BID FORM (TECHNICAL SPECIFICATIONS)

National Food Authority - Central Office

PURCHASE REQUEST NUMBER:

END-USER:

ITEM/LOT INFORMATION

Item / Lot Description:	**Lot 5: Supply, Delivery, Installation, Testing, and Commissioning of Ricemill and Grain Dryer for the NFA Modernized Warehouses in Support to Buffer Stocking Program at NFA Compound in Digos City, Davao del Sur, Region XI**
Quantity:	**Two (2)**
Unit of Measurement (unit/pcs/lot):	**Items**
Enumeration / Inclusions:	**Item 1: Grain Dryer** **Item 2: Ricemill**

Bidders must state here either "Comply" or "Not Comply" against each of the individual parameters of each Specification stating the corresponding performance parameter of the equipment offered. Statements of "Comply" or "Not Comply" must be supported by evidence in a Bidders Bid and cross-referenced to that evidence. Evidence shall be in the form of manufacturer's un-amended sales literature, unconditional statements of specification and compliance issued by the manufacturer, samples, independent test data etc., as appropriate. A statement that is not supported by evidence or is subsequently found to be contradicted by the evidence presented will render the Bid under evaluation liable for rejection. A statement either in the Bidders statement of compliance or the supporting evidence that is found to be false either during Bid evaluation, post-qualification or the execution of the Contract may be regarded as fraudulent and render the Bidder or supplier liable for prosecution subject to the provisions of **ITB** Clause 3.1(a)(ii) and/or **GCC** Clause 2.1(a)(ii).

REQUIRED SPECIFICATIONS	**STATEMENT OF COMPLIANCE**	**REFERENCES** (include supporting documents) **(attach brochure / technical data / website, etc.)**
ITEM 1: 120 MT-Capacity Mechanical Grain Dryer		
I. General Specification		
1. Mechanical Grain Dryer Features		
The mechanical grain drying facility shall be housed inside the warehouse for protection from inclement weather and to keep the quality of paddy being processed.		
Input Capacity: at least 120 MT of Fresh Paddy Per Day		
Wet or fresh paddy can be continuously received and pre-dried while the Batch Type Recirculating Dryer (BRD) is in operation.		
Pre-dried paddy shall be finally dried to 14% MC in the BRD to have a uniformly dried output when the BRD is available.		
The fresh paddy with moisture content as high as 30% shall be dumped at the receiving pit, and then moved to the paddy cleaner.		
The pre-cleaned paddy grains are then conveyed to wet paddy tank to reduce the moisture content using aeration system in to the wet paddy tank.		
The pre-dried grain should pass the hopper scale before it is conveyed to the batch type recirculating dryer for final drying down to 12% to 13% MC.		

	The dried paddy shall then pass through the hopper scale before it shall be conveyed into the dried paddy tank for bagging or loading to silos for bulk storage.		
	The above system/approach will greatly reduce post-harvest losses, especially during days of continuous rain which coincide with the period of abundant harvest. Wet paddy spoil rapidly if not pre-dried immediately within the day.		
II. Major Components and Ancillary Equipment:			
1. Receiving and Pre-cleaning Section Two (2) sets of grain receiving and pre-cleaning system shall be installed that are capable in receiving paddy in bulk or accept grains loaded in bulk truck and bagged paddy loaded in trucks or in small lots.			
1.1 Two (2) Units Dumping Pit/Receiving Hopper			
	Both receiving hoppers are capable to receive paddy in bulk		
	The paddy receiving hopper is flush-mounted in the roadway.		
	Provided with concrete ramp capable of supporting fully loaded trucks with gross weight of 60 tons.		
	It is made of all steel construction with angle bar stiffeners and supports.		
	Provided with 35 mm round bar grating and a removable checkered plate cover for safety and protection when not in use.		
	Provided with dust suction hood		
	Designed to discharge gain at 30 TPH minimum		
	Provided with manual intake gate to regulate grain flow		
	Size of the hopper shall be based on Manufacturer's design and standard		
1.2 In-line, Interval-type Single Kernel Moisture Measurement System			
	Continues data logging		
	Moisture content reading range: 11MC to 38 MC		
	With histogram and standard deviation features		
	Moisture threshold feature with alarm		
	Real-Time online mobile apps monitoring capabilities or can be monitored from the control room		
	Cloud Storage: 5 years subscription		
1.3 Two (2) Units Paddy Cleaner with Aspirator			
	Minimum Capacity: 15 tph per unit		
	Minimum efficiency: 90%		
	It can remove empty paddy, small, medium and large size impurities.		
	Push button operation and control system with error indicator control		
1.4 Two (2) Units Fresh Paddy Tank			

	Capacity: 30 Tons per unit		
	Hopper Bottom for self-emptying of grains		
	Provided with Level Sensor		
	Auto-discharge/shutter control		
	Provided with individual aeration fans at the bottom of bin		
	Serves as temporary holding bin and/or tempering bins of grains		
	Able to circulate wet paddy when necessary		
1.5 One (1) Unit Automatic Hopper Scale/Flow Scale			
	Minimum Capacity: 30 TPH		
	High throughput Capacity and high weighing accuracy of +/- 0.1%, full scale		
	Data and operation of the equipment can be monitored in the control room		
2. Drying Section			
2.1 Four (4) Units Batch Recirculating Dryers (BRD)			
	Holding Capacity: 30 MT per unit		
	Drying Capacity: 120 TPB combined capacity per day		
	Provided with Automatic Temperature adjustment based on paddy moisture reading		
	Dryer feature should automatically stop when the desired moisture content reaches the set MC value		
	Each main blower of the dryer is equipped with a cyclofan.		
	Performance Criteria for the dryers: a. Moisture gradient: 2.0% max b. Drying rate: 0.6 - 1% /h c. Drying efficiency: 75% min d. Heating system efficiency: 50% min Biomass fuel, direct-fired e. Drying Loss/Spillage: 1.0% max f. Blower flow rate, cmm/kg (cfm/ton): Manufacturer's Standard g. Static pressure, mm H2O (in.H2O): Manufacturer's Standard		
	Product quality (Palay output) - Allowable difference between the laboratory analysis and dryer's performance a. Cracked grain: 3% increase, max b. Head rice: 5% decrease, max c. Hulled/damaged grain: 2% increase, max		
2.2 One (1) Unit Biomass Fed Furnace			
	Heat Transfer Classification: Either direct-fired or indirect-fired type heating system that can adequately supply the needed heat requirement of the dryers		
	Fuel feed type: Cyclonic type or Gravity type or step-grated type fuel feeding system		
	The furnace should conform to the performance requirement of PNS/PAES 242:2010 -Agricultural Machinery – Biomass Furnace – Specifications		

2.3 One (1) Unit Automatic Hopper Scale/Flow Scale			
	Minimum Capacity: 30 TPH		
	High throughput capacity and high weighing accuracy of +/- 0.1%, full scale.		
	Data and operation of the equipment can be monitored in the control room		
3. Bagging Section			
3.1 Two (2) Units Dried Paddy Tank			
	Common wall for two units		
	Capacity: 30 Tons per unit		
	Provided with level sensor		
	Discharge chutes are provided with manual and pneumatic slide gate with dust control system		
	Provision of a "big bag" (TONNER BAG) filling machine/system with automatic weigher and it is equipped with a scroll conveyor belt to easily move the big bag .		
4. With manufacturer's, distributor's or bidder's certification that the proposed grain dryer brand, particularly its major components, would only be from a single brand			
III. Other Ancillary Equipment (Inclusion)			
1. Main Control Center			
	The drying facility shall be provided with air-conditioned control room that houses the main control panel and it will serve as office of the facility operator.		
	Walls shall be provided with fixed glass in order for the operator to monitor the drying operation		
	Grain movement and equipment operation are monitored and controlled in the control room		
	The operator can determine which bin is empty, partially or fully loaded and which equipment is operating through the corresponding pilot lights on the mimic flow diagram of the motor control system		
2. Electrical/Motor Control System			
	Provision inside the main control center of centralized electrical control panel using an integrated Programmable Logic Control (PLC) and Supervisory Control and Data Acquisition (SCADA), or equivalent technology and functionalities, that houses all related motor control components such as circuit breakers, magnetic contactors, alarm system, etc.		
	The control panel shall be provided with mimic flow chart where the running status and control of each dryer component is shown and represented by indicator lights.		
	With ammeter and voltmeter readout		
	Provided with on-off push button switch and individual circuit breaker for each motor		

	Provided with individual magnetic starter and overload protection for all electric motors		
	The drying plant equipment should be electrically inter-locked to facilitate operation and prevent human errors. However, in case of emergency or need to vary the sequence of operation, the interlock system can be by-passed by authorized personnel and any individual or set of equipment can be operated independent of the other.		
	All motors shall be (1) three-phase, (ii) 60 hz, and (iii) 440 volts, or as maybe appropriate for the given overall drying facility design.		
	All electrical wires, sub-feeders and feeder lines shall be in conduits and run through wire trays from electric motors to the motor control center		
	Pull boxes shall be provided for every branch circuit		
	An Emergency Manual Switch Button (EMSB) shall be provided for every motor/equipment near the working area for emergency shut-off to avoid accident. Rigid steel conduit shall be used from the motor/equipment to the EMSB		
	The drying plant shall be provided with **three (3) units distribution transformer** in bank to provide power for the facility's three-phase load		
	All needed electrical fixtures and accessories for primary metering to energize the facility as required by the electric cooperatives shall be included and shall be shouldered by the contractor. These include: i. Electric Meter ii. Current Transformer (CT) iii. Potential Transformer (PT) iv. Lightning Arrester v. Other necessary electrical fixtures and accessories		
3. One (1) Unit Diesel-Powered Emergency Power Generating Set			
	Provision of one (1) unit diesel power generating set (gen-set) which is solely dedicated to energize the whole drying facility		
	Gen-set must be able to provide stable and compatible power with the requirement of the whole drying facility including its ancillary equipment		
	Provided with automatic transfer switch (ATS) for smooth and easy operation during occurrence of power interruption from the local electric cooperative		
	Generator house shall be built to protect the generator set and electrical accessories from inclement weather		
4. Air Compressor Source			

	Provision of centralized compressed air room with line filters, air dryers, air tanks which is intended for the pneumatic systems		
5. Provision of grain conveying mechanisms such as bucket elevator and drag chain conveyor to integrate the different stages of drying.			
	Bucket elevator and drag chain conveyor should be provided with service ladder, platform, and catwalk to be used during the conduct of repair and maintenance		
6. Provision of control tank with pneumatic control system			
	Control tank with pneumatic control system in all stages to synchronize grain flow and to avoid grain clogging		
	Pneumatic control system of grain diverters, control tank discharge shutters can be remotely controlled in the control room		
7. Provision of downspout with two-way valve, or three-way valve if necessary.			
	Attached to bucket elevator to divert grain flow from one stage to another stage of the process		
8. Dust Room and Dust Collection System			
	All sections where dust can be generated or emitted due to flowing or moving grains shall be fitted with dust-collection system		
	With Cyclone type separator with airlock valve, or dust filter, or combination of both		
	With centralized collecting conveyor for dryer cleaning fan and cyclofan impurities		
	Sheet metal ducting and connectors shall be airtight		
9. All "HOT AIR" (drying air) ducting and manifolds shall be stainless steel and round formed			
10. It shall be provided with features for access to parts during (1) repair, (2) maintenance, and (3) operation such as ladder, service platform, and catwalk.			
11. Biomass Furnace Room			
	Biomass-fed furnace shall be installed in the furnace room		
	Husk bin with auto feed control should be provided in each furnace for ease of loading fuel		
	Provision of disposal cart for the ashes generated/collected		
12. Spare parts storage room shall also be provided for safe keeping of supplies needed during the conduct of repair and maintenance			
13. The mechanical drying facility components and ancillaries shall be laid out in a manner that adequate working spaces are provided for every stage of the operating process			
IV. Additional Requirements			

1. The dried grain shall have no additional discoloration, no traces of unburned fuel or ashes on grain surface and no fermented or musty odor		
2. The dryer shall be provided with thermocouple and digital temperature controller to measure the actual air temperature entering the grain mass. The dryer is in sync with the furnace		
3. The dryer shall be provided with automatic moisture control to measure the actual grain MC and to prevent over drying of grains. Moisture control is in sync with the dryer operation. Automatic shut-off of the dryer once the desired grain moisture content is reached		
4. Adequate provision for fire control		
5. Adequate protection for all moving parts		
6. The noise emitted by the machineries shall not exceed 92 dB		
7. Mechanical grain dryer and its ancillaries shall be free from defects that may be detrimental to its use and shall be free from sharp edges and surfaces that may hurt the operator		
7.1 All metal parts should be machine bend, pressed and cut to avoid rough surfaces and all rough surfaces should be machine finished and smoothed		
7.2 The warning notice shall be in accordance with PNS/PAES 101:2000 – Agricultural Machinery – Technical Means for Ensuring Safety – General		
8. Ancillary components must be compatible with the major component		
8.1 The ancillary components need not be of the same brand or similar brands, provided that their capacity and efficiency are compatible with those of the major component.		
9. The drying facility and its ancillary shall be designed and built to be strong and sturdy to withstand seismic zone 4 earthquake		
10. Main parts of the mechanical dryer which has direct contact with the grain should be made of stainless steel. All other components and parts of the mechanical dryer should be pre-treated and powder coated		
11. The construction shall be rigid and durable without major breakdown of its components within one (1) year of operation		

BAC - SECRETARIAT
Quezon City

12. Warranty shall be provided to parts and services within **two (2) years** after the date of acceptance of the unit by the end-user, except on fast moving and easy to wear parts such as fan belts and grain buckets. General requirements of the warranty shall be in accordance with PNS/PAES 138:2004 – Agricultural Machinery – Guidelines on After Sales Service		
13. Every mechanical grain dryer unit and its key component shall be provided with basic tools, factory standard, operation and parts manual containing full information on parts list, method of installation and operation. The manual which conforms to PNS/PAES 102:2000 – Agricultural Machinery – Operator's Manual – Content and Presentation shall be provided		
14. Contractor/Manufacturer/Dealer shall provide operation and maintenance training and after-sales service		
Comprehensive training to NFA personnel with the following topics:		
a) Basic fundamental and principle of Grain Drying		
b) System operation and management of Drying Plant		
c) Operation, trouble shooting, repair and maintenance of Drying facility		
15. The mechanical grain dryer shall be tested in accordance with PNS/PAES 202:2015 – Agricultural Machinery – Heated-Air Mechanical Grain Dryer – Methods of Test.		
16. Each component of the drying facility including its ancillary equipment shall be marked at a prominent place with the information below. The following markings and labeling shall conform to PNS/PAES 201:2015:		
• Registered trademark of the manufacturer • Name and address of the manufacturer • Name and address of the importer/distributor • Country of manufacture/ Made in the Philippines • Type; Serial number • Load capacity, metric tons • Rated power/voltage/ frequency/ phase, in metric units • Shipping information • Dry weight in metric units • Dimensions in metric units • Safety/Precautionary markings		
17. Standard set of heavy duty tools appropriate for the conduct of repair and maintenance of the facility which is made of tempered steel and chrome vanadium		

BAC-SECRETARIAT
NFA
Quezon City

a. One (1) set socket wrench (No. 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 22, 23, 24, 27, 30, 32, minimum)		
b. One (1) set combination wrench (open and box, 10 pcs-size appropriate to the rice milling system)		
c. Adjustable wrench: 300 mm, minimum		
d. Electrical plier: 200 mm, minimum		
e. Screwdriver: Philips and flat head, 300mm, minimum		
f. Grease gun: 250mm cylinder length, minimum		
g. Mechanical pliers: 200mm, minimum		
h. Heavy duty toolbox and roll up tools holder that could accommodate those required tools		
i. Machinery Testing Equipment i. Tachometer ii. Digital Thermometer iii. Airflow meter		
j. Vacuum cleaner		
Rated input power: 1,000 W, minimum Maximum air flow: 3 cubic meter/minute Capacity: 30 liter, minimum Power cord: 5m, minimum Features: high capacity and high suction		
18. All component and drying system shall be compliant with PNS/BAFS FABES 201:2015 AMTEC and NFA tested upon installation at contractor's cost for each units as condition for acceptance and final payment		
19. Process flow layout and schematic diagram of the drying system duly signed and sealed by Licensed Agricultural Engineer.		
20. Electrical plan and layout duly signed and sealed by a licensed Electrical Engineer as a condition for payment - From transformer to main switch to control panel to machine components.		
21. Factory Acceptance Test (FAT) prior to delivery of items		
22. Inventory CCTV system		
The CCTV system shall improve inventory accuracy, enhance security and optimize operations. It consists of an integrated cameras and sensors to monitor inventory movement and status, providing real-time insight. Creating a digital "eye" on inventory. CCTV System shall provide a full coverage of the strategic internal space of the grain drying system, with clear views of the inventory and personnel within the dryer system premises.		

Delivery Period: Delivery within **one hundred fifty (150) calendar days** from receipt of Notice to Proceed; Installation, test, and commissioning is within **one hundred fifty (150) calendar days** from succesful delivery.		
Place of Delivery: **NFA Warehouse in Region XI:** Brgy. San Jose, Digos City, Davao Del Sur		
Payment Terms: 1. Advanced payment of **15 %** of the contract price upon submission of necessary documents for Advanced Payment. 2. Progress payment of the remaining 85% of the contract amount upon each milestone, as follows: a. Delivery of Main Equipment i. Grain Dryer (**25%** of contract amount) ii. Ricemill (**25%** of contract amount) b. Installation i. Grain Dryer (**10%** of contract amount) ii. Ricemill (**15%** of contract amount) c. Testing & Commissioning of Grain Dryer, Ricemill, and other works (**10%** of the contract amount)		

In compliance with Republic Act No. 9184, Section 18, and the 2016 Revised Implementing Rules and Regulations, Section 18, brand names are only used because of compatibility with existing platforms or equipment which will maintain performance, functionality and useful life.

I hereby certify that the Statement of Compliance to the foregoing technical specifications are true and correct, otherwise, if found false either durin the bid evaluation or post-qualification, the same shall give rise to automatic disqualification of our bid.

Signed and Sealed: _____

Bidder Name/Owner/Authorized Representative

Agricultural and Bio-systems Engineer

_____
Signature

_____
Signature

_____
Name and Designation

_____
Name and Designation

_____
Date

_____
Date