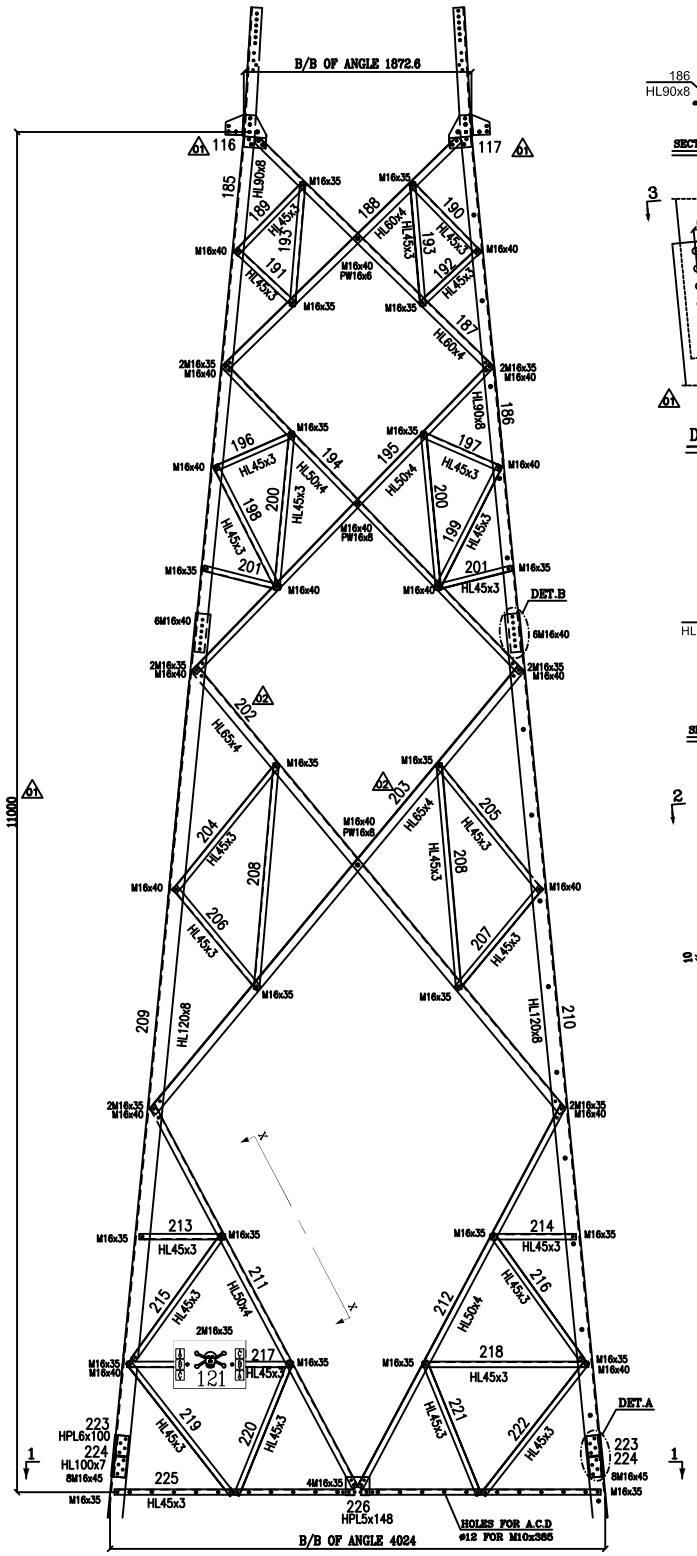
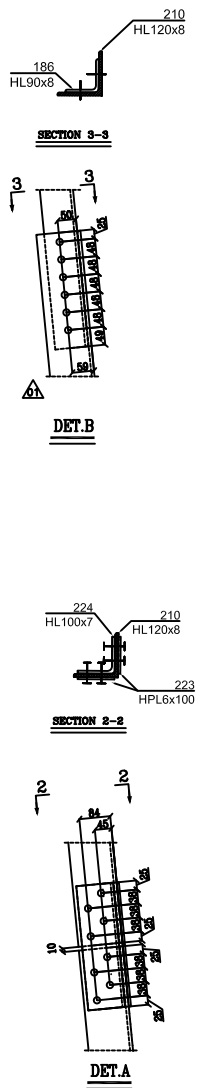
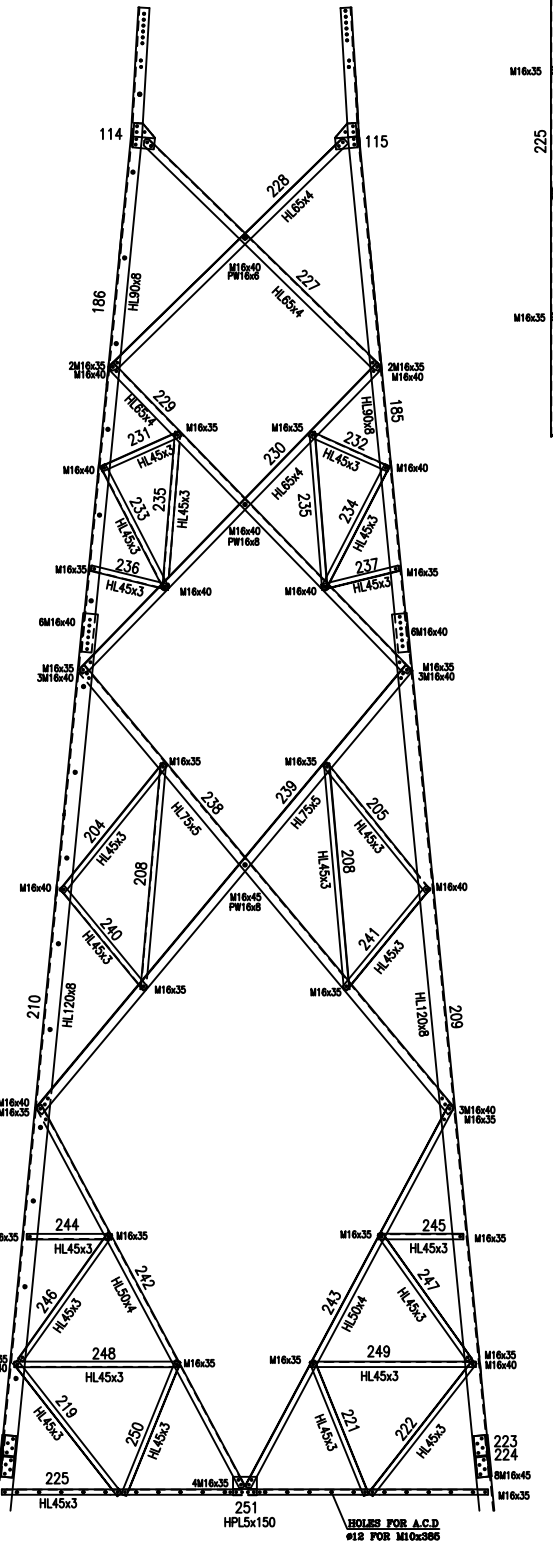
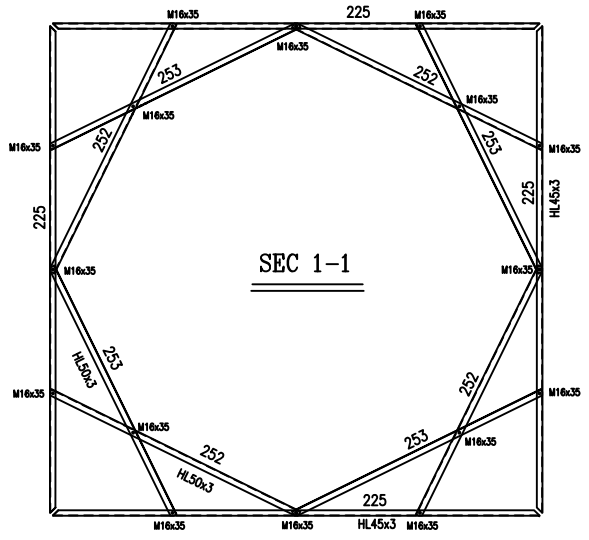
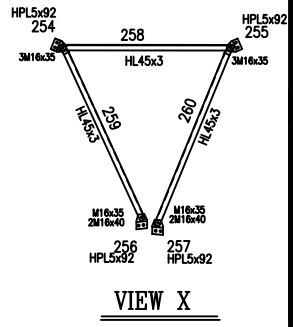
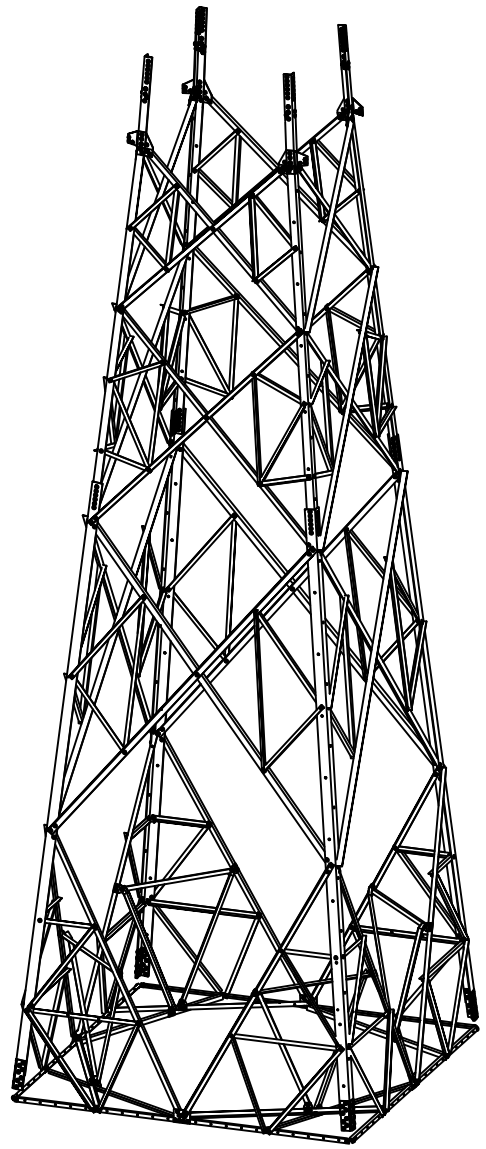












NOTES:

1- ALL DIMENSION ARE IN MILLIMETERS.
2- DO NOT SCALE THE DRAWING
3- DIAMETERS OF HOLE ARE AS FOLLOWS:
ø21.5 mm FOR M20, ø17.5 mm FOR M16
ø13.5 mm FOR M12 BOLTS.
4- EACH BOLT ASSEMBLY INCLUDES ONE BOLT ONE NUT AND ONE SPRING WASHER.
5- EACH STEP BOLT ASSEMBLY INCLUDES ONE STEP BOLT TWO NUTS AND TWO SPRING WASHERS.
6- GRADE OF BOLTS IS 5.8
7- THE STEEL MEMBER INDENTIFIED BY "H" ARE ST:52 OTHER MEMBERS ARE ST:37

SYMBOLS AND ABBREVIATIONS

DESCRIPTION	SYMBOLE
CENTER LINE	C.L.
PLATE	PL
ANGLE	L
SPLICE	SP
HIGH TENSILE	HL
BEND LINE	B.L.
NEAR SIDE	N.S.
FAR SIDE	F.S.
ø12 mm HOLE	◆
ø13 mm HOLE	•
ø17.5 mm HOLE	○
ø20 mm HOLE	◔
ø22mm HOLE	◑
HOLE FOR STEP BOLT	●

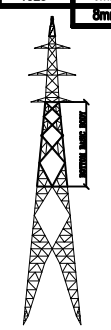
SPECIFICATION FOR MATERIALS

NO.	ITEM	REFERENCE Specific Requirements	REFERENCE Technical Delivery Conditions
1	ANGLE	DIN 10056-2	DIN EN 10025-2 MILD STEEL,GRADE S235JR HIGH TENSILE,GRADE S355J2
2	GUSSET PLATE	DIN 10048	DIN EN 10025-2 MILD STEEL,GRADE S235JR HIGH TENSILE,GRADE S355J2
3	FILLER PLATE	DIN 10048	DIN EN 10025-2 MILD STEEL,GRADE S235JR
4	BOLT	DIN 7990	ISO 898-part1,Grade 5.8
5	NUT	DIN 4032	ISO 898-part2,Grade 5
6	SPRING WASHER	DIN 127	DIN 267-part 28
7	PLAIN WASHER	DIN EN ISO 4759-3	DIN EN 10025-2,Grade S235JR
8	GALVANIZE	ANGLES & PLATES	ASTM A123
		BOLTS & NUTS & WASHERS	ASTM A153

Note: 1-Application of an equal and approved material is allowed only after the written permission of consultant

LIST OF BOLT & NUTS & WASHERS INCLUDING 3% EXTRA

LENGTH	QTY.	LENGTH	QTY.
M16x35mm	845	2mm PACK W.	5
M16x40mm	450	3mm PACK W.	15
M16x45mm	126	4mm PACK W.	27
STEP BOLT	52	5mm PACK W.	11
STD.SP.WASHER	1525	6mm PACK W.	56
		8mm PACK W.	21



NO.	DESCRIPTION	BY	CHKD.	APPR.	DATE
1	SIZE CHANGES : 0.5D,0.25D	M.M	M.MM	M.MM	07/10/10
2	ADD SUSPENSION ACCORDING TO LETTER NO. 1/1/1/1/1	M.M	M.MM	M.MM	07/10/10

PROJECT: 63 KV D.C TRANSMISSION LINE
CLIENT: YAZD REGIONAL ELECTRIC CO.
CONSULTANT: MONENCO IRAN CO.
CONTRACTOR: YASAN CO.
TOWER TYPE: HEAVY SUSPENSION YTM15
SECTION OF TOWER: BOTTOM BASIC BODY
DESIGN: YASAN ENG.
DRAWN: M.NASSIRI
CHECKED: A.RAZAVI
APPROVED: M.R.GHORBANI
DATE: 1390/10/10
DRAWING NO: 000-00-00-0000-0-0-00