

Technical Specification of Gas Based Crematorium

INCINERATION SYSTEM FOR HUMAN BODY CREMATION

Furnace Incinerator to provided the efficient disposal Human Body in Religious manner/ by burning it in furnace of incinerator in twin furnace.

This system will burns all the Human Body as required and other also control the Air emission which produced from the wastage of gases harmful for health. In this furnace gasses will pass through the wet scrubber system. The main function of the wet scrubber system is to control S.P.M. gasses which is produce after burning in the furnace.

Body Disposal Capacity	Upto 150 Kgs /Hr (45-60 Minutes per Body)
Gaseous production/Kg. wastage	10 – 12M ³ /Hr.
Total volume of the gaseous	1000 - 1250M ³ /Hr.
Air required/Kg. wastage	4.5 Kgs./Hr.
Designee Volume	1500M ³ /Hr.
Furnace Size in single chamber	2500 mm x 2500 mm x 3000mm (Height)
Plate thickness	5 mm
Lining inner side of furnace	Fire brick high Alumina
Total Gas Consumption	10-12Kg/Body
Refractories	Standard ISI
Bricks for furnace	40 Alumina
Ducting size	400 mm dia
Temp. in 1st Chamber	600 ⁰ C - 650 ⁰ C
No. of Chamber	1 No.
No. of Pot	1 No.

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SYPHON TANK

Construction Material	Mild Steel
Size of Syphon Tank	3.0m x 1.5m x 1.0m
Length of Syphon Tank	3.0m
Width of Syphon Tank	1.5m
Height of Syphon Tank	1.0m
Effective Volume of Syphon Tank	4.5 KL.
No. of compartments	3 Nos.
Stiffer reinforcement	ISA 40 mm
Plate thickness	5 mm
Drain valve size of Syphon Tank	50 mm (3 Nos.)
Valve make	Standard ISI

M.S. DUCTING

DESCRIPTION	TECHNICAL SPECIFICATION
Ducting Size	400 mm Dia
Plate thickness	4 mm / 5 mm
Material	M.S.

WATER PUMP

DESCRIPTION	TECHNICAL SPECIFICATION
Water pump	1.0 H.P.
Capacity	2 LPS.

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Head	10 m
Type make	Kirloskar/Crompton/Lubi
Body	Cast Iron
Type	Centrifugal Monoblock

WET SCRUBBER SYSTEM (POLLUTION CONTROL DEVICES)


DESCRIPTION	TECHNICAL SPECIFICATION
Wet Scrubber Qty.	1 No.
Type of make of Wet Scrubber	Venturi Type
Size of Wet Scrubber Droplet	1250 mm x 4500 mm
Dia of Wet Scrubber Droplet	1250 mm
L.O.S.	2500 mm
Plate thickness of Wet Scrubber	5 mm
Upper cone height of Wet Scrubber	1.0 m
Bottom cone height	1.0 m
No. of Baffle Plate	1 No.
Plate thickness	5 mm
Spray Coil Size	50 mm Dia Pipe
Inlet Velocity of Wet Scrubber	7-8 M/Sec.
Retention Period	2 Sec.

INCINERTION MACHANISM

Duty	To provide the proper burning of Human Body originated from in different ways to Burn in all Holy Manner.
Driving Method	For proper burning with gas help of F.D. Fan particulars shaped furnace and gas required for Furnace.
Type	The incinerator mechanism will be suitable type with proper shaped furnace to burn the Body and specified size with inter tied with tie rods and special fire bricks of high aluminum.
Capacity	To be sufficient to burn min 10 Body/Day.

CHIMNEY

S. NO.	DESCRIPTION	TECHNICAL SPECIFICATION
1.	Chimney Material	M.S. with epoxy.
2.	Chimney Height	30.0 m
3.	Plate Thickness of top portion	4 mm / 5mm / 8mm
4.	Bottom cone height	3.0 m
5.	Bottom cone dia	1000 mm
6.	Top portion dia	500 mm
7.	Base plate thickness	12 mm
8.	Grouting bolt size	25 mm x 600 mm
9.	Grouting bolt No.	8 Nos.
10.	Supporting Ladder/Plateform	1 No.



I.D. FAN (DESIGN PARAMETERS)

Make of I.D. Fan	Any Standard Make
Body plate thickness	5 mm (M.S.)
Impeller thickness	4 mm/5mm/8mm
Impeller size	700 mm
Bearing Type	S.K.F.
Shaft size	50 mm x 700 mm
Shaft Material	EN-8/EN-36
Pressure in W.G.	175 mm
Type of Impeller of fan	Backward vane/Star/Paddle Bush Type
Inlet/Outlet	Radial/Axial
Power requirement	5.0 H.P.
R.P.M.	950 to 1000 Max
Attached with	V Belt/Pullies.

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DETAILS OF ELECTRICALS AND INSTRUMENT EQUIPMENT/ACCESSORIES FOR INCINERATOR

S.NO.	DESCRIPTION	QUANTITY
1.	M.C.C. Panels cable starter switch for F.D. Fan	1 No.
2.	Cable starter, switches for water pump for scrubber (2 H.P.)	1 No.
3.	Digital Temperature gages with thermo couples	1 No.
4.	M.C.C. Panels cable starter switch for I.D. Fan	1 No.

WASTE WATER TRANSFER PUMP

DUTY	To transfer the waste water from Sump to Flash Mixer.
DRIVING METHOD	Direct coupled centrifugal type.
DRIVING MACHINE	Electric Motor 0.5 H.P.
MATERIAL OF CONSTRUCTION	C.I.
CAPACITY DISCHARGE	3 – 4 L.P.S. Horizontal
HEAD	5 – 6 m
NO. OF UNITS	One
Make	KDS Series , Kirlosker, Crompton Greeves

FLASH MIXER

1.	Material of construction	M.S.
2.	Size of Flash Mixer	800mm x 2.0m (With Cone)
3.	Rotation of Flash Mixer	62- 70 Nos./m



4.	Gear used	Deecon 137 V
5.	Power required	1.0 H.P.
6.	Drain at bottom	75 mm
7.	Dosing	Alum, Lime and FeSO ₄ Poly
8.	Side reinforcement	50 x 50mm x 6mm
9.	Lifting of Effluent	With Pump
10.	Plate thickness	5mm
11.	Side Reinforcement	Angels 65mm X 6mm
12.	No. of Unit	1 Nos.
13.	Agitator	S.S Blades

PRIMARY TUBE SETTLER

Construction material of Tube Settler	Mild Steel
Size of Tube Settler	1200mm x 1200mm x 3000 mm
Length of straight portion of tube settler	1.0 m
Length of inclined portion of tube settler	500 mm
Plate thickness	5.0 mm
Total No. of inclined tubes	36 Nos.
Size of each tube	25.4 mm
Length of each tube	1000 mm
Material of tube	HDPE / PVC

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Reinforcement Structure	I.S.A-50
Supporting Structure	ISMC4" x 2.5 m
No. of Supports	4 Nos.
Function of inclination tubes	To reduce the velocity
No. of Unit	1 No.

ACTIVATED CARBON FILTER

Construction of material of A.C.F.	Mild Steel
Dia of A.C.F.	500mm
Length of straight portion	1800mm
Supporting structure	100 MMNB Pipe
Base plate size	1' x 1'
Bolt	$\frac{3}{4}$ " x 2.12" x 8 Nos.
Plate thickness	5 mm
Media	Sand, Pebbles, Activated Carbon
Sand type	Fine Sand
Pebbles	25mm, 12mm, 6mm
Total No. Required	2 Nos.
Top & Bottom end	Dished type
Function	The main function of this A.C.F. is to settle the minute Particles.

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Activated Carbon I.V.	I.V. 750
Back wash	With valves/Accessories and pump

TOTAL POWER REQUIREMEN FOR SYSTEM

S.NO.	<u>DESCRIPTION</u>	TOTAL H.P.	<u>UNITS</u>
1.	ID Fan	5.0 H.P	1 Nos.
2.	Waste Water Transfer Pump	0.5 H.P.	1 Nos.
3.	Filter Feed Pump	0.5 H.P.	1 Nos.
4.	Secondary Air	0.5 H.P.	1 No.
6.	Syphon tank's pump	1.0 H.P.	1 No.
Total H.P. (Electricity connection is to provided by MCB)		7.5 H.P.	

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Cost Of the System

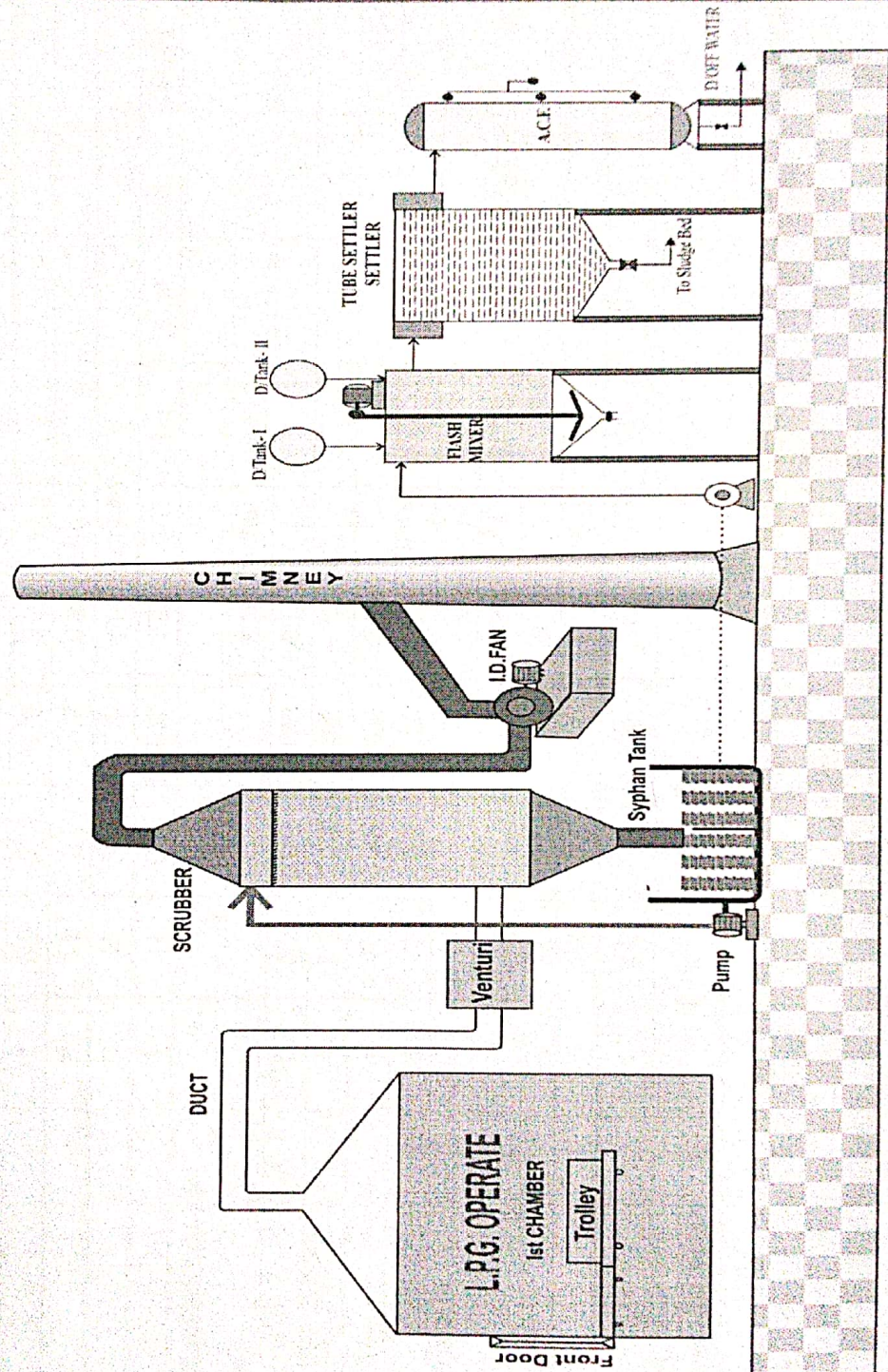
S. No.	DESCRIPTION	QUANTITY	PRICE In Rs
1	Supply, Installation, Testing and commissioning of Gas Based Crematorium at Bathinda with E.T.P including Carriage, Loading/Unloading etc Complete in all respect as per the entire satisfaction of Engineer in Charge. Rates quoted by the bidder are inclusive of all the taxes, GST etc.)	1 complete job	Rs. 29,64,600
2	Civil Work Complete in all respect.	As attached	Rs 3,40,000
G. Total			Rs 33,04,600
Rs.			
			Say Rs 33.05 Lacs

(Rs. Thity Three Lacs and Five Thousand Only)

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INCINERATOR SYSTEM FOR HUMAN BODY CREMATION



Municipal Corporation Bathinda

Civil work Estimate												
Sr. No	Item No.	Name of Item	Nos.	L (m)	B (m)	H (m)	Qty	Unit	Rate	Premiu m	Total Rate	Amount
1	6.6	Earth work in exclamation for foundation.										
		For Brick work (11m*11m)	4	11	0.3	0.23	3.04					
		for pipe foundation	8	0.6	0.6	0.6	1.73					
		Flooring	1	11	11	0.15	18.15					
							22.91	cum	66.28	80	119.30	2734
2	10.6b	CC 1:8:16 in stone blast										
		For B/w	4	11	0.3	0.08	0.99					
		For flooring	1	11	11	0.08	0.83					
		Ramp	4	2.5	0.3	0.08	0.23					
		for pipe foundation	6	0.6	0.6	0.08	0.16					
							2.20	cum	1745.00	0	1745.00	3842
3	11.5	Brick work in foundation with 1:5										
			4	11	0.23	0.15	1.52					
		Above ground	4	11	0.23	0.45	4.55					
		steps	4	2.5	0.6	0.15	0.90					
			4	2.5	0.45	0.15	0.68					
			4	2.5	0.3	0.15	0.45					
							8.10	cum	3648.00	0	3648.00	29538
4	10.12	P/Laying RCC M20										
		Concrete for column foundation	6	0.6	0.6	0.45	0.97					
		For Foundation of incinerator	LS				2.00					

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	Flooring	1	11	11	0.08	9.08		cum	4001.00	0	4001.00	48200
5	18.14											
	P/F MS pipe 114.3 mm Outer dia 5.40 mm thick hollow section											
		8	15			120.00	Ft					
						36.58	M					
						18.5	Kg/m	W/m				
						676.66						
6	18.1					6.77	Kg		5166.94	16	5993.65	40556
	P/F MS plate 25mm thick											
	P/F angle											
	100 x 100 x 10 mm (Length = 100+100 = 200mm)	6	10		60.00	M						
					60.00	M						
			@	17.7kg/ Rmt		1062.0	kg					
7	15.6				or	10.62	Qtl		5013.31	23	6166.37	65487
	P/Laying Cement plaster 1:4mm thick											
		4	11	0.45		19.80						
8	16.14					19.80	sqm		114.00	0	114.00	2257
	P/Laying Snowcem											
	Boundary	4	11	0.45		19.80						
9	16.21					19.80	sqm		43.54	50	65.31	1293
	Applying priming coat with metal primer on new steel or iron work including preparation of surface.											

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		Tubular section = 2*3.14*55mm =345.4mm	1	36.58	0.345		12.62						
		Angle	6	11	0.1		6.60						
10	16.22	Painting two coats excluding priming coat with ready mixed paint for metallic surfaces in all shades on steel or iron work					19.22	sqm	13.79	25	17.24	331	
		area as per item no. 14					19.22	sqm	41.40	25	51.75	995	
11	13.18 0	P/F of GI sheet											
			1	11.5	11.5		132.25						
							132.25	sqm	792.56	15	911.44	120538	
12	NS	Extra Carriage of fine sand											
		B/W	1	8.10	0.25		2.02						
		C.C. 1:8:16	1	2.20	0.5		1.10						
		CP	1	19.80	0.09		1.78						
							4.91	cum	401.00	0	401.00	1968	
13	NS	E/C of C-sand											
		M20	1	12.05	0.45		5.42						
		Sand	1	14.52			14.52						
							19.94	cum	656.00	0	656.00	13081	
14	NS	E/C of Bajri											
		C.C. 1:8:16	1	2.20	1		2.20						
		C. C 1:2:4	1	12.05	0.9		10.84						
							13.04	cum	501.00	0	501.00	6535	

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MUNICIPAL CORPORATION BATHINDA, LOCAL GOVT. PUNJAB, DEPTT, PUNJAB

NOTICE INVITING E-TENDERS Tender Notice

eproc.punjab.gov.in

E-tender No MCB/2020-21/013

The Corporation Engineer, Municipal Corporation, Bathinda invites item rate e-tenders on double bid system, for the following works:-

Date and Time Schedule, Sr. No. 1

Last date & time of online sale/ submission of Bidding Document	Opening of Technical Bid Documents	Opening of Financial Bidding Documents
24.08.2020 11.00 AM	24.08.2020 12.30 PM	25.08.2020. 15.00 PM

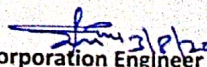
A List of Works For Suppliers and Manufactures

S. No	Name of Work	Estimate Amount (in lacs)	Earnest money for contractor	Tender Fees	Time period
1	Supply, Installation, Testing and Commissioning of Gas based Human Body Crematorium at Bathinda with E.T.P. including Civil Work, Carriage, loading/unloading and training etc.	33.05	66100/-	1000/-	3 Month

For participating in the above e-tendering process, the contractors shall have to get themselves registered with eproc.punjab.gov.in and get user ID and Password. Class -3 digital signature is mandatory to participate in the e-tendering. For any clarification/difficulty in e-tendering process flow, please contact on 0172-2970263, 0172-2970284, Sh. Davinder Singh XEN (Civil) 0164-2252811 and Sh. Raman Kumar XEN (O&M) 0164-2252812 Municipal Corporation, Bathinda.

General Terms and Conditions for Tenders


1. Interested bidders can purchase the tender documents online from website.eproc.punjab.gov.in.
2. Earnest money shall be paid in online mode only.
3. Processing fee will only be accepted through Net Banking (Direct Debit) and IPG (Credit/Debit card).
4. All the payments (EMD & Tender form cost) and related document will be accepted online only.
5. Bidders/Contractors/tenderers can access tender documents on the website mentioned above, fill them and submit the complete tender document into electronically on the website. Bidders/Contractors shall attach scanned copies of all the documents, i.e. Earnest Money, Processing Fee, Tender cost fee and certificates/documents as required in terms and conditions.
6. Corrigendum/Addendum/Corrections, if any will be posted on the website only.
7. NIT and Terms and conditions have been/uploaded on website (eproc.punjab.gov.in.), agencies should note that online tenders should only be submitted at the aforesaid website eproc.punjab.gov.in as per the details/instructions uploaded therein.
8. NIT, Terms and conditions, NS rate details and specifications can be seen in the office of Municipal Corporation on any working day.
9. All legal proceedings in connection with the contract shall be subject to the territorial jurisdiction of the civil courts at Bathinda only.
10. For any other query bidder can contact the undersigned office on any working day.
11. Agency should compulsory upload the scanned copy of document such as PAN No., GST No. and identity proof as required. should be submitted in technical bid in case of absence of any of these document, the bidder shall be lose eligibility.


Corporation Engineer
Municipal Corporation,
Bathinda.

GENERAL TERMS & CONDITIONS FOR DNIT (Not for Press)

1	If date of opening of tender happens to be a holiday, the technical and financial bid will be opened on the next working day. Regarding this, no separate publication in Newspaper/website will be given.																																										
2	Tax and other levies will be deducted from the contractor's bill as per rules.																																										
3	Any or all tenders can be rejected by the competent Authority without assigning any reason.																																										
4	Substandard materials will be rejected and shall not be payable.																																										
5	For the supply items the goods bearing the ISI mark or the approved make or specified by M.C. will be the min. standard and F.O.R. at Municipal Corporation, Bathinda.																																										
6	Conditional tenders shall not be accepted.																																										
7	In case, department intends to get sample of works/materials tested from any laboratory, the cost will be borne by the contractor.																																										
8	<p>The incinerator plant shall confirm to the Solid Waste Management Rules 2016 and Bio-medical Waste Management Rules 2016 as amended from time to time. It is proposed to install Gas based Human Body Crematorium that so do comply with the latest guidelines of Central Pollution Control Board and Punjab Pollution Control Board and other applicable statutory guidelines/rules/acts.</p> <p>The Incinerator confirm to the following operating and emission standard as per schedule-II of the Bio-medical Waste Management Rules 2016</p> <table border="1"> <thead> <tr> <th>Sr. No.</th><th>Parameter</th><th colspan="2">Standard Value</th></tr> </thead> <tbody> <tr> <td>A</td><td>Operating Standard</td><td colspan="2"></td></tr> <tr> <td></td><td>Combustion Efficiency (CE)</td><td colspan="2">99%</td></tr> <tr> <td></td><td>Gas Residence time in Secondary Chamber</td><td colspan="2">At least 2 Second</td></tr> <tr> <td>B</td><td>Emission Standards</td><td>Limiting Concentration in mg/Nm³</td><td>Sampling Duration in Minutes</td></tr> <tr> <td></td><td>Particulate Matter</td><td>< 50mg / Nm³</td><td>30 min</td></tr> <tr> <td></td><td>NO & NO₂ expressed as NO₂</td><td>< 400mg / Nm³</td><td>30 min</td></tr> <tr> <td></td><td>HCl</td><td>< 50mg / Nm³</td><td>30 min</td></tr> <tr> <td></td><td>Total Dioxins and Furans at 11% O₂</td><td>< 0.1 mg / Nm³</td><td>8 hrs</td></tr> <tr> <td></td><td>Hg and its components</td><td>< 0.05 mg / Nm³</td><td>2 hrs</td></tr> </tbody> </table>			Sr. No.	Parameter	Standard Value		A	Operating Standard				Combustion Efficiency (CE)	99%			Gas Residence time in Secondary Chamber	At least 2 Second		B	Emission Standards	Limiting Concentration in mg/Nm ³	Sampling Duration in Minutes		Particulate Matter	< 50mg / Nm ³	30 min		NO & NO ₂ expressed as NO ₂	< 400mg / Nm ³	30 min		HCl	< 50mg / Nm ³	30 min		Total Dioxins and Furans at 11% O ₂	< 0.1 mg / Nm ³	8 hrs		Hg and its components	< 0.05 mg / Nm ³	2 hrs
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9	<p><u>Payment Schedule</u></p> <ol style="list-style-type: none"> 1. Supply of material at site 50% 2. Successful Commissioning of Machine 40% 3. 3 Month after successful commissioning 10% 4. Payments shall be considered as advance payments to the contractors and any excess payment in running bills shall be recovered from the contractor's next or final bill/security/EMD. <p><u>Time Schedule:-</u></p> <ol style="list-style-type: none"> 1. To- date of Award. 2. To + 10 Days - Signing of Agreement. 3. To + 45 Days - Supply of all Machinery at site. 4. To + 75 Days - Installation of Machine at Site. 5. To + 90 Days - Testing and Commissioning Complete to the Satisfaction of Engineer in Charge. 																																										
10	If any other type of tax (existing, new imposed by the Govt. and revised tax) during the execution of work, the same will be borne by the agency.																																										

11	<p>(i) In case of any dispute or disagreement arising out of contract agreement Commissioner, Municipal Corporation, Bathinda shall be the Sole Arbitrator, whose decision shall be final and binding upon both the parties.</p> <p>(ii) It shall be an essential term of this contract that in order to avoid frivolous claims, the party invoking arbitration shall specify the disputes based on facts and calculation stating the amount claimed under each claim and shall furnish a "deposit-at-call" for ten percent of the amount claimed, on a scheduled bank in the name of the arbitrator by his official designation who shall keep the amount in deposit till the announcement of the award. In the event of an award in favour of the claimant, the deposit shall be refunded to him in proportion to the amount awarded with respect to the amount claimed and the balance, if any, shall be forfeited and paid to the other party.</p>
12	Rates quoted by the contractor are inclusive of all types of taxes, octroi, royalty, Supply, Installation and Commissioning, including Carriage, loading/unloading and training and levies etc.
13	The Electricity Power Connection shall be provided by Municipal Corporation, Bathinda free of cost.
14	Delay in execution of all stages as mentioned in payment schedule attract penalty of 1% of contract price per day, which may be recovered from EMD or any advance payment/running payment or by any other method.
15	Whole work shall be carried and to satisfaction of Engineer in Charge.
16	The contractor/Bidder must have executed similar nature of work i.e. Supply, Installation, Testing and Commissioning of at least one incinerator / Crematorium in any Govt./ Semi Govt./ Private organizations. Agency shall attach the proof of same issued by the competent authority of concerned department.
17	It shall be whole responsibility of the bidder to maintain the crematorium / machine / equipment in working condition free of cost for minimum one year. All lubricants and other consumable items necessary during the maintenance period of one year shall be provided by the contractor free of cost. Complete maintenance shall be carried out by the contractor without any extra cost starting from one year from the date of installation.

 03/01/20
 Corporation Engineer
 Municipal Corporation,
 Bathinda