



☎ : 0424 - 2244101

Mob : 99767 51115

Fax : 0424 - 2244102

VELLALAR COLLEGE FOR WOMEN (AUTONOMOUS)

"COLLEGE WITH POTENTIAL FOR EXCELLENCE"

(Re-accredited with 'A' Grade by NAAC, Bengaluru & Affiliated to Bharathiar University, Coimbatore)

Thindal, Erode - 638 012, Tamilnadu.

e-mail: principalvcw@gmail.com * website: vcw.ac.in

7.1.2 Biogas Plant



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ST. RC. No. 165 3162560 Phone : 04287 - 231207
ST. No. 678400

SUNDARAM FAB

5/38-A, Trichengode Main Road, ANDAGALUR GATE P.O.
Rasipuram Tk., Namakkal Dt., Salem - 637 401.

Invoice Date: 22.09.2004

To
The Principal,
Vellalar College For Women,
Thindal

Invoice FOR 35CUM CAPACITY NIGHT SOIL BASED "BIOGAS PLANT"

Sl. No	Description of work	No.	L.	B.	D.	Qty.	Rate Per.	Amount
01.	Earthwork excavation in all type of soils except hard rock from the initial lead of 10m and a lift of 2m including the cost of refilling the sides etc., complete.							
	Inlet chamber	1x1	1.95	1.95	0.975		3.71	
	Gas Tank	1x1	$\pi \times 7.85^2 \times$	6.49			314.10	
	Gas Tank sphere	1x1	$\frac{4}{3} \pi \times 1.16^3 \times$	$(3.925 \times 7.578 - 1.16)$		40.28		
	Out let chamber	1x1	$\frac{\pi}{360} \times 106^2 \times 27'$	$(5.775^2 - 3.925^2)$	3.15		52.51	
	Out let chamber foundation :							
	Arc length = $n/360 \times 2 \pi r$							
	= $10627' \times 2 \times \pi \times 5.775$							

	360							
	= 10.73 + 3.9							
	= 14.63m	1x1	14.63	1.00	1.45		21.21	
						431.81		
						cum	40/cum	17,272/-

For Sundaram Fab
[Signature]
Proprietor



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Sl. No.	Description of work	No.	L.	B.	D.	Qty.	Rate Per.	Amount
02.	Supplying and laying the base with cc 1:4:8, using 40mm size HGB jelly including the cost of mixing, laying, compacting and curing etc., complete.							
	Inlet chamber	1x1	1.95	1.95	0.075	0.29		
	Gas tank sphere	1x1	$\pi/3 \times (1.16^2 \times 3.775 \times 7.578 - 1.16) - 1.01^2 (3.625 \times 7.428 - 1.01)$			10.99		
	Gas tank outer ring	1x1	$\pi/4 (7.55^2 - 7.25^2)$	0.15		0.52		
	Out let chamber foundation	1x1	14.63	1.00	0.15	2.19		
	Out let chamber base	1x1	$\frac{106.27'}{360} \times \pi \times (5.56^2 - 3.575^2)$	0.15		2.53		
						16.52 cum	1,200/- cum	19,824/-
03.	Construction of superstructure with brickwork in cm 1:6, using best quality of country bricks including the cost of all materials to site and labour chares etc., complete.							
	Inlet chamber All round	1x1	5.70	0.225	1.20	1.54		
	Brick columns on Outlet chamber	1x1	14.63	0.69	0.15	1.51		
		1x1	14.63	0.46	0.15	1.03		
		1x1	14.63	0.23	1.00	3.36		
						7.42 cum	1,500/- cum	11,130/-
04.	Centring for all plain R.C.C. works using the best quality of M.S. Shutters and supports upto a height of 3.66m.							
	Gas tank inner							
	Side wall	1x1	$\pi/4 \times 6.85^2 \times 4.57$			168.42		
	Top sphere	1x1	$2 \times \pi \times 4.966 \times 1.37$			42.75		
	Gas Tank outer	1x1	$\pi/4 \times 7.15^2 \times 4.27$			171.45		
	Outlet chamber roof	1x1	$\frac{106.27'}{360} \times \pi (5.575^2 - 3.575^2)$			16.99		
	Outlet chamber inner :							
	Min : Arc length :	1x6.65 =		6.64				
	Max : Arc length :	1x10.35 =		10.35				
	Windth :	2x2.00 =		4.00m				
						20.99m		
	Say	1x1 21.00			2.80	58.80		

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Description of work	No.	L.	B.	D.	Qty.	Rate Per.	Amount
Less							
Area covered already on							
gas tank outer wall	1x1	6.64	-	1.20	7.97(-)		
Gas Tank Bottom Beam	1x1	$2 \times \pi \times 3.63 \times 0.30$			6.84		
Gas Tank Top Beam	1x1	$2 \times \pi \times 3.63 \times 0.50$			11.40		
Inlet chamber	1x1	1.20	1.20	-	1.44		
					470.12	200/- sqm	94,024/-
Supplying and laying the roof slab, beams, columns Lintels & Sunshades with cc 1:1½ : 3, using 20mm size HGB jelly Excluding the cost of steel but including the cost of steel but including the cost fabrication, placing laying, compacting and curing etc., complete.							
Gas Tank sphere bottom	1x1	$3(1.01^2 (7.428 \times 3.575 - 1.01) - 0.86^2 (7.278 \times 3.425 - 0.86))$			8.65		
Gas Tank side wall	1x1	$\frac{1}{4} (7.15 - 6.85) \times 4.57$			15.07		
Top & Bottom beam	1x2	$2 \times \pi \times 3.77 \times 0.30 \times 0.20$			2.84		
Gas tank sphere top	1x1	$\frac{\pi}{3} (1.52^2 (3.575 \times 5.116 - 1.52) - 1.37^2 (3.425 \times 4.966 - 1.37)) \times 9.83$			9.83		
Less Grown	1x1	$\frac{\pi}{4} \times 1.00^2 \times 0.15$			0.12 (-)		
Out let chamber bottom	1x1	8.50	2.00	0.20	3.40		
Roof	1x1	8.90	2.40	0.10	2.14		
Side wall :							
Min. Arc Length :		1x6.64 = 6.64					
Max. Arc Length :		1x10.35 = 10.35					
Width		2x 2.40 = 4.80m					
		21.79m					
	1x1	21.79	0.20	3.00	13.07		
Less							
Quantity already Covered on gas tank							
Side wall	1x1	6.64	0.20	1.20	1.59 (-)		
					53.30	2,700/- cum	1,43,910/-
					cum		

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Sl. No	Description of work	No.	L.	B.	D.	Qty.	Rate Per.	Amount
06.	Supplying and laying the roof slab, beams, columns Lintels & Sunshades with cc 1:2:4, using 20mm size HGB jelly excluding the cost of steel but including the cost of fabrication, placing, laying, compacting and curing etc., complete.							
	Inlet chamber bottom	1x1	1.20	1.20	0.04	0.06		
	Roff	1x1	1.65	1.65	0.075	0.20		
						0.26 cum	2,000/- cum	520/-
07.	Supplying and erection of steel reinforcements for all R.C.C. Works including the cost of materials to site and conveyance Charges etc., complete.							
	10% of cc 1 : 1½ : 3 & 1:2:4 7% of cc (53.30 + 0.26) = 0.70 x 24000x53.56 = 8998kg	Say				9.00 mt	25,000/- mt	2,26,800/-
08.	Cost for fabricating the roof sphere in FRP							40,000/-
09.	Plastering the walls with cm 1:5 - 12mm thick. Inlet chamber	1x1	4.80	-	1.20	5.76 sqm	60/- sqm	346/-
10.	Lumpsum provision for providing grating of 1.20 x 1.20mm size, Steel L-Angle frames with 40 spacings made up of 40x6 MS flats							2,000/-
11.	Lumpsum provision for 250Ø PVC pipe about 4 .00m length. LS							5,000/-
12.	Lumpsum provision for 250 Ø PVC pipe about 3.12m length. LS							3,000/-
13.	Lumpsum provision for crown fittings gas outlet pipes with safety valve							10,000/-
14.	Lumpsum provision for Apoxy painting over the inner side wall of gas tank and outlet chamber							10,000/-
15.	Lumpsum provision for miscellaneous items and contingencies of rate							17,714/-
16.	FRP Cover for outlet tank							30,000/-
17.	2 Cum fabricated Canteen Burner 4 Nos.							10,000/-
18.	Laying Gas Distribution Pipeline							10,000/-
	(RUPEES SIX LAKHS AND FIFTY THOUSANDS ONLY)							6,50,000/-

*the
have been
checked
by
[Signature]*

Passed for Payment

[Signature]
Secretary

For Sundaram Fab
[Signature]
Proprietor