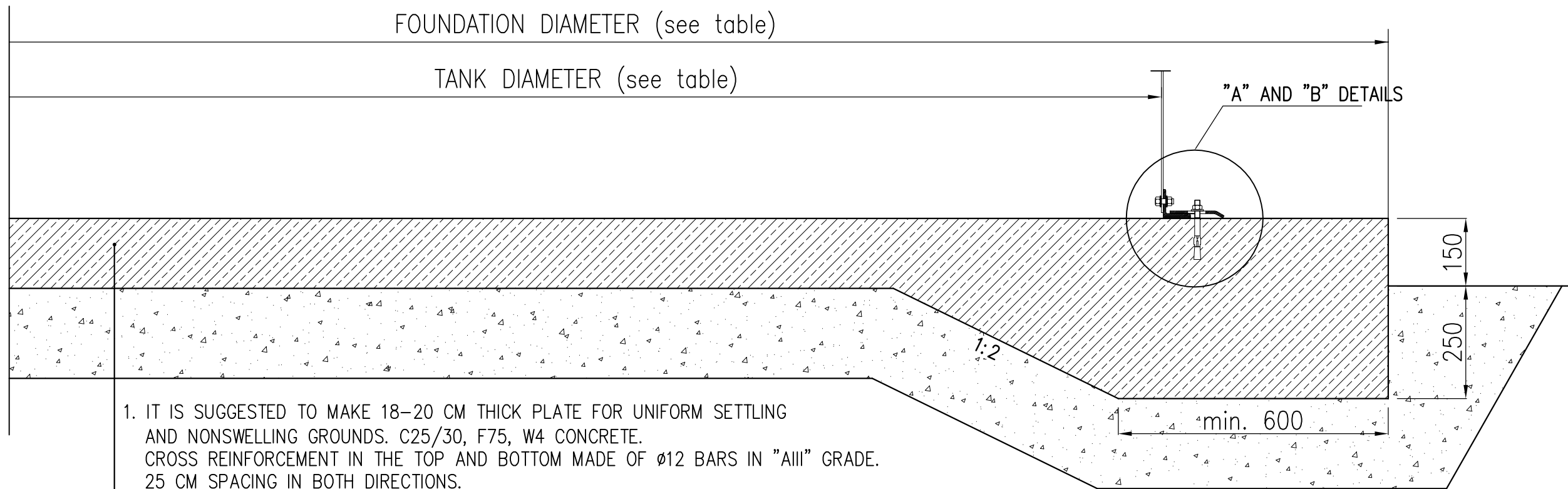


# GUIDELINES FOR DESIGNING FOUNDATIONS FOR FIRE FIGHTING STEEL TANKS "L" AND "C" CONNECTION TYPE.

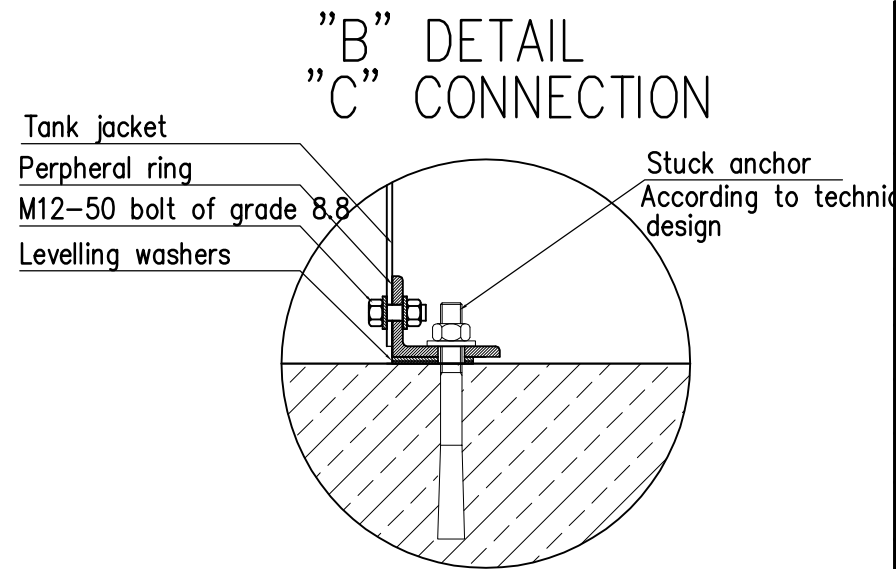
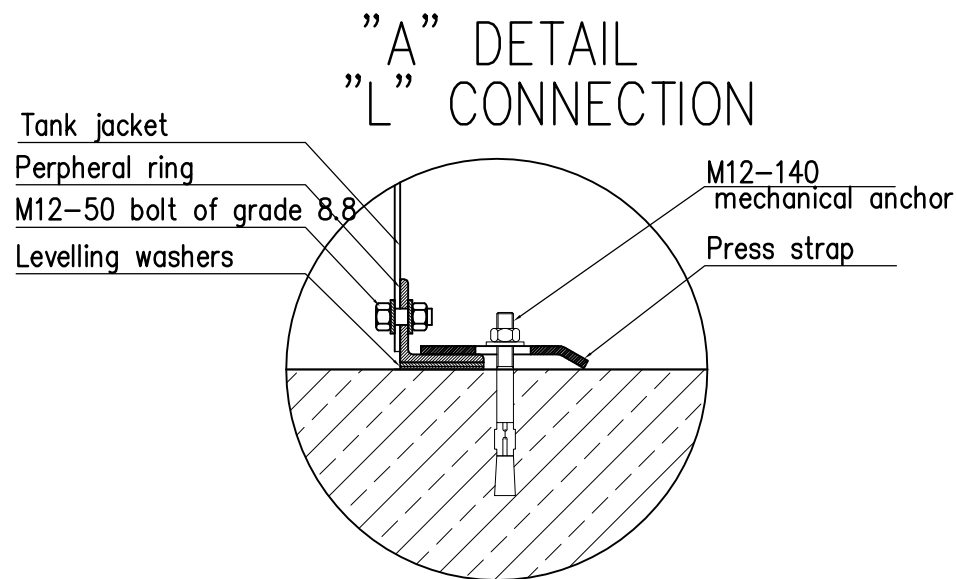
TANK PARAMETERS

TANK TYPE	TANK DIAMETER	FOUNDATION DIAMETER
4	3,115	4,100
5	3,895	4,800
6	4,675	5,600
7	5,455	6,400
8	6,235	7,200
9	7,015	8,000
10	7,795	8,700
11	8,575	9,500
12	9,355	10,400
13	10,135	11,100
14	10,915	11,900
15	11,695	12,600
16	12,475	13,000
17	13,255	14,200
18	14,035	15,000
19	14,815	15,800
20	15,595	16,500
21	16,375	17,300
22	17,155	18,100



1. IT IS SUGGESTED TO MAKE 18–20 CM THICK PLATE FOR UNIFORM SETTLING AND NONSWELLING GROUNDS. C25/30, F75, W4 CONCRETE. CROSS REINFORCEMENT IN THE TOP AND BOTTOM MADE OF  $\phi 12$  BARS IN "AIII" GRADE. 25 CM SPACING IN BOTH DIRECTIONS.
2. A DESIGNER SHOULD SPECIFY THICKNESS AND REINFORCEMENT OF FOUNDATION PLATE FOR SETTLING GROUNDS.  
 PLATE SURFACE SHOULD BE FLOATED SMOOTH.  
 TOLERANCE OF PLATE IS  $\pm 3,0$ MM.

15–30 CM THICK ALL-IN AGGREGATE BALLAST. THICKENED TO  $\lambda = 0,97–0,98$



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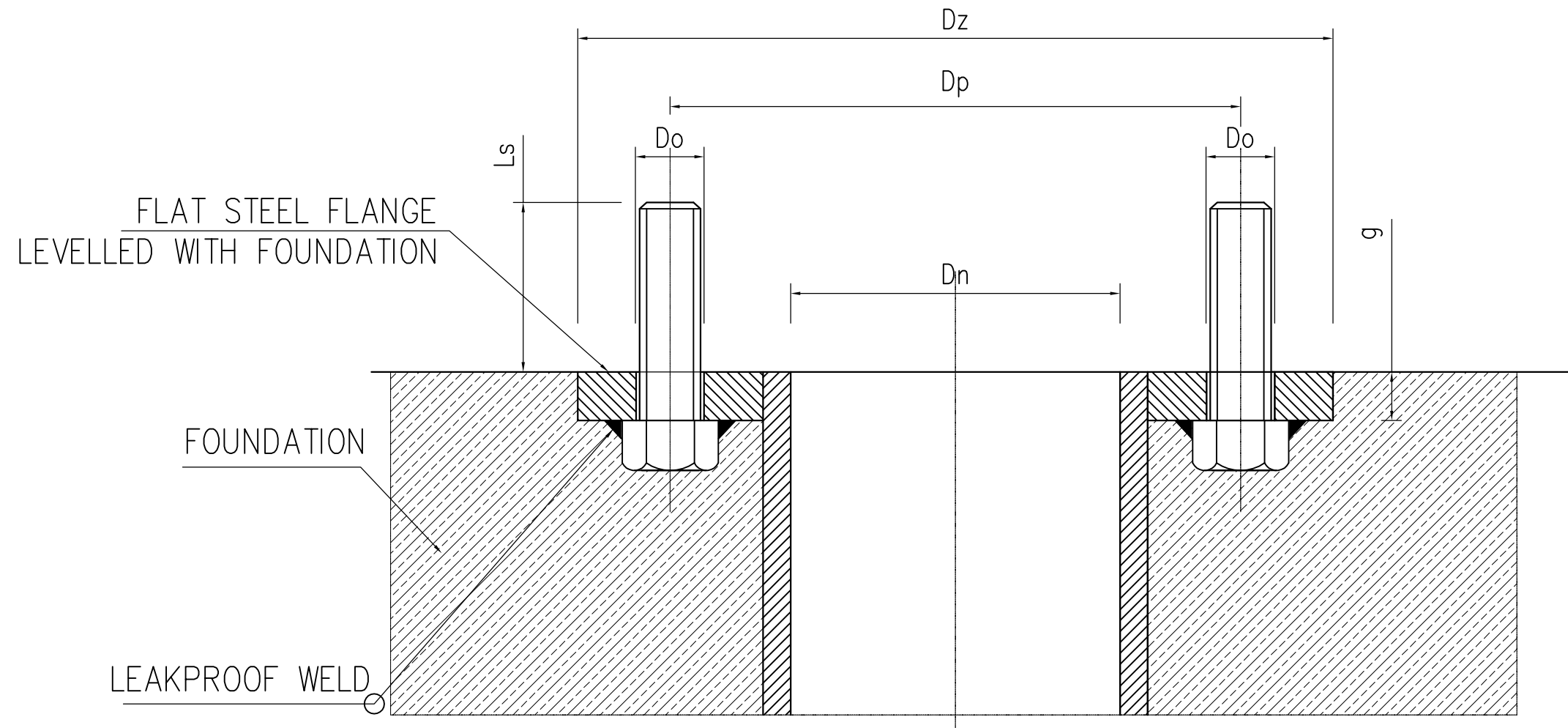
NOTES:  
 Construction elements used for anchoring in the foundation plate, are integral part of the tank and are included in the scope of the manufacturer delivery.



Site: FOUNDATION GUIDELINES					
Design: Storage tank for fire fighting water.					
Drawing name: GUIDELINES FOR DESIGNING FOUNDATIONS FOR FIRE FIGHTING STEEL TANKS "L" AND "C" CONNECTION TYPE					
Scale:	Date:	Project stage:	Version:	Industry:	Drawnig number:
No	11.2007	Detailed design:	01	Construction	1
Name and surname:			Number of license:		Signature:
Prepared by:	Msc. Eng. Robert Wicik				
Checked by:	Dr. Eng. Włodzimierz Wojnowski		1021/61		

DETAIL OF THE FLANGE CONNECTION FOR THE PIPELINE  
RUN THROUGH THE TANK FOUNDATION FOR PN16.

Notes:



1. Flat steel flanges according to PN-ISO 7005.
2. Anticorrosion protection – hot galvanizing.
3. Bolts should be leakproof welded to the steel flange according to the drawing before hot galvanizing.
4. All external edges of pipeline flanges running through the foundation must be levelled with top level of the foundation plate. Laying pipes in the ground should be supervised by geodetic personnel.
5. Flange connection as well as pipeline should be protected before starting placing the concrete for foundation plate.
6. Detail of flange connection for the pipeline PN10 available at tank manufacturer i.e. MOSTOSTALEX.

Table 1. Dimensions of flanges [mm] for pipes according to PN16 standard.

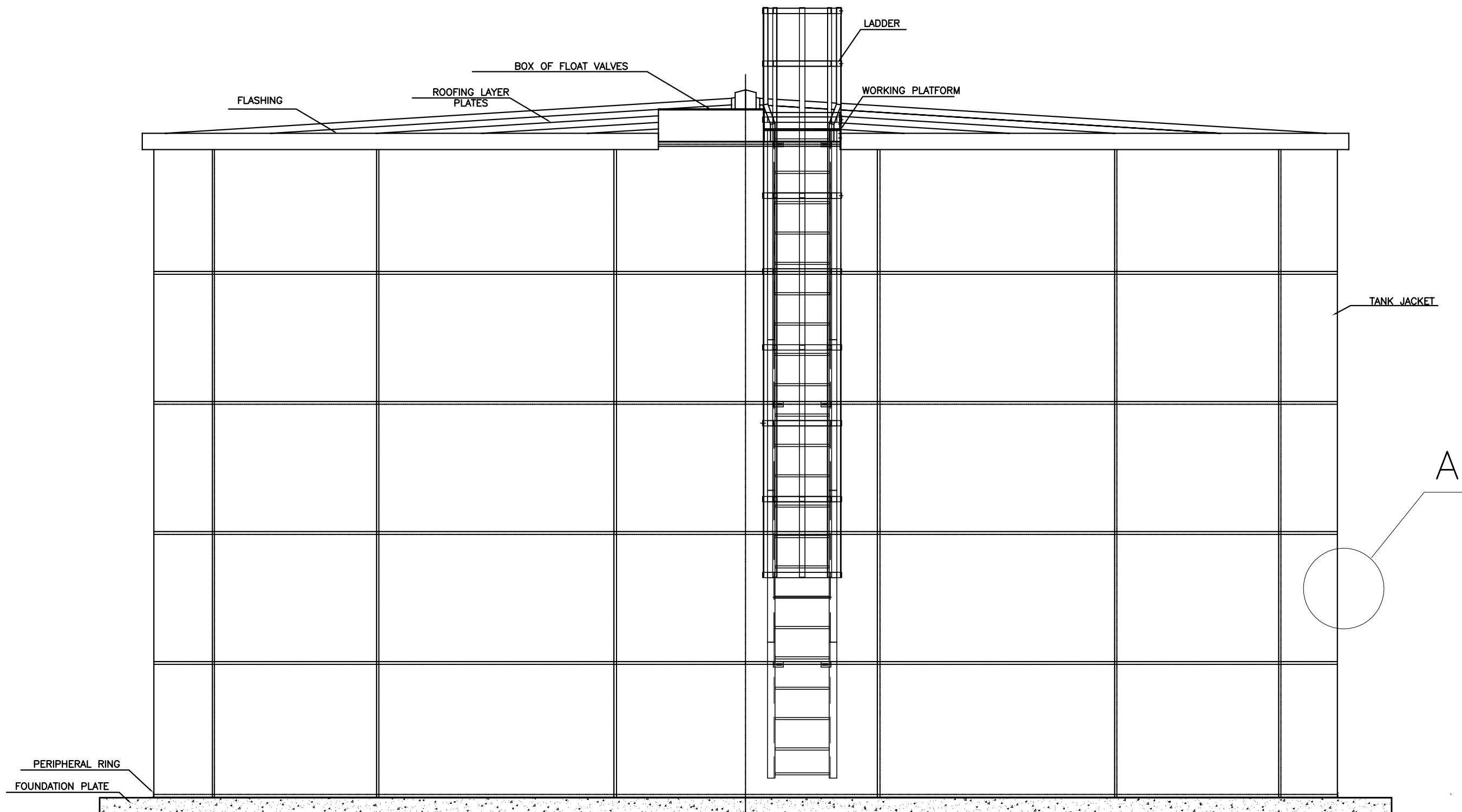
Dn	Dz	g	Do	Dp	BOLT	QUANTITY OF BOLTS	Ls [min]
32	140	16	18	100	M16	4	65
50	165	18	18	125	M16	4	65
65	185	18	18	145	M16	4	65
80	200	20	18	160	M16	8	70
100	220	20	18	180	M16	8	70
125	250	22	18	210	M16	8	75
150	285	22	22	240	M20	8	80
200	340	26	22	295	M20	12	80
250	405	28	26	355	M24	12	95
300	460	32	26	410	M24	12	105

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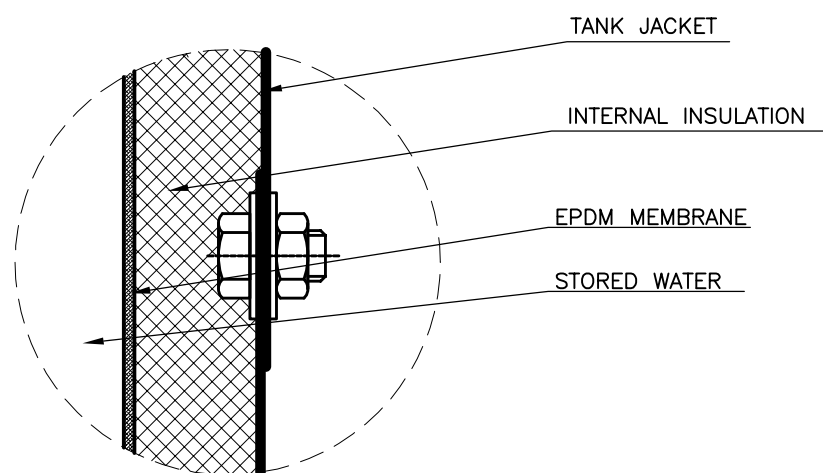
**MOSTOSTALEX**

Site: FOUNDATION GUIDELINES					
Design: Storage tank for fire fighting water.					
Drawing name: DETAIL OF THE FLANGE CONNECTION OF THE PIPELINE RUN THROUGH THE TANK FOUNDATION FOR PN16					
Scale:	Date:	Project stage:	Version:	Industry:	Drawnig number:
No	11.2007	Detailed design:	01	Construction	2
Name and surname:			Number of license:		Signature:
Prepared by:	Msc. Eng. Robert Wicik				
Checked by:	Dr. Eng. Włodzimierz Wojnowski		1021/61		

# TANK CONSTRUCTION OF "IW" TYPE



"A" DETAIL



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## NOTES:

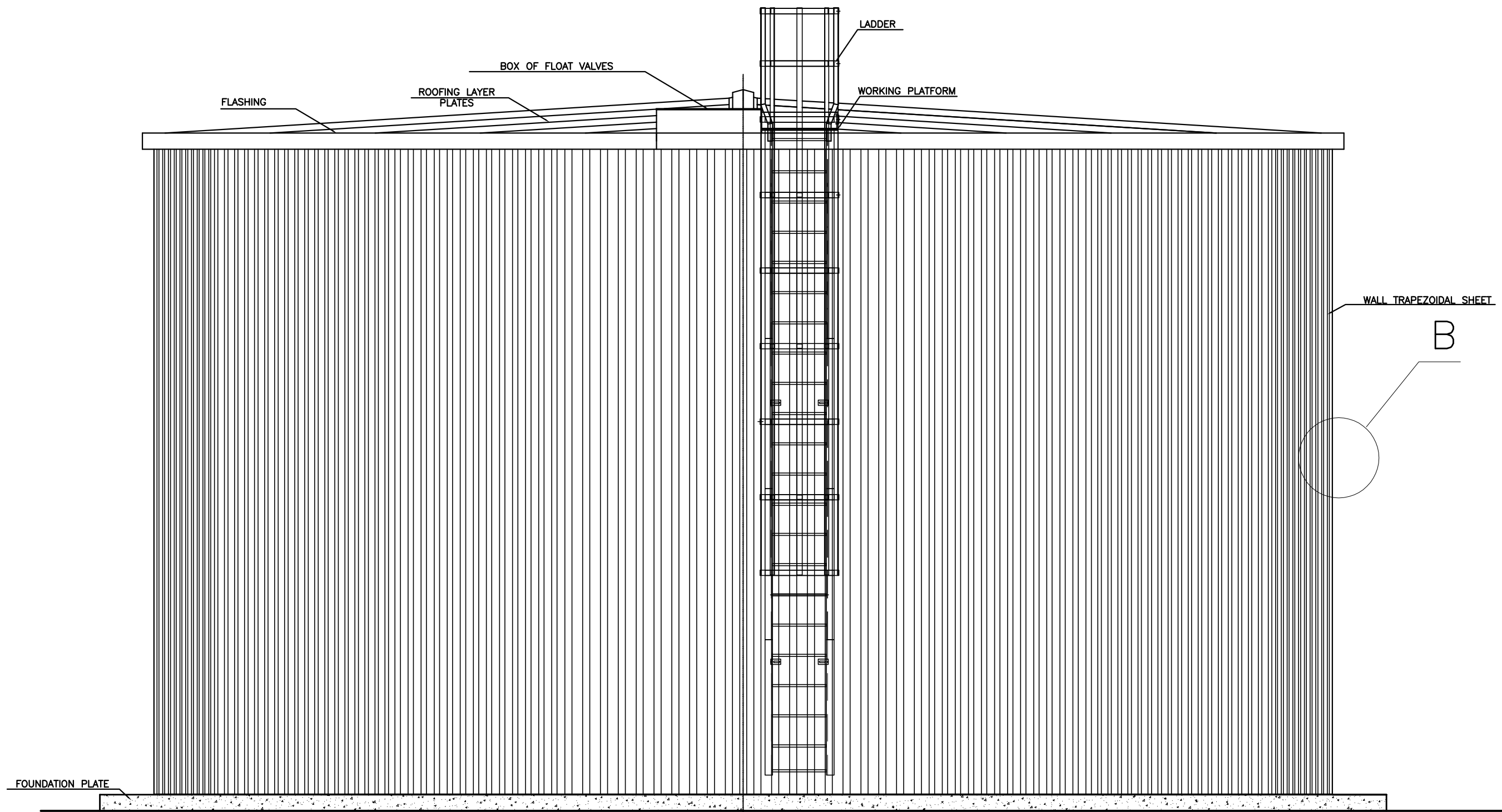
1. Tank of "IW" type is equipped with internal thermal insulation made of XPS foamed polystyrene.

2. Tank jacket is made of steel sheets protected against corrosion in galvanizing process. Additionally, the tank jacket is painted with powder coating in full range of RAL colours.

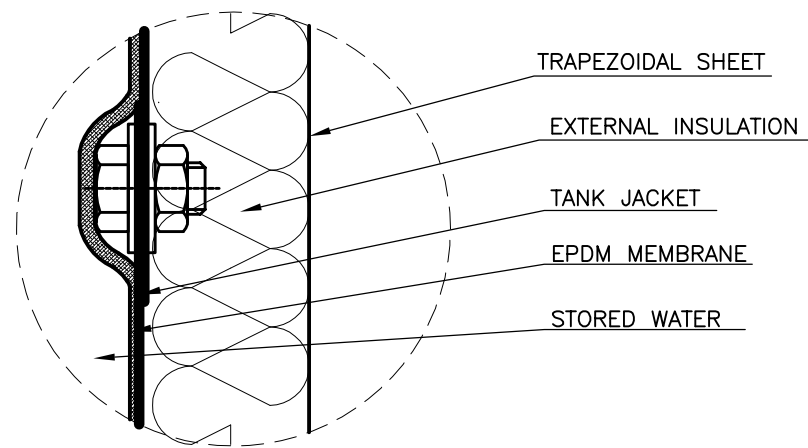
**MOSTOSTALEX**

TANK FEATURES					
Site:	Storage tank for fire fighting water.				
Design:	Tank construction of "IW" type.				
Drawing name:	Tank construction of "IW" type.				
Scale:	Date:	Project stage:	Version:	Industry:	Drawnig number:
No	11.2007	Detailed design:	01	Construction	3
Name and surname:			Number of license:	Signature:	
Prepared by:	Msc. Eng. Robert Wicik				
Checked by:	Dr, Eng. Włodzimierz Wojnowski		1021/61		

# TANK CONSTRUCTION OF "IZ" TYPE



"B" DEATIL



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## NOTES:

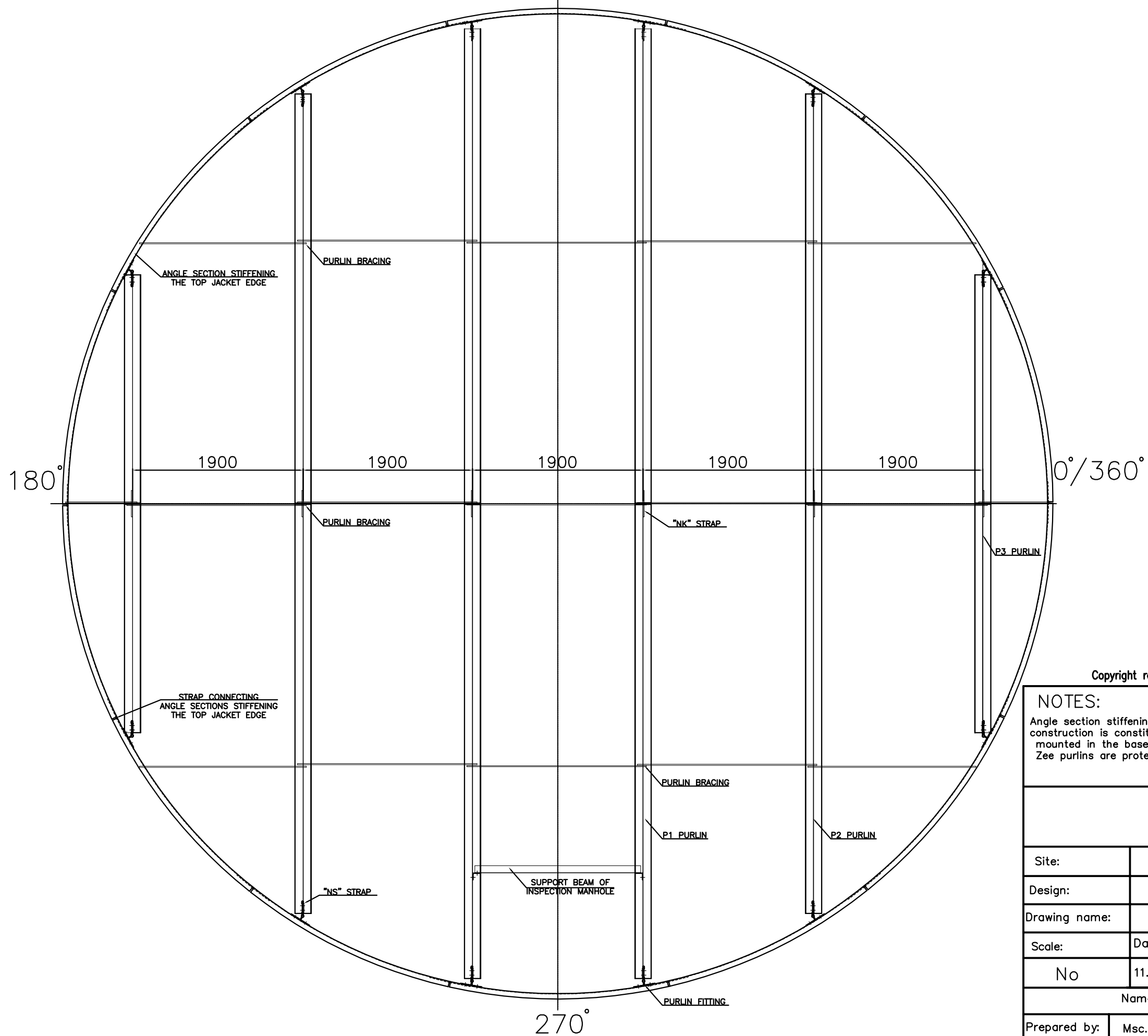
1. Tank of "IZ" type is equipped with external thermal insulation made of high density mineral wool protecting against "chimney effect".
2. The function of protective jacket is played by trapezoidal sheet installed on steel peripheral rings made of galvanized cold bent steel sections.
3. Tank jacket is made of steel sheets protected against corrosion in galvanizing process.

**MOSTOSTALEX**

TANK FEATURES					
Site:	Storage tank for fire fighting water.				
Design:	Tank construction of "IZ" type.				
Drawing name:	Tank construction of "IZ" type.				
Scale:	Date:	Project stage:	Version:	Industry:	Drawnig number:
No	11.2007	Detailed design:	01	Construction	4
Name and surname:			Number of license:		Signature:
Prepared by:	Msc. Eng. Robert Wicik				
Checked by:	Dr. Eng. Włodzimierz Wojnowski		1021/61		

# CONSTRUCTION OF TANK ROOF.

90°



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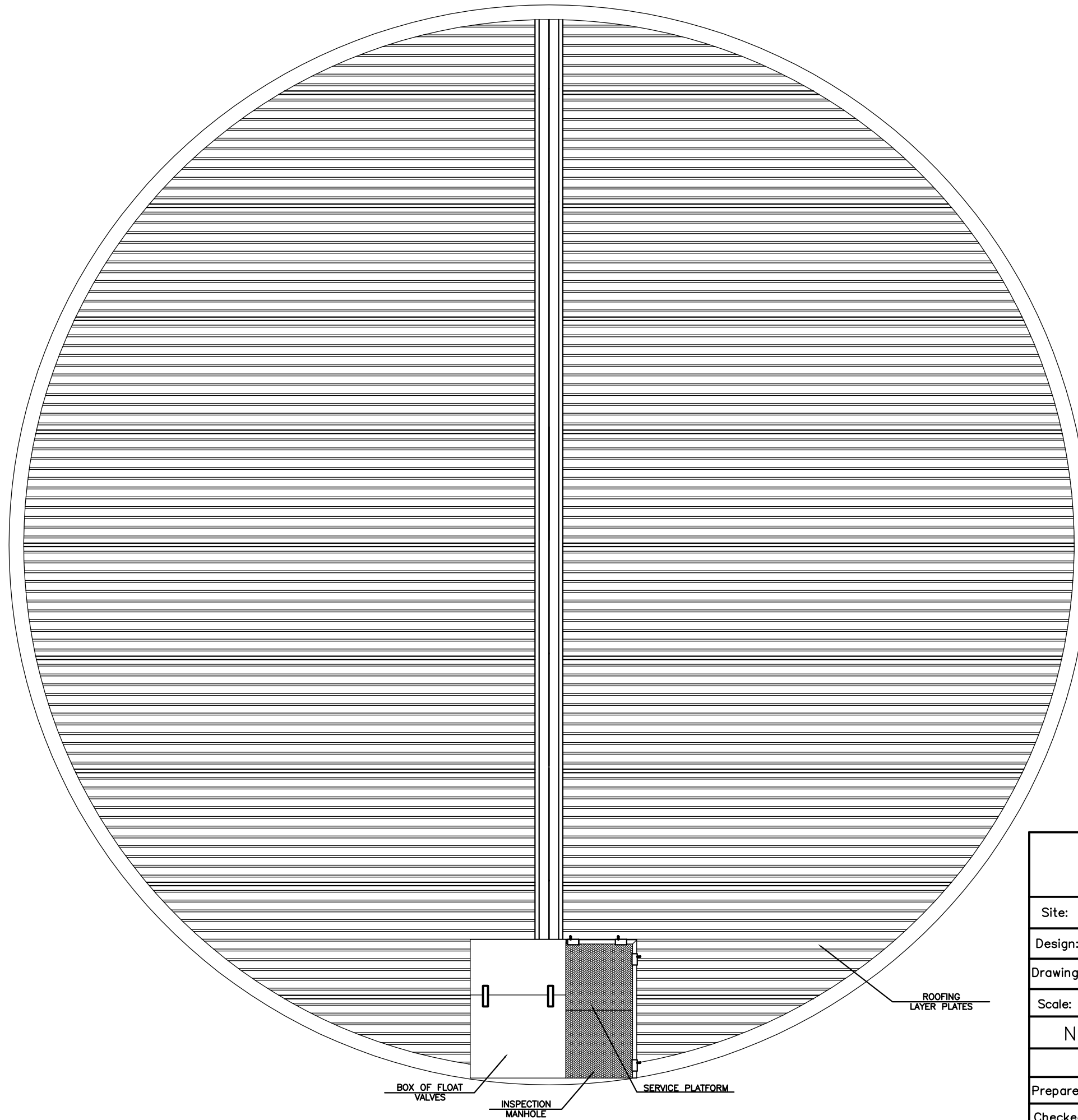
## NOTES:

Angle section stiffening the top jacket edge is the base of the tank roof construction. Supporting construction is constituted by purlins spaced at 1.9 m made of cold bent Z-bars and articulated mounted in the base of tank roof. Purlins are jointed with press straps in the middle of span. Zee purlins are protected against skewing by bracing bars.

**MOSTOSTALEX**

Site:	TANK FEATURES				
Design:	Storage tank for fire fighting water.				
Drawing name:	Construction of tank roof.				
Scale:	Date:	Project stage:	Version:	Industry:	Drawning number:
No	11.2007	Detailed design:	01	Construction	5
Name and surname:			Number of license:	Signature:	
Prepared by:	Msc. Eng. Robert Wicik				
Checked by:	Dr, Eng. Włodzimierz Wojnowski		1021/61		

# ROOFING

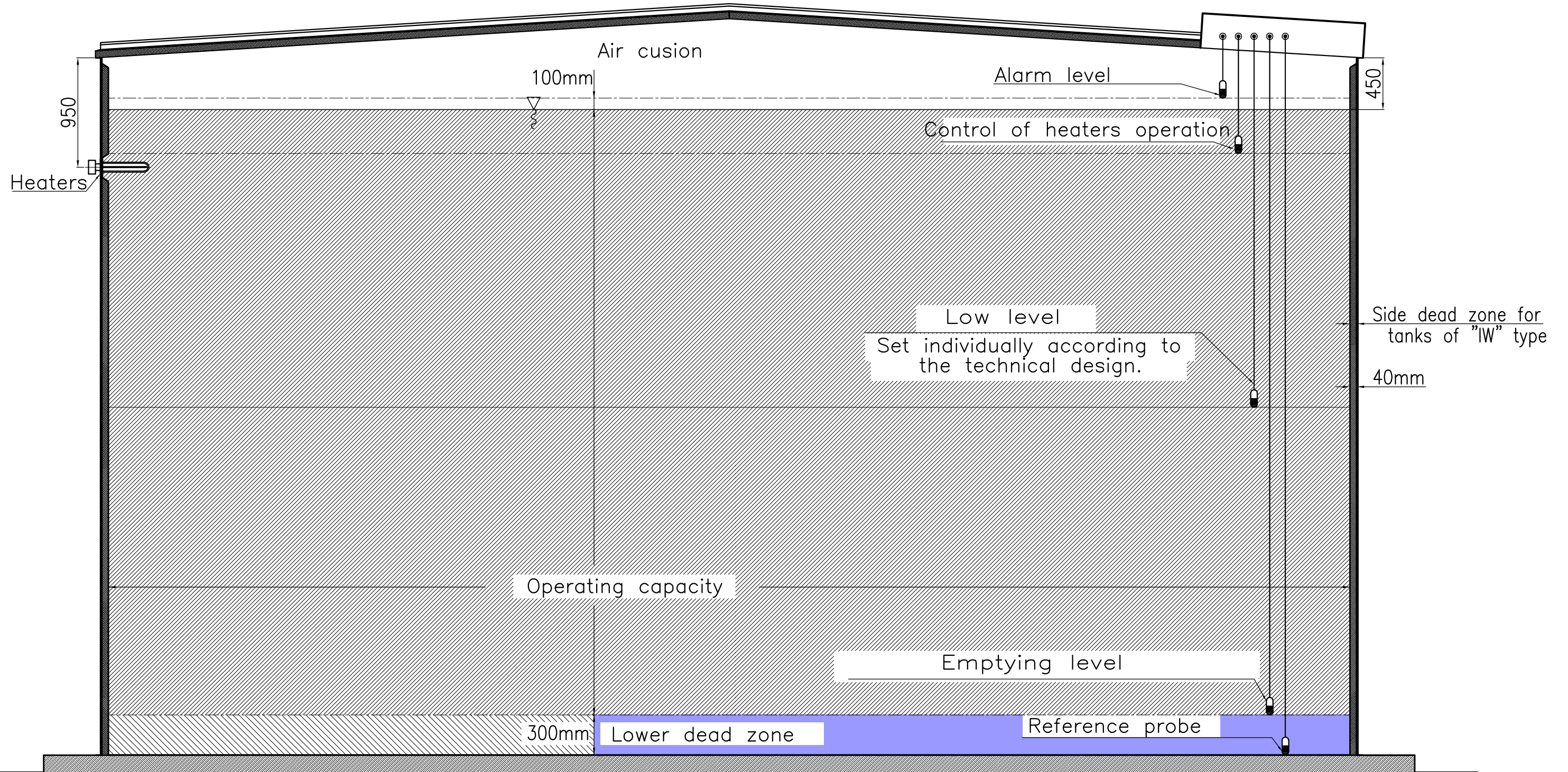


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**MOSTOSTALEX**

<b>MOSTOSTALEX</b>					
Site:	TANK FEATURES				
Design:	Storage tank for fire fighting water.				
Drawing name:	Roofing.				
Scale:	Date:	Project stage:	Version:	Industry:	Drawnig number:
No	11.2007	Detailed design:	01	Construction	6
Name and surname:			Number of license:	Signature:	
Prepared by:	Msc. Eng. Robert Wicik				
Checked by:	Dr, Eng. Włodzimierz Wojnowski		1021/61		

# OPERATING CAPACITY

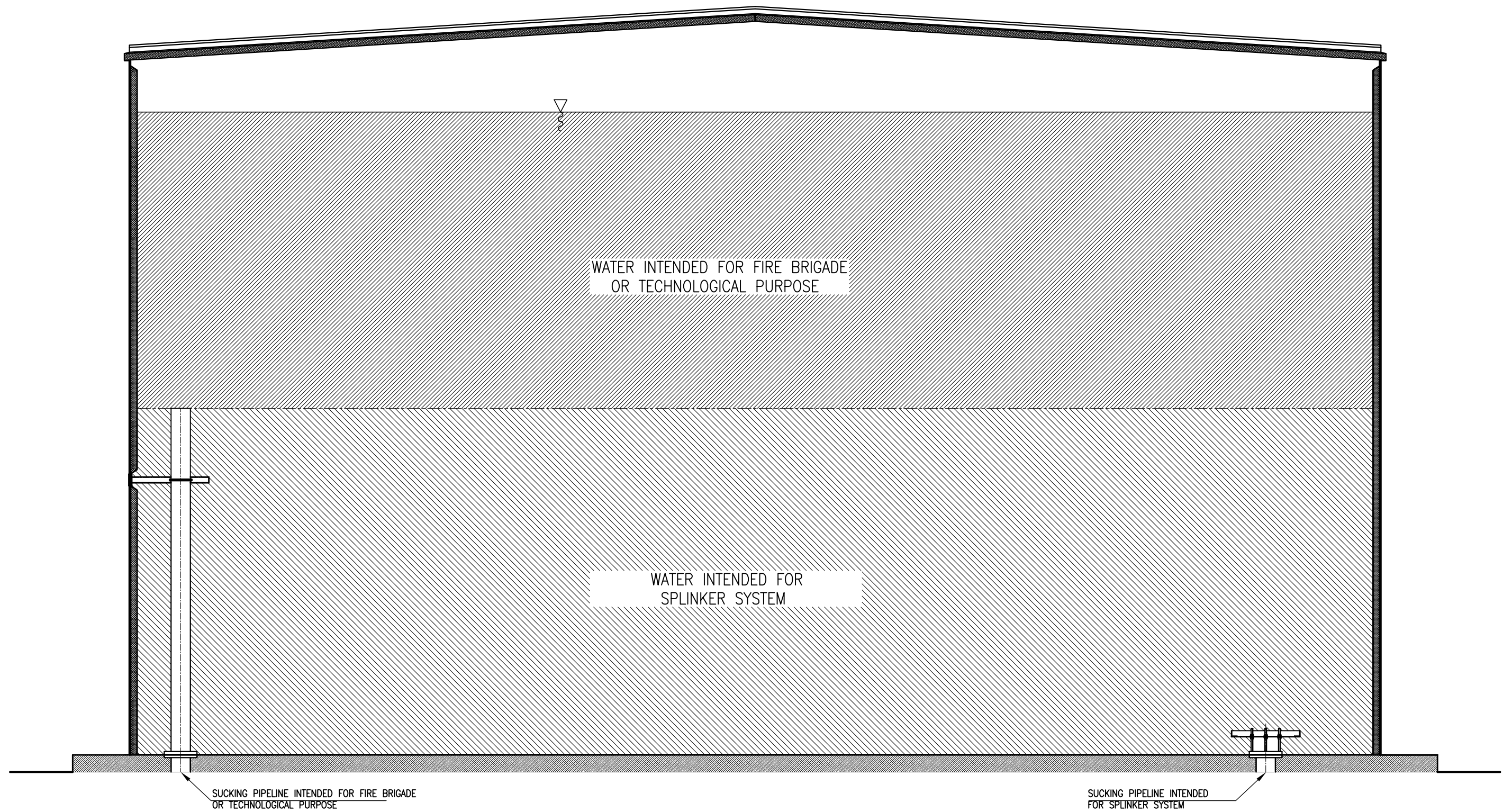


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**MOSTOSTALEX**

Site:	TANK FEATURES				
Design:	Storage tank for fire fighting water.				
Drawing name:	Operating capacity.				
Scale:	Date:	Project stage:	Version:	Industry:	Drawnig number:
No	11.2007	Detailed design:	01	Construction	7
Name and surname:			Number of license:	Signature:	
Prepared by:	Msc. Eng. Robert Wicik				
Checked by:	Dr, Eng. Włodzimierz Wojnowski		1021/61		

# VERSION OF TANK SECTIONAL CAPACITY



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## NOTES:

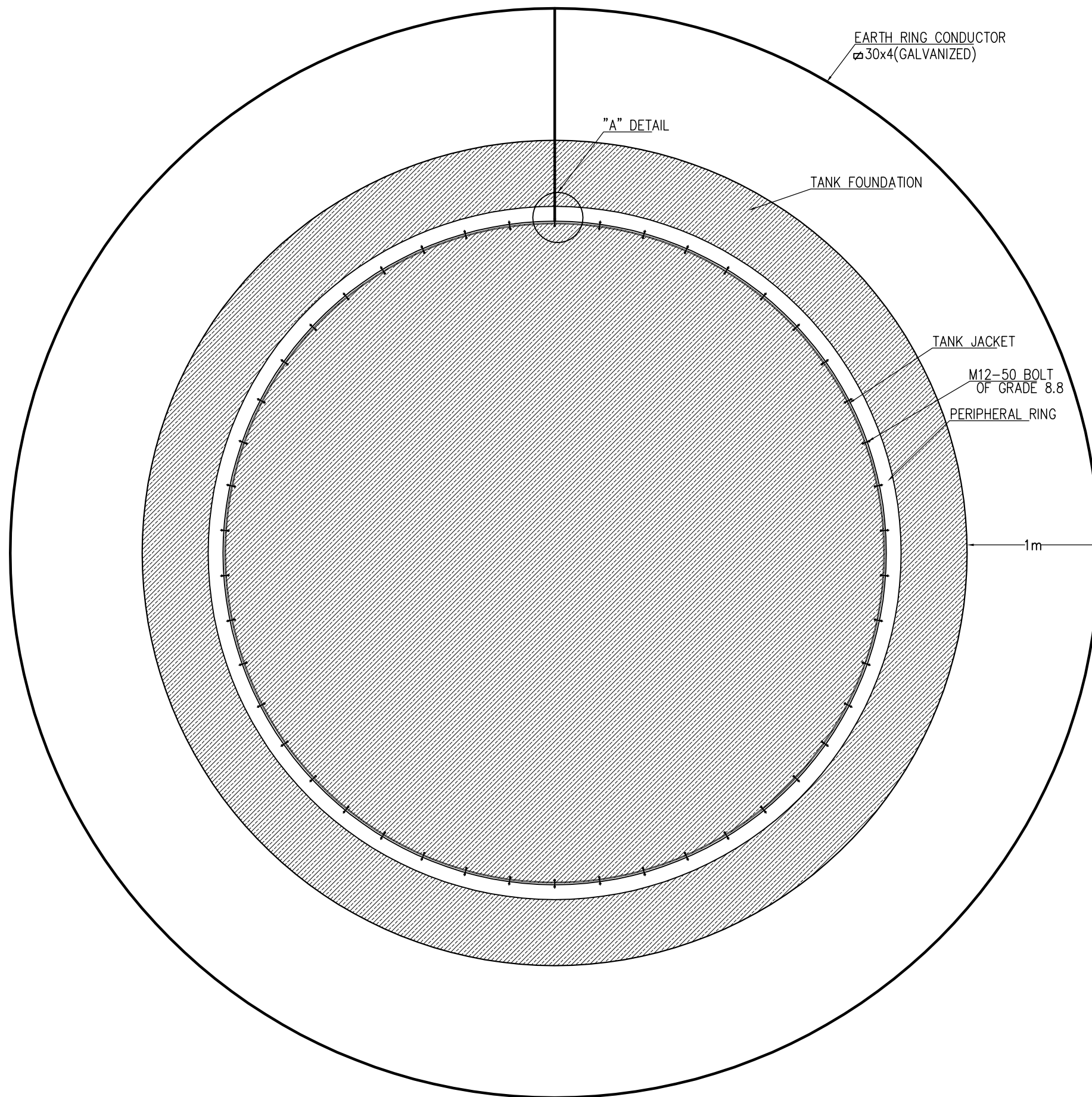
TANK CAN BE EQUIPPED WITH A SYSTEM OF TWO SUCKING PIPES POSITIONED AT DIFFERENT ORDINATES OF THEIR INLET, DIVIDED THE TANK INTO TWO (OR MORE) PARTS FOR DIFFERENT PURPOSES. IN SUCH A CASE A LOWER SHALL CONSTITUTE PRIMARY WATER RESERVE. FOR EXAMPLE, FIRE FIGHTING TANK CAN BE USED FOR TECHNOLOGICAL PURPOSES AT THE SAME TIME.

**MOSTOSTALEX**

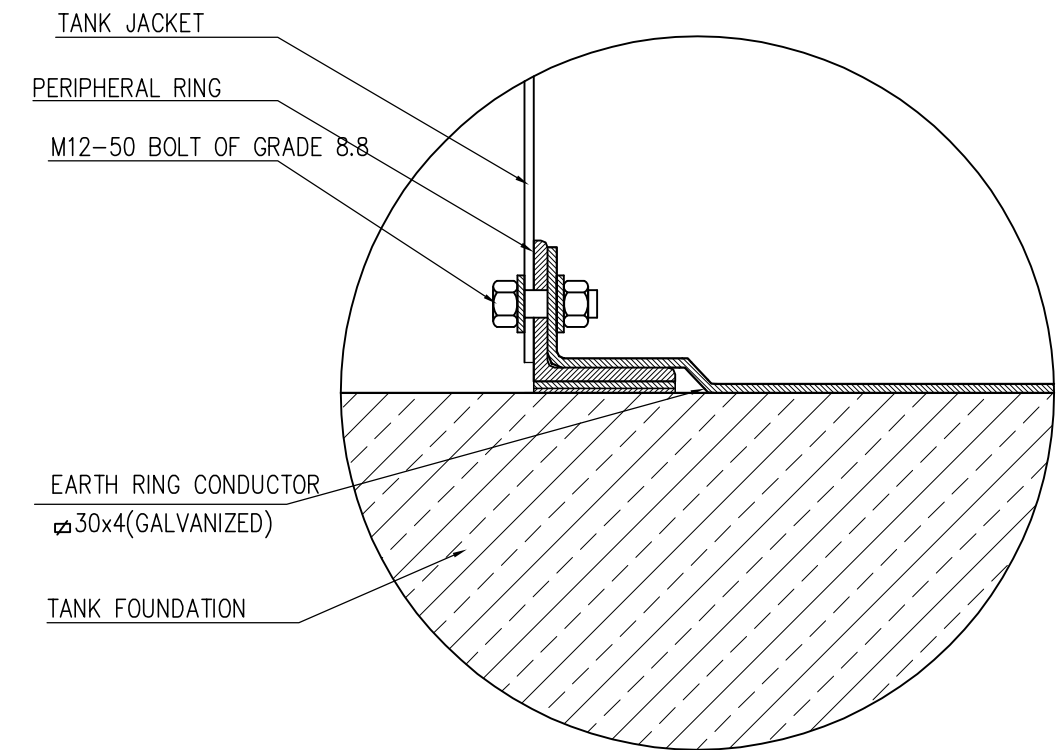
Site:	TANK FEATURES				
Design:	Storage tank for fire fighting water.				
Drawing name:	Version of tank sectional capacity.				
Scale:	Date:	Project stage:	Version:	Industry:	Drawnig number:
No	11.2007	Detailed design:	01	Construction	8
Name and surname:			Number of license:	Signature:	
Prepared by:	Msc. Eng. Robert Wicik				
Checked by:	Dr, Eng. Włodzimierz Wojnowski		1021/61		



# TANK EARTHING



## "A" DETAIL



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### Notes:

1. Flat bar of the earth ring conductor should be run to peripheral ring.  
Connection to the earth conductor with the tank jacket is made by screw joint ("A" detail).

**MOSTOSTALEX**

Site:	ELECTRICAL GUIDELINES				
Design:	Storage tank for fire fighting water.				
Drawing name:	TANK EARTHING				
Scale:	Date:	Project stage:	Version:	Industry:	Drawnig number:
No	11.2007	Detailed design:	01	Construction	9
Name and surname:			Number of license:		Signature:
Prepared by:	Msc. Eng. Robert Wicik				
Checked by:	Dr. Eng. Włodzimierz Wojnowski		1021/61		