

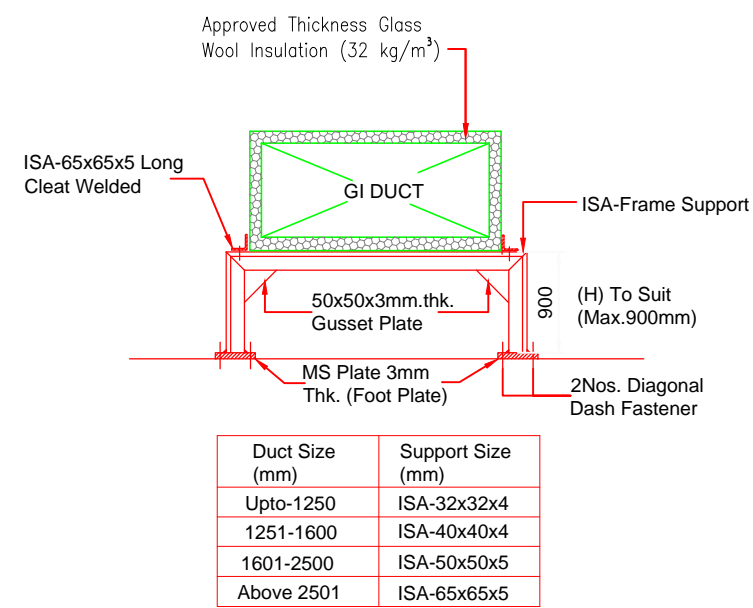


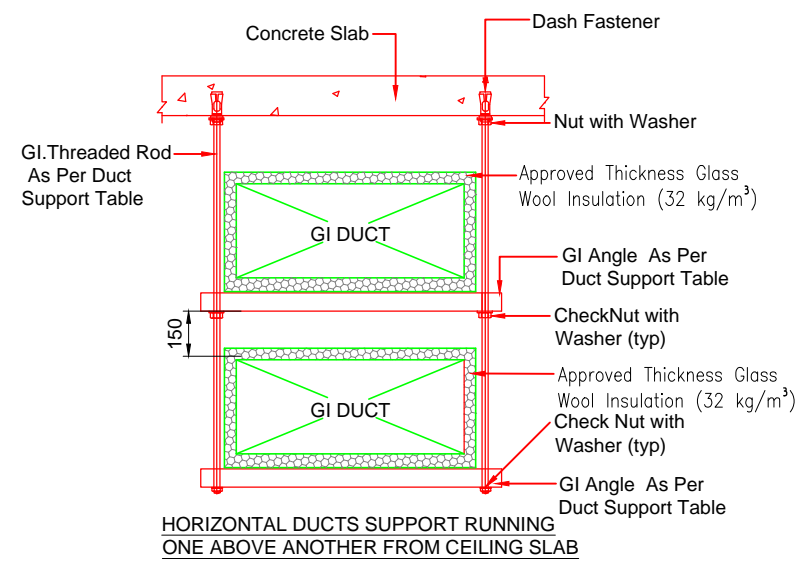
LIST OF TYPICAL DRAWINGS

S.NO.	DRAWING TITLE	SHEET	DRAWING NO.	REVISION
01	LIST OF TYPICAL DRAWINGS	SHEET 1 OF 1	JP-CRD-ECS-DET-1001	R0
02	TYPICAL DUCT CONSTRUCTION & INSTALLATION DETAIL	SHEET 1 OF 1	JP-CRD-ECS-DET-1901	R0
03	STANDARD DETAILS- GRILL,DIFFUSER & VANTILATION FAN INSTALLATION	SHEET 1 OF 1	JP-CRD-ECS-DET-1902	R0
04	STANDARD DETAILS- TYPICAL PIPING ARRANGEMENT FOR CHILLERS,COOLING TOWER,PUMP,AHU,FCU,PA	SHEET 1 OF 1	JP-CRD-ECS-DET-1903	R0
05	STANDARD DETAILS- TYPICAL DAMPER INSTALLATION DETAILS	SHEET 1 OF 1	JP-CRD-ECS-DET-1904	R0
06	TYPICAL PIPING & FITTING INSTALLATION DETAILS	SHEET 1 OF 1	JP-CRD-ECS-DET-1905	R0
07	TYPICAL FIRE RATED DUCT CONSTRUCTION & INSTALLATION DETAILS	SHEET 1 OF 1	JP-CRD-ECS-DET-1906	R0
08	STANDARD INSTALLATION DETAIL FOR CABLE TRAY	SHEET 1 OF 1	JP-CRD-ECS-DET-1907	R0

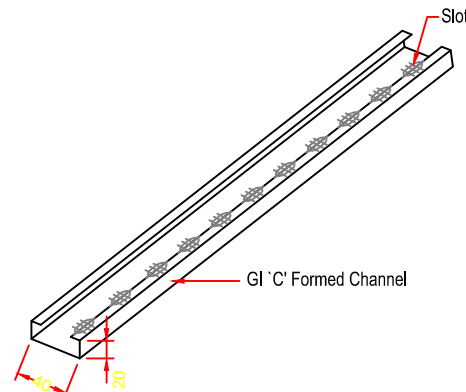
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											DMRC APPROVAL		MGR/ARCH	DY CA (UG-II)	CA/ARCH	Architecture Design In-charge/ Coordinator		Structure Design In-charge/ Coordinator		E&M Design In-charge/ Coordinator		PHASE 1B JAIPUR METRO PROJECT								
											DY CSTE/TELECOM		CSTE-I	DY CE/DESIGN	CE/TECH	DETAIL DESIGN CONSULTANT (DDC) FOR CIVIL, ARCHITECTURAL & BUILDING WORKS OF TWO UNDERGROUND STATION (CHOTI CHOUPER & BADI CHOUPER), SHAFT AND TUNNELS OF PHASE 1B OF JAIPUR METRO <div><div></div><div>Engineering. Information. Imagination.</div></div> 56, Indo-Asia House, Institutional Area, sector-44 Gurgaon - 122002 (Haryana)														
											DY CSTE/AFC			ED/S&T	CSO															
											DY CSTE/SIGNALLING		CSTE-II	GM/O	GM/M															
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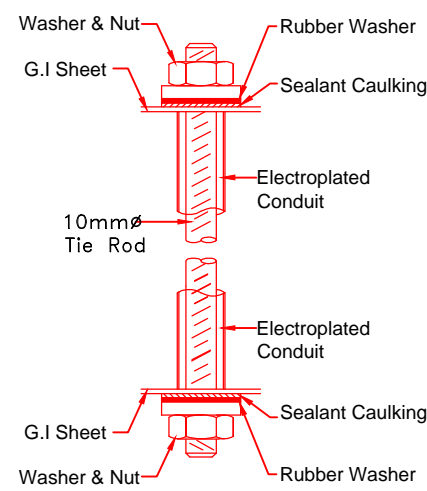
INSULATED DUCT SUPPORT FROM FLOOR SLAB



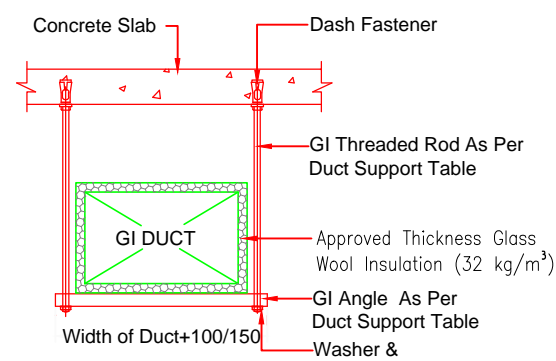
TYPICAL NON FIRE-RATED DUCT INSTALLATION DETAILS



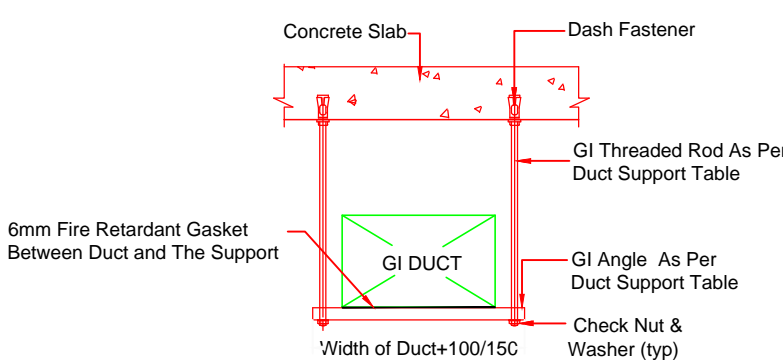
TYPICAL GI 'C' FORMED CHANNEL DETAILS



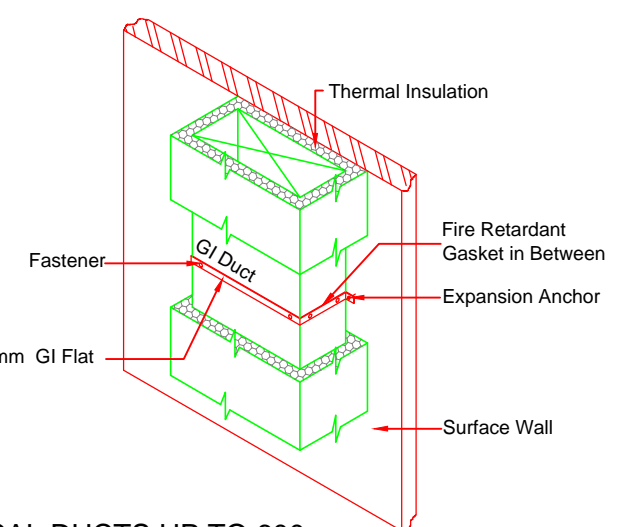
DETAIL A (TYP)



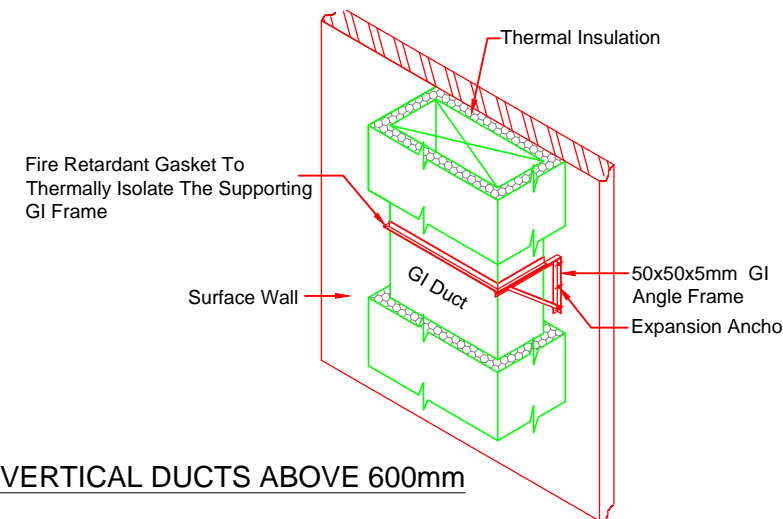
INSULATED DUCT SUPPORT FROM CEILING SLAB



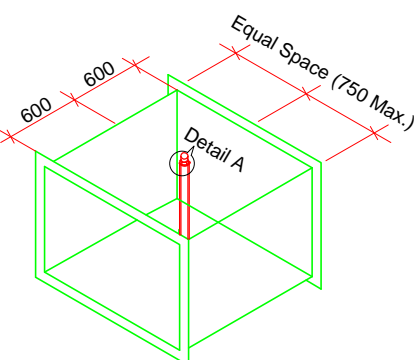
UN-INSULATED DUCT SUPPORT FROM CEILING SLAB



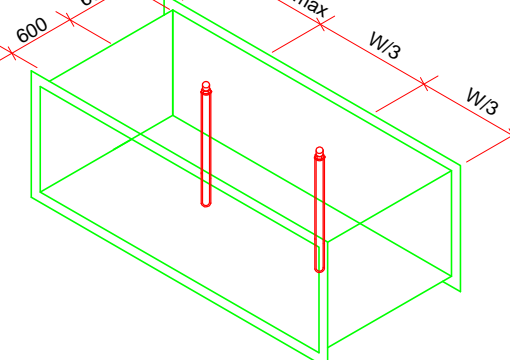
VERTICAL DUCTS UP TO 600mm



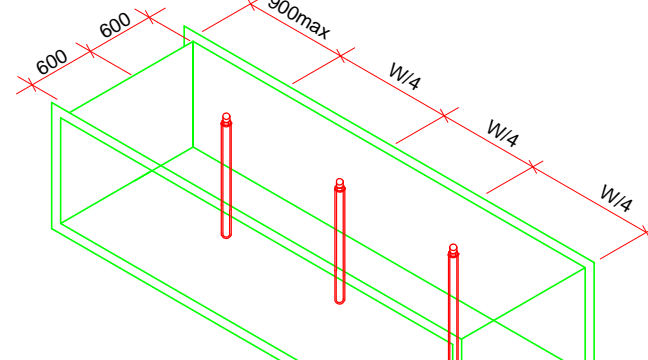
VERTICAL DUCTS ABOVE 600mm



CENTER TIE ROD (CTR)
(FOR DUCT WIDTH 1000 TO 1500mm)

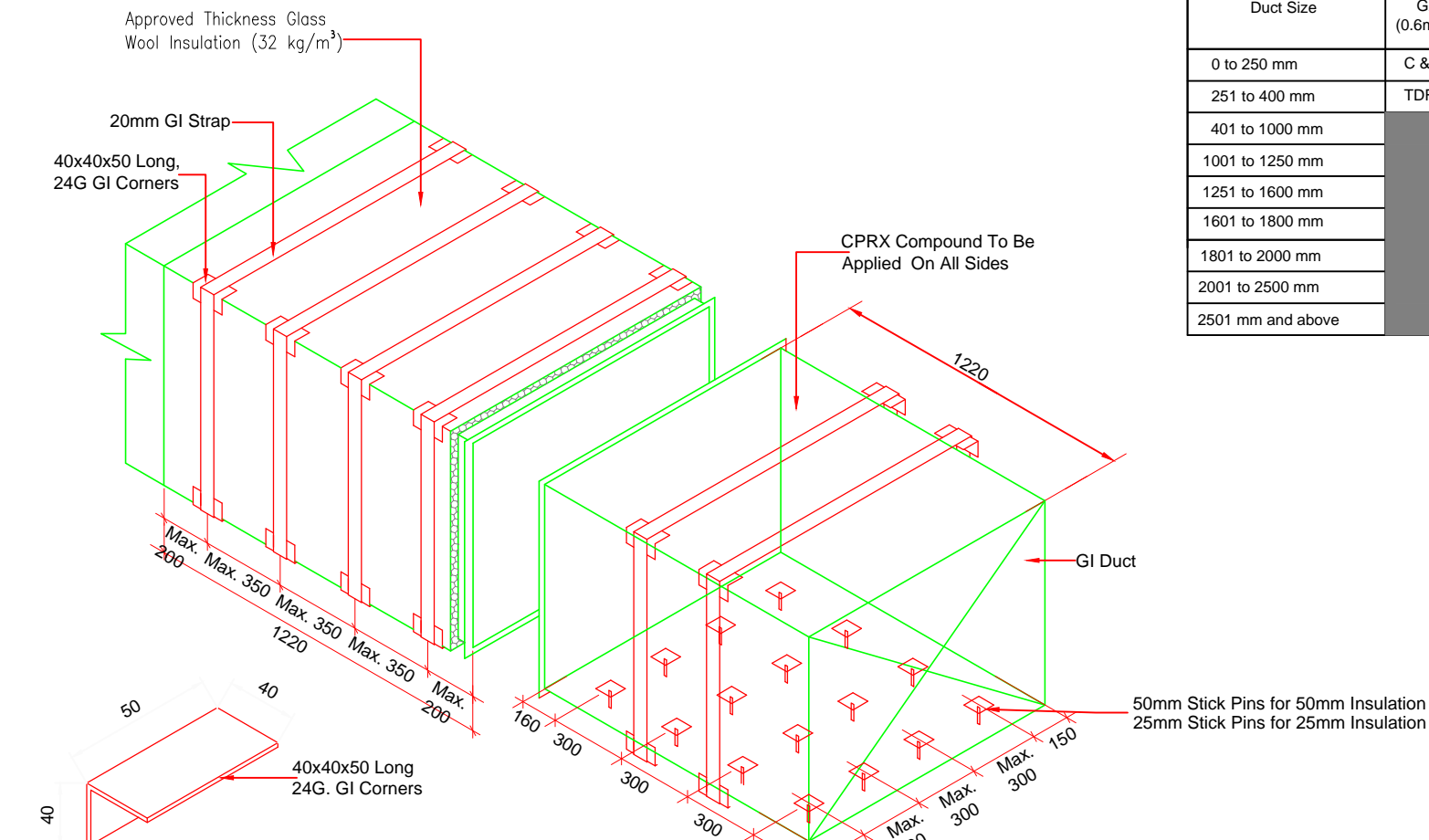


MULTIPLE TIE ROD (MTR)
(FOR DUCT WIDTH 1501mm TO 2400mm)



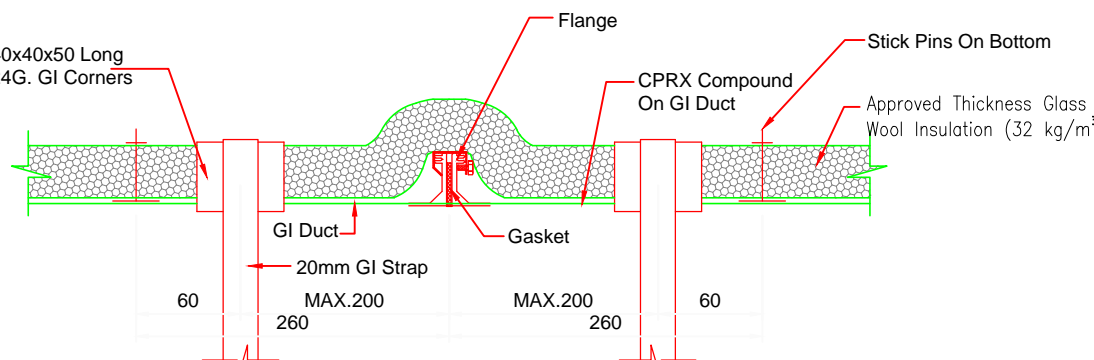
MULTIPLE TIE ROD (MTR)
(FOR DUCT WIDTH 2401mm & ABOVE)

MIDPANEL TIE ROD (MPT) USE GUIDE



TYPICAL GI CORNER DETAILS

ISOMETRIC VIEW



LONGITUDINAL PROFILE OF INSULATED DUCT

TYPICAL NON FIRE-RATED DUCT INSULATION INSTALLATION DETAILS

APPROVED INSULATION THICKNESS
IN CONDITIONED AREA = 25mm THICK GLASS WOOL (32 kg/m ³)
NON CONDITIONED AREA = 50mm THICK GLASS WOOL (32 kg/m ³)

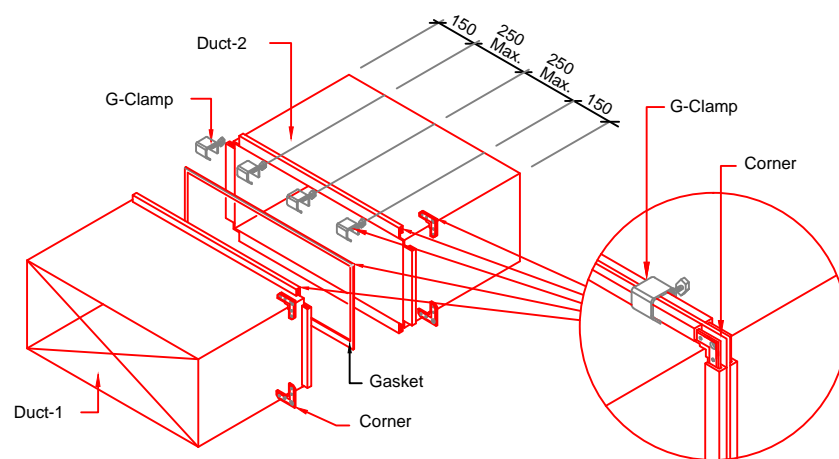
DUCT CONSTRUCTION TABLE-NON FIRE RATED DUCT

(A) Medium Pressure Duct (1200mm Avg. Length)

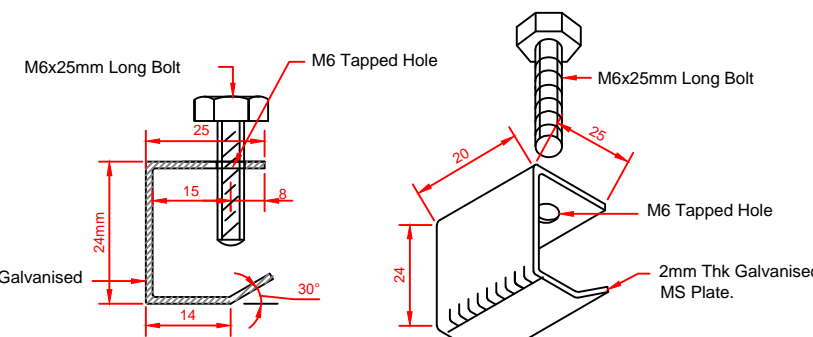
Duct Size	Sheet Metal Gauge			Type of Intermediate Stiffeners	Hanger			Transverse Joint with	Gasket Size (MM)
	G24 (0.6mm)	G22 (0.8mm)	G20 (1.0mm)		Maximum Spacing	Rod Dia/Anchor Fastener (mm)	Trapeze Size (mm)		
0 to 250 mm	C & S			-	2400 mm	8	40x20x1.5 Rolled GSS Channel 25x25x3 HDG MS Angle	Cleat	10x4(t)
251 to 400 mm	TDF			-	2400 mm	8	40x20x1.5 Rolled GSS Channel 25x25x3 HDG MS Angle	Cleat	10x4(t)
401 to 1000 mm		TDF		-	2400 mm	8	40x20x1.5 Rolled GSS Channel 32x32x3 HDG MS Angle	Cleat	10x4(t)
1001 to 1250 mm			H	CTR	2400 mm	10	32x32x3.0 HDG MS Angle	G-Clamp	10x4(t)
1251 to 1600 mm			H	CTR	2400 mm	10	40x40x4.0 HDG MS Angle	G-Clamp	10x4(t)
1601 to 1800 mm			J	CTR	2400 mm	10	50x50x5.0 HDG MS Angle	G-Clamp	15x6(t)
1801 to 2000 mm			J	MTR	2400 mm	10	50x50x5.0 HDG MS Angle	G-Clamp	15x6(t)
2001 to 2500 mm			J	MTR	2400 mm	12	65x65x6.0 HDG MS Angle	G-Clamp	15x6(t)
2501 mm and above			J	MTR	2400 mm	12	65x65x6.0 HDG MS Angle	G-Clamp	15x6(t)

NOTES:

- 'H' and 'J' Are Rolamete Flange Transverse Joints (Slip on Flange Joint). TDF are Rolled on Type Flanges.
- CTR Stands For Center Tie Rod and MTR Stands For Multiple Tie Rod, Where Tie Rod Size:10mm dia.
- HDG Angle (Hot Dipped Galvanised MS Angle).
- Rolled 'C' Channel Shall Be Electro-Galvanised.
- Earth Continuity Jumpers (6Swg.) to be installed (2Nos) on Diagonally Opposite corners of each joint.
- Gaskets will be of fire retardant type.



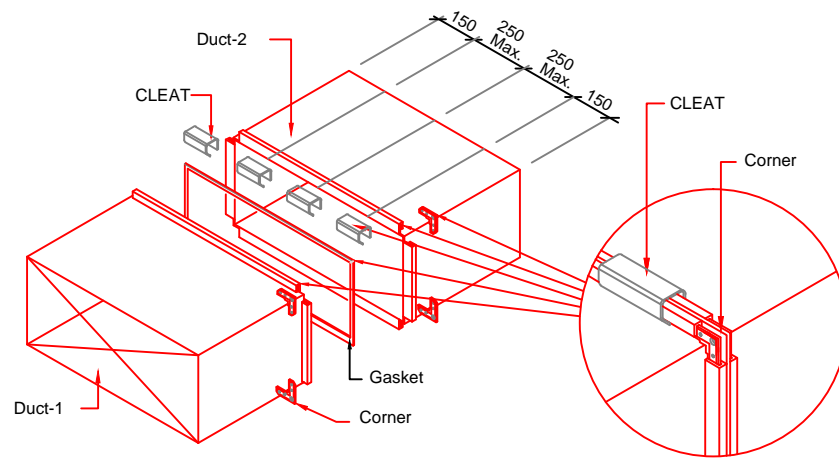
DUCT WITH ROLAMETE FLANGE JOINT




CROSS SECTION

ISOMETRIC VIEW

TYPICAL G-CLAMP DETAILS



DUCT WITH TDF FLANGE JOINT

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A = Plenum Width,
B = Overall Width (Flange To Flange),
C = False Ceiling Opening Where :



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Drg. No.	Description	

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DY CSTE/SIGNALLING	CSTE-III	GM/O	GMM
DY CE/PLANNING	DY CEE/E&M	DY CEE/ECS	ED/ELEC-II
DY CEE/(E)UG-TR	CGM(E) UG-TR	PM	CPM

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Architecture Design In-charge/ Coordinator	Structure Design In-charge/ Coordinator	E&M Design In-charge/ Coordinator
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DETAIL DESIGN CONSULTANT (DDC) FOR CIVIL, ARCHITECTURAL &
BUILDING WORKS OF TWO UNDERGROUND STATION
(CHOTI CHOUPAR & BADI CHOUPAR), SHAFT AND TUNNELS
OF PHASE 1B OF JAIPUR METRO

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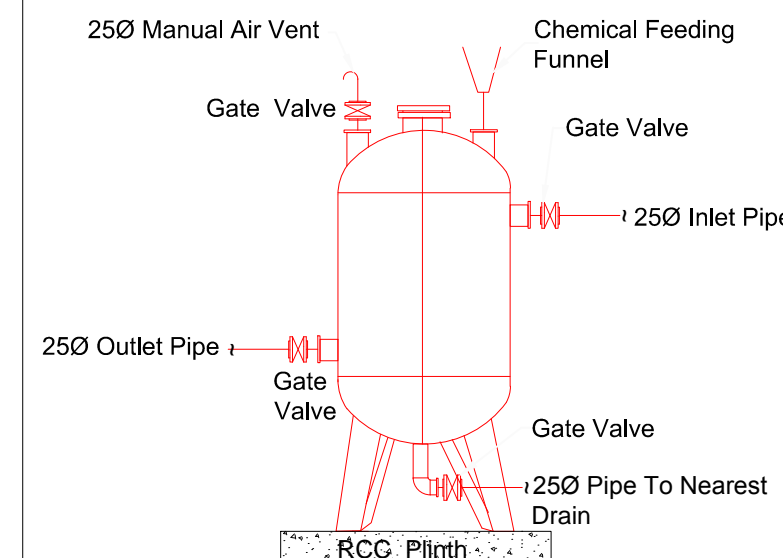
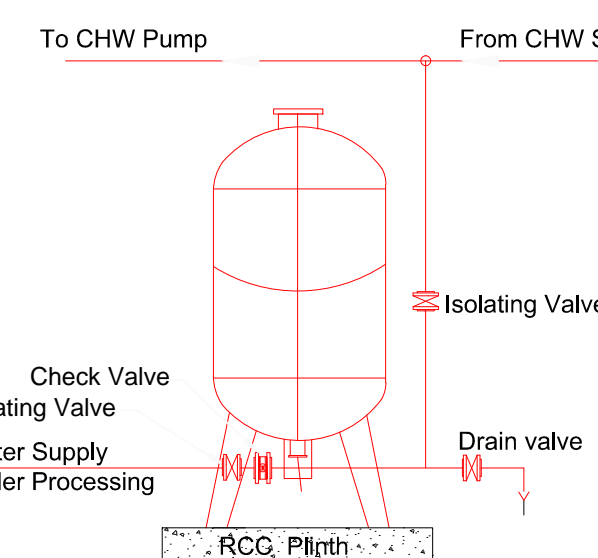
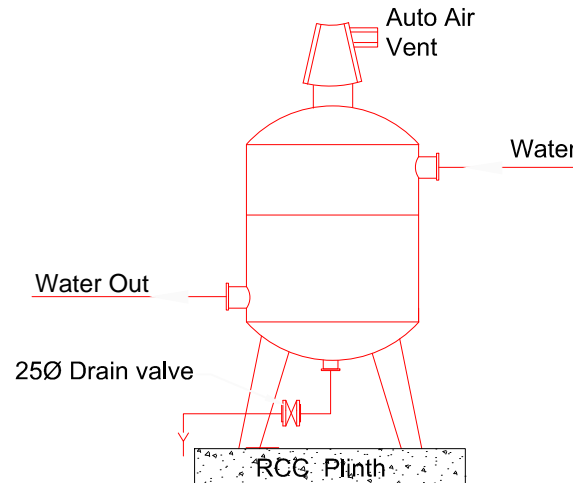
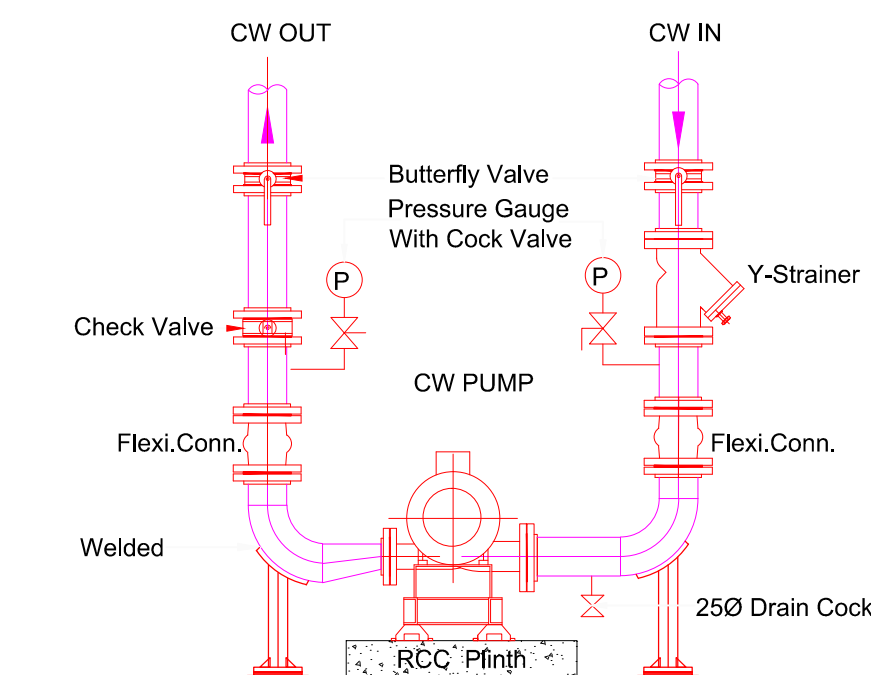
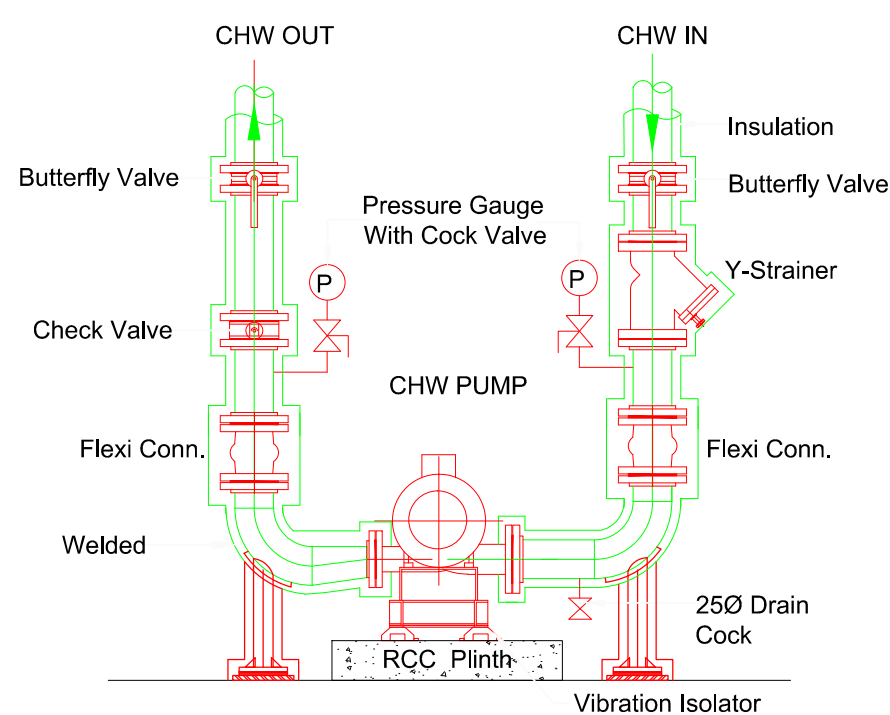
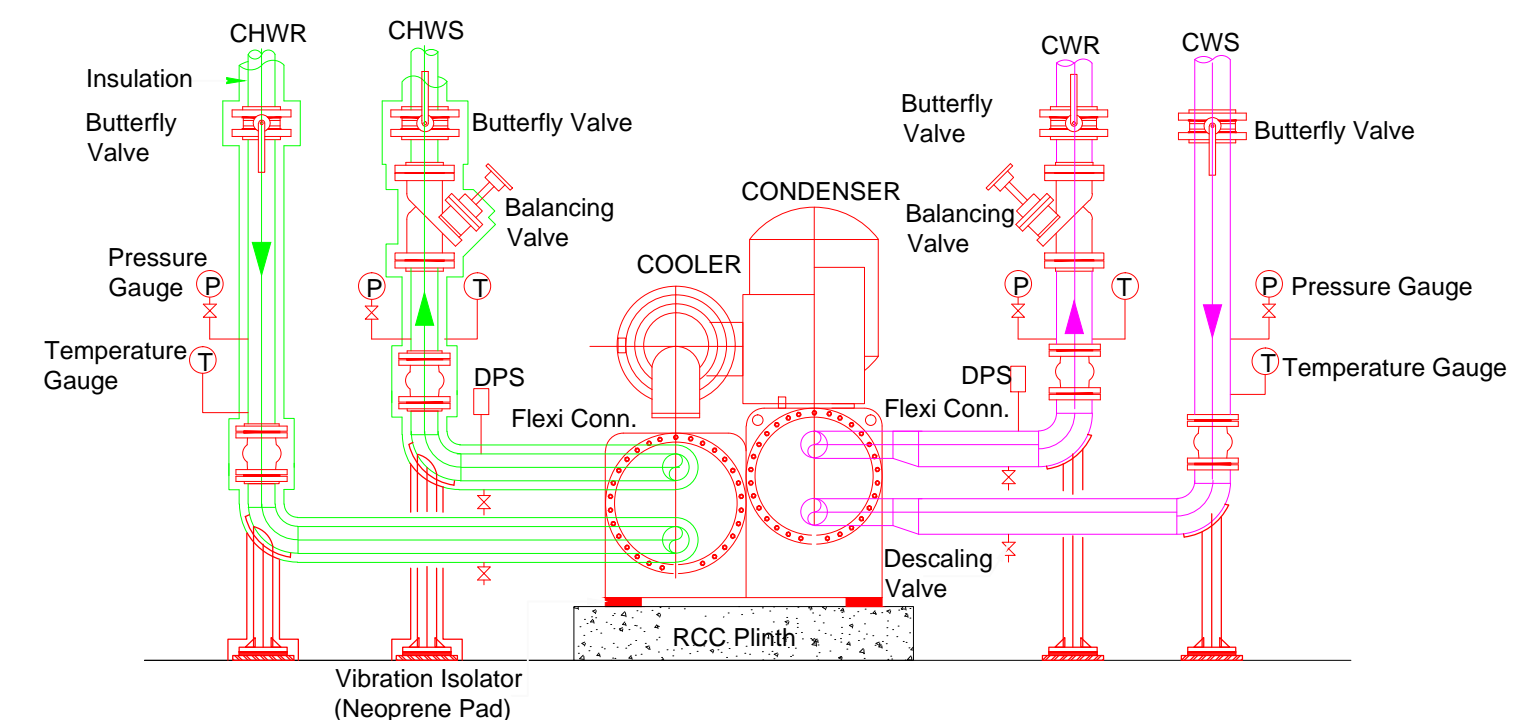
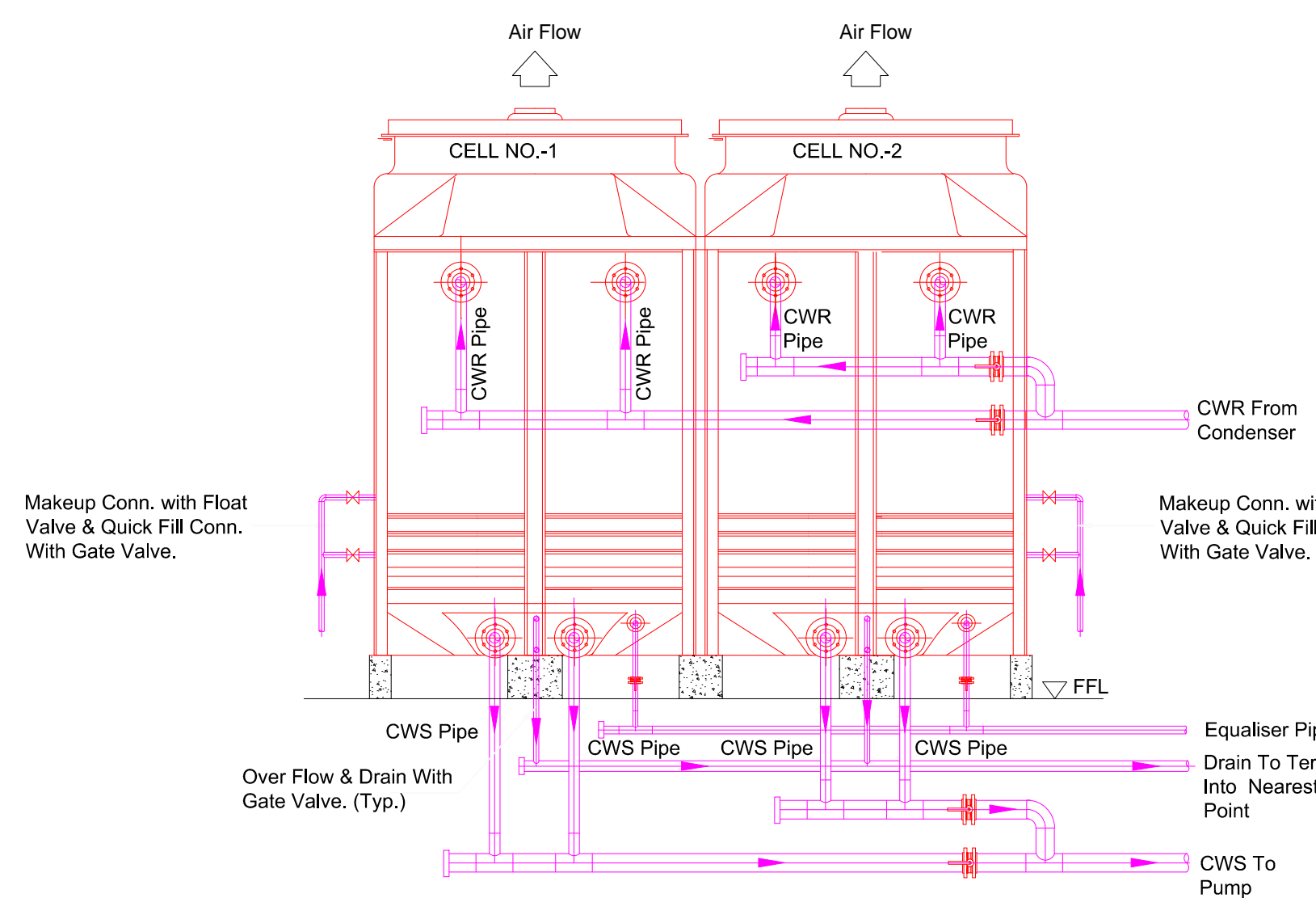
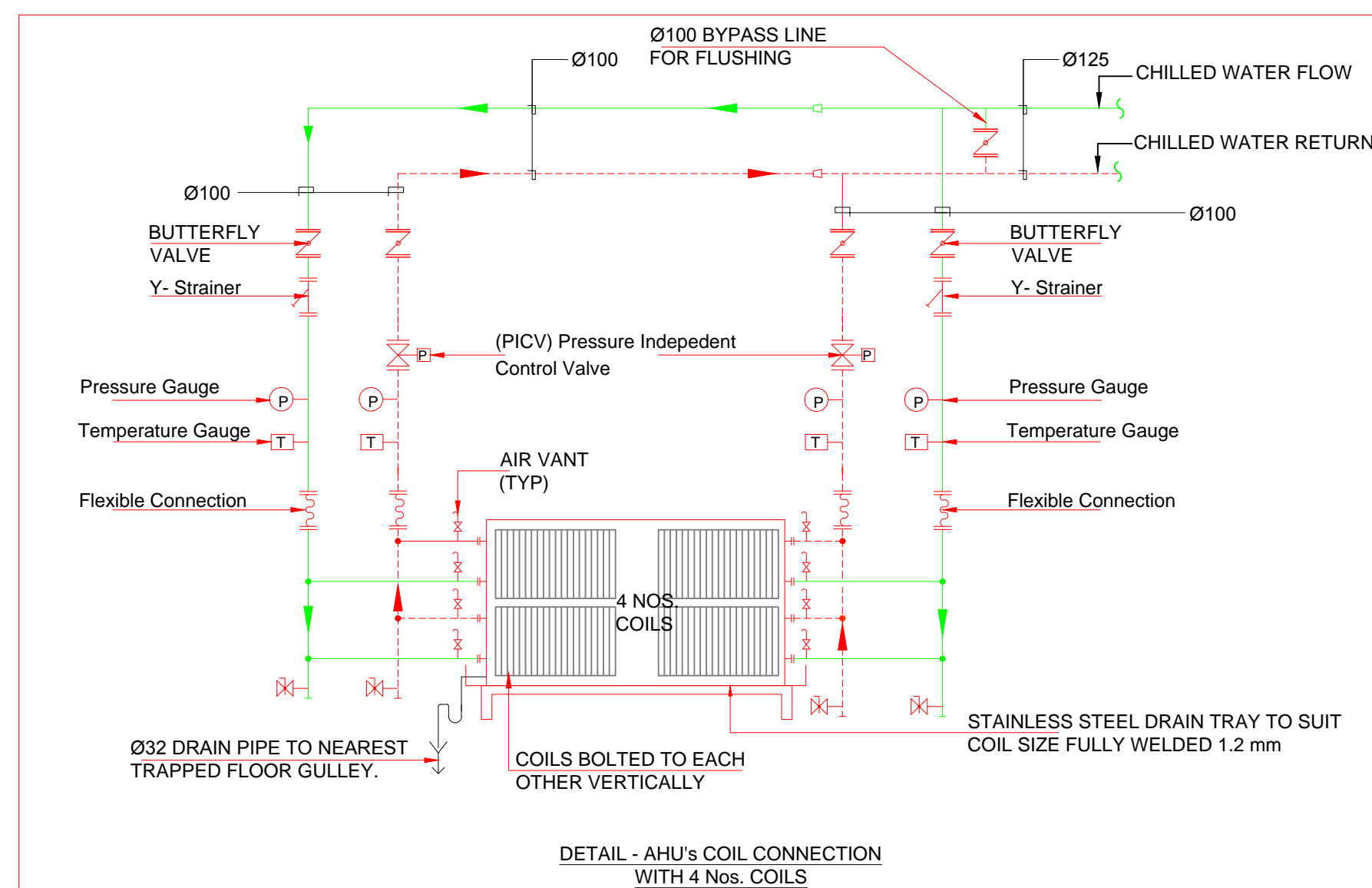
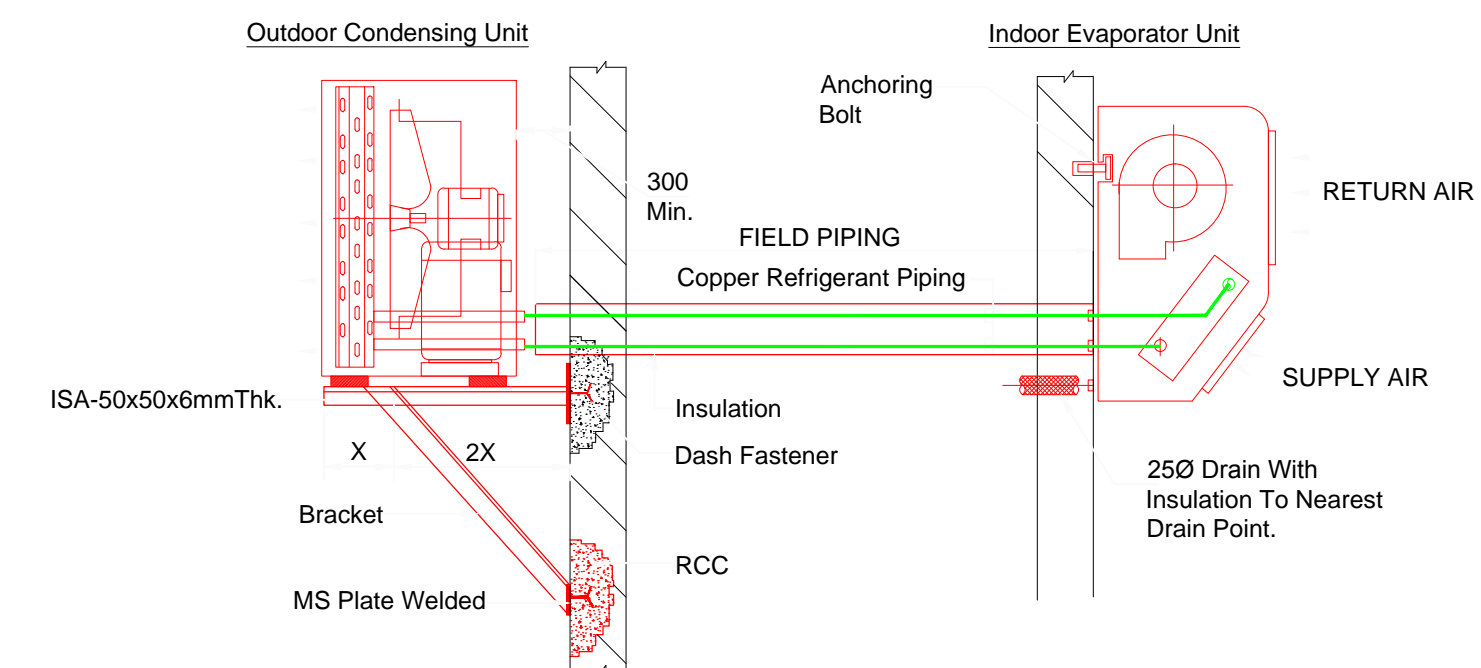
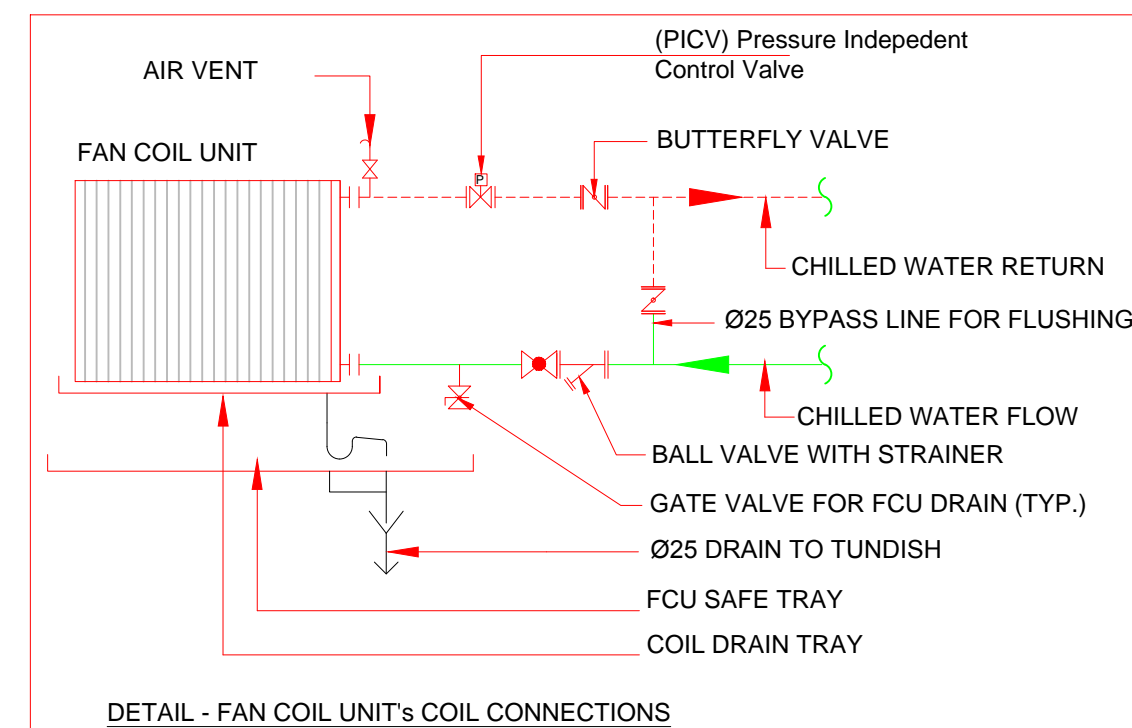
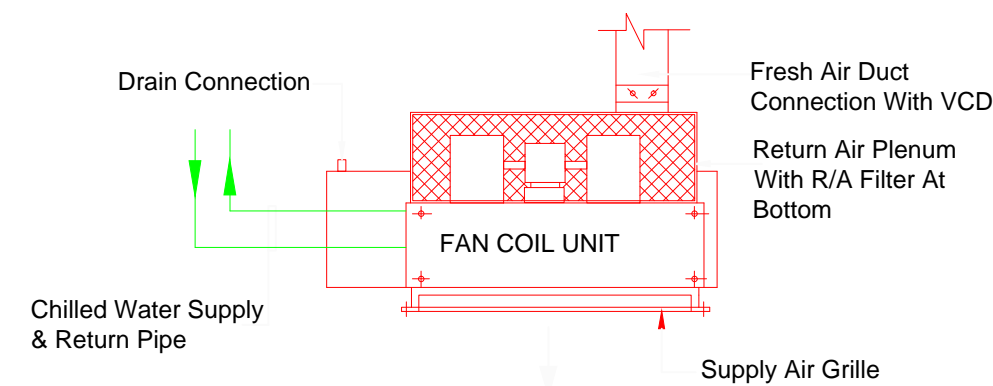
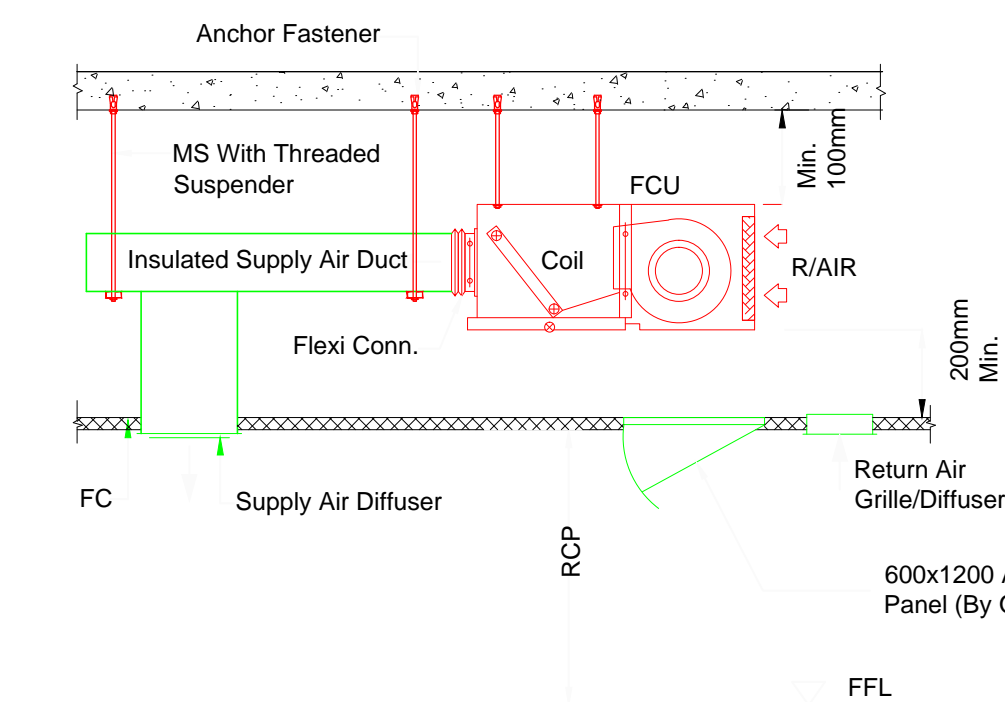


DELHI METRO RAIL CORPORATION LTD.
Metro Bhawan , Fire Brigade Lane, Barakhamba Road, New Delhi-110001

PHASE 1B JAIPUR METRO PROJECT


STATION: BADI & CHOTI CHOUPER

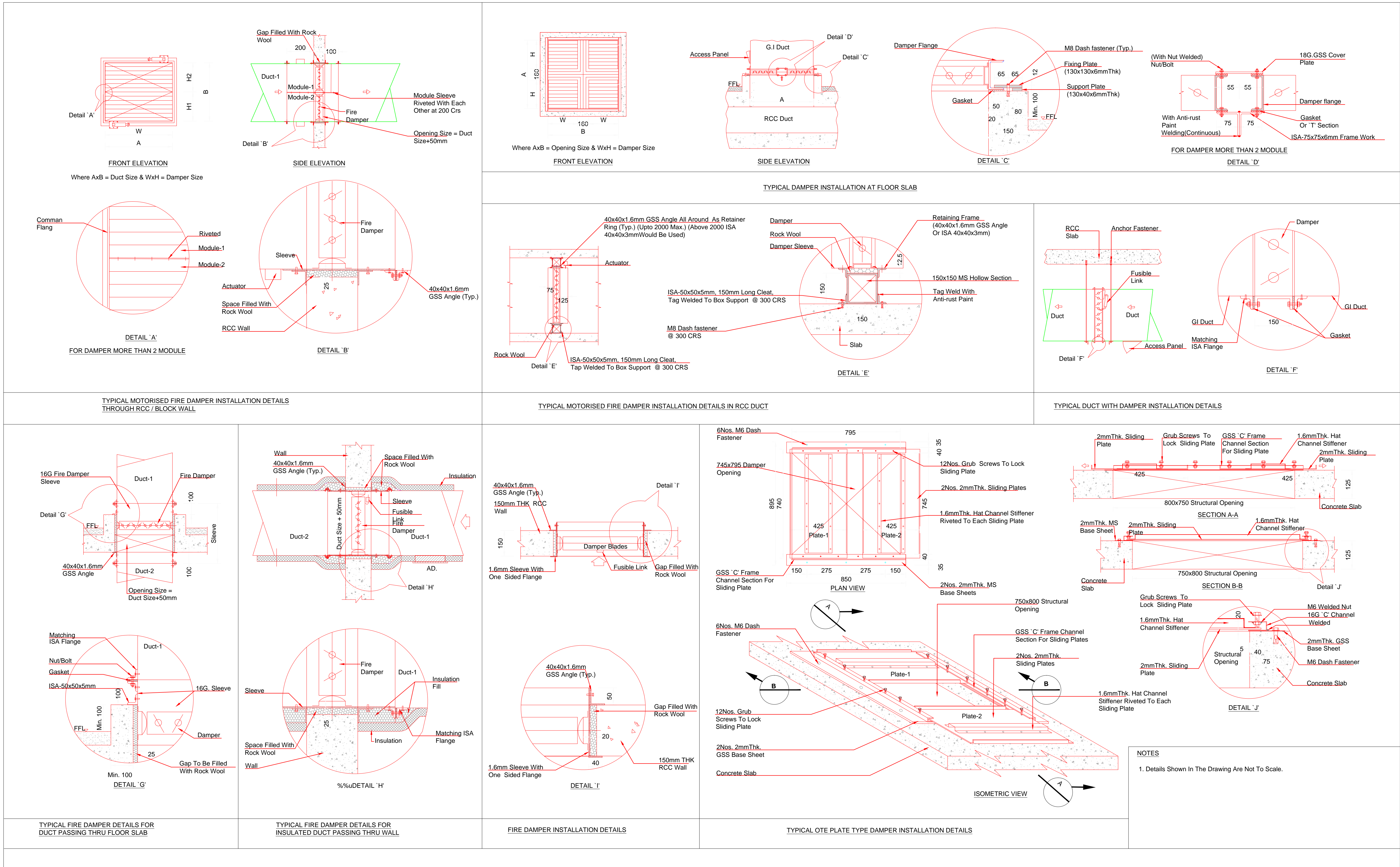
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DATE: 17-12-2015		REV: R0		GRAPHICAL SCALE: NTS		STATUS: CRD			
DRAWING NUMBER: JP-CRD-ECS-DET-1902				SHEET NO. 1 OF 1	SHEET SIZE UNE A1	ORDER N° P36-0017			
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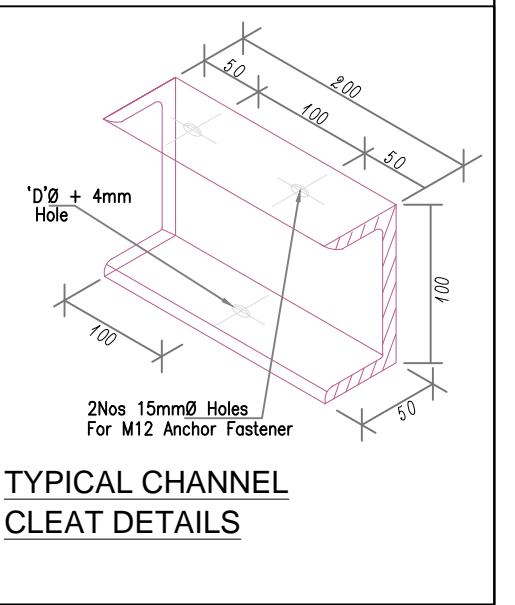
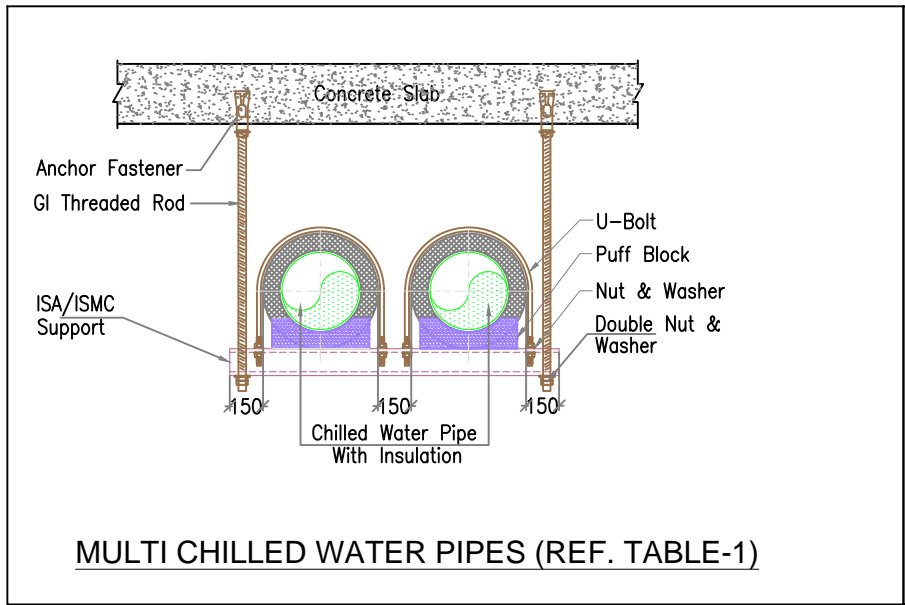
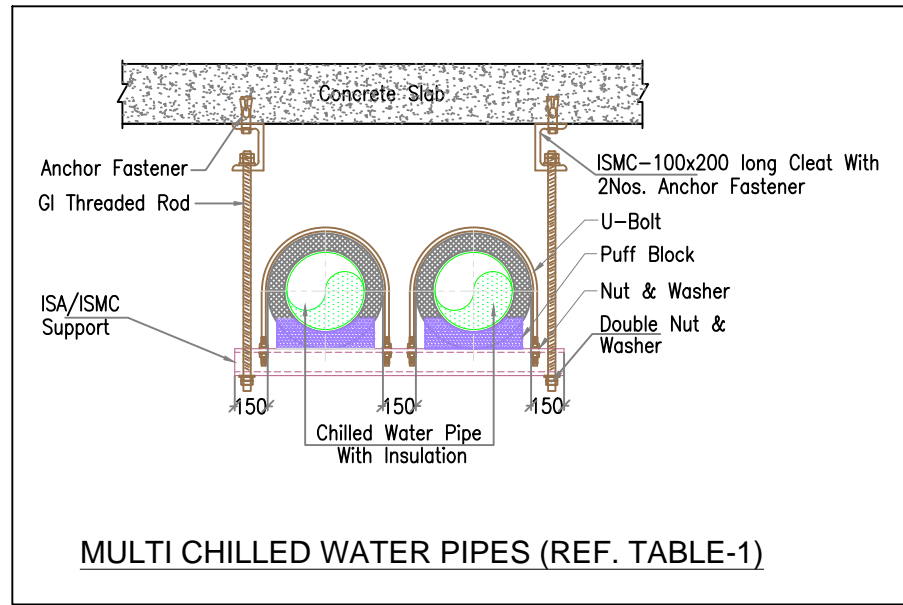
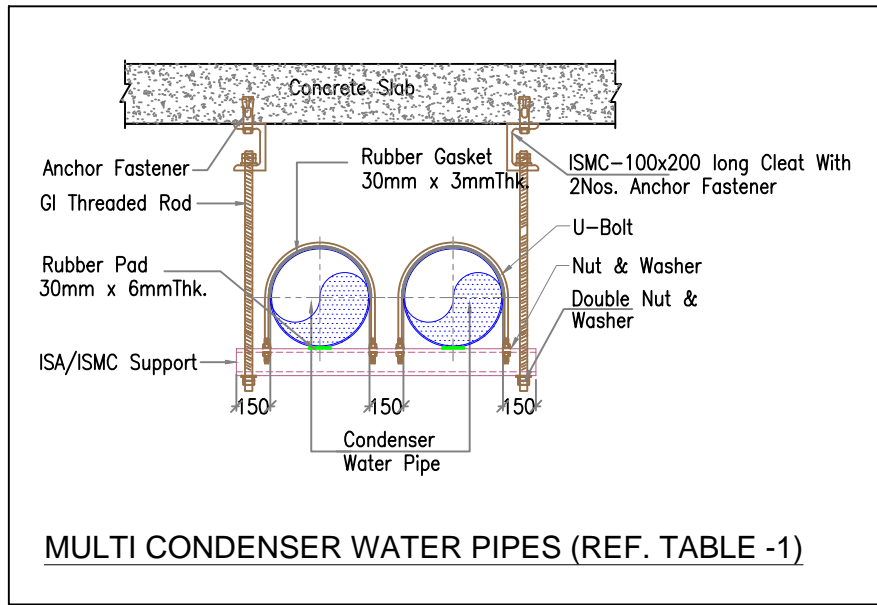
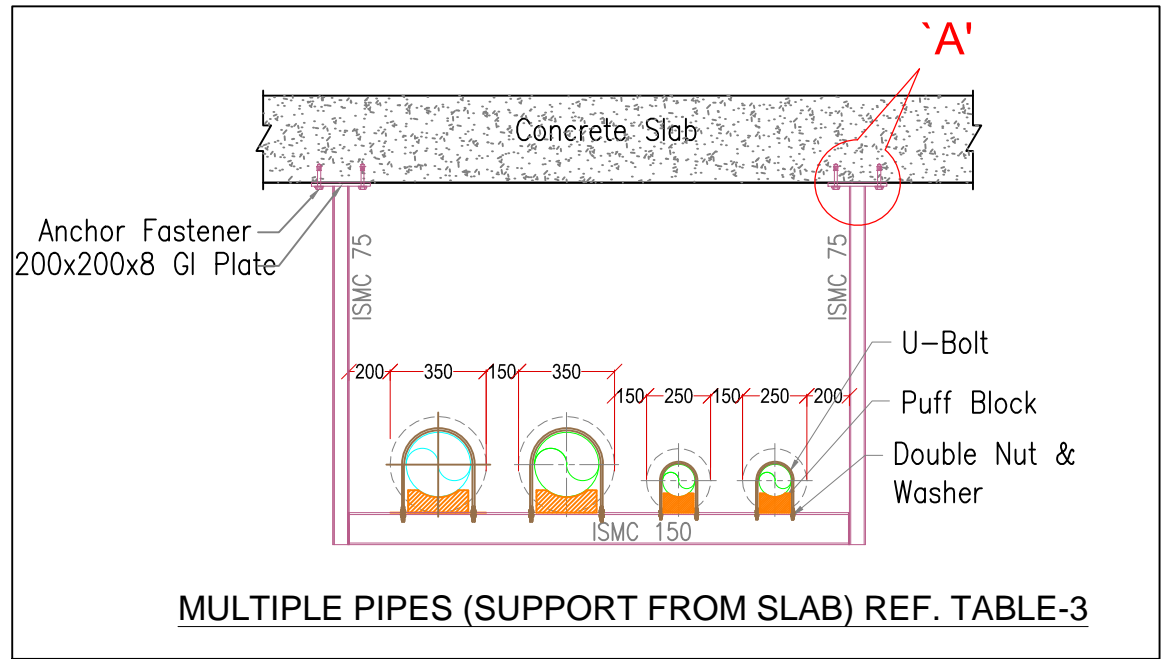
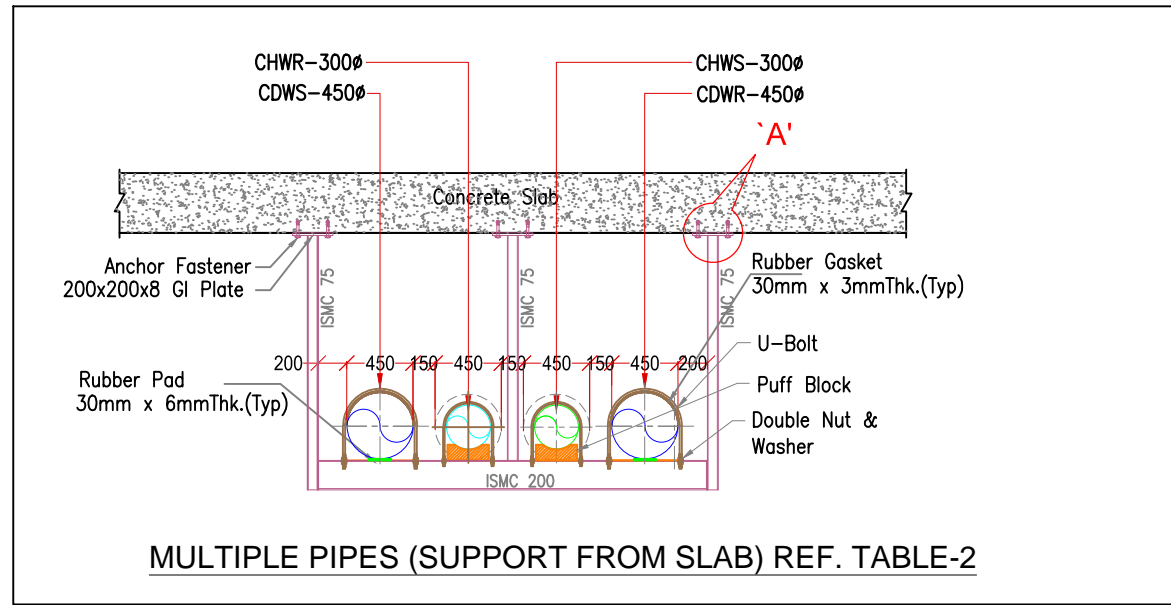
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(TABLE-2) SCHEDULE FOR PIPE SUPPORT FROM SLAB

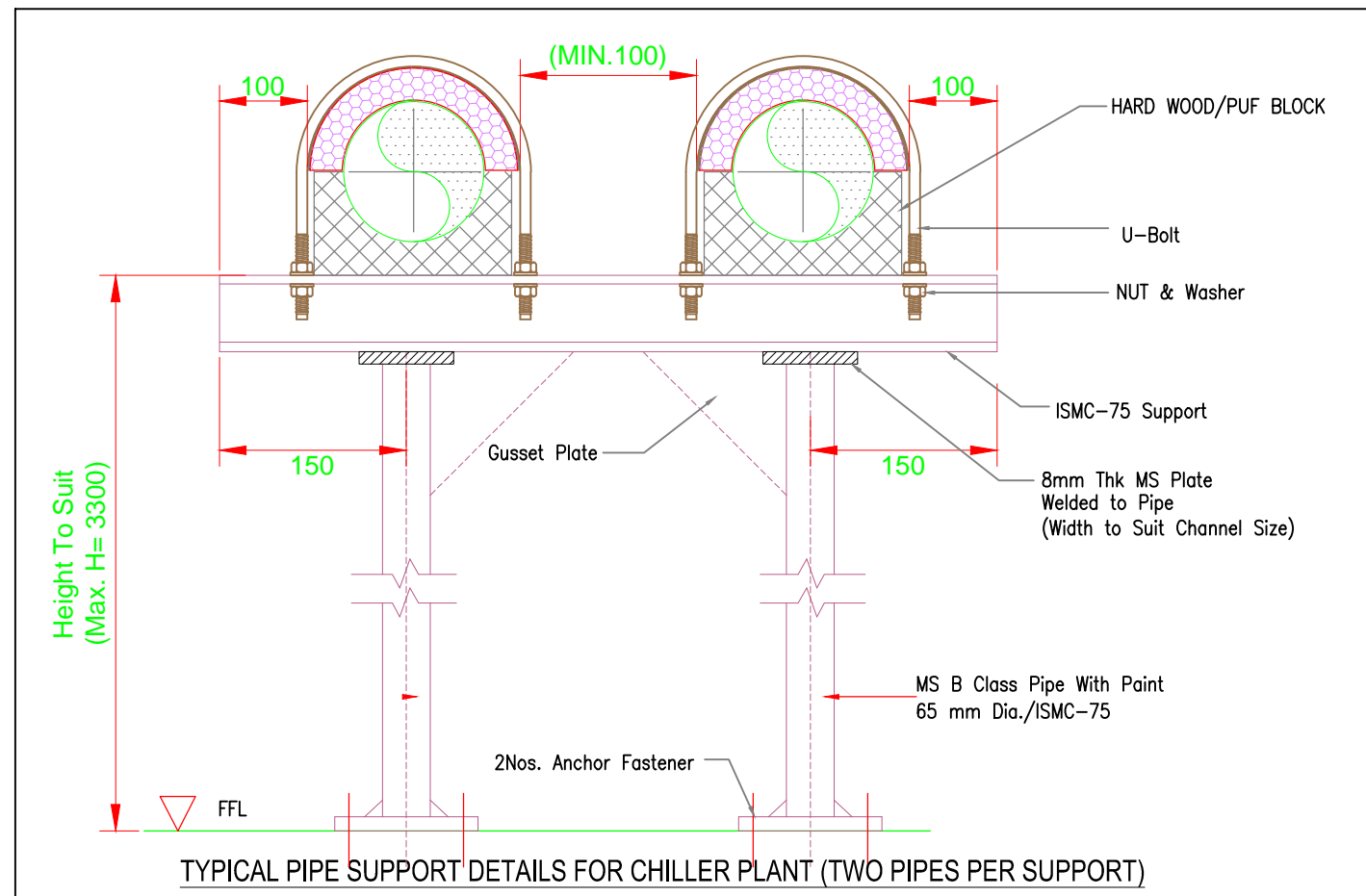
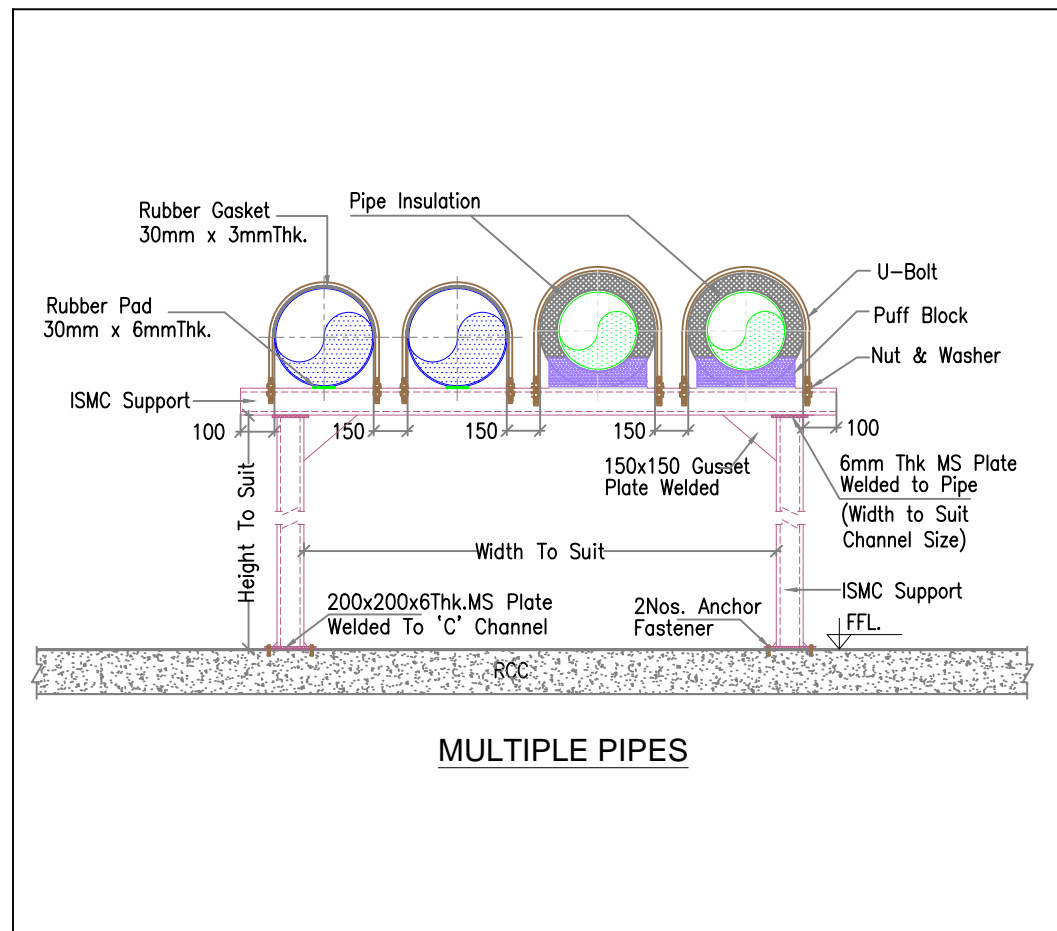
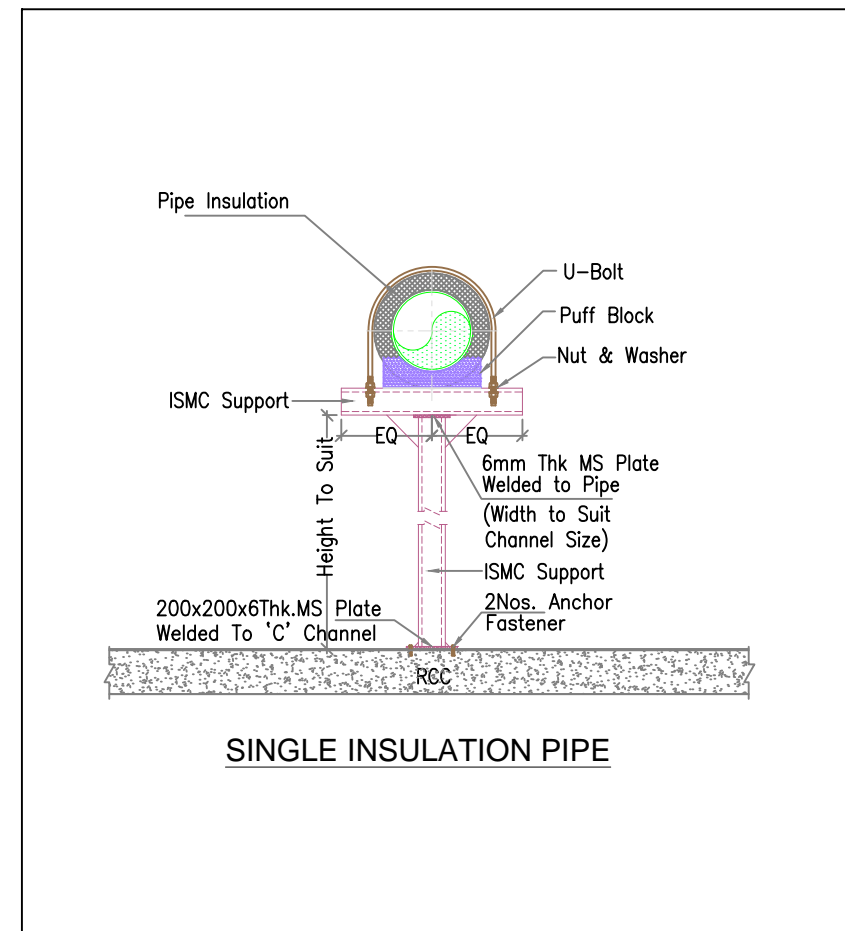
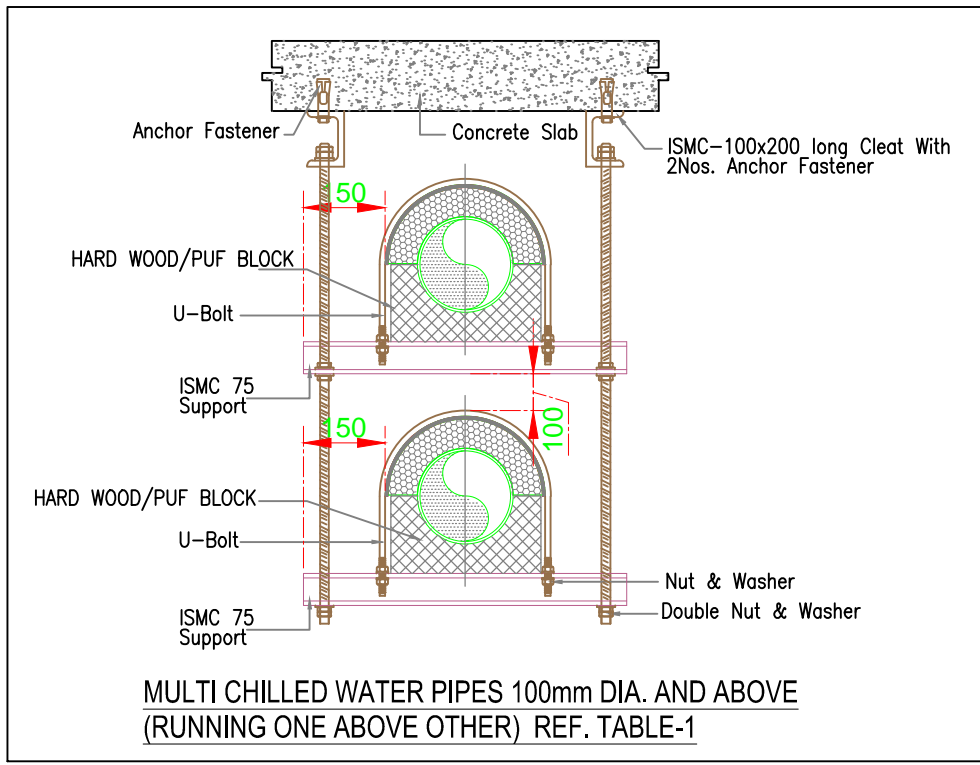
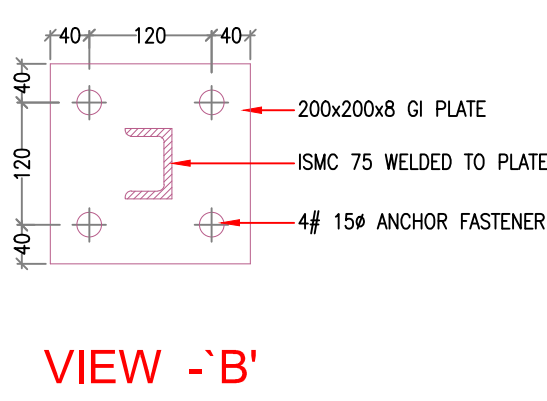
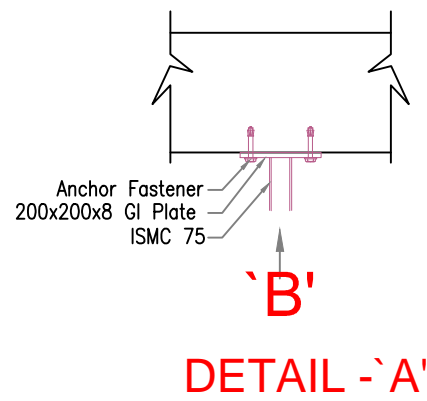
Pipe Size (mm)	Four Pipes Vertical Channel (mm)	Angle/Channel Support (mm)	Spacing (RM) Between Support	Insulation Thickness (mm)
2NOS.300# & 2NOS.450#	ISMC 75	ISMC-200	4.5	75
4NOS.350#	ISMC 75	ISMC-200	4.5	75

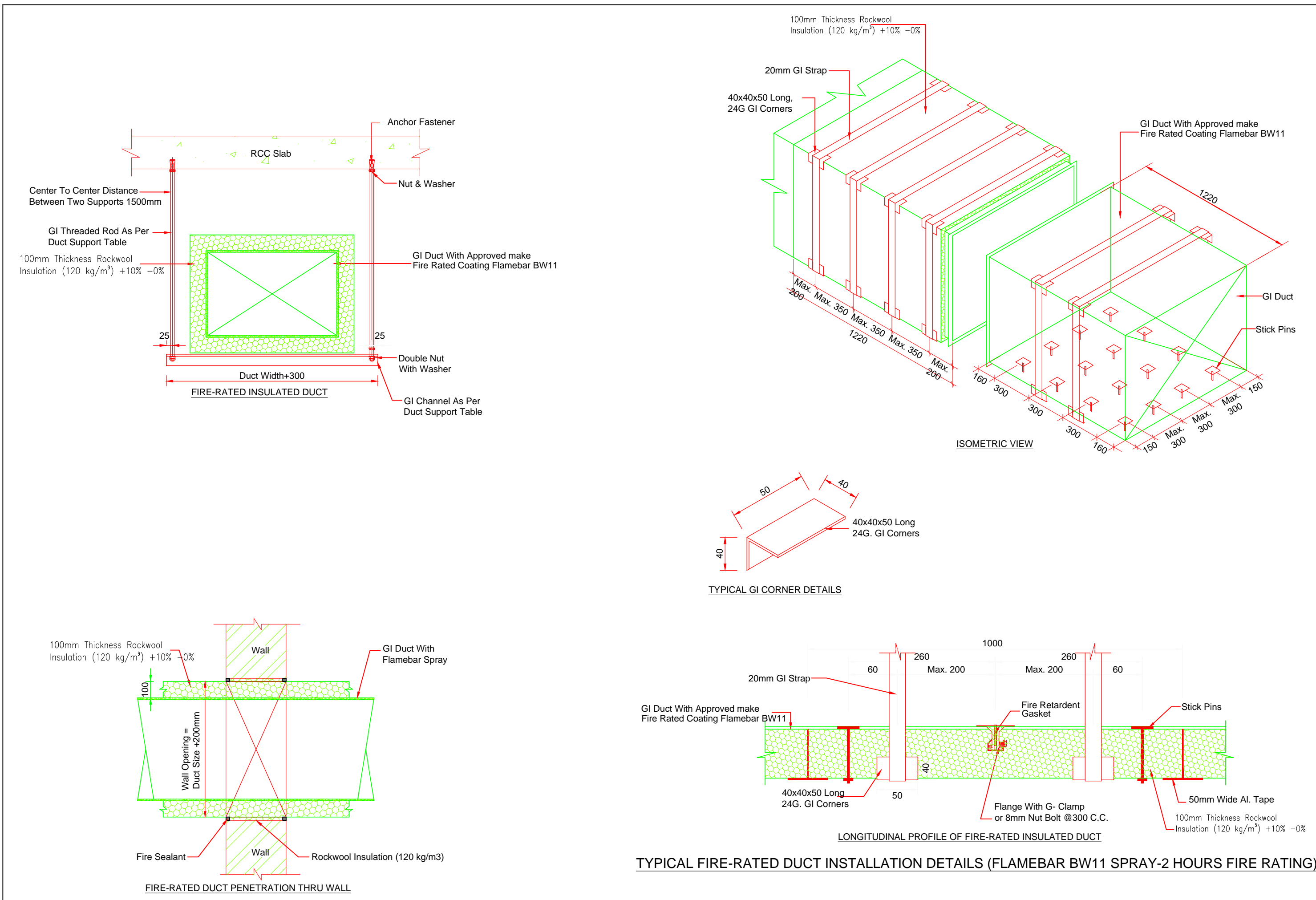
(TABLE-3) SCHEDULE FOR PIPE SUPPORT FROM SLAB

Pipe Size (mm)	Four Pipes Vertical Channel (mm)	Angle/Channel Support (mm)	Spacing (RM) Between Support	Insulation Thickness (mm)
2NOS.200# & 2NOS.100#	ISMC 75	ISMC-150	4.5	75

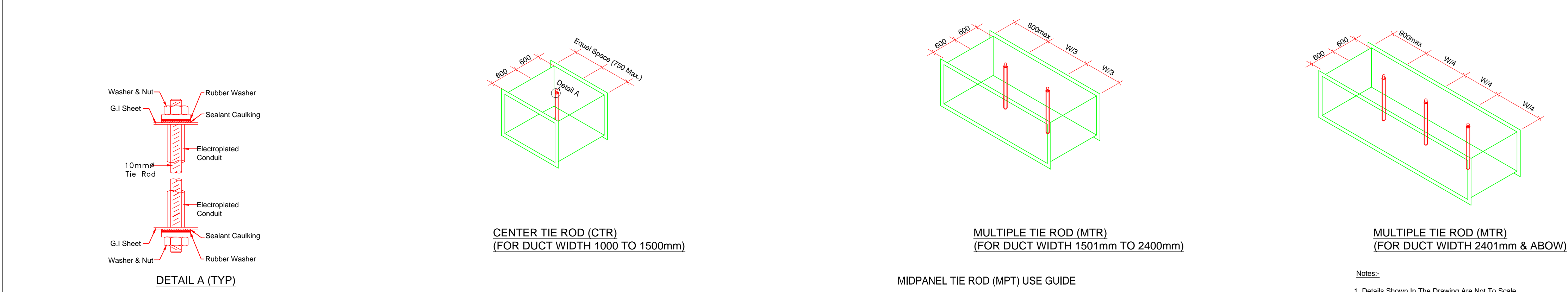
(TABLE-1) SCHEDULE FOR PIPE SUPPORT FROM SLAB



Pipe Size (mm)	Double Pipe Rod 'D'Ø (mm)	Angle/Channel Support (mm)	Spacing (RM) Between Support	Insulation Thickness (mm)	Remarks
0 - 20	10	ISA-50x50x5	1.8	50	Anchor Fastener Directly In Slab
25 - 50	10	ISA-50x50x5	2.4	50	
65 - 80	10	ISA-50x50x5	3.6	50	
100 - 125	12	ISA-75x75x6	4.0	75	With Channel Cleat
150	16	ISMC-75	4.5	75	
200 - 300	16	ISMC-100	4.5	75	

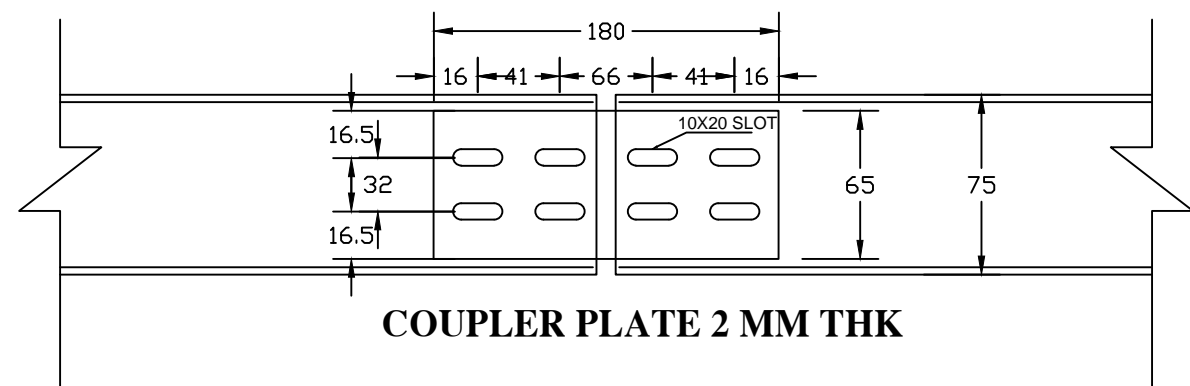




FIRE RATED DUCT CONSTRUCTION & SUPPORT LAYOUT DETAILS											
Sl. No	Gauge	Duct Sizes		Max. Duct Size	Duct Piece Length Max.	Threaded Rod nut bolt and	Base Of Duct Support Size / Thickness	Support Span	Duct Construction Joint	Type of Intermediate stiffeners joints	
		mm		mm	mm	mm		Mtr.		Tie Rod Required	Rod Size
1	22 (0.8mm)	0	400	400 x 400	1220 or 1510	8	40 x 40 x 5mm	1500	TDF (C & S Up To 250mm)	N/A	N/A
2a	22 (0.8mm)	401	600	600 x 600	1220 or 1510	8	40 x 40 x 5mm	1500	TDF		
2b	22 (0.8mm)	601	800	800 x 400	1220 or 1510	8	40 x 40 x 5mm	1500	TDF		
				800 x 800	1220 or 1510	10	40 x 40 x 5mm	1500	TDF		
2c	22 (0.8mm)	801	1000	1000 x 500	1220 or 1510	12	75 x 40 x 5mm	1500	TDF		
				1000 x 1000	1220 or 1510	12	75 x 40 x 5mm	1500	TDF		
3	20 (1.0mm)	1001 x 1500		1500 x 700	1220 or 1510	12	100 x 50 x 5mm	1500	Slip On Flange	Mid Panel Tie Rod (As Per Std. Drawing)	10
				1500 x 1500	1220 or 1510	16	100 x 50 x 5mm	1500	Slip On Flange		10
4	20 (1.0mm)	1501 x 2000		2000 x 2000	1220 or 1510	16	100 x 50 x 5mm	1500	Slip On Flange		10
5	18 (1.2mm)	2001 & Above			1220 or 1510	20	125 x 65 x 5mm	1500	Slip On Flange		

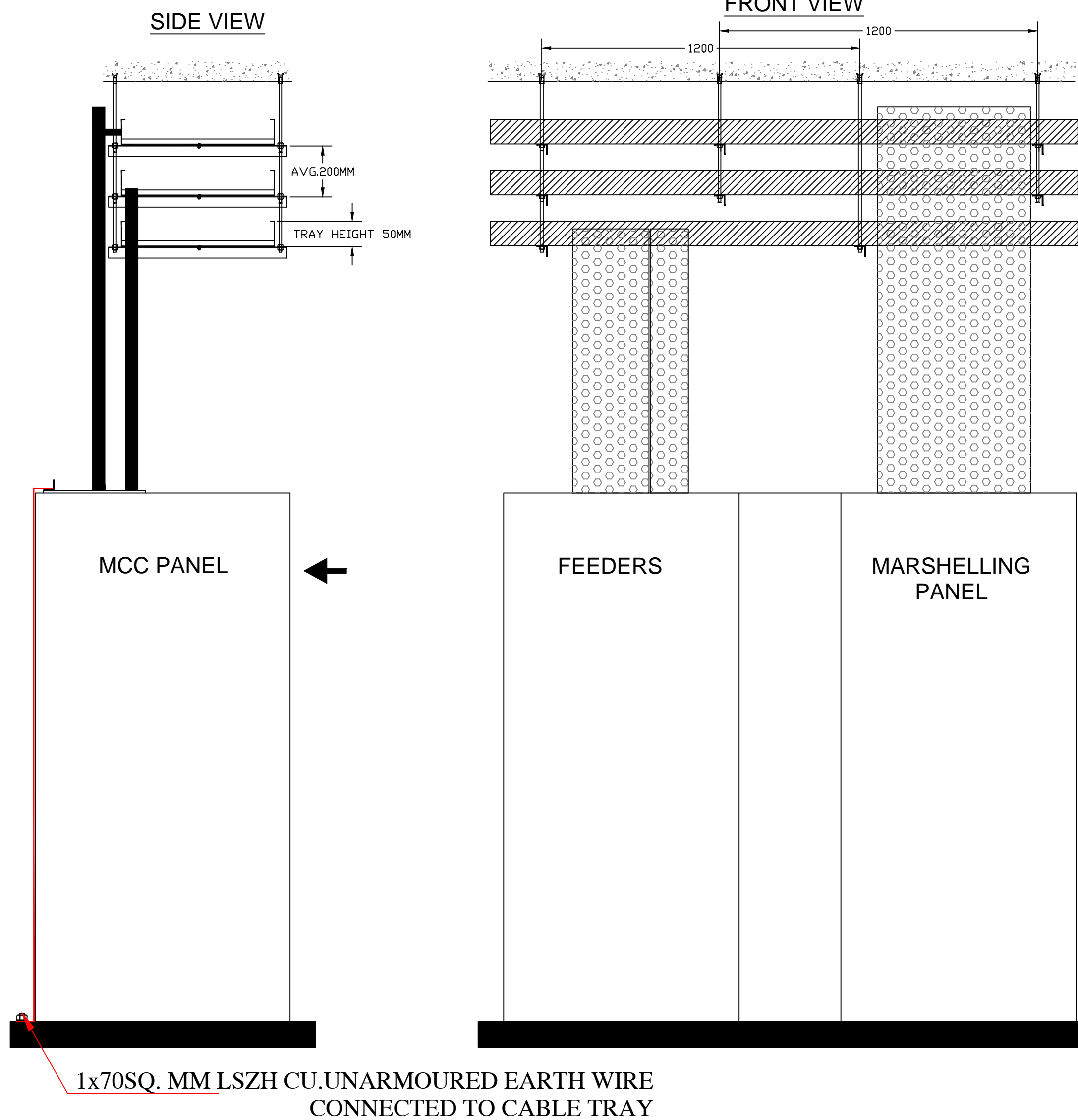


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	DRAWING TITLE: TYPICAL FIRE RATED DUCT CONSTRUCTION & INSTALLATION DETAILS														DRAWN BY: ADIL				CHECKED BY: VIKAS				VERIFIED BY: L.R.S																						
DATE: 17-12-2015							REV: R0				GRAPHICAL SCALE: NTS				STATUS: CRD																														
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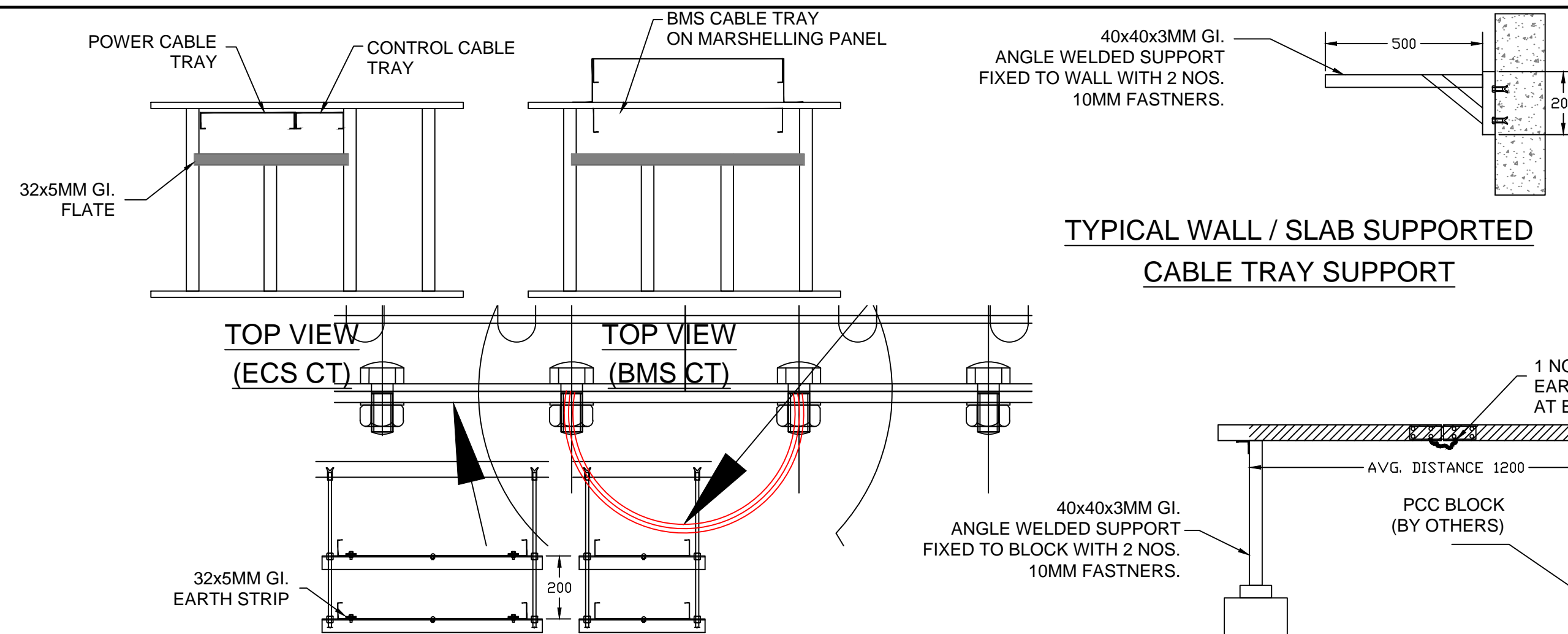


COUPLER PLATE 2 MM THK
COUPLER PLATE FOR 75MM H. BMS CABLE TRAY

TYPICAL DETAILS FOR CEILING SUSPENDED CABLE TRAY
ABOVE MCC PANEL



SPACE BETWEEN THE TRAYS AND BOTTOM OF CABLE TRAY ABOVE THE PANEL
SHALL BE AS ACTUAL REQUIRED FOR CABLING.

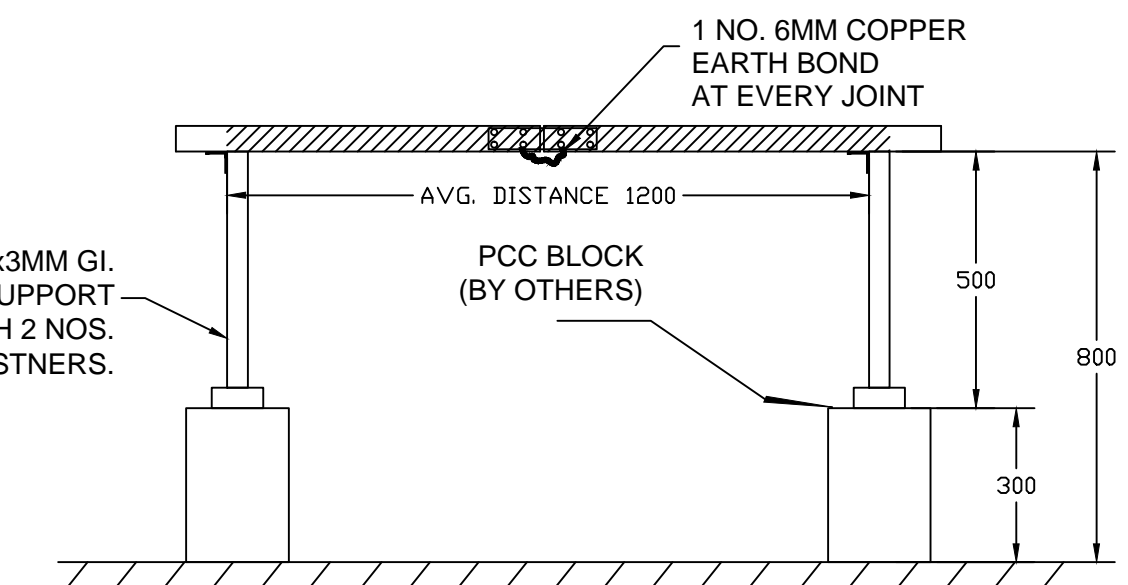


TYPICAL DETAILS FOR CEILING SUSPENDED CABLE TRAY

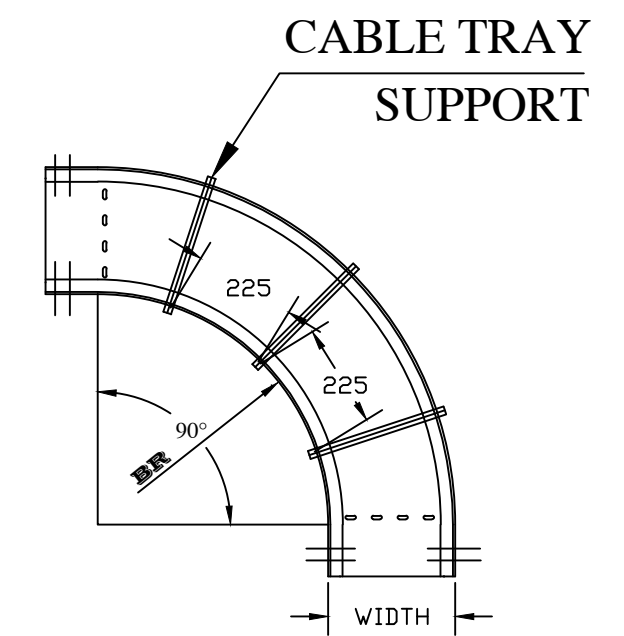
CABLE TRAY SUPPORT DETAILS

SR. NO.	NO x SIZE	CABLE SUPPORT ANGLE	TIE ROD	DISTANCE BETWEEN TWO SUPPORTS
1	1x50/ 100MM	40x40x3MM GI.	10MM DIA.	1200MM
2	1x150/ 300MM	40x40x3MM GI.	10MM DIA.	1200MM
3	1x450/ 600MM	40x40x5MM GI.	10MM DIA.	1200MM
4	3x600MM	40x40x5MM GI.	10MM DIA.	1200MM
5	4x600MM & ABOVE	40x40x5MM GI.	12MM DIA.	1200MM

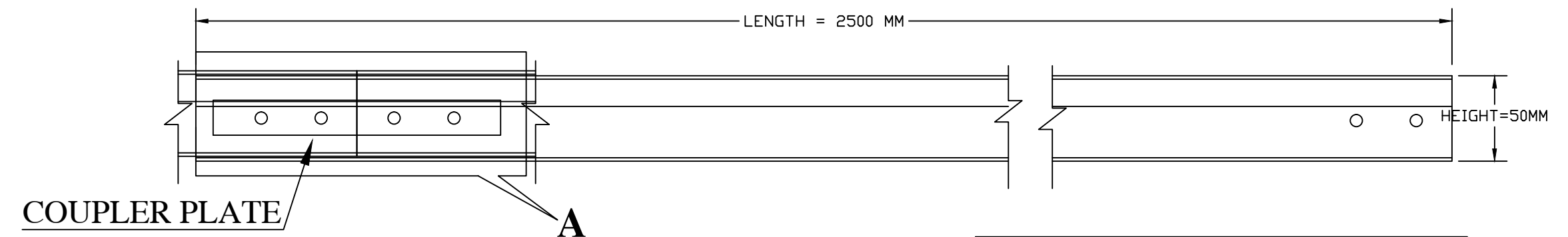
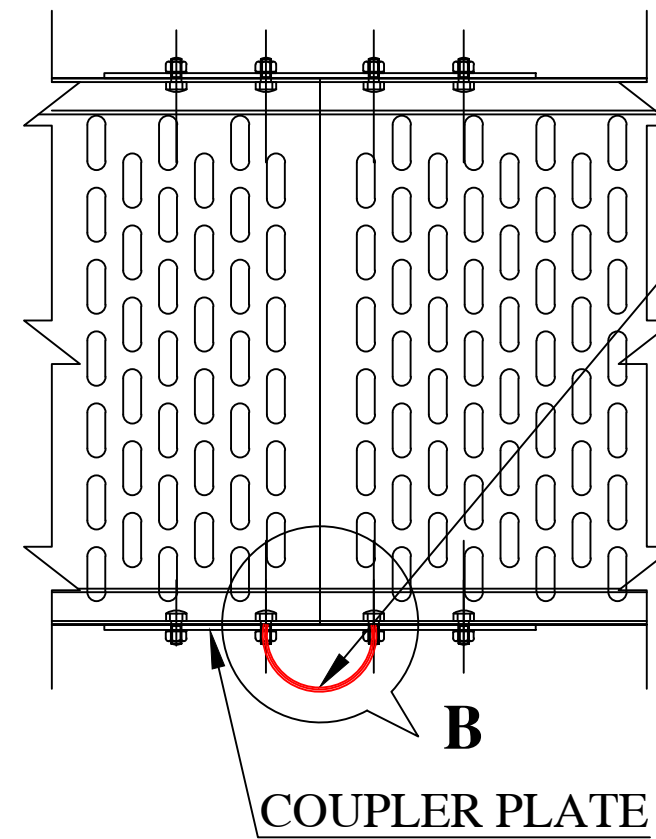
TYPICAL WALL / SLAB SUPPORTED
CABLE TRAY SUPPORT



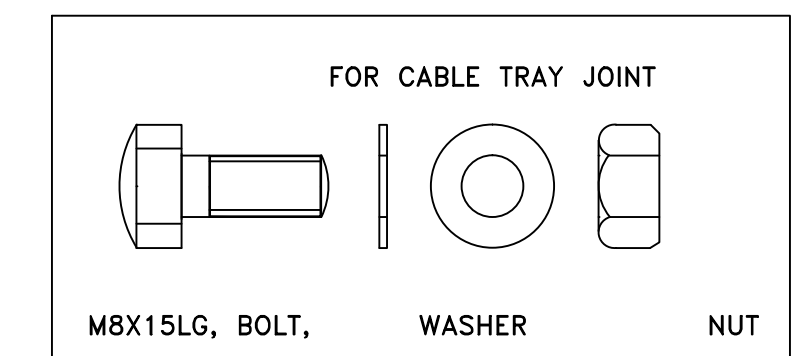
TYPICAL FLOOR SUPPORTED
CABLE TRAY




DETAIL 'B'



PERFORATED TYPE CABLE TRAY



NUT, BOLT, WASHER SHALL BE ELECTROPLATED.

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