

SUPPLY OF 250 kva and 20 kva D.G SET WORK with Cummins Engine
FOR OFFICE OF NATIONAL HORTICULTURE BOARDS,
PLOT NO.-85, SECTOR-18, INSTITUTIONAL AREA,
GURGAON

TENDER DOCUMENT

With bill of quantities

Architects :-

Prof. Mandeep Singh
School of Planning and Architecture

Studio Address;
305/4, Preet Vihar Comm.Centre,
New Delhi-110 092

Owner:-

National Horticulture Boards
Plot No.-85, SECTOR-18,
Institutional Area,Gurgaon.

- 1**
 - (a) Notice inviting tender**
 - (b) Terms for bidding tender**
 - (c) Form of tender and annexure**

NOTICE INVITING TENDER

The Item rate tender is for Supplying the 250 kva and 20 kva DG SET.

1. Sealed item rate tenders in the prescribed forms are hereby invited from the competent suppliers by and on behalf of **National Horticulture Boards, Plot no.-85, SECTOR-18, Institutional Area, Gurgaon** for proposed **250 kva and 20 kva D.G set at National Horticulture Boards, Plot no.-85, SECTOR-18, Institutional Area, Gurgaon** .Time allowed for completion is as mentioned in the Appendix to conditions of the contract is **1month**
2. Prescribed tender documents and set of conditions of contract to be complied with by the person whose tender may be accepted, can be purchased from the office of the owner **National Horticulture Boards, Plot no.-85, SECTOR-18, Institutional Area, Gurgaon** on any working day between 11.00 A.M. 4.00 P.M. by **.....2011** against the non refundable cash payment of **Rs 500/-**.
3. Tenders should be submitted in person/by hand, in sealed cover with the name of work written on the self addressed envelope to the Employer **National Horticulture Boards, Plot no.-85, SECTOR-18, Institutional Area, Gurgaon** latest by 3.00 P.M., on **..... 2011**, and will be opened on the same day by 5.00 P.M. in the presence of the tenderers or their authorized representatives.
4. Tenderers must get acquainted with conditions of contract and other conditions carefully before tendering. No request for any change in rates or conditions for want of information on any particular point shall be entertained after receipt of tenders.
5. The tenderers should quote rates for every item and write rates very clearly to avoid discrepancies. The bill of quantities is approximate only and liable to vary.
6. Tenderers must submit with their tender, a crossed demand draft **Rs. _____/-** (Rs. _____ only) in favor of the Owner **National Horticulture Boards, Plot no.-85, SECTOR-18, Institutional Area, Gurgaon** against Earnest Money. Tenders, which are not accompanied with Earnest Money, shall not be considered.

OTHER TERMS AND CONDITIONS FOR BIDDING THIS TENDER ARE ANNEXED.
THIS NOTICE INVITING TENDER FORMS PART OF THE CONTRACT DOCUMENT.

M/s. Prof. Mandeep Singh (SPA)
305, Sincere Tower, 4, Preet Vihar,
Comm. Centre, New Delhi – 110 0092.

s(Architect)

National Horticulture Boards
Plot No-85, SECTOR-18,
Institutional Area, Gurgaon.

(Employer)

- NOTES: 1 Incomplete and conditional tenders are liable to be rejected.
2 Employer is not bound to accept the lowest tender and reserves the right to accept or reject any tender without assigning any reason.
3 Tenders shall remain open for acceptance for a period of 30 days from the date of opening of tender
4. SFAC stands as abbreviated for Small Farmers' Agri-business Consortium
5. See also the terms of bidding tender as follow:-

TERMS FOR BIDDING TENDER

1. SUPPLIER TO SUBMIT INFORMATION

The supplier must be well experienced in the concerned field. The supplier shall submit the following information.

- 1.1 Certification of his registration and classification.
- 1.2 List of equipment owned by the company.
- 1.3 References of works done over the past 3 years.
- 1.4 Declaration and undertaking on prescribed Performa.

2. SUPPLIER'S ACQUAINTANCE

The submission of this bidding document by the supplier will be conclusive evidence to the fact that:

- 2.1 The Supplier is fully satisfied to the nature of works to be done.
- 2.2 The supplier fully understood and accepted the conditions set forth in these documents and all other factors affecting his performance in case awarded the contract.

3. SIGNING OF BIDDING DOCUMENT

These bidding documents must be signed by the principle of the Supplier's firm who is registered as such or else by his representative identified by a letter of authority signed by him and attested by another executive of the Supplier's firm.

4. CONTRACT PRICE

The contract price at the time of signing this contract is assumed to be the Bidding Price (or as negotiated) but eventually the Contract Price shall be the amount computed on the basis of the rates quoted in the Bill of Quantities, however subject to the note hereunder.

5. SALES TAX/OTHER DUTIES & TAXES

The rates shall include Sales Tax etc., and as such Sales Tax or any other taxes levied on equipments in respect of this contract shall be payable by the contractor and employer **National Horticulture Boards** will not entertain any claim, whatsoever, in these respect.

6. CONDITIONAL TENDER BY SUPPLIER

Conditional tenders will not be accepted.

7. VALIDITY OF TENDER BID

Tenders shall remain open for acceptance for a period of 30 days from the date of opening of the tenders. If any tenderer withdraws his tender before the said period or makes any modifications in the terms and conditions of the tender which are not acceptable to employer **National Horticulture Boards, Plot no.-85, SECTOR-18, Institutional Area, Gurgaon** then the employer **National Horticulture Boards, Plot no.-85, SECTOR-18, Institutional Area, Gurgaon** shall without prejudice to any, other right or remedy be at liberty to forfeit the entire amount of the earnest money amount of earnest money absolutely and the decision of the employer **National Horticulture Boards, Plot no.-85, SECTOR-18, Institutional Area, Gurgaon** in this behalf shall be final and binding on the tenderer.

8. **ACCEPTANCE OF TENDER**

The acceptance of a tender will rest with employer **National Horticulture Boards, Plot no.-85, SECTOR-18, Institutional Area, Gurgaon** who do not bind themselves to accept lowest tender and reserve to themselves the authority to reject any or all the tenders received without assigning any reasons. They also reserve the right accepting the whole or any part of the tender and the tenderer shall be bound to perform the same at the rates quoted. All tenders in which any of the prescribed conditions are not fulfilled or are incomplete in any respect or there is any correction not duly initiated by the tenderer are liable to be rejected.

9. **SIGNING OF AGREEMENT**

The successful tenderer shall sign the necessary contract documents within **Six days** or the time specified in the letter communicating the acceptance of the tender. In case of delay the earnest money may be forfeited and the tender cancelled or the contract enforced as per terms of tender and the invitation to tender, and the tenderer shall thus be bound by the conditions of contract even though the formal agreement has not been executed and signed within the specified time by tenderer.

12 **PERIOD OF PROVIDING D.G. SETS**

The time allowed for handling over the D.G. sets will be **one month**. If the supplier selected for the work fails to sign the formal agreement within **Six days** from the date of intimation, then the employer **National Horticulture Boards, Plot No.-85, SECTOR-18, Institutional Area, Gurgaon** shall, without prejudice to any other right or remedy, be at liberty to forfeit the entire amount of earnest money absolutely. The decision of employer **National Horticulture Boards, Plot No.-85, SECTOR-18, Institutional Area, Gurgaon** in this behalf shall be final and binding on the tenderer.

13 **EXTENSION OF TIME**

Extension of time beyond the stipulated date of providing the D.G sets shall be granted only on account of following occurrences affecting the project area.

1. Manifested civil disturbances.
2. Manifested dislocation of economic nature.
3. Natural calamities
4. Instruction to abort the supply issued in writing by the Employer/Architect for any reason.

The extension of time to be granted on account of the above shall have the sole discretion of the Employer.

14 **SECURITY DEPOSIT**

From the Supplier bills whose tender is accepted, a deduction of **10 % of payment** against security deposit will be made from bill. The earnest money after the award of work will be treated as security deposit of the successful tenderer, and the said amount would be adjusted towards security deposit in the bill. This security deposit will be limited to **Rs. _____/-** maximum fund.

15 **UNDERTAKING/DECLARATION**

The supplier should give the undertaking and declaration on the prescribed performa, regarding his well conversance with the supply.

16. **OTHER IMPORTANT CONDITIONS OF CONTRACT**

16.1 **TIME OF COMPLETION** Maximum time allowed for handling over the D.G sets is one month.

16.6 **SECURITY DEPOSIT** of the successful tenderer will be forfeited if he fails to comply with any of the condition of contract.

16.11 **ESCLATION** No labor Escalation will be given under any circumstances.

16.12 **TAX DEDUCTIONS T.D.S.** will be deducted as per the Income Tax rules as applicable.

17 GENERAL

This tender document must be filled in English and all entries to be filled must be made by hand written ink

The important APENDIX referred to in the 'General Conditions of Contract' is reproduced below: -

1. Date of commencement: : Within **Six** days from the date of letter of Intent.
2. Period of Completion : One month
3. Guarantee period : 12 months from the date of virtual completion
4. Security deposit : 10 %
5. Period of Honoring Certificate : 20 days.
6. Payment after handing D.G sets to the site : 70% of total security deposit.
7. Payment after testing and commission : 20% of total security deposit. work
8. Rate of interest for delayed payment. : Nil
- 9 Earnest Money : **Rs.** _____/- (Rupees _____).

18 PROJECT

The project is for providing of **250 kva and 20 kva silent D.G set** with cumin engine and accessories. Rates quoted in the tender are for complete handing over of D.G sets at site in perfect working conditions, including payment of sales tax or other taxes and royalties.

19 GENERAL

THIS NOTICE INVITING TENDER AND THESE TERMS AND CONDITIONS OF BIDDING TENDER SHALL FORM PART OF CONTRACTUAL AGGREMENT.

(Supplier)

(Employer)

From:
.....
.....
.....
Pan No.....

FORM OF TENDER

Dated: -

To,

**National Horticulture Boards,
Plot no.-85, SECTOR-18,
Institutional Area,
Gurgaon.**

Gentlemen,

1. Having examined the all of tender documents, Form of Agreement, Conditions of Contract, for providing **250 kva and 20 kva DG set National Horticulture Boards, Plot no.-85, SECTOR-18, Institutional Area, Gurgaon** We, the undersigned, hereby offer to provide D.G sets herewith for the sum of Rupees _____ (Rs. _____) or such other sums as may be ascertained with the said documents.
2. We have inserted in the Bill of Quantities attached to this Tender and other Contract Documents, all the required and relevant information and enclose herewith all the information requested in the Notice inviting Tender and other Documents.
3. We undertake if this Tender is accepted, to immediately make all necessary preparations and provide foundation drawings in 7days and within 30 days provide the D.G sets on the site. This period stated allows for all Sundays and Public Holidays and other non-working, days including any occurring, due to inclement weather.
4. We agree to abide by the Tender for the period of 30 days from the date fixed for receiving the same and it shall remain binding upon us and may be accepted at any time before the expiration of that period without any additional cost.
5. As required in the Notice Inviting Tender we enclose a Demand Draft No. _____ drawn on _____ (Bank) at _____ (city/branch) of **Rs.** _____/- (Rs. _____ only) with Tender against earnest money.
6. We undertake in the event of this Tender being accepted to execute and Agreement in the form annexed hereto Unless and until such an Agreement is executed, our Tender, together with your written acceptance thereof, shall constitute a binding Contract between us.
7. We understand that you are not bound to accept the lowest or any tender you may receive.
8. Required information, and declaration is attached herewith.

Date; _____

Signature & Stamp of SUPPLIER

LIST OF SUPPLY EXECUTED/UNDER EXECUTION
OVER THE PAST THREE YEARS

Sr.	Rating (Kva)	Name of Owner	Amount of supply
(1)	(2)	(3)	(4)

1.

2.

3.

4.

5.

6.

7.

8.

9.

10.

Signature & Stamp of Supplier

LIST OF EQUIPMENT OWNED BY THE SUPPLIER, WHICH
MAY BE EXPLOIED ON THE WORK UNDER THIS CONTRACT.

Sr. No.	Type of Equipment	Details regarding numbers, make model capacity etc.
1.		
2.		
3.		
4.		
5.		
6.		
7.		
8.		
9.		
10.		
11.		
12.		
13.		
14.		
15.		

Signature & Stamp of SUPPLIER.

Name of Supplier / Company: _____

Registered Address: _____

Present Address : _____

REGISTERED DETAILS

Sr. No.	Agency/Govt. Deptt. With Which registered	Classification of Registration	Date of Registration
(1)	(2)	(3)	(4)

Company details;

1. If individual ownership, give name, father's name Address and PAN No.
2. If partnership, give names and addresses of the Partners with percentage of share for each partner
2. If a limited company (private or public) give the Names and addresses of the directors. And copy of Memorandum & Article of Association.

Signature & Stamp of SUPPLIER

DECLARATION BY SUPPLIER

I, hereby solemnly declare that I have requisite construction experience, and am well conversant with the best construction practices. I understand that the information provided is for guidance only and is in no way comprehensive and conclusive. I affirm that intention of the contract is to provide D.G sets with cumin engine and I shall take the meaning implied in the spirit and not in letter. If cash compensation is not claimed it shall mean, no claim.

Following conditions, assumptions, conclusions are agreeable to me without reservations.

1. I have studied carefully Tender Document and understand the requirements.
2. To the best of my knowledge rates are quoted are correct rates.
3. I certify that I am aware of all statutory, local Government/executive authorities, rules, and laws. Taxes, Sales taxes, Customs octroi.
4. I undertake to check the accuracy and correctness of items to be provided.
5. The usual meaning of definitions, works, vocabulary used in tender documents is known to me and I shall not dispute them. I accept the authority and powers of Employers to act and decide in any manner so as to safeguard their interest.

(Supplier)

2.
 - (a) **Article of Agreement**
 - (b) **General conditions of Contract**
 - (c) **Appendix Schedule.**
 - (d) **Special conditions of Contract.**

CONTRACT AGREEMENT

ARTICLES OF AGREEMENT

Made at _____

On this _____ day of _____ 2011.

BETWEEN _____

(Hereinafter called the '**EMPLOYER**') on the one part

AND _____

Whose registered office is situated at _____

Hereinafter called the '**SUPPLIER**' on the other part.

WHEREAS the Employer is desirous of

at _____

AND WHEREAS the supplier has supplied the Employer with a priced copy of said Bill of Quantities.

AND WHEREAS the Supplier has deposited an Earnest Money of Rs. _____

With the Employer for the due performance of this Agreement. This amount is to be adjusted in the Security Deposit in terms of the Conditions of Contract.

NOW IT IS HEREBY AGREED AS FOLLOWS: -

1. For the considerations hereinafter mentioned, the Supplier will, upon and subject to the Conditions annexed, provide D.G sets and in the said Conditions.
2. The Employer shall pay the Supplier the Contract Amount for the work done.
3. **AGREEMENT** shall comprise of and include conditions of Tender (NIT), the Contract, General Conditions and appendix thereto special conditions, and all the aforesaid documents shall be read and construed as forming part of this agreement and the parties as hereto shall respectively abide by submit themselves to the conditions and perform the agreement on their part respectively in such conditions contained.
6. ANY DISPUTE arising out of or in any connection with this agreement shall deem to have arisen in **GURGAON** and only the courts in **GURGAON** shall have jurisdiction to determine the same.

WITNESS WHEREOF the parties here to have hereunder set there hands.

Signed by _____

For and on behalf of owner/employer M/s. _____

Signed by _____

For and on behalf of Supplier M/s. _____

In the presence of

1. Name and address _____

2. Name and address _____

GENERAL CONDITIONS OF CONTRACT

Definition & Interpretations

The conditions herein before referred to

1. In providing the D.G sets and Contract Agreement, the following words shall have the meaning herein assigned to them, except where the subject or context otherwise requires.
 - (a) “Employer” shall mean _____ and shall include his (their) legal representative/representatives, assign/s or successor/s.
 - (b) “Supplier” shall mean _____ and include his (their) legal representative/s assign/s or successor/s.
 - (d) “This contract” shall mean the Articles of Agreement, the General and special Conditions, the Appendix, attached hereto and duly signed.
 - (e) “Notice in writing” or written notice shall mean a notice in written, typed or printed characters sent (unless delivered personally or otherwise proved to have been received) by registered post to the last known private or business addressee or registered office of the addresses or registered office of the addresses and shall be deemed to have been received when in the ordinary course of post it would have been delivered.
 - (f) “Act of Insolvency” shall mean any act of insolvency as defined by the country or state legislation in this respect.
 - (g) “Net Prices” If in arriving at the Contract Amount the supplier shall have added or deducted from the total of the items in the Tender any sum, either as a percentage or otherwise, then the net price of any item in the Tender shall be the sum arrived at by adding to or deducting from the actual figure appearing in the Tender as the price of that item a similar percentage or proportionate sum. Provided always that in determine the percentage or proportion of the sum so added or deducted by the Contract or the total amount of any Prime Cost items and provisional sums of money shall be deducted from the total amount of the Tender. The expression “net rates” or “net prices when used with reference to the Contract or accounts shall be held to rates or prices so arrived

Words importing persons include firms and corporation, words importing the singular only also include the plural and visa versa where the context requires.

Supplier to provide everything necessary

2. The supplier shall provide foundation drawings within 7 days after the acceptance of the tender.

- Sufficiency of Tender** 3. The Supplier shall be deemed to have satisfied himself before tendering as to the correctness and sufficiency of this Tender for providing the D.G sets under the Contract.
- Delayed Payment** 4. Any amounts payable by the Employer to the Supplier in pursuance of any Certificate given by the Architect here under shall if not paid within the “Period for honoring Certificates” named in the Appendix, carry interest at the rate named in the Appendix as the “Rate of Interest for delayed payment” from the date upon which sum ought to have been paid by the Employer until payment.
- General** 5. General conditions of Contract, as given in Vol. II of the “Tender document”, as applicable to this work shall also form the part of this contract.

APPENDIX TO GENERAL CONDITIONS OF CONTRACT

1.	DATE OF COMMENCEMENT	Within 6 days from the date of letter of intent
2.	PERIOD OF SUPPLYING	Within One month
3.	GUARANTEE PERIOD	12 Months from the date of handling over the D.G sets.
4.	SECURITY DEPOSIT	10 % (retention percentage)
5.	INSTALLMENT AFTER HANDLING OVER THE D.G SETS	70 % of total security deposit
6.	INSTALLMENT AFTER TESTING & COMMISSION	20 % of total security deposit
7.	RATE OF INTEREST FOR DELAYED PAYMENT	Nil.
8.	PERIOD OF HONORING CERTIFICATES	10 Days
9.	EARNEST MONEY WITH TENDER	Rs _____/-- (Rs. _____) (to be adjusted in retention fund)

- (a) Technical specification for providing of 250 kva and 20 kva D.G. Set with all accessories.**
- (b) Bill of Quantities.**
- (c) Summary Sheet.**

TECHNICAL SPECIFICATIONS FOR SILENT D.G. SET (250 kva)

A) DIESEL ENGINE :

CUMMINS make water cooled, engine, electric starting 1500 RPM, four stroke, four cylinder diesel engine conforming to BS:5514/BS:649/IS:10000 with 10% overloading for one hour in any twelve hours duration having following :-

- Heavy duty radiator
- Radiator fan, fan drive
- Flywheel with housing
- Thermostat controlled cooling system
- Cooling water centrifugal pump
- One no. silencer – residential type
- Rotary fuel injection pump
- Fuel pre-filter
- Lub oil pump with cooler
- Spin on type lub. Oil filter
- Standard air cleaner with replaceable paper element
- Mechanical Governor
- Exhaust manifold
- 24V electrical system with engine starter motor & battery charging alternator
- Safety switches for High water temperature and Low Lub oil pressure and engine overspeed.
- 24V stop solenoid – Energized to run
- User handbook

B) ALTERNATOR :

Synchronous Brushless alternator of **Stamford / Kirlosker / Crompton make** suitable for continuous operation at 1500 RPM generating 415 Volts at 0.8 power factor (lag) suitable for 50 Hz, 3 phase, 4 wire system. The alternator shall be self excited, self regulated, foot mounted fitted with ball and / or roller bearings. The alternator will be suitable for tropical climate and shall generally conform to BS:2613/IS:4722.

The excitation system consists of an electronic automatic voltage regulator having very fast response to load changes. The salient features of the alternator are:

- ±1.5% voltage regulation under static conditions
- Class “H” insulation / “F” Class
- Permanently lubricated bearings
- 10% overload allowed for one hour in every 12 hours.

C) MANUAL CONTROL PANEL :

The panel is made of 16 Gauge MS sheet. The panel is dust and vermin proof and is powder coated to give long lasting finish. The panel is equipped with following :-

- MCCB of suitable rating with overload and short circuit protection.
- Ammeter with selector switch
- Voltmeter with selector switch
- Frequency meter
- Tube Light ON/OFF switch
- Indicating lamps for
 - Load on
 - Set Running
- Key switch with push button for engine Start/run/stop
- Engine instrument panel comprising of :-
 - Lub Oil pressure gauge
 - Coolant temperature gauge
 - Engine RPM meter
 - Hour meter
 - Battery voltmeter
 - Low Lub Oil Pressure trip LED
 - High Coolant temperature trip LED
 - Engine overspeed trip LED
 - Battery charging alternator failure LED
- Fault annunciation with engine shutdown for:
 - High enclosure temperature
 - “Emergency stop” pressed

D) ACCESSORIES :

AVM PADS :

Set of specially designed AVM Pads affixed between the engine/ alternator feet and the base frame.

BASE FRAME :

Heavy duty base frame of sturdy design made of M.S. steel with necessary reinforcement and lifting arrangement.

FUEL TANK :

Daily service base fuel tank of sheet metal suitable for 8 hours continuous operation complete with drain valve, air vent, inlet and outlet connections with dip stick to measure fuel level.

BATTERIES :

Two Nos. battery of 24 Volts, 150 AH capacity.

E) D.G. SET :

The D.G. Set must be of well reputed make supplied directly by manufacturer or his distributors with full guarantee. The old reconditioned , reassembled sets will not be acceptable. The supplier shall transfer all guarantee, insurances etc. received from manufacturer to the owner. Installation and civil works shall be carried out as per manufacturers drawings for such work. Supplier to mention the memo of manufacturer and model of D.G. Set and enclose the manufacturers brochure of the machine if available.

TECHNICAL SPECIFICATION FOR ACCOUSTIC ENCLOSURE

The acoustic enclosure is made of 14 gauge CRC sheet. The salient features of the acoustic enclosure are:

- The enclosure is of modular construction with the provision to assemble and dismantle easily at site.
 - The sheet metal components are hot dip seven tank pretreated before powder coating.
 - The enclosure is powder coated (inside as well outside) with a special pure polyester based powder. All nut and bolts/external hardware is made from stainless steel.
 - There is provision for filling fuel from outside the enclosure with locking arrangement
 - External drain plugs are provided for draining Lub. Oil and diesel.
 - The doors are gasketed with high quality EPDN gaskets to prevent leakage of sound
 - The door handles are lockable type.
 - Sound proofing of the enclosure is done with high quality rock wool/mineral wool confirming to IS 8183. The rock wool is further covered with fibre glass tissue and perforated sheet.
 - A special residential silencer is provided within the enclosure to reduce exhaust noise
 - Specially designed attenuators are provided to control sound at air entry and exit points.
 - Adequate ventilation is provided to meet total air requirement. If required, a blower is provided to meet total air requirement.
 - Temperature of enclosure does not exceed beyond 5°C of ambient temperature.
 - The enclosure is provided with high enclosure temperature safety trip
 - There is a provision of emergency shut down from outside the enclosure.
- ❖ There is an arrangement for illuminating the enclosure from inside.
- ❖ Noise Level is 75 dB(A) at 3 mts distance.

COUPLING & MOUNTING ARRANGEMENT :

The engine and alternator are directly coupled by a SAE flange and mounted through AVM pads on a heavy duty steel base frame. The arrangement ensures that there is no chance of misalignment of the DG Set and vibrations of the D.G. Set are not transmitted to the base frame & to the enclosure. The manual control panel is mounted on the base frame of the enclosure. The fuel tank is mounted in the base of the enclosure. The batteries are kept in a separate tray inside the enclosure.

In case of AMF Panels, the control module (auto) is mounted inside the enclosure. The power module (ATS) is supplied in a separate box, which is to be installed outside the enclosure.

AMF Control Panel (250 kva)

The control panel is made from 16 gauge sheet steel. The panel is dust and vermin proof and is powder coated to give long lasting finish. The panel consists of two modules as under :-

1) AUTO MODULE : This module is mounted inside the enclosure on the base frame of the D.G. Set and is equipped with following :-

- Starting key with switch (for AMF relay override)
- Tube light ON/OFF switch
- Set of push button for manual operation of contactors
- Microprocessor based AMF controller having 20 programmable parameter with :
 - Master selector switch for auto/manual/test/reset/program
 - Push button for engine start
 - Push button for engine stop
 - Indicating lamps for “set running” and “ set fails to start”
 - Continuous sensing of mains voltage
 - Three attempts starting
 - Auto start and changeover in case of mains failure
 - Auto stop and changeover in case of main resumption
 - Indication lamps for “Mains ON” and “Generator ON”
 - Indication with engine shutdown for Overload, canopy temperature high and “Emergency Stop” pressed
 - Digital display of generator voltage, current, frequency, battery voltage
- Engine instrumentation cluster consisting of
 - Lub Oil Pressure gauge
 - Coolant temperature gauge
 - Engine RPM Meter
 - Hour meter
 - Battery Voltmeter
 - Low Lub oil Pressure trip LED
 - High coolant temperature LED
 - Engine overspeed trip LED
 - Battery charging alternator failure LED
 - Indicating lamp for “Engine charging failure”
- Automatic battery charger with indicating lamp for “Charger ON”
- One no. DC Ammeter.

2) ATS MODULE : This module is to be installed outside the enclosure and consists of:-

- One contactor for mains
- One contactor for DG set interlocked with the mains contactor
- Set of protection fuses/MCBs
- Ammeter with selector switch
- Voltmeter with selector switch
- Frequency meter, Kw and Kwh meter
- Voltage mode selector switch
- Indicating lamps for “Load on DG” and “Load on mains”

TECHNICAL SPECIFICATIONS FOR SILENT D.G. SET (20 KVA)

E) DIESEL ENGINE :

CUMMINS make water cooled, engine, electric starting 1500 RPM, four stroke, four cylinder diesel engine conforming to BS:5514/BS:649/IS:10000 with 10% overloading for one hour in any twelve hours duration having following :-

- Heavy duty radiator
- Radiator fan, fan drive
- Flywheel with housing
- Thermostat controlled cooling system
- Cooling water centrifugal pump
- One no. silencer – residential type
- Rotary fuel injection pump
- Fuel pre-filter
- Lub oil pump with cooler
- Spin on type lub. Oil filter
- Standard air cleaner with replaceable paper element
- Mechanical Governor
- Exhaust manifold
- 24V electrical system with engine starter motor & battery charging alternator
- Safety switches for High water temperature and Low Lub oil pressure and engine overspeed.
- 24V stop solenoid – Energized to run
- User handbook

F) ALTERNATOR :

Synchronous Brushless alternator of **Stamford / Kirlosker / Crompton make** suitable for continuous operation at 1500 RPM generating 415 Volts at 0.8 power factor (lag) suitable for 50 Hz, 3 phase, 4 wire system. The alternator shall be self excited, self regulated, foot mounted fitted with ball and / or roller bearings. The alternator will be suitable for tropical climate and shall generally conform to BS:2613/IS:4722.

The excitation system consists of an electronic automatic voltage regulator having very fast response to load changes. The salient features of the alternator are:

- $\pm 1.5\%$ voltage regulation under static conditions
- Class “H” insulation / “F” Class
- Permanently lubricated bearings
- 10% overload allowed for one hour in every 12 hours.

G) MANUAL CONTROL PANEL :

The panel is made of 16 Gauge MS sheet. The panel is dust and vermin proof and is powder coated to give long lasting finish. The panel is equipped with following :-

- MCCB of suitable rating with overload and short circuit protection.
- Ammeter with selector switch
- Voltmeter with selector switch
- Frequency meter
- Tube Light ON/OFF switch
- Indicating lamps for
 - Load on
 - Set Running
- Key switch with push button for engine Start/run/stop
- Engine instrument panel comprising of :-
 - Lub Oil pressure gauge
 - Coolant temperature gauge
 - Engine RPM meter
 - Hour meter
 - Battery voltmeter
 - Low Lub Oil Pressure trip LED
 - High Coolant temperature trip LED
 - Engine overspeed trip LED
 - Battery charging alternator failure LED
- Fault annunciation with engine shutdown for:
 - High enclosure temperature
 - “Emergency stop” pressed

H) ACCESSORIES :

AVM PADS :

Set of specially designed AVM Pads affixed between the engine/ alternator feet and the base frame.

BASE FRAME :

Heavy duty base frame of sturdy design made of M.S. steel with necessary reinforcement and lifting arrangement.

FUEL TANK :

Daily service base fuel tank of sheet metal suitable for 8 hours continuous operation complete with drain valve, air vent, inlet and outlet connections with dip stick to measure fuel level.

BATTERIES :

Two Nos. battery of 24 Volts, 150 AH capacity.

E) D.G. SET :

The D.G. Set must be of well reputed make supplied directly by manufacturer or his distributors with full guarantee. The old reconditioned , reassembled sets will not be acceptable. The contractor shall transfer all guarantee, insurances etc. received from manufacturer to the owner. Installation and civil works shall be carried out as per manufacturers drawings for such work. Contractor to mention the memo of manufacturer and model of D.G.Set and enclose the manufacturers brochure of the machine if available.

TECHNICAL SPECIFICATION FOR ACCOUSTIC ENCLOSURE

The acoustic enclosure is made of 14 gauge CRC sheet. The salient features of the acoustic enclosure are:

- The enclosure is of modular construction with the provision to assemble and dismantle easily at site.
- The sheet metal components are hot dip seven tank pretreated before powder coating.
- The enclosure is powder coated (inside as well outside) with a special pure polyester based powder. All nut and bolts/external hardware is made from stainless steel.
- There is provision for filling fuel from outside the enclosure with locking arrangement
- External drain plugs are provided for draining Lub. Oil and diesel.
- The doors are gasketed with high quality EPDM gaskets to prevent leakage of sound
- The door handles are lockable type.
- Sound proofing of the enclosure is done with high quality rock wool/mineral wool confirming to IS 8183. The rock wool is further covered with fibre glass tissue and perforated sheet.
- A special residential silencer is provided within the enclosure to reduce exhaust noise
- Specially designed attenuators are provided to control sound at air entry and exit points.
- Adequate ventilation is provided to meet total air requirement. If required, a blower is provided to meet total air requirement.
- Temperature of enclosure does not exceed beyond 5°C of ambient temperature.
- The enclosure is provided with high enclosure temperature safety trip
- There is a provision of emergency shut down from outside the enclosure.

- ❖ There is an arrangement for illuminating the enclosure from inside.

- ❖ Noise Level is 75 dB(A) at 3 mts distance.

COUPLING & MOUNTING ARRANGEMENT :

The engine and alternator are directly coupled by a SAE flange and mounted through AVM pads on a heavy duty steel base frame. The arrangement ensures that there is no chance of misalignment of the DG Set and vibrations of the D.G. Set are not transmitted to the base frame & to the enclosure. The manual control panel is mounted on the base frame of the enclosure. The fuel tank is mounted in the base of the enclosure. The batteries are kept in a separate tray inside the enclosure.

In case of AMF Panels, the control module (auto) is mounted inside the enclosure. The power module (ATS) is supplied in a separate box, which is to be installed outside the enclosure.

AMF Control Panel (20 KVA)

The control panel is made from 16 gauge sheet steel. The panel is dust and vermin proof and is powder coated to give long lasting finish. The panel consists of two modules as under :-

1) AUTO MODULE : This module is mounted inside the enclosure on the base frame of the D.G. Set and is equipped with following :-

- Starting key with switch (for AMF relay override)
- Tube light ON/OFF switch
- Set of push button for manual operation of contactors
- Microprocessor based AMF controller having 20 programmable parameter with :
 - Master selector switch for auto/manual/test/reset/program
 - Push button for engine start
 - Push button for engine stop
 - Indicating lamps for “set running” and “ set fails to start”
 - Continuous sensing of mains voltage
 - Three attempts starting
 - Auto start and changeover in case of mains failure
 - Auto stop and changeover in case of main resumption
 - Indication lamps for “Mains ON” and “Generator ON”
 - Indication with engine shutdown for Overload, canopy temperature high and “Emergency Stop” pressed
 - Digital display of generator voltage, current, frequency, battery voltage
- Engine instrumentation cluster consisting of
 - Lub Oil Pressure gauge
 - Coolant temperature gauge
 - Engine RPM Meter
 - Hour meter
 - Battery Voltmeter
 - Low Lub oil Pressure trip LED
 - High coolant temperature LED
 - Engine overspeed trip LED
 - Battery charging alternator failure LED
 - Indicating lamp for “Engine charging failure”
- Automatic battery charger with indicating lamp for “Charger ON”
- One no. DC Ammeter.

2) ATS MODULE : This module is to be installed outside the enclosure and consists of:-

- One contactor for mains
- One contactor for DG set interlocked with the mains contactor
- Set of protection fuses/MCBs
- Ammeter with selector switch
- Voltmeter with selector switch
- Frequency meter, Kw and Kwh meter
- Voltage mode selector switch
- Indicating lamps for “Load on DG” and “Load on mains”

Refer Spedial Condition 14. **Performa**
To be executed on Rs. 10/- stamp paper

GUARANTEE CERTIFICATE

GUARANTEE FOR PROVIDING OF 250 kva & 20 KVA DG SET

We hereby guarantee the providing of **250 kva & 20KVA , DG Set with accessories** for **National Horticulture Boards, Plot no.-85, SECTOR-18, Institutional Area, Gurgaon,** as below:

Building: **National Horticulture Boards,**

Location **Plot no.-85, SECTOR-18, Institutional Area, Gurgaon**

Owner: **National Horticulture Boards**

For a period of twelve (12) months from this date, the date of acceptance of the TENDER.

We agree to repair or replace to the satisfaction of the owner any or all such work that may prove defective in equipment within that period, ordinary wear & tear or unusual abuse or neglect expected, together with any other of our failure to comply with the above mentioned conditions within a reasonable time after being pre notified in writing, we collectively and separately, do hereby authorize the owner to proceed to have defects repaired and made good at our expenses, and shall bear the cost and charges thereof immediately upon demand

Signed (Supplier)
With seal, stamp
And date