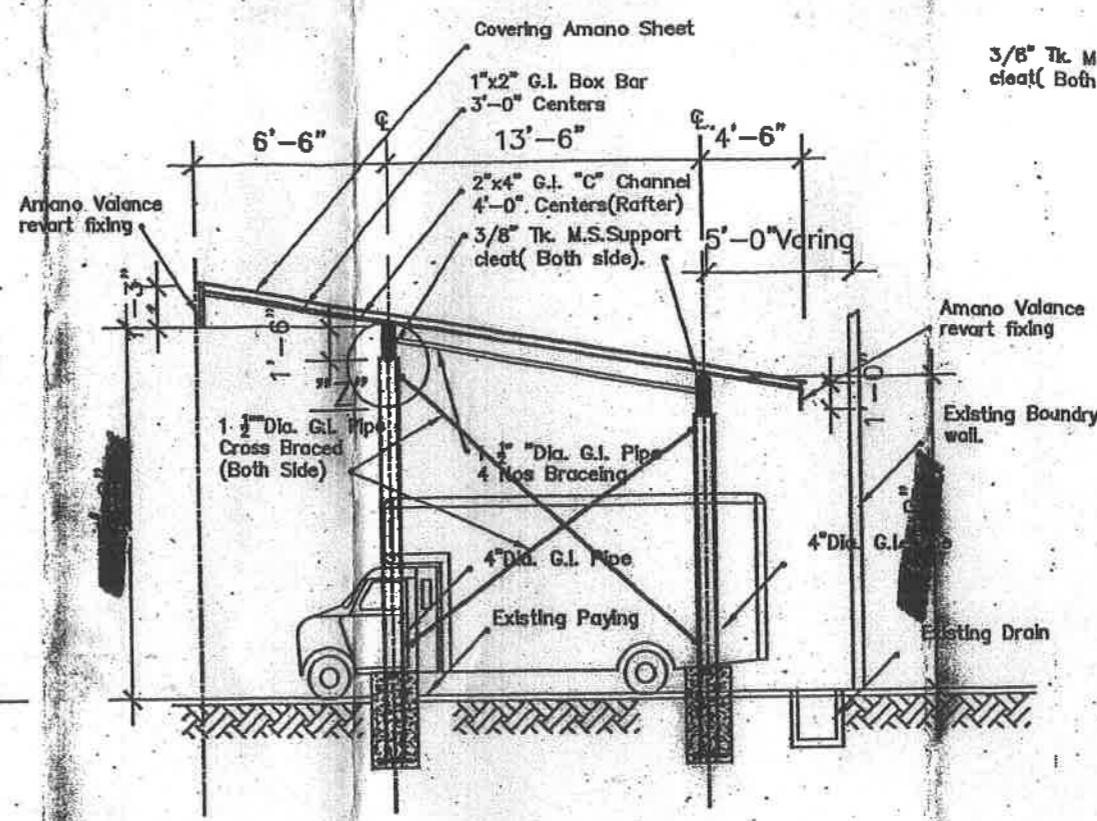
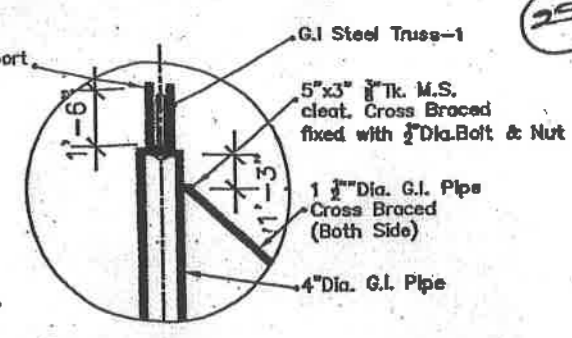


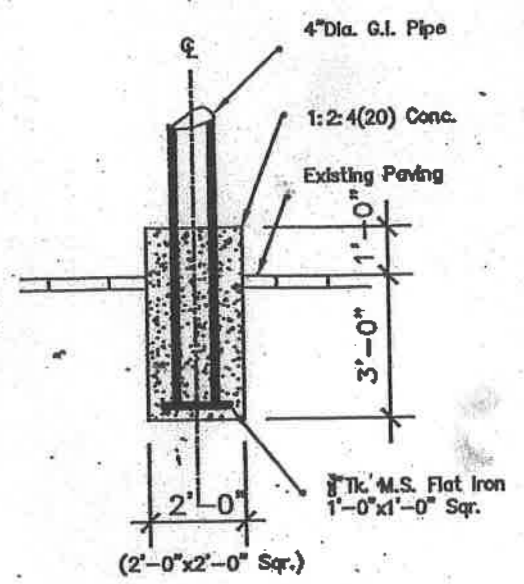
ELEVATION
8 FEET TO AN INCH



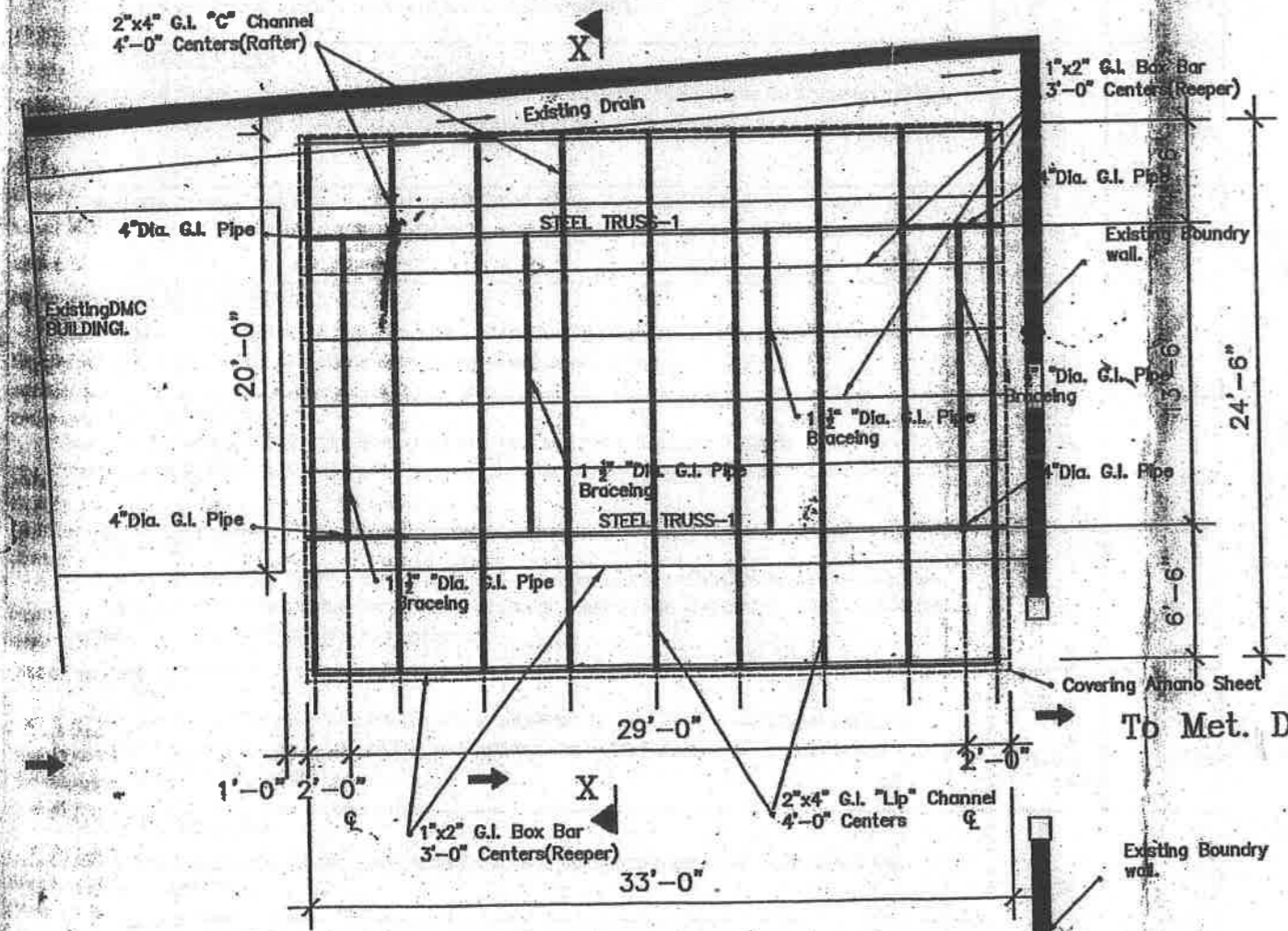
SECTION X-X
8 FEET TO AN INCH



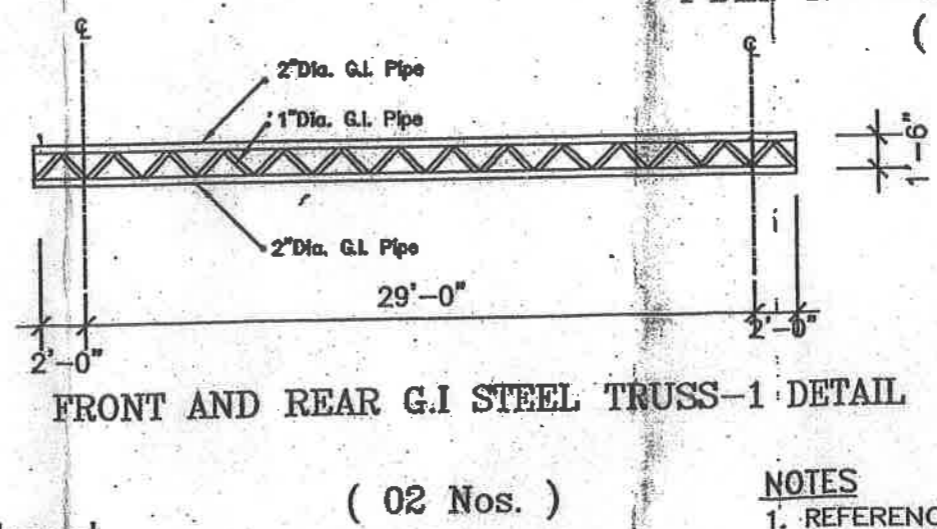
Detail "Z"



4" DIA. G.I. COLUMN FIXING DETAIL
(04 Nos.)



PLAN
8 FEET TO AN INCH



FRONT AND REAR G.I STEEL TRUSS-1 DETAIL
(02 Nos.)

Eng. J.K. Jayawardena
Director
Project Management Division
National Building Research Organisation

- NOTES**
1. REFERENCE DRAWING
 2. ALL WELDING SHALL BE 4mm CONTINEOUS FILLET WELD
 3. MIN. TWO COATS OF ANTI-CORROSIVE PAINT SHALL BE APPLIED TO THE STEEL'S [INCLUDING CLEATS PLATES ETC.] BEFORE FIXING ON TO COLUMN.

DRWG. TITLE
ROOF DESIGN FOR MOBILE UNIT PARKING*
DISASTER MANAGEMENT CENTER (DMC)
VIDYA Mw. COLOMBO-07.

CONSULTANT		NATIONAL BUILDING RESEARCH ORGANISATION	
PROJECT CO-ORDINATOR		99/1, JAWATTE ROAD, COLOMBO - 05	
ENG./ARCHT		DATE	04-10-2019
PREPARED		JOB No.	
CHECKED		DRWG.No.	NBRD/PMD/DMC/209
SCALE		SHEET No.	01 OF 01
		COM FILE	

Specication for Structural Design

ITEM NO	DESCRIPTION	UNIT	QTY
1	<i>Note</i> Following Rates were taken from the "Building Schedule of Rates 2019" published by the Deputy Chief Secretary (Engineering) of office of the Chief Secretary Western Province.		
2	All the duties, taxes and other levis (VAT & NBT are not included in these rates.		
A	<u>EXCAVATION & EARTH WORKS</u>		
A.1	Manual excavation for foundations in any fill material (except rock requiring blasting) up to 3'-0" depth, part return in and ram and surplus deposited within site as directed.	Cube	0.58
B	<u>CONCRETE WORKS</u>		
B.1	Grade 20 concrete prepared at site manually for unreinforced column footing including placing in compacing and curing.	Cute	0.15
C	<u>4" G.I. COLUMN'S FIXING</u>		
C.1	Supply and fixing size of 1'-0"x1'-0"3/8" tk 4 No M.S. Flat column shoe plates (Rate shall include for necessary cutting, welding and application of one coat of metal primer and two coats of anti corrosive paints)	Item	
C.2	Supply and fixing 4" dia G.I. Pipe (Rate shall include for necessary cuting, welding and application of one coat of metal primer and two coats of anti corrosive paints)	L.ft	65.00
D	<u>G.I. STEEL TRUSS</u>		
D.1	Supply and fixing 1" dia G.I. Pipe for fabricate steel struss (Rate shall include for necessary cutting, welding and application of one coat of metal primer and two coats of anti corrosive paints)	L.ft	122.00
D.2	Supply and fixing 2" dia G.I. Pipe for fabricate steel struss (Rate shall include for necessary cutting, welding and application of one coat of metal primer and two coats of anti corrosive paints)	L'ft	135.00
E	<u>3/8" TK, M.S. SUPPORT CLEAT</u>		
E.1	Supply and Fixing 3/8" tk M.S. Support cleat (Rate shall include for necessary cutting, welding and application of one coat of metal primer and two coats of anti corrosive paints)	Item	
G	<u>G.I. BRACEING</u>		
G.1	Suplly and fixing 1 1/2" dia G.I. braced fix with nuts and bolts (Rate shall include for necessary cutting, welding and application of one coat of metal primer and two coats of anti corrosive paints)	L.ft	110.00
H	<u>RAFTERS</u>		
H.1	Supply and fixing 2"x4" "LIP" Channel rafters at maximum spacing of 4'-0' centers of Amano sheet (Zn.Al.) roof. (Rate shall include for necessary cutting , welding and application of one coat of metal primer and two coats of anti corrosive paints)	L.ft	230.00
J	<u>REEPERS</u>		
J.1	Supply and fixing 1"x2" G.I. Box bar reepers at maximum spacing of 3'-0" centers of Zn/A1 roof. (Rate shall include for necessary cutting, welding and application of one coat of metal primer and two coats of anti corrosive paints)	L.ft	265.00
K	<u>ROOF COVERING</u>		
K.1	Supply and fixing of Zn/A1 sheet with hooks, nuts and bolts to roofing (Rate shall include for necessary scaffolding)	Item	
K.2	Supply and fixing 0.47 mm zinc alum valance board 12" thick and complete to working order (Rate shall include for scaffolding)	L.ft	58.00



Our Credentials to Quality Supermacy

Technical Data of pipes confirming to BS:1387

Nominal Bore		Class	Outside Diameter		Wall Thickness	Weight of black pipe (Kg/Mtr)	
Inch	MM		Min	Max		Plain end	ss
			MM	MM	mm		
1/2	15	Light	21	21.4	2	0.947	0.956
3/4	20	Light	26.400	26.9	2.300	1.38	1.39
1	25	Light	33.200	33.8	2.600	1.98	2
1 1/4	32	Light	41.900	42.5	2.600	2.54	2.57
1 1/2	40	Light	47.800	48.4	2.900	3.23	3.27
2	50	Light	59.800	60.2	2.900	4.08	4.15
2 1/2	65	Light	75.200	76	3.200	5.71	5.83
3	80	Light	87.900	88.7	3.200	6.72	6.89
4	100	Light	113.000	113.9	3.600	9.75	10
1/2	15	Medium	21.100	21.7	2.600	1.21	1.22
3/4	20	Medium	26.600	27.2	2.600	1.56	1.57
1	25	Medium	33.400	34.2	3.200	2.41	2.43
1 1/4	32	Medium	42.100	42.9	3.200	3.1	3.13
1 1/2	40	Medium	48.000	48.8	3.200	3.57	3.61
2	50	Medium	59.800	60.8	3.600	5.03	5.1
2 1/2	65	Medium	75.400	76.6	3.600	6.43	6.55
3	80	Medium	88.100	89.5	4.000	8.37	8.54
4	100	Medium	113.300	114.9	4.500	12.2	12.5
5	125	Medium	138.700	140.6	5.000	16.6	17.1
6	150	Medium	164.100	166.1	5.000	19.7	20.3
1/2	15	Heavy	21.100	21.7	3.200	1.44	1.45
3/4	20	Heavy	26.600	27.2	3.200	1.87	1.88
1	25	Heavy	33.400	34.2	4.000	2.94	2.96
1 1/4	32	Heavy	42.100	42.9	4.000	3.8	3.83
1 1/2	40	Heavy	48.000	48.8	4.000	4.38	4.42
2	50	Heavy	59.800	60.8	4.500	6.19	6.26
2 1/2	65	Heavy	75.400	76.6	4.500	7.93	8.05
3	80	Heavy	88.100	89.5	5.000	10.3	10.5
4	100	Heavy	113.300	114.9	5.400	14.5	14.8
5	125	Heavy	138.700	140.6	5.400	17.9	18.4
6	150	Heavy	164.100	166.1	5.400	21.3	21.9



Outer Diameter as per above table

Thickness

Light	Medium	Heavy
- 8%	- 10%	- 10%

Weight

- 8% & + 10% (for single tube)

Mechanical Properties

Yield Strength 195 N/sq mm (Minimum)
Tensile Strength 320 to 460 N/sq mm
% Elongation 20 % Min

Bend Test
Black Tubes

For tubes upto & including 2"
Bending angle 180°
Bending radius 6 times to the OD of Tube
Weld Position 3 O' clock
Bending angle 90°
Bending radius 8 times to the OD of Tube
Weld Position 3 O' clock

Galvanized Tubes

Flattening Test

For Tubes above 2"
1. Flatten upto 75% of tube dia for weld test (Weld at 3 O'clock position)
2. Flatten upto 60% of tube dia for raw material test

Leak Tightness Test

100% Hydrotesting at 50 bar or online eddy current testing

Galvanizing Test

Bore test (for tubes upto 1")
Copper Sulphate Test

Chemical Properties

Carbon 0.20 % Max
Manganese 1.20 % Max
Phosphorus 0.045 % Max
Sulphur 0.045 % Max