

TINGERPLAST



Design and manufacture of
high-quality plastic products of any complexity
from environmentally friendly materials



PRODUCT DATA SHEET

Cellar of TINGARD brand
Manufactured according to TU 5363-011-47871831-2018

Serial Release1. Basic information on the product

Cellars of TINGARD brand, made from high-density polyethylene (polyethylene composition) by rotational molding, are high-quality products of large volume (from 3.8 to 9.2 cubic meters) without any welds with integrated metal frame, that enables the cellar resisting to high loads of groundwater without any loss of operational properties.

Area of application: storage of various types of food products.

Service life of parts of the cellar from high-density polyethylene: 100 years.

2. Technical specifications

Characteristic	TINGARD 1500	TINGARD 1900	TINGARD 2500	TINGARD 3000	TINGARD 1900-B
Outer dimensions L/W/H (± 30 mm), mm	1500/1500/1900 (2500 with a hatch)	1900/1900/2100 (2700 with a hatch)	2400/1900/2100 (2700 with a hatch)	2900/1900/2100 (2700 with a hatch)	2500/1900/2700
Inner dimensions L/W/H (± 30 mm), mm	1380/1380/1780	1780/1780/1980	2280/1780/1980	2780/1780/1980	1780/1780/1980
Door size, W/H (± 30 mm), mm	670 / 960				755 / 1015
Wall thickness, mm	11	12			
Material	High-density polyethylene				
Weight, kg	360	570	655	740	610

3. Complete units*

The delivery set comprises:

- ventilation (supply and exhaust)
- lighting
- shelves (wooden*, three levels**)
- floor (wooden)
- stairs
- neck with a lid
- weather station

Note:

* complete units of the cellar may be changed, please contact the manufacturer

** TINGARD 1500 model has two levels of shelves

4. Rules for handling operations, storage and transportation of TINGARD products

The product may be transported by any means of transport, subject to the rules of transportation for this type of cargo. When transporting TINGARD plastic cellars, they shall be firmly secured. During handling with a truck crane, soft synthetic lines should be used.

TINGARD plastic cellars may be stored in natural conditions outdoors under a canopy, in a warehouse or in other conditions that prevent any potential mechanical damage, at a distance of at least 3 meters from heating appliances.

Rules of transportation:

1. Cellars shall be loaded in a vertical position.
2. When transporting TINGARD plastic cellars, they shall be firmly secured to the vehicle.
3. During handling with a truck crane, soft synthetic lines should be used.
4. The neck of the caisson should be in the direction of the vehicle.
5. It is strictly forbidden to sling the cellar with regard to internal structures of the cellar and its neck.

WARNING! During handling operations, it is prohibited to use of metal cables and chains in order to prevent mechanical damage. Slings shall be made only from special synthetic slings. It is strictly forbidden to unload the cellars by dropping off the vehicle.



5. Instructions for installation of plastic cellars TINGARD 1500, 1900, 2500, 1900-B

Installation of TINGARD cellars is possible with both lower and upper anchors. When installing cellars with upper anchor, mind the permissible uniformly distributed load on every of the cellar models:

- cellar TINGARD 1500 – 1 ton
- cellar TINGARD 1900 – 1.5 tons
- cellar TINGARD 2500 – 2 tons
- cellar TINGARD 3000 – 2.5 tons
- cellar TINGARD 1900-B – only lower anchoring

When installing a plastic cellar, it is recommended to perform geological exploration of GWT (groundwater table), and also perform a number of construction and preparatory works:

- foundation pit preparation;
- concreting the bottom of the pit or laying the finished concrete slab;
- installation of a cellar at the bottom of the excavation;
- anchoring the cellar to the concrete base with the help of polymer lines or cables.

The surface of the plate, if required, is leveled by a cement screed with horizontal deviations of ± 3 mm. It is recommended to install the cellar on a flat bottom ensuring a distance of at least 300 mm from each side between the walls of the cellar and outer edge of the base plate.

5.1 Mark a place on the site for the installation of a plastic cellar. The size of the excavation depends on the selected model of the cellar. Below are the minimum internal dimensions of the excavation, depending on the model:

- cellar TINGARD 1500 L/W/H: 2100x2100x2900 mm
- cellar TINGARD 1900 L/W/H: 2500x2500x3100 mm
- cellar TINGARD 2500 L/W/H: 3000x2500x3100 mm
- cellar TINGARD 1900-B L/W/H: 2800x2500x2700 mm

The design data of the excavation are given in **Appendix No.1**.

5.2 Remove the top layer of turf.

5.3 Using machinery, prepare a pit depending on the selected cellar model.

5.4 Align the bottom of the excavation for laying the concrete slab. At the bottom of the foundation pit make a pad of rubble and tamped sand.

NOTE: The overall dimensions and weight of the slab are selected individually and depend on GWT.

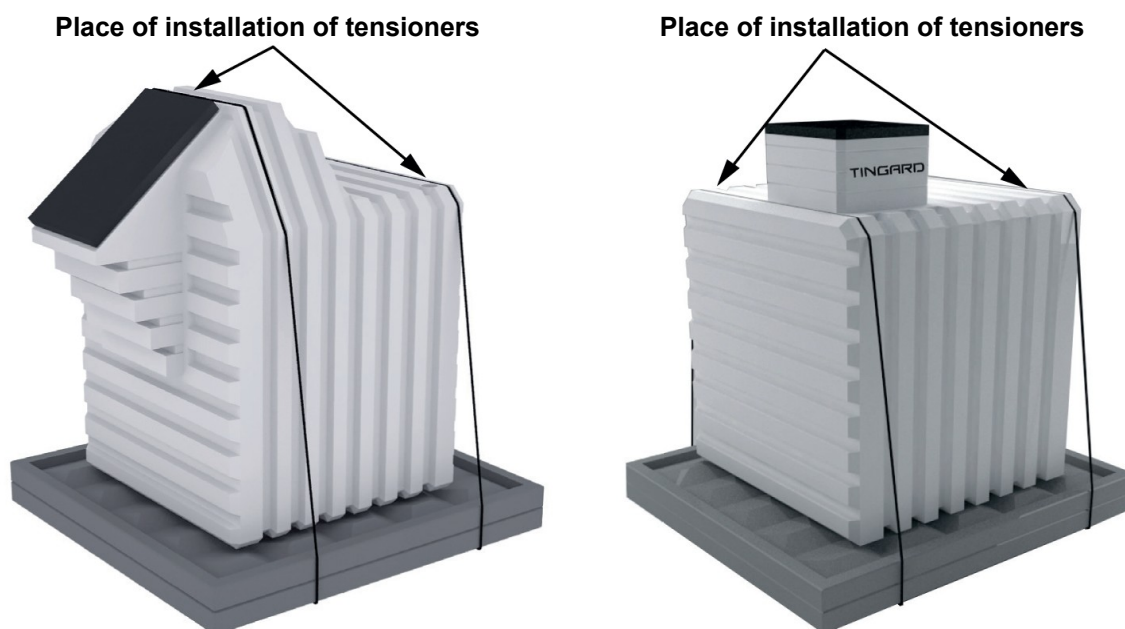
Calculated values of the weight of concrete slab-anchor or reinforced concrete blinding

Model	TINGARD 3000	TINGARD 2500	TINGARD 1900	TINGARD 1500	TINGARD 1900-B
GWT (m)	Calculated value of slab-anchor (t)				
0	12.5	10.6	8.4	4.7	8.4
0.25	11.2	9.3	7.4	4.1	7.4
0.5	10	8	6.4	3.5	6.4
0.75	8.7	6.8	5.4	2.9	5.4
1	7.5	5.5	4.4	2.2	4.4
1.25	6.2	4.3	3.4	2.2	3.4
1.5	5	3	2.4	2.2	2.4
1.75	3.7	2.2	2.2	2.2	2.2
2	2.2	2.2	2.2	2.2	2.2

NOTE: the data are given without regard to the weight and type of backfill.

5.5 Lay two metal-polymer cables to the bottom of the pit. The distance between them depends on the model of the cellar. Then put a concrete slab-anchor on them.

NOTE: The distance between cables after laying the plate shall match the grooves in the cellar. The rope pullers should be located in an accessible location.



5.6 With the help of special equipment, lower the cellar to the excavation pit and level it with respect to the concrete slab and cables.

NOTE: *there are grooves in the cellar for the cable.*

5.7 Lay the cable in the grooves and tighten the tensioners.

5.8 Lay the insulation across the entire cellar area, as specified in **Appendices 2, 3, 4.**

The thickness of the insulation shall be at least 100 mm.

5.9.1 Forcellar TINGARD 1500, 1900, 2500, 3000

Backfill the excavation with a cement-sand mixture (in a ratio of 1: 5).

It is recommended to compact the backfilling, spilling water or otherwise.

5.9.2 Forcellar TINGARD 1900-B

Ensure partial backfilling with a cement-sand mixture (in a ratio of 1: 5) to the level of stacking of foam polystyrene slabs.

NOTE: *ventilation should be installed when only the top cellar area is not buried. At the same time, exhaust ventilation shall be at least 1000 mm higher than air supply.*

5.10.1 For cellar TINGARD 1500, 1900, 2500, 3000

Seal the soil. In the end, lay the turf.

5.10.2 Forcellar TINGARD 1900-B

Lay the insulation throughout the entire area of the cellar, as specified in **Appendix 4.** The thickness of the insulation shall be at least 100 mm.

NOTE: *further action is only for cellar TINGARD 1900-B.*

5.11 Backfill the excavation with a cement-sand mix (in a 1: 5 ratio) to ground level. It is recommended to compact the backfilling, spilling water or otherwise.

5.12 Ensure backfilling of the cellar with a soil of at least 300 mm over the entire area and lay the formed hill with turf to avoid slipping or blurring of the back soil.

5.13 Install ventilation pipes and caps.

NOTE: *The exhaust ventilation shall be at least 1000 mm higher than air supply.*

6. Recommendations for operation of a plastic cellar

Our company has implemented a natural ventilation of the cellar, comprising exhaust (starts under the ceiling) and air supply (starts at the very floor) ducts. This design does not allow moisture and various hazardous gases to stay in the room. As a result, fruits and vegetables are provided with the required breath and reliable protection against decay. For effective operation of ventilation follow certain basic rules of installation and operation:

- The height of the exhaust vent should be higher than the level of the roof or roof ridge, only then the exhaust air outlet will be effective. The duct outlet shall be protected by a visor (installed in the factory) or a deflector.
- At installation of a cellar ensure a difference of heights between a supply and exhaust pipe: the difference should make not less than 1000 mm. This difference in altitude provides natural ventilation – “suction” inside the cellar.
- If possible, the supply and exhaust pipes shall be free from any bends (turns) to ensure an optimal microclimate and natural ventilation.
- In winter, in severe cold (temperature below -25°C) and in summer in hot weather (temperature above $+25^{\circ}\text{C}$), it is necessary to limit the flow of cold and warm air (close the intake ventilation opening). It is also recommended to insulate the exhaust pipe with a heater (to avoid condensation from the exhaust pipe).

The implementation of these simple rules will prevent the possibility of dangerous accumulation of harmful gases, as well as exclude the possibility of condensation.

7. Guarantee obligations of the manufacturer for TINGARD cellar

Full confidence in our cellars allows the company to the manufacturer provide a 5-year warranty on the product, subject to the Buyer's compliance with recommendations for handling, instructions for installing and operation of the plastic cellar, as described in this Product Data Sheet.

Our confidence is based on the experience and knowledge of the company's specialists and employees of authorized installation organizations and dealer network who will take on delivery and installation of the product, and warranty service, using only the components recommended for use by the manufacturer.

During the warranty period, the Buyer is entitled to free repair of the product due to faults resulting from manufacturing defects.

7.1. Warranty period of the product

The warranty period for a plastic cellar TINGARD, with the exception of individual components specified in clause 7.3. of this warranty is 60 months, starting from the date of sale (transfer) of the cellar to the first Buyer (i.e. with the date specified in the certificate of acceptance hereof).

7.2. Terms of guarantee:

7.2.1. Any defects are eliminated during the warranty period specified in the Product Data Sheet.

7.2.2. The guarantee is valid, provided properly filled in certificate of acceptance of cellar TINGARD in the Product Certificate is available.

7.2.3. The guarantee covers operation of fittings, quality of food plastic, floor and shelves, mechanical and welded joints.

7.3. Warranty for individual components

The individual components of cellar TINGARD, listed below, are guaranteed from the moment of the sale (transfer) of the cellar to the first Buyer (i.e. with the date specified in the certificate of acceptance hereof) for 6 months:

- weather station;
- neck cover sealant;
- lighting lamp;
- components made of wood.

7.4. Limitation of the scope of the guarantee

The manufacturer's warranty is limited only by defects of manufacturing and does not apply to the following cases:

7.4.1. Any natural wear and tear of any parts and components, natural aging and destruction of paint and varnish and finish as a result of normal use and environmental impact, including aggressive substances from the atmosphere, industrial pollution, chemicals, plant juice, stones, salt, etc.;

7.4.2. Any minor geometric deviations that do not affect the quality of the plastic cellar or its elements (for example, a slight deviation from the design dimensions specified herein due to the peculiarities of the rotomolding products);

7.4.3. Any damage caused by the elements, fire, household factors, as well as other circumstances of force majeure;

7.4.4. Any damage caused by actions of third parties, including when delivering or installing a product performed with violations of the instructions for installing a plastic cellar (clauses 4, 5 hereof);

7.4.5. Any damage and deformation of the products caused by a change in the geometric dimensions that have arisen after the completion of installation work and due to the construction of the product (deflections of the floor and shelves, the wall and floor of the plastic cellar);

7.4.6. Corrosion (including corrosion caused by scratches and chipped paintwork) of the frame and various parts and joints (bolts, screws, rivets, etc.).

7.5. Possible causes of the malfunction

Malfunction	Root cause	Way to eliminate
Creaking hinges of the neck cover (if any)	Contaminated or missing lubrication of the fittings	Lubricate fittings once a year
Condensation	No ventilation	Ensure operation of positive pressure ventilation
	At ambient temperature below zero warm air of caisson goes up via the pipe and condenses in the exhaust ventilation pipe, as it cools down quickly.	Ensure thermal insulation of the exhaust ventilation pipe

7.6. Order of guarantee indemnification

If during the guarantee period the Buyer found any defects covered by the guarantee, the Buyer notifies the Manufacturer thereof.

To review the claim, submit a claim letter with justification of the requirements, video/photo materials confirming the presence of defects, as well as documents (product passport, contract or check), which indicate the date of purchase and installation of the product.

The manufacturer shall inspect the quality of the product. The buyer has the right to participate in the inspection of the quality of the product.

The seller (manufacturer) has the right to send his specialist to inspect the identified defects.

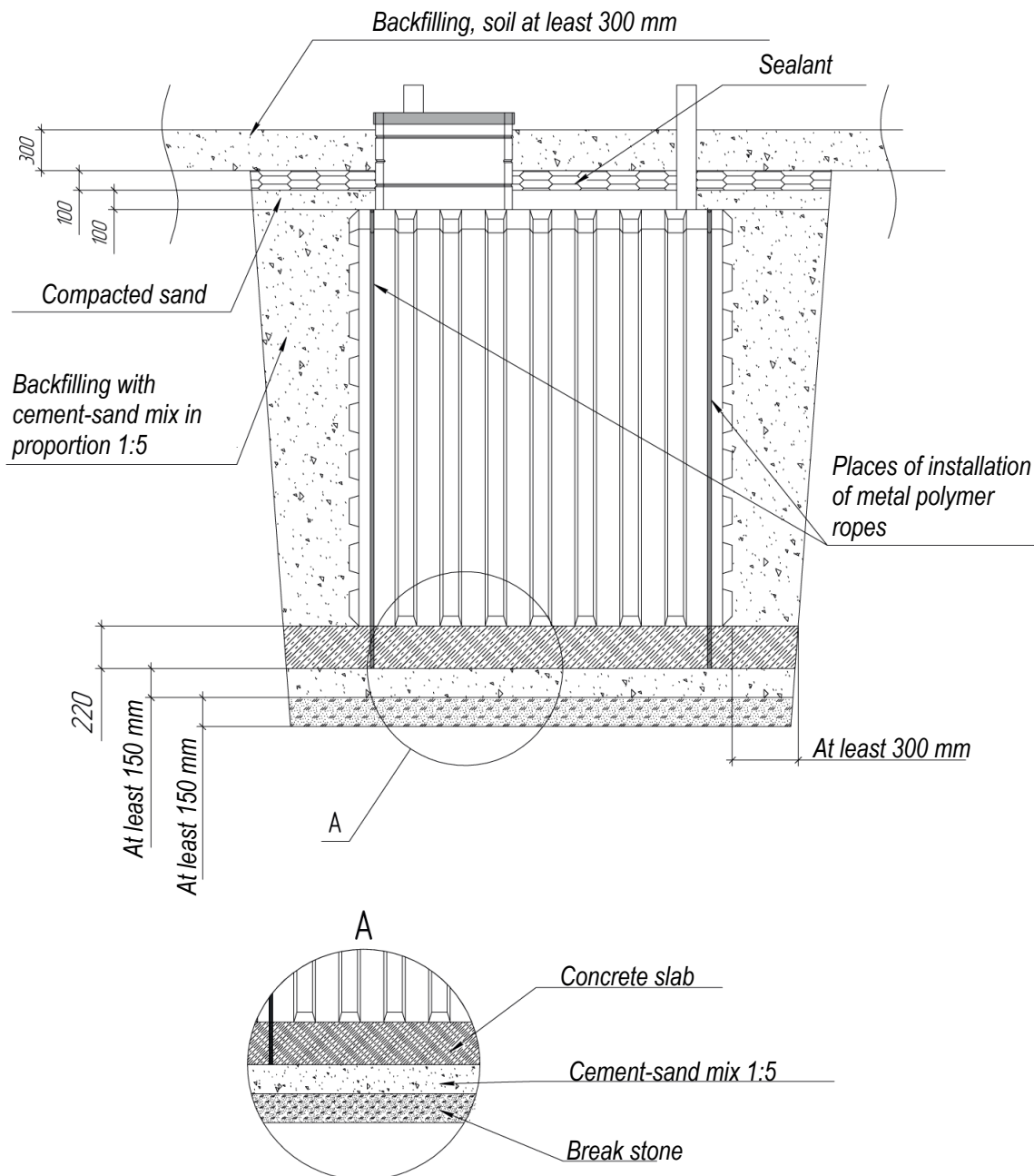
Appendix 1

Design data of the excavation

Soil	Slope grade for excavation depth, m (height to embedding ratio)		
	1,5	3	5
Loose uncompactd	56(1:0,67)	45(1:1)	38(1:1,25)
Sandy and gravel moist	63(1:0,5)	45(1:1)	45(1:1)
Clay:			
<i>sandy loam</i>	76(1:0,25)	56(1:0,67)	50(1:0,85)
<i>loam</i>	90(1:0)	63(1:0,5)	53(1:0,75)
<i>clay</i>	90(1:0)	76(1:0,25)	63(1:0,5)
<i>Loess and loess dry</i>	90(1:0)	63(1:0,5)	63(1:0,6)
Moraine:			
<i>sandy, sandy loam</i>	76(1:0,25)	60(1:0,57)	53(1:0,75)
<i>clay-loam</i>	78(1:0,2)	63(1:0,5)	57(1:0,65)

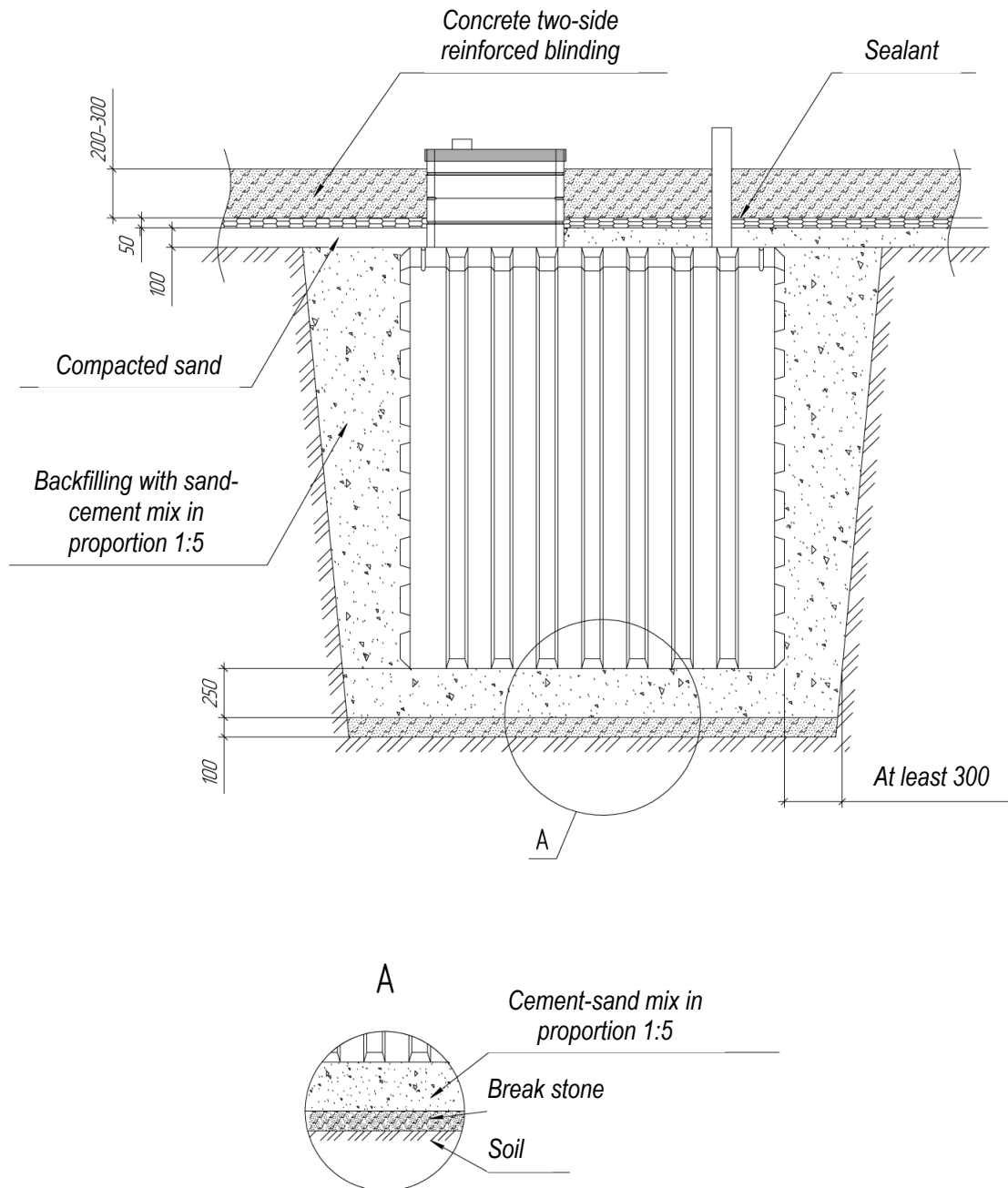
Appendix 2

Diagram of cellar installation with lower anchoring



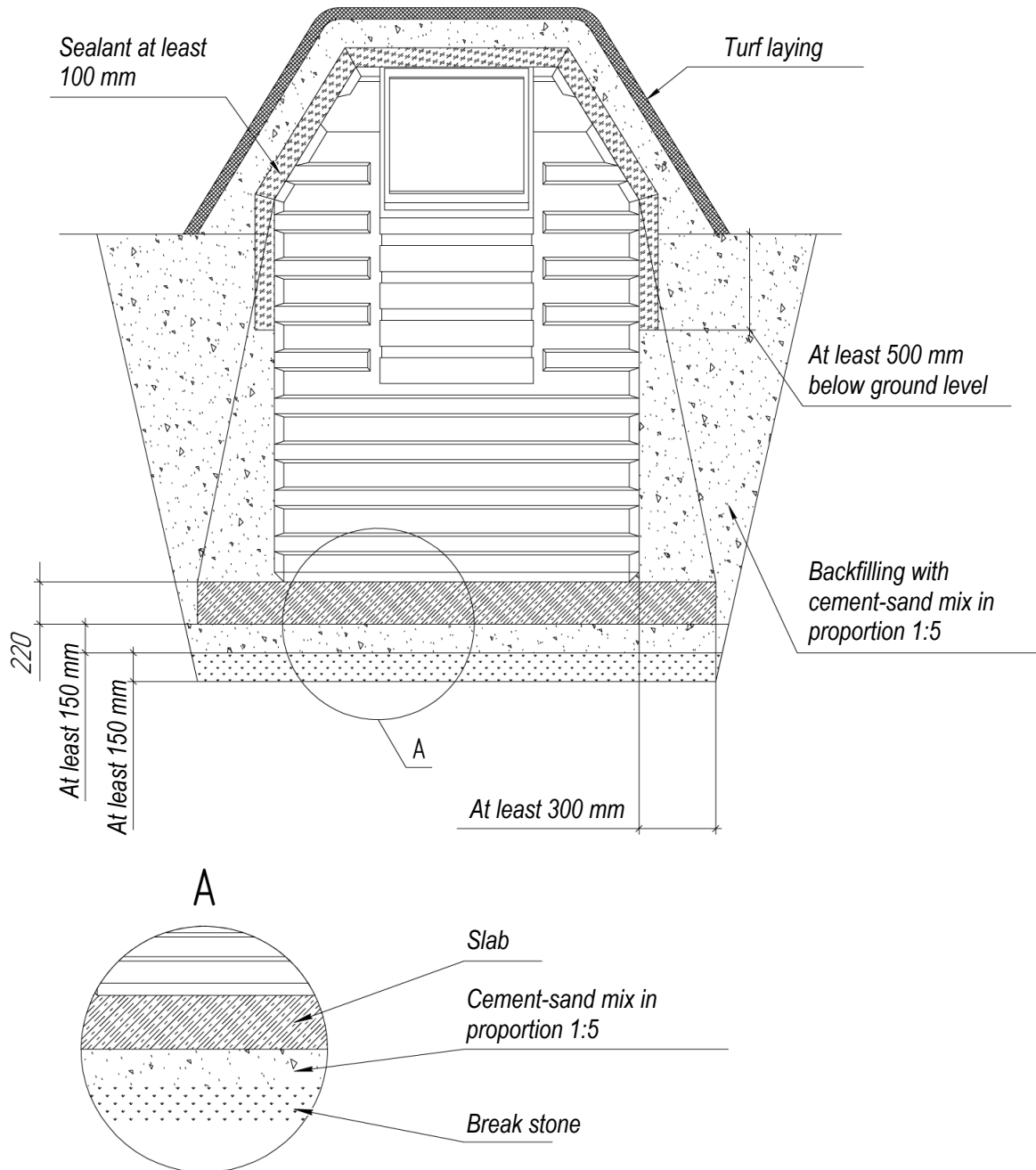
Appendix 3

Diagram of cellar installation with upper anchoring



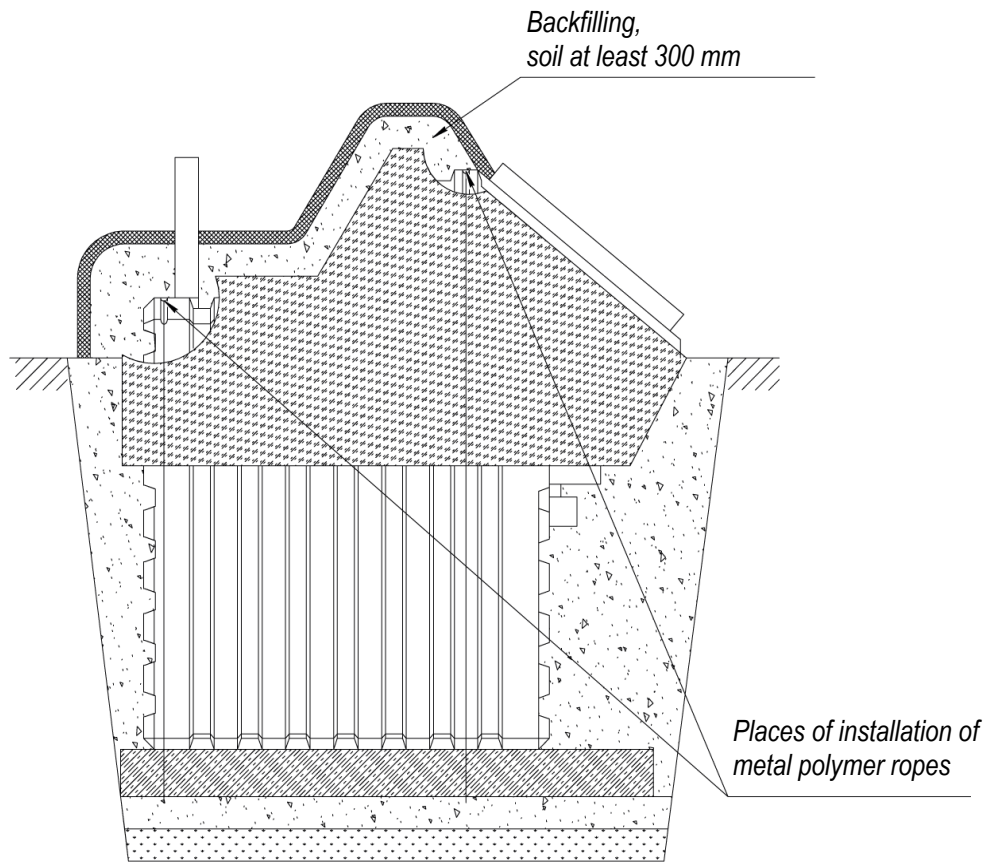
Appendix 4

Installation diagram for cellar TINGARD 1900-B



Appendix 4 continued

Installation diagram for cellar TINGARD 1900-B



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