

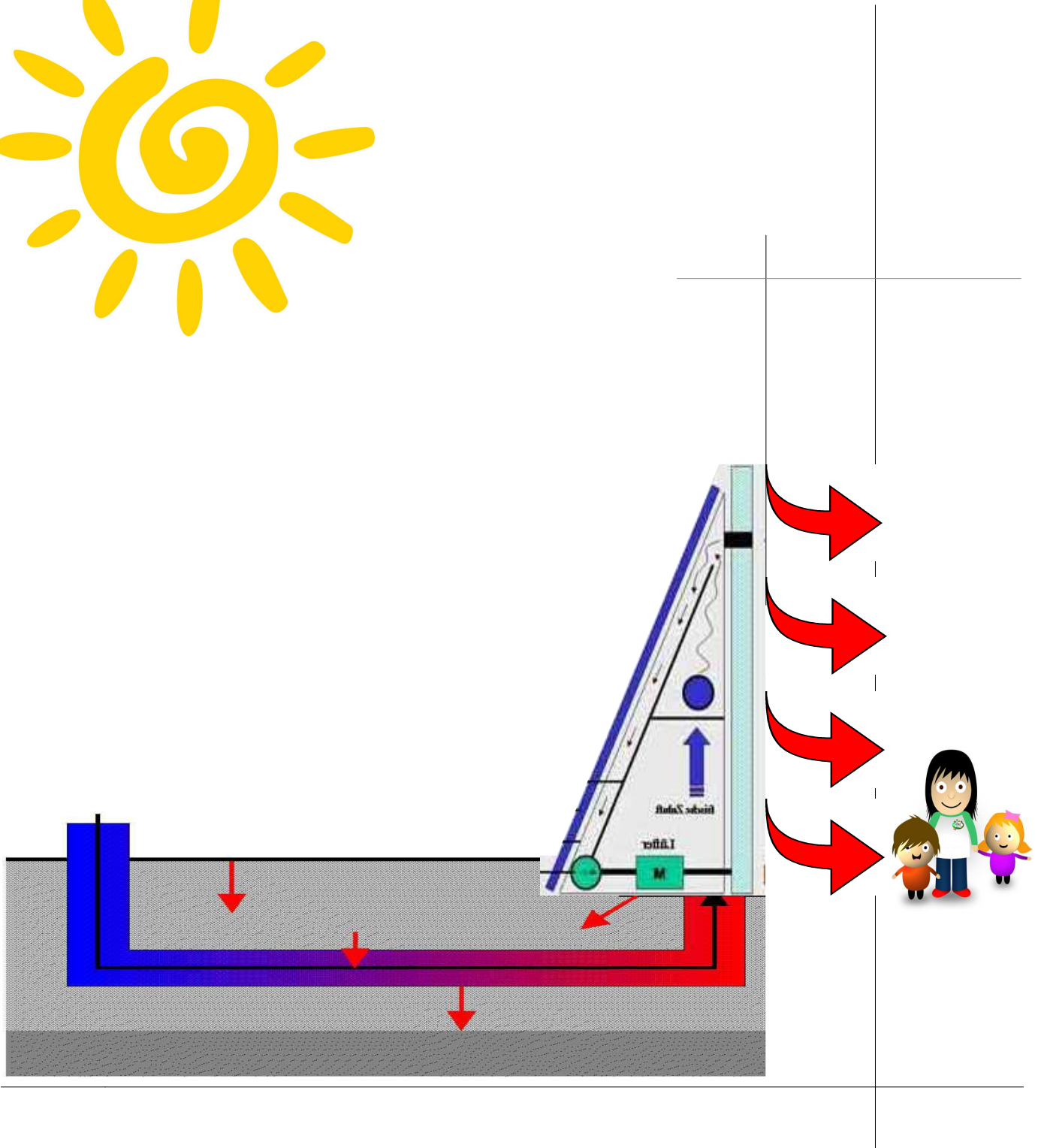
measure A

A

Community Fund for the Promotion of Basic Education and Community Infrastructure

Energy Efficiency and renewable Energies

Value Increase by complex AirHeatingSystem





No.	Point	Declaration	Comment
1.1	Measure	Combination of earth- and solar-facade-collectors for basic temperature control in classrooms	
1.2	Idea	<p>Generally there are large plots of land with relatively high ground temperatures, near-surface. It seems to be recommended to use the solar energy bound in the ground.</p> <p>Because sun is shining intensively also during the days of winter and so is able to bring a direct solar gain, the direct solar radiation will be used as well as possible.</p> <p>In combination of direct and indirect solar heat sources, sufficient heat can be created for warming of the classrooms.</p>	
1.3	Effect	<p>Classrooms will be sufficiently tempered for long periods.</p> <p>The continuous supply of fresh air guarantees pleasant air conditions.</p>	
1.4	Limits	<p>The performance of heating is insufficient to heat the classrooms, an auxiliary heating is recommended.</p> <p>Land must be sufficiently large and shouldn't be shadowed even in winter, regeneration of the soil must be ensured.</p> <p>The facade collectors may be not shadowed (mountains, plants, buildings etc.). They may be not too far from the outlets-slaps.</p> <p>Heated air may not lead by air lines in cold zones.</p> <p>In certain areas it is to ensure that modules are not damaged by children.</p>	
1.5	Realization	<p>Pipes can be installed by relatively simple means; the part of work to be done in the local department is high; the needs of materials is low.</p> <p>Heating of air is relatively continuous, but will not achieve high temperatures.</p> <p>Air collectors are easy to build, can be produced by local craftsmen in the department. Steps are easy to understand. No special materials required. Technology (radiator fan) can be bought and installed as used.</p> <p>Heating of air is depending on sunshine. In sunshine, the air can be heated up to on 55°. Performances can be carried at approx. 1,600 watts.</p> <p>Controller and PV-elements are now relatively cheap.</p> <p>No major changes in the existing planning to the buildings are required.</p>	
1.6	Impact	<ul style="list-style-type: none"> ➤ In transition time (summer/winter) temperature in classrooms can easily be increased by simple measures. ➤ Schools without heating receive a basic temperature control. 	



		<ul style="list-style-type: none"> ➤ Earth-collectors as well as solar-modules can be individually built and installed, the technology are simple. Both types can be used for the private residential sector. ➤ Facilities of the schools serve as a model system. ➤ Replica is relatively easy. Capacity-building for local craftsmen. ➤ In summer the earth-collector can be used for cooling: Blow in of fresh air, approx. 18°, can reduce the cooling load of classrooms.
1.7	Operation	<p>System is nearly maintenance free. From time to time, a cleaning of collectors and of the channels is required. No further input of energy required. Simple understanding of the function.</p>
1.8	Time	<p>Planning time: 30 days Building licence: done Bidding: 14 days Realization: 30 days</p>
1.9	Value	+++

без похвалой

ESTIMATED COST

Measure A - AirHeating System by Earth-Collectors

project: 110601-A COMMUNITY FUND FOR THE PROMOTION OF BASIC EDUCATION AND
COMM

client: NSIFT

planing: ba-K

supplier: _____

Total offer netto: _____

0%% charge: _____

brutto: _____

Total approved netto: _____

0%% charge: _____

brutto: _____

project: 110601-A COMMUNITY FUND FOR THE PROMOTION OF BASIC EDUCATION AND COMM
client: NSIFT
planing ba-K
LV: Measure A - AirHeating System by Earth-Collectors

Pos.Nr.	Einheitspr.	Gesamtp.
	<p>Lv: Measure A - AirHeating System by Earth-Collectors</p> <p>Calculation for:</p> <ul style="list-style-type: none">- School- Classes: 8- Floors: 1- Width: 14.56 m- Length: 39,36 m- Gross floor area: 57	

project: 110601-A COMMUNITY FUND FOR THE PROMOTION OF BASIC EDUCATION AND COMM
 client: NSIFT
 planning: ba-K
 LV: Measure A - AirHeating System by Earth-Collectors

1. 1(one) Classroom

Pos.Nr.	Einheitspr.	Gesamtpr.
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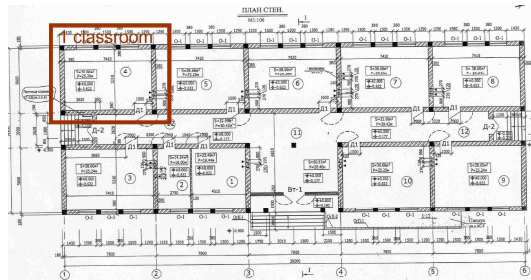
1. Bereich: 1(one) Classroom

in "Bereich 1" is calculated following: costs of the individual components for a classroom. It should thus be represented as the cost of 1 ventilation element, consisting of:

- Earth collector
- Air collector
- Power supply
- Structural changes made up.

In Bereich 2, the cost of calculation identified in Bereich 1, are used for the additional components.

Reason: Through naming of "unit price for 1 air heater" is increased the pre-requisites and and you can quickly calculate changes (e.g. 10-class school instead of 8 classes)



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 client: NSIFT
 planing: ba-K
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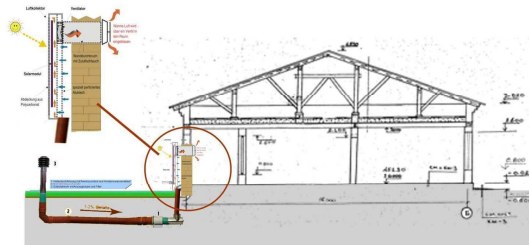
1. 1(one) Classroom

1.1. Earthcollector

Pos.Nr.		Einheitspr.	Gesamtpr.
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1.1. Titel: Earthcollector

length: 70m
 depth: -1.20m
 diameter: DN 200/200mm



1.1.1. tube, installation, slant 2%



70,00 m

1.1.2. Groundworks

20 c / 1m³;
 here: 1,00 m x 1,20 m x (0,40 m + 0,80 m)/2 = 0,72 m³;
 --> 20 c / 0,72 m³ = 14,40 c;

70,00 m

1.1.3. well, concrete, inspections, cleaning; depth: -1,40 m diameter: 80 cm incl. manhole cover

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 planing ba-K
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1. 1(one) Classroom

1.1. Earthcollector

Pos.Nr.		Einheitspr.	Gesamtp.
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Fortsetzung 1.1.3. well, concrete,



1,00 piece

1.1.4. suction support



1,00 piece

1.1.5. pressure chamber

1,00 piece

Summe Titel 1.1. Earthcollector

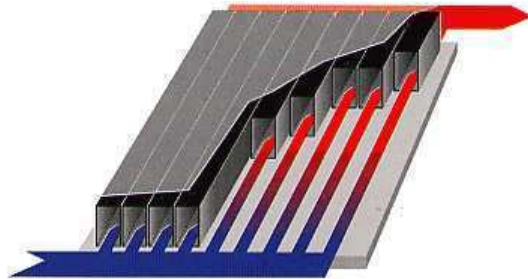
project: 110601-A COMMUNITY FUND FOR THE PROMOTION OF BASIC EDUCATION AND COMM
 client: NSIFT
 planing: ba-K
 LV: Measure A - AirHeating System by Earth-Collectors

1. 1(one) Classroom

1.2. Facade installed Air-Collector

Pos.Nr.		Einheitspr.	Gesamtpr.
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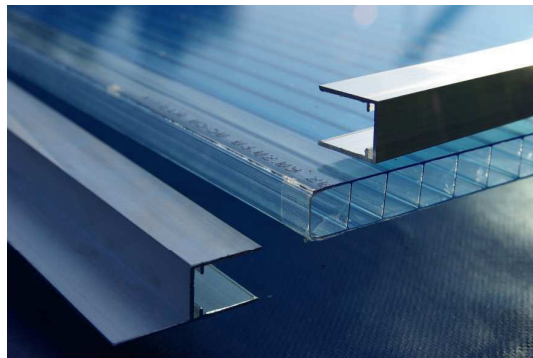
1.2. Titel: Facade installed Air-Collector



1.2.1.	material for construction, wooden	1,00 piece	
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1.2.2.	material, suction tubes, screws, ventilator, etc	1,00 piece	
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1.2.3.	material, coverpanel transparent board in glass or polycarbonat		
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		1,00 piece	
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1.2.4.	absorber	1,00 piece	
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1.2.5.	others	1,00 piece	
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1.2.6.	working capacity produced in series, 24 h/piece 24h/p x 25c = 600c	1,00 piece	
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Summe Titel 1.2. Facade installed Air-Collector _____

project: 110601-A COMMUNITY FUND FOR THE PROMOTION OF BASIC EDUCATION AND COMM
 client: NSIFT
 planing ba-K
 LV: Measure A - AirHeating System by Earth-Collectors

1. 1(one) Classroom**1.3. electricity**

Pos.Nr.		Einheitspr.	Gesamtpr.
1.3.	Titel: electricity		
1.3.1.	control system	1,00 piece	_____
1.3.2.	control system, temperature	1,00 piece	_____
1.3.3.	pv-modul ca.135 W	1,00 piece	_____
	Summe Titel 1.3. electricity		=====

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1. 1(one) Classroom**1.4. works around**

Pos.Nr.		Einheitspr.	Gesamtpr.
1.4.	Titel: works around		
1.4.1.	customiz facade	1,00 piece	_____
1.4.2.	slapping to classroom	1,00 piece	_____
1.4.3.	ventilation grid	1,00 St	_____
	Summe Titel 1.4. works around		=====
	Summe Bereich 1. 1(one) Classroom		=====

project: 110601-A COMMUNITY FUND FOR THE PROMOTION OF BASIC EDUCATION AND COMM
 client: NSIFT
 planing: ba-K
 LV: Measure A - AirHeating System by Earth-Collectors

2. additional 7(seven) classrooms

Pos.Nr.		Einheitspr.	Gesamtpr.
2.	Bereich: additional 7(seven) classrooms		
2.1.	work explaind above	7,00 piece	_____
2.2.	addition for classroom in 2.floor additional - tube: 6m - slapping: 2piece	0,00 St	_____
Summe Bereich 2. additional 7(seven) classrooms			=====

project: 110601-A COMMUNITY FUND FOR THE PROMOTION OF BASIC EDUCATION AND COMM
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3. additional 2 rooms, teacher, Director

Pos.Nr.	Einheitspr.	Gesamtp.
3.	Bereich: additional 2 rooms, teacher, Director	
3.1.	work explai nd above	
	2,00 piece	_____
	Summe Bereich 3. additional 2 rooms, teacher, Director	=====
	Summe Lv Measure A - AirHeating System by Earth-Collectors	=====

project: 110601-A COMMUNITY FUND FOR THE PROMOTION OF BASIC EDUCATION AND COMM
client: NSIFT
planing ba-K
LV: Measure A - AirHeating System by Earth-Collectors

Zusammenfassung

Titel 1.1. Earthcollector

Titel 1.2. Facade installated Air-Collector

Titel 1.3. electricity

Titel 1.4. works around

Bereich 1. 1(one) Classroom

Bereich 2. additional 7(seven) classrooms

Bereich 3. additional 2 rooms, teacher, Director

Gesamt netto

zzgl. 0 % MwSt

Gesamt brutto

Lv Measure A - AirHeating System by Earth-Collectors.....	2
Bereich 1. 1(one) Classroom.....	3
Titel 1.1. Earthcollector.....	4
Titel 1.2. Facade installed Air-Collector.....	6
Titel 1.3. electricity.....	7
Titel 1.4. works around.....	8
Bereich 2. additional 7(seven) classrooms.....	9
Bereich 3. additional 2 rooms, teacher, Director.....	10

с похвалой

ESTIMATED COST

Measure A - AirHeating System by Earth-Collectors

project: 110601-A COMMUNITY FUND FOR THE PROMOTION OF BASIC EDUCATION AND
COMM

client: NSIFT

planing: ba-K

supplier: _____

Total offer netto: _____

0%% charge: _____

brutto: _____

Total approved netto: _____

0%% charge: _____

brutto: _____

project: 110601-A COMMUNITY FUND FOR THE PROMOTION OF BASIC EDUCATION AND COMM
client: NSIFT
planing ba-K
LV: Measure A - AirHeating System by Earth-Collectors

Pos.Nr.	Einheitspr.	Gesamtp.
	<p data-bbox="336 309 1318 349">Lv: Measure A - AirHeating System by Earth-Collectors</p> <p data-bbox="336 360 520 392">Calculation for:</p> <ul data-bbox="336 394 595 568" style="list-style-type: none"><li data-bbox="336 394 440 425">- School<li data-bbox="336 427 483 459">- Classes: 8<li data-bbox="336 461 459 492">- Floors: 1<li data-bbox="336 495 539 526">- Width: 14.56 m<li data-bbox="336 528 549 560">- Length: 39,36 m<li data-bbox="336 562 595 593">- Gross floor area: 57	

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 planning: ba-K
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1. 1(one) Classroom

Pos.Nr.	Einheitspr.	Gesamtpr.
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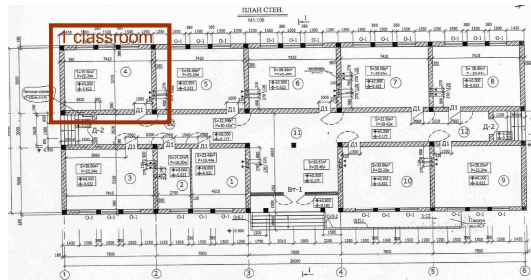
1. Bereich: 1(one) Classroom

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- Air collector
- Power supply
- Structural changes made up.

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Reason: Through naming of "unit price for 1 air heater" is increased the pre-requisites and and you can quickly calculate changes (e.g. 10-class school instead of 8 classes)



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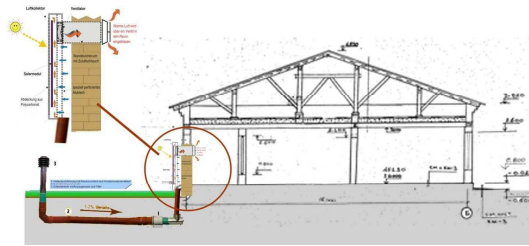
1. 1(one) Classroom

1.1. Earthcollector

Pos.Nr.		Einheitspr.	Gesamtpr.
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1.1. Titel: Earthcollector

length: 70m
 depth: -1.20m
 diameter: DN 200/200mm



1.1.1. tube, installation, slant 2%



70,00 m

1,50

105,00

1.1.2. Groundworks

20 c / 1m³;
 here: 1,00 m x 1,20 m x (0,40 m + 0,80 m)/2 = 0,72 m³;
 --> 20 c / 0,72 m³ = 14,40 c;

70,00 m

2,95

206,50

1.1.3. well, concrete, inspections, cleaning; depth: -1,40 m diameter: 80 cm incl. manhole cover

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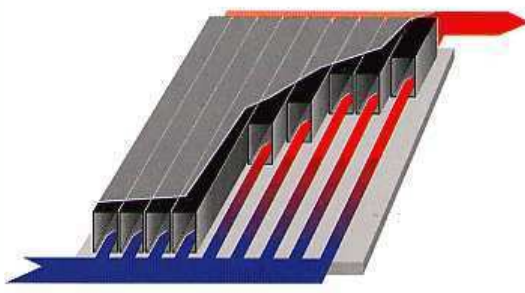
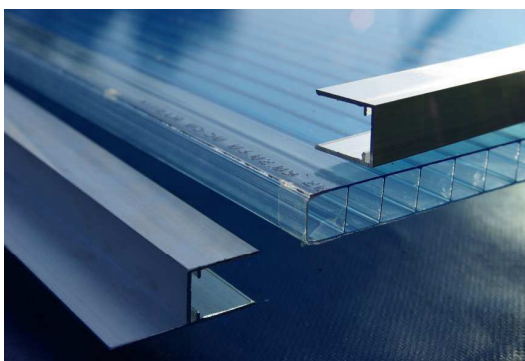
1. 1(one) Classroom

1.1. Earthcollector

Pos.Nr.		Einheitspr.	Gesamtp.
	<p>***Fortsetzung*** 1.1.3. well, concrete,</p> 	1,00 piece	80,00
1.1.4.	<p>suction support</p> 	1,00 piece	120,00
1.1.5.	<p>pressure chamber</p>	1,00 piece	80,00
Summe Titel 1.1. Earthcollector			<u>591,50</u>

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 client: NSIFT
 planing: ba-K
 LV: Measure A - AirHeating System by Earth-Collectors

1. 1(one) Classroom**1.2. Facade installed Air-Collector**

Pos.Nr.		Einheitspr.	Gesamtp.
1.2.	Titel: Facade installed Air-Collector		
			
1.2.1.	material for construction, wooden		
	1,00 piece	120,00	120,00
1.2.2.	material, suction tubes, screws, ventilator, etc		
	1,00 piece	85,00	85,00
1.2.3.	material, coverpanel transparent board in glass or polycarbonat		
			
	1,00 piece	220,00	220,00
1.2.4.	absorber		
	1,00 piece	120,00	120,00
1.2.5.	others		
	1,00 piece	50,00	50,00
1.2.6.	working capacity produced in series, 24 h/piece 24h/p x 25c = 600c		
	1,00 piece	90,00	90,00
	Summe Titel 1.2. Facade installed Air-Collector		685,00

project: 110601-A COMMUNITY FUND FOR THE PROMOTION OF BASIC EDUCATION AND COMM
 client: NSIFT
 planing ba-K
 LV: Measure A - AirHeating System by Earth-Collectors

1. 1(one) Classroom**1.3. electricity**

Pos.Nr.		Einheitspr.	Gesamtp.
1.3.	Titel: electricity		
1.3.1.	control system	1,00 piece	35,00
			35,00
1.3.2.	control system, temperature	1,00 piece	40,00
			40,00
1.3.3.	pv-modul ca.135 W	1,00 piece	450,00
			450,00
	Summe Titel 1.3. electricity		<u>525,00</u>

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 planing ba-K
 LV: Measure A - AirHeating System by Earth-Collectors

1. 1(one) Classroom**1.4. works around**

Pos.Nr.		Einheitspr.	Gesamtp.
1.4.	Titel: works around		
1.4.1.	customiz facade	1,00 piece	30,00
			30,00
1.4.2.	slapping to classroom	1,00 piece	15,00
			15,00
1.4.3.	ventilation grid	1,00 St	20,00
			20,00
	Summe Titel 1.4. works around		65,00
	Summe Bereich 1. 1(one) Classroom		1.866,50

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 LV: Measure A - AirHeating System by Earth-Collectors

2. additional 7(seven) classrooms

Pos.Nr.		Einheitspr.	Gesamtp.
2.	Bereich: additional 7(seven) classrooms		
2.1.	work explaind above		
		7,00 piece	1.866,50
			13.065,50
2.2.	addition for classroom in 2.floor		
	additional		
	- tube: 6m		
	- slapping: 2piece		
		0,00 St	80,00
			0,00
	Summe Bereich 2. additional 7(seven) classrooms		<u>13.065,50</u>

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 planing ba-K
 LV: Measure A - AirHeating System by Earth-Collectors

3. additional 2 rooms, teacher, Director

Pos.Nr.		Einheitspr.	Gesamtp.
3.	Bereich: additional 2 rooms, teacher, Director		
3.1.	work explaind above		
		2,00 piece	1.866,50
			3.733,00
	Summe Bereich 3. additional 2 rooms, teacher, Director		<u>3.733,00</u>
	Summe Lv Measure A - AirHeating System by Earth-Collectors		<u>18.665,00</u>

Lv Measure A - AirHeating System by Earth-Collectors.....	2
Bereich 1. 1(one) Classroom.....	3
Titel 1.1. Earthcollector.....	4
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