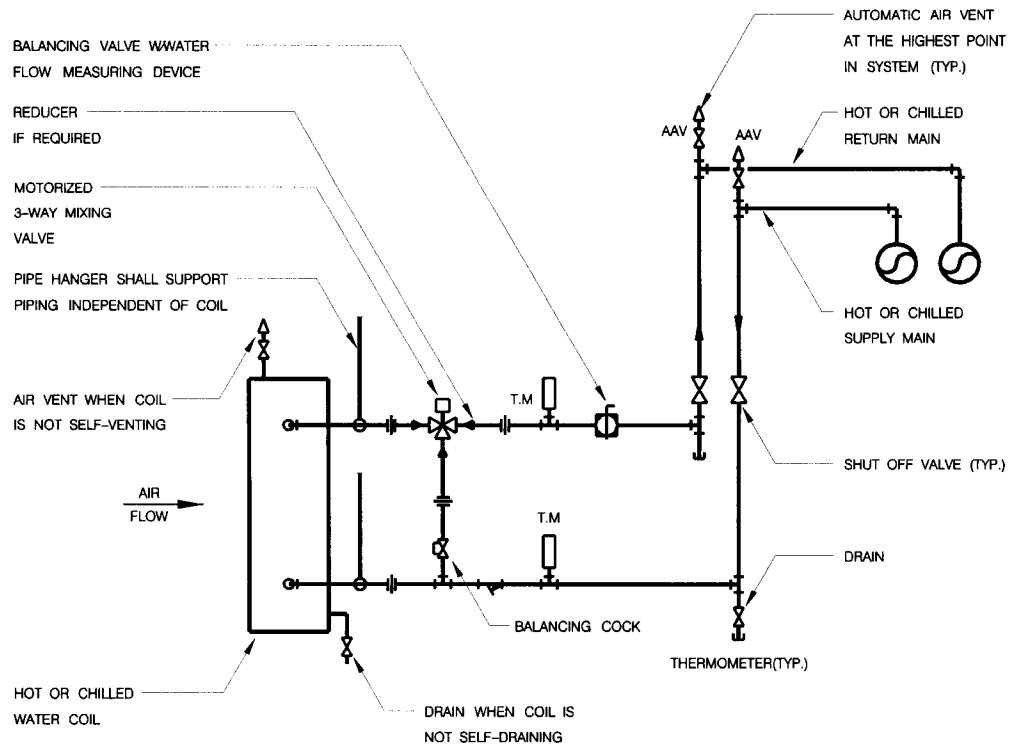
(VERTICAL DISCHARGE TYPE)



(HORIZONTAL DISCHARGE TYPE)

STEAM PIPING TO UNIT HEATER

IMA - KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	TERMINAL UNIT DETAILS - STEAM PIPING TO UNIT HEATER	SPEC	15895	OCT 2003	M0827



SINGLE COIL

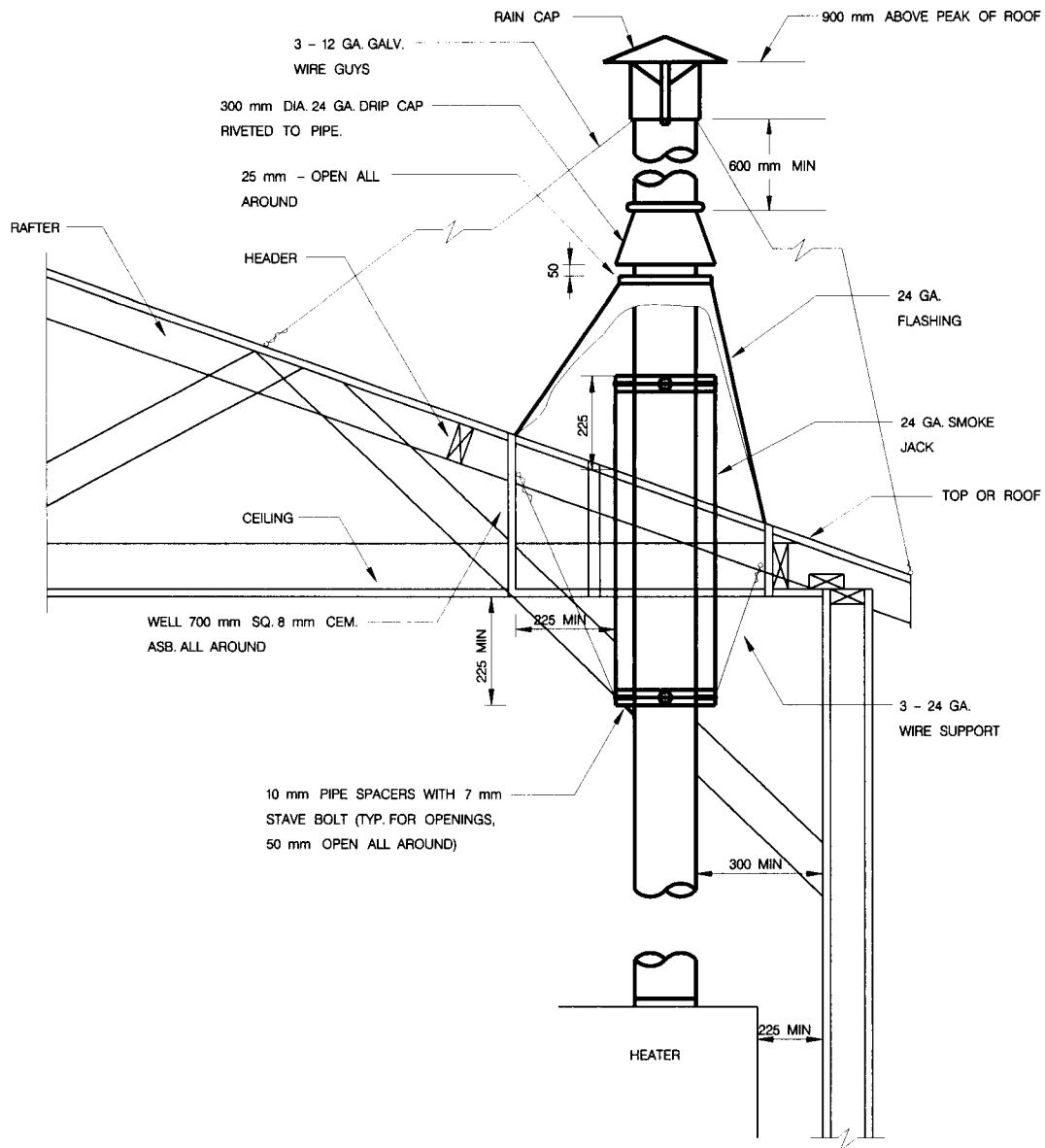
H / C COIL PIPING CONNECTION

TYPICAL CONNECTION TO WATER COILS

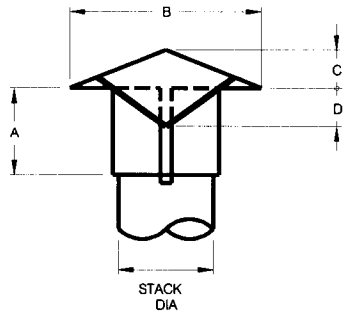
NOTES :

1. WHEN COIL IS INCLUDED IN CASING MOUNTED ON VIBRATION ISOLATORS THE FIRST 2 HANGERS FOR EACH PIPE SHALL BE SPRING & NEOPRENE TYPE.
2. PIPING SHALL BE INSTALLED INSUCH MANNER THAT IT WILL NOT BLOCK THE SWING OR USE OF ACCESS DOORS OR PANELS : NEITHER SHALL IT BLOCK THE SERVICING OF FILTERS, VALVE, OR EQUIPMENT.
3. A STRAIGHT - THRU MODURATING CONTROL VALVE IS SHOWN BY SOLID PIPING. WHEN CONTROL DIAGRAMS INDICATE A THREE - WAY MODURATING CONTROL VALVE IS REQUIRED PROVIDE DASHED PIPING ALSO.
4. THE BALANCING VALVE W/WATER FLOW MEASURING DEVICE MAY BE INSTALLED IN THE SUPPLY PIPING IF THE REQUIRED MINIMUM UPSTREAM & DOWNSTREAM DIMENSIONS CANNOT BE OBTAINED IN THE RETURN PIPING.

IMA - KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	H / C COIL DETAILS - H / C COIL PIPING CONNECTION	SPEC	15895	OCT 2003	M0828



DETAIL OF SMOKE PIPE
FOR SMALL EQUIPMENT, SPACE HEATERS, ETC.



STACK DIA (mm)	"A" (mm)	"B" (mm)	"C" (mm)	"D" (mm)
150	125	300	80	80
200	150	400	100	100
250	200	500	125	125
300	225	600	150	150
400	300	800	200	200
500	375	1,000	250	250
600	450	1,200	300	300
600	525	1,200	300	300

RAIN CAP DETAIL

IMA - KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	SMOKE STACK DETAILS	SPEC	15895	OCT 2003	M0829

ELECTRICAL STANDARD DETAILS

OCTOBER 2003

**IMA-KORO
REGIONAL ENGINEER SUPPORT CENTER**

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
























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LEGEND – 3	16000 – E0003
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	FLUORESCENT LIGHT, WALL MOUNTING TYPE, 2/32 W LAMP
	FLUORESCENT LIGHT, CEILING MOUNTING TYPE, 1/32 W LAMP
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	HIGH PRESSURE SODIUM LIGHT, WALL MOUNTING TYPE
	HIGH PRESSURE SODIUM LIGHT, WITH EMERGENCY QUARTZ STANDBY
	LOW PRESSURE SODIUM LIGHT, CEILING MOUNTING TYPE
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	EXIT LIGHT, SINGLE FACE, CEILING MOUNTING TYPE
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	EXIT LIGHT, DOUBLE FACE CEILING MOUNTING TYPE, WITH ARROW
	INCANDESCENT LIGHT, CEILING MOUNTING TYPE, NIGHT LIGHT
	INCANDESCENT LIGHT, WALL MOUNTING TYPE, NIGHT LIGHT
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SP	DITTO, W / PILOT LAMP
S3	THREE WAY TOGGLE SW, 15A-125V
S4	FOUR WAY TOGGLE SW, 15A-125V
S2P	DOUBLE WAY TOGGLE SW, 15A-125V
 S30M	SPRING WOUND TIMER SW, WITHOUT HOLD*ON*POSITION, 30 MINUTES
 S2HR	SPRING WOUND TIMER SW, WITHOUT HOLD*ON*POSITION, 2 HOURS
 D	DIMMER
 T	TIMER
	PHOTO CONTROL
	PUSH BUTTON SWITCH
	FLOAT SWITCH
	FLOW SWITCH
	PRESSURE SWITCH

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER

REV DATE

DWG NO.

TITLE





























LEGEND-1

SPEC

16000

OCT 2003

E0001

	THERMOSTAT
	MODULATING VALVE
	DAMPER MOTOR
	SINGLE RECEPTACLE, 2P-3W-15A-125V, GROUNDING TYPE
	DUPLEX RECEPTACLE, 2P-3W-15A-125V, GROUNDING TYPE
	SWITCHED DUPLEX RECEPTACLE, 2P-3W-15A-125V, GROUNDING TYPE
	SINGLE RECEPTACLE, 3P-4W-20A-125/250V, GROUNDING TYPE WITH PLUG
	SINGLE RECEPTACLE, 2P-3W-20A-250V, GROUNDING TYPE WITH PLUG
	SINGLE RECEPTACLE, 3P-4W-20A-250V, GROUNDING TYPE WITH PLUG
	GROUND FAULT PROTECTED RECEPTACLE, 2P-3W-15A-125V, FEED-THRU TYPE
	PANELBOARD OR LOAD CENTER
	WIRE WAY
	ENCLOSED TYPE CIRCUIT BREAKER
	SAFETY SWITCH
	MANUAL X - FER. SWITCH (MTS.)
	AUTOMATIC X - FER. SWITCH (ATS.)
	LTG. CONTACTOR
	MOTER CONTROLLER
	BUILT-IN CONTACTOR
	HAND-OFF-AUTO.SEL.SW
	MANUAL MOTOR STARTER
	RELAY BOX
	MOTER
	FAN MOTER
	JUNCTION BOX
	PULL BOX
	KILO-WATT HOUR METER
	WIRING CONCEALED IN CEILING AND WALL
	WIRING CONCEALED IN FLOOR AND WALL
	BRANCH CIRCUIT, EXPOSED ON CEILING AND WALL
	HOMERUN CIRCUIT TO PANELBOARD OR LOAD CENTER
	CONTROL CIRCUIT
	FLEXIBLE CONDUIT
	SEALING FITTING
	CONDUIT TERMINATION
	CONDUIT STUB UP 6 INCHES ABOVE FLOOR
	GROUND ROD
	CONDUIT RUN UP & DOWN

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER

REV DATE










































DWG NO.

TITLE LEGEND-2

SPEC 16000

OCT 2003

E0002

	TELEVISION DISTRIBUTION BOX
	TELEVISION OUTLET
	TELEVISION SYSTEM CIRCUIT
	TELEVISION TERMINAL CABINET
	TELEPHONE OUTLET
	EMPTY CONDUIT FOR TELEPHONE SYSTEM
	AERIAL TELEPHONE SERVICE ENTRANCE
	AERIAL ELECTRIC SERVICE DROP
	FIRE ALARM CONTROL PANEL
	FIRE ALARM MANUAL STATION
	FIRE ALARM BELL
	HEAT DETECTOR, RATE OF RISE & FIXED TEMP 135°F
	HEAT DETECTOR, FIXED TEMP 135°F
	SMOKE DETECTOR
	SMOKE DETECTOR W/SELF ALARMHORN 120VAC
	HEAT & SMOKE COMBINATION DETECTOR W/SELF ALARM HORN
	DUCT SMOKE DETECTOR
	FIRE ALARM SYSTEM CIRCUIT
	HALON CONTROL PANEL
	REMOTE ANNUNCIATOR
	IONIZATION TYPE DETECTOR BELOW FLOOR BROKENLINE ABOVE FLOOR SOLID
	PHOTOELECTRIC DETECTOR ABOVE FLOOR SOLID BELOW FLOOR BROKEN LINE
	FIRST ZONE ALARM POLARIZED AUDIBLE DEVICE
	SECOND ZONE ALARM POLARIZED AUDIBLE DEVICE
	MAGNETIC DOOR HOLDER
	FLASHING ALARM LAMP
	HALON WARNING SIGN ("ENTRY" TYPE OUTSIDE DOOR)
	HALON WARNING SIGN ("EXIT" TYPE OUTSIDE DOOR)
	ABOLT SWITCH
	INTERFACE UNIT FOR RADIO FIRE ALARM SYSTEM
	BUILDING TRANSCEIVER UNIT FOR FIRE ALARM SYSTEM
	SPEAKER OUTLET
	PUBLIC ADDRESS SYSTEM CIRCUIT
	ALARM BELL, 120V AC
	SINGLE REOPERABLE, 2P-3W-15A-125V AC, GROUNDING TYPE FOR CLOCK WALL MTG TYPE
	EXPLOSION PROOF
	WEATHER PROOF
	NUMBER DENOTES AMPERE RATING OF RECEPTACLE
	DIRECTION OF RELOCATION
	ANTENNA
	AIR TERMINAL

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER

REV DATE

DWG NO.

TITLE LEGEND-3

SPEC 16000

OCT 2003

E0003

REMOVAL	EXST	NEW	
			DISTRIBUTION TYPE TRANSFORMER
			PAD MOUNTED TRANSFORMER
			POLE
			"H" FRAME TRANSFORMER STATION
			FLOOD LIGHT
			MANHOLE
			HANDHOLE
			LINE DISCONNECT SWITCH
			OIL SWITCH
			OVERHEAD PRIMARY LINE
			OVERHEAD SECONDARY LINE
			UNDERGROUND PRIMARY LINE
			UNDERGROUND SECONDARY LINE
			CONTROL LINE
			TELEPHONE OR COMMUNICATION LINE
			GROUNDING WIRE
			DOWN GUY
			SIDEWALK GUY
			PUSH BRACE
			OVERHEAD GUY
			METERING OUT-FIT
			CABLE MARKER
			CIRCUIT RECLOSER, AUTOMATIC

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER

REV DATE

DWG NO.

TITLE

LEGEND-4

SPEC

16000

OCT 2003

E0004

GENERAL NOTES:

1. ANT CIRCUIT WITHOUT FURTHER DESIGNATION INDICATES 2-#12 AWG & 1-#12(G)
WIRES IN 1/2" CONDUIT. A GREATER NUMBER OF WIRES ARE INDICATED AS FOLLOWS:

———— 2-#12AWG & 1-#12(G)

—//— 3-#12AWG & 1-#12(G)

—///— 4-#12AWG & 1-#12(G)

2. MOUNTING HEIGHTS ABOVE FLOOR SHALL BE AS FOLLOWS UNLESS OTHERWISE
NOTED ON DWG.

LIGHTING FIXTURE ----- SEE LIGHTING FIXTURE SCHEDULE

PANEL BOARD ----- SEE SPECIFICATION

SAFETY SWITCH ----- 5'-0" TO CENTER OF ENCL.

RECEPTACLE, TELEPHONE, & TELEVISION OUTLET ----- 1'-0"

WALL SWITCH ----- 4"-0" TO CENTER OF ENCL.

MOTOR CONTROLLER ----- 5"-0" TO CENTER OF ENCL.

TELEPHONE CABINET-----1"-0" TO BOTTOM OF THE CABINET

CLOCK OUTLET ----- 7"-6" TO CENTER OF THE OUTLET

F/A NOTES

1. NUMBER OF WIRES ARE AS FOLLOWS, UNLESS OTHERWISE INDICATED.

WIRES IN 1/2" CONDUIT. A GREATER NUMBER OF WIRES ARE INDICATED AS FOLLOWS:

———— 2 WIRES —//— 3 WIRES —///— 4 WIRES

2. FOR SIZE OF WIRE & CONDUIT, SEE SPECIFICATION.
3. MOUNTING HEIGHTS ABOVE FLOOR ARE AS FOLLOWS UNLESS OTHERWISE NOTED ON DWG.

COUNTOL PANEL -----5'-6" TO CENTER OF THE HALL

DETECTOR -----ON CEILING

ALARM BELL -----7'-6" TO BELL OF THE PANEL

MANUAL STATION ----- TO CENTER OF THE STATION (4'-6")

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER

REV DATE

DWG NO.

TITLE

LEGEND-5

SPEC

16000

OCT 2003

E0005

ABBREVIATIONS

A	AMPERE	LA	LIGHTNING ARRESTER
A C	ALTERNATING CURRENT	LTG	LIGHTING
ADD	ADDITION	MAG	MAGNETIC
A.F.	AMPERE FRAME	MAX	MAXIMUM
ANT	ANTENNA	MECH	MECHANICAL
AUTO	AUTOMATIC	MH	MANHOLE
AWG	AMERICAN WIRE GAGE	MIN	MINIMUM
BC	BARE COPPER	MS	MOTOR STARTER
BLDG	BUILDING	MTG	MOUNTING
BRCK	BREAKER	NIC	NOT IN CONTRACT
C	CONDUIT	NO	NUMBER
CAP	CAPACITY	OC	OVER CURRENT
C.B.	CIRCUIT BREAKER	OH	OVERHEAD
CKT	CIRCUIT	OS	OIL SWITCH
CONN	CONNECTION	OUT	OUTSIDE
CONT	CONTROL	OVLN	OVERLOAD
CT	CURRENT TRANSFORMER	P	POLE
DBL	DOUBLE	PF	POWER FACTOR
D C	DIRECT CURRENT	PH	PHASE
DET(S)	DETAIL(S)	PNLBD	PANELBOARD
D.F	DEMAND FACTOR	PRI	PRIMARY
DIAG	DIAGRAM	PROT	PROTECTION
DISC	DISCONNECT	PWR	POWER
DWG(S)	DRAWING(S)	QTY	QUANTITY
EA	EACH	RCPT	RECEPTACLE
ELEC	ELECTRICAL	REPL	REPLACE
EMER	EMERGENCY	REQ'D	REQUIRED
ENCL	ENCLOSURE	SAF	SAFETY
EQUIP	EQUIPMENT	SCHED	SCHEDULE
EXST	EXISTING	SEC	SECONDARY
EXT	EXTERIOR	SECT	SECTION
F/A	FIRE ALARM	SEL	SELECTOR
FL	FLOOR	SGL	SINGLE
FLUOR	FLUORESCENT	SH	SHEET
FU	FUSE	SIG	SIGNAL
FXTR	FIXTURE	SPEC	SPECIFICATION
GEN	GENERATOR	STA	STATION
GND	GROUND	STD	STANDARD
HOBC	HARD DRAWN BARE COPPER	SURF	SURFACE
HH	HANDHOLE	SW	SWITCH
HP	HORSE POWER	SYS	SYSTEM
HV	HIGH VOLTAGE	TEL	TELEPHONE
HZ	HERTZ	TERM	TERMINAL
INCAND	INCANDESCENT	TV	TELEVISION
INCL	INCLUDE	TYP	TYPICAL
INSTL	INSTALLATION	U/G	UNDERGROUND
INTERCOM	INTERCOMMUNICATION	V	VOLT
INTR	INTERIOR	VA	VOLT AMPERE
J.B	JUNCTION BOX	W	WATT
DB	DIRECT BURIAL	W/	WITH
		W/O	WITHOUT
K	KILO	WP	WEATHER PROOF
KV	KILO VOLT	XFMR	TRANSFORMER
KVA	KILOVOLT AMPERE	&	AND

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER

REV DATE

DWG NO.

TITLE

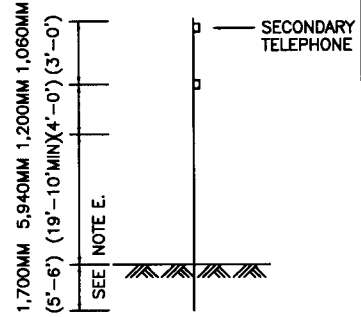
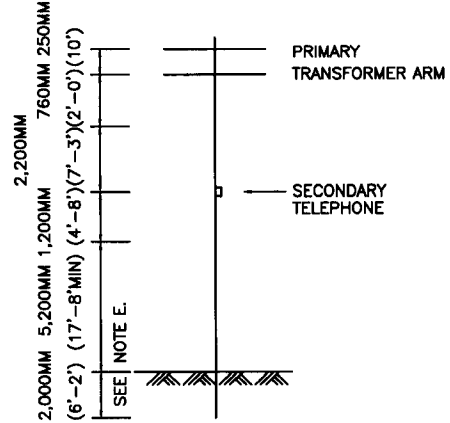
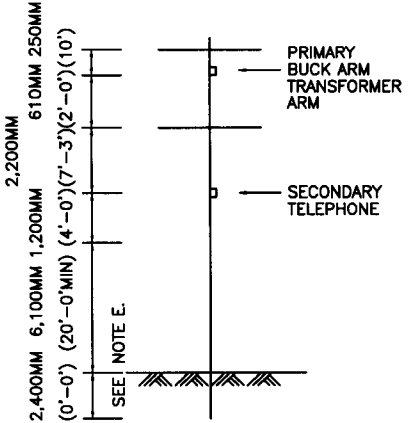
ABBREVIATIONS

SPEC

16000

OCT 2003

E0006

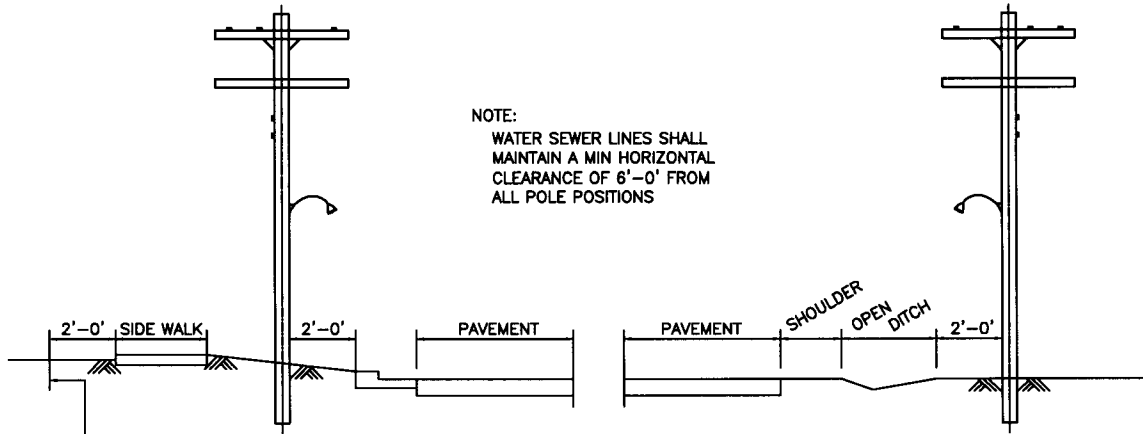


12M (39"-5") POLE

14M (46) POLE

- NOTES
1. ABOVE FRAMING SHALL BE ADHERE TO UNLESS SPECIFICALLY SUPERSEDED INDIVIDUAL JOBS.
 2. SEE NATIONAL ELECTRICAL SAFETY CODE FOR REQUIRED MINIMUM CLEARANCES.

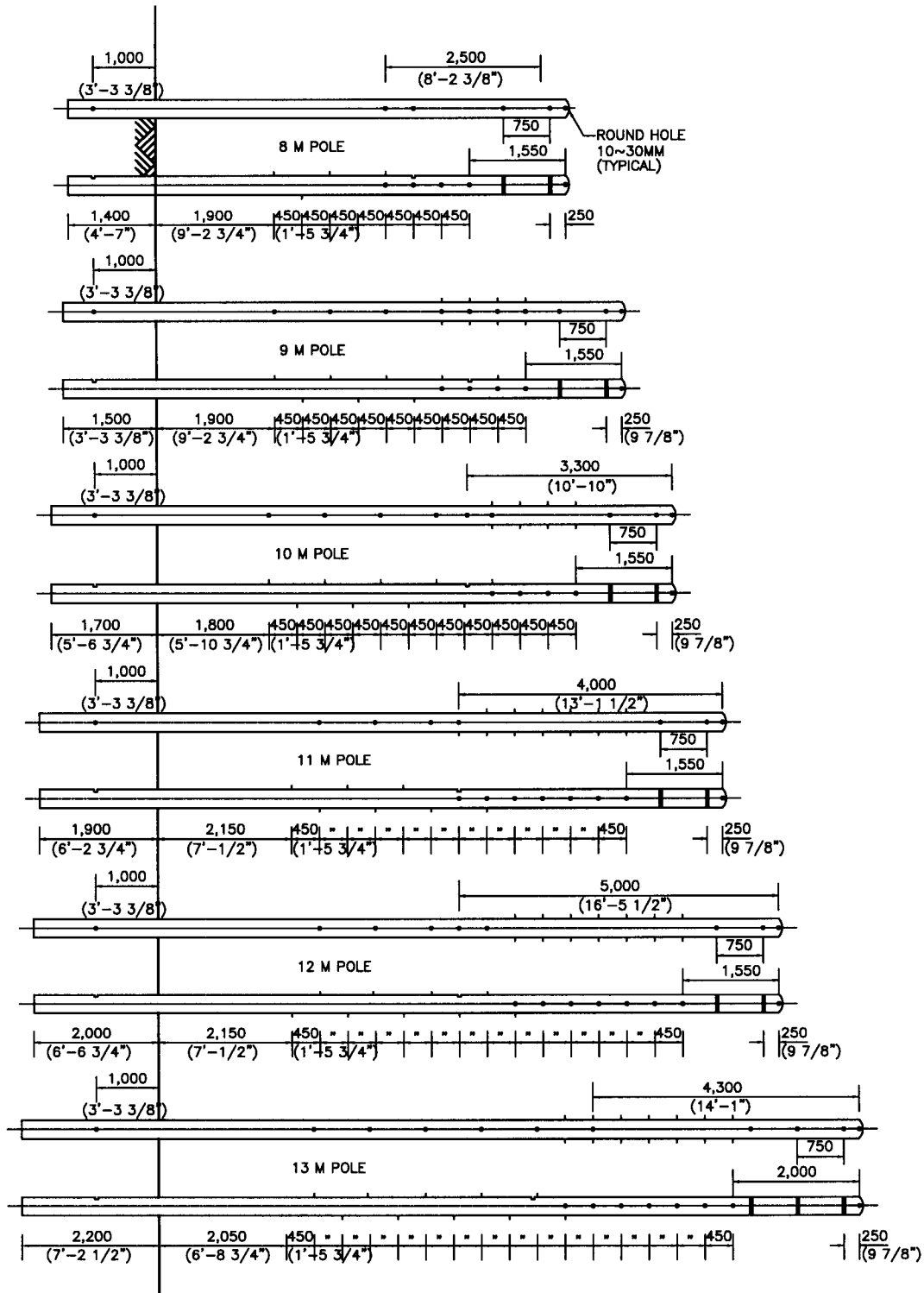
POLE FRAMING DETAILS



1. NOTE:
WHEN STORM SEWER OCCUPIES SAME SIDE OF STREET AS POLE LINE, LOCATE POLE LINE HERE

TYPICAL SECTION

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	POLE FRAMING DETAILS	SPEC	16370	OCT 2003	E0101



IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER

REV DATE

DWG NO.

TITLE REINFORCED CONCRETE POLES - 1

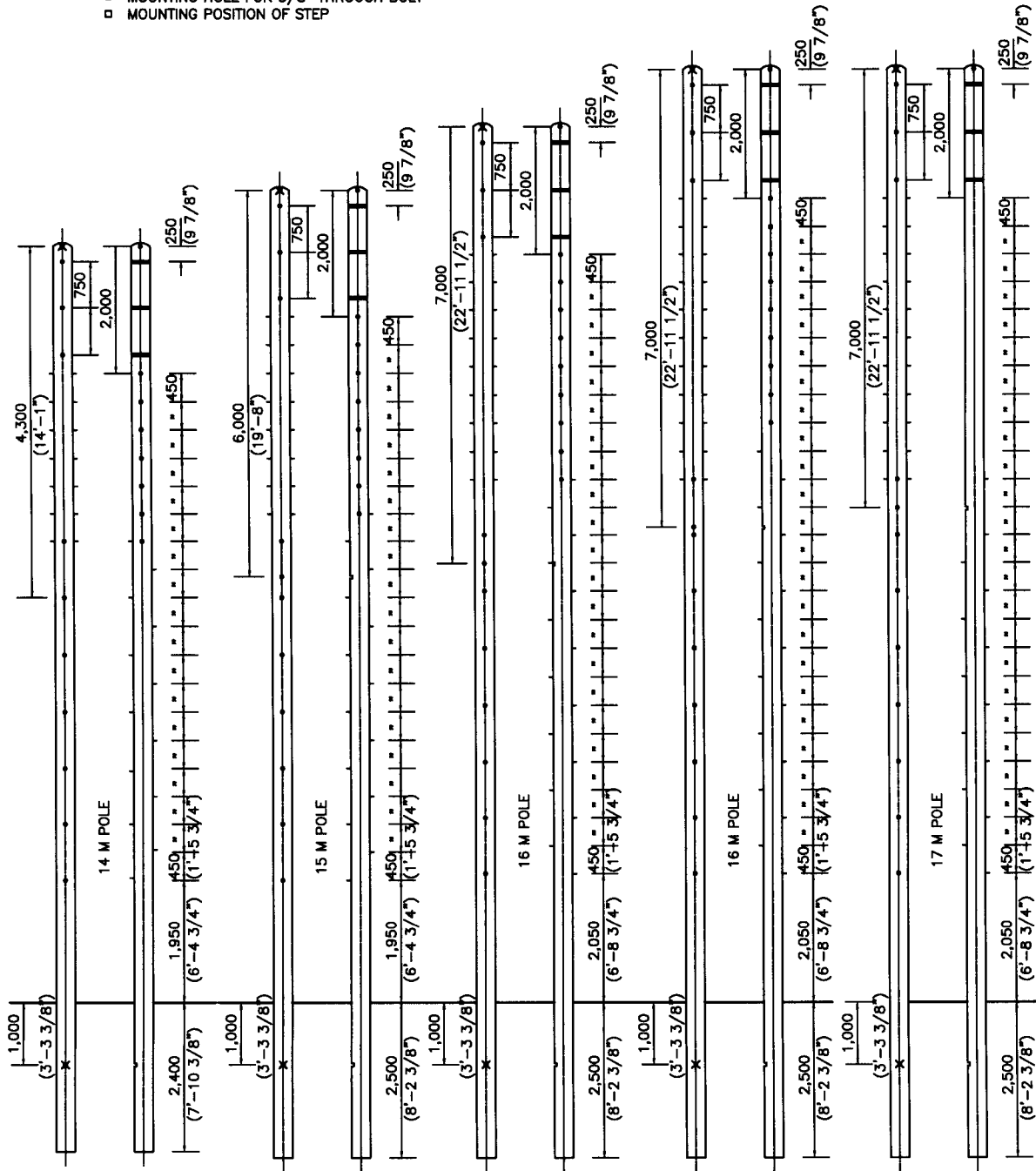
SPEC 16370

OCT 2003

E0102

LEGEND

- HOLE FOR GROUNDING WIRE
- MOUNTING HOLE FOR 5/8" THROUGH BOLT
- MOUNTING POSITION OF STEP



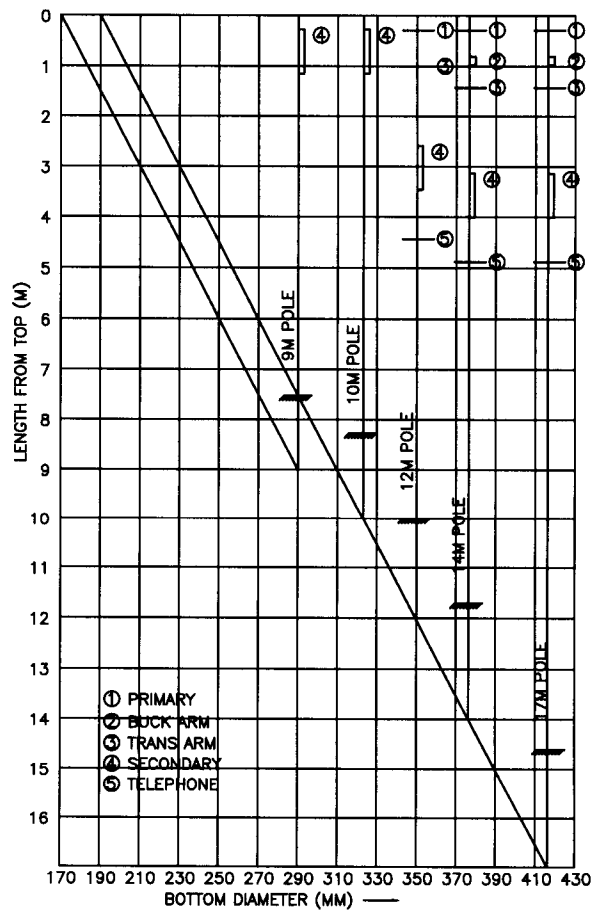
REINFOR CONCRETE POLES DIMENSIONS IN MM(EQUIVALENT FT-INCHES)

- NOTES:
1. REINFORCED CONCRETE POLE SHALL BE KOREAN INDUSTRIAL STANDARD F4302
 2. FISH WIRE 1.6MM DIA. ZINC COATED STEEL WITH SLACK AT BOTH ENDS SHALL BE PROVIDED BETWEEN BOTH GROUNDING WIRE HOLES BY THE REINFORCED CONCRETE POLE MANUFACTURER

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER		REV DATE	DWG NO.
TITLE	REINFORCED CONCRETE POLES - 2	SPEC	16370
		OCT 2003	E0103

T A B L E

DESIGNATION LENGTH (M)	LENGTH OF POLE (M)	TOP DIA (CM)	NO.OF POLE STEP	SETTING DEPTH (FT)	DESIGN LOAD (KG)	EQUIV. WOOD POLE CALSS
8-20	8	17	13	5-0	200	7
9-20	9	17	15	5-6	200	7
9-30	9	17	15	5-6	300	6
10-25	10	17	17	6-0	250	7
10-35	10	19	17	6-0	350	6
11-35	11	19	21	6-3	350	5
12-35	12	19	23	6-6	350	5
11-50	11	19	21	6-3	500	4.5
12-50	12	19	23	6-6	500	4
13-50	13	19	25	7-0	500	4
14-50	14	19	27	7-10	500	4
15-50	15	19	30	8-2	500	4
16-50	16	19	33	8-2	500	4
13-70	13	19	25	7-0	700	3
14-70	14	19	27	7-10	700	2
15-70	15	19	30	8-2	700	3
16-70	16	19	33	8-2	700	3
17-75	17	19	36	8-2	750	3



RELATION BETWEEN POLE LENGTH AND DIAMETER

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER

REV DATE

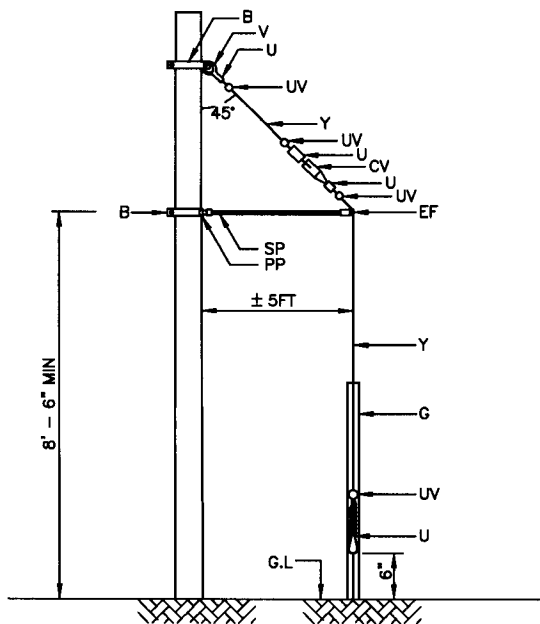
DWG NO.

TITLE REINFORCED CONCRETE POLES - 3

SPEC 16370

OCT 2003

E0104



SIDE WALK GUY

"EIC" SINGLE DOWN GUY					
ITEM	MATERIAL	EIC-1a	EIC-2a	EIC-3a	EIC-4a
		3/8" GUY NO. REQ'D	7/16" GUY NO. REQ'D	1/2" GUY NO. REQ'D	5/8" GUY NO. REQ'D
U	CLAMP, GUY. 3-BOLT 6" LONG	4	4	4	4
U V	WIRE ROPE CLIP OR MOUSING	4	4	4	4
C V	INSULATOR, STRAIN	1	1	1	1
V	THIMBLE CLEVIS	1	1	1	1
Y	GUY WIRE, 7 STRAND	REQ'D LENGTH	REQ'D LENGTH	REQ'D LENGTH	REQ'D LENGTH
B	POLE BAND "B2-2"	1			
B	POLE BAND "B2-3"		1		
B	POLE BAND "B2-4"			1	1
E F	GUY CLAMP 2"Ø PIPE SIZE	1	1		
E F	GUY CLAMP 2 1/2" PIPE SIZE			1	1
P P	POLE PLATE 2"Ø PIPE SIZE	1	1		
P P	POLE PLATE 2 1/2" PIPE SIZE			1	1
G	GUY WIRE PROTECTOR FULL ROUND TYPE, 2" DIA 8 3/8" OVERLAP 8'-0" LG.	1	1	1	1
S P	STEEL PIPE 2"Ø	1	1		
S P	STEEL PIPE 2 1/2"Ø			1	1

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER

REV DATE

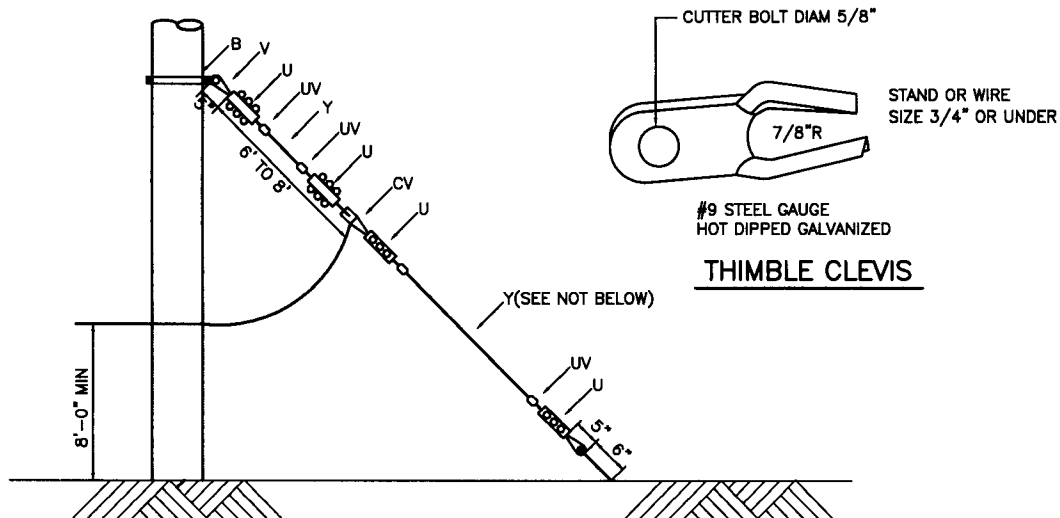
DWG NO.

TITLE GUY ASSEMBLY FOR SIDE WALK

SPEC 16370

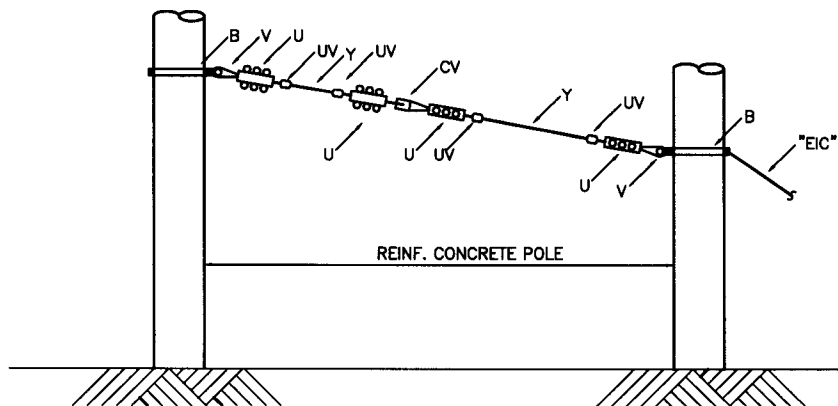
OCT 2003

E0105



"E1C" SINGLE DOWN GUY

ITEM	MATERIAL	E1C-1	E1C-2	E1C-3	E1C-4
		3/8" GUY NO.REQ'D	7/16" GUY NO.REQ'D	1/2" GUY NO.REQ'D	5/8" GUY NO.REQ'D
U	CLAMP,GUY,3-BOLT 6" LONG	4	4	4	4
UV	WIRE ROPE CLIP OR MOUSING	4	4	4	4
CV	INSULATOR,STRAIN	1	1	1	1
V	THIMBLE CLEVIS	1	1	1	1
Y	GUY WIRE, 7 STRAND	REQ'D LENGTH	REQ'D LENGTH	REQ'D LENGTH	REQ'D LENGTH
B	POLE BAND, "B2-2"	1			
B	"B2-3"		1		
B	"B2-4"			1	1



"E2C" SINGLE OVERHEAD GUY

ITEM	MATERIAL	E2C-1	E2C-2	E2C-3	E2C-4
		3/8" GUY NO.REQ'D	7/16" GUY NO.REQ'D	1/2" GUY NO.REQ'D	5/8" GUY NO.REQ'D
U	CLAMP,GUY,3-BOLT 6" LONG	4	4	4	4
UV	WIRE ROPE CLIP OR MOUSING	4	4	4	4
CV	INSULATOR,STRAIN	1	1	1	1
V	THIMBLE CLEVIS	1	1	1	1
Y	GUY WIRE, 7 STRAND	REQ'D LENGTH	REQ'D LENGTH	REQ'D LENGTH	REQ'D LENGTH
B	POLE BAND, "B2-2"	1			
B	"B2-3"		1		
B	"B2-4"			1	1

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER

REV DATE

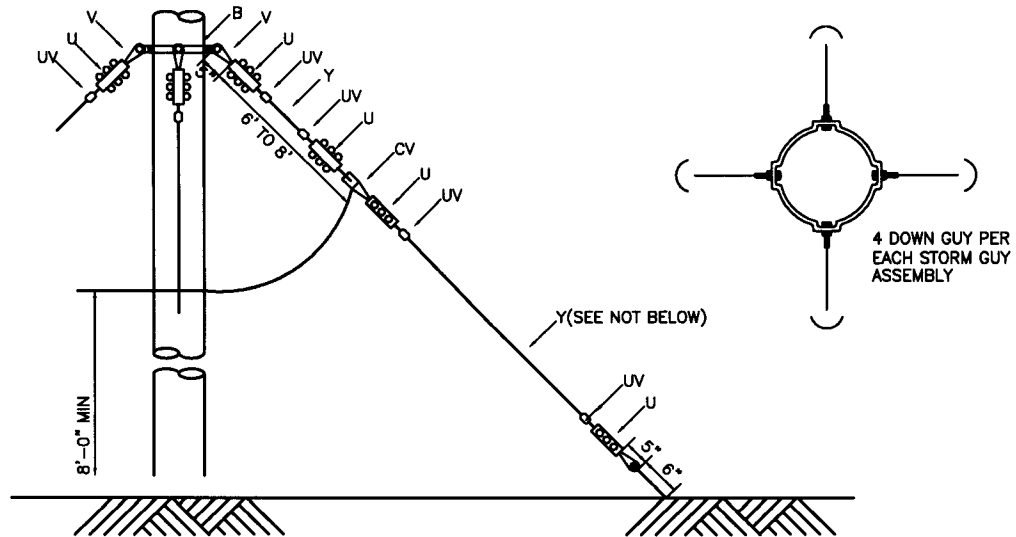
DWG NO.

TITLE GUY AND ANCHOR DETAILS - 1

SPEC 16370

OCT 2003

E0106

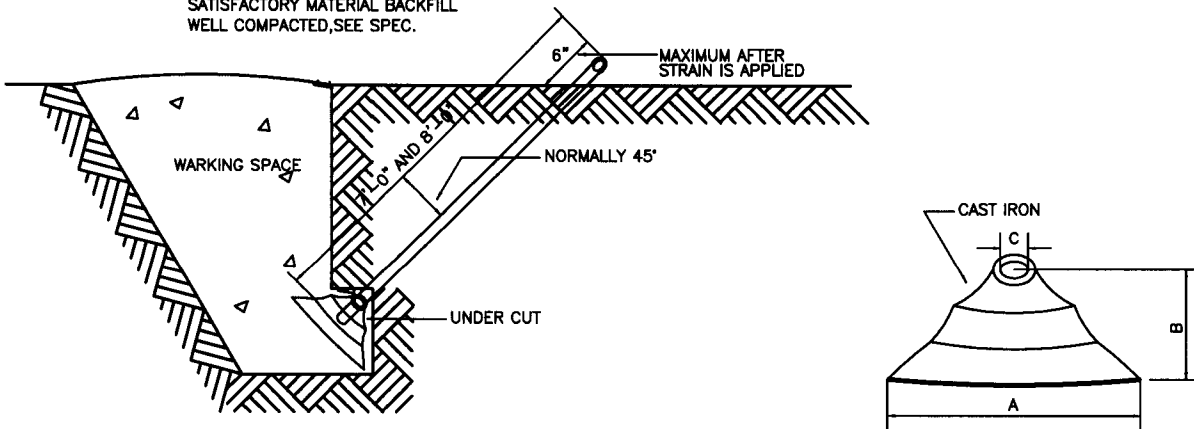


"E5C" STORM GUY FOUR DOWN GUY

POLE BAND TYPE

ITEM	MATERIAL	E1C-1	E1C-2	E1C-3	E1C-4
		3/8" GUY NO.REQ'D	7/16" GUY NO.REQ'D	1/2" GUY NO.REQ'D	5/8" GUY NO.REQ'D
U	CLAMP,GUY,3-BOLT 6" LONG	4	4	4	4
UV	WIRE ROPE CLIP OR MOUSING	4	4	4	4
CV	INSULATOR,STRAIN	1	1	1	1
V	THIMBLE CLEVIS	1	1	1	1
Y	GUY WIRE, 7 STRAND	REQ'D LENGTH	REQ'D LENGTH	REQ'D LENGTH	REQ'D LENGTH
B	POLE BAND, "B2-2"	1			
B	"B2-3"		1		
B	"B2-4"			1	1

SATISFACTORY MATERIAL BACKFILL
WELL COMPACTED,SEE SPEC.



"F1" ANCHOR ASSEMBLY

POLE BAND TYPE

TYPE	MATERIAL					HOLDING POWER-POUNDS			
	ANCHOR			THIMBLE EYEROD		SOIL CONDITION			
	A	B	C	DIA.	LONG	SHALE SANDS TONE	HARD DAY	CRUMBLY DAMP	FIRM MOIST
F1-1	6"	2 1/2"	5/8"	5/8"	7'-0"	UP TO ROD STRENGTH	10,000	8,000	6,000
F1-2	8"	3 1/2"	7/8"	3/4"	8'-0"		14,000	11,000	9,000
F1-3	10"	4 9/16"	7/8"	3/4"	8'-0"		19,000	15,000	11,500
F1-4	12"	5 3/8"	7/8"	3/4"	8'-0"		21,500	17,500	14,000

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER

REV DATE

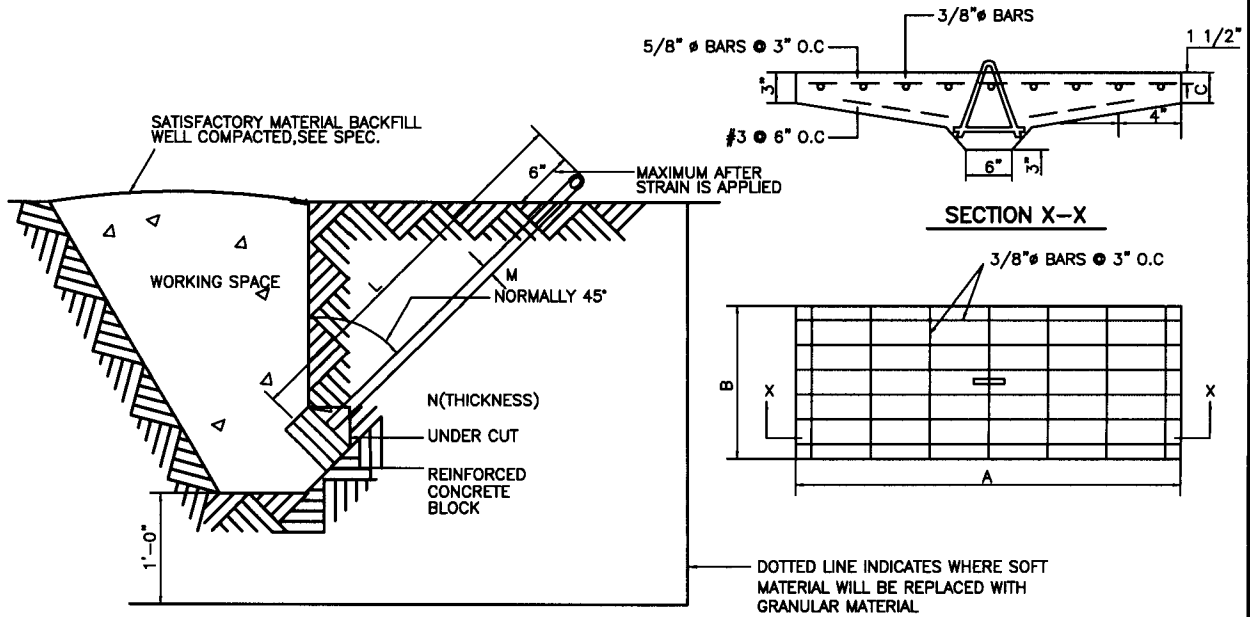
DWG NO.

TITLE GUY AND ANCHOR DETAILS - 2

SPEC 16370

OCT 2003

E0107



"F2" ANCHOR ASSEMBLY
(REINFORCED CONCRETE BLOCK TYPE)

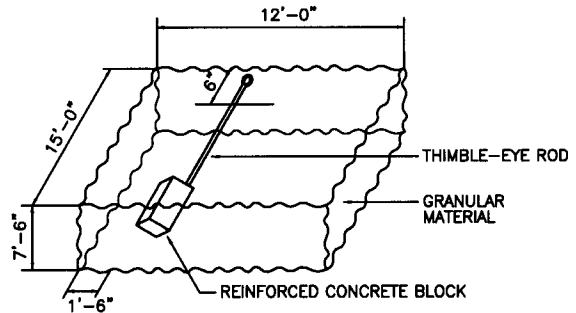
TYPE	BLOCK DIMENSION MM (INCH) THIMBLE-EYE ROD						
	A	B	C	I	L	M	N
F2-1	500 (1'-7 5/8")	250 (9 7/8")	70 (2 3/4")	16 (5/8")	2,300 (7'-6")	*	8 (5/16")
F2-2	600 (1'-11 5/8")	300 (11 7/8")	80 (3 1/8")	16 (5/8")	2,300 (7'-6")		8 (5/16")
F2-3	700 (2'-3 5/8")	350 (1'-13/4")	90 (3 1/2")	19 (3/4")	2,500 (8'-2")		8 (5/16")
F2-4	800 (2'-7 1/2")	400 (1'-3 5/8")	100 (3 7/8")	19 (3/4")	2,500 (8'-2")		8 (5/16")
F2-5	900 (2'-11 3/8")	450 (1'-5 5/8")	110 (4 3/8")	22 (7/8")	2,700 (8'-10")		10 (3/16")
F2-6	1,100 (3'-7 3/8")	550 (5 1/8")	130 (5 1/8")	25 (1")	2,700 (8'-10")		10 (3/8")
F2-7	1,350 (4'-5 1/4")	650 (2'-1 5/8")	150 (5 7/8")	25 (1")	2,700 (8'-10")		10 (3/8")

* FOR DIA SEE M (THIMBLE-EYE ROD) IN SOIL
CONDITION SCHEDULE

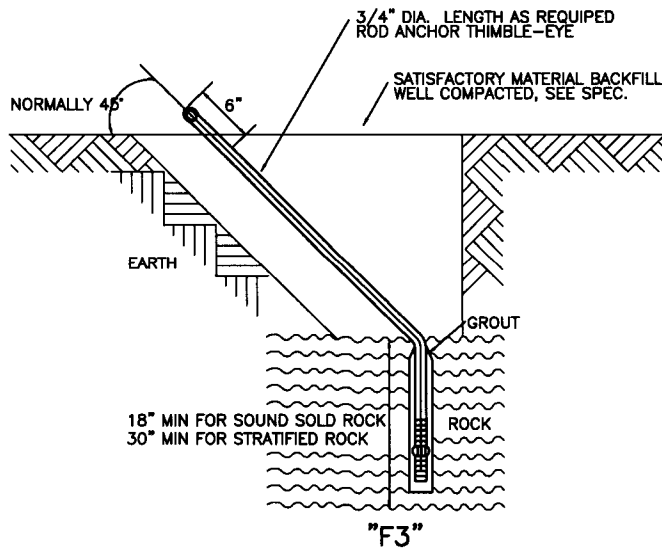
IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	GUY AND ANCHOR DETAILS - 3	SPEC	16370	OCT 2003	E0108

SOIL CONDITION SCHEDULE						
TYPE OF ANCHOR	SOIL CONDITION SAND ϕ -30 W=115# / FT ³			SOIL CONDITION RICE PADDY ϕ -30 W=60# / FT ³		
	HOLDING POWER OF ANCHOR (POUNDS)	M ROD	GUY WIRE	HOLDING POWER OF ANCHOR (POUNDS)	M ROD	GUY WIRE
F2-1	11,600	3/4"	7/16"	6,000	5/8"	3/8"
F2-2	12,700	"	"	6,600	"	"
F2-3	13,850	"	"	7,250	"	"
F2-4	15,000	1/2"	1/2"	7,840	"	5/8"
F2-5	16,350	"	"	8,530	"	"
F2-6	19,000	5/8"	5/8"	9,920	3/4"	7/16"
F2-7	23,000	"	"	12,000	"	1/2"

* ALL MUCK AND SOFT SOIL SHALL BE REMOVED FROM ANCHOR AREA IN RICE PADDY AND SHALL BE REPLACED WITH GRANULAR MATERIAL. A VOLUME OF APPROXIMATELY 12'-0"x15'-0"x7'-6" DEEP EXCAVATION OF SOFT MATERIAL IS REQUIRED FOR EACH ANCHOR



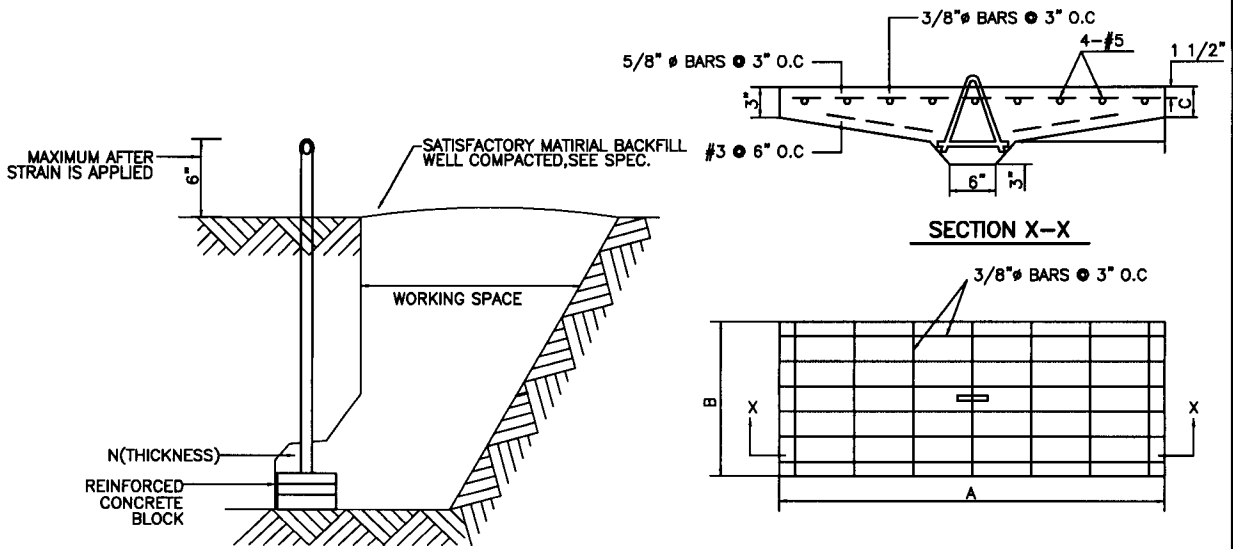
FOR SETTING OF THIMBLE-EYE ROD AND ANCHOR SEE "F6" ANCHOR ASSEMBLY



ROCK ANCHOR ASSEMBLY

1. ONLY ONE-GUY SHALL BE ATTACHED TO A ROCK ANCHOR, WHERE MORE THAN ONE GUY IS REQUIRED SPACE ANCHORS 2FT MINIMUM AND WHERE PRACTICAL THEY SHALL BE IN DIRECT LINE WITH POLE
2. DO NOT ANCHOR TO ANY BOULDER MEASURING LESS THAN 5FT IN TWO DIRECTIONS AT RIGHT ANGLES TO EACH OTHER

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	GUY AND ANCHOR DETAILS - 4	SPEC	16370	OCT 2003	E0109



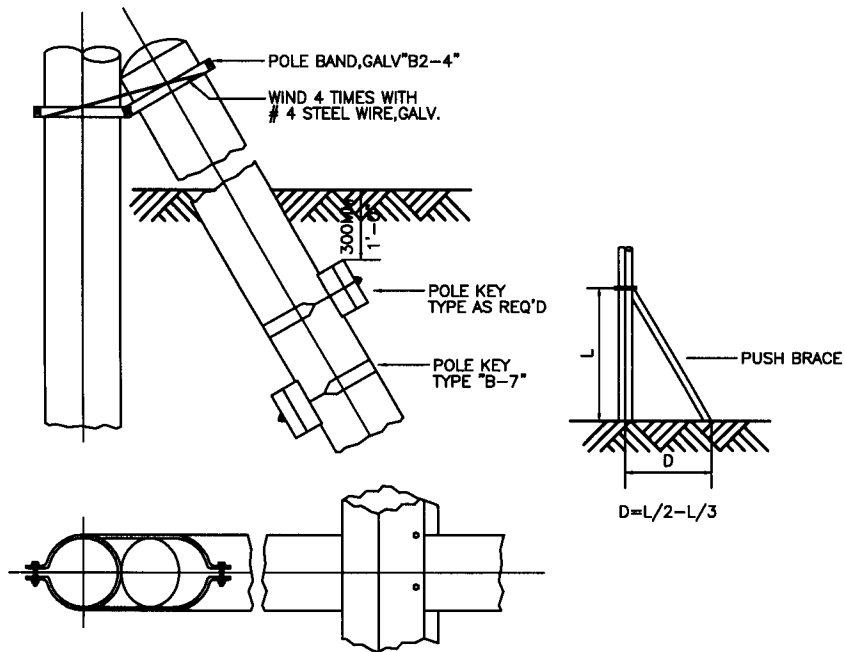
"F5" ANCHOR ASSEMBLY

"F5" ANCHOR ASSEMBLY							
TYPE	BLOCK DIMENSION MM (INCH) THIMBLE-EYE ROD						
	A	B	C	I	L	M	N
F5-1a	500 (1'-7 5/8")	250 (9 7/8")	70 (2 3/4")	16 (5/8")	2,300 (7'-6")	.	8 (5/16")
F5-2a	600 (1'-11 5/8")	300 (11 7/8")	80 (3 1/8")	16 (5/8")	2,300 (7'-6")		8 (5/16")
F5-3a	700 (2'-3 5/8")	350 (1'-13/4")	90 (3 1/2")	19 (3/4")	2,500 (8'-2")		8 (5/16")
F5-4a	800 (2'-7 1/2")	400 (1'-3 5/8")	100 (3 7/8")	19 (3/4")	2,500 (8'-2")		8 (5/16")
F5-5a	900 (2'-11 3/8")	450 (1'-5 5/8")	110 (4 3/8")	22 (7/8")	2,700 (8'-10")		10 (3/16")
F5-6a	1,100 (3'-7 3/8")	550 (5 1/8")	130 (5 1/8")	25 (1")	2,700 (8'-10")		10 (3/8")
F5-7a	1,350 (4'-5 1/4")	650 (2'-1 5/8")	150 (5 7/8")	25 (1")	2,700 (8'-10")		10 (3/8")

• FOR DIA SEE M (THIMBLE-EYE ROD) IN SOIL CONDITION SCHEDULE

SOIL CONDITION SCHEDULE						
TYPE OF ANCHOR	SOIL CONDITION SAND # -30 W=115#/FT			SOIL CONDITION SAND # -30 W=60#/FT		
	HOLDING POWER OF ANCHOR (POUNDS)	M ROD	GUY WIRE	HOLDING POWER OF ANCHOR (POUNDS)	M ROD	GUY WIRE
F5-1a	11,600	3/4"	7/16"	6,000	5/8"	3/8"
F5-2a	12,700	"	"	6,600	"	"
F5-3a	13,850	"	"	7,250	"	"
F5-4a	15,000	1/2"	1/2"	7,840	"	5/8"
F5-5a	16,350	"	"	8,530	"	"
F5-6a	19,000	5/8"	5/8"	9,920	3/4"	7/16"
F5-7a	23,000	"	"	12,000	"	1/2"

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	ANCHOR ASSEMBLY FOR SIDE WALK GUY	SPEC	16370	OCT 2003	E0110



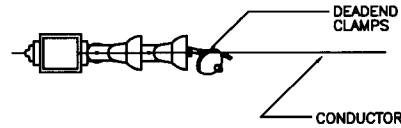
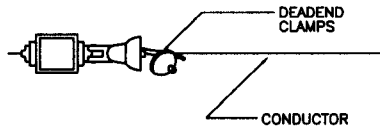
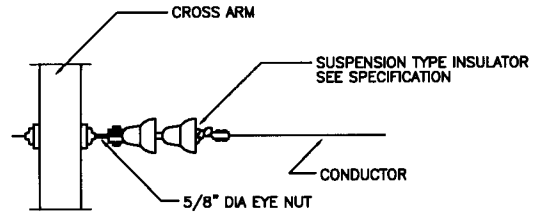
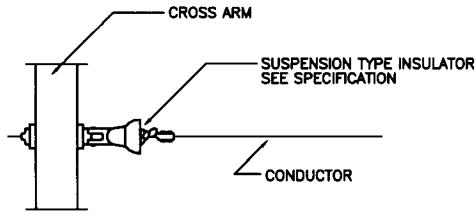
SETTING DEPTH OF PUSH BRACE			
BRACE FT	LENGTH (M)	BRACE FT	LENGTH (M)
UP TO 30'	(9)	3'	(1)
45'	(13)	4'	(1.2)
52'	(16)	4'-5"	(1.4)

PUSH BRACE
NO. SCALE

NOTE.

1. ALL POLE LINE HARDWARES TO BE HOT DIPPED GALVANIZED

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	PUSH BRACE DETAIL	SPEC	16370	OCT 2003	E0111



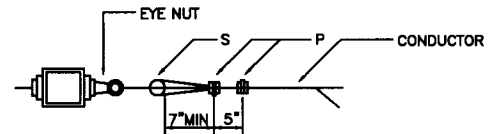
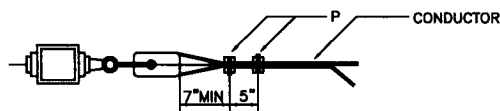
SINGLE SUSPENSION TYPE INSULATOR

DOUBLE STRING SUSPENSION TYPE INSULATOR

STEEL CROSSARM

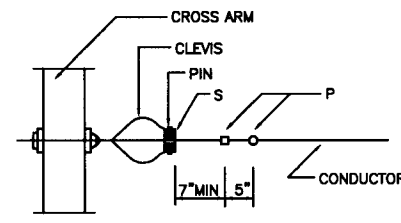
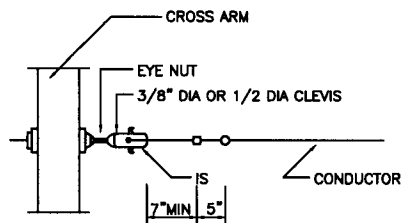
STEEL CROSSARM

"Ca" – PRIMARY DEADEND ASSEMBLY



STEEL ARMING

STEEL ARMING



STEEL CROSSARM

STEEL CROSSARM

ITEM	MATERIAL	CLASS	QTY.
P	CONNECTORS SOLDERLESS		2
IS	GUY STRAIN INSULATOR W/SWINGING CLEVIS	SEE SPEC	1

ITEM	MATERIAL	CLASS	QTY.
P	CONNECTORS SOLDERLESS		2
S	SPOOL INSULATOR W/SWINGING CLEVIS	SEE SPEC	1

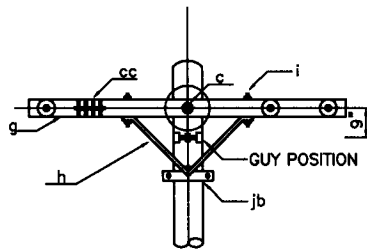
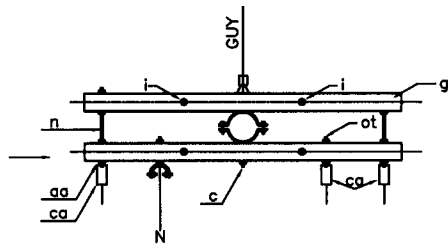
"Cb" – SERIES STREET LIGHT

"Cc" – NEUTRAL OR SECONDARY

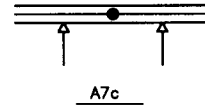
NOTES:

1. THE MATERIALS INDICATED IN THE PERTINENT SECTION OF THE ABOVE TABLES ARE TO BE INCLUDED IN ALL MATERIAL TABLES SPECIFYING "Ca" "Cb" "Cc" DEADEND ASSEMBLIES.
2. WHEN ADDITIONAL PRIMARY DEADENDS ARE NECESSARY THEY SHALL INCLUDE NUT EYE OR SHOULDER EYE BOLT AS REQUIRED.
3. WHEN ADDITIONAL STREET LIGHT OR NEUTRAL AND SECONDARY DEADENDS ARE NECESSARY THEY SHALL INCLUDE NUT EYE, SHOULDER EYE BOLT OR THRU BOLT AS REQUIRED.
4. WHEN PRIMARY DEADENDS OF THE SUSPENSION INSULATOR TYPE ARE USED FOR ANGLES EXCEEDING FIVE DEGREES ONE ANCHOR SHACKLE SHALL BE ADDED TO EACH DEADEND.
5. ALL POLE LINE HARDWARE TO BE HOT DIPPED GALVANIZED.

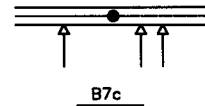
IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	DEADEND ASSEMBLY	SPEC	16370	OCT 2003	E0112



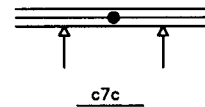
c7bc



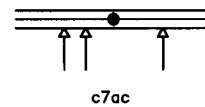
A7c



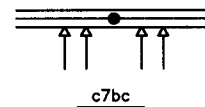
B7c



c7c



c7ac



c7bc

ITEM	M A T E R I A L	S T E E L A R M I N G				
		Q T Y R E Q ' D				
		A7c	B7c	C7c	C7ac	C7bc
c	BOLT, MACHINE, 5/8" x REQ'D LENGTH	1	1	1	1	1
g	CROSARM, STEEL, NOTE NO.2	2	2	2	2	2
h	ANGLE BRACE. SEE DWG. SH 0.021	2	2	2	2	2
i	BOLT, MACHINE, 3/8" x 4 1/2"	4	4	4	4	4
jb	BAND, STEEL, TYPE B4-1	1	1	1	1	1
n	BOLT, DBL, ARMING, 5/8" x REQ'D LENGTH	2	2	2	2	2
ot	BOLT, SHOULDER, EYE, 5/8" x REQ'D LENGTH	-	1	-	1	2
aa	NUT EYE 5/8"	2	2	2	2	2
ca	DEADEND ASSEMBLY, PRIMARY	2	3	1	2	3
cc	DEADEND ASSEMBLY, NEUTRAL	-	-	1	1	1

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REV DATE

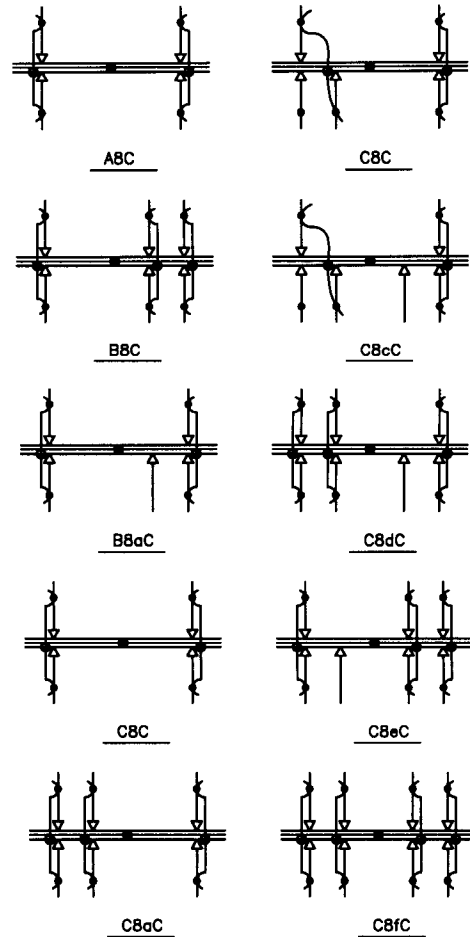
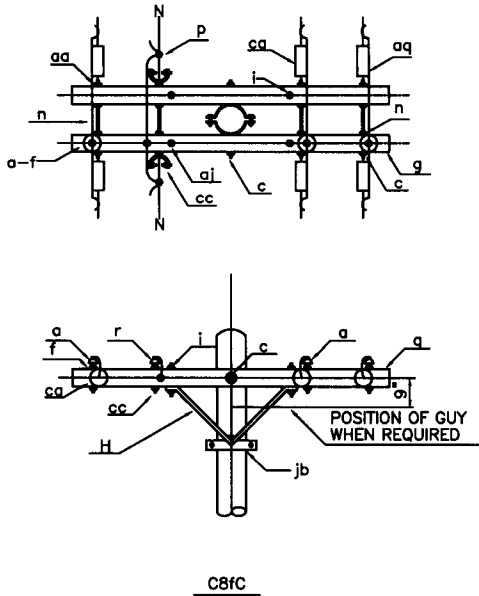
DWG NO.

TITLE PRIMARY CROSSARM ARRANGEMENT - 1

SPEC 16370

OCT 2003

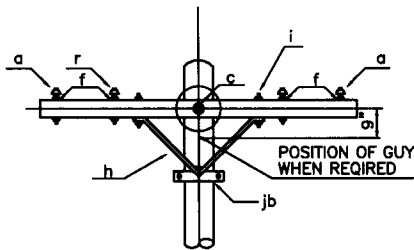
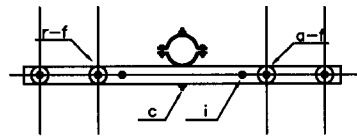
E0113



ITEM	MATERIAL	STEEL ARMIND									
		QTY REQ'D									
		ABC	BBC	BBaC	CBC	C8aC	C8bC	C8cC	C8dC	C8eC	C8fC
a	INSULATOR, PIN,TYPE, BROWN	2	3	2	1	2	1	1	2	3	3
c	BOLT, MACHINE, 5/8"x REQ'D LENGTH	1	1	1	1	1	1	1	1	1	1
ci	STRAIN INSULATOR CLEVIS, SEE NOTE										
f	PIN, STEEL, CROSSARM, SEE SPECS	2	3	2	2	3	2	2	3	3	4
g	CROSSARM,STEEL,NOTE NO.2	2	2	2	2	2	2	2	2	2	2
h	ANGLE BRACE.SEE DWG.SH 0.021	2	2	2	2	2	2	2	2	2	2
i	BOLT, MACHINE, 3/8" x 4 1/2"	4	4	4	4	4	4	4	4	4	4
jb	BAND, STEEL, TYPE B4-1	1	1	1	1	1	1	1	1	1	1
n	BOLT, DBL, ARMING, 5/8"xREQ'D LENGTH	2	3	2	2	3	2	2	3	3	4
p	CONNECTORS ,AS REQUIRED										
r	INSULATOR, PIN TYPE, WHITE	-	-	-	1	1	1	1	1	-	1
aa	NUT, EYE, 5/8"	4	6	4	4	6	4	4	6	6	8
ai	BOLT, SHOULDER EYE, 5/8"x REQ'D LENGTH	-	-	1	-	-	1	2	1	1	-
aq	JUMPERS, AS REQUIRED										
ca	DEADEND ASSEMBLY, PRIMARY	4	6	5	2	4	3	4	5	6	6
cc	DEADEND ASSEMBLY, NEUTRAL	-	-	-	2	2	2	2	2	1	2

NOTE: ADD (ci) CLEVISES TO DEADEND ASSEMBLY "ca", WHEN THIS ASSEMBLY IS USED FOR ANGLES EXCEEDING 5°

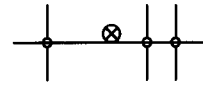
IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	PRIMARY CROSSARM ARRANGEMENT - 2	SPEC	16370	OCT 2003	E0114



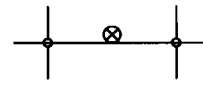
C9-1bc



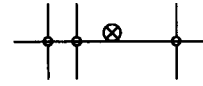
A9-1c



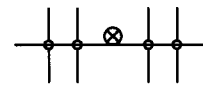
B9-1c



C9-1c



C9-1ac



C9-1bc

ITEM	MATERIAL	STEEL ARMIND				
		QTY REQ'D				
		A9-1c	B9-1c	C9-1c	C9-1ac	C9-1bc
a	INSULATOR, PIN,TYPE, BROWN	2	3	1	2	3
c	BOLT, MACHINE, 5/8"x REQ'D LENGTH	1	1	1	1	1
f	PIN, STEEL, CROSSARM, SEE SPECS	2	3	2	3	4
g	CROSSARM,STEEL,NOTE NO.2	1	1	1	1	1
h	ANGLE BRACE.SEE DWG.SH 0.021	1	1	1	1	1
i	BOLT, MACHINE, 3/8" x 4 1/2"	2	2	2	2	2
jb	BAND, STEEL, TYPE B4-1	1	1	1	1	1
r	INSULATOR, PIN TYPE, WHITE	-	-	1	1	1

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER

REV DATE

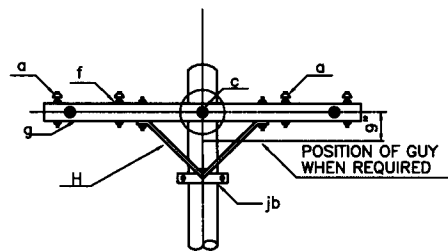
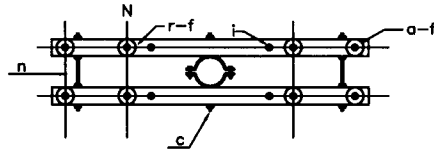
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TITLE PRIMARY CROSSARM ARRANGEMENT - 3

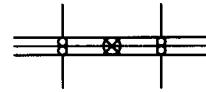
SPEC 16370

OCT 2003

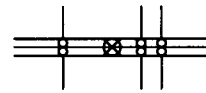
E0115



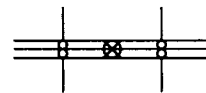
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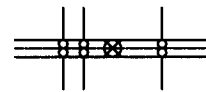
A9C



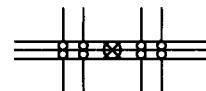
B9C



C9C



C9aC



C9bC

ITEM	MATERIAL	STEEL ARMIND				
		QTY REQ'D				
		A9C	B9C	C9C	C9aC	C9bC
a	INSULATOR, PIN,TYPE, BROWN	4	6	2	4	6
c	BOLT, MACHINE, 5/8"x REQ'D LENGTH	1	1	1	1	1
f	PIN, STEEL, CROSSARM, SEE SPECS	4	6	4	6	8
g	CROSARM,STEEL,NOTE NO.2	2	2	2	2	2
h	ANGLE BRACE.SEE DWG.SH 0.021	2	2	2	2	2
i	BOLT, MACHINE, 3/8" x 4 1/2"	4	4	4	4	4
jb	BAND, STEEL, TYPE B4-1	1	1	1	1	1
n	BOLT, DBL, ARMING, 5/8"xREQ'D LENGTH	2	2	2	2	2
r	INSULATOR, PIN TYPE, WHITE	-	-	2	2	2

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER

REV DATE

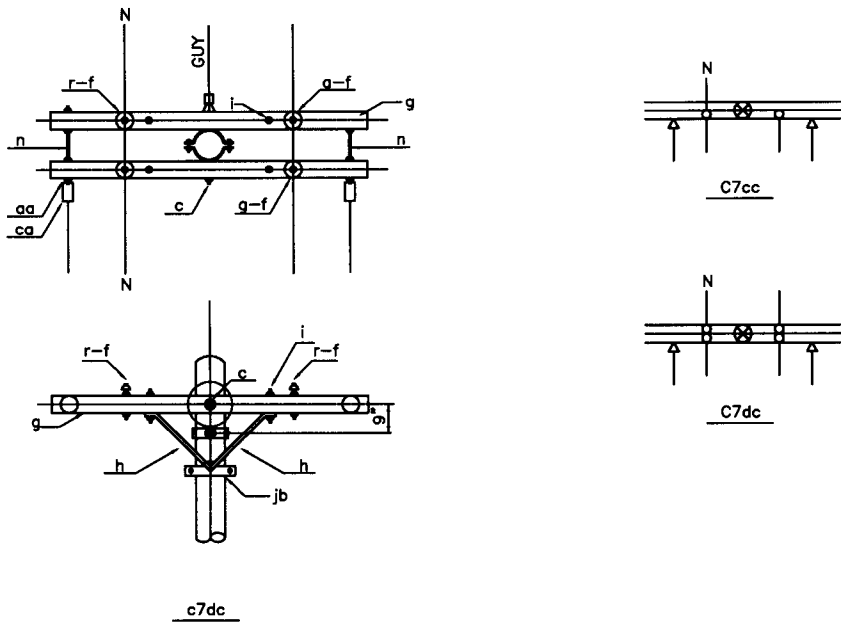
DWG NO.

TITLE PRIMARY CROSSARM ARRANGEMENT - 4

SPEC 16370

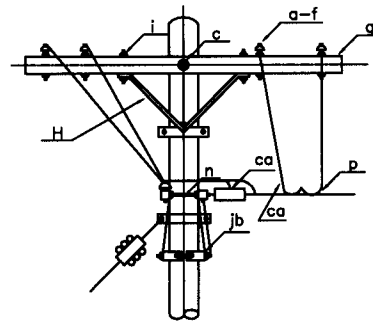
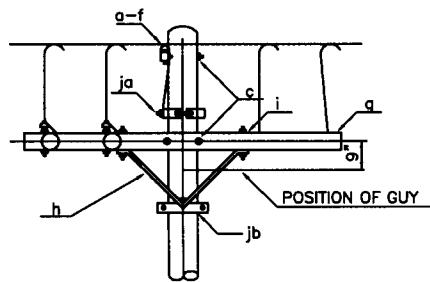
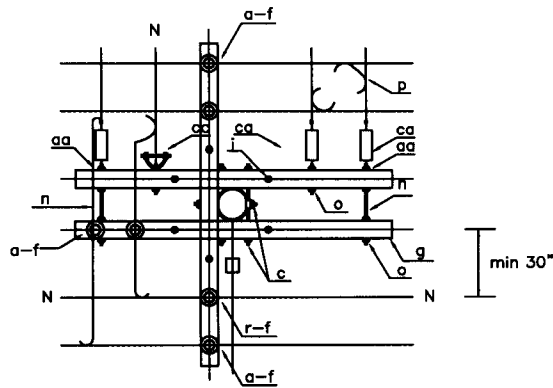
OCT 2003

E0116



ITEM	MATERIAL	STEEL ARMIND		
		QTY REQ'D		
		C7cc	C7dc	
a	INSULATOR, PIN,TYPE, BROWN	1	2	
c	BOLT, MACHINE, 5/8"x REQ'D LENGTH	1	1	
t	PIN, STEEL, CROSSARM, SEE SPECS	2	4	
g	CROSSARM,STEEL,NOTE NO.2	2	2	
h	ANGLE BRACE.SEE DWG.SH 0.021	2	2	
i	BOLT, MACHINE, 3/8" x 4 1/2"	4	4	
jb	BAND, STEEL, TYPE B4-1	1	1	
n	BOLT, DBL, ARMING, 5/8"xREQ'D LENGTH	2	2	
aa	NUT EYE 5/8"	2	2	
ca	DEADEND ASSEMBLY, PRIMARY	2	2	
r	INSULATOR, PIN TYPE, WHITE	1	2	

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	PRIMARY CROSSARM ARRANGEMENT - 5	SPEC	16370	OCT 2003	E0117

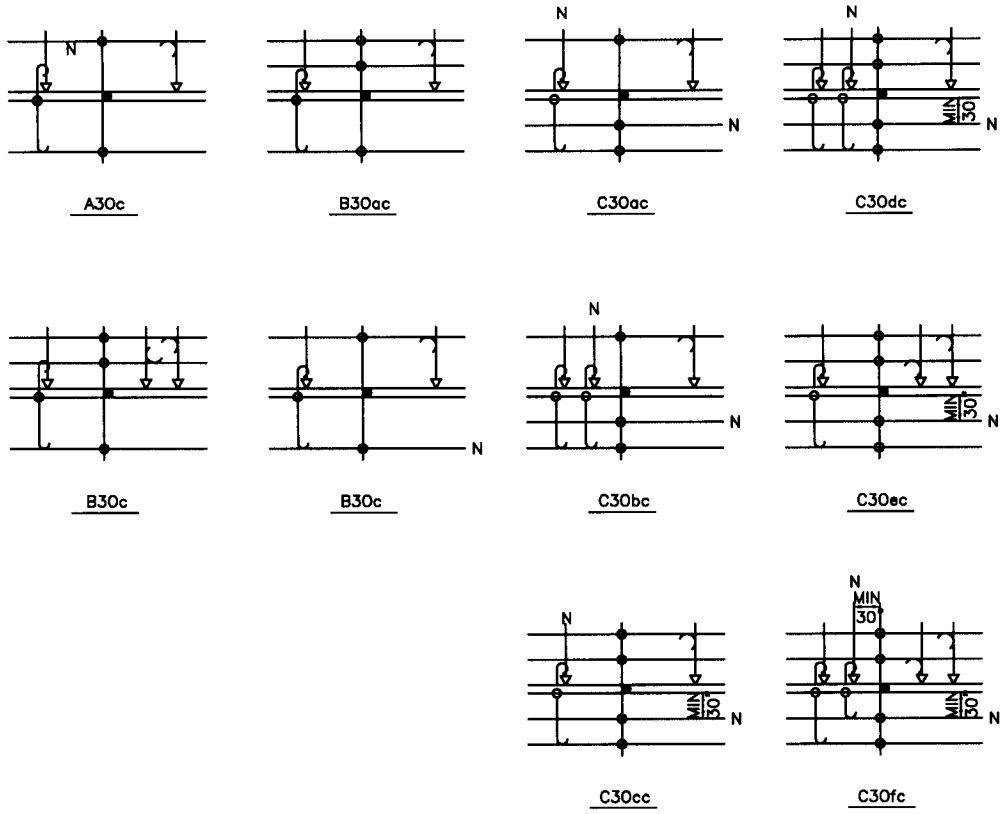


ITEM	MATERIAL	STEEL ARMIND									
		QTY REQ'D									
		A30c	B30c	B30ac	C30c	C30ac	C30bc	C30cc	C30dc	C30ec	C30fc
a *	INSULATOR, PIN,TYPE, BROWN	3	4	4	1	2	3	3	4	4	4
c	BOLT, MACHINE, 5/8"x REQ'D LENGTH	3	3	3	3	3	3	3	3	3	3
f *	PIN, STEEL, CROSSARM, SEE SPECS	3	4	4	3	4	5	5	6	5	6
g	CROSSARM,STEEL,NOTE NO.2	3	3	3	3	3	3	3	3	3	3
h	ANGLE BRACE.SEE DWG.SH 0.021	3	3	3	3	3	3	3	3	3	3
i	BOLT, MACHINE, 4 1/2"	6	6	6	6	6	6	6	6	6	6
j	BAND, STEEL, TYPE B2-1	1	1	1	1	1	1	1	1	1	1
ja	BAND, STEEL, TYPE B3-1	1	1	1	1	1	1	1	1	1	1
n	BOLT, DBL, ARMING, 5/8"xREQ'D LENGTH	2	2	2	2	2	2	2	2	2	2
o	BOLT, SHOULDER EYE, 5/8"x REQ'D LENGTH	-	1	-	-	-	1	-	1	1	2
p	CONNECTORS ,AS REQUIRED										
r *	INSULATOR, PIN TYPE, WHITE	-	-	-	2	2	2	2	2	1	2
aa	NUT, EYE, 5/8"	2	2	2	2	2	2	2	2	2	2
ag	JUMPERS, AS REQUIRED										
ca	DEADEND ASSEMBLY, PRIMARY	2	3	2	1	1	2	1	2	3	3
cc	DEADEND ASSEMBLY, NEUTRAL	-	-	-	1	1	1	1	1	1	1
jb	BAND, STEEL, TYPE B4-1	1	1	1	1	1	1	1	1	1	1

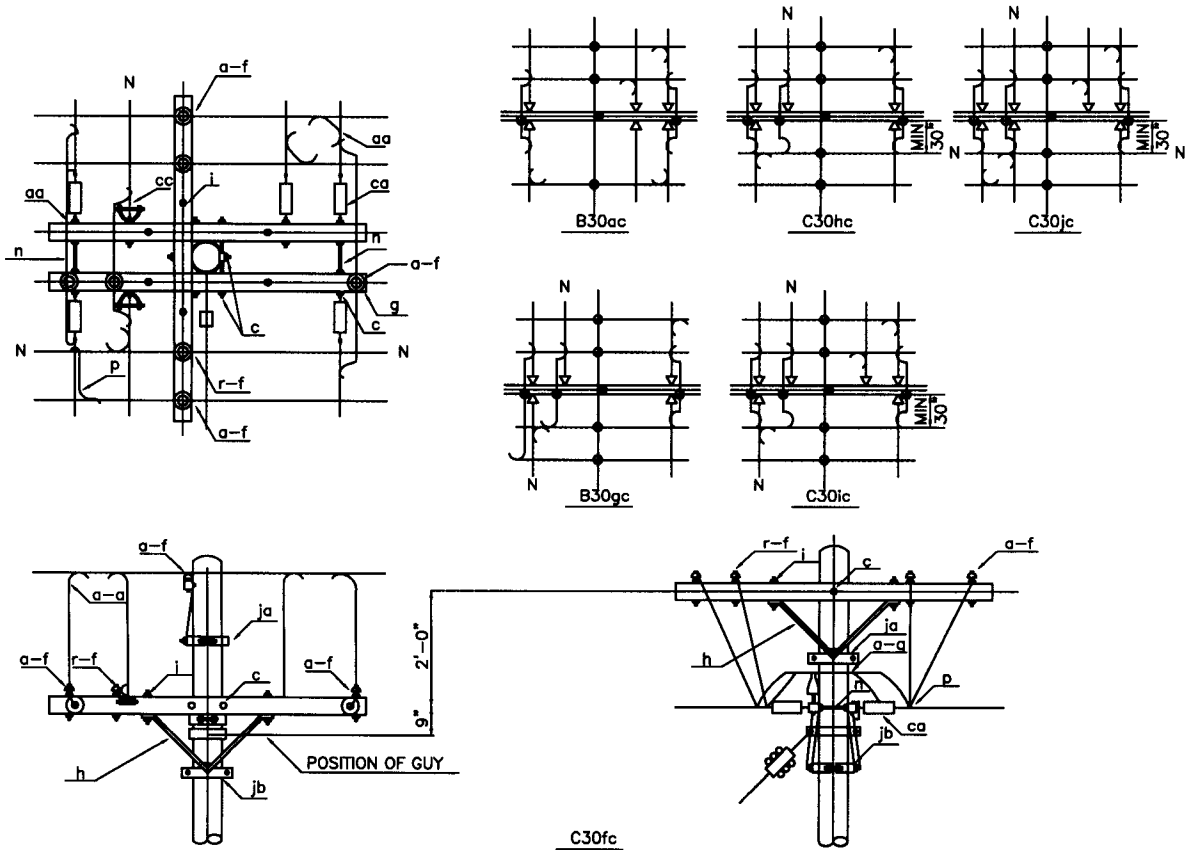
*QTY TO BE CHANGED WHEN DEADEND IS PLACED ON OPPOSITE END

a	INSULATOR, PIN,TYPE, BROWN	3	5	4	2	3	3	4	4	5	5
f	PIN, STEEL, CROSSARM, SEE SPECS	3	5	4	3	4	4	5	5	6	6
r	INSULATOR, PIN TYPE, WHITE	-	-	-	1	1	1	1	1	1	1

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER							REV DATE	DWG NO.
TITLE	PRIMARY CROSSARM ARRANGEMENT - 6	SPEC	16370	OCT 2003	E0118			



IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	PRIMARY CROSSARM ARRANGEMENT - 7	SPEC	16370	OCT 2003	E0119



ITEM	MATERIAL	STEEL ARMIND				
		QTY REQ'D				
		B30bc	B30gc	C30hc	C30ic	C30jc
a *	INSULATOR, PIN,TYPE, BROWN	5	4	5	5	5
c	BOLT, MACHINE, 5/8"x REQ'D LENGTH	3	3	3	3	3
ci	STRAIN INSULATOR, CLEVIS, SWW NOTE BELOW					
f *	PIN, STEEL, CROSSARM, SEE SPECS	5	6	7	7	7
g	CROSARM,STEEL,NOTE NO.2	3	3	3	3	3
h	ANGLE BRACE.SEE DWG.SH 0.021	3	3	3	3	3
i	BOLT, MACHINE, 3/8"x3/8"x4 1/2"	6	6	6	6	6
ja	BAND, STEEL, TYPE B3-1	1	1	1	1	1
jb	BAND, STEEL, TYPE B4-1	1	1	1	1	1
n	BOLT, DBL, ARMING, 5/8"xREQ'D LENGTH	2	2	2	2	2
o	BOLT, SHOULDER EYE, 5/8"x REQ'D LENGTH	1	1	1	2	1
p	CONNECTORS ,AS REQUIRED					
r *	INSULATOR, PIN TYPE, WHITE	-	2	2	2	2
aa	NUT, EYE, 5/8"	4	4	4	4	6
aq	JUMPERS, AS REQUIRED					
ca	DEADEND ASSEMBLY, PRIMARY	5	3	3	4	5
cc	DEADEND ASSEMBLY, NEUTRAL	-	2	2	2	2
j	BAND, STEEL, TYPE B1-2	1	1	1	1	1

*QTY TO BE CHANGED WHEN DEADEND CONDITION ON BOTH SIDES ARE INTERCHANGED

a	INSULATOR, PIN,TYPE, BROWN	6	3	4	5	6
f	PIN, STEEL, CROSSARM, SEE SPECS	6	5	6	7	8
r	INSULATOR, PIN TYPE, WHITE	-	2	2	2	2

NOTE ADD(ci) CLEVISSES TO DEADEND ASSEMBLY "ca" WHEN THIS ASSEMBLY IS USED FOR ANGLES EXCEEDING 5°

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER

REV DATE

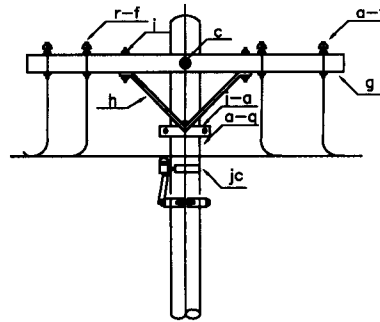
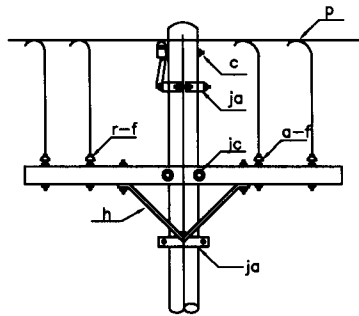
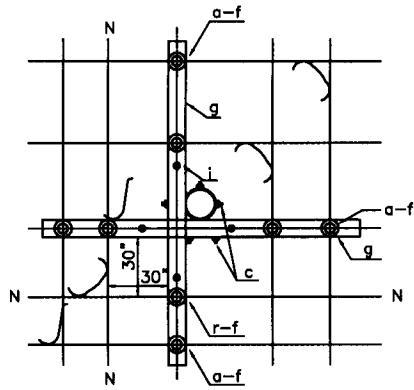
DWG NO.

TITLE PRIMARY CROSSARM ARRANGEMENT - 8

SPEC 16370

OCT 2003

E0120



C31fc

ITEM	MATERIAL	STEEL ARMIN									
		QTY REQ'D									
		A31c	B31c	B31ac	C31c	C31ac	C31bc	C31cc	C31dc	C31ec	C31fc
a	INSULATOR, PIN,TYPE, BROWN	4	6	5	2	3	4	5	6	6	
c	BOLT, MACHINE, 5/8"x REQ'D LENGTH	1	1	1	1	1	1	1	1	1	
f	PIN, STEEL, CROSSARM, SEE SPECS	4	6	5	4	5	6	6	7	8	
g	CROSSARM,STEEL,NOTE NO.2	2	2	2	2	2	2	2	2	2	
h	ANGLE BRACE.SEE DWG.SH 0.021	2	2	2	2	2	2	2	2	2	
i	BOLT, MACHINE, 3/8"x3/8"x4 1/2"	4	4	4	4	4	4	4	4	4	
ja	BAND, STEEL, TYPE B3-1	2	2	2	2	2	2	2	2	2	
jc	BAND, STEEL, TYPE B1-4	1	1	1	1	1	1	1	1	1	
p	CONNECTORS ,AS REQUIRED										
r	INSULATOR, PIN TYPE, WHITE	-	-	-	2	2	2	2	2	2	

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER

REV DATE

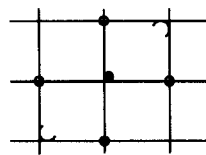
DWG NO.

TITLE PRIMARY CROSSARM ARRANGEMENT - 9

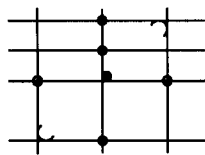
SPEC 16370

OCT 2003

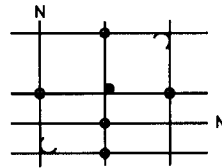
E0121



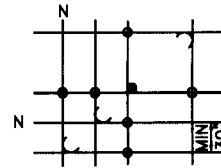
A31c



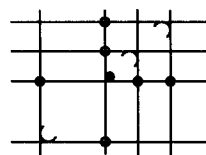
B31ac



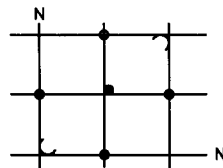
C31ac



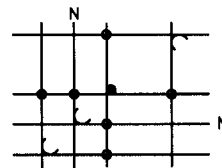
C31dc



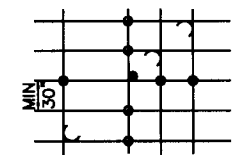
B31c



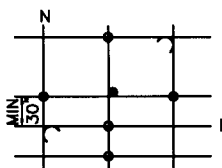
C31c



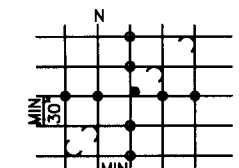
C31bc



B31ec



C31cc



C31fc

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER

REV DATE

DWG NO.

TITLE

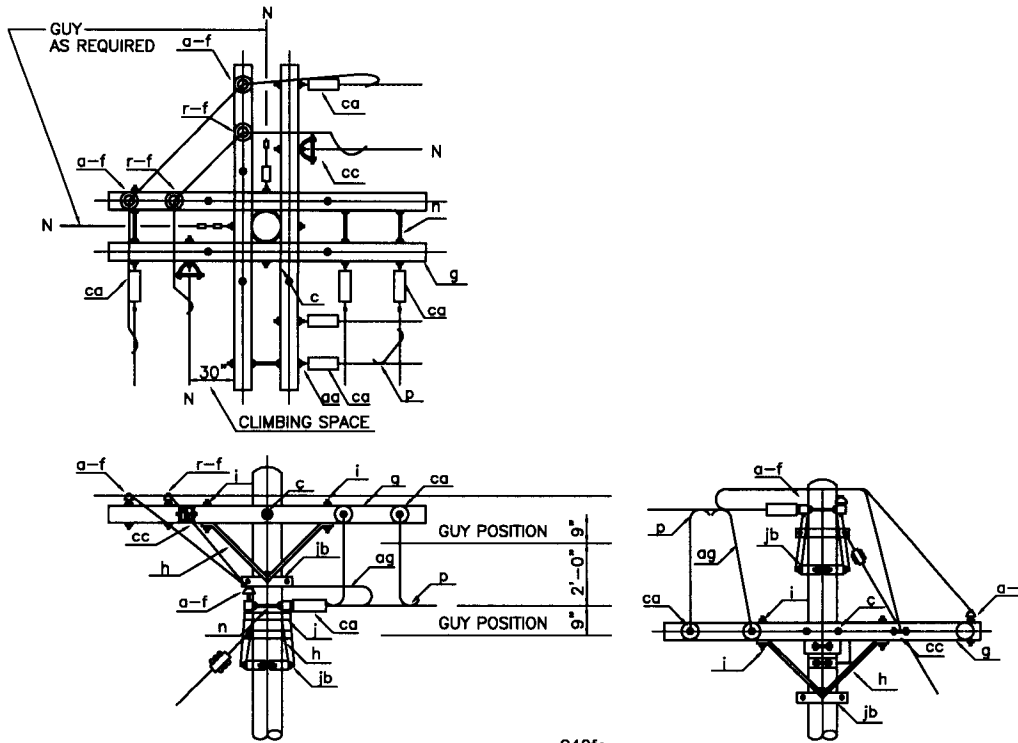
PRIMARY CROSSARM ARRANGEMENT - 10

SPEC

16370

OCT 2003

E0122



C40fc

ITEM	MATERIAL	STEEL ARMIND									
		QTY REQ'D									
		A40c	B40c	B40ac	C40c	C40ad	C40bc	C40cc	C40dc	C40ec	C40fc
a *	INSULATOR, PIN TYPE, BROWN	2	2	2	-	-	2	-	2	2	2
c	BOLT, MACHINE, 5/8"x REQUIRED LENGTH	3	3	3	3	3	3	3	3	3	
r *	INSULATOR, PIN TYPE, WHITE	-	-	-	2	2	2	2	-	2	
f *	PIN, STEEL, CROSSARM, SEE SPECS	2	2	2	2	2	4	2	4	4	
g	STEEL, CROSSARM, SEE. NOTE NO.2	4	4	4	4	4	4	4	4	4	
i	BOLT, MACHINE, 3/8" x4 1/2"	8	8	8	8	8	8	8	8	8	
h	ANGLE BRACE.SEE DWG.SH 0.021	4	4	4	4	4	4	4	4	4	
jb	BAND, STEEL, TYPE B4-1	2	2	2	2	2	2	2	2	2	
j	BAND, STEEL, TYPE B2-1	1	1	1	1	1	1	1	1	1	
n	BOLT, DBL, ARMING, 5/8"xREQ'D LENGTH	4	4	4	4	4	4	4	4	4	
o	BOLT, SHOULDER EYE, 5/8"x REQ'D LENGTH	-	2	1	-	1	2	2	3	3	
p	CONNECTORS ,AS REQUIRED										
aa	EYE, NUT, 5/8"										
ag	JUMPERS, AS REQUIRED										
ca	DEADEND ASSEMBLY, PRIMARY	4	6	5	2	3	4	4	5	6	
cc	DEADEND ASSEMBLY, NEUTRAL	-	-	-	2	2	2	2	2	1	

*QTY TO BE CHANGED WHEN EITHER UPPER OR LOWER DEADEND IS PLACED ON OPPOSITE END

r	INSULATOR, PIN TYPE, WHITE	-	-	-	1	1	1	1	1	-	1
a	INSULATOR, PIN,TYPE, BROWN	2	3	2	1	1	2	1	2	3	3
f	PIN, WOOD, CROSSARM, OR STEEL CROSSARM	2	3	2	2	2	3	2	3	3	4
g	WOOD CROSSARM OR STEEL CROSSARM	4	4	4	4	4	4	4	4	4	4

*QTY TO BE CHANGED WHEN BOTH UPPER OR LOWER DEADENDS ARE PLACED ON OPPOSITE END

r	INSULATOR, PIN TYPE, WHITE	-	-	-	-	-	-	-	-	-	-
a	INSULATOR, PIN,TYPE, BROWN	2	4	2	2	2	2	2	4	4	4
f	PIN, WOOD, CROSSARM, OR STEEL CROSSARM	2	4	2	2	2	2	2	2	4	4
g	WOOD CROSSARM OR STEEL CROSSARM	4	4	4	4	4	4	4	4	4	4

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER

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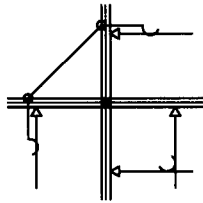
DWG NO.

TITLE PRIMARY CROSSARM ARRANGEMENT - 11

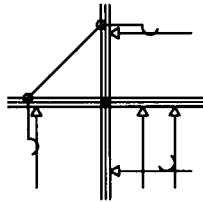
SPEC 16370

OCT 2003

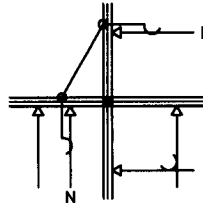
E0123



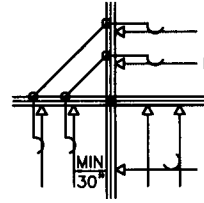
A40c



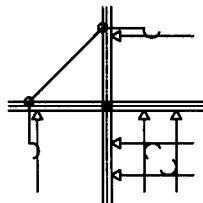
B40ac



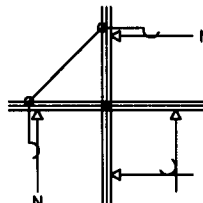
C40ac



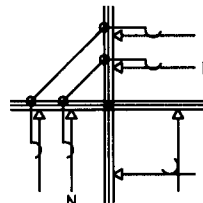
B40ac



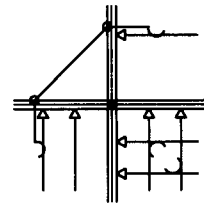
B40c



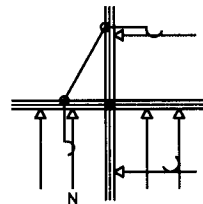
C40c



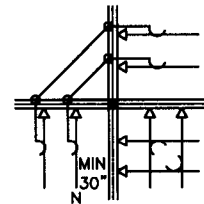
C40bc



B40c



C40cc



C40fc

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER

REV DATE

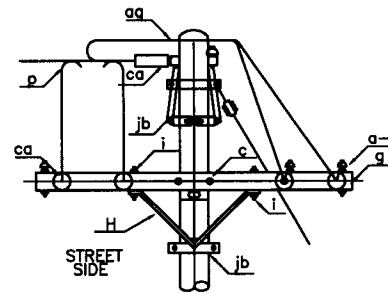
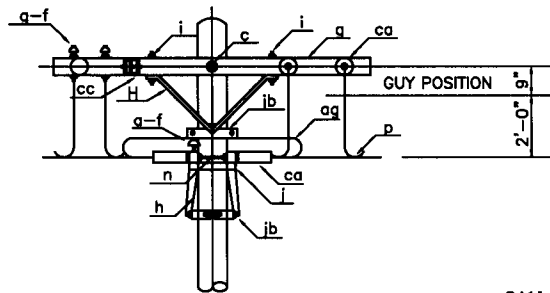
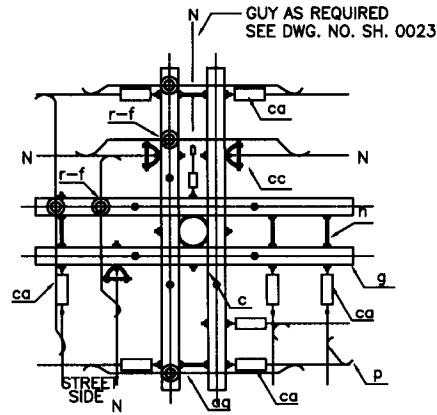
DWG NO.

TITLE PRIMARY CROSSARM ARRANGEMENT - 12

SPEC 16370

OCT 2003

E0124



C41fc

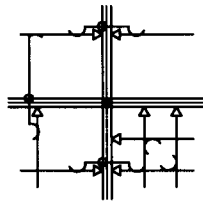
ITEM	MATERIAL	STEEL ARMIND									
		QTY REQ'D									
		B41c	B41ad	C41c	C41ac	C41bd	C41cc	C41dc	C41ec	C41fc	C41gc
a *	INSULATOR, PIN TYPE, BROWN	3	4	3	2	3	2	3	3	3	4
c	BOLT, MACHINE, 5/8" x REQUIRED LENGTH	3	3	3	3	3	3	3	3	3	3
ci	STRAIN INSULATOR CLEVIS, SEE NOTE BELOW										
f *	PIN, STEEL, CROSSARM, SEE SPECS	3	4	5	4	5	4	5	5	5	6
g *	STEEL, CROSARM, SEE. NOTE NO.2	4	4	4	4	4	4	4	4	4	4
i	BOLT, MACHINE, 3/8" x 4 1/2"	8	8	8	8	8	8	8	8	8	8
h	ANGLE BRACE. SEE DWG. SH. 0021	4	4	4	4	4	4	4	4	4	4
jb	BAND, STEEL, TYPE B4-1	2	2	2	2	2	2	2	2	2	2
j	BAND, STEEL, TYPE B2-1	1	1	1	1	1	1	1	1	1	1
n	BOLT, DOUBLE ARMING, 5/8" x REQ'D LENGTH	4	4	4	4	4	4	4	4	5	5
o	BOLT, SHOULDER EYE, 5/8" x REQ'D LENGTH	2	2	2	2	3	3	4	4	3	3
p	CONNECTORS, AS REQUIRED										
aa	EYE, NUT, 5/8"	6	6	6	6	6	6	6	6	8	8
ag	JUMPERS, AS REQUIRED										
ca	DEADEND ASSEMBLY, PRIMARY	8	8	5	5	6	6	7	7	8	8
cc	DEADEND ASSEMBLY, NEUTRAL	-	-	3	3	3	3	3	3	3	3
r *	INSULATOR, PIN TYPE, WHITE	-	-	2	2	2	2	2	2	2	2

*QTY TO BE CHANGED WHEN UPPER DEADEND IS PLACED ON THE OPPOSITE END.

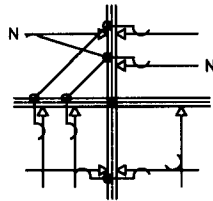
r	INSULATOR, PIN TYPE, WHITE	-	-	-	1	1	1	1	1	1	1
a	INSULATOR, PIN, TYPE, BROWN	4	5	3	2	3	2	4	4	4	5
f	PIN, WOOD, CROSSARM STEEL CROSSARM	4	5	4	3	4	3	5	5	5	6
g	WOOD CROSSARM OR STEEL CROSSARM	4	4	4	4	4	4	4	4	4	4

NOTE: ADD (ci) CLEVISES DEADEND ASSEMBLY "ca", OF LOWER ARMS, WHEN THIS ASSEMBLY IS USED FOR ANGLES EXCEEDING 5°

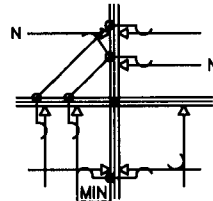
IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	PRIMARY CROSSARM ARRANGEMENT - 13	SPEC	16370	OCT 2003	E0125



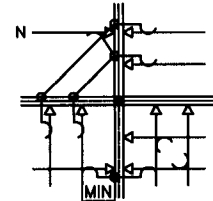
B41c



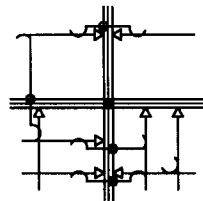
C41c



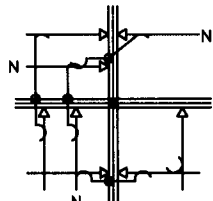
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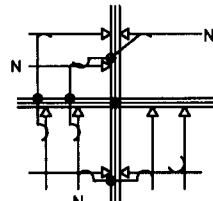
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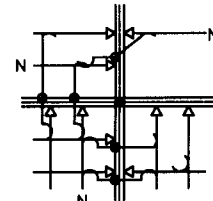
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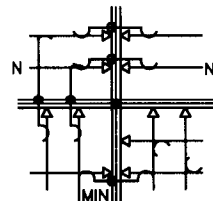
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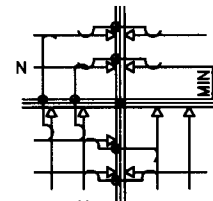
C41cc



C41ec



C41fc



C41gc

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER

REV DATE

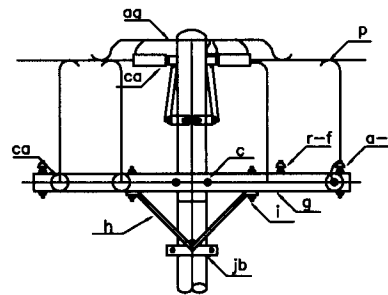
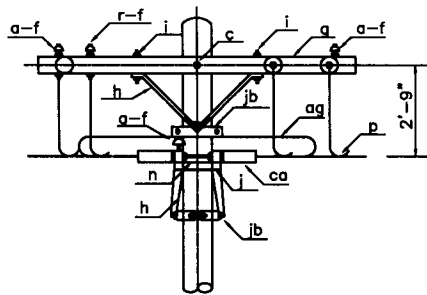
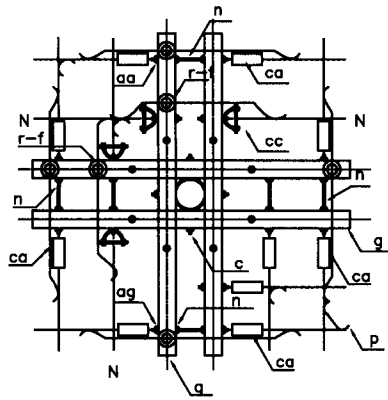
DWG NO.

TITLE PRIMARY CROSSARM ARRANGEMENT - 14

SPEC 16370

OCT 2003

E0126

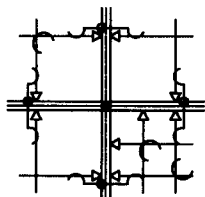


C42fc

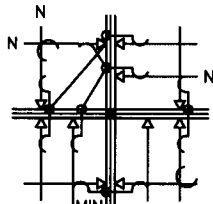
ITEM	MATERIAL	STEEL ARMIND							
		QTY REQ'D							
		B42c	C42c	C42ac	C42bc	C42cc	C42dc	C42ec	C42fc
a	INSULATOR, PIN TYPE, BROWN	4	4	4	4	4	4	4	4
c	BOLT, MACHINE, 5/8" x REQUIRED LENGTH	3	3	3	3	3	3	3	3
ci	STRAIN INSULATOR CLEVIS, SEE NOTE BELOW								
f	PIN, STEEL, CROSSARM, SEE SPECS	4	6	6	6	6	6	6	6
g	STEEL, CROSARM, SEE. NOTE NO.2	4	4	4	4	4	4	4	4
i	BOLT, MACHINE, 3/8" x 4 1/2"	8	8	8	8	8	8	8	8
h	ANGLE BRACE.SEE DWG.SH. 0021	4	4	4	4	4	4	4	4
jb	BAND, STEEL, TYPE B4-1	2	2	2	2	2	2	2	2
j	BAND, STEEL, TYPE B2-1	1	1	1	1	1	1	1	1
n	BOLT, DOUBLE ARMING, 5/8" x REQ'D LENGTH	4	4	4	4	5	5	5	6
o	BOLT, SHOULDER EYE, 5/8" x REQ'D LENGTH	2	2	3	4	3	2	3	2
p	CONNECTORS ,AS REQUIRED								
aa	EYE, NUT, 5/8"	8	8	8	8	10	10	10	12
ag	JUMPERS, AS REQUIRED								
ca	DEADEND ASSEMBLY, PRIMARY	10	6	7	8	9	8	9	10
cc	DEADEND ASSEMBLY, NEUTRAL	-	4	4	4	4	4	4	4
r	INSULATOR, PIN TYPE, WHITE	-	2	2	2	2	2	2	2

NOTE: ADD(ci) CLEVISES DEADEND ASSEMBLY "ca", WHEN THIS ASSEMBLY IS USED FOR ANGLES EXCEEDING 5°

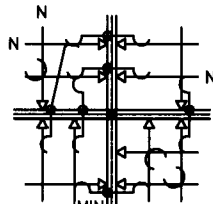
IMA--KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	PRIMARY CROSSARM ARRANGEMENT - 15	SPEC	16370	OCT 2003	E0127



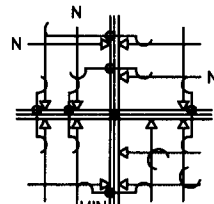
B42c



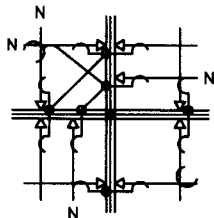
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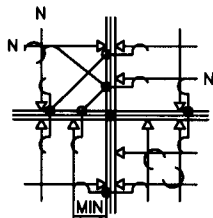
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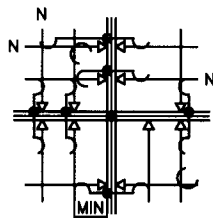
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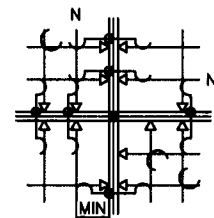
C42c



C42bc



C42dc



C42fc

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER

REV DATE

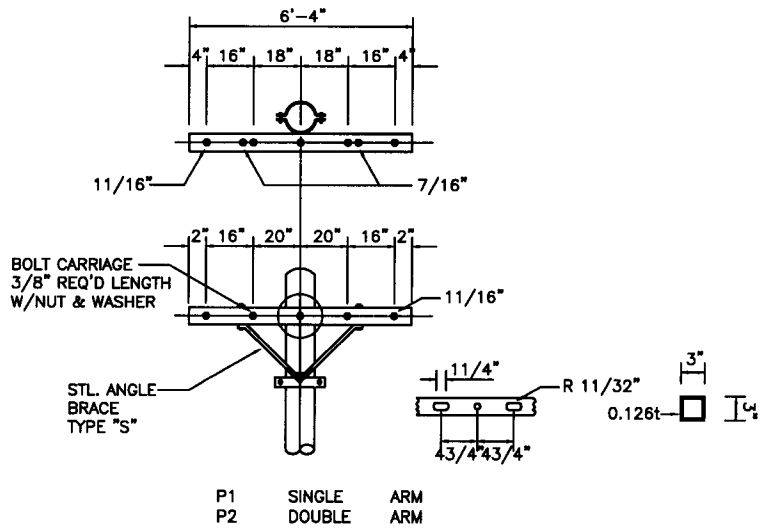
DWG NO.

TITLE PRIMARY CROSSARM ARRANGEMENT - 16

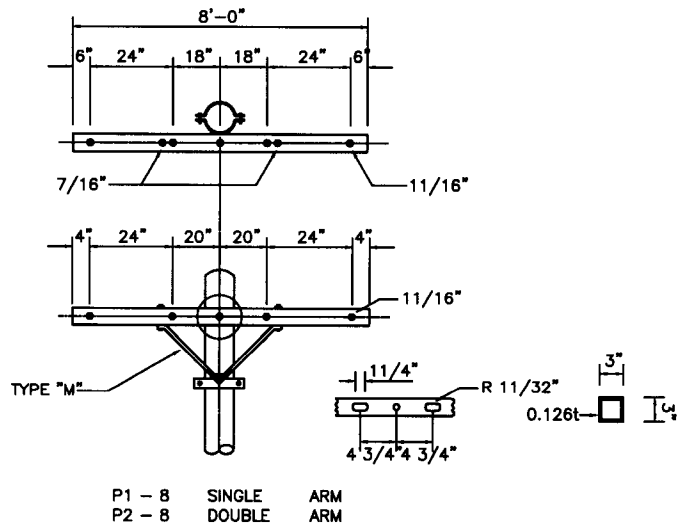
SPEC 16370

OCT 2003

E0128



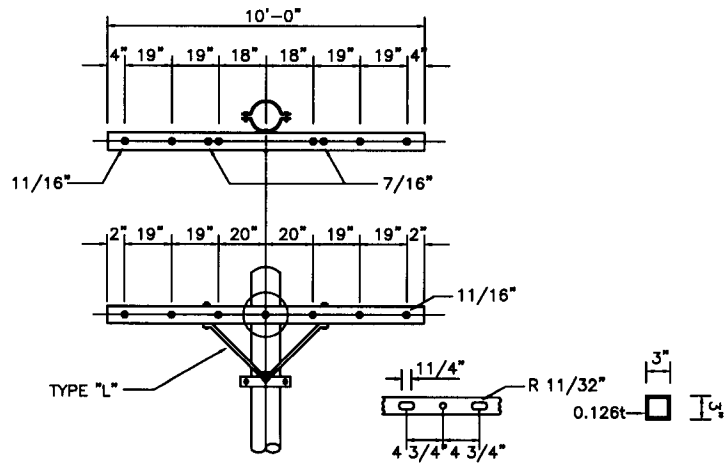
USE FOR SINGLE CIRCUIT 3.3KVΔ
4.16/2.4 KV $\frac{1}{2}$ 5.7/ 3.3KV, $\frac{1}{2}$ OR 6.6KVΔ



USE FOR SINGLE CIRCUIT 11.4/6.6KV $\frac{1}{2}$,13.8KV
22.9/13.2KV, $\frac{1}{2}$ OR 22.9KVΔ

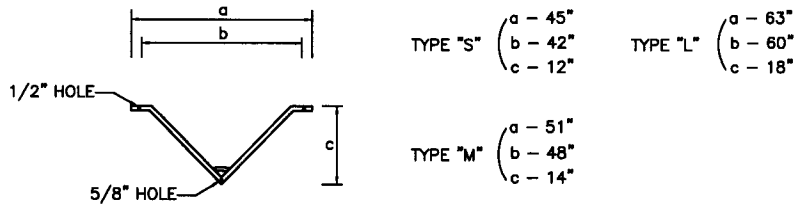
STEEL CROSSARMS

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER			REV DATE	DWG NO.
TITLE	STEEL CROSSARM DETAILS-1	SPEC	16370	OCT 2003 E0129



P1-10 SINGLE ARM
P2-10 DOUBLE ARM

USE FOR DOUBLE CIRCUIT
OF 3.3KV.Δ OR 6.6KV.Δ

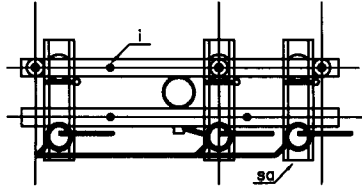


ANGLE CROSSARM BRACES

NOTES:

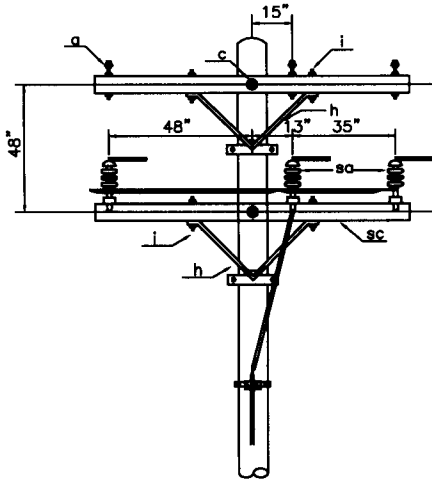
- A. ALL CROSSARMS SHALL BE BORED FOR 4 OR 6 PINS.
- B. SINGLE PHASE CIRCUITS FOR WYE PRIMARIES SHALL BE CARRIED IN INTERMEDIATE PIN POSITIONS UNLESS EXPLICITLY NOTED OTHERWISE.
- C. DEADEND BOLT HOLES MAY BE BORED AS REQUIRED IN THE FIELD.
- D. CROSSARM LENGTHS SHALL BE SUFFICIENT TO PROVIDE 30"x30" CLIMBING SPACE THRU ALL CIRCUITS INCLUDING PRIMARY CIRCUITS AND TO THE TOP OF THE POLE IN ACCORDANCE WITH RULE 236 OF THE NATIONAL ELECTRICAL SAFETY CODE H 30.
- E. SEE TABLE 1.ON DWG.SHEET NO.0022, FOR DESIGN LOAD DEPTH OF VARIOUS LENGTH OF THE POLES.

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER			REV DATE	DWG NO.
TITLE	STEEL CROSSARM DETAILS-2	SPEC	16370	OCT 2003
				E0130

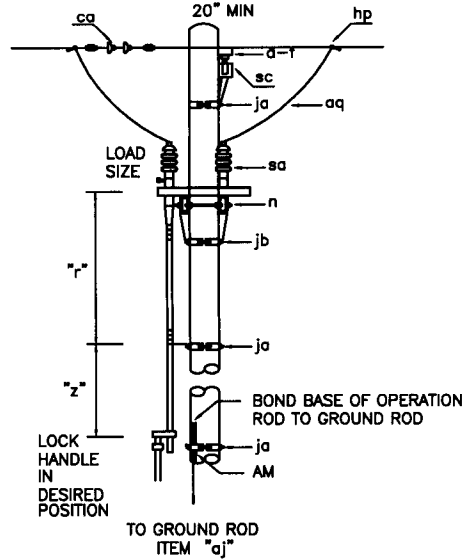


TOP VIEW

PLOE HEIGHT (FT.)	DIMENSIONS	
	"r"	"z"
3 5	8'-0"	7'-0"
4 0	11'-0"	9'-0"
4 5	11'-0"	9'-0"



FRONT ELEVATION



SIDE ELEVATION

INSTALLATION OF GANG OPERATED
LOAD BREAK SWITCH

ITEM	QTY.REQ'D	M A T E R I A L
a	3	INSULATOR PIN TYPE BROWN SEE SPEC'S
c	2	BOLT, MACHINE, 5/8"x REQ'D LENGTH W/WASHER
hp	6	HOT LINE CLAMP
f	3	PIN CROSSARM, SEE SPEC'S
h	3	ONE PIECE ANGLE BRACE.SEE DWG.NO 40 - 06 - 0091. 0021
i	6	BOLT BRACE 3/8" x 4 1/2" W/WASHER
n	3	BOLT DOUBLE ARMING 5/8" x REQ'D LENGTH
aj	1	COPPER CLAD. STEEL ROD. SEE SPEC'S
aq	AS REQ'D	PRIMARY JUMPER WIRE SIZE AS REQ'D
ja	1	BAND, STEEL, TYPE "B3 - 2"
jb	1	BAND, STEEL, TYPE "B4 - 2"
sa	1	GANG OPERATED LOAD BREAK SWITCH AMP. RATING AS REQ'D
sc	3	STEEL CROSSARM.
wb	AS REQ'D	GROUND WIRE # 6 AWG. MIN.
ca	AS REQ'D	DEADEND ASSEMBLY. PRIMARY.
AM	AS REQ'D	WOOD MOULDING OR NON METALIC TUBE SEE SPEC'S

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER

REV DATE

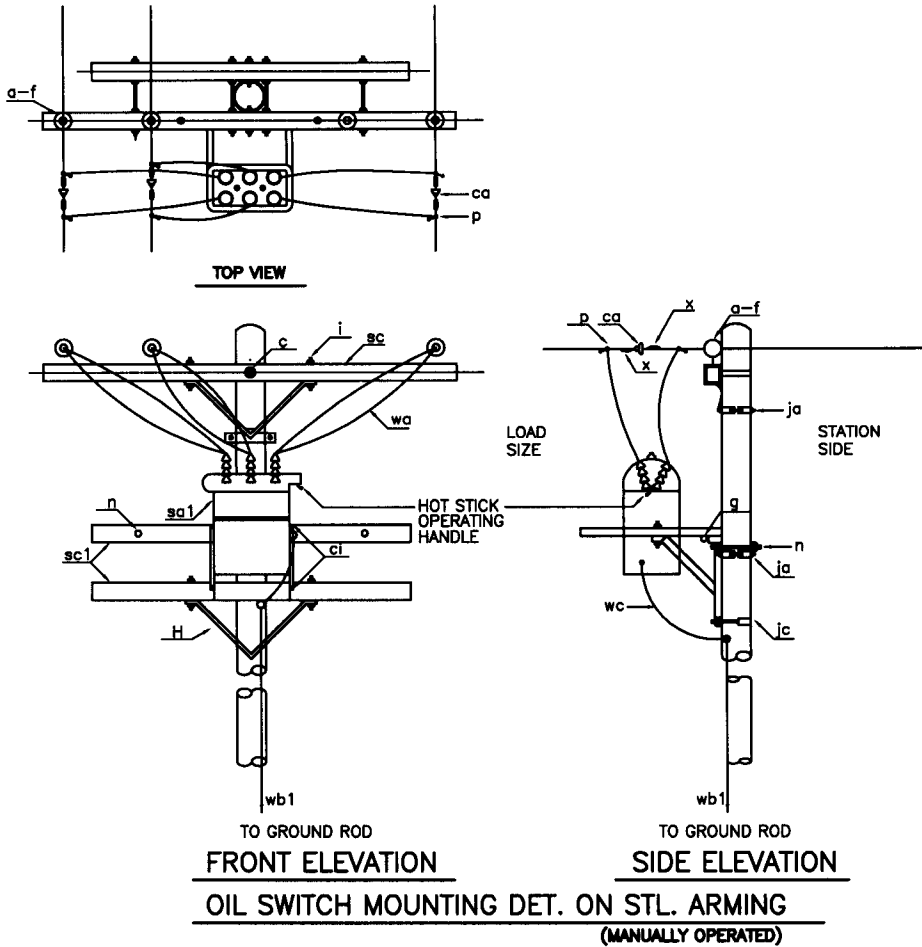
DWG NO.

TITLE POLE MOUNTING LOAD BREAK SWITCH

SPEC 16370

OCT 2003

E0131



ITEM	QTY.REQ'D	M A T E R I A L
a	3	INSULATOR PIN TYPE BROWN SEE SPEC'S
c	1	BOLT, MACHINE, 5/8"x REQ'D LENGTH W/WASHER
f	3	PIN WOOD CROSSARM, SEE SPEC'S
sc	1	STEEL CROSSARM. SEE DWG. NO. 40 - 06 - 0091. SH. 0021
sc1	3	STEEL CROSSARM 3" x 3" x 5" - 0"
g	1	OL SWITCH HANGAR
c1	4	BOLT, MACHINE. GALV. 5/8"x 5"
h	2	ONE PIECE ANGLE BRACE.SEE DWG.NO 40 - 06 - 0091. 0021
i	4	BOLT CARRIAGE 3/8" x 4 1/2" W/WASHER
sd1	1	OIL SWITCH RATED 2.4 THROUGH 14.4KV. 400A OR 600A
n	4	BOLT DOUBLE ARMING 5/8" x REQ'D LENGTH
aj	1	COPPER CLAD. STEEL ROD W/CLAMP SEE SPEC'S
ca	3	PRIMARY DEADEND ASSEMBLY. SEE DWG. NO. 40-06-0091, 0021
jc	1	BAND, STEEL, TYPE "B1 - 2"
je	1	BAND, STEEL, TYPE "B5 - 2"
ig	AS REQ'D	BAND, STEEL, TYPE "B7" SIZE AS ERQ'D
wa	AS REQ'D	RUBBER NEOPRENE WIRE KV. & LENGTH AS REQ'D
wb	AS REQ'D	GROUND WIRE # 4 AWG MIN
ja	2	BAND, STEEL, TYPE "B3 - 2"
x	3	STRAIN CLAMP
p	AS REQ'D	CONNECTOR

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER

REV DATE

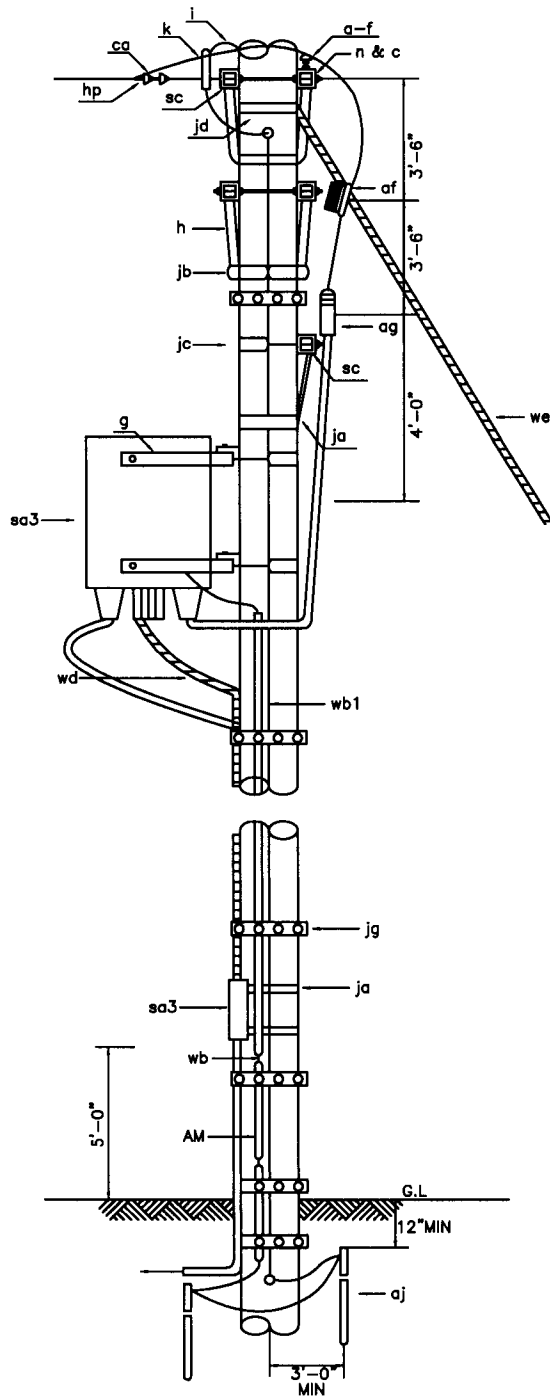
DWG NO.

TITLE OIL SWITCH MOUNTING DETAIL

SPEC 16370

OCT 2003

E0132



POLE MTD. VACUUM SWITCH DETAIL

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	POLE MOUNTING VACUUM SWITCH - 1	SPEC	16370	OCT 2003	E0133

ITEM	QTY.REQ'D	M A T E R I A L
a	3	INSULATOR, PIN,TYPE, BROWN
c	2	BOLT, MACHINE, 5/8"x REQ'D LENGTH
n	3	BOLT DOUBLE ARMING 5/8" x REQ'D LENGTH
f	3	PIN, CROSSARM, SEE SPEC'S
g	4	STEEL ANGLE 2 1/2" x 3" x 1/4" x LENGTH AS REQ'D
h	5	BRACE.
i	10	BOLT, BRACE, 3/8" x 4 1/2" W/WASHER
k	3	SURGE ARRESTOR W/MTG. BRACKET. SEE SPEC'S
n	2	BOLT, DOUBLE ARMING, 5/8" x REQ'D LENGTH
sa3	1	VACUUM SWITCH 3 PHASE 15 KV. AMP. RATE AS REQ'D
sa3'	1	MECHANICAL REMOTE CONTROL OPERATOR BOX
af	3	CUTOUT SW. 15KV. CLASS AMP. RATING AS REQ'D
aj	1	COPPER- CLAD STEEL ROD
ag	3	POT HEAD 15KV. CLASS
ca	AS REQ'D	DEADEND ASSEMBLY PRIMARY.
ja	3	BAND, STEEL, TYPE "B3 - 2"
jb	2	BAND, STEEL, TYPE "B4 - 2"
jc	3	BAND, STEEL, TYPE "B1 - 2"
jd	1	BAND, STEEL, TYPE "B2 - 2"
jg	AS REQ'D	BAND, STEEL, TYPE "B7"
sc	5	STEEL CROSSARM.
wb	AS REQ'D	GROUND WIRE # AWG. MIN.
we		GUY WIRE. SIZE & LENGTH AS REQ'D
wd	AS REQ'D	REMOTE CONTROL WIRE(STL) IN FLEXBLE STAINLESS STL. TUBE V.S UNIT ACCESSORY
wb1	AS REQ'D	GROUND WIRE # 4 AWG MIN
AM	AS REQ'D	WOOD MOULDING OR NON METALIC TUBL SEE SPEC'S
aa	3	EYE NUT
hp	3	HOT LINE CLAMP

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER

REV DATE

DWG NO.

TITLE

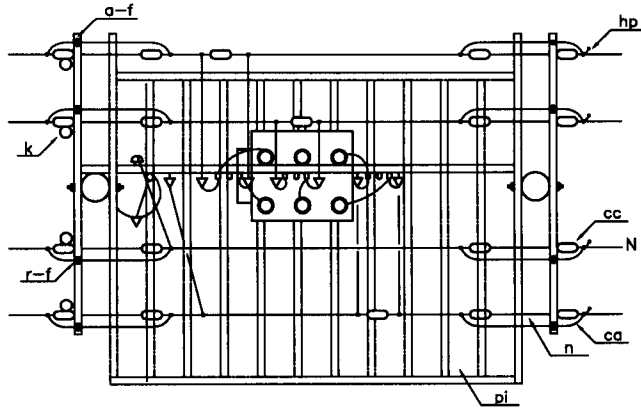
POLE MOUNTING VACUUM SWITCH - 2

SPEC

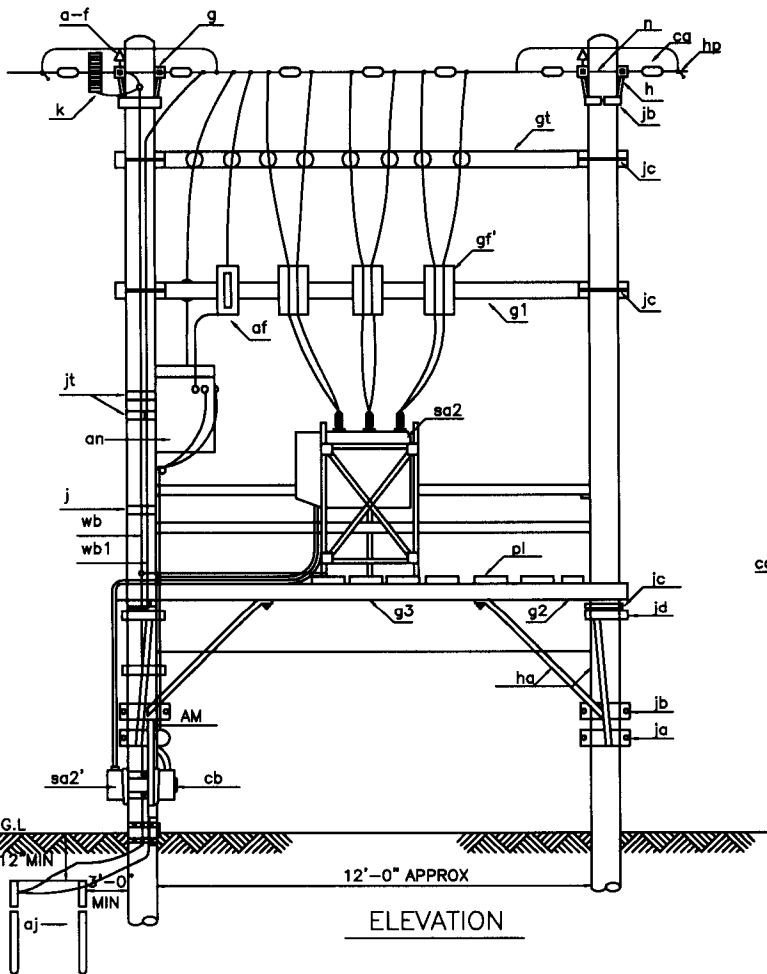
16370

OCT 2003

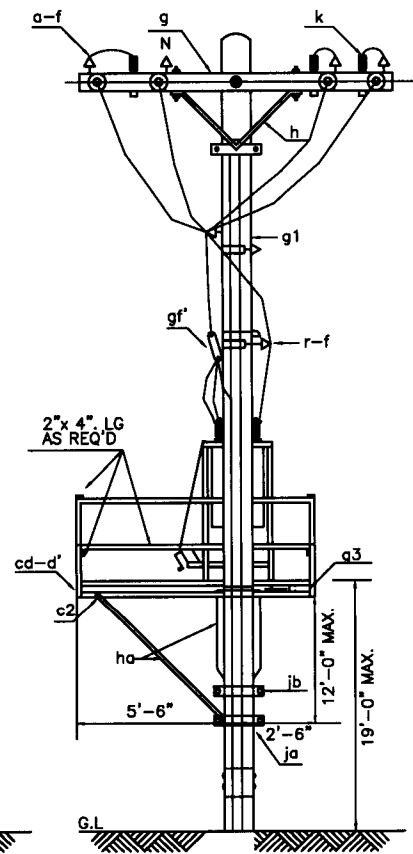
E0134



PLAN VIEW



ELEVATION

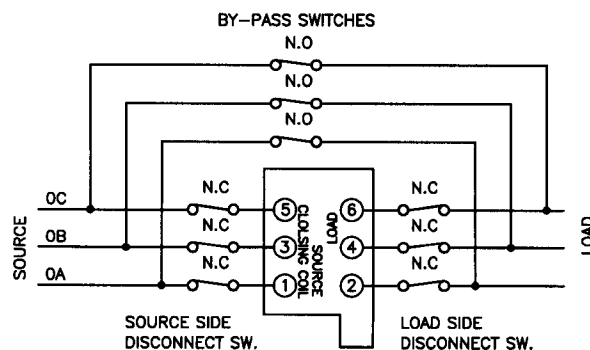


SIDE VIEW

THREE PHASE RECLOSER MTG. DET'S

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER		REV DATE	DWG NO.
TITLE	RECLOSER MOUNTING DETAIL - 1	SPEC 16370	OCT 2003 E0135

ITEM	QTY.REQ'D	MATERIAL
a	13	INSULATOR, PIN,TYPE, BROWN ,SEE SPEC'S
af	1	CUTOUT FUSE SEE SPEC'S
af *	9	CUTOUT NON FUSED DISCONNCT TYPE W/BYPASS COMBINATION
cj	1	GROUND ROD W/CLMP COPPER CLAD STL. SEE SPEC'S
ci	6	BOLT, MACHINE, 3/8" x REQ'D LENGHT, W/WASHER
c	10	BOLT, MACHINE, 5/8" x REQ'D LENGHT, W/WASHER
jf	2	XFMR. MOUNTING BAND
c2	10	BOLT, MACHINE, 3/4" x REQ'D LENGHT
cc	4	DEADEND ASSEMBLY NEUTRAL. SEE DWG. SH. 0021
cd	12	DEADEND ASSEMBLY PRIMARY. SEE DWG. SH. 0021
d *	18	WASHER SQUARE 1 1/2" x 1 1/2" x 7/16" - /16" HOLE
f	17	PIN STL. CROSSARM
g	4	CROSSARM 3 1/2"x 4 1/2" x 6' - 4' LG.
g1	2	STL. ANGLE 3 1/2"THK x 12' - 0" LG.
g2	2	STL. ANGLE 3" x 3" x 1/4" x 14" - 0" LG.
g3	4	CHANNEL BASE C7 x 9.8 x 14" - 0"
h	4	ANGLE BRACE SIZE AS REQ'D SEE EWG. NO 0021
ha	4	ALLEYARM BRACES 3"x 3" x 3/8" ANGLES x REQ'D LG.
hp	16	HOT LINR CLAMP W/BAIL CLAMP , SEE SPEC'S
jd	2	POLE BAND STL. TYPE "B2" SIZE AS REQ'D
k	3	SURGE ARRESTER VTG. RATING AS REQ'D
n	8	BOLT, DOUBLE ARMING, 5/8" x REQ'D LENGHT
ja	4	POLE BAND, STL. TYPE "B3 " SIZE AS REQ'D
jb	4	POLE BAND, STL. TYPE "B4 " SIZE AS REQ'D
jc	6	POLE BAND, STL. TYPE "B1 " SIZE AS REQ'D
pl	11	2" x 12" PLANKING 8' - 0" LG
saz	1	THREE PHASE RECLOSER 24 - 12.4 KV, AMP RATING AS REQ'D
saz *	1	RECLOSER REMOTE CONTROL PANEL
r	4	INSULATOR PIN TYPE WHITE SEE SPEC'S
wb	AS REQ'D	GROUNDING WIRE BARE COPPER #6 "BC"
wb *	AS REQ'D	GROUNDING WIRE BARE COPPER #4 "BC"
cb	4	ENCLOSED CKT. BRKR. SIZE AS REQ'D
i	8	BOLT CARRIAGE 3/8"x 4 1/2"
Am	AS REQ'D	WOOD OR PLASTIC MOULDING, SEE. SPEC'S
an	1	RECLOSER CONT. XFMR. 10, 3KVA PRI. VTG. AS LINE VTG. OR LINE TO NEUTRAL VTG. SEC. VTG. 120V AC



RECLOSER WIRING DIAG.

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER

REV DATE

DWG NO.

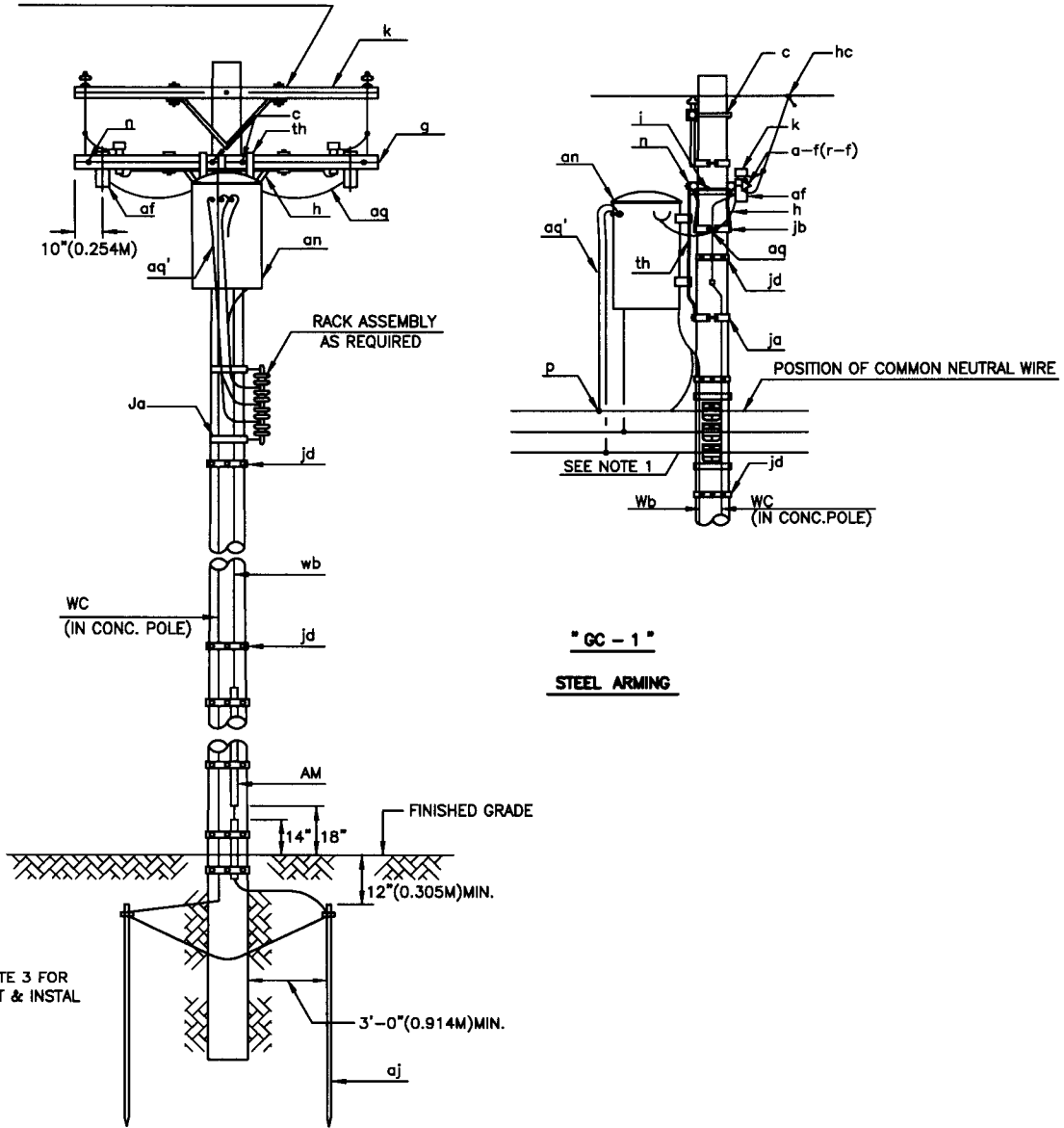
TITLE RECLOSER MOUNTING DETAIL - 2

SPEC 16370

OCT 2003

E0136

PRIMARY CROSSARM ASSEMBLY AS REQ'D
SEE DWG. SH. 0021. FOR LENGTH



CROSSARM MOUNTED, SINGLE PHASE TRANSFORMER ASSEMBLY
WYE OR DELTA PRIMARY

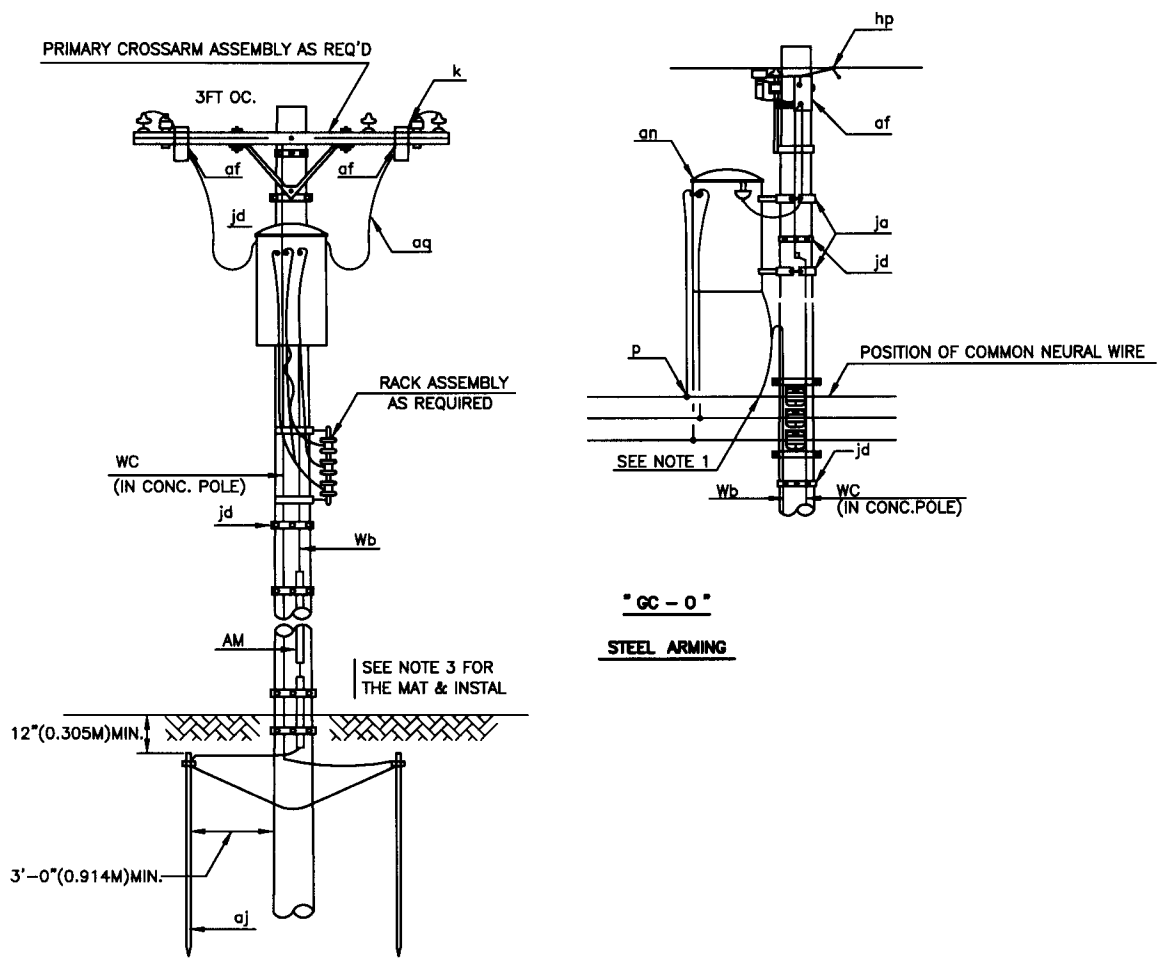
IMA--KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	POLE MOUNTING TRANSFORMER ASSEMBLY - 1	SPEC	16370	OCT 2003	E0137

ITEM	MATERIAL	GCS - 1 QTY REQ'D	
		Δ	Y
a	INSULATOR, PIN TYPE, BROWN, SEE SPEC.	2	1
c	BOLT, MACHINE 5/8 x REQ'D LENGTH W/WASHER	2	2
wc	GROUND WIRE, #4 BC STRANDED	AS REQ'D	
g	CROSSARM, STEEL SEE DWG 40-06-0091, SH. 0021	2	2
h	BRACE, SEE DWG 40-06-0091, SH. 0021	2	2
i	BOLT, MACHINE 3/8" x 4 1/2"	2	2
j	BAND STEEL TYPE "B2" SIZE AS REQ'D	1	1
n	BOLT, DOUBLE ARMING 5/8" x REQ'D LENGTH	2	2
p	CONNECT ORS, AS REQ'D SIZE	AS REQ'D	
hp	HOT LINE CLAMP W/BAIL CLAMP, SEE SPEC	2	2
af	CUTOUT, FUSED W/MOUNTING BRACKET, SEE SPECS	2	1
ja	BAND STEEL TYPE "B3" SIZE AS REQ'D	1	1
r	INSULATOR, PIN TYPE, WHITE LOW VOLTAGE SEE SPEC.	-	1
aq	LEAD, WEATHER-PROOF WIRE, REQUIRED SIZE	AS REQ'D	
f	PIN, STEEL ARM	2	2
th	HANGER, TRANSFORMER	1	1
jb	BAND, STEEL TYPE "B4" SIZE AS REQ'D	1	1
AM	WOOD OR PLASTIC GROUND WIRE MOLDING	1	1
aj	COPPER-CLAD-STEEL GROUND ROD, SEE SPEC.	AS REQ'D	
wb	GROUNDG WIRE, SIZE AS REQUIRED MINIMUM # 6 BC, SEE SPEC'S	"	"
k	SURGE ARRESTER W/MOUNTING BRACKET. SEE SPECS	2	1
jd	BAND, STEEL TYPE "B7" SIZE AS REQ'D	AS REQ'D	
an	TRANSFORMER, SIZE AS REQ'D SEE SPECS	1	1
aq	PRIMARY JUMPER, AS REQUIRED SIZE	AS REQ'D	

NOTES.

1. GROUNDING WIRE FROM COMMON NEUTRAL SHALL BE CONTINUOUS FROM NEUTRAL TO GROUND ASSEMBLY. ATTACHMENTS TO SUCH GROUND WIRES MAY BE MADE BY SUITABLE CONNECTORS.
2. ALL TIE WIRES SHALL BE BONDED TOGETHER TO PREVENT RADIO INTERFERENCE
3. RIGID OR INTERMEDIATE STL. CONDUIT SHALL PROTECT GND. WIRES ON POLES FROM A POINT 14 INCHES ABOVE GRADE TO A POINT 6 INCHES BELOW GRADE CONDUIT SHALL BE TERMINATED WITH A GROUNDING BUSHING AT EACH END AND THE GND. WIRE SHALL BE CONNECTED TO EACH BUSHING.
4. QUANTITIES INDICATED ON MATERIAL SCHEDULE ARE FOR GUIDANCE ONLY CONTRACTOR TO VERIFY ACTUAL QUANTITIES REQUIRED.
5. FOR STEEL BAND DETAILS OF CONCRETE POLES SEE DWG. NO. SH. 0022 a 0024
6. ALL POLE LINE HARDWARES TO BE HOT DIPPED GALVANIZED
7. PROVIDE HOT LINE CLAMP FOR EACH PRIMARY LINE TAP TO ELECTRICAL EQUIPMENT.

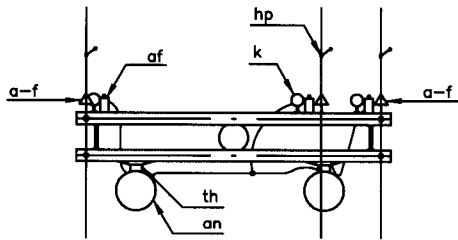
IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	POLE MOUNTING TRANSFORMER ASSEMBLY - 2	SPEC	16370	OCT 2003	E0138



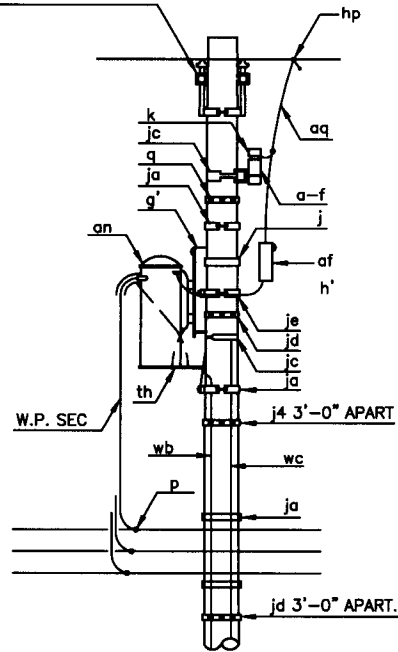
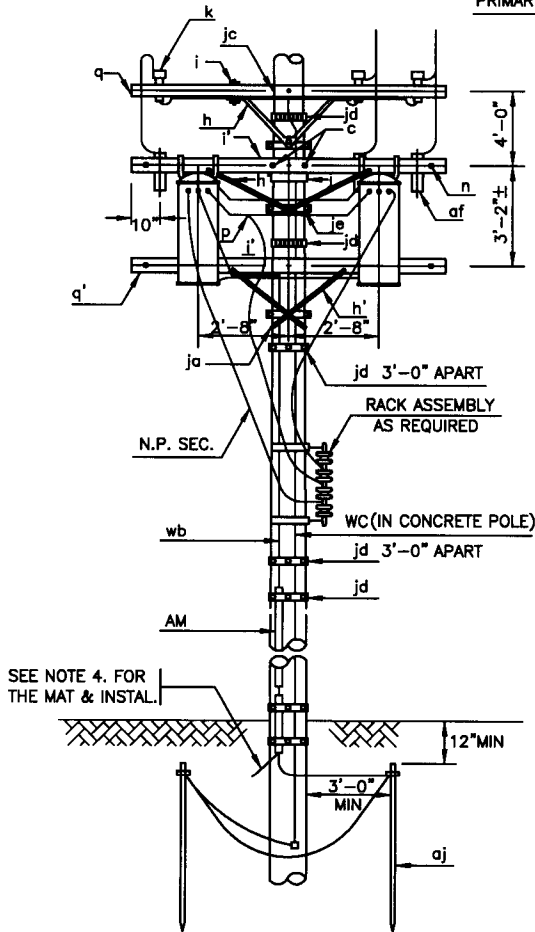
POLE MOUNTED, 1 – PHASE TRANSFORMER ASSEMBLY
WYE OR DELTA PRIMARY

ITEM	MATERIAL	GCS – D	
		Q	TY REQ'D
P	CONNECTORS, AS REQ'D SIZE	AS	REQ'D
af	CUTOUT, FUSED, W/MOUNTING BRACKET, SEE SPECS	2	1
ja	BAND STEEL, TYPE "B3" SIZE AS REQ'D	2	2
hp	HOT LINE CLAMP W/BAIL CLAMP, SEE SPEC	2	2
aj	COPPER-CLAD-STEEL GROUND ROD, SEE SPECS	AS	REQ'D
wb	GROUNDING WIRE, SIZE AS REQUIRED, MINIMUM # 6 BC	AS	REQ'D
k	SURGE ARRESTOR W/MOUNTING BRACKET, SEE SPEC	2	1
jd	BAND STEEL, TYPE "B7" SIZE AS REQ'D	AS	REQ'D
an	TRANSFORMER, SIZE AS REQ'D, SEE SPECS	1	1
aq	PRIMARY JUMPER, AS REQUIRED SIZE	AS	REQ'D
WC	GROUNDING WIRE #4 BC STANDARD	AS	REQ'D
AM	WOOD OR PLASTIC GROUND WIRE MOLDING	AM	1 1

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER		REV DATE	DWG NO.
TITLE	POLE MOUNTING TRANSFORMER ASSEMBLY – 3	SPEC 16370	OCT 2003 E0139



PRIMARY CROSSARM ASSEMBLY AS REQ'D.



GCS-2

STEEL ARMING

TWO SINGLE PHASE TRANSFORMERS
MOUNTED ON ONE POLE
OPEN DELTA OPERATION

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER

REV DATE

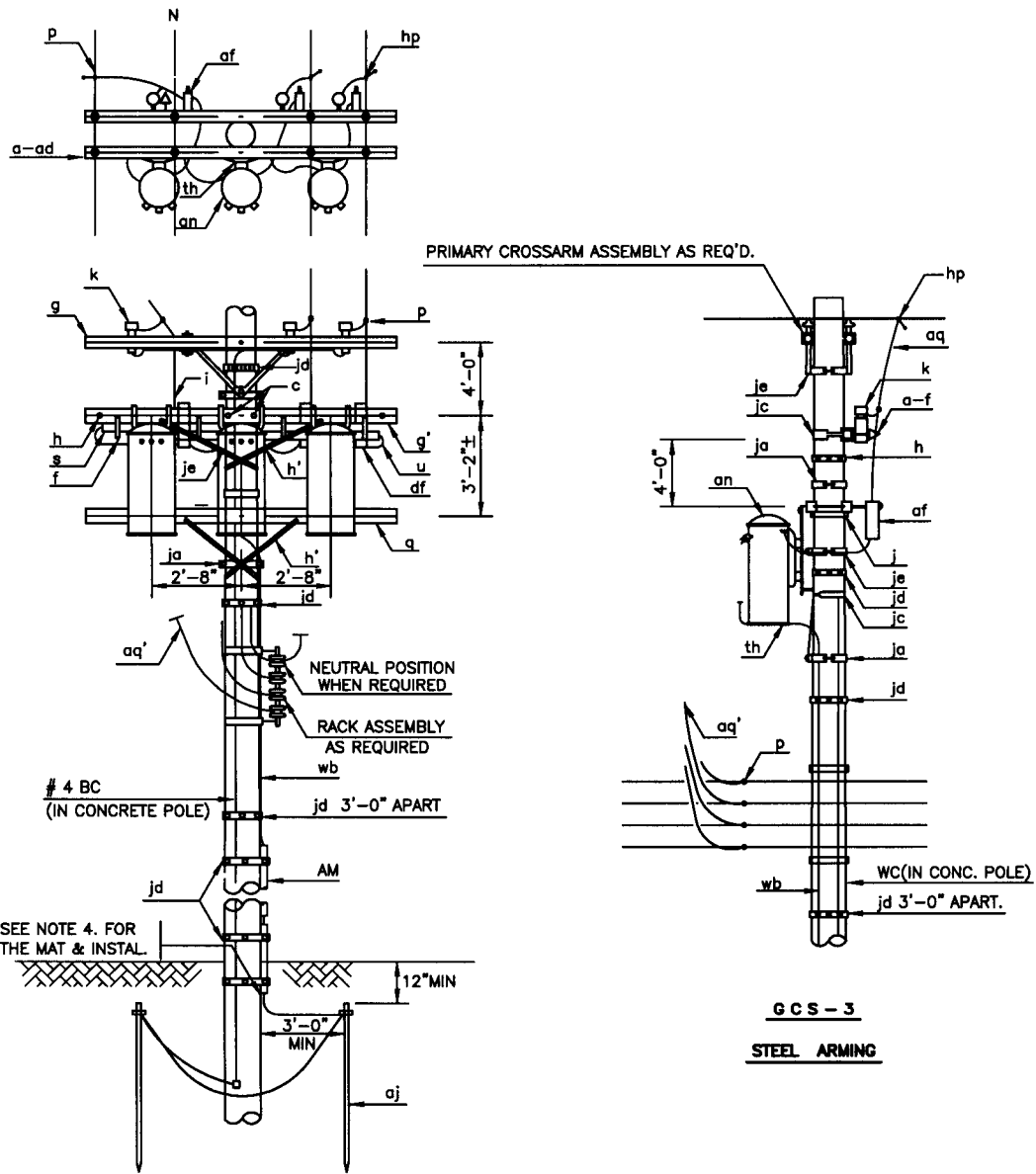
DWG NO.

TITLE POLE MOUNTING TRANSFORMER ASSEMBLY - 4

SPEC 16370

OCT 2003

E0140



THREE SINGLE PHASE TRANSFORMERS
MOUNTED ON ONE POLE
DELTA OPERATION

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER			REV DATE	DWG NO.
TITLE	POLE MOUNTING TRANSFORMER ASSEMBLY - 5	SPEC	16370	OCT 2003
			E0141	

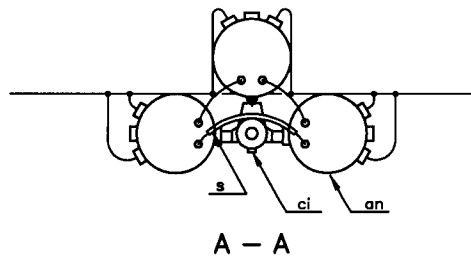
GCS-2	MATERIAL	QTY	GCS-2	MATERIAL	QTY
ITEM			ITEM		
a	INSULATOR, PIN TYPE SEE SPEC	3	af	CUTOUT, FUSED, W/MOUNTING BRACKET	3
c	BOLT, MACHINE, 5/8" x REQ'D LENGTH	2	g'	STEEL ANGLE 3 1/2" x 4 1/2" x 3/8", 8'-0"	3
			k	SURGE ARRESTER W/MOUNTING BRACKET	3
f	PIN, STEEL CROSSARM, SEE SPECS	3	ja	BAND, STEEL, TYPE "B3-2"	2
g	STEEL CROSSARM, 3" x 3" x 8'-0"	3	th	HANGER, TRANSFORMER W/FASTENING BOLT	2
h	ANGLE BRACE, SEE DWG 40-06-0091, SH. 0021	3	h'	FLAT BRACE 1 1/4" x 1/4" x LG. AS REQ'D	6
i	BOLT, CARRIAGE, 3/8" x 4 1/2" W/WASHER	6	wb	GROUNDING WIRE, SIZE AS REQUIRED, MINIMUM #6 BC	AS REQ'D
j	BAND, STEEL, TYPE "B2-3"	1	i'	BOLT 3/8" x LG. AS REQ'D W/WASHER	6
n	BOLT, DOUBLE ARMING, 5/8" x REQ'D LENGTH	2			
p	CONNECTOR, AS REQUIRED SIZE	AS REQ'D			
hp	HOT LINE CLAMP W/BAIL CLAMP, SEE SPEC	3			
aj	COPPER-CLAD-STEEL, GROUND ROD, W/CLAMP SEE SPEC	AS REQ'D	jd	BAND, STEEL, TYPE "B7" SIZE AS REQ'D	AS REQ'D
jc	BAND, STEEL, TYPE "B1-2"	2	je	BAND, STEEL, TYPE "B4-2"	2
aq	PRIMARY JUMPER, AS REQUIRED SIZE	AS REQ'D	an	TRANSFORMER, SIZE AS REQUIRED SEE SPECS	2
wc	GROUNDING WIRE #4 BC STRANDED	AS REQ'D	AM	WOOD OR PLASTIC GROUND WIRE MOLDING, SEE SPEC'S	1

GCS-3	MATERIAL	GCS-3 QTY REQ'D		GCS-3	MATERIAL	GCS-3 QTY REQ'D	
ITEM		Δ	Υ	ITEM		Δ	Υ
a	INSULATOR, PIN TYPE	3	3	af	CUTOUT, FUSED W/MOUNTING BRACKET SEE SPECS	3	3
c	BOLT, MACHINE, 5/8" x REQUIRED LENGTH	2	2	je	BAND, STEEL, TYPE "B4-2"	2	2
AM	WOOD OR PLASTIC GROUND WIRE MOLDING, SEE SPEC'S			jc	BAND, STEEL, TYPE "B1-5"	2	2
	PIN, STEEL CROSSARM, SEE SPECS	3	3	ja	BAND, STEEL, TYPE "B3-3"	2	2
g	STEEL CROSSARM, 3" x 3" x 8'-0"	3	3		BAND, STEEL, TYPE "B1-2"		
h	ANGLE BRACE, SEE DWG 40-06-0091, SH 0021	3	3	wc	GROUNDING WIRE #4 BC STRANDED		AS REQ'D
i	BOLT, CARRIAGE, 3/8" x 4 1/2" W/WASHER	6	6	aj	COPPER, CLAD-STEEL GROUND ROD W/CLAMP, SEE SPEC	//	
j	BAND, STEEL TYPE "B2-3"	1	1	wb	GROUNDING WIRE SIZE AS REQUIRED, MINIMUM #6 BC	//	
n	BOLT, DOUBLE ARMING 5/8" x REQ'D LENGTH	6	6	th	HANGER, TRANSFORMER ASSEMBLY	3	3
p	CONNECTORS, AS REQUIRED SIZE		AS REQ'D	g'	STEEL ANGLE 3 1/2" x 4 1/2" x 3/8", 8'-0"	3	3
hp	HOT LINE CLAMP W/BAIL CLAMP, SEE SPEC	3	4	h'	FLAT BRACE 1 1/4" x 1/4" x LG. AS REQ'D	6	6
s	FIBER DUCT, 2" ID x 7'-6"	1	-	i'	BOLT 3/8" x LG. AS REQ'D W/WASHER		
t	GALV TIN STRAP FOR FIBER DUCT	1	-	u	HI-VOLTAGE POLYCHLOROPRENE CABLE, AS REQ'D	1	-
-	LOW VOLTAGE PIN INSULATOR	-	3	k	SURGE ARRESTER W/MOUNTING BRACKET SEE SPECS	3	3
jd	BAND, STEEL, TYPE "B7" SIZE AS REQ'D		AS REQ'D	aq	PRIMARY JUMPER, AS REQUIRED SIZE		AS REQ'D
				an	TRANSFORMER SIZE AS REQUIRED, SEE SPECS	3	3

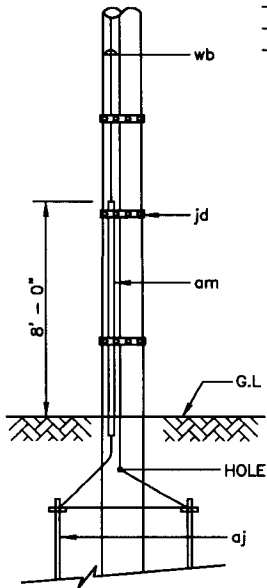
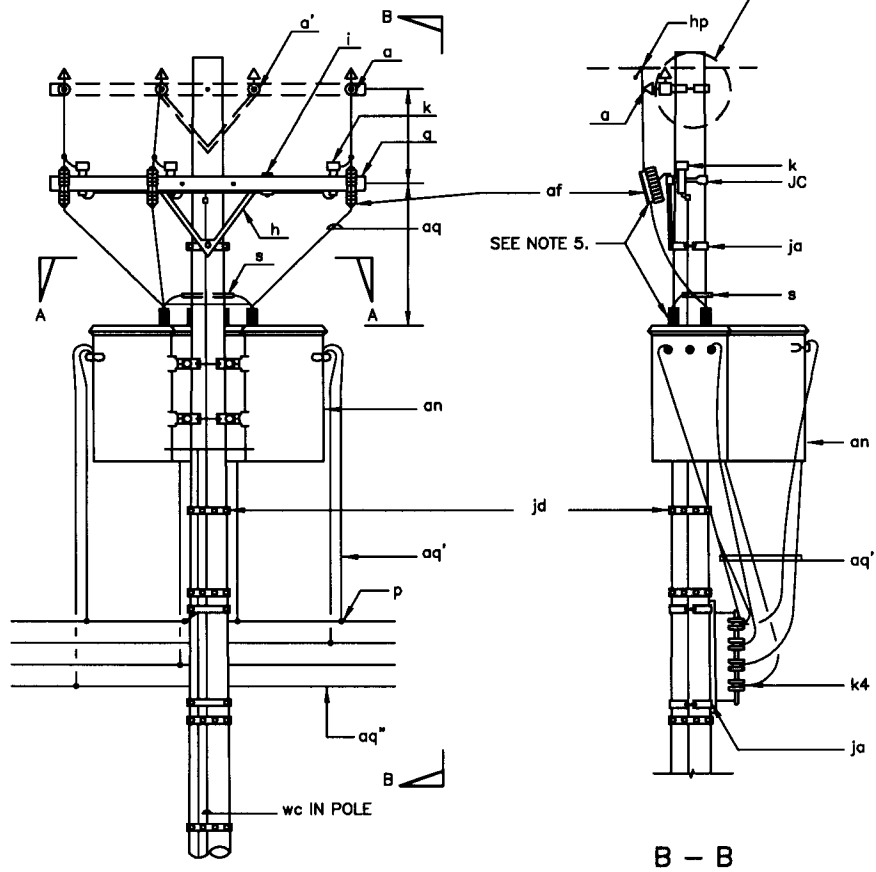
NOTES.

1. ALL POLE LINE HARDWARES TO BE HOT DIPPED GALVANIZED.
2. FOR STEEL BAND DETAILS OF CONCRETE POLES.
3. ALL TIE WIRES MUST BE BONDED TOGETHER TO PREVENT RADIO INTERFERENCE
4. RIGID OR INTERMEDIATE STL. CONDUIT SHALL PROTECT GND. WIRES ON POLES FROM A POINT 14 INCHES ABOVE GRADE TO A POINT 6 INCHES BELOW GRADE CONDUITS SHALL BE TERMINATED WITH A GROUNDING BUSHING AT EACH END. AND THE GND WIRE SHALL BE CONNECTED TO EACH BUSHING.
5. QUANTITIES INDICATED ON MATERIAL SCHEDULE ARE FOR GUIDANCE ONLY CONTRACTOR TO VERIFY ACTUAL QUANTITIES REQUIRED.
6. PROVIDE HOT LINE CLAMP FOR EACH PRIMARY LINE TAP TO ELECTRICAL EQUIPMENT

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	POLE MOUNTING TRANSFORMER ASSEMBLY -6	SPEC	16370	OCT 2003	E0142

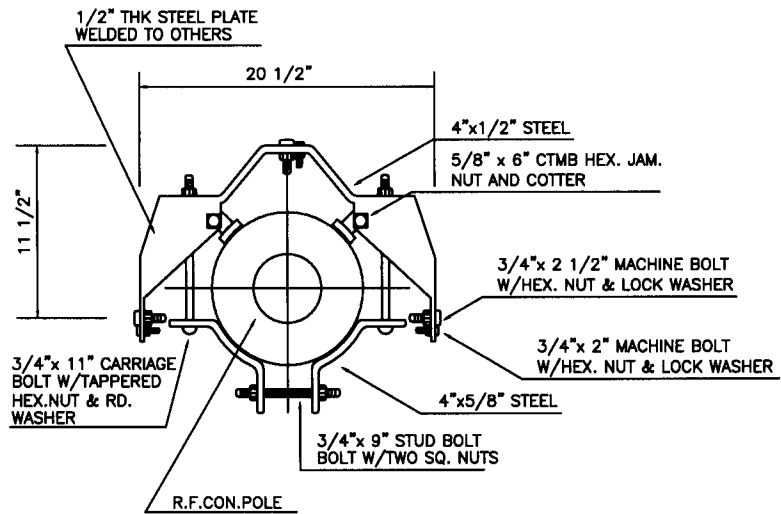


PRIMARY CROSSARM ASSEMBLY, SEE DISTRIBUTION PLAN.



CLUSTER MTG. OF TRIPLE TRANSFORMER.
(FOR 11.4KV. OR ABOVE)

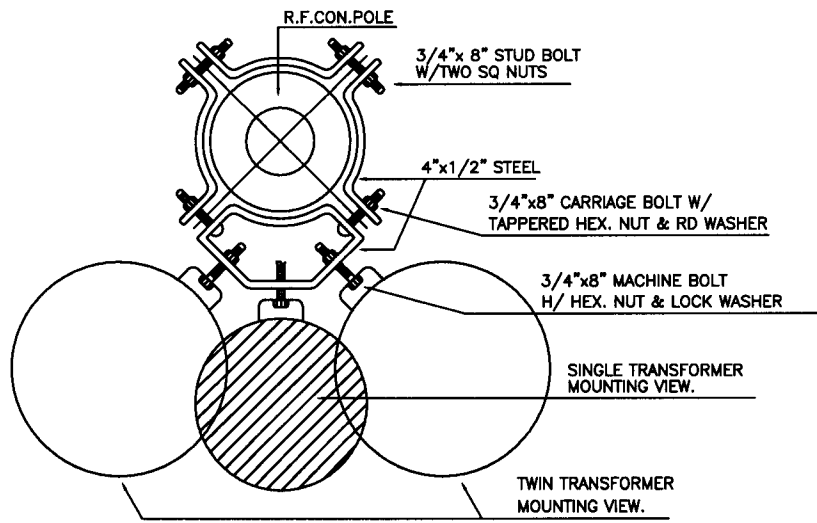
IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	POLE MOUNTING TRANSFORMER ASSEMBLY - 7	SPEC	16370	OCT 2003	E0143



UPPER & DOWN BAND

TRIPLE TRANSFORMER MTG. BAND FOR
CLUSTER MTG. ON STEEL POLE

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	PLOE MOUNTING TRANSFORMER ASSEMBLY - 8	SPEC	16370	OCT 2003	E0144



UPPER & DOWN BAND

TWIN OR SINGLE TRANSFORMER MTG.BAND
FOR CLUSTER MTG.ON STEEL POLE.

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	POE MOUNTING TRANSFORMER ASSEMBLY - 9	SPEC	16370	OCT 2003	E0145

	Δ	Y	V	$\phi-\phi$	$\phi-N$	
a	3	3	3	2	1	INSULATOR, PIN TYPE, HIGH VOLTAGE, SEE SPECS.
a'	-	2	-	-	1	INSULATOR, PIN TYPE, LOW VOLTAGE, SEE SPECS.
hp	3	4	3	2	2	HOT LINE CLAMP W/BAIL CLAMP, SEE SPECS.
af	3	3	3	2	1	FUSE CUTOUT ASSEMBLY, SIZE AS REQ'D
k	3	3	3	2	1	SURGE ARRESTER W/CROSSARM MTG. BRACKET.
q	1	1	1	1	1	STEEL CROSSARM, SIZE AS REQ'D
aq		AS REQUIRED				PRIMARY JUMPER WIRE, SIZE AS REQ'D.
p		AS REQUIRED				CONNECTOR, SIZE AS REQ'D
h	1	1	1	1	1	ANGLE BRACE, SEE DWG. 40-06-0091. SH. 0021.
ja	3	3	3	3	3	STEEL BAND, TYPE "B3-2"
s	1	1	1	-	-	PVC. PIPE BENT, 2" ϕ x 16" LG
an	3	3	2	1	1	TRANSFORMER, SIZE AS REQ'D FOR THE BUSHING, SEE NOTE.
c1	2	2	-	-	-	TRANSFORMER HANGER, CLUSTER MTG. TYPE, SEE DETAIL.
c1'	-	-	2	2	2	TRANSFORMER HANGER, CLUSTER MTG. TYPE, SEE DETAIL.
aq'		AS REQUIRED				SECONDARY JUMPER WIRE, SIZE AS REQ'D.
aq"		SEE DIST. PLAN				SECONDARY OVERHEAD DISTRIBUTION WIRE, SIZE AS REQ'D
jd		AS REQUIRED				STEEL BAND, TYPE "B7-2" (3FT INTERVAL)
jd'	3	3	3	3	3	STEEL BAND, TYPE "B7-3"
am	1	1	1	1	1	NON-METALLIC TUBE, 3/4" ϕ x 9FT. LG.
wc		AS REQUIRED				GROUNDING WIRE #4 "BC"
wb		AS REQUIRED				GROUNDING WIRE, SIZE AS REQ'D #6 "BC" MINIMUM.
oj		AS REQUIRED				GROUND ROD, SEE SPEC.
k4	1	1	1	-	-	SECONDARY RACK K4.
k3	-	-	-	1	1	SECONDARY RACK K3.
i	2	2	2	2	2	BOLT, CARRIAGE 3/8" x 5"
jc	1	1	1	1	1	STEEL BAND TYPE "B1-2"

NOTES

1. ALL POLE HARDWARES TO BE HOT DIPPED GALVANIZED.
2. FOR STEEL BAND DETAILS OF CONC. POLES, SEE DWG. SH. NO. 0022 a 0024.
3. ALL TIE WIRES MUST BE BONDED TOGETHER TO PREVENT RADIO INTERFERENCE.
4. QUANTITIES INDICATED ON MATERIAL SCHEDULE ARE GUIDANCE ONLY FOR CONTRACTOR TO VERIFY ACTUAL QUANTITIES REQUIRED.
5. FOR THE XFMR. RATED VTG. IS BELOW 11.4 KV. SHOWN XFMR. WITH SIDE BUSHING INSTEAD OF TOP BUSHING AND ENCLOSED FUSE CUTOUT INSTEAD OF OPEN FUSE CUTOUT.

ITEMS	mm	INCH	ITEMS	mm	INCH
a	120 mm	4-3/4"	k	120 mm	4-3/4"
b	35 mm	1-3/8"	p	30 mm	1-1/6"
c	20 mm	25/32"	r	70 mm	2-3/4"
d	40 mm	1-18/32"	s	70 mm	2-3/4"
e	50 mm	1-31/32"	t	35 mm	1-3/8"
f	50 mm	1-31/32"	u	34 mm	1-3/8"
g	9 mm	22/64"	v	9 mm	22/64"
h	34 mm	1-11/32"	w	70 mm	2-3/4"
i	21 mm ϕ	53/64"			

POLE MOUNTING TRANSFORMER ASSEMBLY - 10

16370

E0146

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER

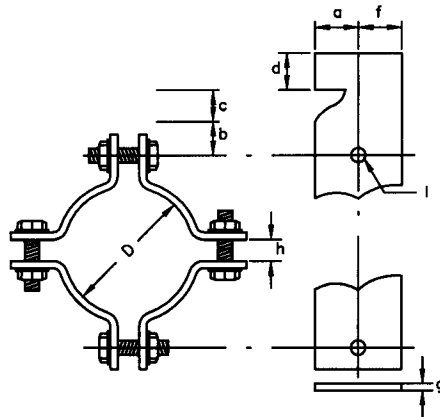
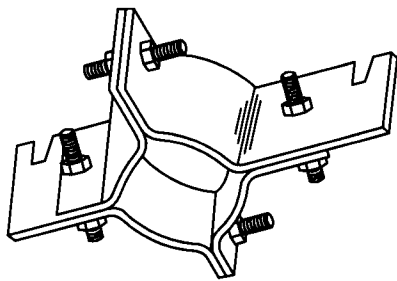
REV DATE

DWG NO.

TITLE

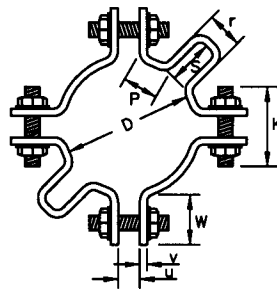
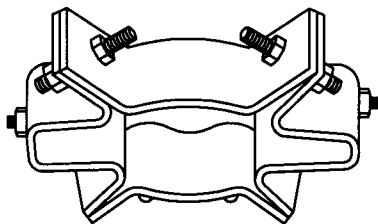
SPEC

OCT 2003



UPPER BAND

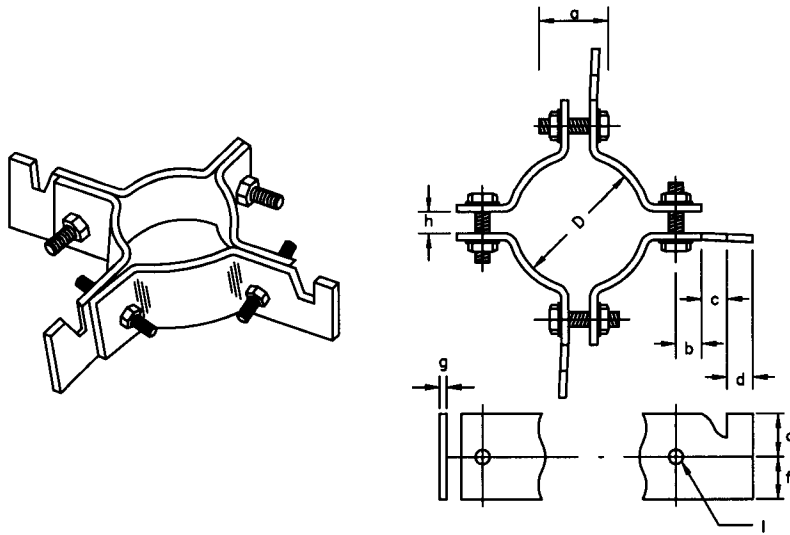
FOR DIMENSION,
SEE TRIPLE TRANSFORMER
MTG. BAND DETAIL.



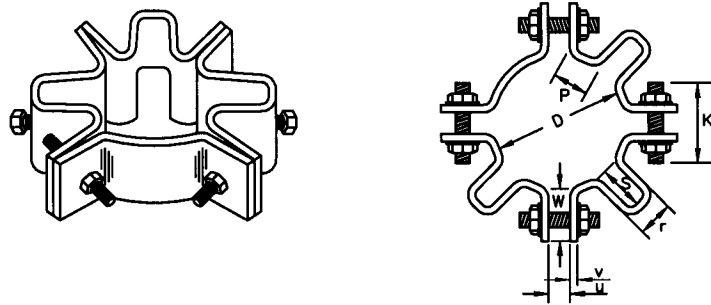
DOWN BAND

TWIN TRANSFORMER MTG. BAND
FOR CLUSTER MTG. ON CONC. POLE

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER			REV DATE	DWG NO.	
TITLE	STEEL BAND FOR CLUSTER MOUNTING - 1	SPEC	16370	OCT 2003	E0147



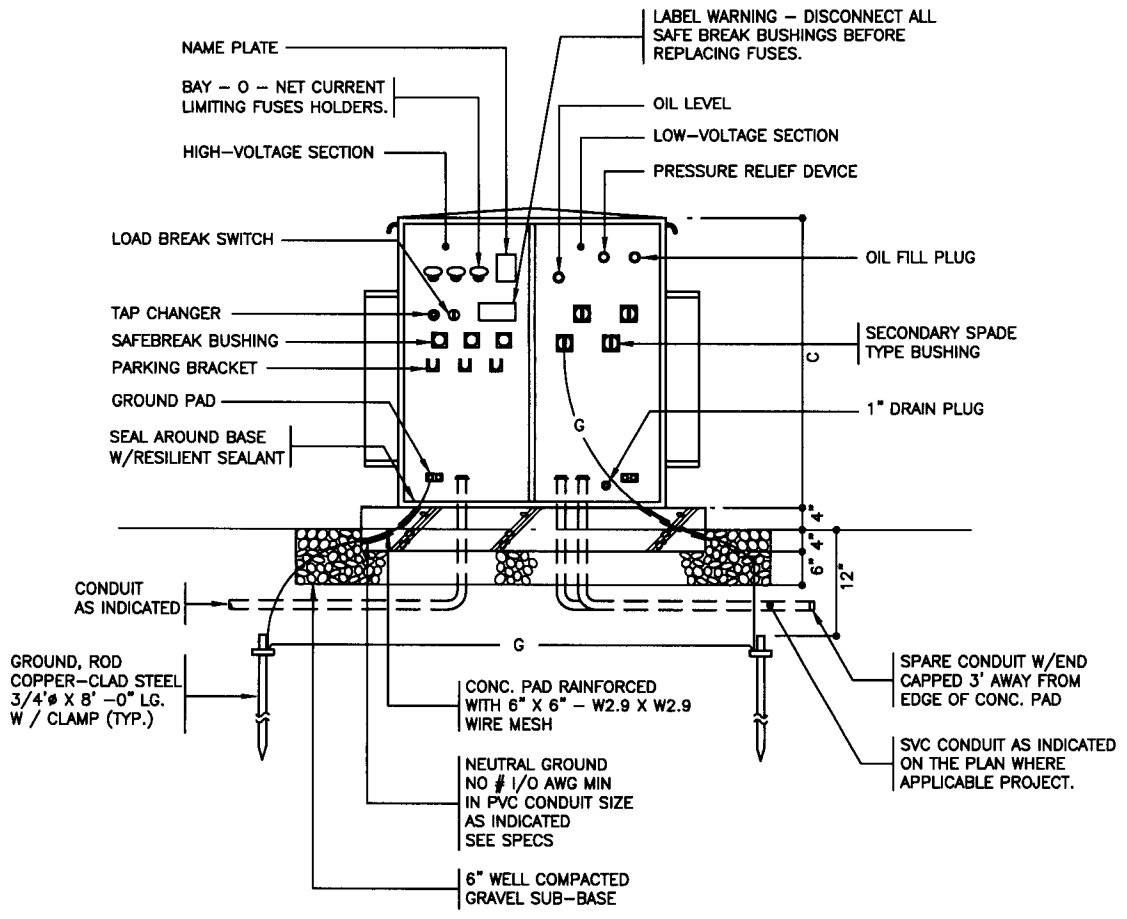
UPPER BAND



DOWN BAND

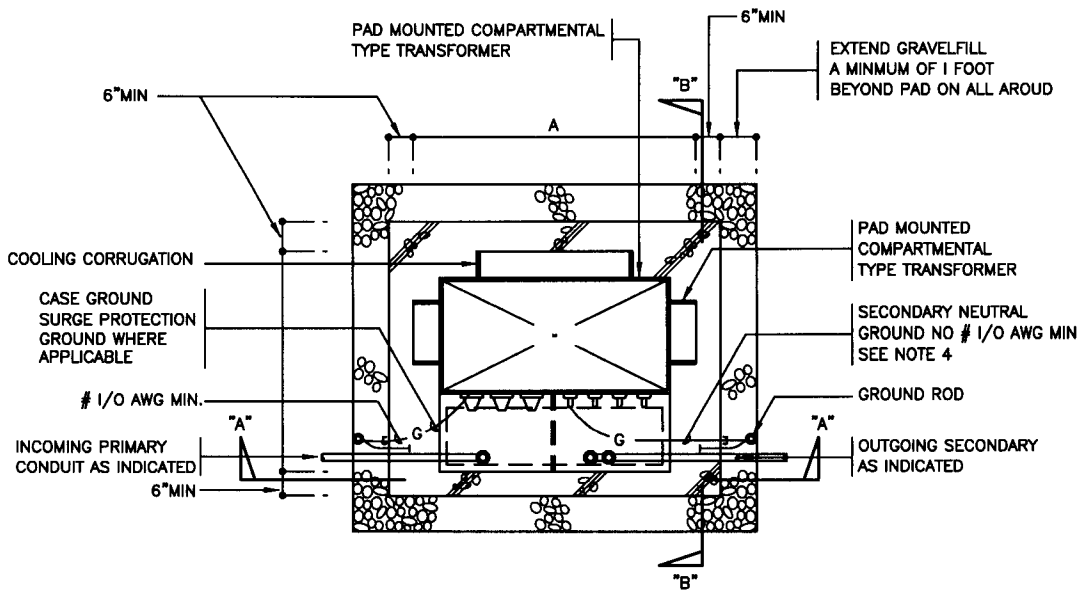
TRIPLE TRANSFORMER MTG. BAND
FOR CLUSTER MTG. ON CONC. POLE

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER			REV DATE	DWG NO.
TITLE	STEEL BAND FOR CLUSTER MOUNTING - 2	SPEC	16370	OCT 2003
			E0148	

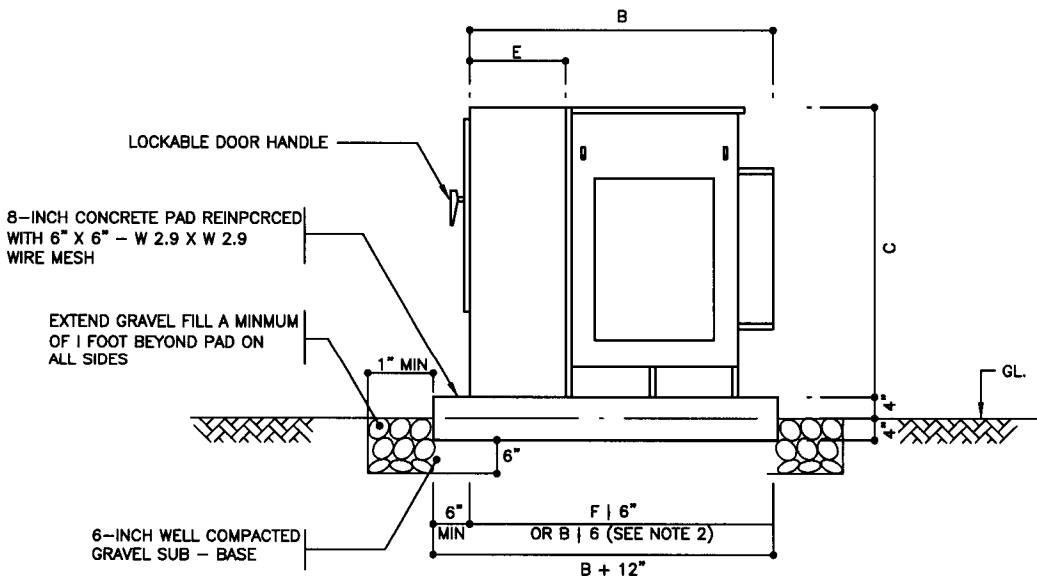


A - A SECTION

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER			REV DATE	DWG NO.
TITLE	PAD MOUNTED TRANSFORMER - 1	SPEC	16370	OCT 2003
				E0149



P L A N



B - B SECTION

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER

REV DATE

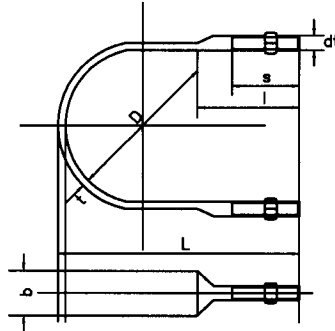
DWG NO.

TITLE PAD MOUNTED TRANSFORMER - 2

SPEC 16370

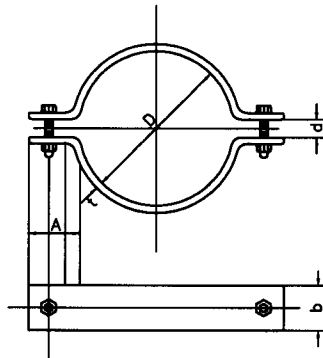
OCT 2003

E0150



3A
-22
STEEL BAND TYPE B1
GALVANIZED

	TYPE	t	b	dt	s	l	D	L
FOR STEEL CROSSARM	B1-1	1/4" (6MM)	1 1/2" (38MM)	5/8" (16MM)	21/8" (55MM)	3" (75MM)	AS REQD	D+2" (D+50MM)
	B1-2	3/8" (9MM)	2" (50MM)	3/4" (19MM)	"	"	"	"
	B1-3	"	"	"	"	"	"	"
FOR WOOD CROSSARM	B1-4	1/4" (6MM)	1 1/2" (38MM)	5/8" (16MM)	3 1/8" (80MM)	6" (150MM)	"	D+5 1/8" (D+130MM)
	B1-5	"	"	"	"	"	"	"
	B1-6	3/8" (9MM)	2" (50MM)	3/4" (19MM)	"	"	"	"
FOR ANCHOR	B1-7	3/16" (5MM)	1 1/4" (30MM)	5/8" (16MM)	4" (100MM)	"	"	"



STEEL BAND TYPE B2
GALVANIZED

TYPE	t	b	A	BOLT	d	D
B1-1	1/4" (6MM)	1 1/2" (38MM)	2" (50MM)	5/8X2 3/8 (16mmx60mm)	3/4" (20MM)	AS REQD
B1-2	"	2" (50MM)	"	"	"	"
B1-3	"	3" (75MM)	3" (75MM)	5/8X2 3/8 (16mmx60mm)	"	"
B1-4	3/8" (9MM)	2" (50MM)	2 3/4" (70MM)	"	"	"

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER

REV DATE

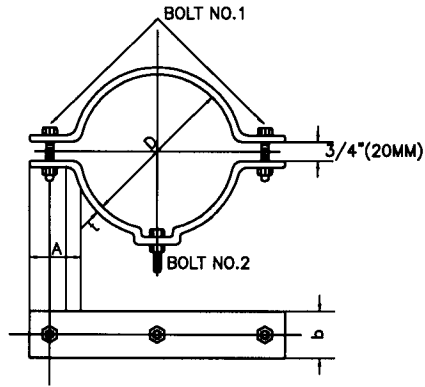
DWG NO.

TITLE STEEL BAND TYPE - 1 (B1 & B2)

SPEC 16370

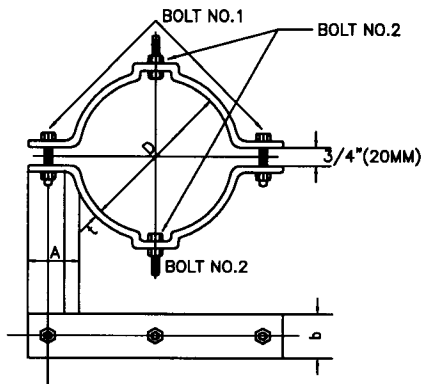
OCT 2003

E0151



STEEL BAND TYPE B3
GALVANIZED

TYPE	t	b	A	BOLT NO.1	BOLT NO.2	D
B3-1	1/4" (6MM)	1 1/2" (38MM)	2" (50MM)	5/8"x2 3/8 (16MMx60MM)	1/2"x2 3/8 (12MMx60MM)	AS REQ'D
B3-2	"	2" (50MM)	"	"	"	"
B3-3	"	3" (75MM)	3" (75MM)	3/4"x2 3/8 (19MMx60MM)	5/8"x2 3/8 (16MMx60MM)	"
B3-4	3/8" (9MM)	2" (50MM)	2 3/4" (70MM)	"	5/8"x2 3/8 (16MMx60MM)	"



STEEL BAND TYPE B4
GALVANIZED

TYPE	t	b	A	BOLT NO.1	BOLT NO.2	D
B3-1	1/4" (6MM)	1 1/2" (38MM)	2" (50MM)	5/8"x2 3/8 (16MMx60MM)	1/2"x2 3/8 (12MMx60MM)	AS REQ'D
B3-2	"	2" (50MM)	"	"	"	"
B3-3	"	3" (75MM)	3" (75MM)	3/4"x2 3/8 (19MMx60MM)	5/8"x2 3/8 (16MMx60MM)	"
B3-4	3/8" (9MM)	2" (50MM)	2 3/4" (70MM)	"	5/8"x2 3/8 (16MMx60MM)	"

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER

REV DATE

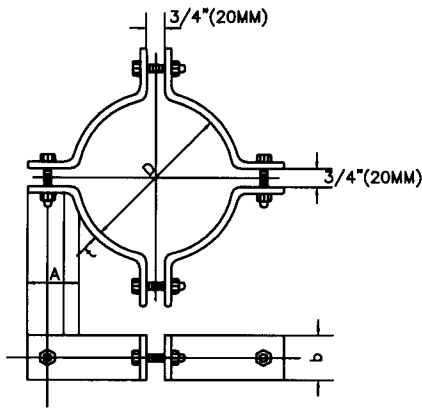
DWG NO.

TITLE STEEL BAND TYPE - 2 (B3 & B4)

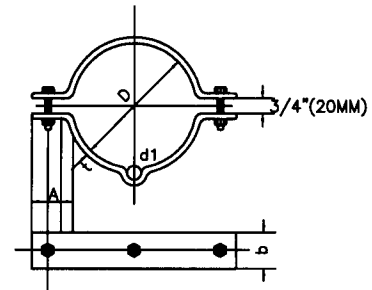
SPEC 16370

OCT 2003

E0152



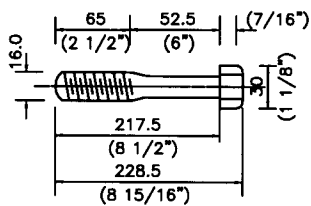
STEEL BAND TYPE B5
GALVANIZED



STEEL BAND TYPE B6 GALVANIZED

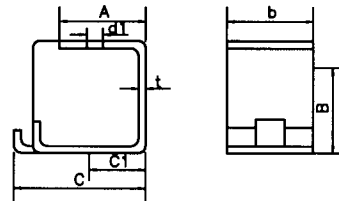
TYPE	t	b	A	BOLT	D
B5-1	1/4" (6MM)	1 1/2" (38MM)	2" (50MM)	5/8"x2 3/8" (16MMx60MM)	AS REQ'D
B5-2	"	2" (50MM)	"	"	"
B5-3	"	3" (75MM)	3" (75MM)	3/4"x2 3/8" (19MMx60MM)	"
B5-4	3/8" (9MM)	2" (50MM)	2 3/4" (70MM)	"	"

TYPE	t	b	A	BOLT	d1	D
B6-1	1/8" (3MM)	1" (25MM)	2" (50MM)	3/8"x2" (9MMx50MM)	AS REQ'D	AS REQ'D
B6-2	"	1 1/2" (38MM)	"	"	"	"
B6-3	3/16" (5MM)	1 1/2" (38MM)	"	1/2"x2 3/8" (12MMx60MM)	"	"
B6-4	1/4" (6MM)	2" (50MM)	"	"	"	"



DIMENSIONS IN MM

POLE STEP
GALVANIZED



WASHER TYPE U
GALVANIZED

TYPE	t	b	A	B	C	C1	d1	FOR STEEL ARM
U-1	1/8" (3MM)	1 9/16" (40MM)	1 9/16" (40MM)	1 7/8" (47MM)	2 1/8" (55MM)	1" (25MM)	9/16" (15MM)	L1/4"x2" L(6MMx50MM)
U-2	1/8" (3MM)	2" (50MM)	2 1/8" (55MM)	2 1/2" (63MM)	2 3/4" (70MM)	1 1/4" (32.5MM)	1 1/16" (18MM)	L1/4"x2 1/2" L(6MMx65MM)
U-3	"	"	2 3/8" (60MM)	(69MM)	(80MM)	(37.5MM)	"	L1/4"OR3/8"x3" L(6MMOR9MMx75MM)
U-4	"	(60MM)	(70MM)	(83MM)	(95MM)	(45MM)	"	L3/8"x3 1/2" L(10MMx90MM)

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER

REV DATE

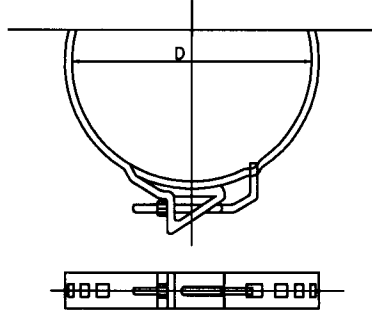
DWG NO.

TITLE STEEL BAND TYPE - 3 (B5 & B6)

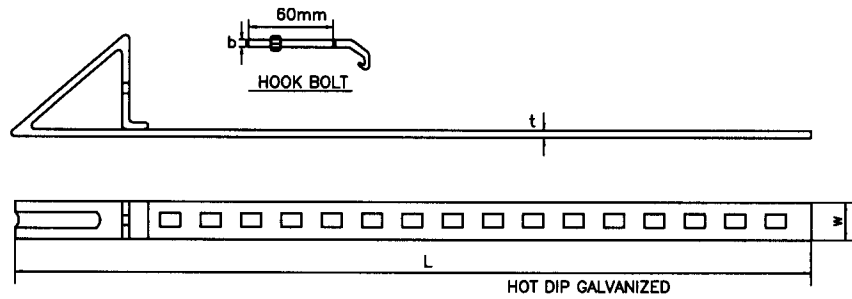
SPEC 16370

OCT 2003

E0153

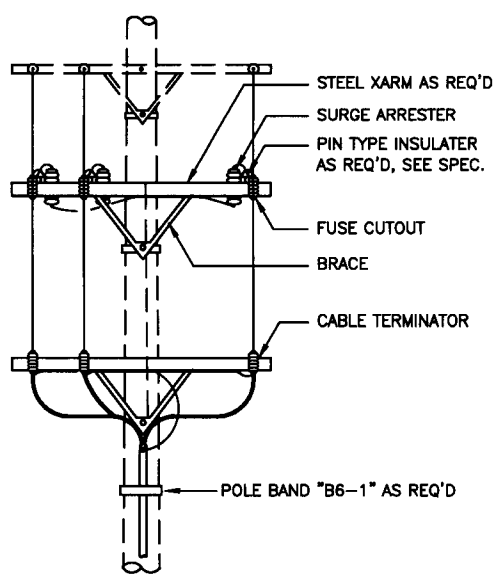
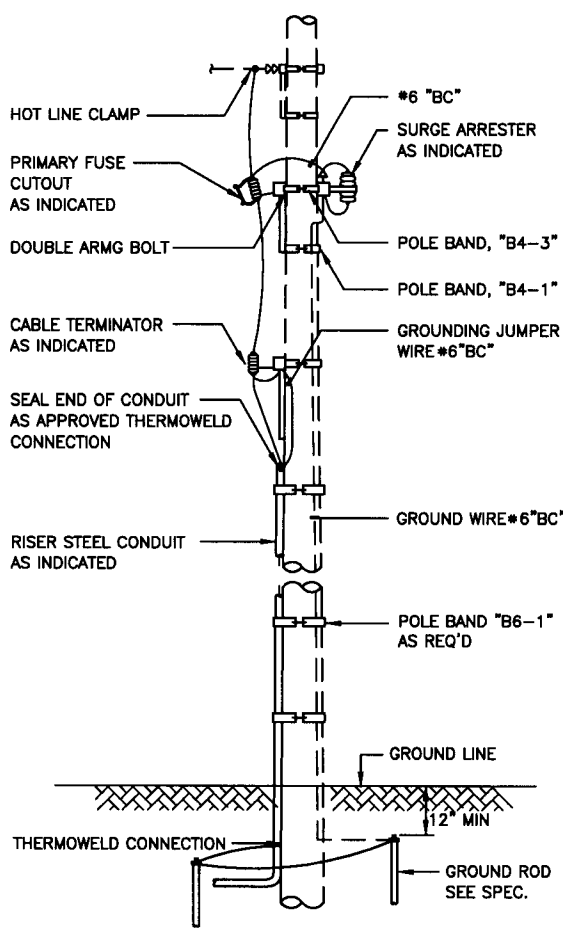


"B7" DIMENSIONS					
TYPE	t mm	W mm	b	L mm	D APPLICABLE RANGE
B7-1	1.6	25	3/8"	730	LESS THAN 220mm
B7-2	"	"	"	1,140	LESS THAN 350mm
B7-3	"	"	"	1,540	LESS THAN 480mm
B7-4	"	40	1/2"	720	LESS THAN 215mm
B7-5	"	"	"	1,130	LESS THAN 345mm
B7-6	"	"	"	1,530	LESS THAN 475mm



"B7" STEEL BAND
NO SCALE

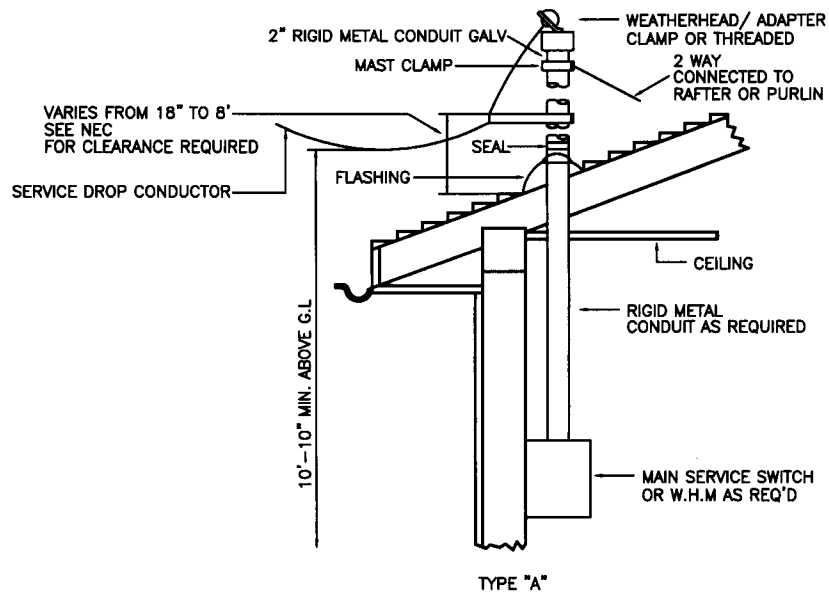
IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	STEEL BAND	SPEC	16370	OCT 2003	E0154



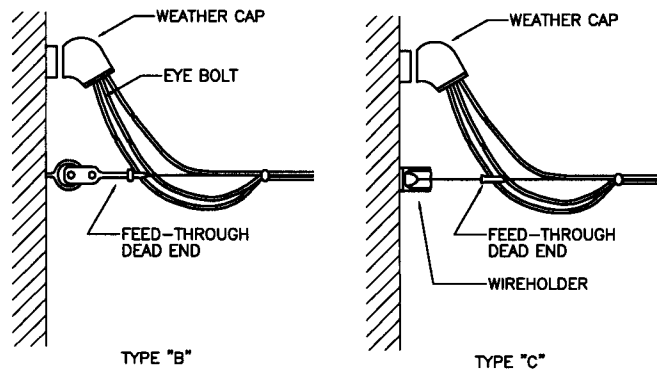
ELEVATION

UNDERGROUND CABLE RISER

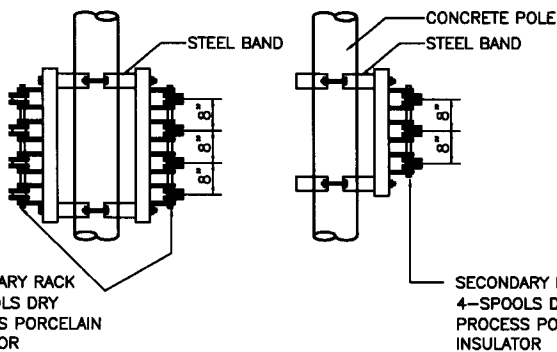
IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	UNDERGROUND CABLE RISER	SPEC	16370	OCT 2003	E0155



SPECIAL SERVICE ENTRANCE DETAILS (USE ONLY WHEN REFERENCED)



DEAD-ENDING SERVICE DROP CABLE TYPE "B" FEED-THROUGH DEAD-END FIXTURE ATTACHED TO EYE BOLT. TYPE "C" FEED-THROUGH DEAD-END FIXTURE ATTACHED TO WIRE HOLDER



SECONDARY RACK TYPF.	
K 1	1 - SPOOL
K 2	2 - SPOOL
K 3	3 - SPOOL
K 4	4 - SPOOL

STEEL BAND	
WIRE SIZE	BAND TYPE
#8 - #4	B3-1 OR B4-1
#2 - #3/0	B3-2 OR B4-2

RACK AND BAND INSTALLATION

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER

REV DATE

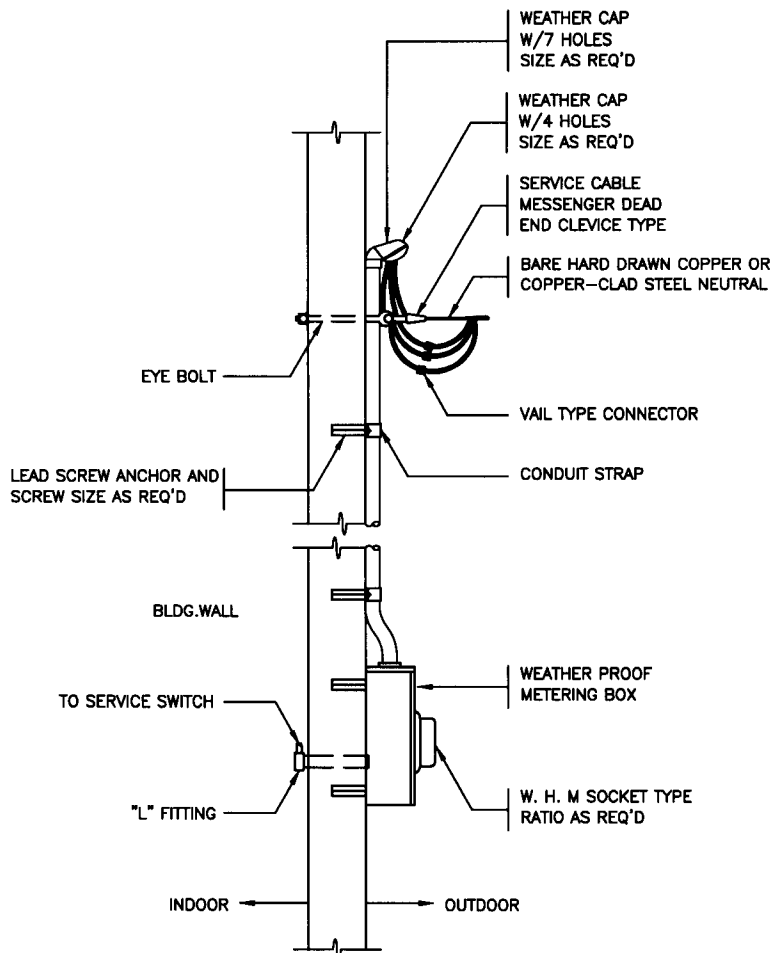
DWG NO.

TITLE SERVICE ENTRANCE AND RACK INSTALLATION

SPEC 16370

OCT 2003

E0156



SECONDARY M.O.F. AND W.H.M. MTG. DETAIL

NOT TO SCALE (ON BLDG. WALL)

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER

REV DATE

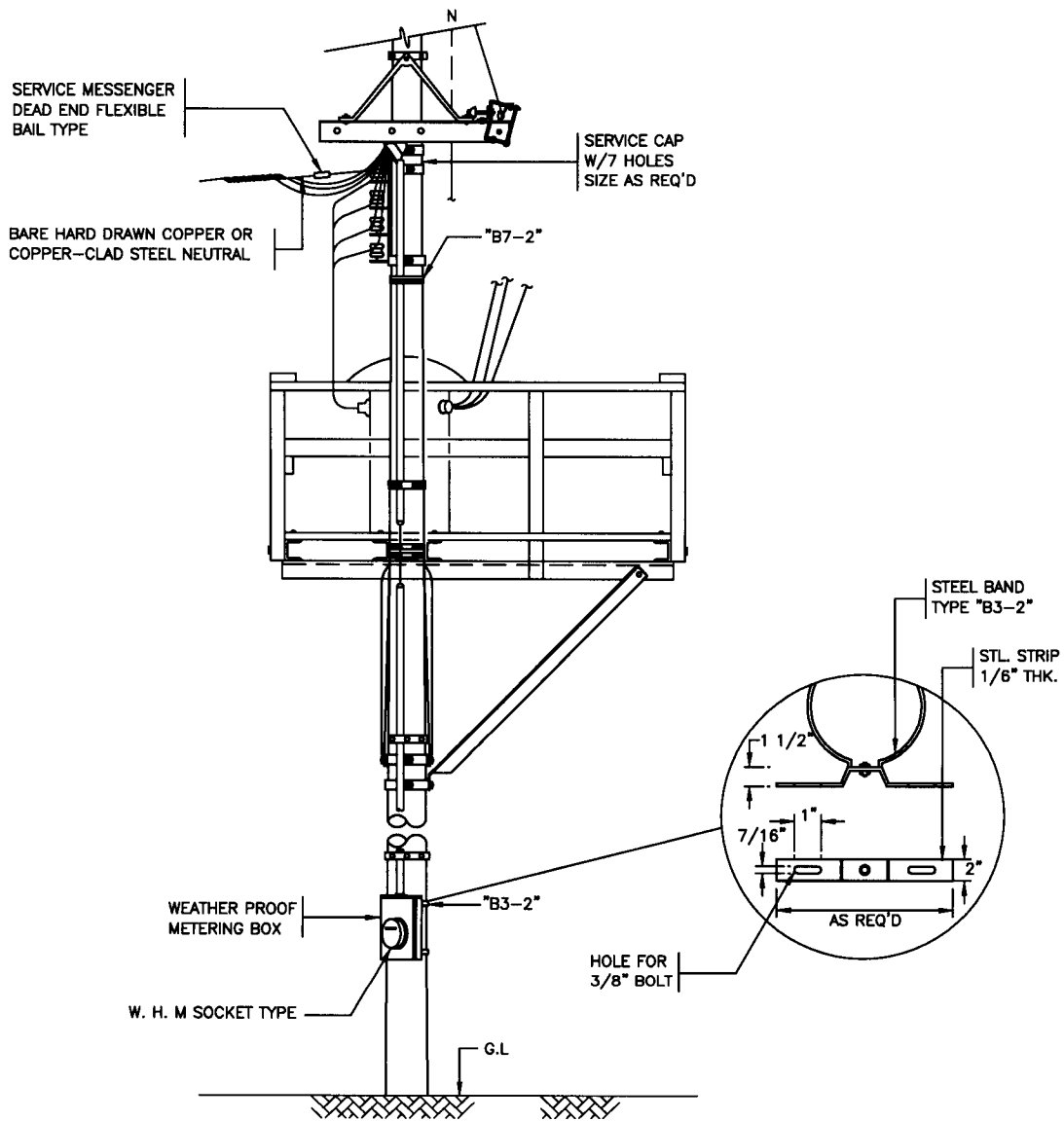
DWG NO.

TITLE WATT HOUR METER WHM INSTALLATION ON BLDG WALL

SPEC 16370

OCT 2003

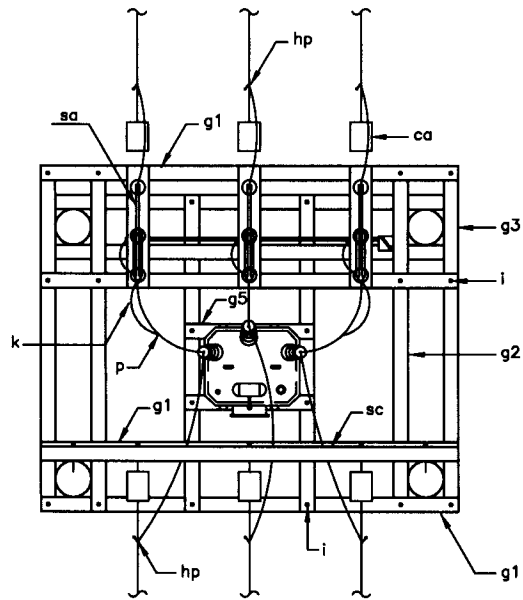
E0157



SECONDARY M.O.F. AND W.H.M. MTG. DETAIL

NOT TO SCALE (ON THE POLE)

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER			REV DATE	DWG NO.
TITLE	MOF AND WHM MOUNTING DETAIL ON THE POLE - 1	SPEC	16370	OCT 2003
				E0158



P L A N

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER

REV DATE

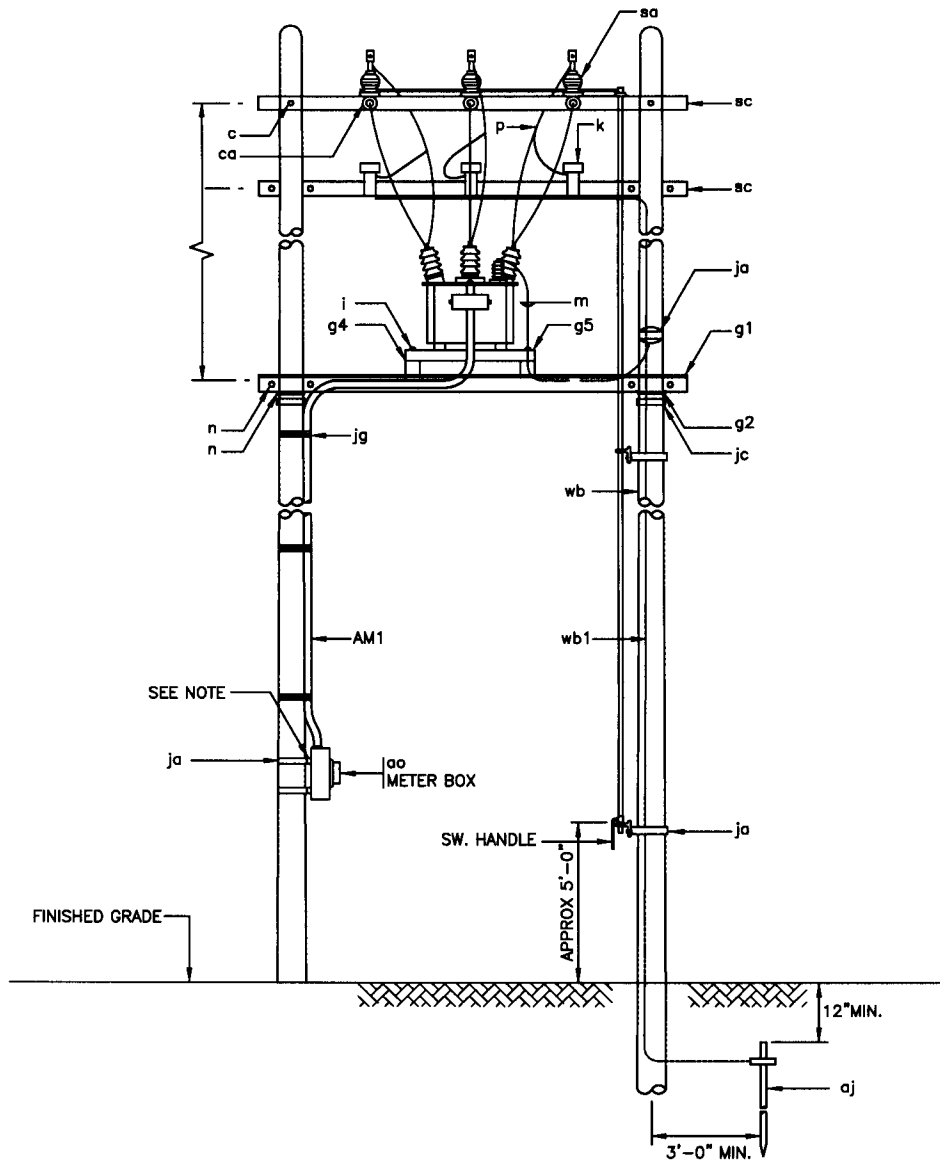
DWG NO.

TITLE MOF AND WHM MOUNTING DETAIL ON THE POLE - 2

SPEC 16370

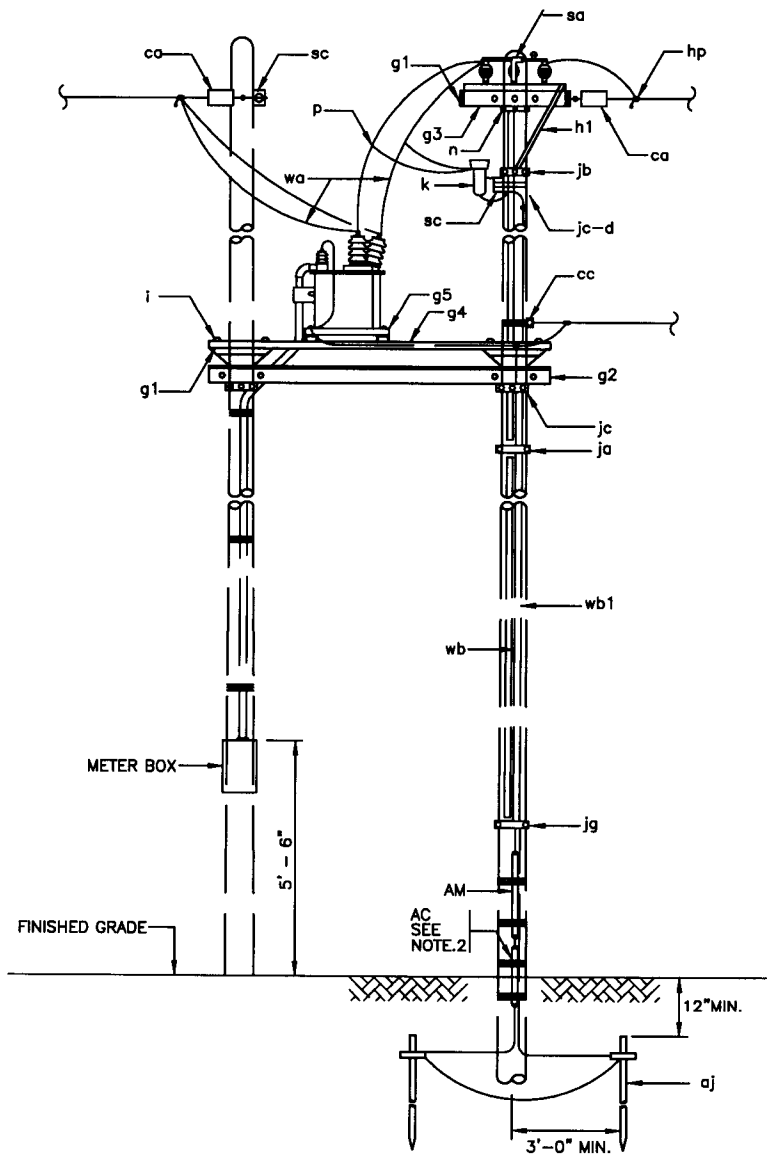
OCT 2003

E0159



FRONT ELEVATION

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	MOF AND WHM MOUNTING DETAIL ON THE POLE - 3	SPEC	16370	OCT 2003	E0160



SIDE ELEVATION

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	MOF AND WHM MOUNTING DETAIL ON THE POLE - 4	SPEC	16370	OCT 2003	E0161

ITEM	QTY. REQ'D	M A T E R I A L (F O R D E T. "A")
c	4	BOLT MACHINE 5/8" x REQ'D LENGTH
sc	2	STEEL CROSSARM 3" x 3" x 10' - 0"
g1	4	STEEL ANGLE 4" x 4" x 1/4" x 10' - 0"
g2	4	STEEL ANGLE 4" x 4" x 1/4" x 8' - 0"
g3	4	STEEL ANGLE 4" x 4" x 1/4" x REQ'D LENGTH FOR ITEM ga
g4	2	STEEL CHANNEL C6 x 10.5 x 8' - 0"
g5	2	STEEL CHANNEL C6 x 10.5 x 4' - 0"
h1	4	FLAT CROSSARM BRACE 1 1/4" x 1/4" x 26"
i	24	BOLT MACHINE 3/8" x REQ'D LENGTH
k	3	SURGE ARRESTOR W/MTG BRACKET SEE SPEC'S
m	1	M. O. F. CT. α PT. RATIO, AS REQ'D SEE SPECIFICATION "A α B"
n	16	BOLT DOUBLE ARMING 5/8" x REQ'D LENGTH
p	4	CONNECTOR. SIZE AS REQ'D
aj	1	COPPER CLAD STEEL ROD W/CLAMP SEE SPEC'S
ao	1	WATT HOUR METER BOX METER AS REQ'D
AM1		3/4" CONDUIT x REQ'D LENGTH
ca	AS REQ'D	PRIMARY DEADEND ASSEMBLY SEE SPEC'S
cc	1	NEUTRAL DEADEND CLEVISE INSULATOR α BRACKET
ja	5	BAND STEEL TYPE "B1 - 2"
jb	2	BAND STEEL TYPE "B4 - 2"
jc	2	BAND STEEL TYPE "B1 - 2"
je	4	BAND STEEL TYPE "B5 - 2"
jj	AS REQ'D	BAND STEEL TYPE "B7" SIZE AS REQ'D
hp	6	HOT LINE CLAMP, BAIL CLAMP, SEE SPEC'S
sa	1	SW. AIR BREAK GROUP OPERATED W/OPERATING MECHANISM PAD LOCK W/2KEY
wa	AS REQ'D	RUBBER α NEOPRENE WIRE KV. LENGTH AS REQ'D
wb	AS REQ'D	GROUND WIRE # 6 BARE COPPER
wb1	AS REQ'D	GROUND WIRE # 4 BARE COPPER
AM	AS REQ'D	WOOD OR PLASTIC GROUND MOULDING, SEE SPEC'S

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER

REV DATE

DWG NO.

TITLE

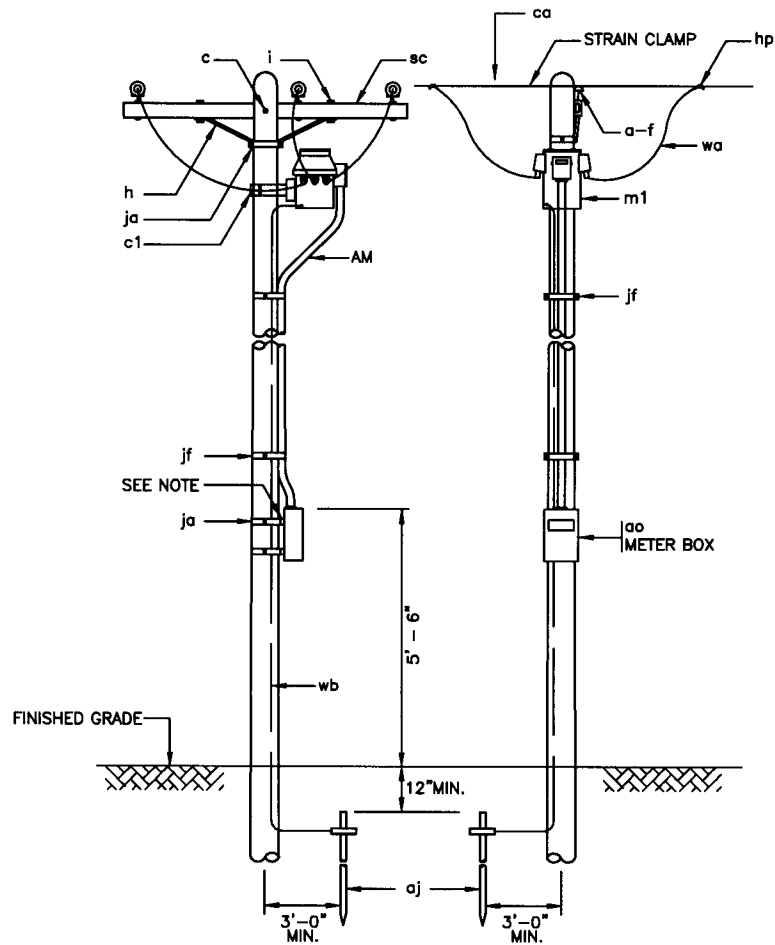
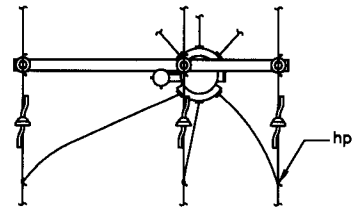
MOF AND WHM MOUNTING DETAIL ON THE POLE - 5

SPEC

16370

OCT 2003

E0162



FRONT ELEVATION

SIDE ELEVATION

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER

REV DATE

DWG NO.

TITLE MOF AND WHM MOUNTING DETAIL ON THE POLE - 6

SPEC 16370

OCT 2003

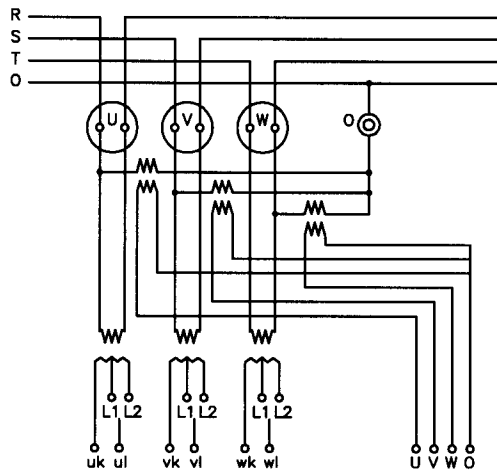
E0163

ITEM	QTY REQ'D	MATERIAL (FOR DET "B")
a	3	INSULATOR PIN TYPE, BROWN, SEE SPEC'S
c	1	BOLT MACHINE, 5/8" REQ'D LENGTH
f	3	PIN WOOD CROSSARM, SEE SPEC'S
sc	1	STEEL SROSSARM, SEE DWG. NO. 40-06-0091, SH. 0021
h	1	ONE PIECE ANFLE BRACE, SEE DWG. NO. 40-06-0091, SH. 0021
j	2	BOLT CARRIAGE, 3/8" x 4 1/2" W/WASHER
ci	1	M. O. F. HANGER LINE MATERIAL
mi	1	M. O. F. CT. 8 PT. RATIO AS REQ'D SEE SPEC "c"
aj	1	COPPER CLAD STEEL ROD W/CLAMP, SEE SPEC'S
AM		3/4" CONDUIT, REQ'D LENGTH
ao	1	WATT HOUR METER BOX, METER AS REQ'D
ca	3	PRIMARY DEADEND ASSEMBLY
ja	1	BAND STEEL TYPE "B1 - 2"
jf	AS REQ'D	BAND STEEL TYPE "B6 - 1"
hp	6	HOT LINE CLAMP, W/BAI; C;AMP, SEE SPEC'S
wa		r & n WIRE KV. 8 LENGTH AS REQ'D
wb		GROUND WIRE SIZE AS REQ'D, MINIMUM #6 "bc"

SPECIFICATION "A"

POTENTIAL TRANSFORMER
 RATED PRIMARY VOLTAGE
 PHASE VOLTAGE 13,200V.
 LINE VOLTAGE 22,900V.
 RATED SECONDARY VOLTAGE
 PHASE VOLTAGE 110V.
 LINE VOLTAGE 190V.
 RATED BURDEN 3 x 25 VA.
 RATED FREQUENCY 60 Hz
 ACCURACY CLASS 0.3W/0.5W CLASS
 POLARITY SUBTRACTIVE
 CURRENT TRANSFORMER
 RATED PRIMARY CURRENT 5 - 600A.
 RATED SECONDARY CURRENT 5A.
 RATED FREQUENCY 60Hz.
 ACCURACY CLASS 0.3W/0.5W CLASS
 POLARITY SUBTRACTIVE

CONNECTION DIAGRAM "A"



IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER

REV DATE

DWG NO.

TITLE

MOF AND WHM MOUNTING DETAIL ON THE POLE - 7

SPEC

16370

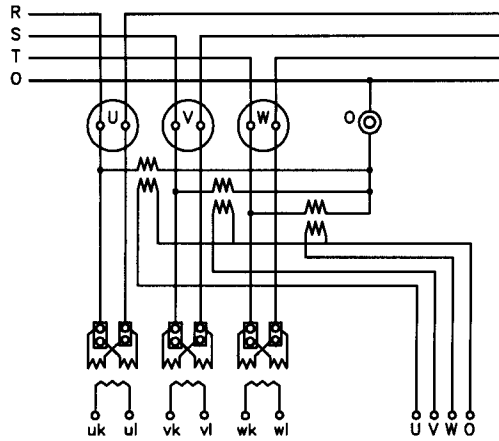
OCT 2003

E0164

SPECIFICATION "B"

POTENTIAL TRANSFORMER
 RATED PRIMARY VOLTAGE
 PHASE VOLTAGE 6,600V.
 LINE VOLTAGE 11,400V.
 RATED SECONDARY VOLTAGE
 PHASE VOLTAGE 110V.
 LINE VOLTAGE 190V.
 RATED BURDEN 3 x 25 VA.
 RATED FREQUENCY 60 Hz
 ACCURACY CLASS 0.5W CLASS
 POLARITY SUBTRACTIVE
 CURRENT TRANSFORMER
 RATED PRIMARY CURRENT 0 – 600A.
 RATED SECONDARY CURRENT 5A.
 RATED BURDEN 3 x 25 VA
 RATED FREQUENCY 60Hz.
 ACCURACY CLASS 0.5W CLASS
 POLARITY SUBTRACTIVE

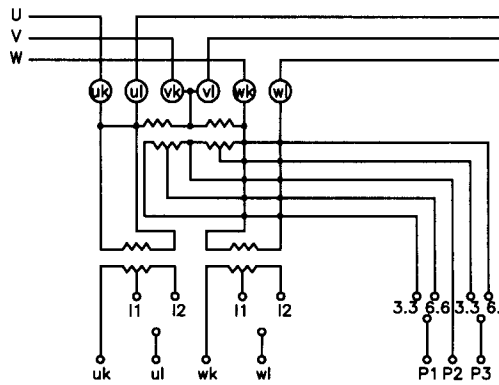
CONNECTION DIAGRAM "B"



SPECIFICATION "C"

POTENTIAL TRANSFORMER
 RATED PRIMARY VOLTAGE 3,300V
 6,600V.
 RATED SECONDARY VOLTAGE 110V.
 RATED BURDEN 2 x 25 VA.
 RATED FREQUENCY 60 Hz
 ACCURACY CLASS 0.5W CLASS
 POLARITY SUBTRACTIVE
 CURRENT TRANSFORMER
 RATED PRIMARY CURRENT 5 – 600A.
 RATED SECONDARY CURRENT 5A.
 RATED BURDEN 2 x 15 VA
 RATED FREQUENCY 60Hz.
 ACCURACY CLASS 0.5W CLASS
 POLARITY SUBTRACTIVE

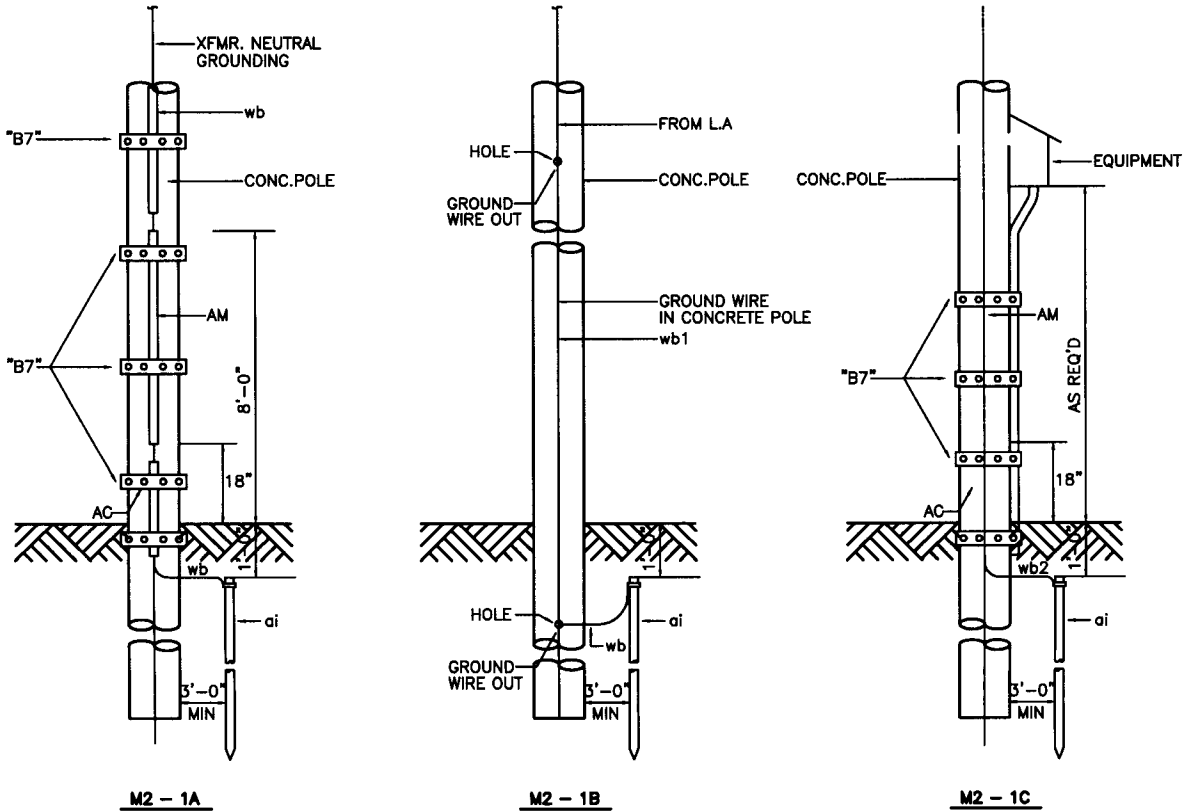
CONNECTION DIAGRAM "C"



NOTES

1. FOR METER BOX MTG. REFER THE DETAIL IN THE CIRCLE ON DWG NO. 0 0 3 9.
2. RIGID OR INTERMEDIATE STL. CONDUIT SHALL PROJECT GROUND WIRES ON POLES FROM A POINT 14 INCHES ABOVE GRADE TO A POINT 6 INCH BELOW GRADE CONDUITS SHALL BE TERMINATED AT EACH END WITH A GND. BUSHING AND A BONDING JUMPER TO THE GND. WIRE.

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER			REV DATE	DWG NO.	
TITLE	MOF AND WHM MOUNTING DETAIL ON THE POLE – 8	SPEC	16370	OCT 2003	E0165

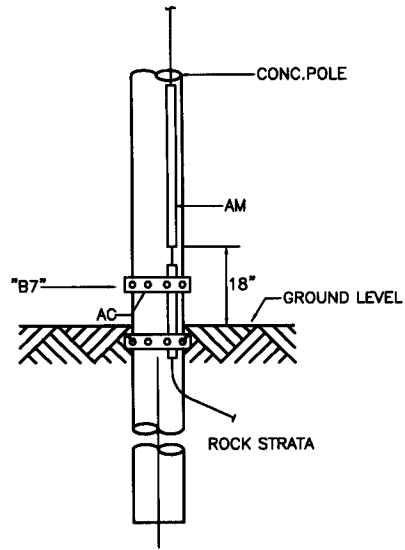


ITEM	MATERIAL					
		M2-1A	M2-1B	M2-1C	M2-3C	M2-4C
a1	3/4" ϕ 8'-0" LENGTH ROD, GROUND, COPPER-CLAD STEEL W/CLAMP, SEE SPECS	1	1	1		2
B7	STEEL BAND, GLAV. SIZE AS REQ'D	AS REQ'D			AS REQ'D	AS REQ'D
	GLAV.					
AM	WOOD OR PLASTIC GROUND WIRE MOLDING OR NON-METALLIC TUBE, SEE SPECS	1		1	1	1
wb	GROUND WIRE, # 6MIN S.D COPPER, SEE SPEC'S	AS REQ'D				AS REQ'D
wb2	GROUND WIRE, # 6MIN S.D COPPER,			AS REQ'D	AS REQ'D	
AC	1/2" ϕ CONDUIT, SEE NOTE 2 FOR THE MAT 4 INSTAL	1		1	1	1
wb1	GROUND WIRE, # 4MIN S.D COPPER, SEE SPEC'S		AS REQ'D			
P	CONNECTOR FOR GROUND WIRE				1	1

NOTES:

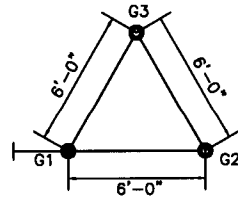
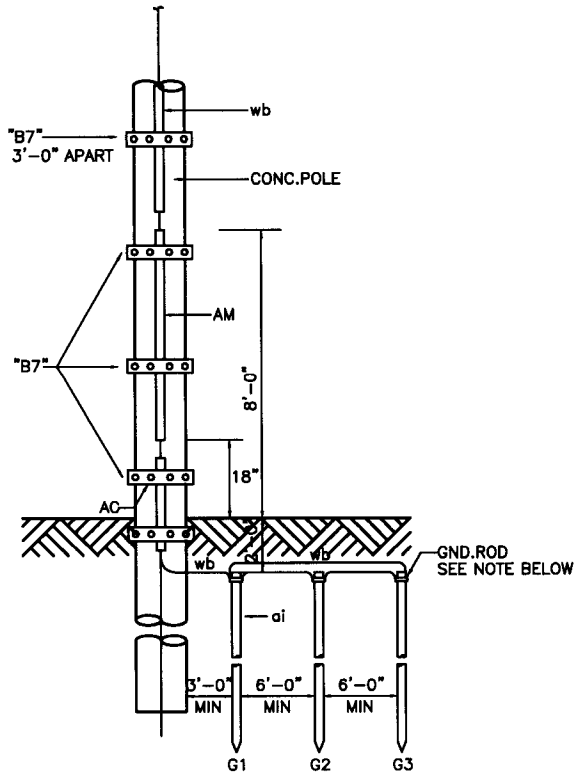
- GROUNDING WIRE FROM PRIMARY NEUTRAL SHALL BE CONTINUOUS FROM PRIMARY WIRE TO GROUND ASSEMBLY ATTACHMENTS TO SUCH GROUND WIRE SHALL BE MADE BY SUITABLE CONNECTORS.
- RIGID OR INTERMEDIATE STEEL CONDUIT SHALL PROTECT GROUND WIRE ON POLES FROM A POINT 14 INCHES ABOVE GRADE TO A POINT 6 INCH BELOW GRADE, CONDUIT SHALL BE TERMINATED WITH GROUNDING BUSHING AT EACH END AND THE GROUND WIRE SHALL BE CONNECTED TO EACH BUSHING

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	GROUNDING ASSEMBLIES - 1	SPEC	16370	OCT 2003	E0166



NOTE
 INCASE INSTALLATION OF VERTICAL GROUNDING ROD IS NOT POSSIBLE DUE TO UNDERGROUND ROCK STRATA, THE CONTRACTOR SHALL CONSULT WITH THE CONTRACTING OFFICER

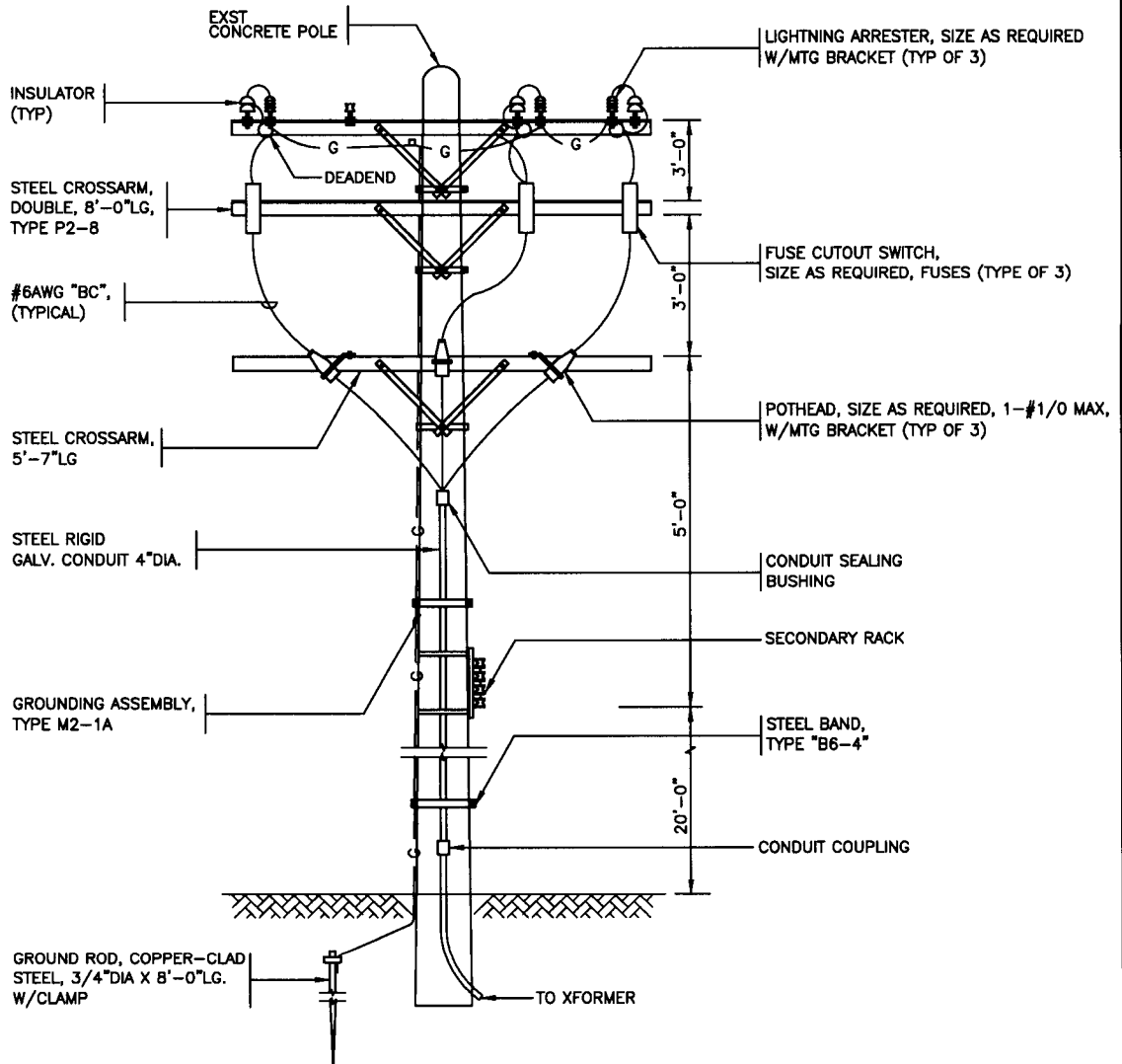
M2 - 3C



NOTE
 PROVIDE GROUND RODS UP TO A MAXIMUM OF THREE RODS TO OBTAIN A REQUIRED MAX. GROUND RESISTANCE.

M2 - 4C

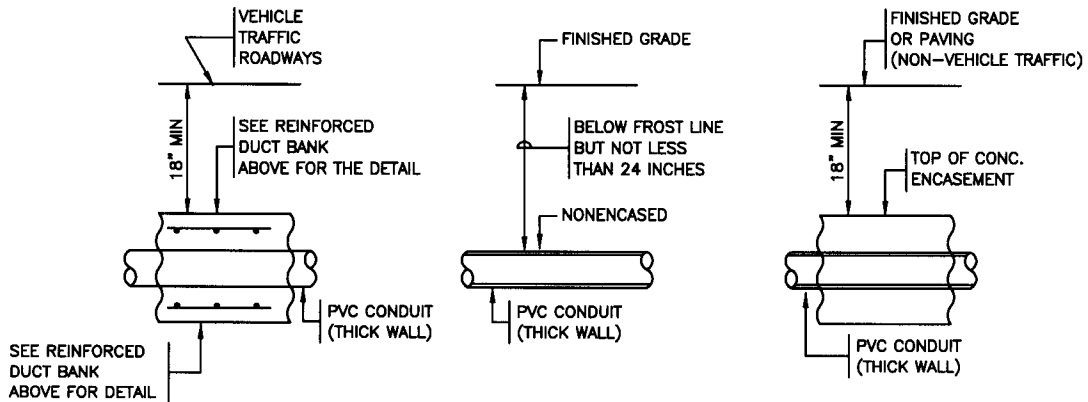
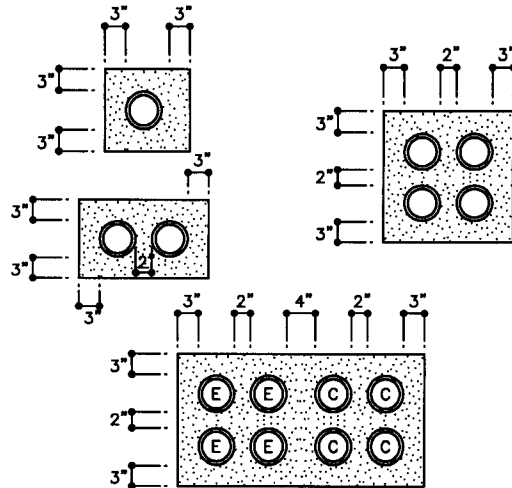
IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	GROUNDING ASSEMBLIES - 2	SPEC	16370	OCT 2003	E0167



UNDERGROUND CABLE RISER DETAIL

NOT TO SCALE

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	UNDERGROUND CABLE RISER DETAIL	SPEC	16375	OCT 2003	E0201

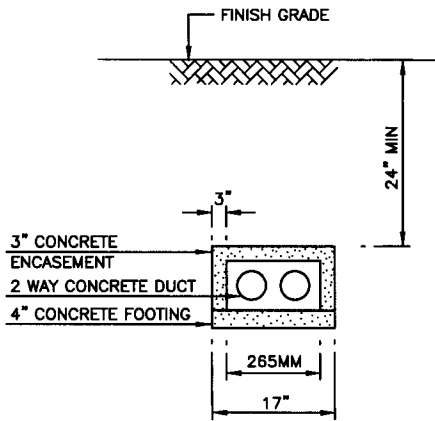


PVC DUCT DETAILS

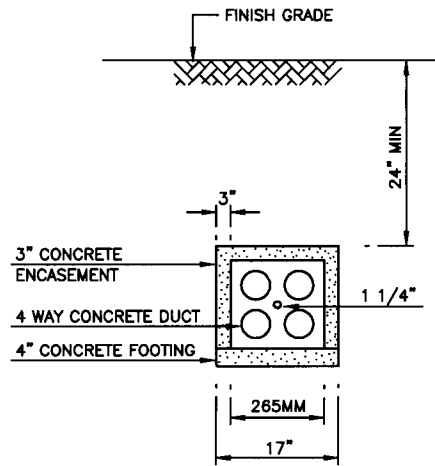
NOTES

1. UNLESS OTHERWISE NOTED, ALL HOLES OF THE CONCRETE DUCTS SHALL HAVE 100MM HOLE(DIA.)
2. FOR CASE "C" OF STANDARD GRADE, DEPTH OF MANHOLE CONSTRUCTION MAY DEEPER DUE TO TERRAIN GRADE CONDITION
3. ALL PRECAST CONCRETE DUCTS SHALL HAVE A 4 INCHES UNREINFORCED CONCRETE FOOTING CONSTRUCTION AND INSTALLED AS SHOWN ON THE CONTRACT DRAWING
4. ALL JOINTS WILL BE WRAPPED WITH A 6 INCH WIDE PIECE OF TAR PAPER OR EQUIVALENT OVERLAPPING EACH DUCT AT THE SEAM AT LEAST 3 INCH AND SECURED TO EACH DUCT WITH A PIECE WIRE AROUND EACH DUCT
5. ALL PRECAST CONCRETE DUCTS SHALL BE ENCASED WITH 3 INCH OF 3000 P. S. I CONCRETE
6. RE-BARS ARE NOT REQUIRED WHEN DUCT ARE TO BE CONSTRUCTED IN AREA NOT SUBJECT TO VEHICLE TRAFFIC

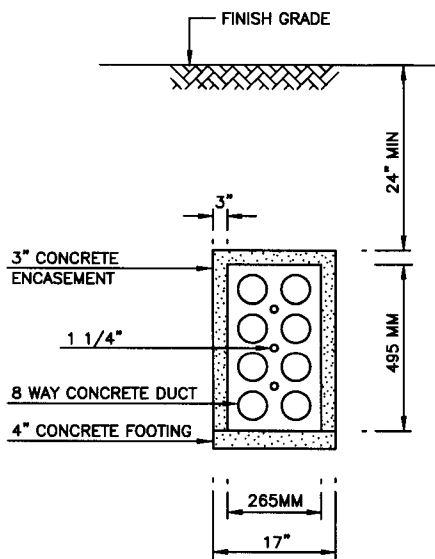
IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	CONCRETE DUCT - 2	SPEC	16375	OCT 2003	E0202



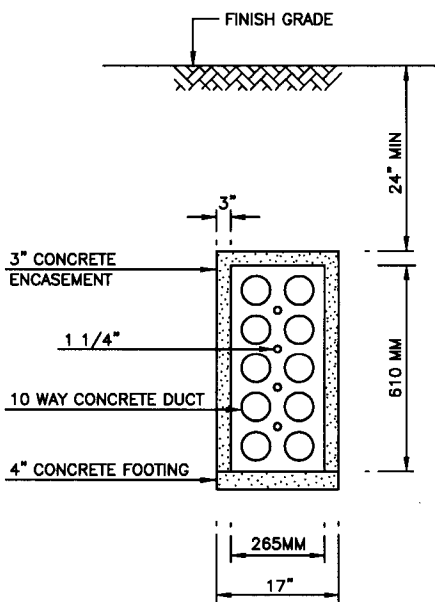
TYP. CONSTRUCTION FOR 2W CONC. DUCT
(PRECASTED DUCT)



TYP. CONSTRUCTION FOR 4W CONC. DUCT
(PRECASTED DUCT)

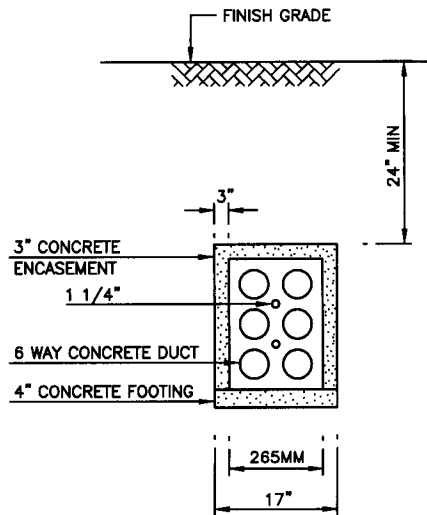
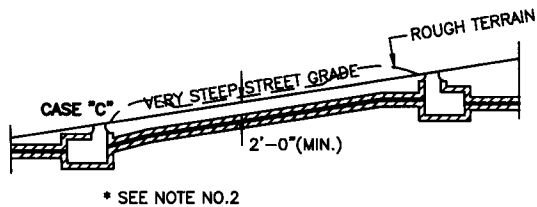
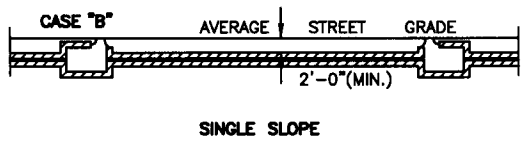
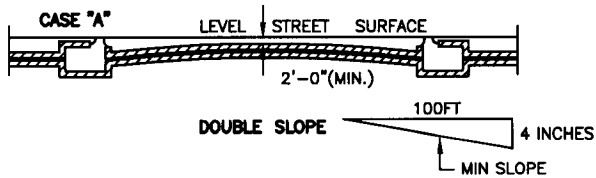


TYP. CONSTRUCTION FOR 8W CONC. DUCT
(PRECASTED DUCT)



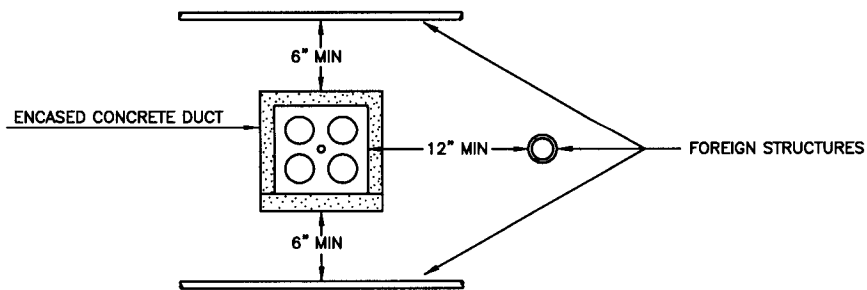
TYP. CONSTRUCTION FOR 10W CONC. DUCT
(PRECASTED DUCT)

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	CONCRETE DUCT - 3	SPEC	16375	OCT 2003	E0203



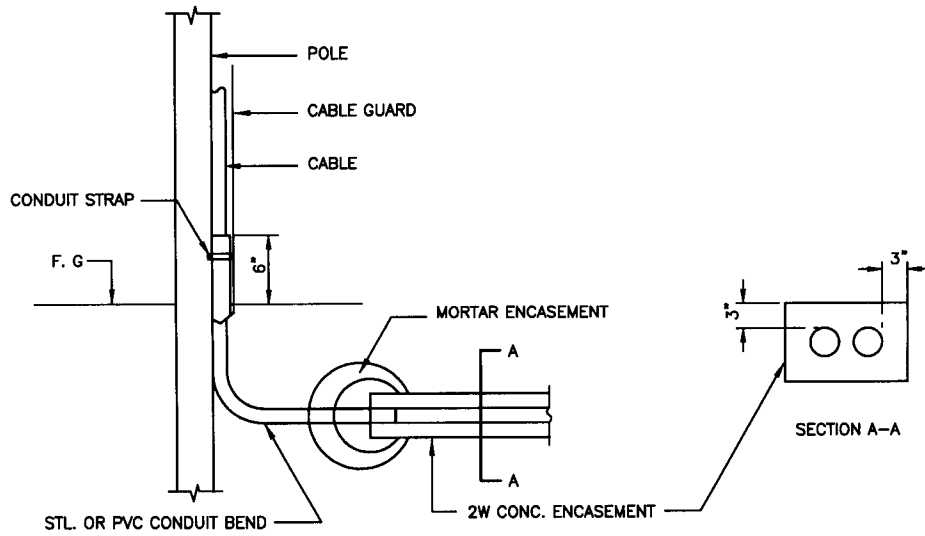
STANDARD DUCT GRADES AND DRAINAGE
NO SCALE

TYP. CONSTRUCTION FOR 6W CONC. DUCT
(PRECASTED DUCT)

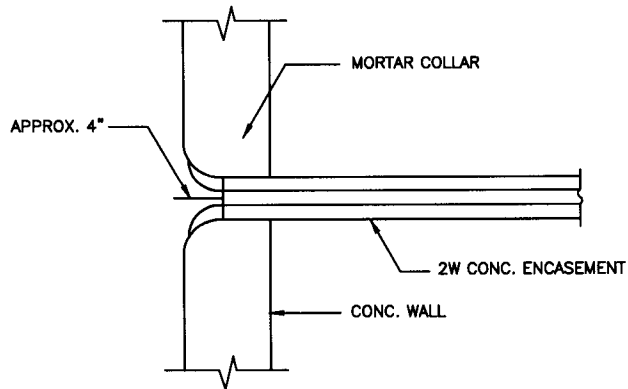


CROSSING OR PARALLELING FOREIGN STRUCTURES
(PRECASTED DUCT)

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	CONCRETE DUCT - 4	SPEC	16375	OCT 2003	E0204

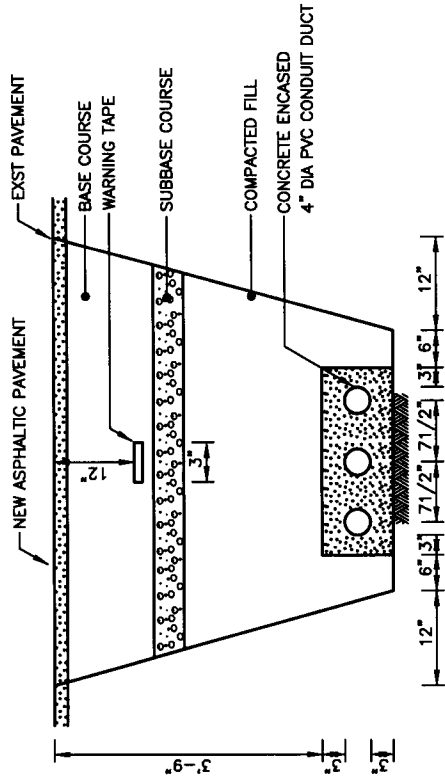


RISER POLE CONNECTION FOR COMM. CABLE

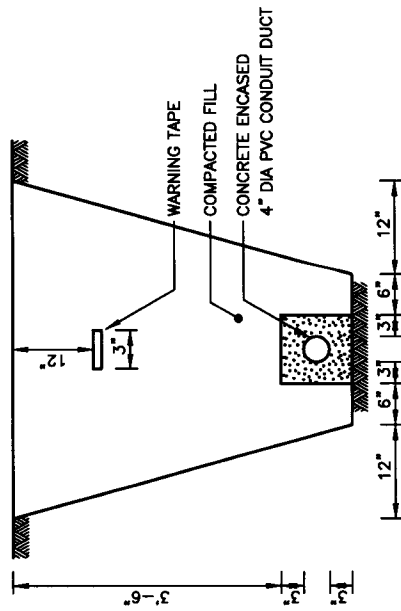


WALL CONNECTION

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	CONCRETE DUCT - 5	SPEC	16375	OCT 2003	E0205

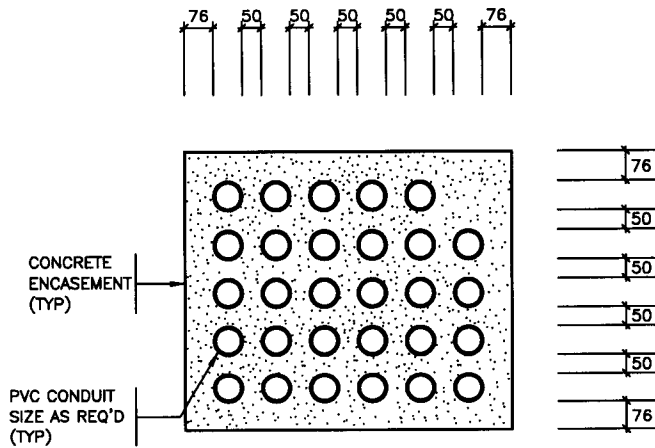


3 - WAY DUCT (W/ ASPHALTIC CONC)

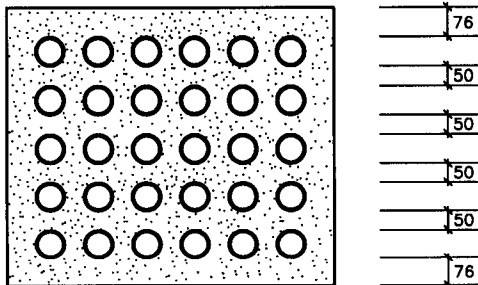
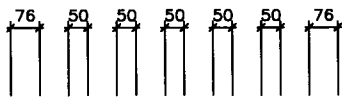


1 - WAY DUCT (W/O ASPHALTIC CONC)

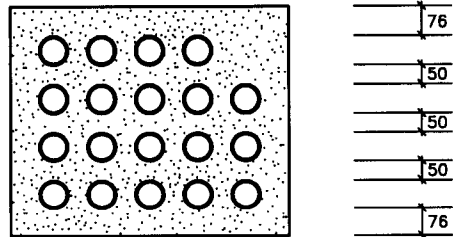
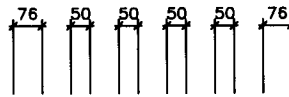
IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER			REV DATE	DWG NO.
TITLE	DUCT DETAILS - 1	SPEC	16375	OCT 2003
				E0206



3C 29-WAY DUCT
- 7



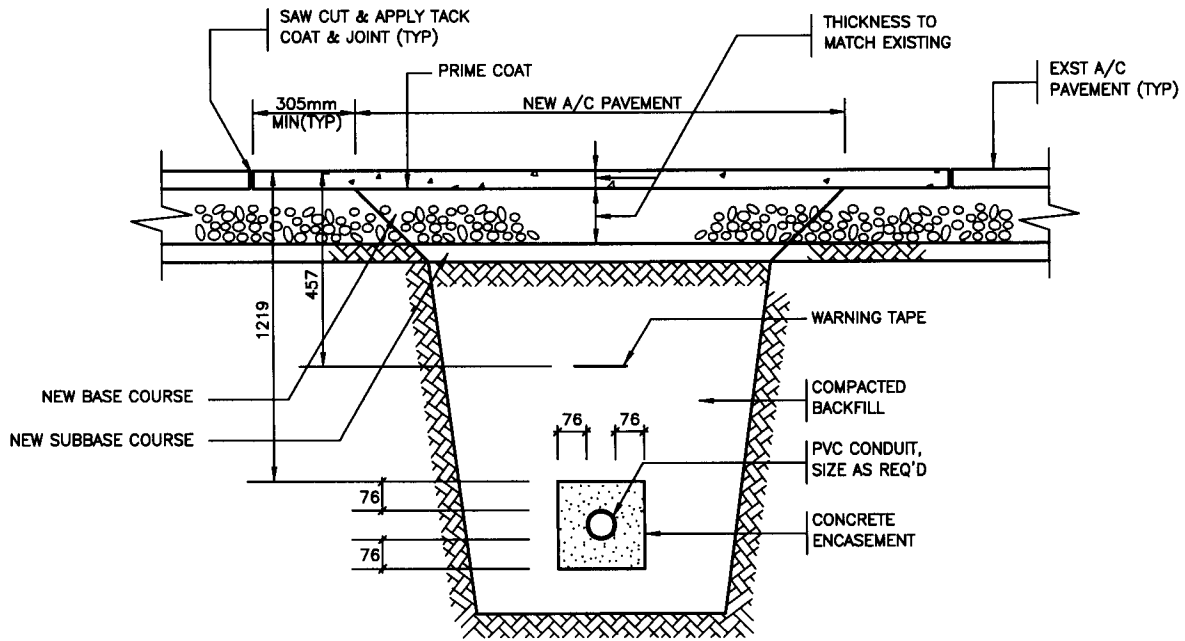
3D 30-WAY DUCT
- 7



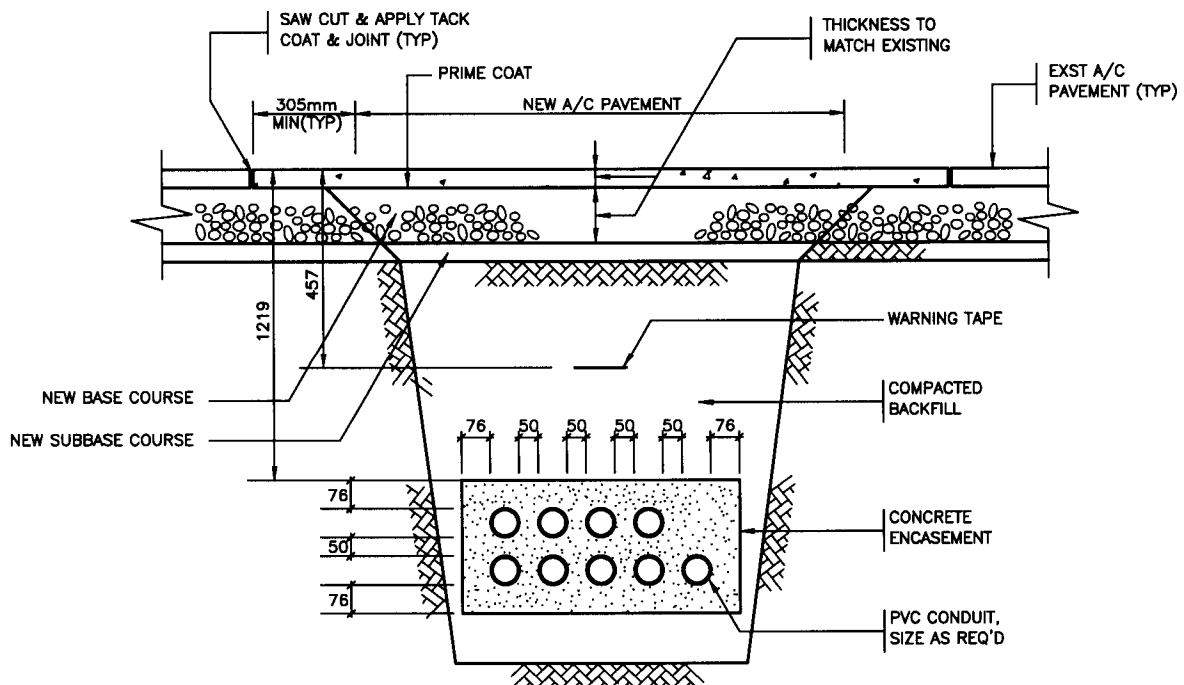
3E 19-WAY DUCT
- 7

3 DUCT SECTIONS (TRAFFIC AREA)
- 7 NOT TO SCALE

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	DUCT SECTIONS (TRAFFIC AREA)	SPEC	16375	OCT 2003	E0208

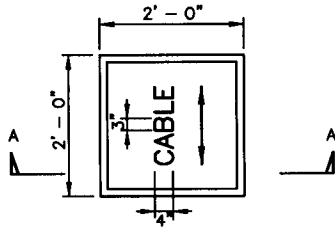


3A 1-WAY DUCT
- 7

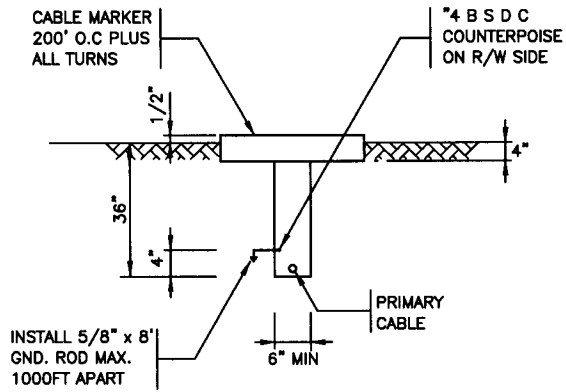


3B 9-WAY DUCT
- 7

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	DUCT DETAILS	SPEC	16375	OCT 2003	E0209



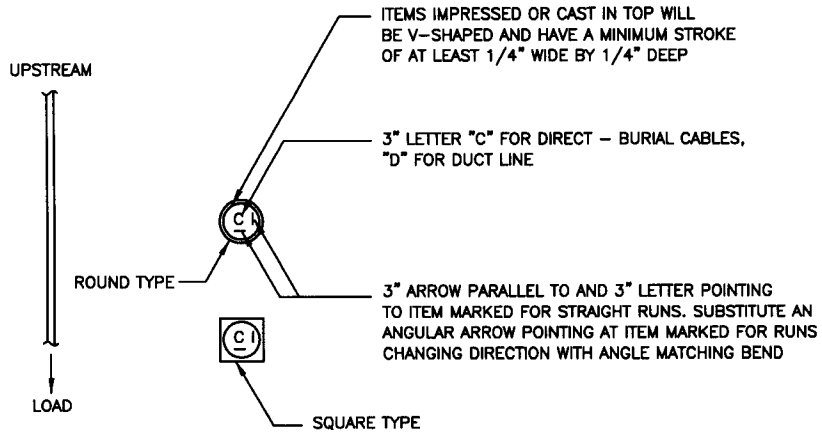
P L A N



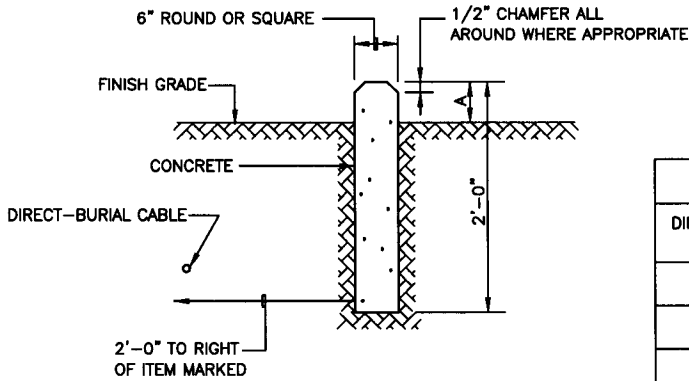
A - A SECTION

AIR FIELD LTG. CABLE MARKER DET.

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	UNDERGROUND CABLE MARKER -1	SPEC	16375	OCT 2003	E0210



P L A N

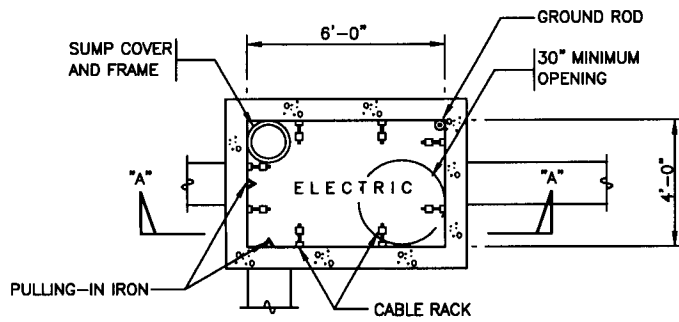


E L E V A T I O N

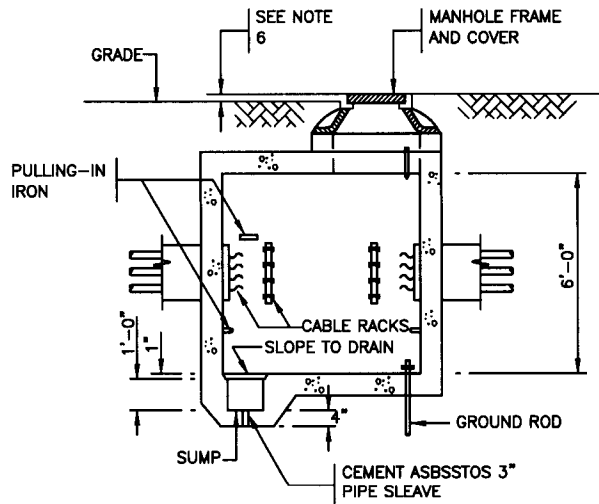
SUGGESTED PROJECTIONS	
DIMENSION A INCHES	LOCATION
0	PAVED AREAS
1 / 2 "	GRASSED AREAS SUBJECT TO MOWING
1 "	GRAVELED AREAS
4 "	UNCULTIVATED AREAS

UNDERGROUND SYSTEM MARKER

IMA--KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	UNDERGROUND CABLE MARKER -2	SPEC	16375	OCT 2003	E0211



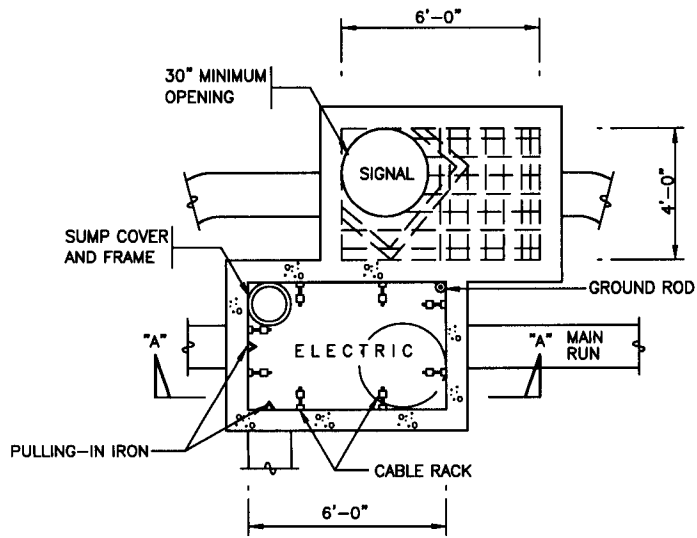
PLAN



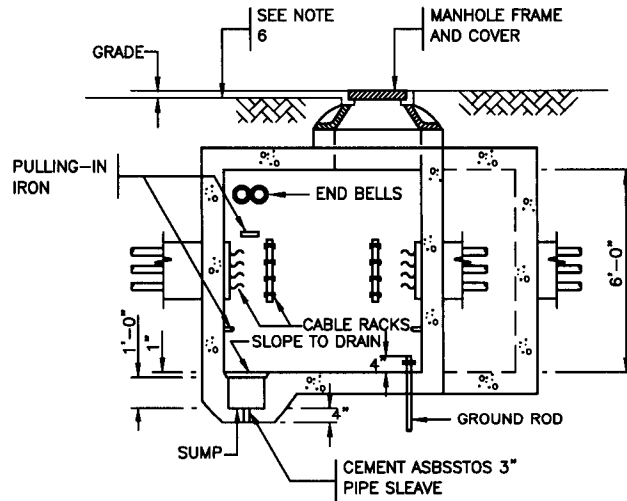
SECTION "A"- "A"

SINGLE MANHOLE
(STREIGHT)

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	SINGLE MANHOLE	SPEC	16375	OCT 2003	E0212



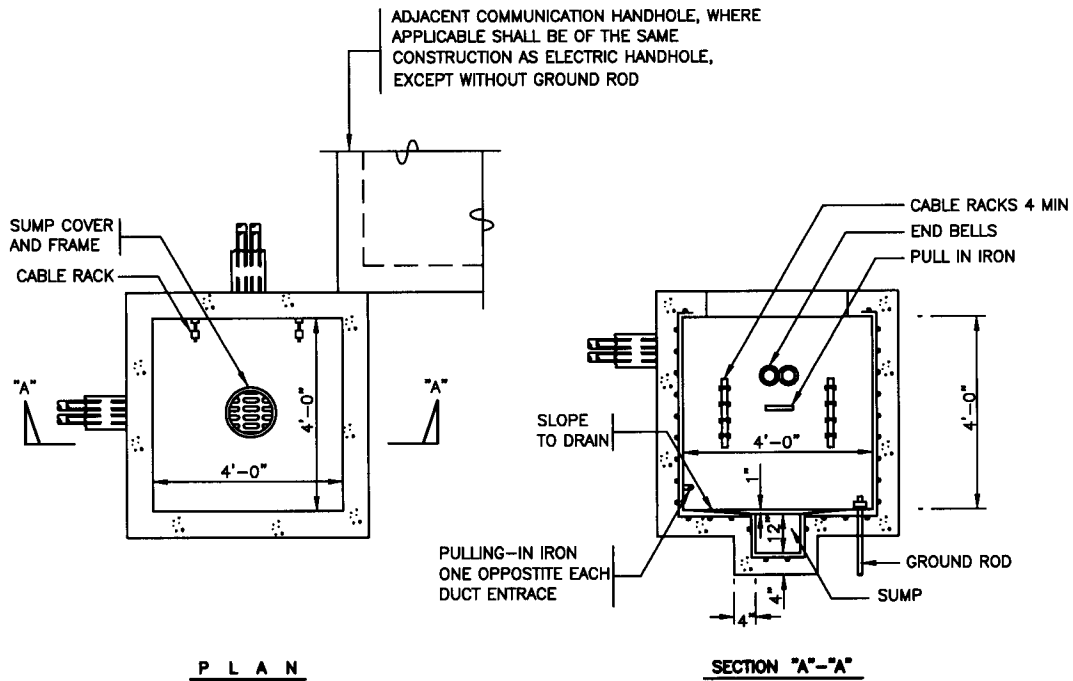
P L A N



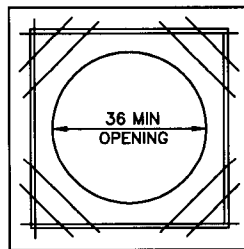
SECTION "A"- "A"

DOUBLE MANHOLE
(STREIGHT W/COMM. M/H)

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER			REV DATE	DWG NO.
TITLE	DOUBLE MANHOLE	SPEC	16375	OCT 2003
				E0213



HANDHOLE FOR LOW VOTAGE CABLE ONLY



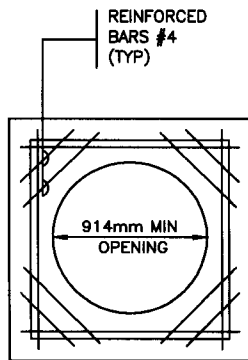
PLAN OF TOP

TYPE "A"

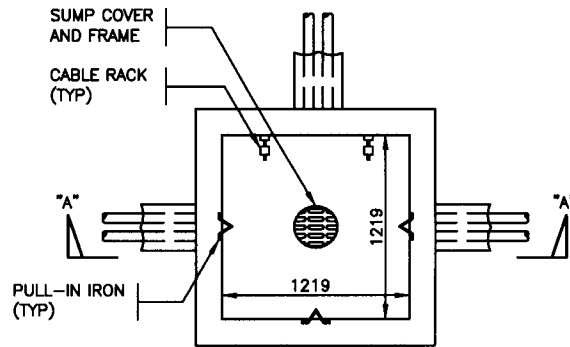
ELECTRICAL HANDHOLE

NOT TO SCALE

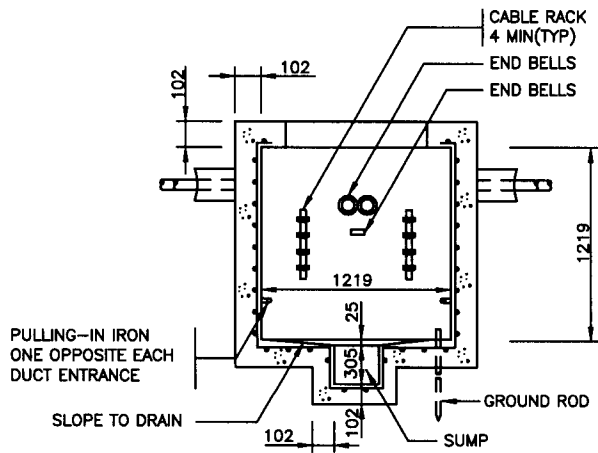
IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	ELECTRICAL HANDHOLE	SPEC	16375	OCT 2003	E0214



PLAN OF TOP



P L A N



SECTION "A"- "A"

NOTES : (FOR HANDHOLE)

1. THICKNESS OF CONCRETE
HANDHOLE WALLS, TOP AND FLOOR ----- 152mm
SUMP WALLS AND FLOOR ----- 102mm
2. REINFORCING BARS ; NO. 4 ROUND DEFORMED.
3. WALL & FLOOR (FOR HANDHOLE) ; MIN 203mm CENTERS W/305mm HOOK AT CORNERS AND INTERSECTIONS.
4. TOP AS SHOWN AT A MIN 51mm FOR OPENING AND WITH A MIN 102mm SPACING BETWEEN BARS.
5. IN UNPAVED AREAS THE TOP OF HANDHOLE COVERS SHALL BE APPROX. 13mm ABOVE THE FINISHED GRADE.

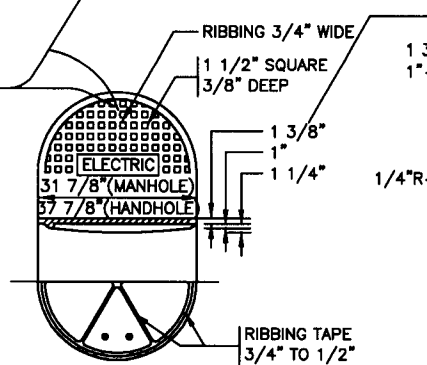
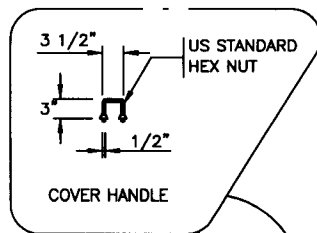
(FOR LOW VOLTAGE CABLE ONLY)

ELECTRICAL HANDHOLE DETAILS

NOT TO SCALE

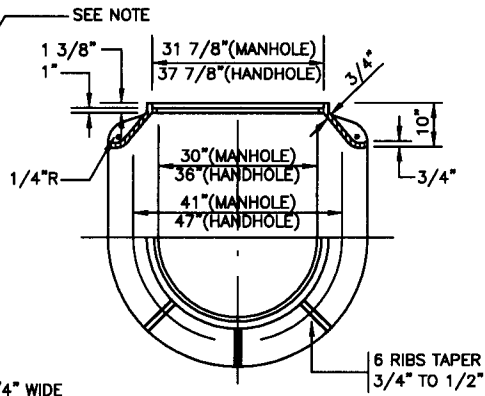


IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	ELECTRICAL HANDHOLE DETAILS	SPEC	16375	OCT 2003	E0215

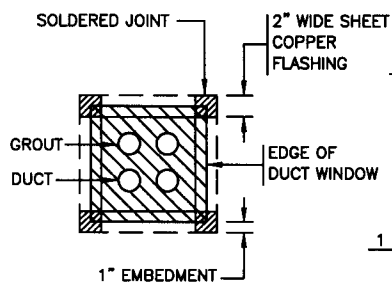


LETTER BLOCKS 1 1/4" WIDE
2" HIGH LETTERS 3/8" WIDE

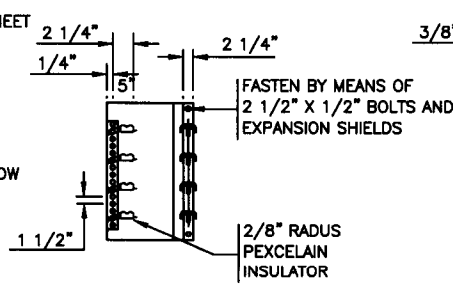
COVER



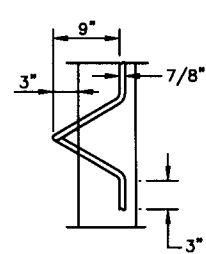
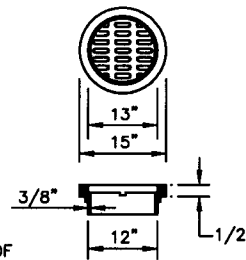
FRAME



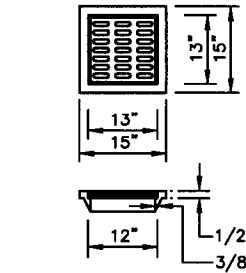
DUCT WINDOW SEALING



CABLE RACK



PULLING-IN IRON

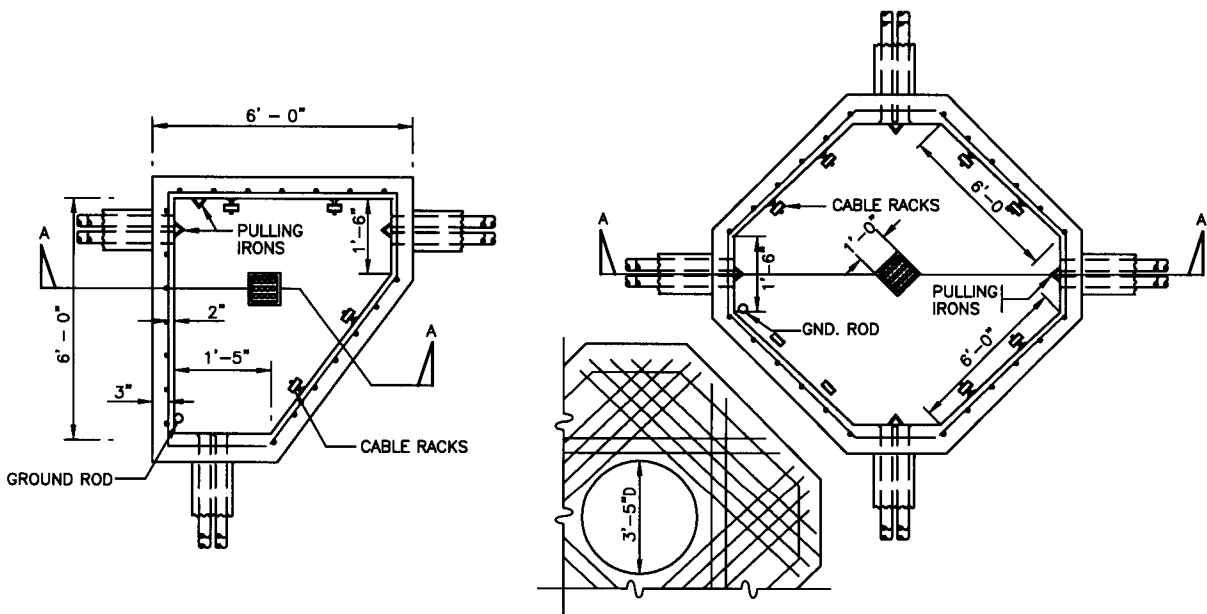
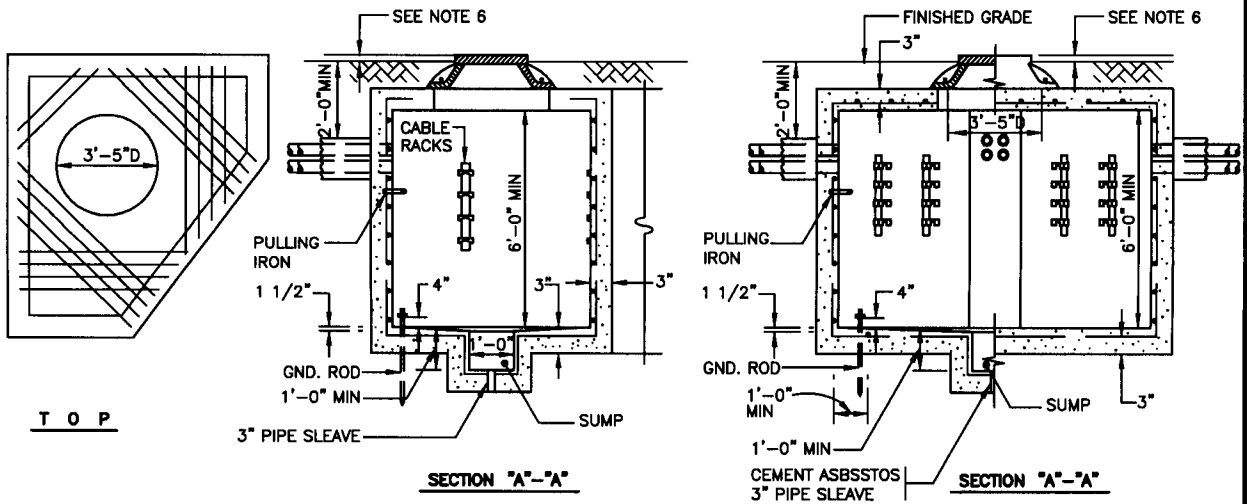


SUMP FRAME AND COVER

MANHOLE & HANDHOLE DETAILS

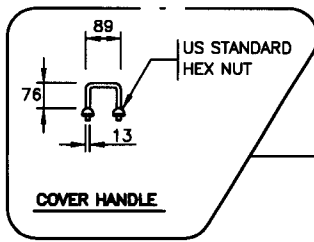
NOT TO SCALE

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	MANHOLE AND HANDHOLE DETAILS	SPEC	16375	OCT 2003	E0216



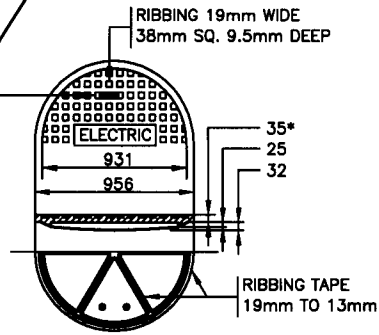
ELECTRIC MANHOLE DETAILS
NOT TO SCALE

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER			REV DATE	DWG NO.
TITLE	ELECTRICAL MANHOLE	SPEC	16375	OCT 2003
				E0217

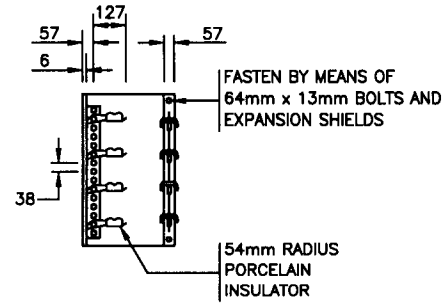


LETTER BLOCKS 32mm WIDE
50mm HIGH LETTERS
9.5mm WIDE

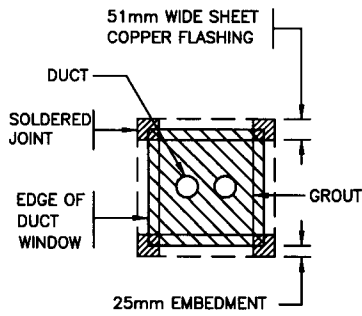
* HANDHOLE COVER ON UNPAVED
AREA SHALL BE 35mm THICK &
51mm THICK ON PAVED AREA.



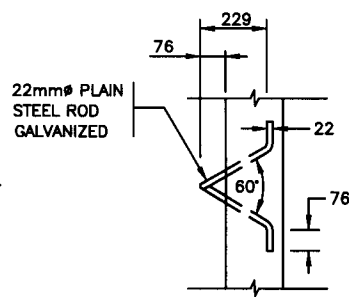
CAST IRON COVER



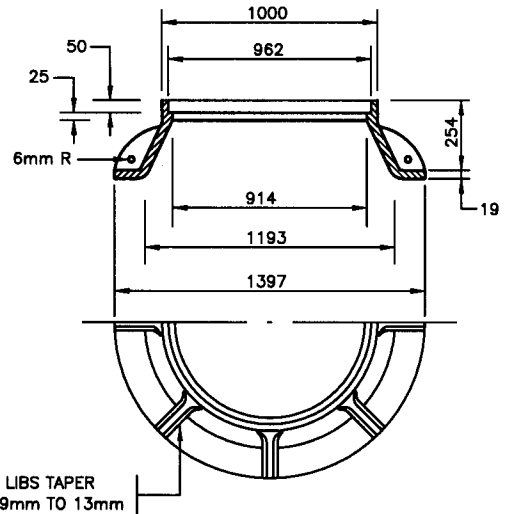
CABLE RACK



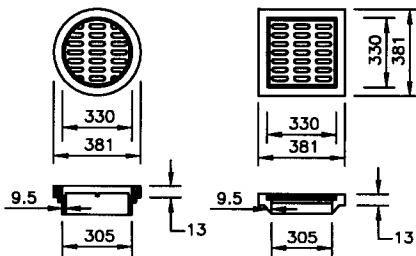
DUCT WINDOW SEALING



PULLING-IN IRON



FRAME



SUMP FRAME AND COVER

HANDHOLE APPURTENANCES DETAILS

NOT TO SCALE

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER

REV DATE

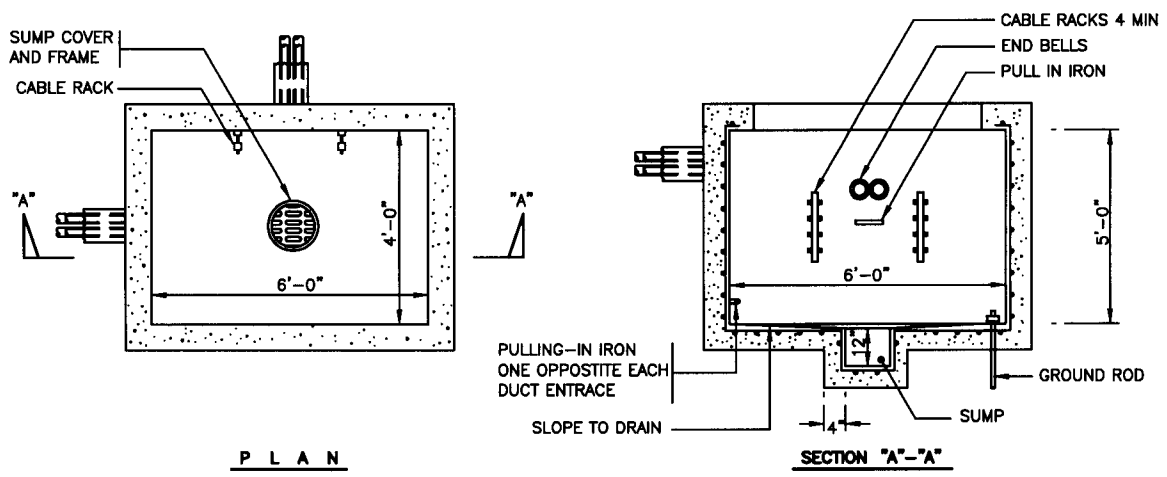
DWG NO.

TITLE HANDHOLE APPURTENANCES DETAILS

SPEC 16375

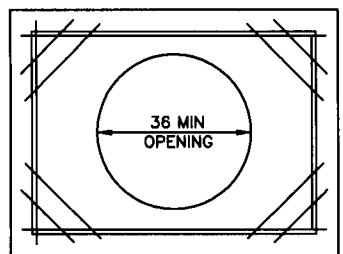
OCT 2003

E0218



P L A N

SECTION "A"- "A"



PLAN OF TOP

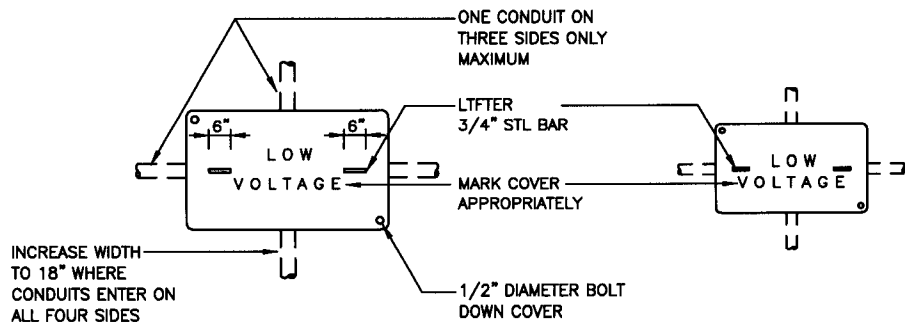
TYPE "A"

COMMUNICATION HANDHOLE

NOTES (FOR MANHOLE & HANDHOLE)

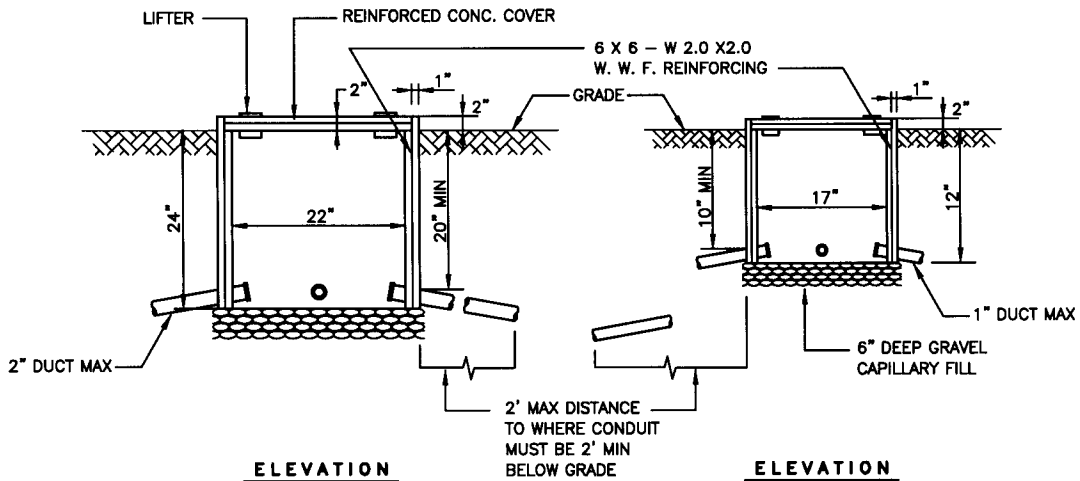
1. FOR PAVED AREAS SUBJECT TO TRAFFIC THESE DIMENSIONS TO BE 2" IN LIEU OF 1 3/8"
2. THICKNESS OF CONCRETE
 MANHOLE WALLS, TOP AND FLOOR (FOR MANHOLE)-----8"
 MANHOLE WALLS, TOP AND FLOOR (FOR HANDHOLE)-----6", SUMP WALLS AND FLOOR-----4"
3. REINFORCING BARS ; NO. 4 ROUND DEFORMED
4. WALL & FLOOR (FOR MANHOLE) : MIN. 12" CENTERS W/12" HOOK AT CORNERS AND INTERSECTIONS
 WALL & FLOOR (FOR HANDHOLE) : MIN. 8" CENTERS W/12" HOOK AT CORNERS AND INTERSECTIONS
5. TOP (FOR MANHOLE) : AS SHOWN AT A MIN. 4" CENTER Laterally AND LONGITUDINALLY AS APPROPRIATE, EXCEPT THAT OPENING ALSO PROVIDE AN ADDITIONAL BAR AT A 2" SPACING AND 2 DIAGONAL LATERAL OR LONGITUDINAL BARS TOP (FOR HANDHOLE) ; AS SHOWN AT A MIN 2" FOR OPENING AND WITH A MIN. 4" SPACING BETWEEN BARS.
6. THE TOP OF MANHOLE COVERS SHALL BE FLUSH WITH THE FINISHED SURFACE OF THE PAVING IN UNPAVED ARE AS THE TOP OF MANHOLE COVERS SHALL BE APPROX. 1/2 INCH ABOVE THE FINISHED GRADE.

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER		REV DATE	DWG NO.
TITLE	COMMUNICATION HANDHOLE	SPEC 16375	OCT 2003 E0219



PLAN

PLAN



ELEVATION

ELEVATION

TYPE "A"

MINIMUM REQUIREMENTS, BOX
 INTERIOR SIZE, 22" LONG BY
 12" WIDE WITH 2" THICK WALLS
 AND COVER

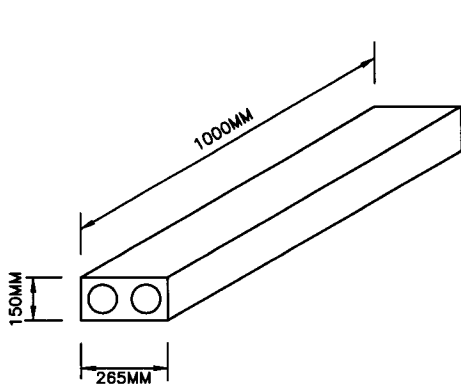
TYPE "B"

MINIMUM REQUIREMENTS, BOX
 INTERIOR SIZE, 17" LONG BY
 10" WIDE WITH 2" THICK WALLS
 AND COVER

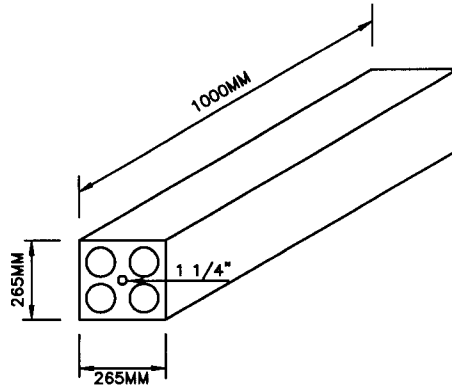
PULL BOX INSTALLATION

NOT TO SCALE

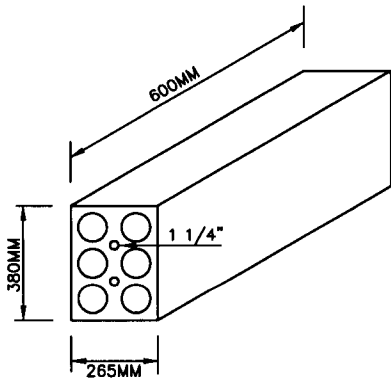
IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	PULL BOX INSTALLATION DETAIL	SPEC	16375	OCT 2003	E0220



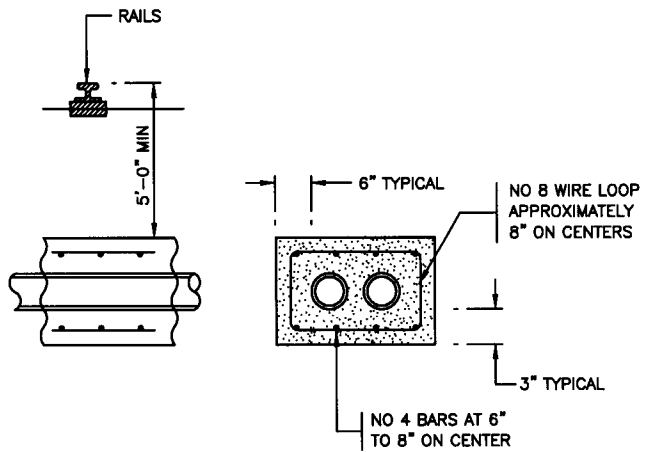
2 WAY CONCRETE DUCT
(PRECASTED DUCT)



4 WAY CONCRETE DUCT
(PRECASTED DUCT)

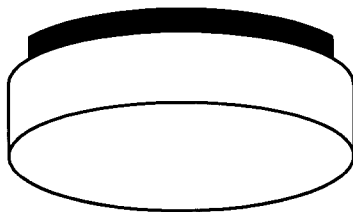


6 WAY CONCRETE DUCT
(PRECASTED DUCT)



REINFORCED CONCRETE ENCASED DUCT BANK

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	CONCRETE DUCT - 1	SPEC	16375	OCT 2003	E0221

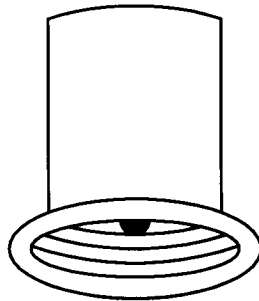


120V, 32W, CIRCULAR TYPE FLUORESCENT LAMP
W/ALUMINUM HOUSING WITH MATTE BLACK FINISH,
POLYCARBONATE OR ACRYLIC OPAL GLOBE LENS,
SPRING STEEL CLIPS, SET SCREWS OR TORSION
SPRINGS TO KEEP GLOBE IN PLACE AND DAMP LABEL.

LIGHTING FIXTURE DETAIL

NOT TO SCALE

IMA--KORO, REGIONAL ENGINEER SUPPORT CENTER			REV DATE	DWG NO.	
TITLE	CIRCULAR TYPE FLUORESCENT LAMP	SPEC	16415	OCT 2003	E0301

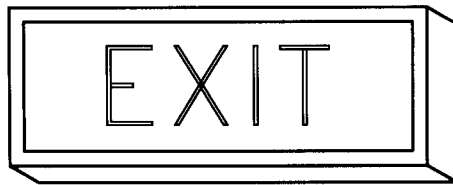


LUMINAIRE REQUIREMENTS

1. 0.032" MINIMUM THICKNESS GALVANIZED STEEL OR ALUMINUM HOUSING WITH ALUMINUM REFLECTOR.
2. PROVIDE MATTE WHITE PANTED TRIM RING.
3. PROVIDE PORCELAIN LAMP SOCKET SHELL SUITABLE FOR A 40-WATT LAMP.
4. PROVIDE INTERNAL PROVISIONS FOR GROUNDING.

RECESSED BAFFLE DOWNLIGHT N-5
(INCANDESCENT)

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER			REV DATE	DWG NO.	
TITLE	RECESSED BAFFLE DOWNLIGHT (INCANDESCENT)	SPEC	16415	OCT 2003	E0302

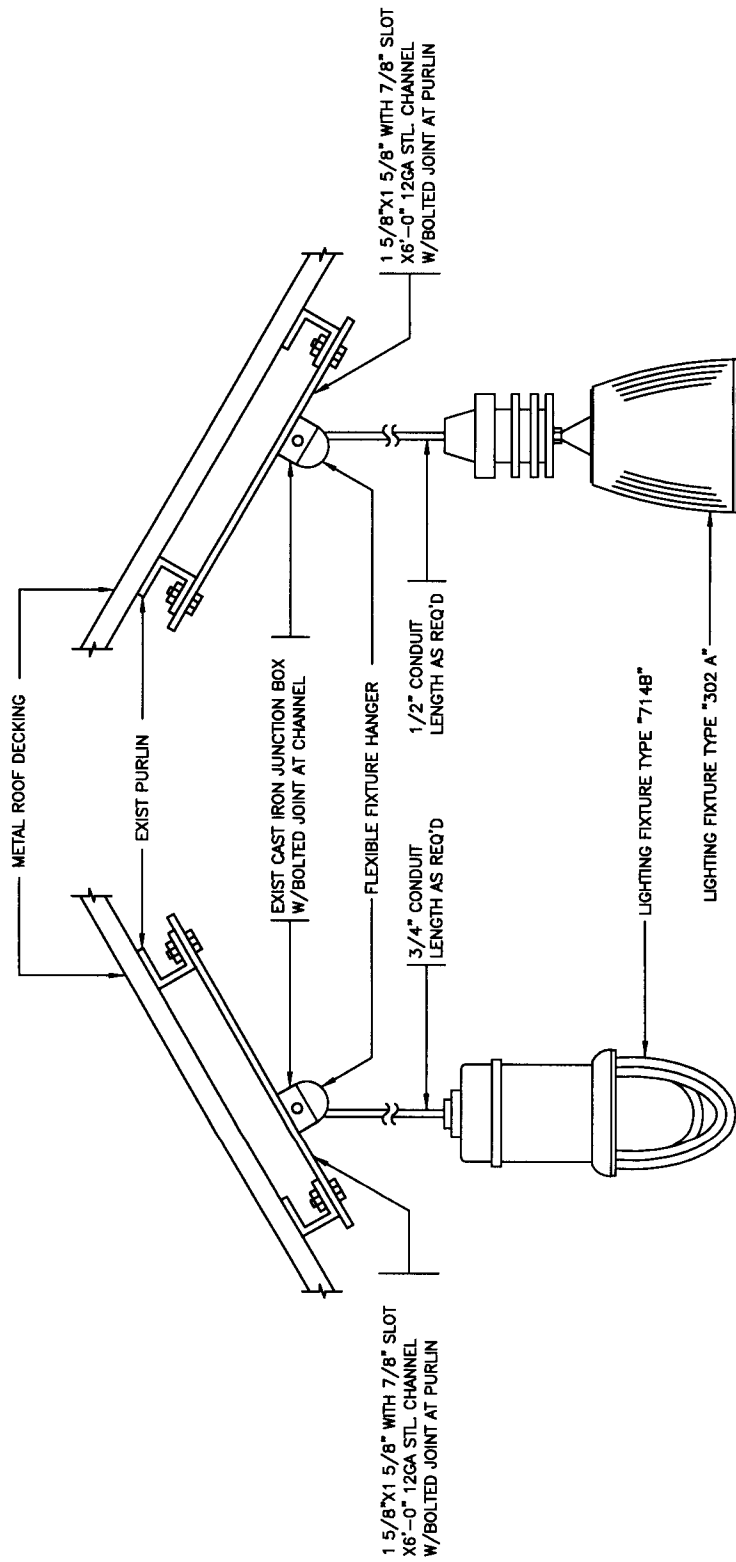


REQUIRES LESS THAN 1-WATT OF AC POWER (3-WATTS BATTERY BACKUP),
SINGLE FACE, SOLID-STATE LEDES, DUAL VOLTAGE FOR UNIVERSAL 120/277 VAC,
RUGGED, ERGONOMIC STEEL ENCLOSURE, 120 MIN OF BATTERY BACKUP
RECHARGEABLE AA NI-CAD BATTERIES, ACTIVE IN-LINE CHARGER AND
LOW VOLTAGE PROTECTION, INDIRECT-VIEW LEDES, COMPLETELY ASSEMBLED.

ENERGY STAR COMPLIANT LED (LIGHT EMITTING DIODES) EXIT SIGNS

NOT TO SCALE

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER			REV DATE	DWG NO.	
TITLE	LED EXIT SIGNS	SPEC	16415	OCT 2003	E0303



LIGHTING FIXTURE INSTALL DETAIL

NOT TO SCALE

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER

REV DATE

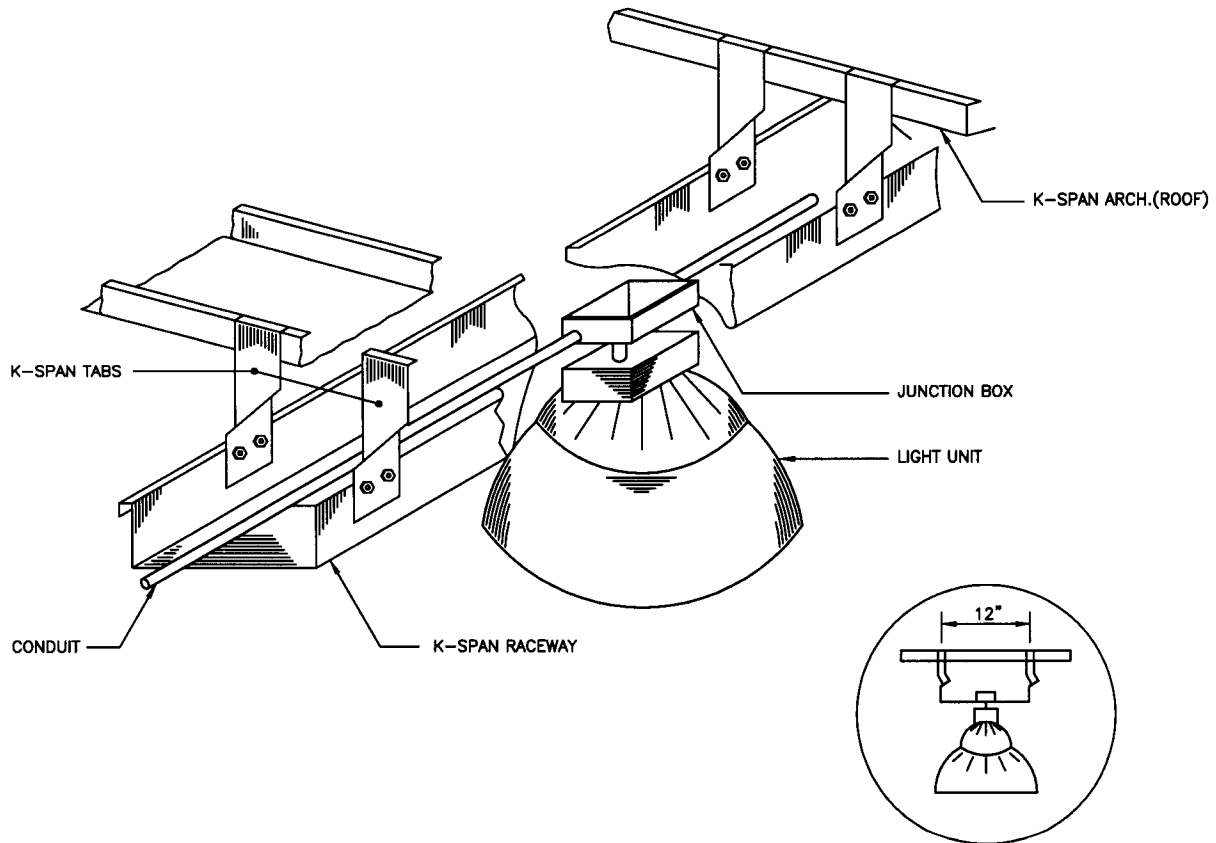
DWG NO.

TITLE LIGHTING FIXTURE INSTALL DETAIL - 1

SPEC 16415

OCT 2003

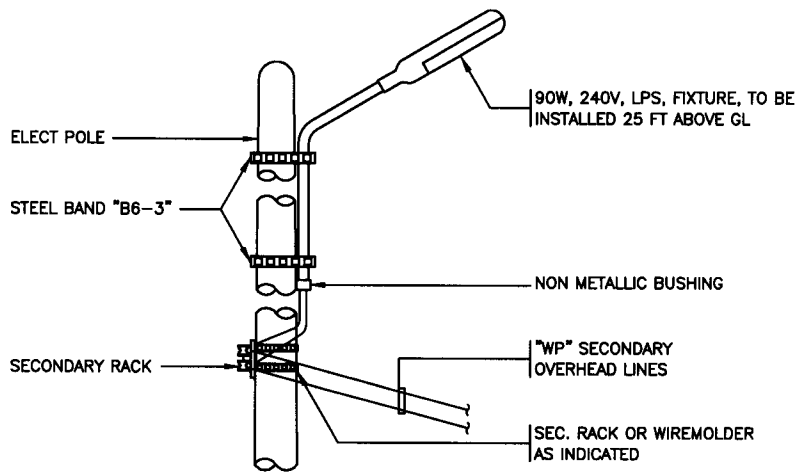
E0304



LIGHTING FIXTURE INSTALL. DETAIL - 2

NOT TO SCALE

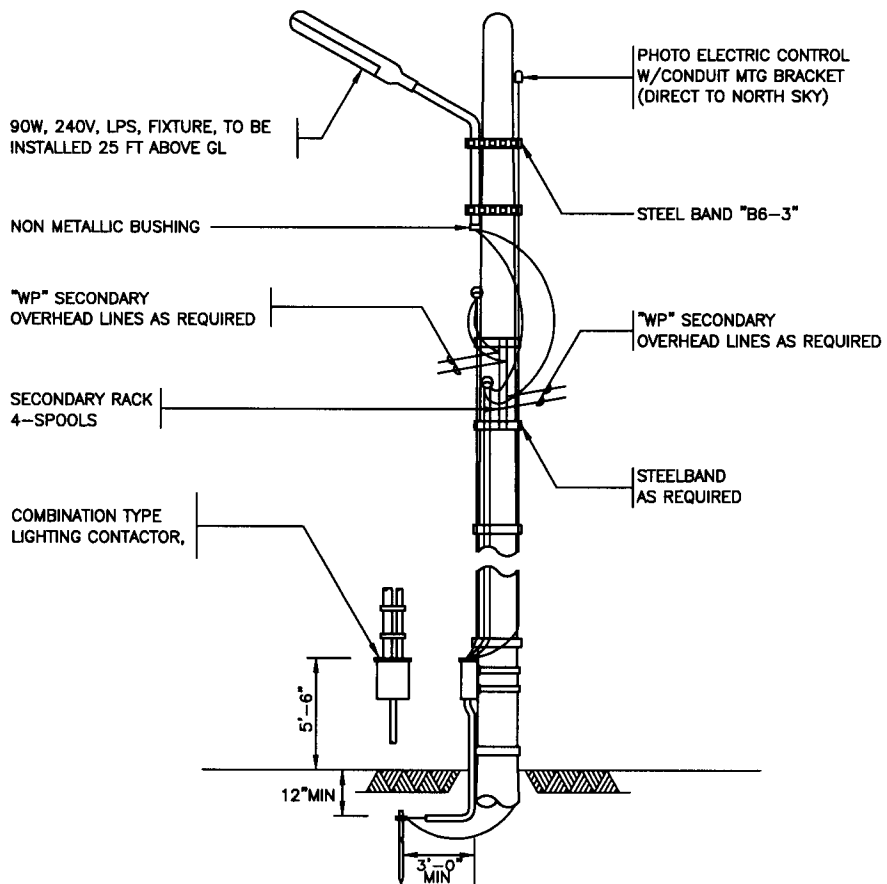
IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	LIGHTING FIXTURE INSTALL. DETAIL - 2	SPEC	16415	OCT 2003	E0305



2
E 4

EXTERIOR LIGHT INSTALLATION DETAIL
 NOT TO SCALE

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	EXTERIOR LIGHT INSTALLATION DETAIL	SPEC	16415	OCT 2003	E0306

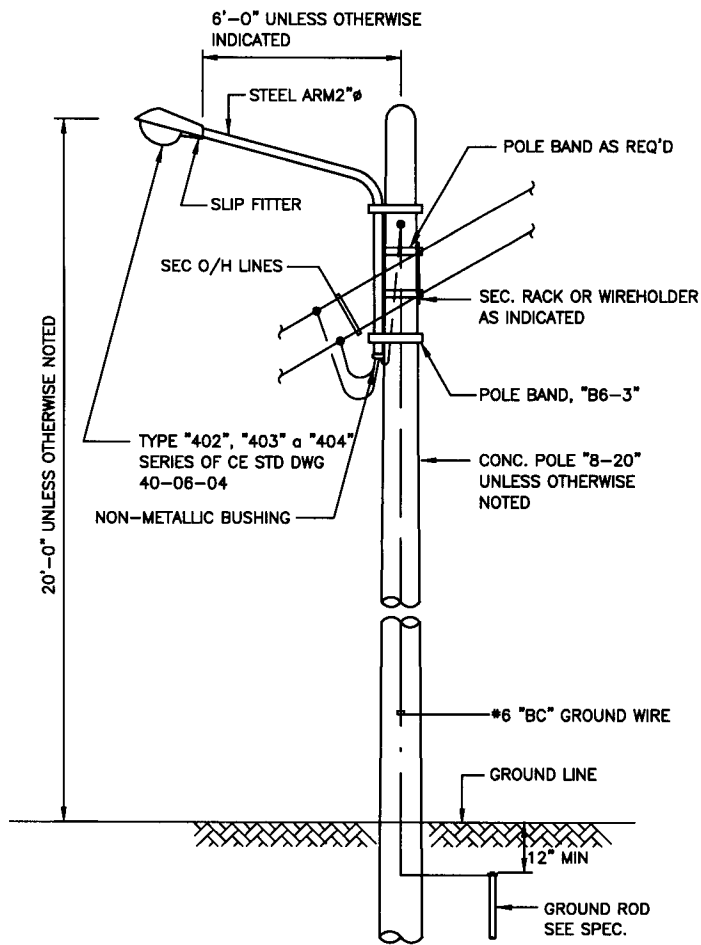


3
E 4

LIGHTING CONTACTOR AND PHOTO-CELL INSTALLATION DETAIL

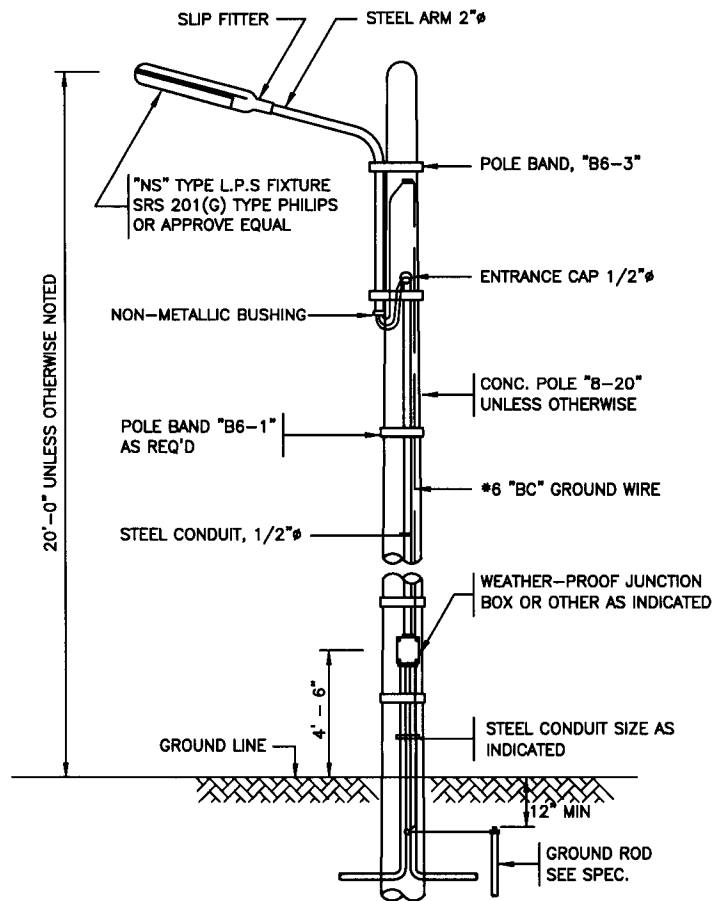
NOT TO SCALE

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	LIGHTING CONTACTOR AND PHOTO-CELL INSTALLATION DETAIL	SPEC	16415	OCT 2003	E0307



OH WIRING

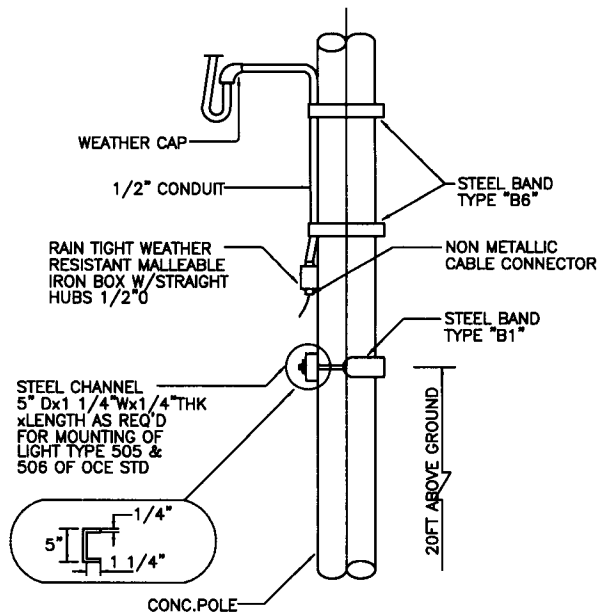
IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER			REV DATE	DWG NO.
TITLE	FLOOD LIGHT INSTALLATION DETAIL -1	SPEC	16415	OCT 2003
				E0308



U / G W I R I N G

FLOOD LIGHT INSTALLATION
(FOR LPS FIXTURE)

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	FLOOD LIGHT INSTALLATION DETAIL -2	SPEC	16415	OCT 2003	E0309



TYPE "FHC"

TYPICAL MOUNTING DETAIL FOR
OCE STD LIGHT TYPE 505 & 506

NO SCALE

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER

REV DATE

DWG NO.

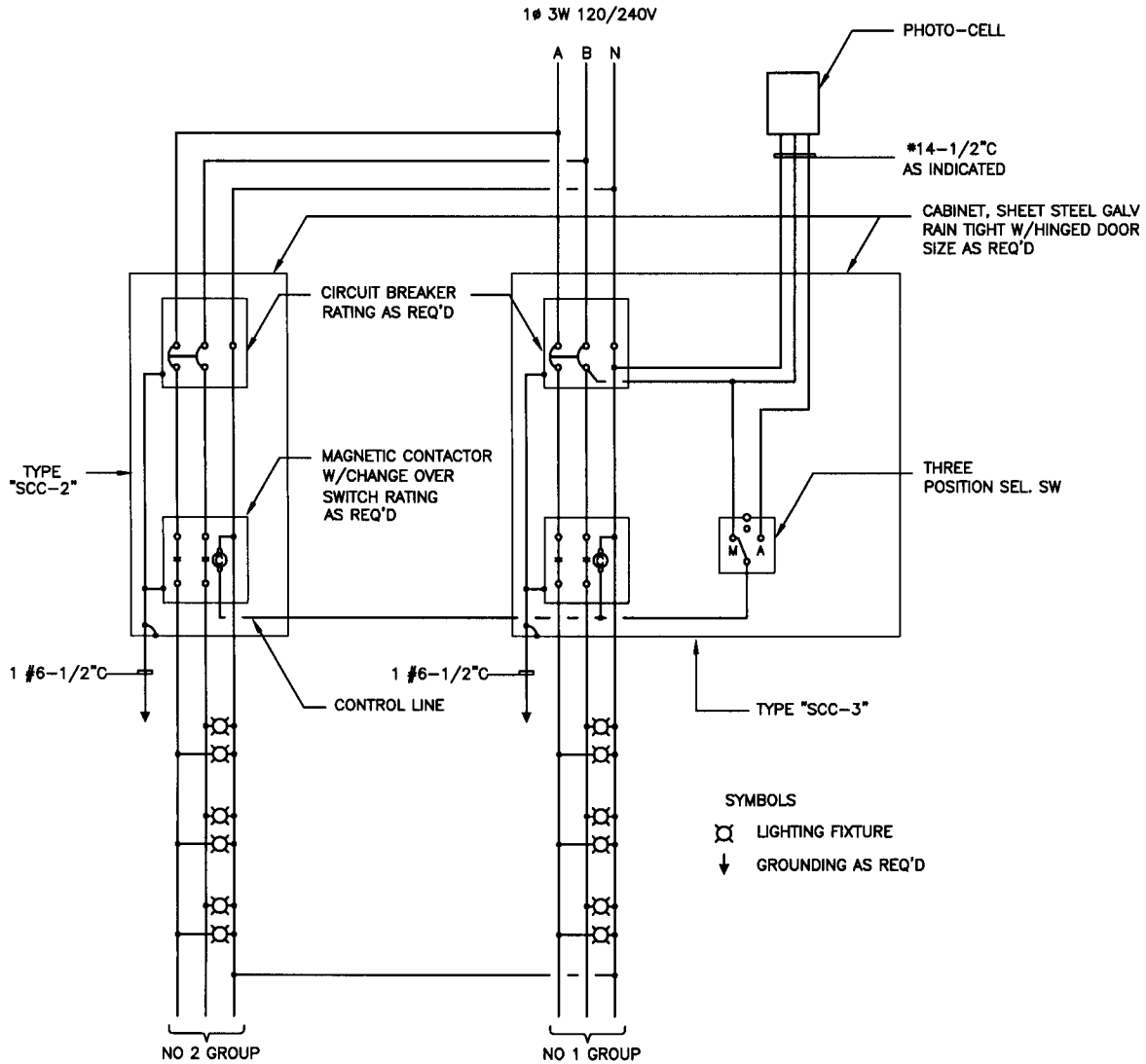
TITLE STREET LIGHTING FIXTURE ASSEMBLIES - 2

SPEC 16415

OCT 2003

E0311

NOTE : 1. ALL POLE LINE HARDWARES TO BE HOT DIPPED GALVANIZED
 2. FOR STEEL BAND DETAILS OF CONCRETE POLES, SEE
 NO 40-06-0022 AND 0024.



SYMBOLS
 ☒ LIGHTING FIXTURE
 ↓ GROUNDING AS REQ'D

TYPE "SCC - 2" α "SCC - 3"

WIRING SYSTEM 1φ 2W 120V, 1φ 3W 120/240V α 3φ 4W 120/208V

TYPICAL WIRING DIAGRAM—FENCE LIGHTS α STREET LIGHTS

NO SCALE

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER

REV DATE

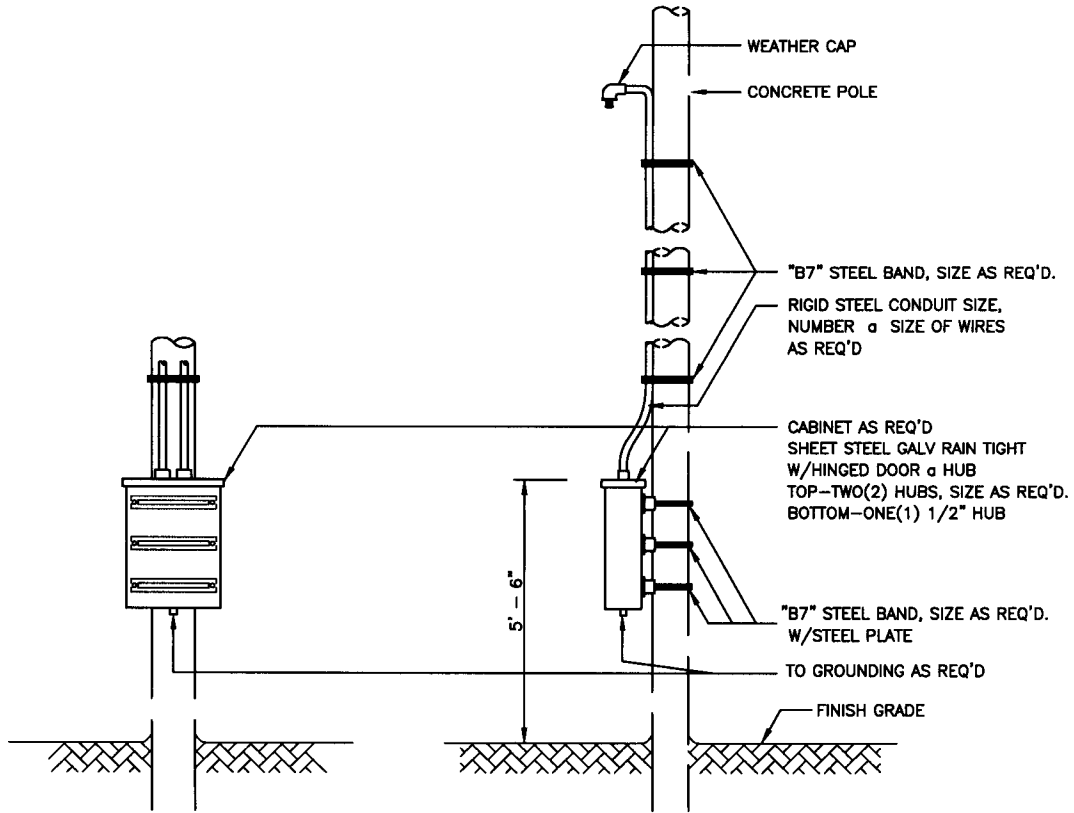
DWG NO.

TITLE STREET LIGHTING FIXTURE ASSEMBLIES - 4

SPEC 16415

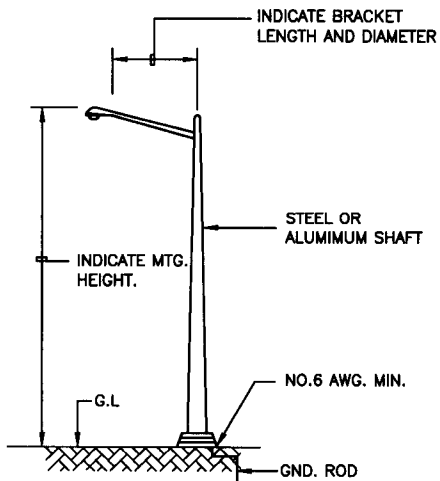
OCT 2003

E0312



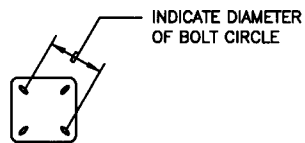
FRONT VIEW

SIDE VIEW

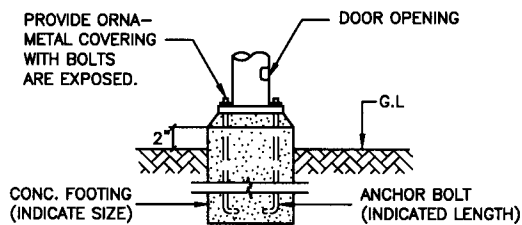


ELEVATION

METAL POLE



TOP VIEW



ELEVATION

METAL POLE ANCHOR-POLE MOUNTED BASE

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER

REV DATE

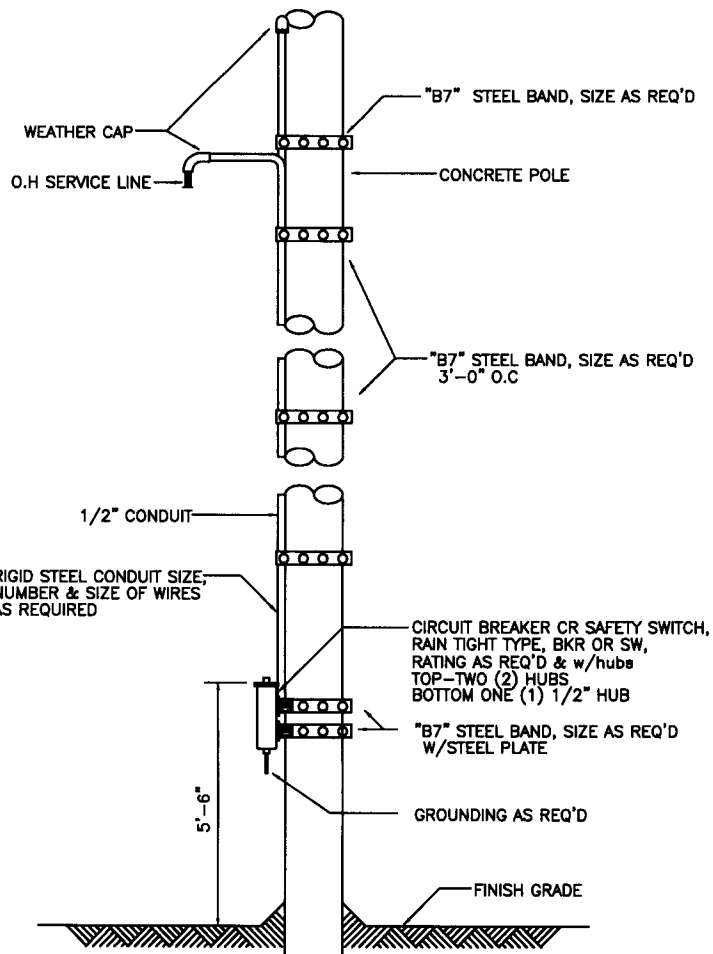
DWG NO.

TITLE STREET LIGHTING FIXTURE ASSEMBLIES - 5

SPEC 16415

OCT 2003

E0313

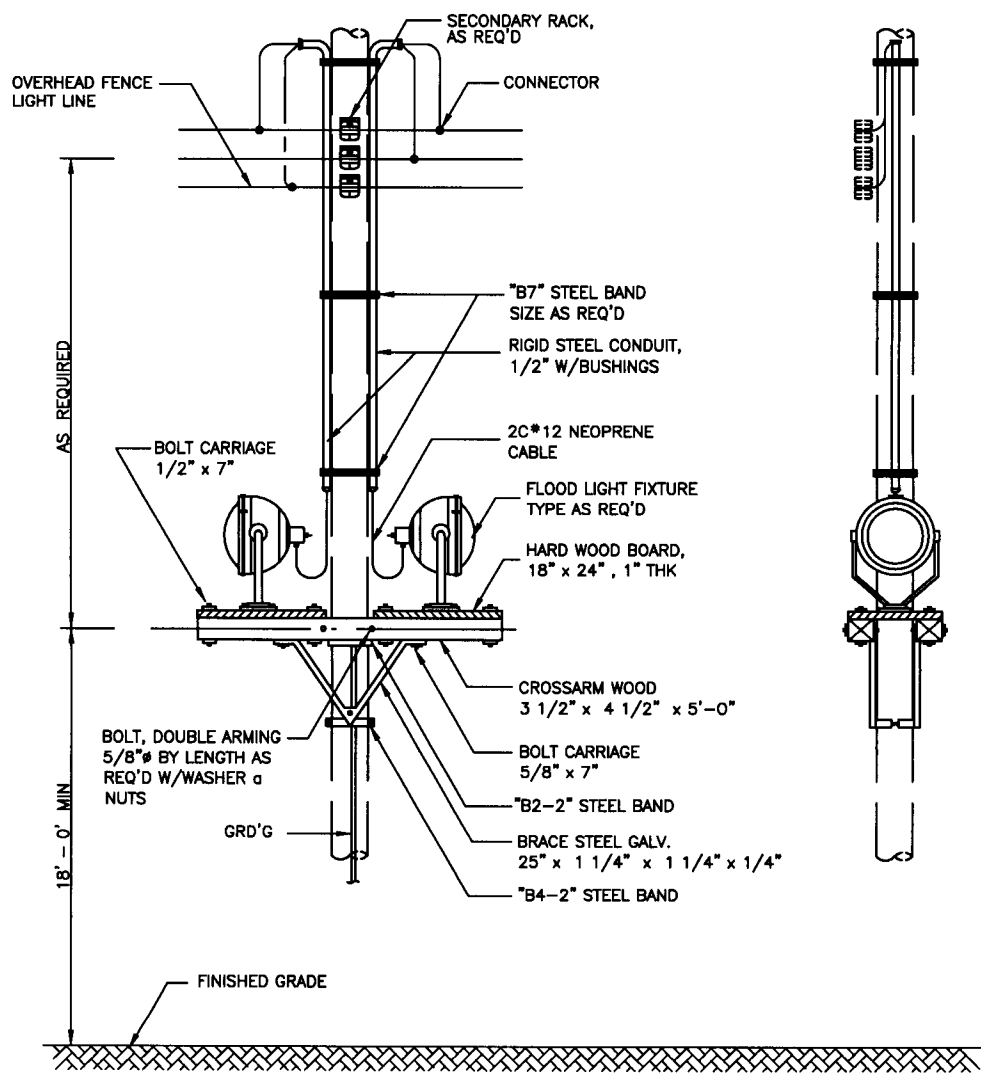


TYPE "SCC - 1"

CIRCUIT BKR & SAFETY SW. INSTALLATION DETAIL

NO SCALE

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER			REV DATE	DWG NO.
TITLE	STREET LIGHTING FIXTURE ASSEMBLIES - 3	SPEC	16415	OCT 2003
				E0314



FRONT ELEVATION

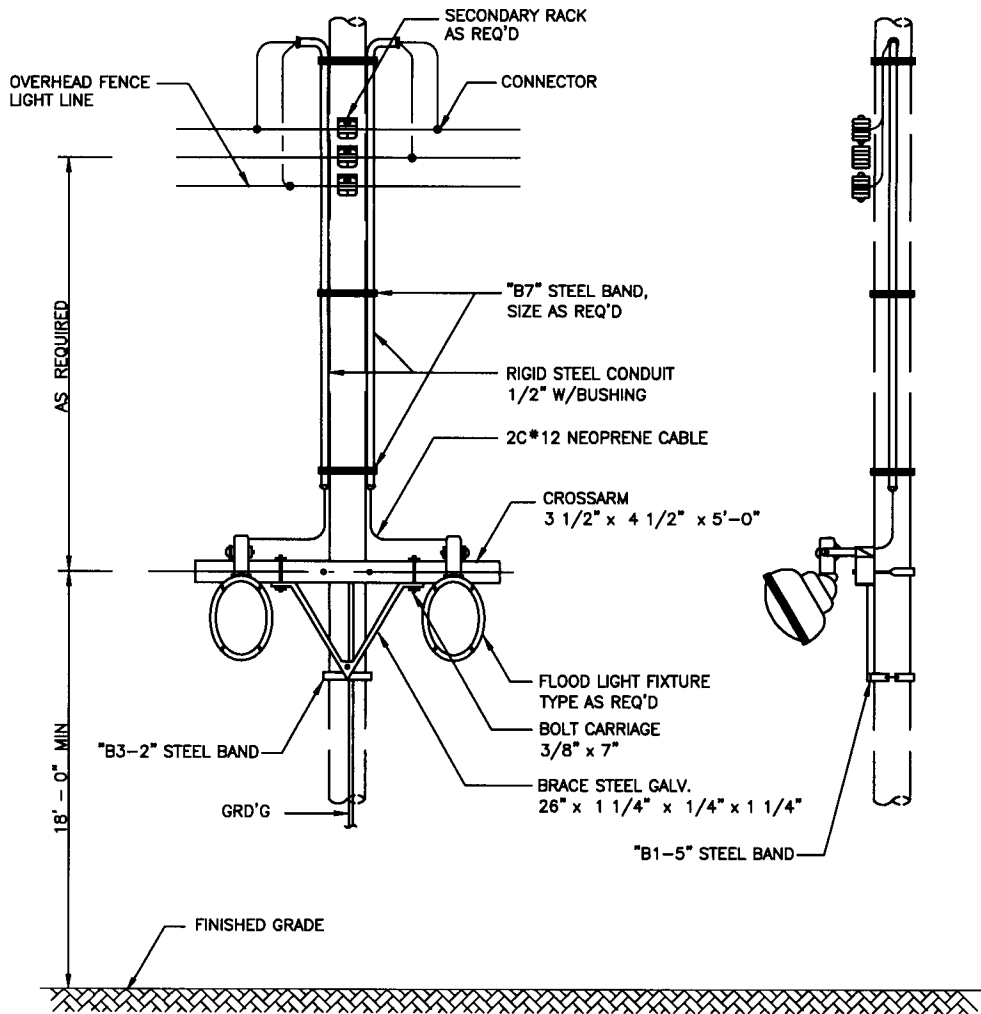
SIDE ELEVATION

TYPE "FLC"

TYPICAL FENCE LIGHT POLE DETAIL

NO SCALE

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	STREET LIGHTING FIXTURE ASSEMBLIES - 6	SPEC	16415	OCT 2003	E0315



FRONT ELEVATION

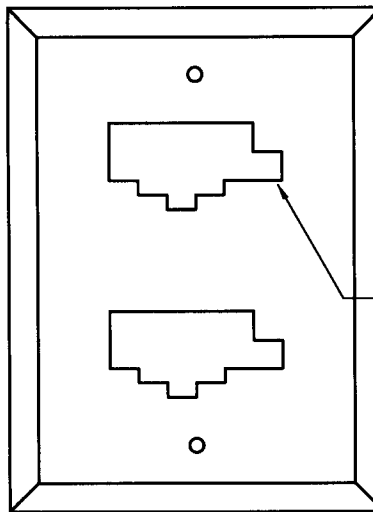
SIDE ELEVATION

TYPE "FPC"

TYPICAL FLOOD LIGHT POLE DETAIL

NO SCALE

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER			REV DATE	DWG NO.
TITLE	STREET LIGHTING FIXTURE ASSEMBLIES - 7	SPEC	16415	OCT 2003
				E0316

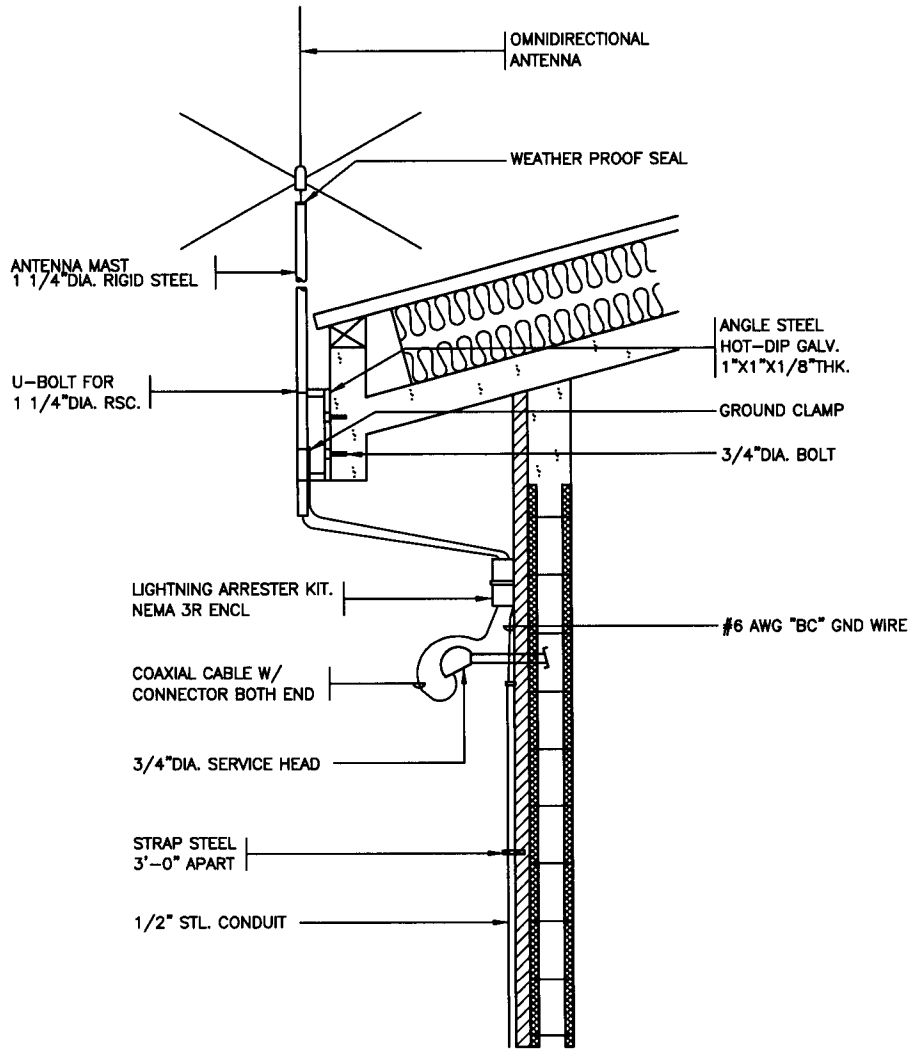


LAN (COMPUTER) SYSTEM OUTLET,
 (TYPE, RJ - 45)
 FOR 2-4 PAIR TELEPHONE CABLE JACK,
 (TYP OF 2 EA)

OUTLET DETAIL

NOT TO SCALE

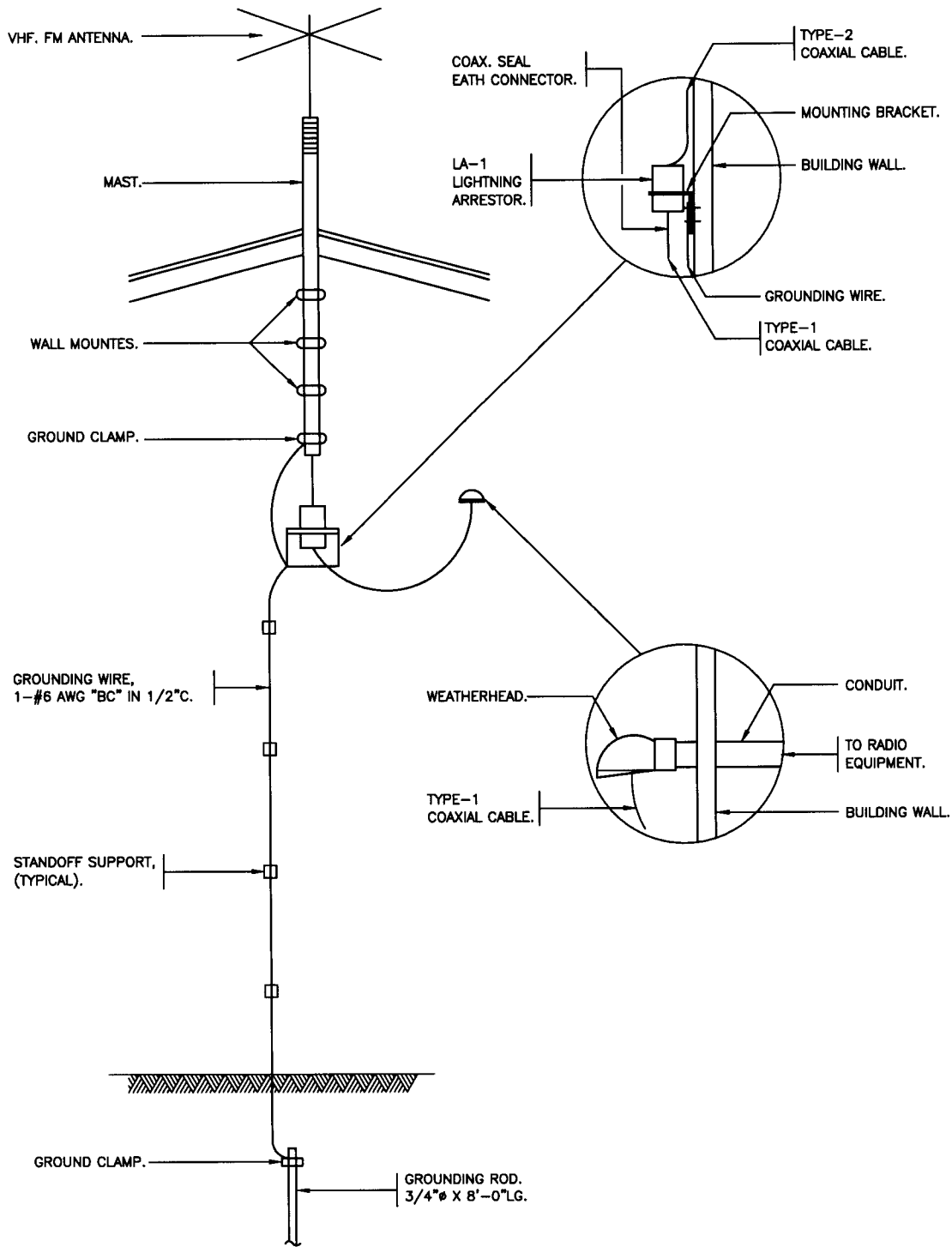
IMA--KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	LAN DUTLET	SPEC	16711	OCT 2003	E0401



FIRE ALARM ANTENNA MOUNTING DETAIL

NOT TO SCALE

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	FIRE ALARM ANTENNA MOUNTING DETAIL	SPEC	13852	OCT 2003	E0501



VHF FM ANTENNA & LIGHTNING ARRESTOR INSTALLATION DETAIL

NOT TO SCALE

IMA-KORO, REGIONAL ENGINEER SUPPORT CENTER				REV DATE	DWG NO.
TITLE	VHF FM ANTENNA & LIGHTNING ARRESTOR INSTALLATION DETAIL	SPEC	13852	OCT 2003	E0502

