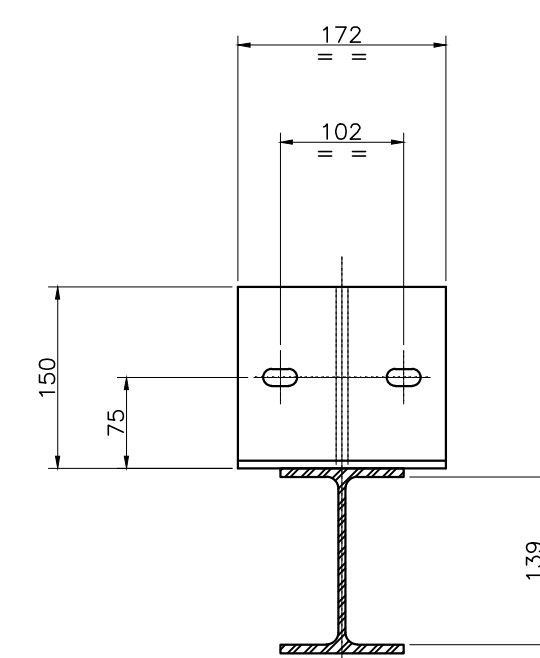
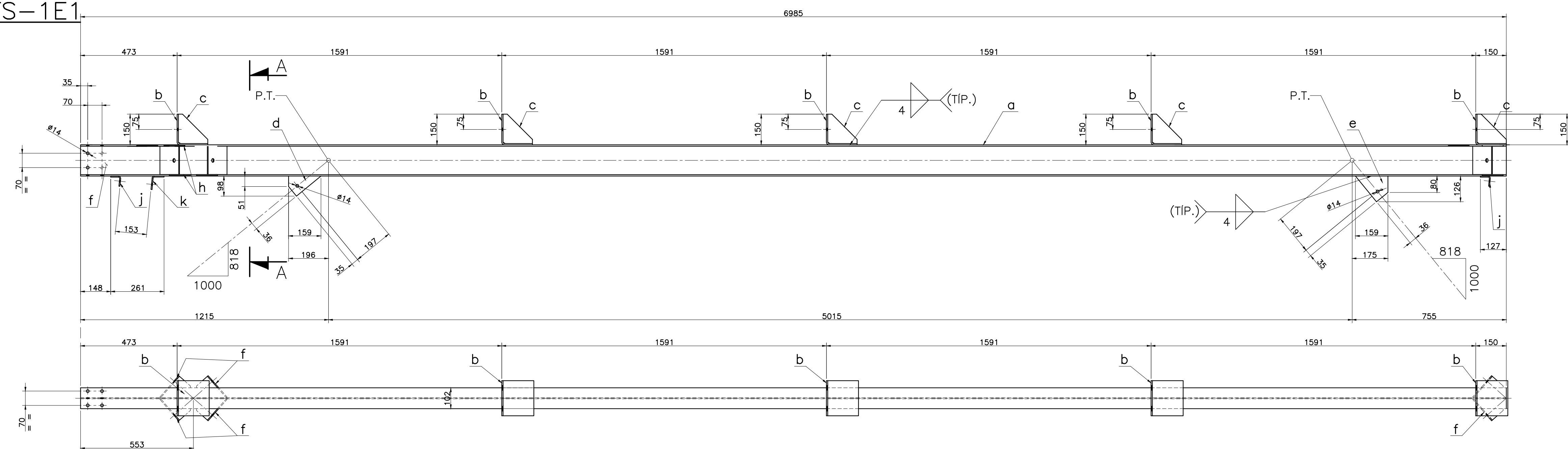
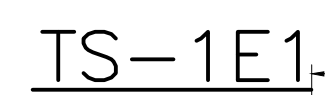
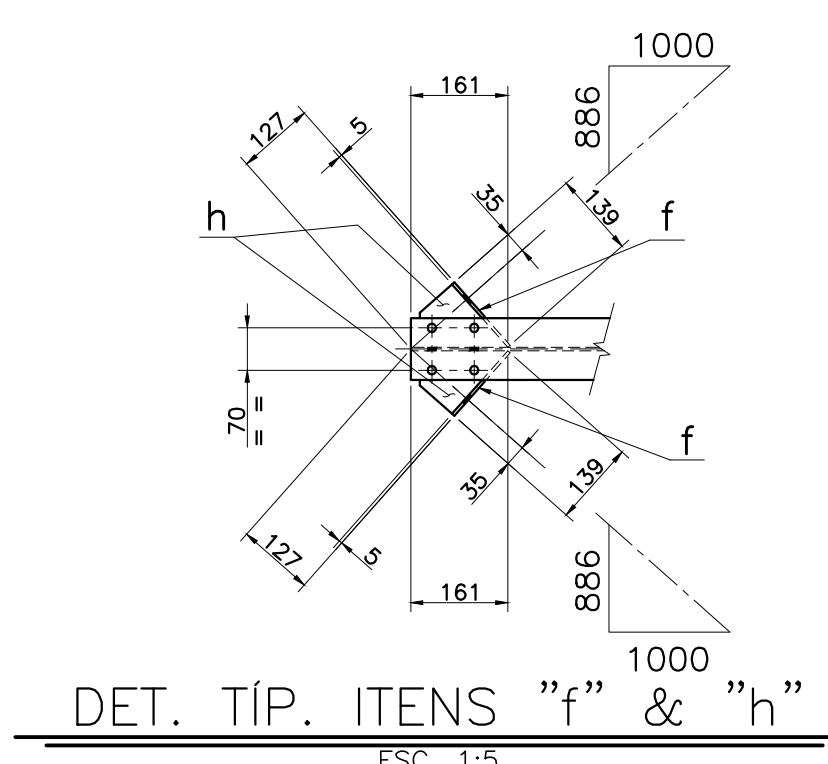
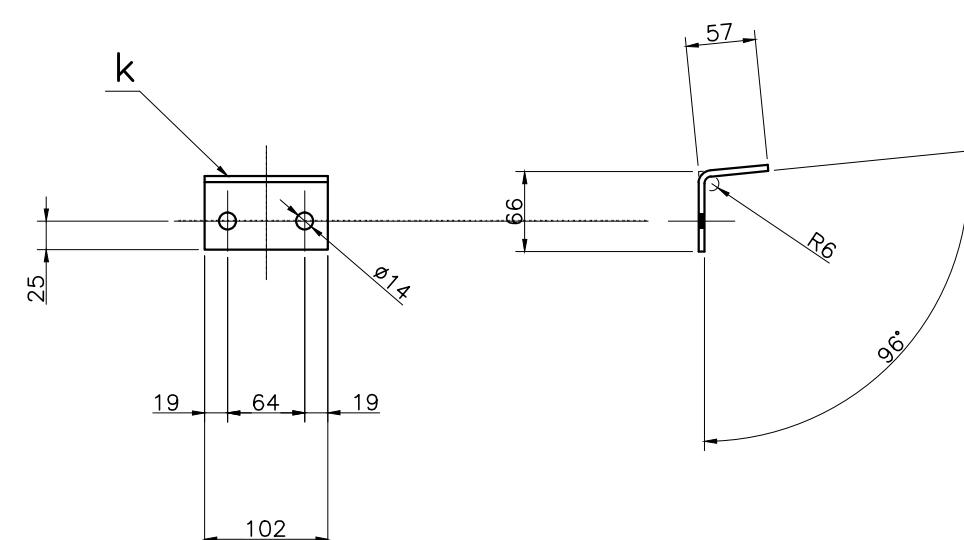
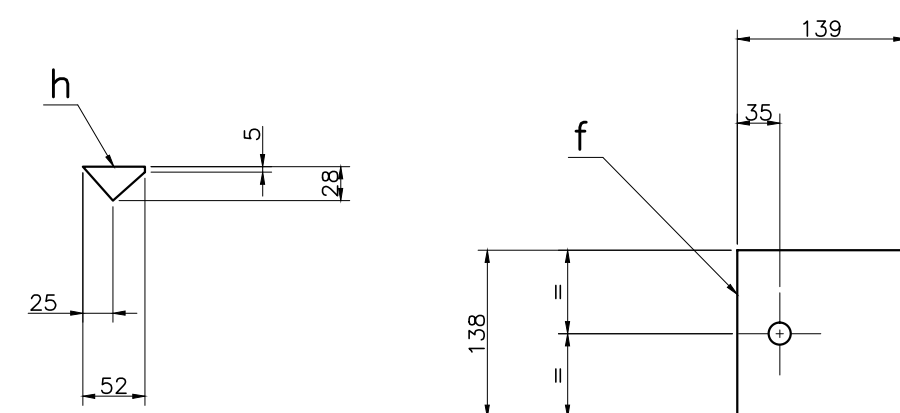
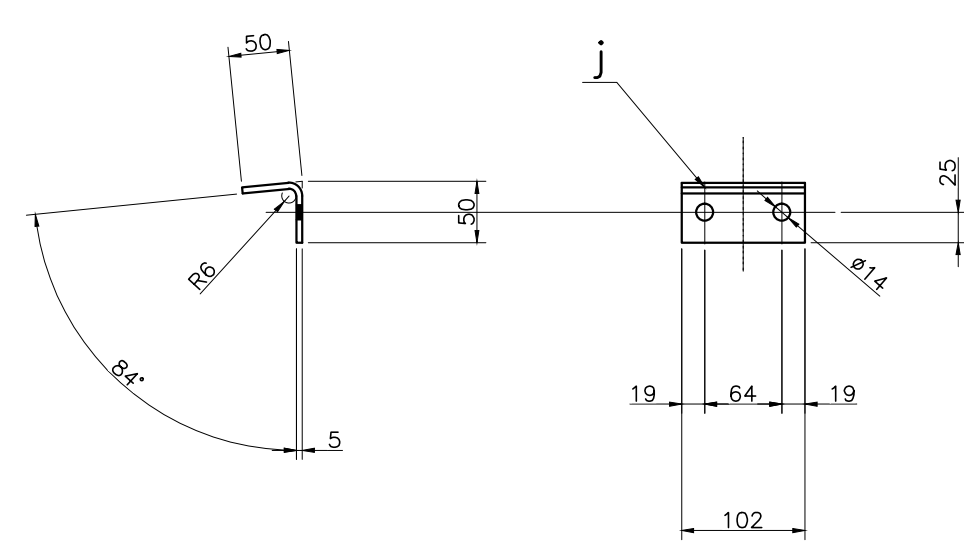
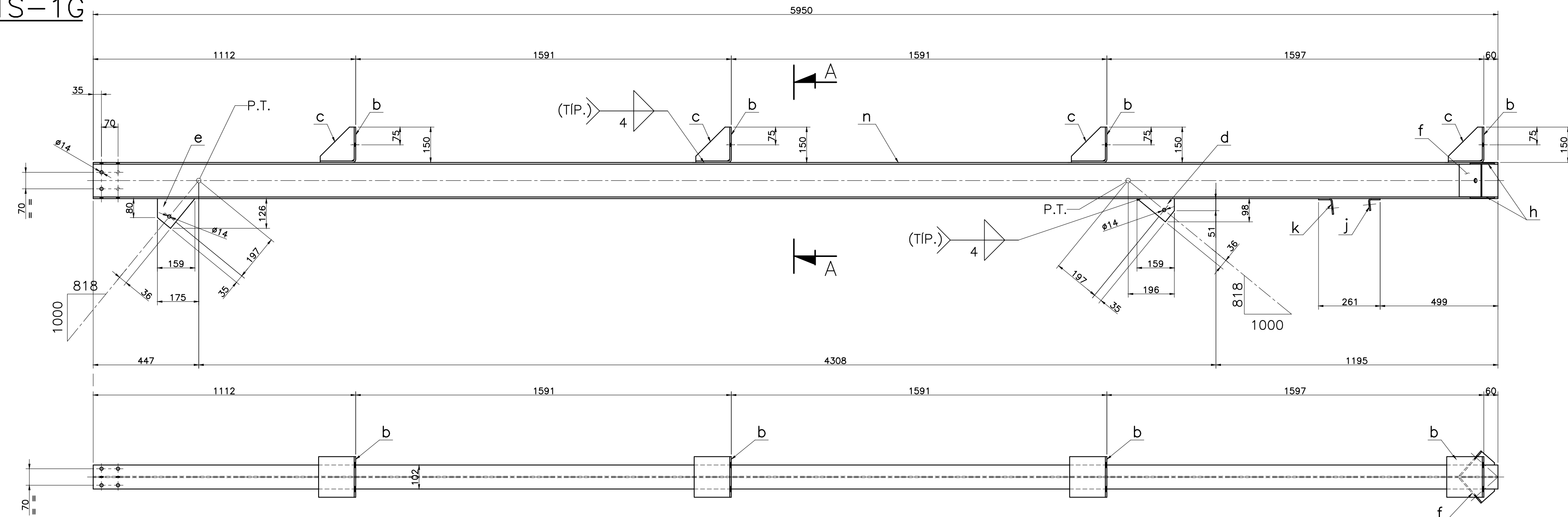
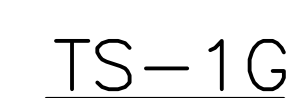
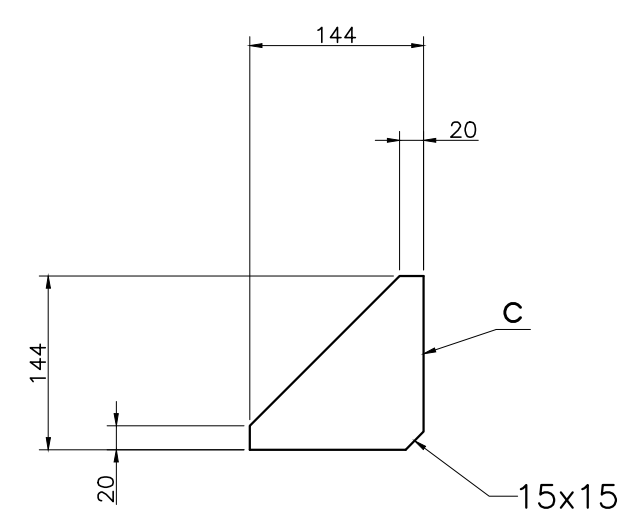
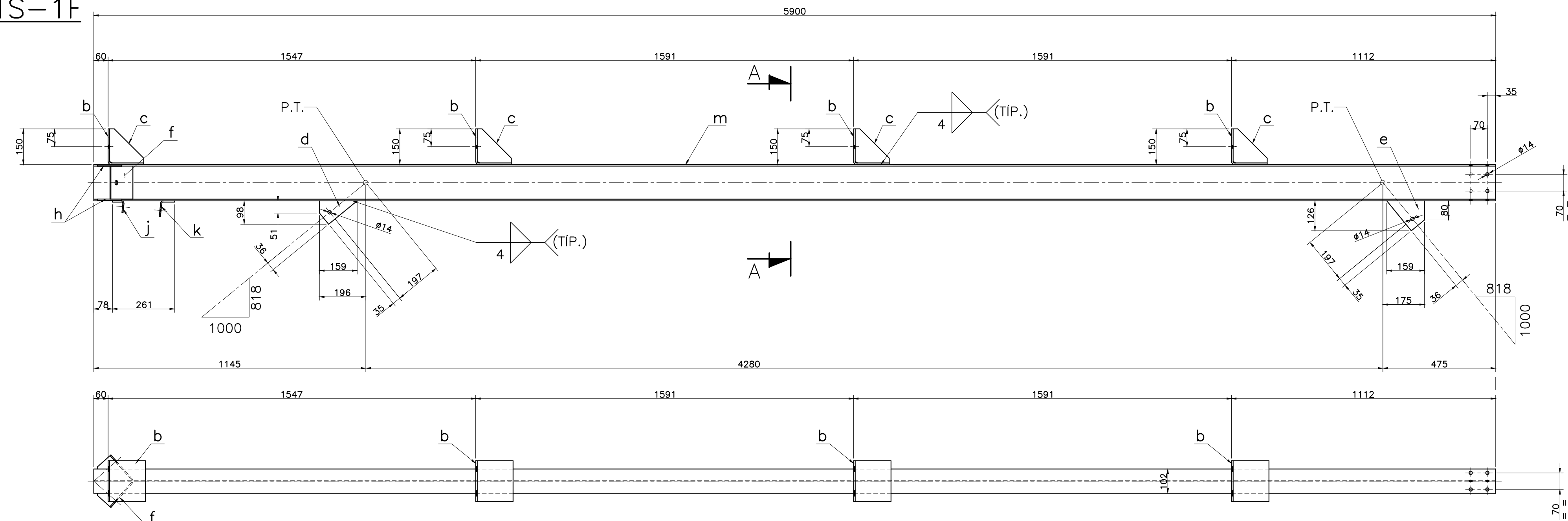
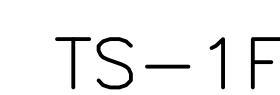
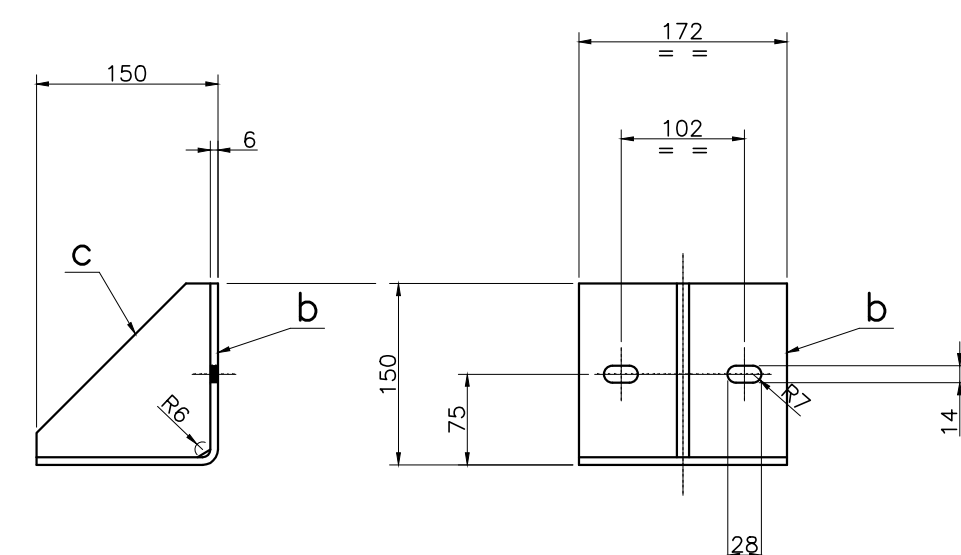
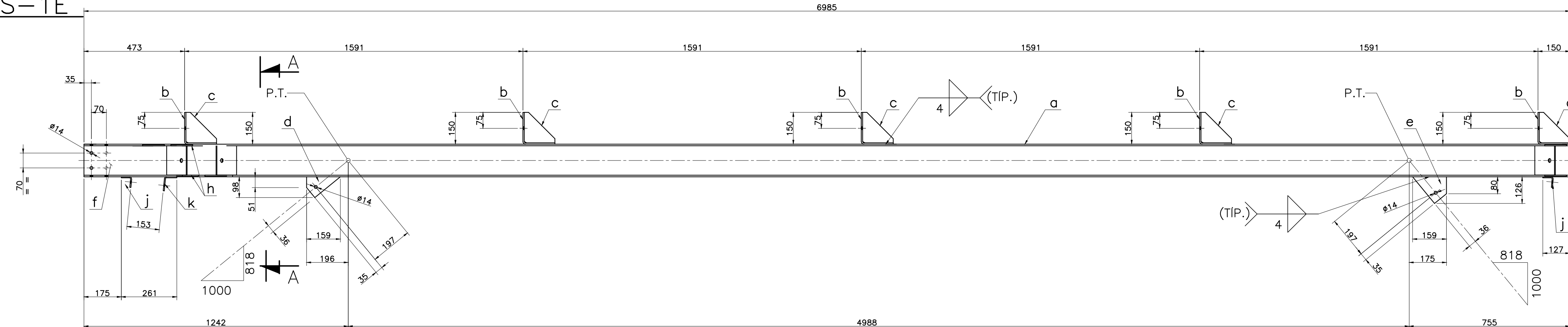
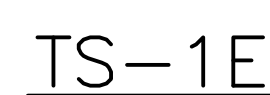




CORTE A—
(TÍPICO)

FSC 1:7.9



DET. TÍP. ITENS "f" & "h"

ESC. 18

ITEM		QUANT	DISCRIMINAÇÃO	MATERIAL	PESO (kg)	
					UNIT	TOTAL
18					2766,6	
a	18		PERFIL W 150 x 18,0 kg/m x 6985	ASTM A588	126,0	2268,0
b	90	CH. 6 x 172 x 295 (DESENV.)	SAC 300	2,0	180,0	
c	90	CH. 10 x 144 x 144	SAC 300	1,5	135,0	
d	18	CH. 6 x 98 x 159	SAC 300	1,0	18,0	
e	18	CH. 6 x 126 x 159	SAC 300	1,0	18,0	
f	108	CH. 5 x 138 x 139	SAC 300	1,0	108,0	
h	216	CH. 5 x 28 x 52	SAC 300	—	12,0	
j	36	CH. 5 x 95 x 102	SAC 300	0,5	18,0	
k	18	CH. 5 x 102 x 120	SAC 300	0,5	9,0	
09					1158,0	
m	09	PERFIL W 150 x 18,0 kg/m x 5900	ASTM A588	106,0	954,0	
b	45	CH. 6 x 172 x 295 (DESENV.)	SAC 300	2,0	90,0	
c	45	CH. 10 x 144 x 144	SAC 300	1,5	67,5	
d	09	CH. 6 x 98 x 159	SAC 300	1,0	9,0	
e	09	CH. 6 x 126 x 159	SAC 300	1,0	9,0	
f	18	CH. 5 x 138 x 139	SAC 300	1,0	18,0	
h	36	CH. 5 x 28 x 52	SAC 300	—	2,0	
j	09	CH. 5 x 95 x 102	SAC 300	0,5	4,5	
k	09	CH. 5 x 102 x 120	SAC 300	0,5	4,5	
09					1167,0	
n	09	PERFIL W 150 x 18,0 kg/m x 5950	ASTM A588	107,0	963,0	
b	45	CH. 6 x 172 x 295 (DESENV.)	SAC 300	2,0	90,0	
c	45	CH. 10 x 144 x 144	SAC 300	1,5	67,5	
d	09	CH. 6 x 98 x 159	SAC 300	1,0	9,0	
e	09	CH. 6 x 126 x 159	SAC 300	1,0	9,0	
f	18	CH. 5 x 138 x 139	SAC 300	1,0	18,0	
h	36	CH. 5 x 28 x 52	SAC 300	—	2,0	
j	09	CH. 5 x 95 x 102	SAC 300	0,5	4,5	
k	09	CH. 5 x 102 x 120	SAC 300	0,5	4,5	

PESO TOTAL APROXIMADO	5092,0 Kg
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[illegible]

Gründungs- phase	Gründungs- phase
Gründungs- phase	Gründungs- phase

VERA CRUZ
ZINGHARATI

Rua do Azeite, 415 - Sala 111
Centro - São Luís - MA - 65.010-040
Fone: 38.3222-5478

H&M 11/10/90
 Fábio Nogueira do Oliveira
 Engenheiro Civil
 Crea nº: 5071-D-MA
 Registro Nacional nº: 11018/1802-6

PROSECRETARIO

 **Tribunal
Regional
Eleitoral**
do Maranhão

COBERTURA DOCAS E DEPÓSITO DE URNAS

Avenida Senador Vitorino Freire, s/n - Madre Deus - São Luís - Ma

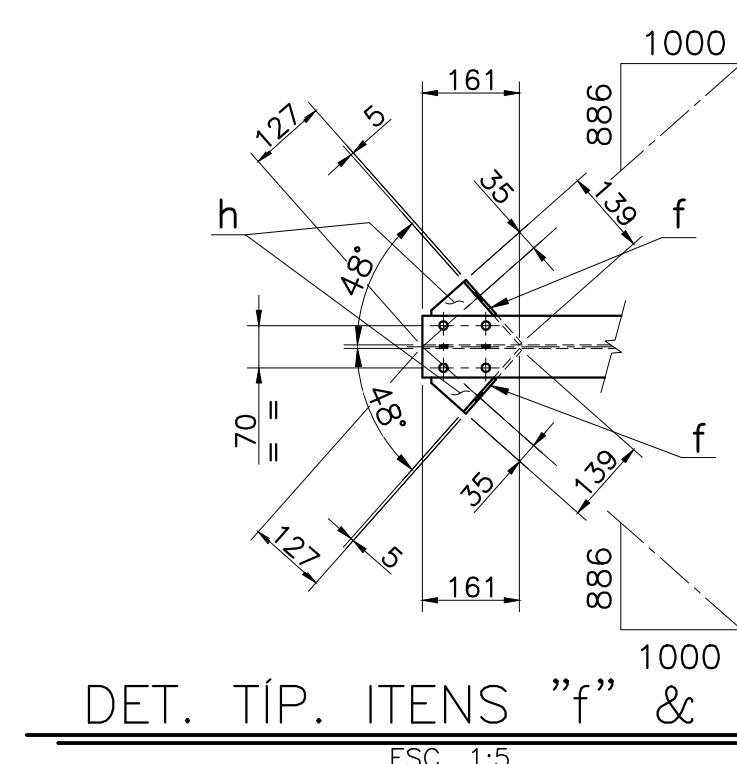
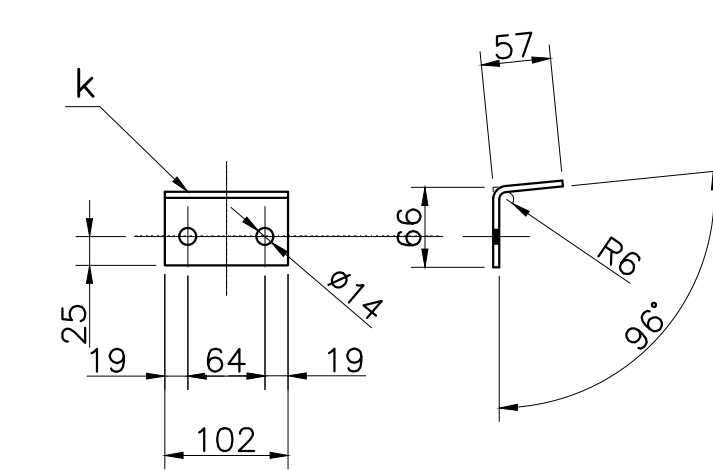
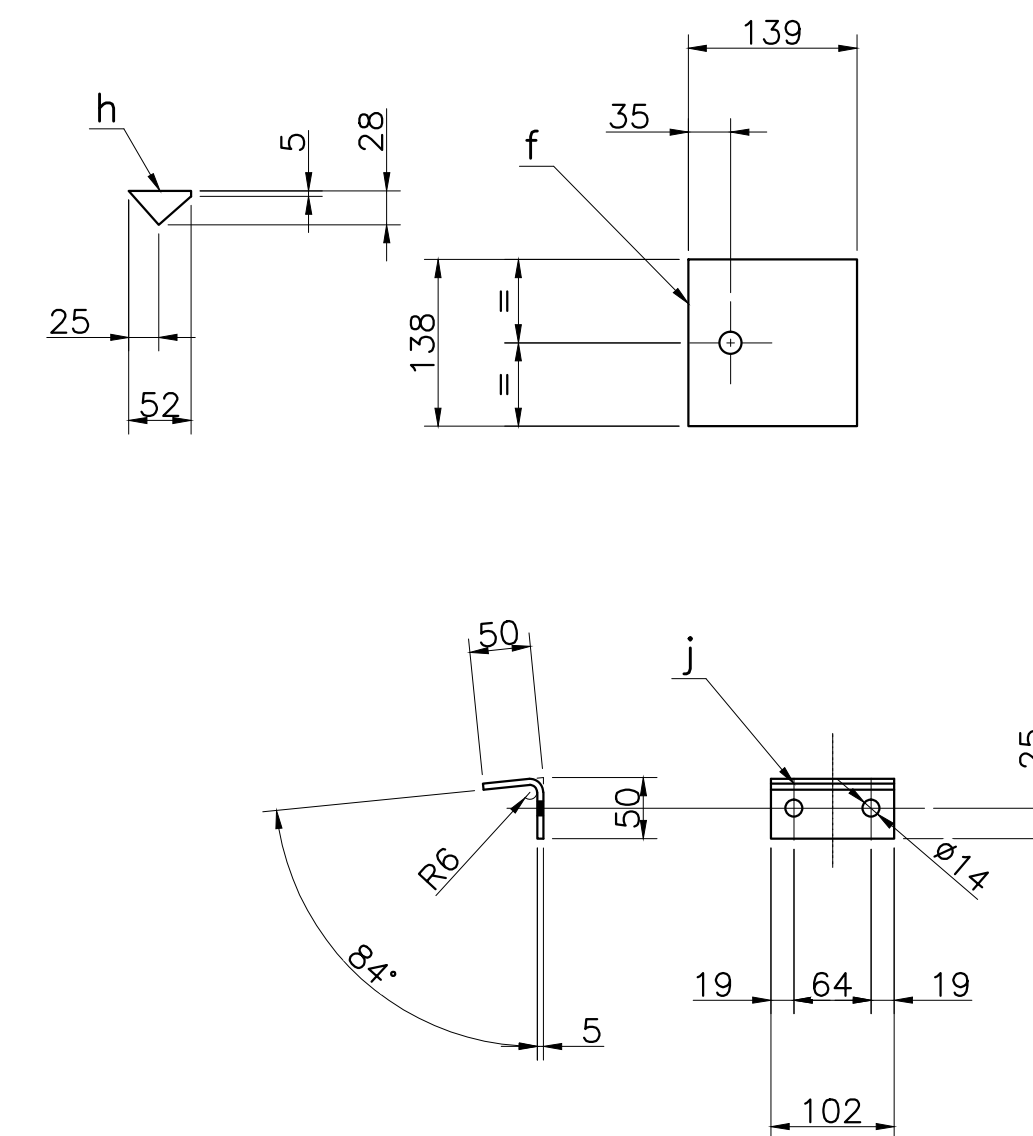
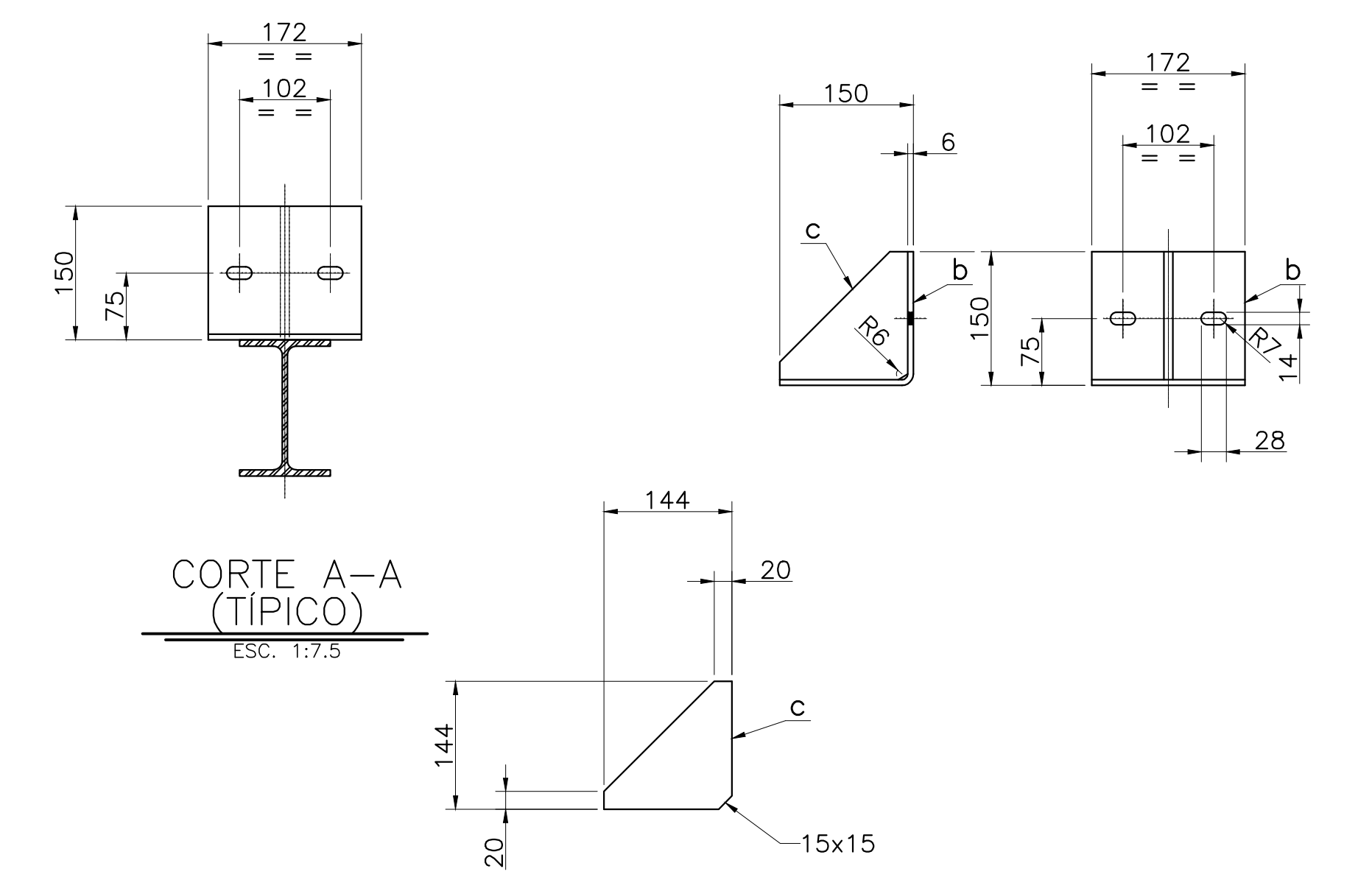
PROJETO DE ESTRUTURA METÁLICA

IDENTIFICACAO: FABRICACAO TESOURAS TESOURA - TS-E1 /E1/F1/G		ETAPA: PROJETO EXECUTIVO	
AUTOR: Claudio Nogueira de Oliveira CO-AUTOR:	RESUMO DO AUTOR: Eng Mecânico - CREA nº. 110202808-8 RESUMO DO CO-AUTOR:	TIPO: MET DATA: NOV/2017 ESCALA: 1:12.5	Nº DA FOLHA: 13 / 16
CO-AUTOR:		RESUMO DO CO-AUTOR:	
COMISSAO DO PROJETO:			

NOTAS:

- 1- PROJETO:
AS DIMENSÕES LISTADAS ESTÃO EM MILÍMETRO
- 2- LIGAÇÕES:
TODAS AS LIGAÇÕES DE FÁBRICA DEVEM SER SOLDADAS ATRAVÉS DO PROCESSO MIG/MAG DE ACORDO COM AWS D1.1, ÚLTIMA EDIÇÃO.
TODAS AS LIGAÇÕES DE CAMPO DEVEM SER PARAFUSADAS COM PARAFUSOS ASTM-A325-T1A GALVANIZADOS A FOGO E DIMENSIONADAS CONFORME ESPECIFICAÇÕES DA NBR-8800 E AISC.
- 3- PINTURA:
APÓS A FABRICAÇÃO A ESTRUTURA DEVERÁ SER SUBMETIDA AO SEGUINTE PROCESSO DE TRATAMENTO SUPERFICIAL:
LIMPEZA DE SUPERFÍCIE POR JATO ABRASIVO COM GRANULHA DE AÇO PADRÃO SAJ 3, FERRILHA DE RUGOSIDADE ENTRE 50 E 100 MICRÔMETROS.

UMA DEMÃO DE SINAIS 277 - 65 mm, COM ESPESURA DE PELÍCULA SECA
UMA DEMÃO DE SINAIS F7 HS PLUS - 200 µm, COM ESPESURA DE PELÍCULA SECA
UMA DEMÃO DE ACABAMENTO SUMATANE 355 - 55 µm, NA COR BRANCA, PARA ESTRUTURAS EM GERAL
4 - MATERIAIS:
PERFIS DOBRADOS : CHAPA ASTM A36
PERFIS LAMINADOS AÇOMADOS: ASTM A572 GR 50.
CANTONEIRAS : ASTM A36
CHAPAS PARA LIGAÇÕES E SUPORTES: ASTM A36
BARRAS TRELIZADAS: AÇO SAE 1020.
PARAFUSOS PARA LIGAÇÕES PRIMÁRIAS: ASTM A325-TI7A ZINCADO A FOGO.
PORÇAS PARA LIGAÇÕES PRIMÁRIAS: A-563 DI ZINCADO A FOGO.
ARBOLHAS PARA LIGAÇÕES PRIMÁRIAS: F-436 ZINCADO A FOGO.
PARAFUSOS PARA LIGAÇÕES SECUNDÁRIAS: ASTM A307 ZINCADO A FOGO.



PESO TOTAL APROXIMADO	5848,0 Kg
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Catégorie:	Catégorie:
Catégorie:	Catégorie:

PROCURADOR:

 **Tribunal
Regional
Eleitoral**
do Maranhão

COBERTURA DO CAS E DEPOSITO DE URNAS

Avenida Senador Vitorino Freire, s/n - Madre Deus - São Luís - Ma

PROJETO DE ESTRUTURA METÁLICA

DESENHO FABRICAÇÃO TESOURAS TESOURA - TS-1H/1J/1K/1L	ETAPA PROJETO EXECUTIVO
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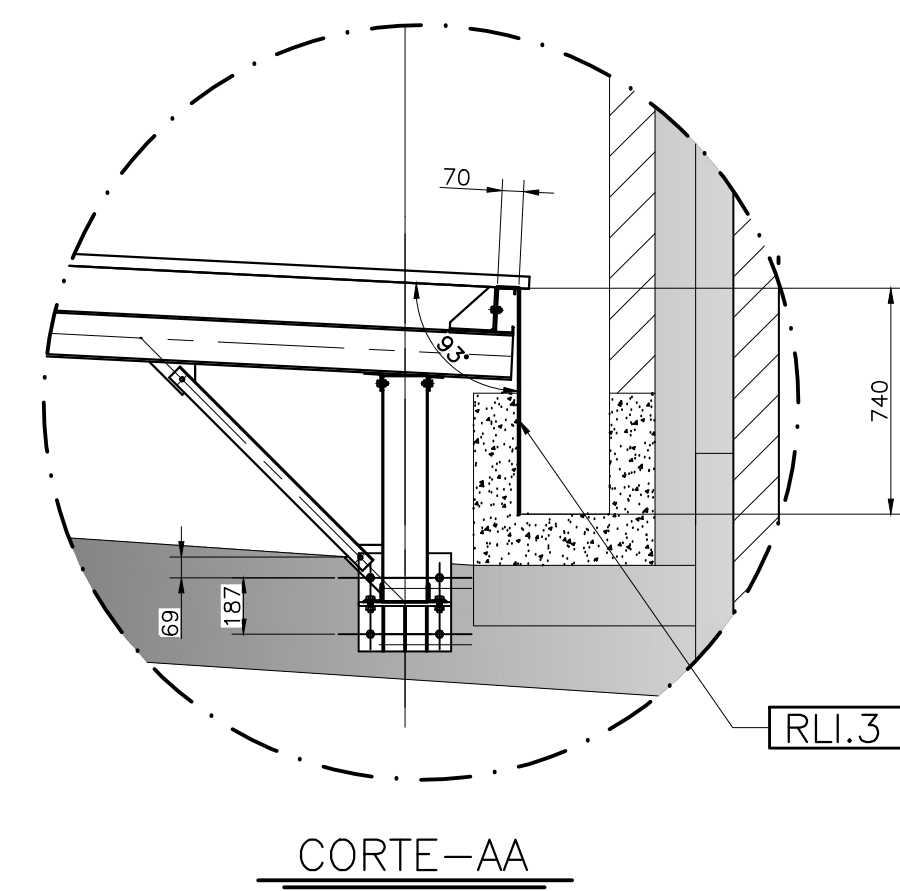
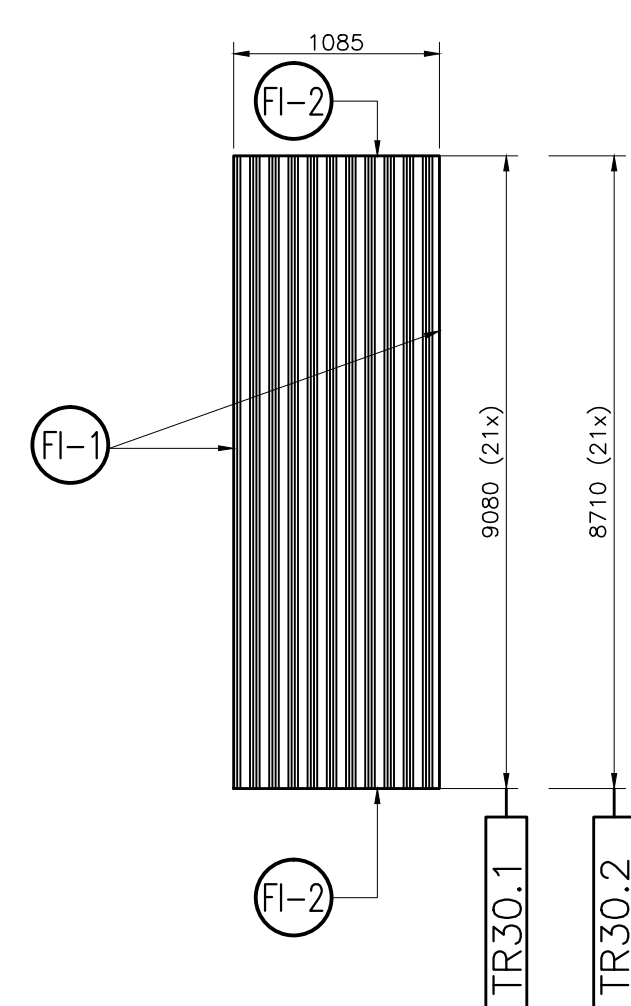
AUTOR:	REGISTRO DO AUTOR:	TÍTULO:	N.º DA FOLHA:
Gláudio Nogueira de Oliveira	Eng Mecânico - CREA nº 110202/000-8		

CO-AUTOR: _____
PRESETO DO CO-AUTOR: _____
MET 14

CO-AUTOR:	PRESTESTO DO CO-AUTOR:	DATA: NOV/2017
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CÓDIGO DO ARQUIVO: _____ ESCALA: 1:12,5 /16

[illegible][illegible]



ITEM		QUANT	DISCRIMINAÇÃO	MATERIAL	NOTA	PESO (kg)	
						UNIT.	TOTAL
COBERTURA COM ISOTEXILA PIR/PIR ESPESURA SOLANTE 30mm NA COR BRANCA CÓDIGO RAL 9003							
TR.30.1	21		0,50 x 1085 x 9080 (10,74kg/m2)			105,8	2221,9
TR.30.2	21		0,50 x 1085 x 8710 (10,74kg/m2)			101,5	2131,4
RUF0 LATERAL INTERIOR PARA ALVENARIA							
RLI.1	13		0,50 x 550 x 300 (3,09kg/m2)			6,5	84,2
RLI.2	8		0,50 x 550 x 300 (3,09kg/m2)			6,5	52,0
RUF0 FRONTAL PARA BORDA							
RLI.3	8		0,50 x 810 x 300 (3,09kg/m2)			9,5	76,3
ELEMENTO/FIXAÇÃO							
P1	970		FIXADOR PB121/4-14x PDM C/ ARRUELA DE EPDM ECOSEAL COMPONENTO = 4	MATERIAL		-	-
FI-1	400m		FITA TACKY-TAPE - LARGURA 22,2mm			-	-
FI-2	100		FITA TACKY-TAPE - LARGURA 9,5mm			-	-

PESO TOTAL APROXIMADO	4.565,0 Kg
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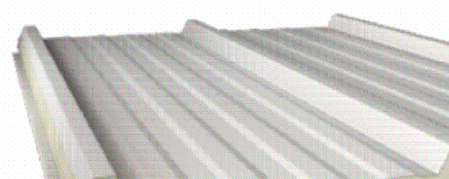
MANUAL DE FIXAÇÃO DAS TELHAS - ISOESTE									
Tipo de Fixador		Fotos	Fixação X Condição	Tipos de Telhas e Sistema					
			ISOESTE EPS 30mm	ISOESTE EPS 100mm	TELHA EPS 20mm	TELHA EPS 30mm	Taperclon TP100	Taperclon TP40	Ondulor OND17
			Comp. Mínimo 4" x 3"	Comp. Mínimo 4" x 3"	Mínimo 4"	Comp. Mínimo 4"			
PERITEU - 14x ... - PS2 de 100mm/125mm/150mm/175mm/200mm/225mm/250mm/275mm/300mm/325mm/350mm/375mm/400mm/425mm/450mm/475mm/500mm/525mm/550mm/575mm/600mm/625mm/650mm/675mm/700mm/725mm/750mm/775mm/800mm/825mm/850mm/875mm/900mm/925mm/950mm/975mm/1000mm/1025mm/1050mm/1075mm/1100mm/1125mm/1150mm/1175mm/1200mm/1225mm/1250mm/1275mm/1300mm/1325mm/1350mm/1375mm/1400mm/1425mm/1450mm/1475mm/1500mm/1525mm/1550mm/1575mm/1600mm/1625mm/1650mm/1675mm/1700mm/1725mm/1750mm/1775mm/1800mm/1825mm/1850mm/1875mm/1900mm/1925mm/1950mm/1975mm/2000mm/2025mm/2050mm/2075mm/2100mm/2125mm/2150mm/2175mm/2200mm/2225mm/2250mm/2275mm/2300mm/2325mm/2350mm/2375mm/2400mm/2425mm/2450mm/2475mm/2500mm/2525mm/2550mm/2575mm/2600mm/2625mm/2650mm/2675mm/2700mm/2725mm/2750mm/2775mm/2800mm/2825mm/2850mm/2875mm/2900mm/2925mm/2950mm/2975mm/3000mm/3025mm/3050mm/3075mm/3100mm/3125mm/3150mm/3175mm/3200mm/3225mm/3250mm/3275mm/3300mm/3325mm/3350mm/3375mm/3400mm/3425mm/3450mm/3475mm/3500mm/3525mm/3550mm/3575mm/3600mm/3625mm/3650mm/3675mm/3700mm/3725mm/3750mm/3775mm/3800mm/3825mm/3850mm/3875mm/3900mm/3925mm/3950mm/3975mm/4000mm/4025mm/4050mm/4075mm/4100mm/4125mm/4150mm/4175mm/4200mm/4225mm/4250mm/4275mm/4300mm/4325mm/4350mm/4375mm/4400mm/4425mm/4450mm/4475mm/4500mm/4525mm/4550mm/4575mm/4600mm/4625mm/4650mm/4675mm/4700mm/4725mm/4750mm/4775mm/4800mm/4825mm/4850mm/4875mm/4900mm/4925mm/4950mm/4975mm/5000mm/5025mm/5050mm/5075mm/5100mm/5125mm/5150mm/5175mm/5200mm/5225mm/5250mm/5275mm/5300mm/5325mm/5350mm/5375mm/5400mm/5425mm/5450mm/5475mm/5500mm/5525mm/5550mm/5575mm/5600mm/5625mm/5650mm/5675mm/5700mm/5725mm/5750mm/5775mm/5800mm/5825mm/5850mm/5875mm/5900mm/5925mm/5950mm/5975mm/6000mm/6025mm/6050mm/6075mm/6100mm/6125mm/6150mm/6175mm/6200mm/6225mm/6250mm/6275mm/6300mm/6325mm/6350mm/6375mm/6400mm/6425mm/6450mm/6475mm/6500mm/6525mm/6550mm/6575mm/6600mm/6625mm/6650mm/6675mm/6700mm/6725mm/6750mm/6775mm/6800mm/6825mm/6850mm/6875mm/6900mm/6925mm/6950mm/6975mm/7000mm/7025mm/7050mm/7075mm/7100mm/7125mm/7150mm/7175mm/7200mm/7225mm/7250mm/7275mm/7300mm/7325mm/7350mm/7375mm/7400mm/7425mm/7450mm/7475mm/7500mm/7525mm/7550mm/7575mm/7600mm/7625mm/7650mm/7675mm/7700mm/7725mm/7750mm/7775mm/7800mm/7825mm/7850mm/7875mm/7900mm/7925mm/7950mm/7975mm/8000mm/8025mm/8050mm/8075mm/8100mm/8125mm/8150mm/8175mm/8200mm/8225mm/8250mm/8275mm/8300mm/8325mm/8350mm/8375mm/8400mm/8425mm/8450mm/8475mm/8500mm/8525mm/8550mm/8575mm/8600mm/8625mm/8650mm/8675mm/8700mm/8725mm/8750mm/8775mm/8800mm/8825mm/8850mm/8875mm/8900mm/8925mm/8950mm/8975mm/9000mm/9025mm/9050mm/9075mm/9100mm/9125mm/9150mm/9175mm/9200mm/9225mm/9250mm/9275mm/9300mm/9325mm/9350mm/9375mm/9400mm/9425mm/9450mm/9475mm/9500mm/9525mm/9550mm/9575mm/9600mm/9625mm/9650mm/9675mm/9700mm/9725mm/9750mm/9775mm/9800mm/9825mm/9850mm/9875mm/9900mm/9925mm/9950mm/9975mm/10000mm/10025mm/10050mm/10075mm/10100mm/10125mm/10150mm/10175mm/10200mm/10225mm/10250mm/10275mm/10300mm/10325mm/10350mm/10375mm/10400mm/10425mm/10450mm/10475mm/10500mm/10525mm/10550mm/10575mm/10600mm/10625mm/10650mm/10675mm/10700mm/10725mm/10750mm/10775mm/10800mm/10825mm/10850mm/10875mm/10900mm/10925mm/10950mm/10975mm/11000mm/11025mm/11050mm/11075mm/11100mm/11125mm/11150mm/11175mm/11200mm/11225mm/11250mm/11275mm/11300mm/11325mm/11350mm/11375mm/11400mm/11425mm/11450mm/11475mm/11500mm/11525mm/11550mm/11575mm/11600mm/11625mm/11650mm/11675mm/11700mm/11725mm/11750mm/11775mm/11800mm/11825mm/11850mm/11875mm/11900mm/11925mm/11950mm/11975mm/12000mm/12025mm/12050mm/12075mm/12100mm/12125mm/12150mm/12175mm/12200mm/12225mm/12250mm/12275mm/12300mm/12325mm/12350mm/12375mm/12400mm/12425mm/12450mm/12475mm/12500mm/12525mm/12550mm/12575mm/12600mm/12625mm/12650mm/12675mm/12700mm/12725mm/12750mm/12775mm/12800mm/12825mm/12850mm/12875mm/12900mm/12925mm/12950mm/12975mm/13000mm/13025mm/13050mm/13075mm/13100mm/13125mm/13150mm/13175mm/13200mm/13225mm/13250mm/13275mm/13300mm/13325mm/13350mm/13375mm/13400mm/13425mm/13450mm/13475mm/13500mm/13525mm/13550mm/13575mm/13600mm/13625mm/13650mm/13675mm/13700mm/13725mm/13750mm/13775mm/13800mm/13825mm/13850mm/13875mm/13900mm/13925mm/13950mm/13975mm/14000mm/14025mm/14050mm/14075mm/14100mm/14125mm/14150mm/14175mm/14200mm/14225mm/14250mm/14275mm/14300mm/14325mm/14350mm/14375mm/14400mm/14425mm/14450mm/14475mm/14500mm/14525mm/14550mm/14575mm/14600mm/14625mm/14650mm/14675mm/14700mm/14725mm/14750mm/14775mm/14800mm/14825mm/14850mm/14875mm/14900mm/14925mm/14950mm/14975mm/15000mm/15025mm/15050mm/15075mm/15100mm/15125mm/15150mm/15175mm/15200mm/15225mm/15250mm/15275mm/15300mm/15325mm/15350mm/15375mm/15400mm/15425mm/15450mm/15475mm/15500mm/15525mm/15550mm/15575mm/15600mm/15625mm/15650mm/15675mm/15700mm/15725mm/15750mm/15775mm/15800mm/15825mm/15850mm/15875mm/15900mm/15925mm/15950mm/15975mm/16000mm/16025mm/16050mm/16075mm/16100mm/16125mm/16150mm/16175mm/16200mm/16225mm/16250mm/16275mm/16300mm/16325mm/16350mm/16375mm/16400mm/16425mm/16450mm/16475mm/16500mm/16525mm/16550mm/16575mm/16600mm/16625mm/16650mm/16675mm/16700mm/16725mm/16750mm/16775mm/16800mm/16825mm/16850mm/16875mm/16900mm/16925mm/16950mm/16975mm/17000mm/17025mm/17050mm/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ISOTELHA® PUR/PUR

A Isotelha® Trapezoidal PUR/PUR é especialmente recomendada para quem busca conforto térmico com economia de energia e consequente redução do investimento nos equipamentos de climatização. Vencem maiores vácuos, economizando na estrutura da cobertura.

CORES DISPONÍVEIS:

RAL 9003

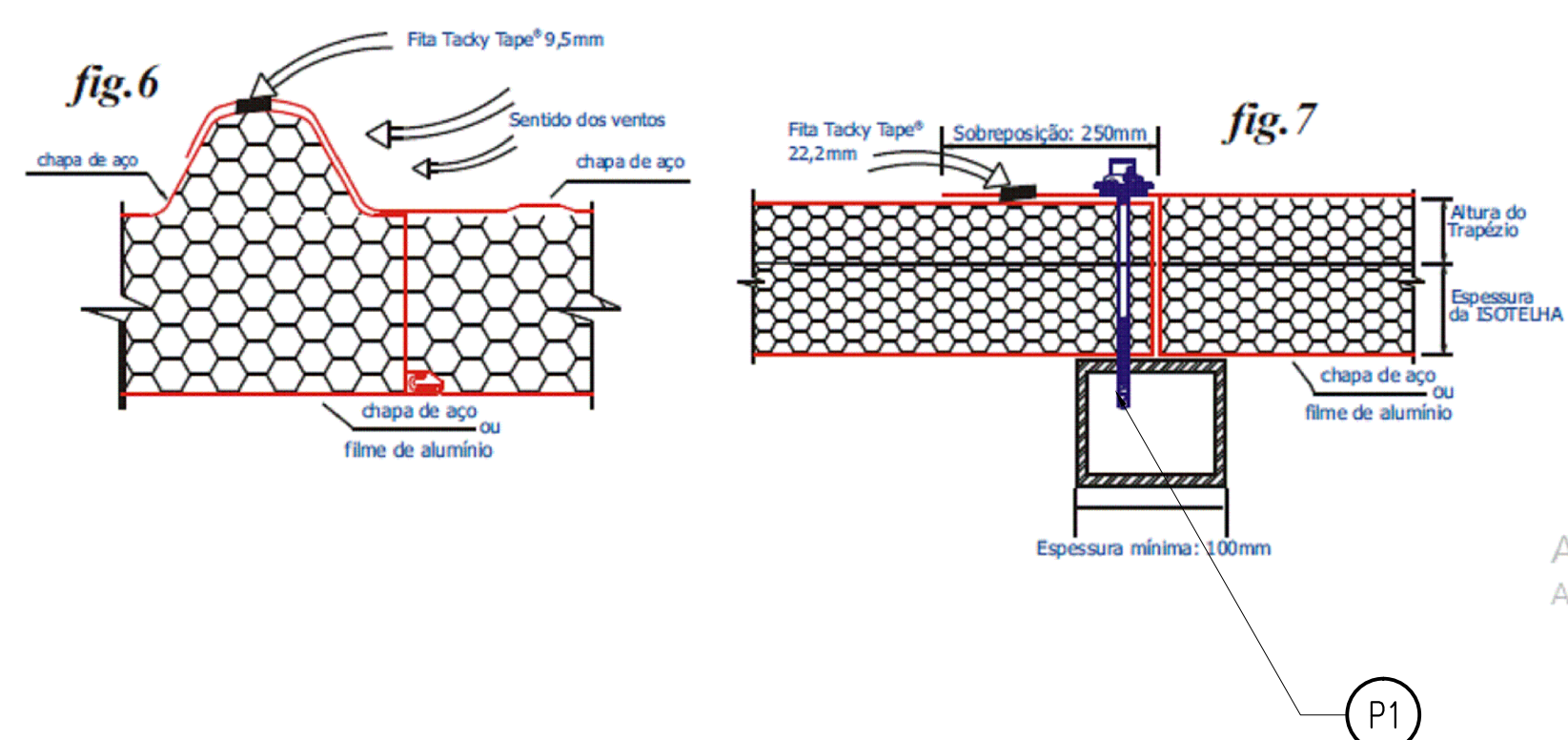


Largura útil.....1000mm
Espessuras..... 70mm
Revestimento externo.....aço pré-pintado

Revestimento interno.....aço pré-pintado, filme de polietileno branco

Núcleo.....PUR (poliuretano) classe R
auto extingüível
PIR (Polissocianurato)

- A emenda transversal da ISOTHEHA deverá ficar no centro da tampa e a largura mínima da tampa deverá ser de 100mm (fig.7);
- O transpasse transversal entre as ISOTHEHAS deverá ser de 250mm (fig.7);
- Para fazer a transpasse transversal das ISOTHEHAS, minimize o corte a camada de proteção na obra, conforme imagem especificada (fig.7);
- A sobreposição longitudinal das ISOTHEHAS deverá estar no mesmo sentido dos ventos predominantes do local de instalação (fig.8);
- Nas sobreposições das ISOTHEHAS, não se deve utilizar ISOTHEHAS, recomendar a utilização das fitas Tape Tack® para evitar a entrada de água;
- A inclinação do cobertor deve ser conforme especificação da telha neste catalogo;
- O fixador máximo lateral e frontal recomendado é de 500mm para ISOTHEHA (largura) e 300mm para ISOTHEHA (profundidade);
- A fixação nas ISOTHEHAS (parafuso ou gancho) é sempre na enda alta.



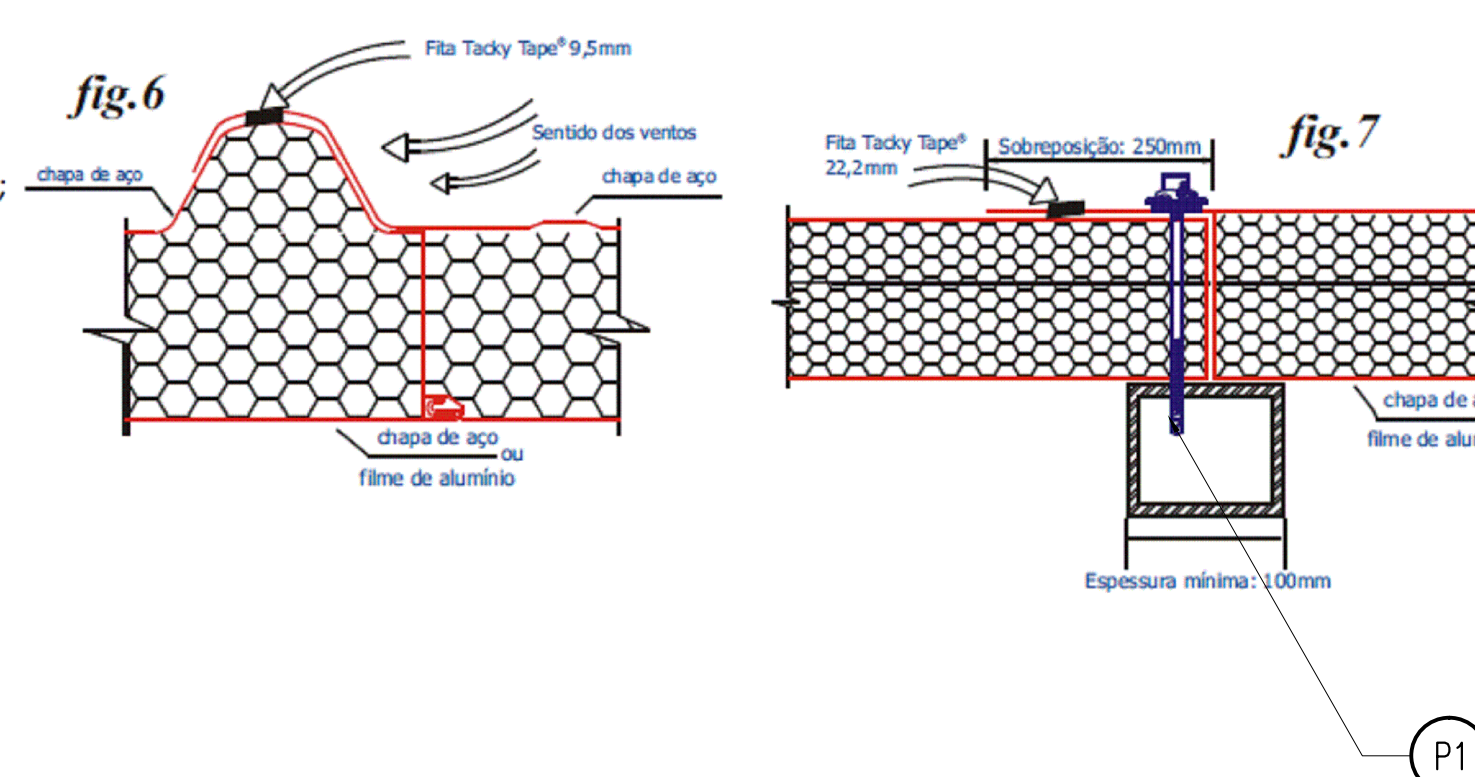
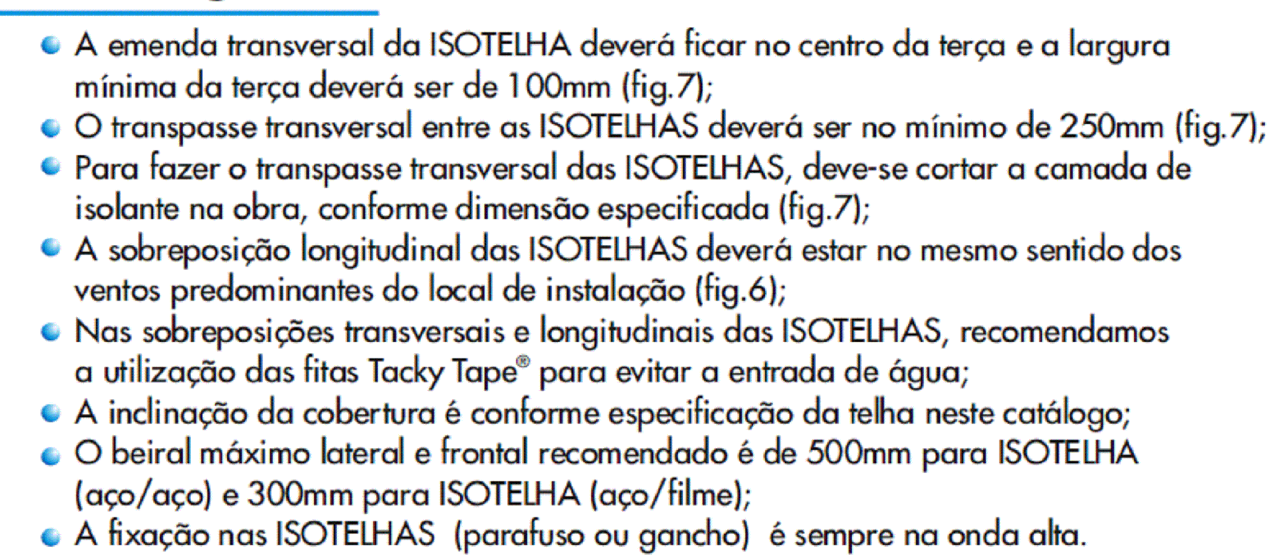
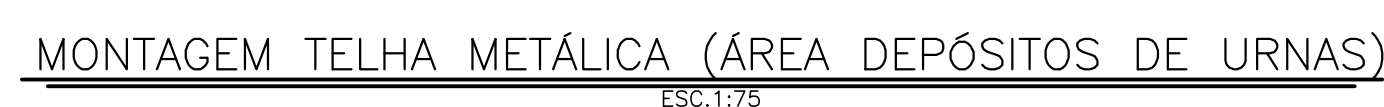
RUFO METALICO
COM VEDAÇÃO
NA PAREDE CO
MANTA ASFALT
AUTO ADESIVA

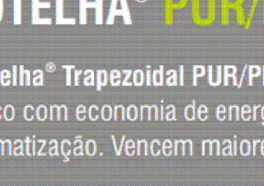
18 - Rufo Lateral Inferior p/ Alvenaria

TIPO DO PERFIL	Dimensão (mm)							
	A	B	C	D	Comp.		Ângulo (gr)	
					Total	Util		
RL-1	ISOTELHA PURPUR	160	350	20	20	3000	2800	90°
RL-2	ISOTELHA PURPUR	160	350	20	20	3000	2800	93°

NOTAS:
1- PROJETO:
AS DIMENSÕES LISTADAS ESTÃO EM MILÍMETRO

[illegible]



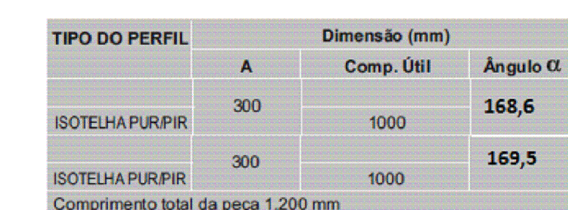


ISOTELHA™ PUR/PRR

A Isotelha™ Trapezoidal PUR/PRR é especialmente recomendada para quem busca conforto térmico com economia de energia e consequente redução de investimento nos equipamentos de climatização. Vendem maiores vãos, economizando na estrutura da cobertura.

CORES DISPONÍVEIS

 **RAL 9003**



CARACTERÍSTICAS DO PRODUTO

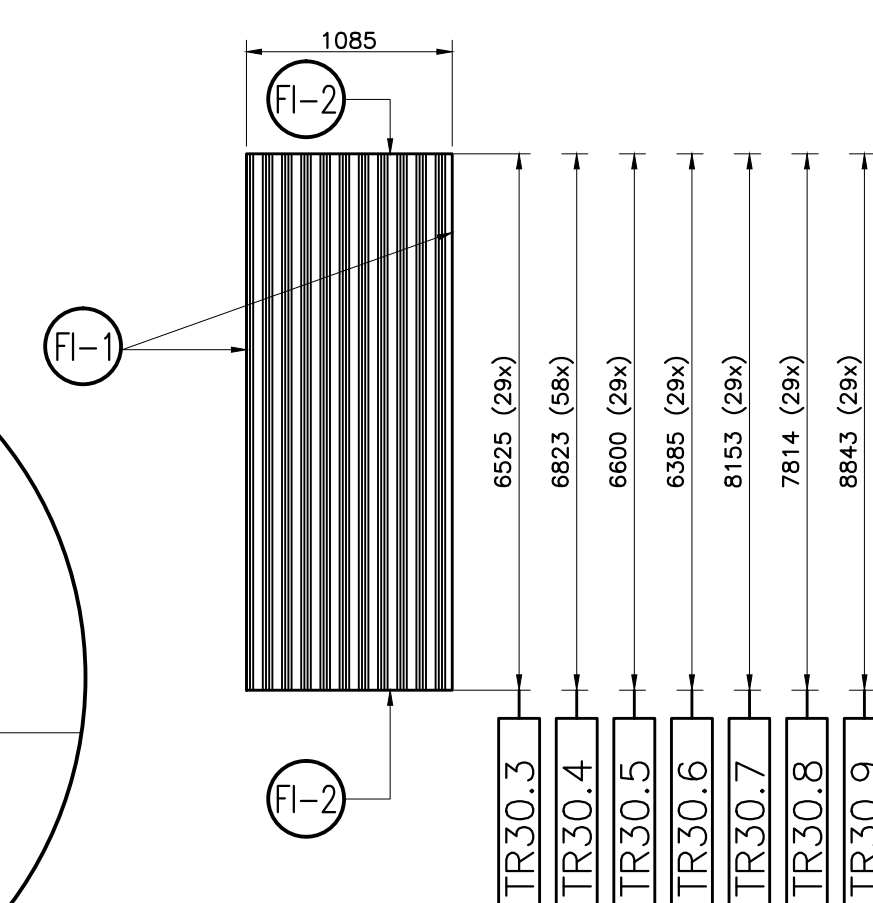
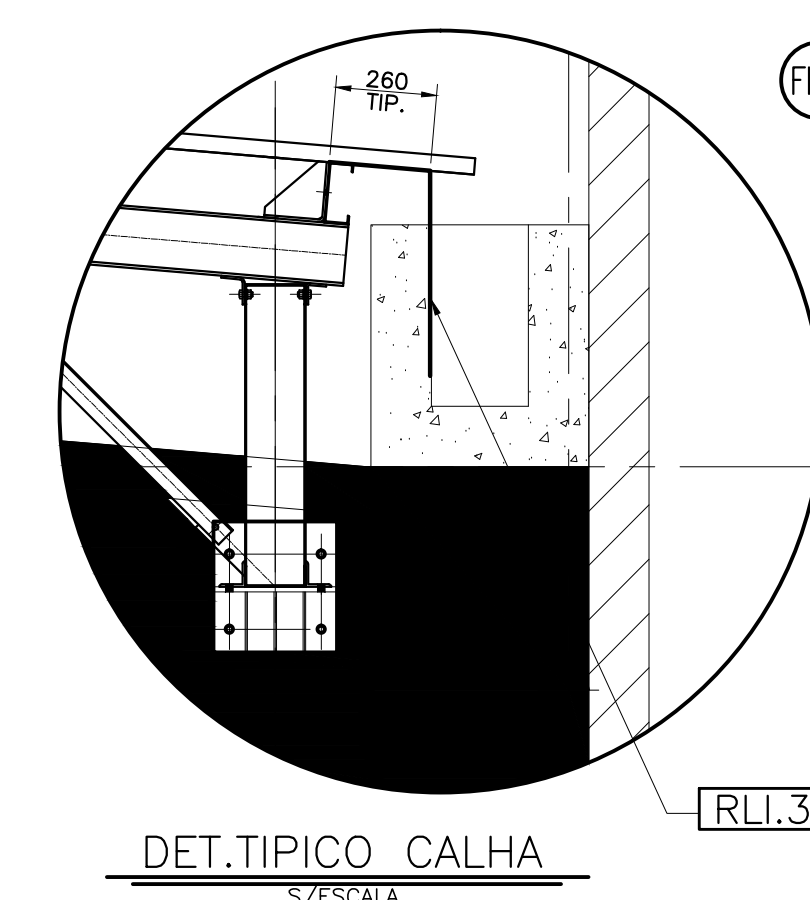
Largura útil.....1000mm

Espessuras..... 70mm

Revestimento externo.....aço pré-pintado

Revestimento interno.....aço pré-pintado, filme de polietileno branco

Núcleo.....PUR (poliuretano) classe R
auto extingüível
PIR (Poliisocianurato)

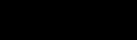


TIPO DO PERFIL	Dimensão (mm)						
	A	B	C	D	Total	Comp. Útil	Ângulo α
-1 ISOTELHA PURPUR	160	350	20	20	3000	2800	90°
-2 ISOTELHA PURPUR	160	350	20	20	3000	2800	92°

NOTAS:
1- PROJETO:
AS DIMENSÕES LISTADAS ESTÃO EM MILÍMETRO

PESO TOTAL APROXIMADO	20.982,2Kg
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CONFERENCE		CONFERENCE	
CONFERENCE		CONFERENCE	

 **VERA CRUZ**
ENGENHARIA

RESP. TÉCNICO:
Fábio Nogueira de Oliveira
Engenheiro Civil
Crea nº: 5071-D/MA
Registro Nacional nº: 11018/1802-6

Rua do Alemim, 415 - Sala 411
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PROSECUTOR

 **Tribunal
Regional
Eleitoral**
do Maranhão

COBERTURA DOCAS E DEPÓSITO DE URNAS

Avenida Senador Vitorino Freire, s/n - Madre Deus - São Luís - Ma

PROJETO DE ESTRUTURA METÁLICA

DESENHO: MONTAGEM TELHA METALICA (ÁREA DEPÓSITOS DE URNAS)

**PROSETO
EXECUTIVO**

AUTOR:	REGISTRO DO AUTOR:	TIPO:	M. DA PRANCHIA:
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Eng Mecânico - CREA nº. 110202905-8

NAME (Last, First)	STUDENT ID NO. (Last 4 Digits)	ME1	6
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CO-AUTHOR:	PRESTERO DO CO-AUTHOR:	DATA: NOV/2017
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CODIGO DO ARQUIVO: _____ ESCALA: _____ /16

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DITA:	

NOV/2017
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