

1. **SCOPE** - This specification contains the requirements for a portable, skid mounted, self-contained, new 150 HORSEPOWER VACUUM for use in drydock and pier side. The unit shall be designed to operate in a salt and dust laden outdoor industrial environment, subject to wind driven rain, sleet and snow. The unit shall be used to recover abrasive blast steel grit into a classifier for further use.
2. **APPLICABLE DOCUMENTS** - The following documents form a part of this specification to the extent specified herein. Unless otherwise indicated, the version in effect on the date, the request for purchase is published shall apply.
 - 2.1 **THE CODE OF FEDERAL REGULATIONS**
 - 29 CFR 1910 Occupational Safety and Health Standards
 - 29 CFR 1915 Occupational Safety and Health for Shipyard Employment
 - 40 CFR 261 Identification and Listing of Hazardous Waste
(Information is available online at: www.gpoaccess.gov/ecfr)
 - 2.2 **AMERICAN NATIONAL STANDARDS INSTITUTE, INC. (ANSI)**
 - Z535.4 Product Safety Signs and Labels
(Copy of ANSI Publications may be ordered from the website: <http://www.ansi.org>)
 - 2.3 **AMERICAN WELDING SOCIETY (AWS)**
 - AWS-D1 Structural Welding Code
(Application for copies should be addressed to the American Welding Society, 550550 N.W. LeJeune Road, Miami, Florida 33126)
 - 2.4 **NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)**
 - NFPA 70 National Electric Code
 - NFPA 79 Electrical Standards for Industrial Equipment
(Application for copies should be addressed to National Fire Protection Association, 470 Atlantic Ave., Boston, MA 02210)
 - 2.5 **NATIONAL ELECTRICAL MANUFACTURERS' ASSOCIATION (NEMA)**
 - ICS Industrial Controls and Systems
 - MGI Motors and Generators
(Information is available online at: www.nema.org)
 - 2.6 **WASHINGTON STATE ADMINISTRATION CODE (WAC)**
 - WAC-173-303 Washington Dangerous Waste Regulations
(Copies of these documents are available online at: <http://www.gpoaccess.gov/>)
 - 2.7 **SOCIETY OF PROTECTIVE COATINGS (SSPC)**
 - SSPC-SP1; Surface Preparation Specification No. 1
 - SSPC-SP10; Near-White Metal Blast Cleaning
(Additional information is available at: <http://www.sspc.org/>)

3. REQUIREMENTS:

- 3.1 **GENERAL DESCRIPTION OF UNIT** - This contract requires delivery of a portable, skid mounted, self-contained vacuum. The unit shall be used to recover abrasive blast steel grit into a classifier for further use.
- 3.2 **CONDITIONS OF SERVICE AND PERFORMANCE:** - The following service and operational conditions shall apply to the equipment delivered under this specification.
- 3.2.1 **Operating Environment** -The proposed system will operate in a heavy-duty industrial environment. The system shall operate continuously 24-hours per day, seven (7) days per week, for a four (4) month period with the only maintenance required being replacement of the dust collector filters.
- 3.2.2 **Equipment size** - The proposed system shall be used in an industrial manufacturing environment having limited space. The proposed equipment shall fit within the dimensions specified in this specification.
- 3.2.3 **Environmental Conditions** - The unit shall be designed to operate in a salt and dust laden outdoor industrial environment, subject to wind driven rain, sleet and snow.
- Temperature Range:.....0 to 110 °F
 - Relative Humidity:.....up to 100% Non-Condensing
- 3.2.4 **Blast Media** – Used steel grit G80, G50, G40 or G25/50 blend, garnet G36 or G80 and aluminum oxide G24 or G100 shall be recovered.
- 3.2.5 **Compressed air** - The unit shall operate from a single source of dry, compressed air at 125 p.s.i.g.
- 3.3 **GENERAL EQUIPMENT REQUIREMENTS** –
- 3.3.1 **Personnel Safety And Health Requirements** - All machine parts, components, mechanisms, and assemblies furnished on the unit shall comply with all specific requirements of “OSHA Safety and Health Standard (29CFR1910), General Industry” that are applicable to the equipment itself. Covers, platforms, guardrails, belt guards, and safety devices shall be provided for all parts of the equipment that present a safety hazard. The safety devices shall not interfere with the operation or maintenance of the equipment. The safety devices shall be removable to facilitate inspection, maintenance, and repair of the part. Additional safety and health requirements shall be as specified in other paragraphs of this specification.
- 3.3.2 **NRTL Listing or NRTL Field Inspection and Approval** - The vacuum shall be listed or approved by one of the following methods:
- 3.3.2.1 **Nationally Recognized Testing Laboratory (NRTL) Listing and Labeling** - The equipment specified herein shall be listed and labeled by an Occupational Safety & Health Administration (OSHA) approved Nationally Recognized Testing Laboratory.
- 3.3.2.2 **Nationally Recognized Testing Laboratory (NRTL) Field Inspection** - The equipment specified herein shall be field inspected and approved by an Occupational Safety & Health Administration (OSHA) approved Nationally Recognized Testing Laboratory.
- 3.3.3 **Safety Devices** All machine parts, components, mechanisms, and assemblies furnished on the unit shall comply with all specific requirements of “OSHA Safety and Health Standard (29 CFR 1910), General Industry” that are applicable to the equipment itself.
- 3.3.3.1 Covers, platforms, guard rails, belt guards, and other safety devices shall be provided for all parts of the equipment that present a safety hazard.
- 3.3.3.2 The safety devices shall prevent unintentional contact with the guarded part. The safety devices shall not interfere with the operation or maintenance of the equipment.
- 3.3.3.3 The safety devices shall be removable to facilitate inspection, maintenance and repair of the part.
- 3.3.3.4 **Access Ladders, Platforms, and Safety Rails:** For all equipment that requires preventative maintenance and servicing, provide access ladders, platforms, safety rails with toe boards and devices as required to meet 29 CFR 1910 Subpart D to allow workers to perform the maintenance without the use of personal fall protection. A

- platform with ladder and guardrails shall be include to change the filter bags or cartridges when the dust collector is in the lowered position.
- 3.3.4 **Energy Isolating Devices** - The equipment shall be provided with energy isolating devices (e.g., power switches, safety switches, circuit breakers, valves, etc.) that protect personnel from the release of hazardous energy.
- 3.3.4.1 The devices shall be designed and manufactured such that they can be padlocked in the user-selected position (ON or OFF, OPEN or CLOSED) to prevent inadvertent or unauthorized change.
- 3.3.4.2 All energy isolating devices installed or modified shall be capable of being locked by being integral to the equipment installed. This includes both mechanical and electrical devices.
- 3.3.5 **Maintainability** - The equipment shall be designed and constructed to permit maintenance personnel to service the equipment easily and effectively using a minimal number of tools. The contractor shall provide any special tools required to service the unit. The equipment shall have access covers, as necessary, to facilitate inspection, cleaning and repair or replacement of internal parts.
- 3.3.6 **Standard, Off The Shelf Components** – All materials and parts comprising the system shall be new, of current design and manufacture, and shall not have been in prior service except as required for factory testing.
- 3.3.6.1 Standard, off the shelf components with proven reliability shall be used wherever possible to increase performance reliability and reduce costs.
- 3.3.6.2 The equipment shall be one of the manufacturer's current production models which, on the day this solicitation is issued, has been designed, engineered and sold, or is being offered for sale through advertisements or manufacturer's published catalogs or brochures.
- 3.3.6.3 Products such as a prototype unit, pre-production model, or experimental unit DO NOT qualify as meeting this requirement.
- 3.3.6.4 The equipment shall be complete, so that when connected to the utilities identified herein, it can be used for the function for which it is designed and constructed.
- 3.3.7 **Electrical** - The equipment delivered and all accessory parts shall operate from a single source of primary power, which is 460 VAC ($\pm 5\%$), three-phase, 60 Hz. The proposed system shall include all transformers required for individual circuits such as control power, etc.
- 3.3.7.1 All Electrical Components including motors, starters, relays, switches, and wiring shall conform to and be located in accordance with the applicable NFPA, NEMA, and ANSI standards for the intended application.
- 3.3.7.2 Over protection device shall be fuse or circuit breaker protected in each phase conductor for AC circuits. Overloads, fuses and circuit breakers shall be coordinated for maximum component protection and minimum circuit disruption.
- 3.3.7.3 Motors shall be rated for continuous duty. Motors shall be equipped with ball bearings of the sealed and permanently lubricated type. All electrical motors shall meet NEMA-MG1 requirements.
- 3.3.7.4 Main and auxiliary control circuits shall operate on a circuit of 120 volts or less derived from isolation transformers integral with the equipment.
- 3.3.7.5 Grounding - All exposed, non-current carrying metal parts shall be maintained at common, zero ground potential. None of the primary circuits in the equipment shall be connected to ground. A grounding stud/lug shall be provided as a means for grounding the equipment. For cord connected equipment, a NEMA type grounding plug which effectively grounds the equipment for the safety of personnel shall be acceptable in lieu of a ground stud or lug on the equipment.
- 3.3.8 **Bearings** - All bearings contained in the equipment and the entire system must be United States (U.S.) or Canadian manufactured. If they are not U.S. or Canadian manufactured bearings, the vendor must provide a list of exact U.S. or Canadian made equivalent bearings that can be used for replacement of each bearing within this equipment or system.
- 3.3.9 **Audible Noise Levels** - During normal operation, the dust collector assembly shall not produce noise levels greater than 86 dB(A) as measured on the "A" scale and 92 dB(C) as measured on the "C" scale, at any point three

feet from the unit of a standard sound level meter at slow response (29 CFR 1910.95, Occupational Noise Exposure Standard). See paragraph 4.4.3 for noise level testing.

- 3.3.10 **Environmental Protection** - The unit shall be designed and constructed so that during operation, service, transportation and storage conditions described herein, including final disposal, the equipment will comply with all applicable Environmental Protection Agency (EPA) and Occupational Safety and Health Agency (OSHA) and State of Washington Department of Ecology (WDOE) restrictions for materials classified as hazardous to the environment in effect on the date of the contract. The equipment described herein shall not contain or emit material hazardous to the ecological system as prescribed by federal, state, and local statutes in effect at the point of installation.
- 3.3.11 **Hazardous Material Exclusions** - Materials being provided as part of the equipment shall be free of known hazardous materials. Definitions of hazardous materials are specified in the latest version, including revisions adopted during the term of the contract, of Federal Standard No. 313.
- 3.3.11.1 Notwithstanding any other hazardous material usage permitted in this contract, radioactive materials or instruments capable of producing ionizing radiation as well as materials which contain asbestos, mercury, cadmium, lithium, methylene chloride, lead ($\geq 0.06\%$), or polychlorinated biphenyls (PCB's) are prohibited.
- 3.3.12 **Painting** - Interior (excluding silencer interior) and exterior surfaces of all components shall be either hot dip galvanized or blasted and painted with federal standard green (14187) in accordance with the following requirements:
- 3.3.12.1 General requirements.
- (A) Components shall be prepared and coated prior to final assembly.
 - (B) The exterior of all enclosures and components shall be primed and painted unless they are fabricated of stainless steel, fiberglass, plastic, or carbon steel hot dip galvanized per ASTM A 123.
 - (C) Coatings shall be applied in accordance with the manufacturer's instructions.
- 3.3.12.2 Preparation.
- (A) Prior to galvanizing or blasting, weld spatter and other surface imperfections shall be removed by grinding.
 - (B) Components to be coated shall be cleaned to SSPC-SP1 (solvent cleaning) prior to abrasive blasting. This step assures the removal of oil, salt, and other surface contamination which can prevent proper paint adhesion in spite of subsequent abrasive blasting.
 - (C) All sides of components shall be abrasive blasted to SSPC-SP10, (Steel Structures Painting Council-Surface Preparation Standard number 10, "Near White Blast"), with a surface profile of 1.5 to 2.5 mils.
- 3.3.12.3 External carbon steel components which conduct airflow, (for example ducts, hoppers, filter housing, plenums, transitions, silencers, and other air-moving components shall be prepared and either hot dip galvanized or primed with a inorganic zinc paint and top-coated High Solids Epoxy Coating (such as Devco Devran 224HS) and painted with 2 part urethane paint with UV inhibitor, having a dry film thickness of 5 to 8 mils.
- 3.3.12.4 Steel structure, (for example rigging structure, sub-foundation for the fan, deck plates, stiffeners & braces, equipment mounts & supports, access platforms, and other mechanical components). Either hot dip galvanized per ASTM A123 or primed with a inorganic zinc paint and top-coated High Solids Epoxy Coating (such as Devco Devran 224HS) and painted with 2 part urethane paint with UV inhibitor, having a dry film thickness of 5 to 8 mils.
- 3.3.12.5 Paints containing lead, cadmium, or hexavalent chromium at 0.01% (dry weight) or more are prohibited.
- 3.3.13 **Caution - Warning Plates** - Corrosion resistant "Caution" or "Warning" plates shall be securely attached to the equipment in visible locations, with any safety precautions to be observed by the operator or maintenance personnel permanently marked on the plates.
- 3.3.14 **Informational Plates** - The following informational plates shall be marked by engraving or photo imaging, on wear and corrosion resistant metal, permanently affixed to the equipment. Identification Plate - The following information shall be on the plate: Nomenclature, Contractor's name, manufacturers name, equipment model number, equipment serial number, electrical utilities (Volts, Full Load Amps, Frequency, and Phases), date of

manufacture, contract number and any other pertinent information for identifying the part as a unique component of the system.

- 3.3.14.1 PCB Label Plate - A label plate containing the PCB Certification information shall be permanently affixed to the equipment in the vicinity of the manufacturer's identification plate.

3.4 **REQUIREMENTS FOR VACUUM SYSTEM**

- 3.4.1 **Positive Displacement Blower** - The blower shall be of the electric powered rotary positive displacement type (i.e. "ROOTS 616 DVJ" or equivalent) and have the following characteristics:
- 3.4.1.1 The blower shall operate at a free air capacity of 2300 CFM (minimum).
 - 3.4.1.2 The blower shall operate at 1300 CFM (minimum) at 24 inches HG with 115 brake horsepower at this flow and pressure.
 - 3.4.1.3 The blower shall be designed for continuous operation, and incorporate provisions to protect blower from overheating. The system shall not require water for cooling or for vacuum operation.
 - 3.4.1.4 Shall operate under the negative pressure condition of 27" HG.
 - 3.4.1.5 Blower shall not overheat when the unit is dead headed.
 - 3.4.1.6 Safety Valve located at the vacuum pump to protect from surpassing 27" Hg.
 - 3.4.1.7 Vacuum gage and exhaust temperature gage.
 - 3.4.1.8 The vacuum blower shall operate at a minimum of 2600 RPM and a maximum of 2800 RPM.
- 3.4.2 **Dust Collector/Cyclone Separator** - The dust collection system shall be a 3stage system (cyclone separator, primary filtration and secondary filtration), which have the following characteristics:
- 3.4.2.1 The dust collector/separator shall be fabricated of minimum 11 gauge steel and lined with abrasion resistant easily removable steel wear plates and be capable of operating under the negative pressure condition of 27 inches HG."
 - 3.4.2.2 Inlet flanged to the dust collector/cyclone separator connection shall be compatible with 5" I.D. vacuum recovery hose.
 - 3.4.2.3 The inlet into the dust collector/cyclone separator shall have replaceable wear plates.
 - 3.4.2.4 The dust collector/cyclone separator shall be fitted with a discharge, air-tight gear operated-hand wheel, butterfly dump valve for emptying accumulated dust into a container (slide gates are not acceptable).
 - 3.4.2.5 The dust collector/cyclone separator hopper shall be equipped with a high level sensor and indicator light. During a high level condition, the sensor shall cause automatic shutdown of the vacuum recovery unit.
 - 3.4.2.6 The dust collector/cyclone separator housing shall include a 16" access door for easy cleanout.
 - 3.4.2.7 The dust collector/cyclone separator shall have a flip top lid with air cylinder(s) to assist for ease of access of filters. No forklift shall be required to open the lid.
 - 3.4.2.8 The cyclone separator shall be designed to remove heavy particles from the airstream.
 - 3.4.2.9 The primary filter system shall have a quick-change filter bags or cartridge filter with an air-to-cloth ratio (ACR) at free air capacity of 10 to 1 actual cubic feet per minute (ACFM) air flow per square feet of filter media or

- greater ratio (information on the filter efficiency, filter size and filter layout shall be submitted with the offer's proposal).
- 3.4.2.10 The primary filters shall remove 99% of the dust in the air stream.
- 3.4.2.11 The primary filters shall be cleaned with reverse pulse air cleaning system.
- 3.4.2.11.1 The air cleaning system shall include automatic, adjustable, solid state filter cleaning controls. Solenoid operated diaphragm valves shall sequentially introduce compressed air pulses into the filter bank. Cleaning air manifold, diaphragm valves, and pulse cleaning nozzle piping shall be factory assembled.
- 3.4.2.11.2 Pressure regulator to a single point connection shall be provided to operate the cleaning system.
- 3.4.2.12 A secondary cartridge filter system shall be installed with a high efficiency filter with a MERV rating of 16 or greater.
- 3.4.2.13 The filtration system shall provide an air-to-cloth ratio (ACR) at free air capacity of 2.50 to 1 actual cubic feet per minute (ACFM) air flow per square feet of filter media or greater ratio.
- 3.4.2.14 The primary filter and the secondary filter shall each have an aneroid gage (i.e. Magnehelic) to monitor differential pressure across the filter.
- 3.4.3 **Motor** - The electric fan motor shall be 150 HP with soft start, Totally Enclosed Fan Cooled and UL approved, 1800 RPM, 480 VAC($\pm 5\%$), 3 phase, 60 Hz with a service factor of 1.15. Severe Duty per IEEE 841-2009, IEEE Standard for Petroleum and Chemical Industry—Premium-Efficiency, Severe-Duty, Totally Enclosed Fan-Cooled (TEFC) Squirrel Cage Induction Motors—. Motor shall meet NEMA-MG 1.
- 3.4.3.1 Bearings shall be greaseable without disassembly of fans or fan covers and shall contain a reservoir equipped with outlet plugs (spring loaded relief plugs) that extend beyond the fan cover for elimination of purged grease.
- 3.4.4 **Main Control Panel** shall include:
- 3.4.4.1 A NEMA 4X, stainless steel, heavy duty panel with lockable handle, dust and watertight and shall house all controls for the vacuum system.
- 3.4.4.2 An auxiliary relay inside the panel to allow for vacuum unit to interlock to existing abrasive blast classification unit. The auxiliary relay shall be wired to an interlock plug (Hubbel receptacle HBL 2410SW) permanently mounted on the exterior of the panel or equipment.
- 3.4.4.3 All push buttons and pilot lights for all components in the system.
- 3.4.4.4 Emergency Stop Button(s) shall be provided with emergency stop buttons (switches) at the main equipment control panel. These stop buttons shall be the mushroom type, shall be colored red, and shall be labeled as such. When activated, the emergency stop buttons shall disconnect all electrical power to the equipment such that all operations or functions will immediately stop or cease.
- 3.4.4.5 Operator controls, instrumentation and indicators shall be mounted on the control panel. Devices shall be clearly and legibly marked for function and identification. Controls shall be fitted with suitable handles, pushbuttons, or control knobs, as applicable.
- 3.4.4.6 A timer circuit for automatic reverse pulse cleaning of the dust collector filters.
- 3.4.4.7 An hour meter, displayed on the exterior of the panel, to indicate cumulative blower run time.

- 3.4.4.8 Install a stainless steel metal cover over the main control panel to eliminate snow or rain water from accumulating on top of the panel.
- 3.4.5 **Main Disconnect panel (separate from main control panel)** - A NEMA 4X enclosure with UL 98 motor controller or safety switch (visible blade type). Disconnecting means shall be included to provide isolation of all electrical energy to the main control panel. This disconnecting means shall be lockable in the open circuit (off) position.
- 3.4.5.1 A single point, 3-phase connection of power supply to operate the system.
- 3.4.5.2 One (1) - fifty feet of flexible 3/0 AWG/4 conductor type W power cable rated for 241 Amps @ 75 Degrees Celsius (shipyard shall install the wire).
- 3.4.6 **Vacuum Skid and Frame:**
- 3.4.6.1 The Vacuum skid shall provide adequate bracing and support to permit placing the entire assembly on uneven surfaces without causing equipment damage, distortion or overstress. The base and associated framework shall be gusseted and cross-braced as necessary to withstand the stresses, vibration and shock associated with rough handling and transport of the unit by overhead crane or flat bed truck over rough surfaces.
- 3.4.6.2 The Vacuum skid shall have forklift slots to raise and lower the dust collector from 12 inches to 50 inches with 12" interval pinning increments.
- 3.4.6.3 The vacuum skid shall be lifted with four lifting attachments with an overhead crane without a spreader bar attachment.
- 3.4.7 **Vacuum Skid Dimensions and Weight:**
- 3.4.7.1 8 feet – 0 inches wide x 11 feet - 0 inches long and 10 feet - 6 inches high when in the stowed position with the butterfly valve installed and machine fully assembled (16' high when in the raised position).
- 3.4.7.2 Maximum weight shall not exceed 11,000 lbs when empty.
- 3.4.8 **Provisions for Lifting and Handling**
- 3.4.8.1 Forklift pockets - The base shall also have fully enclosed forklift slots for handling with a forklift truck on all 4 sides. The forklift slots shall be 12 inches wide by 6 inches high rectangular tube (+/- 1/2-inch) and spaced 52" to 72" apart (measured from outside edge to outside edge of each forklift slot) on the length of the skid and 51" to 60" apart (measured from outside edge to outside edge of each forklift slot) on the width of the skid.
- 3.4.8.2 The vacuum skid shall be equipped with four gross weight lifting pads correctly spaced for even and level lifting by a single crane hook without spreader bar(s). The lifting pads and attaching structure shall provide a 3 to 1 (minimum) safety factor based on material yield strength, or, 5 to 1 (minimum) based on ultimate strength, and calculated as though the actual weight were loaded on two pads.
- 3.4.8.2.1 The bearing strength shall be based upon 1/5 of 150% of the ultimate strength of the lifting attachment material.
- 3.4.8.2.2 The lifting attachments shall be sized based on actual weights plus 10% for unexpected growth in the weight of the load. The resulting value shall be further increased to reflect the loads induced by the angle the slings make to the plane the lifting attachments lie on. The attachments shall be oriented so the slings shall not pull out of the plane of the individual lifting attachment by more than 5° unless they are designed to withstand the resulting side load. In addition, the individual loads for each point shall be calculated based on the configuration of the rigged equipment and the location of its center of gravity. These final values shall be referred to as the Working Load Limit (WLL).

- 3.4.8.2.3 When installing the 4 lifting attachments, only half of them shall be assumed to carry the load. A lift sketch detailing the required spread, capacity and orientation of that gear shall be provided for review at the time of the submittal of the equipment design.
- 3.4.8.2.4 The structure supporting the lifting attachments shall be designed to sustain the various lateral loads imparted by the arrangement of the lifting attachments and the induced sling angle loads on a buckling analysis per the American Institute of Steel Construction (AISC), Allowable Stress Design.
- 3.4.8.2.5 The lifting attachments are required to withstand a load test of 200% +5%-0% of the Working Load Limit (WLL) for 2 minutes. Acceptance criteria shall be: No bending, cracking, or permanent deformation of the lifting attachments or associated structure. The contractor's certified representative will perform the load test and inspection requirements of American Welding Society (AWS) D1.1 and submit documentation of the satisfactory results of all the various tests. The lifting attachments shall be labeled with the WLL and the test date.
- 3.4.8.2.5.1 All calculations required for the design of the lift points shall be performed by a Professional Engineer, and shall be provided for review at the time of the submittal of the equipment design.
- 3.4.8.2.6 In certain cases, with prior concurrence of the cognizant technical Code at Puget Sound Naval Shipyard & Intermediate Maintenance Facility, the load test may be waived and a magnetic particle test (MT) of the attachment weld substituted, meeting the acceptance criteria of MIL-STD-2035, Class 3 or equivalent standard as approved by the Government, provided the testing is performed by a certified third party and documentation of the satisfactory results are provided with the receipt of the equipment. Each lifting attachments shall be stamped with the WLL and the wording "MT" and the date certified.

3.5 **TECHNICAL DATA TO BE PROVIDED**

- 3.5.1 **Operator / Maintenance Manuals** - The equipment shall be furnished with five (5) copies of the manufacturer's standard Operation, Maintenance, and Repair Manual(s) and one copy on CD-ROM disk(s) for each order placed. The manuals shall include all mechanical and electrical schematics showing discrete components/block diagrams/wiring diagrams with inputs and outputs identified/system electrical interface documents and drawings for the specific model of all machine equipment/drives/controls supplied.
- 3.5.1.1 The information contained in the manual(s) shall reflect the unit and its components in the "as built" configuration. A calibration method or procedure for each precision measuring device provided with the equipment shall be included in the manual(s) The information contained in the manual shall be adequate to permit troubleshooting and repair of the equipment by journeymen level personnel. The information contained in the manual(s) shall be in the English language and shall be in imperial units of measure.
- 3.5.1.2 The manuals shall include start-up, operation, shut-down and emergency shut-down procedures.
- 3.5.1.3 The manuals shall include parts list with a complete bill of materials.
- 3.5.1.4 The manual shall include a list of recommended consumable spare parts and possible sources for procurement.
- 3.5.1.5 The manual shall include information on motor and blower speed along with the motor and blower sheave sizes to achieve the performance data called out in the specification.
- 3.5.2 **Lifting Attachment Certification** - Concurrent with equipment delivery, the contractor shall provide with the manufacturer's certification document which reflects a record of the requirements of section 3.4.8.
- 3.5.3 **Air Operating Permit Information** -The contractor shall provide the Government with the following information within 30 days after the effective date of the contract so the equipment can be locally permitted for use:
- 3.5.3.1 Specify the manufacturer and model number of the vacuum. Serial numbers are not acceptable.

- 3.5.3.2 Specify the flow rate in actual cubic feet per minute (acfm).
- 3.5.3.3 Specify the type and quantity of filters that will be installed in the vacuum.
- 3.5.3.4 Specify the filter fabric material that will be installed in the vacuum.
- 3.5.3.5 Specify the air to cloth ratio of the filters that will be installed in the vacuum.
- 3.5.3.6 Specify the filter cleaning method of the filters that will be installed in the vacuum.
- 3.5.3.7 Specify the configuration of the vacuum (induced fan on the clean side [negative pressure] or forced fan on the dirty side [positive pressure]).
- 3.5.3.8 Specify the internal stack diameter or rectangular cross-sectional dimensions (in inches) of the ventilation stack of the vacuum.
- 3.5.3.9 Specify the height of the ventilation stack of the vacuum above ground level (in feet) in the operating position.
- 3.5.4 **Filter Efficiency Certification** – Filter efficiency shall meet the requirements of Section 3.4.2.12 and shall be verified by an independent testing laboratory. A copy of the filter efficiency certification shall be provided with the Offeror's proposal.
- 3.5.5 **NRTL Listing or NRTL Field Inspection and Approval Compliance Statement** - The contractor shall provide signed, written certification of compliance to the requirements of 3.3.2 - NRTL listing or NRTL field inspection and approval. Failure to provide this certification will delay acceptance of the equipment, and could result in rejection for failure to comply with the terms of the contract.
- 3.5.6 **PCB Certification** - The Contractor shall provide written certification from the manufacturer that the equipment contains no detectable PCBs (less than two (2) part-per-million (ppm)). The certification shall be on manufacturer's letterhead, and signed by a company official who is empowered to provide same. It is acceptable that this list is included in each of the operator/Maintenance/Repair manuals.
- 3.5.7 **Warranty** - Supplies and services furnished shall be covered by 1 (one) year warranty from defects in design, materials and workmanship. Acceptance of the manufacturer's standard commercial warranty shall not minimize the rights of the government under clauses in the contract, and in any conflict that arises between the terms and conditions of the contract and manufacturer's warranty, the terms and conditions of the contract shall take precedence. The warranty period shall commence when final acceptance has been achieved as determined when all contract line item numbers have been processed through Wide Area Workflow (WAWF) as indicated per paragraph 4.4.5
- 3.5.8 **On-Site personnel Training** - Within 20 working days after satisfactory completion of acceptance testing of the system, the services of a qualified representative(s) shall be provided for specialized training to familiarize receiving activity personnel with the equipment and to help ensure reliable performance and maximum service life, during normal usage. Training sessions shall be provided separately for each group/type of government personnel. The training shall apply to personnel as follows:
- 3.5.8.1 **Maintenance Personnel (Mechanical/Pneumatic)** - Training shall be provided for mechanical maintenance personnel at a journeyman mechanic level for a period of one 4-hour day minimum. This training shall include trouble-shooting and methods of correction if the equipment malfunctions, with particular emphasis on minimizing equipment down time.
- 3.5.8.2 **Maintenance Personnel (Electrical/Electronic)** - Training shall be provided for electrical/electronic maintenance personnel at a journeyman mechanic level for a period of one 4-hour day minimum. This training, with respect to equipment/controls/drives/interface units and related components, shall include trouble-shooting and methods of correction should equipment malfunction, with emphasis on minimizing equipment down time.

3.5.8.3 Training services shall be rendered at Puget Sound Naval Shipyard.

3.5.8.4 Training shall be scheduled and tailored by mutual agreement between the Contractor and the receiving activity. Two (2) weeks prior to the start of any training, the contractor shall provide a course outline for government review and comment. The contractor shall provide all training manuals and guides. The government shall provide classroom space in close proximity to the equipment/shop.

4. QUALITY ASSURANCE PROVISIONS

4.1 RESPONSIBILITY FOR INSPECTION - The Contractor shall be responsible for the performance of all inspection requirements (examinations and tests) as specified herein. The Contractor may use his own facility or any other facility suitable for the performance of the inspection requirements specified herein. The Government reserves the right to perform any of the inspections set forth in this specification, where such inspections are deemed necessary to assure supplies and services conform to the prescribed requirements.

4.2 RESPONSIBILITY FOR COMPLIANCE - All items shall meet all requirements of sections 3 and 5. The inspection(s) set forth in this specification shall become part of the contractor's overall inspection system or quality program. The absence of any inspection requirements in the specification shall not relieve the contractor of the responsibility of assuring that all products or supplies submitted to the Government for acceptance comply with all requirements of the contract. Sampling inspections, as part of manufacturing operations, is an acceptable practice to ascertain conformance to requirements; however, this does not authorize submission of known defective material, either indicated or actual, nor does it commit the Government to accept defective material.

4.3 BASIC PERFORMANCE TESTS - Basic performance tests shall be conducted on the primary equipment and all associated equipment to the extent practicable, to demonstrate functionality. The tests may be performed by the Manufacturer, either by personnel of their service organization directly, or by an independent testing agency.

4.3.1 At the Option of the Government - Tests may be witnessed by a representative of Puget Sound Naval Shipyard or shall have the option of sending their technical representative(s) to witness the tests. The Contractor shall schedule and coordinate the test at origin. At least fifteen days prior to the test, the Contractor shall notify the Shipyard Point of Contact of the scheduled date, time, and location of the test.

4.4 INSPECTION AT DESTINATION

4.4.1 Initial Test And Grooming - The equipment delivered with the system shall be inspected by the Government for mechanical integrity as follows:

- All welds shall be inspected for integrity and appearance.
- Surfaces shall be examined for sharp edges and burrs.
- Fasteners shall be checked for tightness.
- Paint will be checked for flaking and blistering.
- The fit of parts shall be observed, with particular reference to the interchangeability of those, which are likely to require replacement.
- Review data on motor and blower speed along with motor and blower sheave sizes to achieve the performance data called out in the specification (data shall be supplied by the contractor to the government before inspection).

Note: Faults will be duly recorded and presented to the contractor for rectification.

4.4.2 Operational Tests - Upon satisfactory completion of the tests above, the equipment shall be setup by the government for an operational test. The unit shall be exercised to the extent necessary to prove proper operation in accordance with specification requirements. The system shall function, without failure, for the duration of this test period. If a failure occurs during operational testing, the contractor shall be duly notified for rectification and upon repair the tests shall be restarted from the first test. Three failures without completion of the operational tests shall be considered cause for rejection of the system. For the purpose of this test, a "failure" is defined as any equipment malfunction, which requires remedial action to restore the system to full operation in accordance with contract specifications.

4.4.3 Noise Level Test - The Government Industrial Health and Safety Department shall conduct a noise level survey using a certified sound level-measuring instrument. The noise level test shall be measured 3 feet away from the

machine with three measurements on each side and end of the equipment. Readings will be taken 1 foot off the ground and any point up to 8 feet off the ground. The vacuum shall have 25 feet of 5 inch vacuum recovery hose attached during the test. The vacuum noise shall be tested at free flow and 26 inches Hg. For each measurement, the microphone shall be located on a straight line which is perpendicular to the surface/corner being measured and at a height corresponding to the point of the highest noise level emitted from the surface/corner at the herein specified location or distance from the equipment. Each sample shall be 86 dB (A scale) or less and 92 dB (C scale) or less.

- 4.4.4 **Provisions for repair and test** - In the event of a test failure, the contractor, at their discretion, may elect to correct the failed condition and request a retest of the system.
- 4.4.5 **Final Acceptance** - Upon satisfactory completion of delivery, inspection, testing of the system, OSHA Approved Certification, and on-site training, the contractor shall utilize electronic invoicing. Invoices must be submitted using Wide Area Workflow (WAWF) - Receipt and Acceptance. The contractor shall self-register at the web site: <https://wawf.eb.mil>. Contractor training is available on the Internet at <https://wawftraining.eb.mil>. Additional support can be accessed by calling the NAVY WAWF Assistance Line: 1-800-559-WAWF (9293).

5. ADDITIONAL REQUIREMENTS

5.1 GENERAL SECURITY REQUIREMENTS

- 5.1.1 **Security Regulations** - The contractor shall comply with security regulations imposed by the installation Commander and/or agency occupying the space where the work/training is to be performed, which includes obtaining any necessary personnel security clearances and vehicle passes.

5.2 ADMITTANCE TO THE WORK SITE

- 5.2.1 **Access Badges (Controlled Industrial Area)** – Upon contract award, employees or representatives of the Contractor who require access to the Puget Sound Naval Shipyard Controlled Industrial Area (CIA) and shall be admitted to the work site only after they have been issued a Security Pass/ID Badge.

NOTICE: Persons who are currently on probation or parole from a felony conviction cannot qualify for a Security Pass/ID Badge and will be denied access to the Shipyard.

- 5.2.1.1 Contractor personnel requiring access badges for unescorted entry into the CIA will be required to provide personal background information to the extent necessary to obtain a Security Pass/ID Badge.
- 5.2.1.2 A request for Visitor Badge, PSNS Form 5512/127, completed by the sponsor (typically the Contracting Officer or the Receiving Activity Point of Contact) and submitted by the sponsor (Receiving Activity Point of Contact) to the Pass and I.D. Office, at least five (5) business days before the badges are needed.
- 5.2.1.3 The Government will issue badges without charge.
- 5.2.1.4 Contractors, their subcontractors and vendors requesting access to the CIA will be required to view an orientation videotape lasting approximately 30 minutes prior to receiving a badge.
- 5.2.1.5 Contractor shall allow approximately two (2) hours for each employee to acquire a badge.
- 5.2.1.6 Each employee shall visibly display/wear the Government issued badge chest high over the front of their outermost clothing.

5.2.1.7 It shall be the Contractor's responsibility to collect and account for all Security Pass/I.D. Badges issued to their personnel upon termination of any employee, expiration of the badge, completion of the contract, or when access is no longer required. Badges, passes and permits shall be returned to the Pass and I.D. Office immediately.

5.2.2 Required Documentation - Contractors working within the CIA are required to be United States citizens and must show proof of citizenship prior to receiving a badge. Acceptable forms of proof are:

Original Birth Certificate

Original Department of State Birth Certificate

Certificate of Person Born Abroad

Original Naturalization Certificate

Valid United States Passport

NOTE: Proof of U.S. citizenship shall be hand carried by the employee to the Pass and I. D. Office located in Bldg. 981, when picking up the badge.

5.2.3 Foreign Nationals or Affiliations - Foreign Nationals (non U.S. Citizens) or persons affiliated with, or employed by, a foreign, or foreign owned company will not be granted access to Puget Sound Naval Shipyard CIA without prior written approval from Commander, Naval Sea Systems Command (NAVSEA).

5.2.3.1 The Government will provide a standard background information data form for obtaining NAVSEA approval of foreign nationals. This form can be obtained from the Contracting Officer or the Receiving Activity Point of Contact.

5.2.4 Vehicle Passes

5.2.4.1 Contractors will be allowed to bring company vehicles into the CIA based upon the nature of their work as determined by the Commanding Officer in conjunction with the Industrial Security Officer.

5.2.4.2 Forms for obtaining vehicle passes and permits may be obtained from the Receiving Activity Point of Contact.

5.2.4.3 Each contractor, subcontractor and vendor vehicle shall be registered with the Pass and I.D. Office located in Bldg. 981.

5.2.4.4 Contractors shall clearly display an authorized company sign or logo on their vehicle.

5.2.4.5 Contractor vehicles are not allowed to enter the CIA with more than three (3) people onboard.

5.2.4.6 After contract award, the Contracting Officer will issue a memorandum that lists the vehicles a contractor will be allowed to bring into the CIA.

5.2.4.7 Each permit will include the company name, license plate number and expiration date.

5.2.4.8 CIA permits will be issued to each authorized vehicle by license number.

5.2.4.9 Each contractor, subcontractor and vendor shall provide the state registration or a photocopy and proof of insurance documents of each approved vehicle to the Pass and I.D. Office where one of the following Vehicle Permits will be issued and the purpose for each type of permit.

- 5.2.4.10** Lay-down Permit - A permit that authorizes the vehicle to be brought in to transport tools, parts, or materials to/from the site or function as a work platform. Vehicles with Lay-down permits are kept at the negotiated job site when not traveling to/from the gate.
- 5.2.4.11** Load/Unload Permit - A permit that authorizes the vehicle to be brought in to drop off tools, equipment and machinery (which cannot be hand carried) then is taken out of the CIA. Vehicles with Load/Unload Permits shall not be left unattended at the job site for more than 30 minutes.
- 5.2.4.12** Service Permit - A permit that authorizes the vehicle to be brought in and used as a mobile work platform because it contains tools, parts, materials, supplies and/or fabrication equipment. Vehicles with Service Permits allow the vehicle to be used at job sites throughout the CIA where no negotiated lay-down area exists.

5.3 **RESTRICTIONS**

5.3.1 **Parking**

5.3.1.1 Vehicles and equipment- Vehicles and equipment required by the Contractor to complete this contract must be registered with Shipyard Security.

5.3.1.2 Contractor vehicles must be marked on the outside with the company name or logo or both. Failure to comply will result in ticketing and/or loss of vehicle privileges.

5.3.2 **Regular Working Hours** - All work is to be performed during Puget Sound Naval Shipyard & Intermediate Maintenance Facility Bremerton Site's regular work hours from 7:30 a.m. to 4:00 p.m., Monday through Friday except for Federal Holidays.

5.3.3 **Restricted Colors** - This Shipyard uses the colors magenta, yellow, red and blue to identify specially controlled materials. The Contractor is specifically prohibited from using magenta, yellow, red or blue colored plastic wrapping materials or bags, tape, or other covering materials.

5.3.4 **Radio Restrictions** - Operation of privately owned citizens band or amateur radio equipment (receive and transmit) within the geographic limits of Puget Sound Naval Shipyard is prohibited. All radio equipment installed in privately owned motor vehicles must be turned off upon entering any gate to the Government Activity.

5.3.5 **Privately Owned Personal Computers And Cellular Telephones** - The use of privately owned personal computers and cellular telephones by contractor personnel at Puget Sound Naval Shipyard is restricted. Contractors requiring such devices in the performance of this contract shall obtain a copy of the applicable form(s) from the Contracting Officer. The completed applicable form(s) shall be returned and routed for Government approval. The use of cell phones are not permitted at anytime while driving anywhere within the Government Activity.

5.3.6 **Photography/Recording** - Contractor personnel are prohibited from having photographic equipment (including cell phones and watches capable of taking pictures), tape recorders, zip drives, personal electronic management devices, or other recording devices in their possession while inside the Government Controlled Industrial Area (CIA).

5.3.7 **Sanitation** – Puget Sound Naval Shipyard & Intermediate Maintenance Facility (PSNS & IMF) prohibits its employees to consume food except in designated areas. Per the Code of Federal Regulations, 29 CFR 1910.141, Sanitation, employees may not eat or drink in regulated work areas or in other industrial work areas where toxic

materials are present. Hardhats, gloves and any other regulated work clothing shall not be worn or placed in designated eating areas.

5.3.8 Smoking – Smoking is permitted in designated areas only.