

20000 CFM PORTABLE DUST COLLECTOR

1 **SCOPE** - This specification reflects those characteristics that are essential to the minimum needs of the government for the procurement of a portable dust collector assembly supplied complete. This portable dust collector assembly is to include the full assembly and testing of the equipment as specified herein. It is the Government's intent that a single (primary) contractor be awarded this contract and be responsible for the accomplishment of all work detailed by this specification. The dust collector assembly shall be suitable for collecting airborne dust, paint chips, corrosion products, and fine abrasive particles from an abrasive blast enclosure.

2 **APPLICABLE DOCUMENTS**

2.1 **GENERAL** - The documents listed in this section are specified in sections 3 and 4 of this specification. This section does not include documents cited in other sections of this specification or recommended for additional information or as examples. While every effort has been made to ensure the completeness of this list, document users are cautioned that they must meet all specified requirements of documents cited in sections 3 and 4 of this specification, whether or not they are listed.

2.2 **GOVERNMENT DOCUMENTS**

2.2.1 **Specification, standards, and handbooks** - The following specifications, standards, and handbooks form a part of this document to the extent specified herein. Unless otherwise specified, the issues of these documents are those cited in the solicitation or contract.

CODE OF FEDERAL REGULATIONS (CFR)

| | |
|-------------|--|
| 29 CFR 1910 | Occupational Safety and Health Standards |
| 29 CFR 1915 | Occupational Safety and Health Standards for Shipyard Employment |

(Information is available online at: www.gpoaccess.gov)

FEDERAL STANDARDS

| | |
|-----------------------|--|
| Federal Standard 313D | Material Safety Data, Transportation Data and Disposal Data for Hazardous Materials Furnished to Government Activities |
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(Copies available online at <http://assist.daps.dla.mil/quicksearch/>)

2.2.2 **Other Government documents, drawings, and publications** - The following other Government documents, drawings, and publications form a part of this document to the extent specified herein. Unless otherwise specified, the issues of documents are those cited in the solicitation or contract.

PUGET SOUND NAVAL SHIPYARD & INTERMEDIATE MAINTENANCE FACILITY (PSNS & IMF) BREMERTON SITE

| | |
|-----------------------|---------------------------------|
| PSNS & IMF P5100 (14) | Visitor and Contractor Handbook |
|-----------------------|---------------------------------|

(Request for copies should be addressed to Puget Sound Naval Shipyard & Intermediate Maintenance Facility, Code 980.2, 1400 Farragut Avenue Bremerton, WA 98314-5000)

2.3 **NON-GOVERNMENT PUBLICATIONS** - The following documents form a part of this document to the extent specified herein. Unless otherwise specified, the issues of documents are those cited in the solicitation or contract.

NATIONAL FIRE PROTECTION ASSOCIATION (NFPA)

| | |
|---------|---|
| NFPA 70 | National Electric Code (NEC) |
| NFPA 79 | Electrical Standards for Industrial Machinery |

(Information is available online at: www.nfpa.org)

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NATIONAL ELECTRICAL MANUFACTURERS' ASSOCIATION (NEMA)

NEMA ICS-1

Industrial Controls and Systems General
Requirements

NEMA MG-1

Motors and Generators Revision 1

(Copies available at: <http://www.nema.org/stds/> or National Electrical Manufacturers Association, 1300 North 17th Street, Suite 1752, Rosslyn, VA 22209)

INSTITUTE OF ELECTRICAL AND ELECTRONICS ENGINEERS (IEEE)

IEEE STD 841-2009

Standard for Petroleum and Chemical Industry-Premium-Efficiency, Severe-Duty, Totally Enclosed Fan-Cooled (TEFC) Squirrel Cage Induction Motors-Up to and Including 370 kW (500 hp)

(Information is available at <http://ieeexplore.ieee.org/xpl/standards.jsp>)

AMERICAN NATIONAL STANDARDS INSTITUTE, INC. (ANSI)

ANSI Z535.4

Product Safety Signs and Labels

(Copies available at: <http://webstore.ansi.org> or ANSI Attn: Customer Service Department, 25 W 43rd Street, 4th Floor, New York, NY 10036)

AMERICAN WELDING SOCIETY (AWS)

AWS D1.1 Structural Welding Code Steel

(Application for copies should be addressed to the American Welding Society, 550550 N.W. LeJeune Road, Miami, Florida 33126)

AMERICAN SOCIETY FOR TESTING AND MATERIALS (ASTM)

ASTM A123

Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products

ASTM D2201

Standard Practice for Preparation of Zinc-Coated and Zinc-Alloy-Coated Steel Panels for Testing Paint and Related Coating Products

ASTM E477

Standard Test Method for Laboratory Measurements of Acoustical and Airflow Performance of Duct Line Materials and Prefabricated Silencers

(Application for copies should be addressed to the American Society For Testing Materials, 1916 Race St., Philadelphia, PA 19103)

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/>)

2.4 **ORDER OF PRECEDENCE** - Unless otherwise noted herein or in the contract, in the event of a conflict between the text of this document and the references cited herein, the text of this document takes precedence. Nothing in this document, however, supersedes applicable laws and regulations unless a specific exemption has been obtained.

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3. REQUIREMENTS

3.1 **GENERAL DESCRIPTION OF UNIT** - The portable dust collector assembly shall be designed for continuous operation and reliable performance in the specified environment. The unit shall be suitable for removing and collecting airborne dust, paint chips, corrosion products, and fine abrasive particles in a moderately loaded exhaust stream from an abrasive blast enclosure.

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 be operated in a heavy industrial environment and shall be capable of continuous operation over an extended period of time with minimal maintenance and upkeep. The unit shall be suitable for operation in an outdoor marine industrial environment, at variable ambient temperatures of -10°Fahrenheit to +104°Fahrenheit, with humidity of up to 100% non-condensing, in a salt and dust-laden atmosphere, and wind driven rain, sleet and snow.

3.2.2 **Size and Weight Limitations** - The size of the unit shall be kept as small as practicable. The overall dimensions, including the skid base and framework, shall not exceed 8.0 feet wide x 22.0 feet long x 10.5 feet high (shipping height) and 8.0 feet wide x 22.0 feet long x 13.5 feet high (operating height). No portion of the equipment or enclosure shall extend beyond these dimensions. The total weight of the unit shall not exceed 12,500 pounds.

3.3 **GENERAL EQUIPMENT REQUIREMENTS**

3.3.1 **Response To Request** - As a part of the response to this request, descriptive literature shall be furnished in sufficient detail to show that the proposed design will meet these specifications. Vendor submittals shall include brochures of the model being submitted, assembly sketches with critical dimensions, sketches (with dimensions) of all tooling provided, statements of compliance or exceptions to the specification, and performance statements with special attention to the key performance criteria stated herein.

3.3.2 **New Developments** - If, during the contract period, any new developments are generated that would improve the efficiency, accuracy or productivity of the machine and its related equipment or would decrease its operation costs, the contractor shall immediately notify the Contracting Officer, in order that the new developments may, at the Government's option, be included in the equipment being purchased herein. All reports of such developments shall be addressed to the Contracting Officer.

3.3.3 **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.

3.3.4 **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. Standard, off the shelf components with proven reliability shall be used wherever possible to increase performance reliability and reduce costs. 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. Products such as a prototype unit, pre-production model, or experimental unit DO NOT qualify as meeting this requirement. 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.

3.3.5 **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, guard rails, belt guards, and safety devices shall be provided for all parts of the equipment that present a safety hazard. The safety

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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.

3.3.6 NRTL Listing or NRTL Field Inspection and Approval - The Dust Collector shall be listed or approved by one of the following methods:

3.3.6.1 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. Test data reports shall be furnished for review.

3.3.6.2 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. Test data reports shall be furnished for review.

3.3.7 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. Covers, platforms, guard rails, belt guards, and other safety devices shall be provided for all parts of the equipment that present a safety hazard. 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. The safety devices shall be removable to facilitate inspection, maintenance and repair of the part. 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.

3.3.8 Energy Isolating Devices - The equipment shall be provided with energy isolation devices (e.g. power switches, safety devices, circuit breakers, valves, etc.) that protect personnel from the release of hazardous energy. Hazardous energy includes electrical, mechanical, hydraulic, pneumatic, gravity, or other energy that could harm employees involved in servicing or maintenance of the equipment. The devices shall be installed as the first energy control device on all major components of the system such that the component can be isolated at the component level. 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.

3.3.9 Audible Noise Levels - During normal operation, the dust collector assembly shall not produce noise levels greater than 84 dB(A) as measured on the "A" scale and 92 dB(C) at any point three feet from the unit, as measured on the "C" scale of a standard sound level meter at slow response (29 CFR 1910.95, Occupational Noise Exposure Standard). See paragraph 4.3.3 for noise level testing

3.3.10 Electrical - The equipment delivered and all accessory parts shall operate from a single source of primary power, which is 480 VAC ($\pm 5\%$), three-phase, 60 Hz. The proposed system shall include all transformers required for individual circuits such as control power, etc.

3.3.10.1 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.

3.3.10.2 A supply circuit disconnect device, either a fusible motor circuit switch or circuit breaker, shall be provided and installed on the equipment.

3.3.10.3 Motor: The electric fan motor shall be 100 HP (minimum) 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.

3.3.10.3.1 All motor and blower fan bearings shall be greasable without disassembly of motor/blower fan and shall contain a reservoir equipped with outlet plugs (spring loaded relief plugs) that extend beyond the motor/fan cover for elimination of purged grease.

3.3.10.4 Main and auxiliary control circuits shall operate on a circuit of 120 volts or less derived from isolation transformers integral with the equipment.

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3.3.11 **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.

3.3.12 **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). 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.

3.3.13 **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.

3.3.14 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.

3.3.15 **Painting** - 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.

3.3.15.1 General requirements.

- (A) Components shall be prepared and coated prior to final assembly.
- (B) The exterior and interior 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.

3.3.15.2 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.

3.3.15.3 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) with a dry film thickness of 5 to 8 mils.

3.3.16 Blower housing and structure shall be primed with a inorganic zinc paint and painted with top-coated High Solids Epoxy Coating (such as Devco Devran 224HS) with a dry film thickness of 5 to 8 mils.

3.3.17 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 painted with top-coated High Solids Epoxy Coating (such as Devco Devran 224HS) with a dry film thickness of 5 to 8 mils.

3.3.18 **Safety Signs and Labels** - "Caution" or "Warning" stainless steel plates and labels in accordance with ANSI Z535.4 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.

3.3.19 **Identification Plate** - Stainless steel identification plates shall be furnished with the equipment. A nameplate shall be affixed to each major component of the system showing the manufacturer's name, equipment model, year of manufacture, contract number, and any other pertinent information for identifying the part as a unique component of the system.

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

3.3.21 **Lift Sketch** - The contractor shall provide a stainless steel lift sketch furnished on the equipment that shall identify the following (the lift sketch shall be reviewed by the government prior installation on the equipment) :

- a. The weight of the load
- b. The location of the center of gravity
- c. The minimum capacity and length of the slings
- d. The minimum capacity of other standard lifting gear
- e. The attachment (lifting) points for each load

3.4 **REQUIREMENT FOR DUST COLLECTOR** - The portable dust collector assembly specified herein shall include, but is not limited to the following components, attachments, and accessories.

3.4.1 **Control Panel** - The control panel shall operate the dust collector and main system fan motor, and include a main control panel, a main disconnect, fan motor starter, control power transformer with 100 VA extra capacity, pulse cleaning controls, start/stop pushbuttons, indicator lights, labels, and all necessary fuses and circuit protection. Auxiliary instrumentation to include an hour meter to indicate cumulative fan motor run time. All components shall be mounted and prewired in a NEMA 4X UL labeled enclosure. Control panel shall have a steel rain guard cover over the top to divert rain water and eliminate water from accumulating on top of the panel.

3.4.2 **Main Disconnect 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.

3.4.2.1 One (1) - fifty feet of flexible #2 AWG/4 conductor type W power cable rated for 133 Amps @ 75 Degrees Celsius (shipyard shall install the wire).

3.4.3 **Dust Collector Housing** - The dust collector housing, hopper and roof shall be 10 gauge (minimum) steel. The housing shall be dust and watertight. The roof shall be slightly sloped to promote rainwater runoff. The entire structure shall be rated for +/- 20 inches W.G., Seismic Zone 3, 100 MPH wind load, and 30 pounds per square foot roof load.

3.4.3.1 The housing shall include three (3)-18 inch diameter bolted flange connection to connect to blow back damper, located near the top of the dust collector in the horizontal position.

3.4.4 **Dust Collector Cleaning** - The dust collector shall be a continuous duty pulse-jet cleaned, cartridge style unit. Capacity shall be 20,000 SCFM (minimum), with a nominal air-to-cloth ratio of 1 to 2.5 fpm/sq.ft or greater cloth area. Airflow in the collector shall be in a downward pattern to carry pulse cleaned dust away from filter elements to minimize dust re-entrainment.

3.4.4.1 **Filter Cleaning** - The dust collector shall include automatic, adjustable, solid-state filter cleaning controls. Solenoid operated diaphragm valves shall sequentially introduce compressed air pulses into each filter bank. Cleaning air manifolds, solenoid and diaphragm valves, and pulse cleaning nozzle piping shall be factory assembled. Air manifold piping, with a pressure regulator, to a single connection point shall also be provided. The cleaning system shall operate from a single source of compress air supplied at 125 PSIG (provided by others).

3.4.4.2 An aneroid gage (i.e. "Magnehelic") with an operating range of zero (0) to 10 inches water shall be installed to continuously monitor differential pressure across filter elements.

3.4.4.3 An inline filter shall be installed on the dirty side of the gage to protect the gage from dust.

3.4.5 **Dust Collector Hopper** - The dust collector shall have 2 or 3 pyramidal hopper installed at the discharge end. The hoppers shall be equipped with 6 inch gear operated-hand wheel butterfly valve, rubber lined, with no carbon steel components. The valves shall be a model shown to be reliable in similar applications.

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3.4.5.1 Drum cover - 55-gallon drum cover adapters and hardware shall be installed under the butterfly valve of each hopper to fit a standard 55-gallon drum, which are approximately 24 inches in diameter x 33 inches tall (drum to be provided by others).

3.4.6 **Dust Collector Filters** - Filters shall be 12 inch diameter cylindrical cartridge type providing a minimum 5000 square feet of total filter cartridge media area with a air to cloth ratio of 2.5 or greater cloth area. Filters shall include internal and external pleat retention and gasket seals. Filters shall comply with standard ASHRAE 52.2 Minimum Efficiency Reporting Value (MERV) rating of 13 or greater. Filter efficiency shall meet the following minimum requirements, and shall be verified by independent laboratory test results. Test results are required to be submitted with the Offeror's proposal.

3.4.7 **Dust Collector Sprinkler** – The dust collector sprinkler heads shall be sized and located to ensure full coverage of the filters. The dust collector shall include open head water sprinklers and galvanized piping with a brass 2 ½ inch national hose/national straight threaded hose single point connection with a lanyard plug. The connection shall be located a maximum of 45 inches off the ground when in the raised position.

3.4.8 **Inlet Blow Back Damper** – Three (3)-18 inch diameter, bolted flange all mechanical blow back dampers shall be installed and adequately supported on the inlet of the dust collector. The unit opening shall be a hinge open under vacuum and drops closed via gravity when the dust collector blower is turned off. The unit shall have no obstruction in the damper to allow for 18 inch diameter clear air flow. An adjustable counter balance arm aids in opening and closing the valve plate to ensure no re-entrainment occurs when the blower is off. When in the closed position, if a fire shall occur in the dust collector and the blower is off, a seal shall be formed preventing smoke from returning into the ventilation ductwork.

3.4.8.1 Blow Back Damper Flange Connection – Each inlet to the blow back damper shall include a flange connection as shown in Enclosure (1) to allow for hook up to shipyard 18 inch ducting.

3.4.9 **Blower Fan Assembly** - The blower shall be a backwardly inclined centrifugal fan, heavy duty industrial Class IV, designed to handle moderate amounts of dirt and moisture in the air stream. The blower shall be rated for 20,000 CFM (minimum) at 16 inches W.G. Total Static Pressure (TSP) at 70°F. The blower shall have a direct drive, bolted access, flanged discharge (Up-Blast), all mounted on a unitary base. The unitary base shall be a weldment, not a bolted assembly. The exhaust stack discharge shall be equipped with an outlet damper, silencer and bird screen (to prevent foreign material and bird entry). The fan base shall be rigidly mounted on the frame. The fan inlet shall be equipped with a flexible rubber expansion joint. The electric fan motor shall meet the requirements in paragraph 3.3.10.

3.4.10 **Fan Outlet Silencer** - Shall be an in-line, heavy duty, rectangular dissipative fan discharge silencer designed for connection directly to a fan outlet damper and discharge vertically to the atmosphere.

- The silencers shall be designed, manufactured, and bear the label of a company whose primary business is the manufacture of silencers.
- Static pressure drop at rated flow shall not be greater than 1 inch water gage.
- Acoustic performance and aerodynamic data shall have been conducted in accordance with ASTM E477-99 and may have been performed on a different size silencer.
- Construction:
 - Joints on the exterior silencer casing shall be continuously welded. Connection of components inside the silencer shell shall be by welding and not by rivets. Where stitch welding is used, welds shall have a minimum length of one inch. Spot welding shall not be used.
 - The top of the silencer shall be designed so that no recesses hold rain water.
 - The silencers shall be labeled to show the correct airflow direction and the correct orientation of the silencer on the fan (axial rotation).”

3.4.11 **Ventilation Ducting** - All ducting shall be made of heavy gauge galvanized or stainless steel material.

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3.4.12 **Structural** - The entire dust collector assembly shall be mounted on a heavy-duty skid base of structural steel, and shall be supported and contained within a structural steel framework. The skid base 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 rigid, and shall be gusseted and cross braced as necessary to be free from flex and 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.

3.4.12.1 The dust collector skid shall have six support legs which can be raised to 40 inches to allow for a 55 gallon drum to be placed under the pyramidal hopper butterfly valves.

3.4.12.2 The dust collector structure shall be lifted with four lifting attachments with an overhead crane without a spreader bar attachment.

3.4.13 **Lifting Attachments** – The skid shall be equipped with four lifting pads welded into the structure. The allowable bending strength shall be based upon 1/3 of the allowable yield strength or 1/5 of the allowable ultimate strength, whichever is the most conservative, of the lifting attachment material.

3.4.13.1 The shear strength shall be equal to 0.58 times the allowable design bending strength defined above.

3.4.13.2 The bearing strength shall be equal to 0.3 times the ultimate strength of the lifting attachment material.

3.4.13.3 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. The attachments shall be arranged so the load is lifted relatively level. If the equipment is intended to be stackable, provisions in the design shall be made to prevent damage to the lift points of the lower item if the upper item is not landed accurately or symmetrically. 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).

3.4.13.4 When installing three, four, or more lifting attachments, only two shall be assumed to carry the load unless a spreader or strongback is used. The use of spreaders or strongbacks shall be kept to a minimum, but if they are deemed necessary, 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.

3.4.13.5 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 based on a buckling analysis per the American Institute of Steel Construction (AISC), Allowable Stress Design.

3.4.13.6 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 testing plus a pre- and post-load VT per the 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.

3.4.13.7 In certain cases, the 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.

3.4.13.8 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.

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3.4.14 **Forklift Pockets** - The base shall also have fully enclosed forklift slots for handling with a forklift truck. The forklift slots shall be 12-inches wide by 6 -inches high rectangular tube +/- 1/2-inch on 72 inch centerline.

3.4.15 **Contractor Installation and Set-Up** - The dust collector shall be assembled, installed, set-up and tested by the contractor in the area(s) designated as its functional work area by the receiving activity . The contractor shall provide all personnel, equipment, and supplies necessary for the complete installation and set-up of the proposed system. .

3.4.15.1 **Coordination** - The Contractor shall coordinate a proposed installation schedule with the Receiving Activity Point of Contact within 30 days after the effective date of the contract. The installation schedule shall be subject to review and approval of the receiving activity. Approval of installation schedule shall not relieve the Contractor of any responsibility for performance in accordance with the contract. The Contractor shall coordinate the site preparation and the delivery of materials in a manner, which causes minimum disruption/interference with the Government's normal business routine.

3.4.15.2 **Work Process** - The Contractor shall provide a full time (start of installation to acceptance of the facility) field supervisor to direct installation and testing. The field supervisor shall have full authority to implement his field decisions in an expeditious manner. No work shall be accomplished when the field supervisor is not in the immediate work area.

3.4.15.3 **Methods And Schedules** - The work shall be executed in a manner and at such times as to cause the least practicable disturbance to the occupants of the buildings and normal activities of the Government. Before starting any work, the sequence of operations and methods of conducting the work shall have been reviewed and approved by the Government.

3.4.15.4 **Prior To Commencing Work**, the Contractor representative(s) shall meet in conference with the Government Point Of Contact, shop supervision, and other necessary Government personnel to discuss and develop mutual understandings relative to safety, methods and schedules, security, waste management and any other subject necessary for a smooth and successful operation.

3.4.15.5 **Energy Control (Lockout/Tags-plus)** - The Government will provide the Contractor with a copy of the lockout and tag out controls (Lockout/tags-plus) used by the Government facility where the equipment is to be installed. The Contractor shall meet with the Government Point of Contact to discuss Lockout/tags-plus interface. The Contractor shall use the Receiving Activity's Lockout/tags-plus procedures as required by 29 CFR 1915.89. Lockout/Tags-plus procedures IAW 29 CFR 1915.89 shall be followed, where applicable. Contractors shall train their employees to Vol. II Chapter 9 of the Government's Occupational Safety and Health (OSH) manual or as directed by the Receiving Activity. Audits, surveillances and incident investigations may be performed per 29 CFR 1915.89 and the Receiving Activity's OSH Manual Vol. II Chapter 9 requirements.

3.5 Technical Data to be Provided

3.5.1 **Lifting Attachment Certification** - Concurrent with equipment delivery, the contractor shall supply a letter of certification/stamped, by a professional engineer, stating the lifting pads meet the specified design criteria (see 3.4.13).

3.5.2 **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:

3.5.2.1 Specify the manufacturer and model number of the dust collector. Serial numbers are not acceptable.

3.5.2.2 Specify the flow rate in actual cubic feet per minute (acfm).

3.5.2.3 Specify the type and quantity of filters that will be installed in the dust collector.

3.5.2.4 Specify the filter fabric material that will be installed in the dust collector.

3.5.2.5 Specify the air to cloth ratio of the filters that will be installed in the dust collector.

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3.5.2.6 Specify the configuration of the dust collector (induced fan on the clean side [negative pressure] or forced fan on the dirty side [positive pressure]).

3.5.2.7 Specify the internal stack diameter or rectangular cross-sectional dimensions (in inches) of the ventilation stack of the dust collector.

3.5.2.8 Specify the height of the ventilation stack of the dust collector above ground level (in feet).

3.5.3 **Filter Efficiency Certification** – Filter efficiency shall meet the requirements of Section 3.4.6 and shall be verified by an independent testing laboratory. A copy of the filter efficiency certification shall be provided.

3.5.4 **NRTL Listing or NRTL Field Inspection and Approval Compliance Statement** - The contractor shall provide signed, written certification of compliance to the requirements of Section 3.3.6- 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.

3.5.5 **PCB Certification** - The Contractor shall provide written certification from the manufacturer that the equipment contains no detectable PCBs (less than 0.5 part-per-million (ppm)). The certification shall be on manufacturer's letterhead, and signed by a company official who is empowered to provide same. A label plate containing the PCB Certification information shall be permanently affixed to the equipment in the vicinity of the manufacturer's identification plate. The certification shall be engraved or etched on wear and corrosion resistant material.

3.5.6 **Warranty** - Supplies and services furnished shall be covered by a one (1) year warranty from defects in design, materials and workmanship. The warranty shall be the manufacturer's standard commercial warranty which shall conform to all the requirements of the contract. 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 4.3.5.

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**

4.2.1 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 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, nor does it detract from contractor's responsibility to provide compliant material.

4.2.2 **Basic Performance Tests** - Prior to equipment delivery, a basic performance tests shall be conducted by the manufacturer on the primary equipment and all associated equipment to the extent practicable, to demonstrate functionality. The tests may be performed by the Contractor, either by personnel of their service organization directly, or by an independent testing agency.

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4.2.2.1 The shipyard 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 Government Point of Contact of the scheduled date, time, and location of the test.

4.3 INSPECTION AT DESTINATION

4.3.1 **Test And Grooming** - The equipment delivered shall be inspected by the Government for mechanical and electrical integrity as follows: All welds inspected for integrity and appearance. Surfaces examined for sharp edges and burrs. Fasteners checked for tightness to prevent loosening due to vibration. Paint checked for flaking and blistering. Electrical requirements examined for compliance to the National Electrical Code, (NFPA 70 and NFPA 79). The fit of parts observed, with particular reference to the interchangeability of those that are likely to require replacement.

4.3.1.1 Faults will be duly recorded and presented to the contractor for correction.

4.3.2 **Operational Tests** - Upon satisfactory completion of the tests above, the equipment shall be setup for an operational test and evaluation. The contractor shall demonstrate the ability of the equipment to perform as required in Section 3. All equipment functions 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 the test period, repairs shall be immediately effected by the Contractor, and the tests shall be restarted from the first test. Three failures without completion of the test period 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.

4.3.3 **Noise Level Test** - The Government Industrial Health and Safety Department shall conduct a noise level survey using a certified sound level-measuring instrument. Four random measurements shall be taken at the operator's work position(s) and at each side and end of the equipment. 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 84 dB (A scale) or less and a 92 dB (C scale) or less.

4.3.4 **Provisions for Repair and Retest** - 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.

4.3.5 **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 DELIVERY

5.1 **NOTIFICATION** - The receiving activity shall be notified no less than 48 hours prior to the arrival at the site of the contractor's installation personnel.

5.2 **SHIPMENT** - Shipment of materials shall be coordinated with site preparation and installation. Material transportation from the manufacturer's facility to the work site shall be the responsibility of the contractor. Limited secured storage areas at the facility will not permit the Government to store material for extended periods of time. Early shipment of materials, without the permission of the receiving activity shall be refused.

5.3 **PACKING MATERIAL** - The use of shredded paper, whether newspaper, office scrap, computer sheets, or wax paper, in packing material for shipment to Navy activities, is prohibited.

5.4 **DELIVERY DATE** - It is required that all goods and services provided by this solicitation be delivered no later than 12 weeks upon contract award.

5.5 **DELIVERY** - The equipment shall be delivered to:

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Puget Sound Naval Shipyard
1400 Farragut Avenue
Bremerton, WA. 98314-5001

6 ADDITIONAL REQUIREMENTS

6.1 GENERAL SECURITY REQUIREMENTS

6.1.1 **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.

6.2 ADMITTANCE TO THE WORK SITE

6.2.1 **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.

6.2.1.1 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.

6.2.1.2 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.

6.2.1.3 The Government will issue badges without charge.

6.2.1.4 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.

6.2.1.5 Contractor shall allow approximately two (2) hours for each employee to acquire a badge.

6.2.1.6 Each employee shall visibly display/wear the Government issued badge chest high over the front of their outermost clothing.

6.2.1.7 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.

6.2.2 **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.

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6.2.3 **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).

6.2.3.1 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.

6.2.4 **Vehicle Passes**

6.2.4.1 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.

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

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

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

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

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

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

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

6.2.4.9 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.

6.2.4.10 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.

6.2.4.11 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.

6.2.4.12 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.

6.3 **RESTRICTIONS**

6.3.1 **Parking**

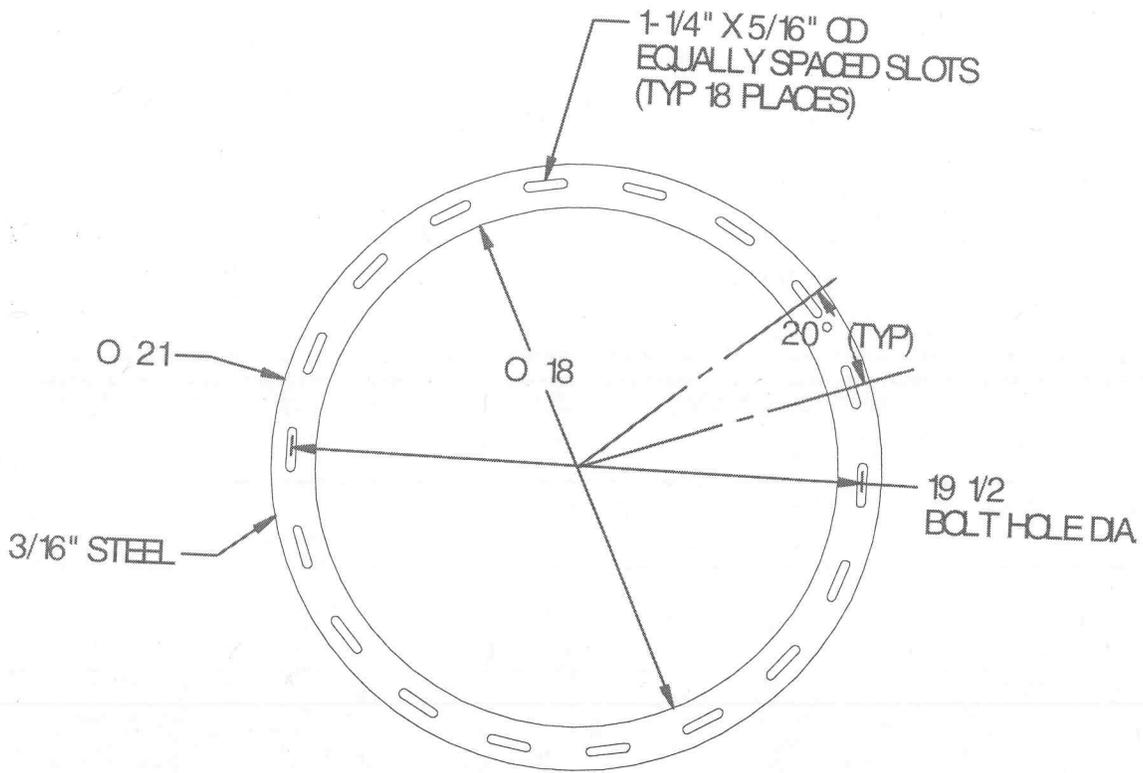
6.3.1.1 Vehicles and equipment- Vehicles and equipment required by the Contractor to complete this contract must be registered with Shipyard Security.

6.3.1.2 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.

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- 6.3.2 **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.
- 6.3.3 **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.
- 6.3.4 **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.
- 6.3.5 **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.
- 6.3.6 **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).
- 6.3.7 **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.
- 6.3.8 **Smoking** - Smoking is permitted in designated areas only.

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FLANGE HOLE PATTERN

Enclosure (1)