

# CASE STUDY

**Thermo-System®**  
Oldenburg, Germany



## Sewage Sludge Drying

### Problem

The capacities for mixed incineration of dewatered sewage sludge in North German coal-fired power stations are to a great extent exhausted. An increase in throughput is possible only through the use of dried sludge.

The Oldenburg region has therefore developed a concept for regional sludge drying. In order to assure the cost-effectiveness of the drying process even in the face of rising energy costs, solar drying with utilisation of industrial waste heat was chosen. After drying, the sludge is thermally utilised in the coal-fired power station.

### Specifications of the Drying Plant

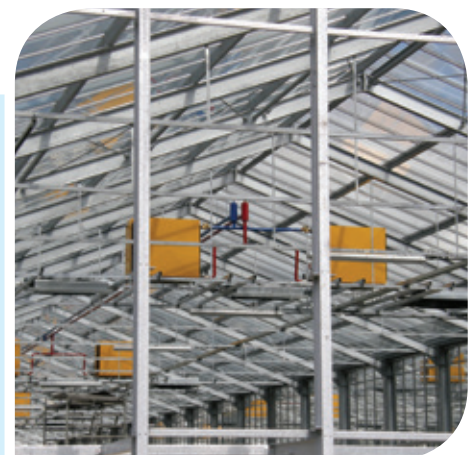
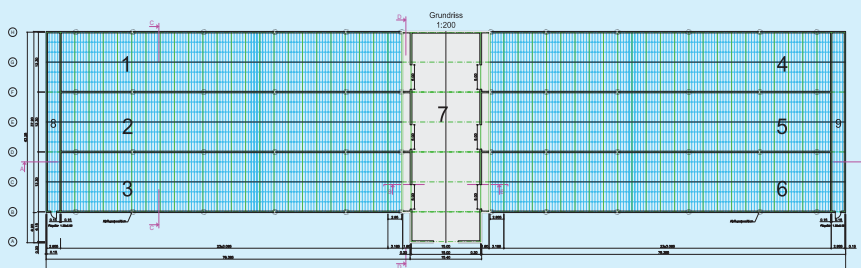
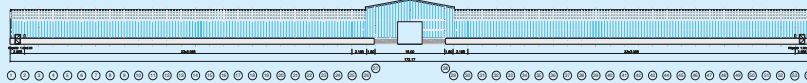
On principle, the investments and running costs should be kept to a minimum. The plant technology should be as robust and as maintenance-free as possible, and the demands on the operating staff should be as simple as possible.

In addition to the utilisation of free solar energy, it should still be possible to introduce industrial waste heat.

### Process and Function

The dewatered sludge is unloaded from lorries into a closed shed, and loaded directly into one of the six drying chambers by wheel loader from there. Fully automatic drying then begins. The heat needed for the drying comes partly from the sun, partly from surplus industrial waste heat.

When the desired final DS content has been reached, the dried sludge is loaded directly onto lorries by wheel loader, and thermally utilised in the coal-fired power station.

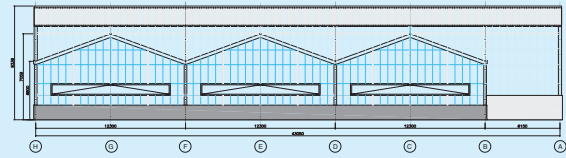


## Special Benefits of the Chosen Concept

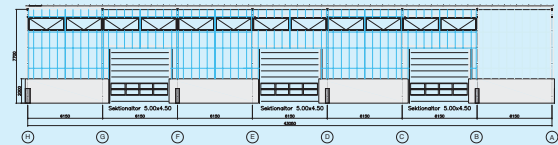
The plant concept, which was deliberately kept very simple, offers the following benefits:

- Long lifetime, because of the minimal number of moving parts and components in contact with the sludge (only wheel loader and ELECTRIC MOLES®)
- Absolutely robust and fault resistant. Simple exchange of the turning unit for maintenance and in case of faults through “plug & play”
- Low operating costs, simple maintenance, no special qualification of operating staff necessary
- Long lifetime
- Easy-going operation, with no time-critical faults
- Visually appealing, long-lived roofing with insulated glass

Elevation



Cross-sectional view D-D



<b>Sewage plant</b>	Size:	350,000 Population Equivalent
	Sludge quantity:	30,000 t per year with 20 - 25% DS
	Stabilisation:	Aerobic/anaerobic
<b>Drying</b>	Target DS:	60 - 70% DS, all year round
	Dry material:	approx. 10,000 t per year
<b>Plant data</b>	Total area:	6500m <sup>2</sup>
	Structure skin:	Insulated glass (16mm)
	Waste heat:	0 to 3500 KW
	<b>Work</b>	Loading by wheel loader
	Fully automated drying	
	Emptying by wheel loader; dry material loaded directly onto lorries	
<b>Environment</b>	Reduced volume of transport	
	Incineration with generation of energy	
	Avoidance of CO <sub>2</sub> emissions	



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